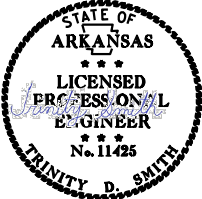


DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	2	43
INDEX OF SHEETS AND STANDARD DRAWINGS						



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INDEX OF SHEETS

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2	INDEX OF SHEETS AND STANDARD DRAWINGS
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES
4	TYPICAL SECTIONS OF IMPROVEMENT
5 - 13	SPECIAL DETAILS
14 - 15	TEMPORARY EROSION CONTROL DETAILS
16 - 24	MAINTENANCE OF TRAFFIC DETAILS
25	PERMANENT PAVEMENT MARKING DETAILS
26 - 28	QUANTITIES
29	SUMMARY OF QUANTITIES AND REVISIONS
30 - 31	SURVEY CONTROL DETAILS
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ROADWAY STANDARD DRAWINGS

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CDP-1	CONCRETE DITCH PAVING	12-08-16
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94

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		6	ARK.	110709	3	43
GOVERNING SPECS AND GENERAL NOTES						

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY
CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS
AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER

TITLE

ERRATA____ ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
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
100-3____ CONTRACTOR'S LICENSE
100-4____ DEPARTMENT NAME CHANGE
102-2____ ISSUANCE OF PROPOSALS
105-4____ MAINTENANCE DURING CONSTRUCTION
107-2____ RESTRAINING CONDITIONS
108-1____ LIQUIDATED DAMAGES
108-2____ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1____ PROTECTION OF WATER QUALITY AND WETLANDS
210-1____ UNCLASSIFIED EXCAVATION
303-1____ AGGREGATE BASE COURSE
306-1____ QUALITY CONTROL AND ACCEPTANCE
400-1____ TACK COATS
400-4____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5____ PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6____ LIQUID ANTI-STRIP ADDITIVE
400-7____ TRACKLESS TACK
404-3____ DESIGN OF ASPHALT MIXTURES
410-1____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2____ DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4____ EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
501-2____ CEMENT
600-2____ INCIDENTAL CONSTRUCTION
603-1____ LANE CLOSURE NOTIFICATION
604-1____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3____ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1____ CONCRETE DITCH PAVING
620-1____ MULCH COVER
800-1____ STRUCTURES
802-4____ CEMENT
804-2____ REINFORCING STEEL FOR STRUCTURES
JOB 110709__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 110709__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 110709__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 110709__ BUY AMERICA - CONSTRUCTION MATERIALS
JOB 110709__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 110709__ COLD MILLING - COUNTY PROPERTY
JOB 110709__ CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 110709__ DESIGN AND QUALITY CONTROL ASPHALT MIXTURES
JOB 110709__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 110709__ ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 110709__ FLEXIBLE BEGINNING OF WORK
JOB 110709__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 110709__ LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 110709__ MANDATORY ELECTRONIC CONTRACT
JOB 110709__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 110709__ NESTING SITES OF MIGRATORY BIRDS
JOB 110709__ PARTNERING REQUIREMENTS
JOB 110709__ PORTABLE TRAFFIC SIGNAL SYSTEM
JOB 110709__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 110709__ PRICE ADJUSTMENT FOR FUEL
JOB 110709__ PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 110709__ SHORING FOR CULVERTS
JOB 110709__ SOIL STABILIZATION
JOB 110709__ STORM WATER POLLUTION PREVENTION PLAN
JOB 110709__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 110709__ TOTAL SOLAR ECLIPSE
JOB 110709__ UTILITY ADJUSTMENTS
JOB 110709__ VALUE ENGINEERING
JOB 110709__ 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.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
- 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 AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
- 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.
- THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	4	43
TYPICAL SECTIONS OF IMPROVEMENT						



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NOTES:

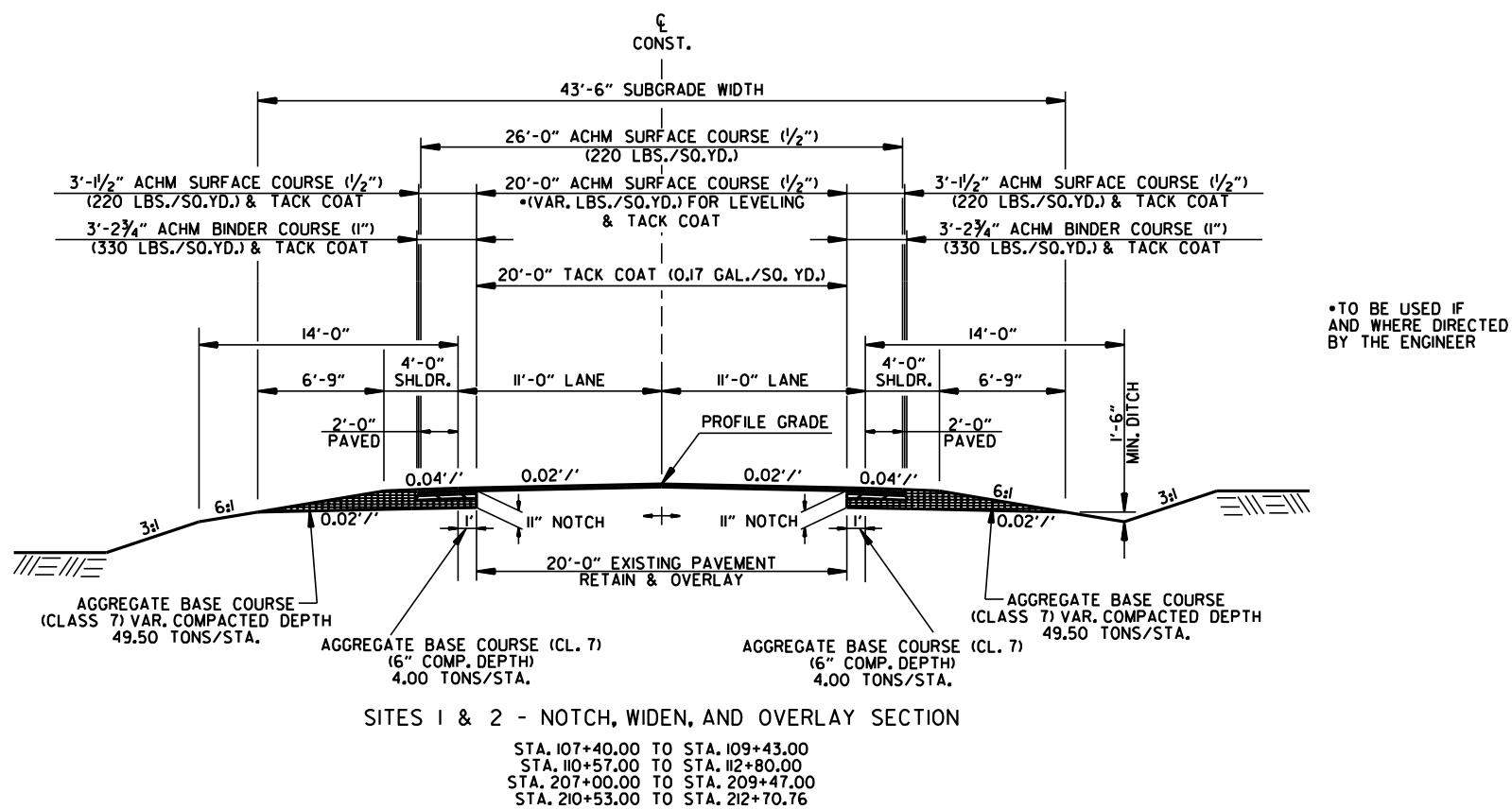
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

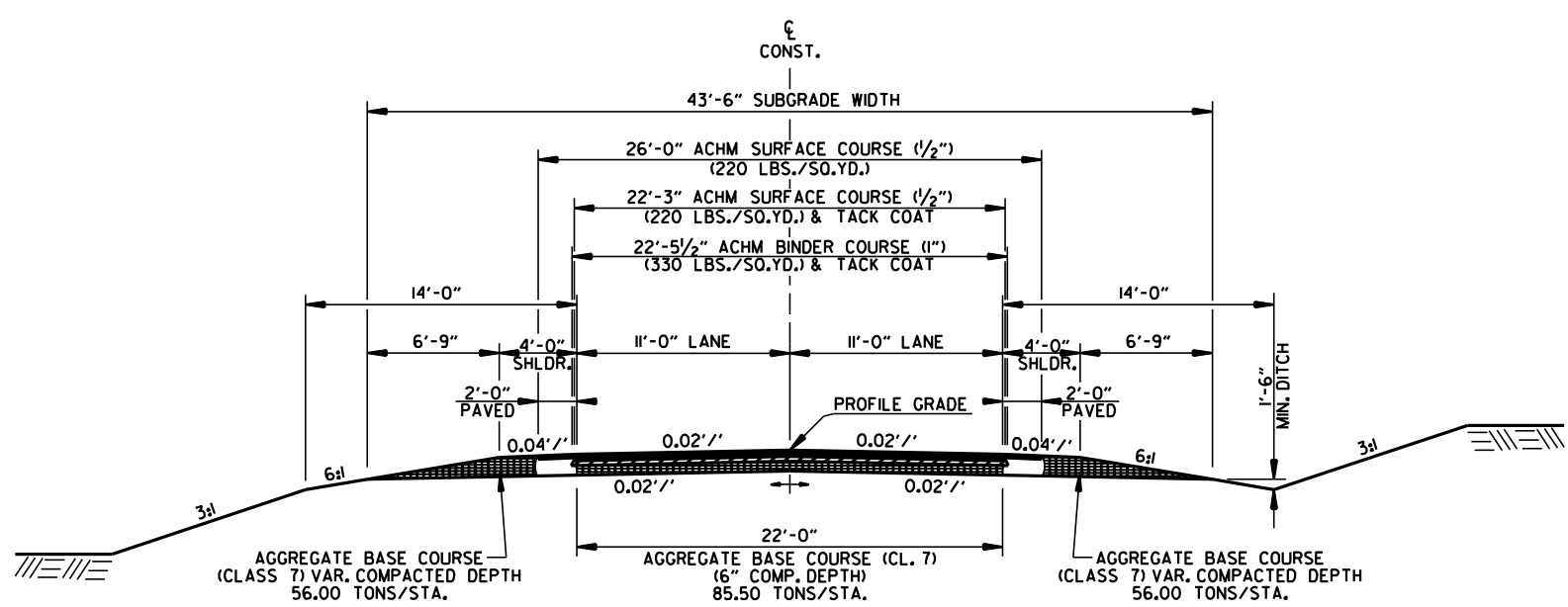
WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

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



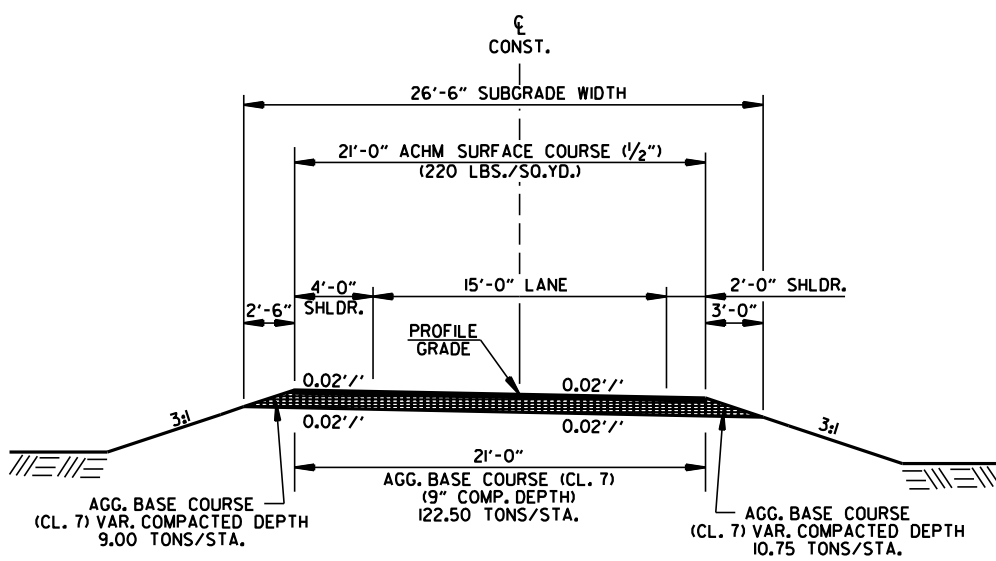
SITES 1 & 2 - NOTCH, WIDEN, AND OVERLAY SECTION

STA. 107+40.00 TO STA. 109+43.00
STA. 110+57.00 TO STA. 112+80.00
STA. 207+00.00 TO STA. 209+47.00
STA. 210+53.00 TO STA. 212+70.76



SITES 1 & 2 - FULL DEPTH SECTION

STA. 109+43.00 TO STA. 110+57.00
STA. 209+47.00 TO STA. 210+53.00



DETOUR - FULL DEPTH SECTION

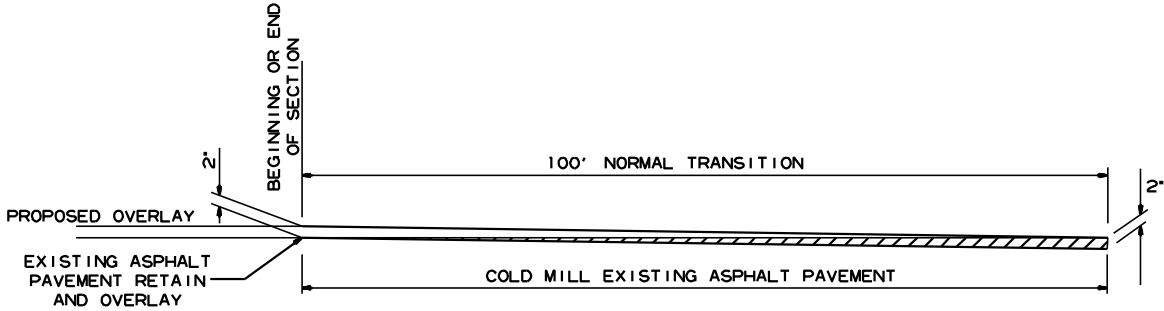
STA. 300+00.00 TO STA. 305+45.50
STA. 400+00.00 TO STA. 405+75.73

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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SPECIAL DETAILS						



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DETAIL FOR TRANSITIONS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WNG WALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WING WALLS		LENGTH OF FOOTING HEEL		CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)																							
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B																											
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.																							
38'-11"	8'-0"	0'-9"	0'-8"	30	3:1	43'-1 1/4"	2'-0"	8'-10"	2'-8"	0	60	3'-2"	3'-10 1/2"	4'-9 7/8"	1'-2 1/2"	2'-7"	18'-6"	37'-0"	21'-6 3/8"	40'-0 3/8"	18.03	1719																							
WINC	F1			F2			F3			F4			F5			F6			F7			F8			F9			F10			F11			F12			REINF. STEEL QTY. PER WING (LBS)								
	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS									
WING A	4	12	19	L Min 3'-8" Max 10'-5" X Min 0'-9" Max 1'-6" Y Min 3'-0" Max 9'-0"	4	12	6	L 4'-8" X 1'-3" Y 3'-6"	-	-	-	X - - Y -	4	18	6	Min 6'-4" Max 15'-4"	4	18	4	18'-2"	4	18	13	L Min 5'-3" Max 11'-3" X Min 2'-4" Max 2'-4" Y Min 3'-0" Max 9'-0"	4	8	22'-4"	6	18	12	Min 2'-8" Max 3'-4" - Min 37'-9" Max 37'-9"	-	-	-	4	2	19'-0"	4	2	19'-4"	6	12	8	L 3'-4" X 1'-8"	569
WING B	4	12	37	L Min 3'-8" Max 11'-4" X Min 0'-9" Max 2'-4" Y Min 3'-0" Max 9'-1"	4	12	12	L 5'-3" X 1'-10" Y 3'-6"	-	-	-	X - - Y -	4	18	8	Min 3'-10" Max 30'-10"	4	18	4	36'-8"	4	18	25	L Min 5'-3" Max 11'-4" X Min 2'-4" Max 2'-4" Y Min 3'-0" Max 9'-1"	4	8	40'-10"	6	18	26	Min 2'-8" Max 4'-3" - Min 37'-9" Max 37'-9"	4	18	2	4	2	37'-0"	4	2	41'-9"	6	12	8	L 3'-4" X 1'-8"	1150

INLET SKEWED END SECTION

[illegible]

INLET SLOPE SECTION(S)

[illegible][illegible]

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)			CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVERALL WIDTH	OVERALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL										BOTTOM SLAB REINFORCING STEEL										SIDE WALL REINFORCING STEEL			INTERIOR WALL REINFORCING STEEL			TOP SLAB DISTRIBUTION REINF. STEEL			BOTTOM SLAB DISTRIBUTION REINF. STEEL			SIDE WALL DISTRIBUTION REINF. STEEL			INTERIOR WALL DISTRIBUTION REINF. STEEL		
	LENGTH = OW - 4" + BENDS												LENGTH = OW - 4" + BENDS										LENGTH = OH - 4"			LENGTH = OH - 4"			LENGTH = SL			LENGTH = SL			LENGTH = SL			LENGTH = SL												
	"a"		Bent "b"										"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D						
	SIZE	L	SIZE										L	SIZE			L	SIZE	L	SIZE	L	SIZE																							L	SIZE	L			
A	5	12	3	11.5	11.5	9.5	8	38'-11"	9'-11"	57.5	4	38'-7"	8	39'-3"	6	38'-7"	14	49	4	38'-7"	4	39'-2"	4	38'-7"	9	76	5	7	196	9'-7"	4	12	228	9'-7"	4	9	101	4	9	101	4	11	18	4	12	32				

CU. YDS.	CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
208.54		
	LBS.	
		28666

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 110+00

SPECIAL DETAILS



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.		110709	6	43
①				SPECIAL DETAILS				

MID-SECTION
BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	<40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"



TABULAR DATA BY: HY DATE: 11/09/2021
CHECKED BY: CMW DATE: 7/9/2022

[illegible]

#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

	CU. YDS.	CLASS "S" CONCRETE
TOTAL		

SPECIAL DETAILS

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.



INLET WINGWALL TABLE

[illegible]

INLET SKEWED END SECTION

[illegible]

INLET SLOPE SECTION(S)

[illegible][illegible]

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)		CLEAR SPAN (FT.)		TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL								SIDE WALL REINFORCING STEEL			INTERIOR WALL REINFORCING STEEL			TOP SLAB DISTRIBUTION REINF. STEEL			BOTTOM SLAB DISTRIBUTION REINF. STEEL			SIDE WALL DISTRIBUTION REINF. STEEL			INTERIOR WALL DISTRIBUTION REINF. STEEL			
	LENGTH = OW - 4" + BENDS											LENGTH = OW - 4" + BENDS								LENGTH = OH - 4"			LENGTH = OH - 4"			LENGTH = SL			LENGTH = SL			LENGTH = SL			LENGTH = SL											
	"a"		Bent "b"									"c"		SPACING	NO. REQ'D	"d"		Bent "b1"		"f"		SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D			
	SIZE	L	SIZE	L								SIZE	L			SIZE	L	SIZE	L	SIZE	L																							SIZE	L	SIZE
A	2	8	8	11	11	7	8	26'-6"	7'-10"	35.5	4	26'-2"	8	26'-9"	8	26'-2"	17	46	4	26'-2"	4	26'-9"	4	26'-2"	17	46	4	5.5	284	7'-6"	4	12	260	7'-6"	4	10	65	4	10	65	4	12	12	4	12	24

154.25	CU. YDS.	CLASS "S" CONCRETE
19985	LBS.	REINFORCING STEEL (GR. 60)

MID-SECTION
BAR LAP TABLE

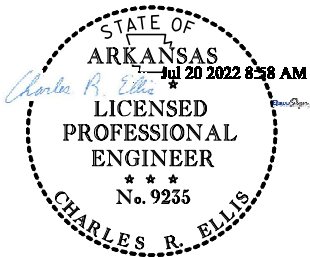
# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	> 40.0 ft - 78.0 ft
2	> 78.0 ft - 116.0 ft
3	> 116.0 ft - 154.0 ft
4	> 154.0 ft - 192.0 ft
5	> 192.0 ft - 230.0 ft
6	> 230.0 ft - 268.0 ft
7	> 268.0 ft - 306.0 ft
8	> 306.0 ft - 344.0 ft

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"



TABULAR DATA BY: HY DATE: 11/09/2021
CHECKED BY: CMW DATE: 7/19/2022

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 210+00

SPECIAL DETAILS



OUTLET SLOPE SECTION(S)

[illegible]

	CU. YDS.	CLASS "S" CONCRETE
TOTAL		

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 210+00

SPECIAL DETAILS



OUTLET SKEWED END SECTION

[illegible]

36.66	CU. YDS.	CLASS "S" CONCRETE (Includes HDWL)
5963	LBS.	REINFORCING STEEL (GR 60) (Includes HDWL)

OUTLET WINGWALL TABLE

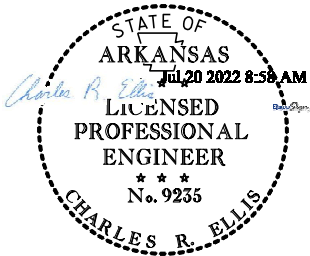
[illegible]

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

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.		110709	9	43
				<div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div> <div style="display: inline-block; vertical-align: middle;">SPECIAL DETAILS</div>				



TABULAR DATA BY: HY DATE: 11/09/2021
CHECKED BY: CMW DATE: 7/19/2022

V 1117 bil0709_culvert.dgn

2:1 Slope	20'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
3:1 Slope	30'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
4:1 Slope	40'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"

Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

* LL = Skewed End Section Length - See "Skewed End Section Details"
Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.

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.		110709	10	43

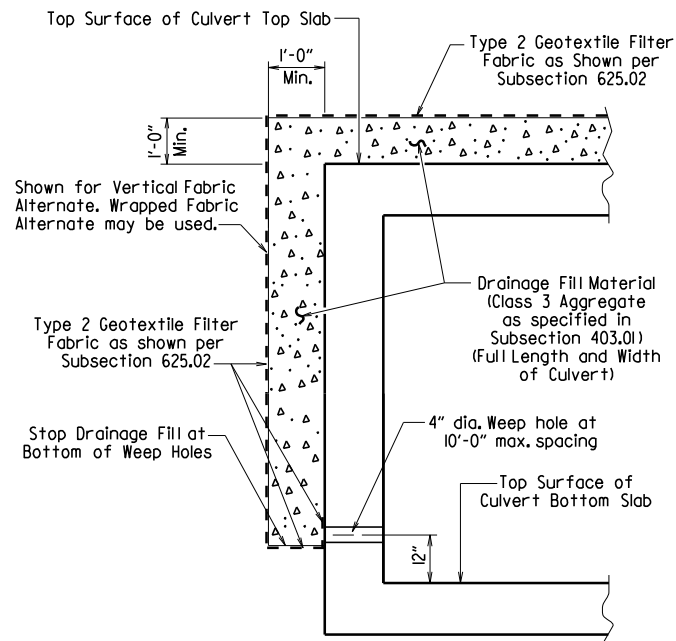
SPECIAL DETAILS



Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

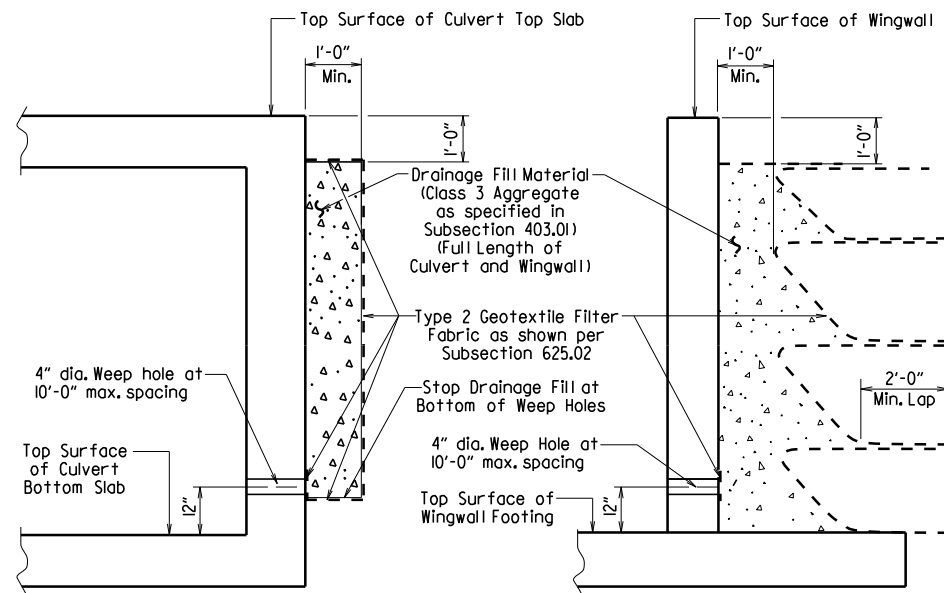
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes



CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.



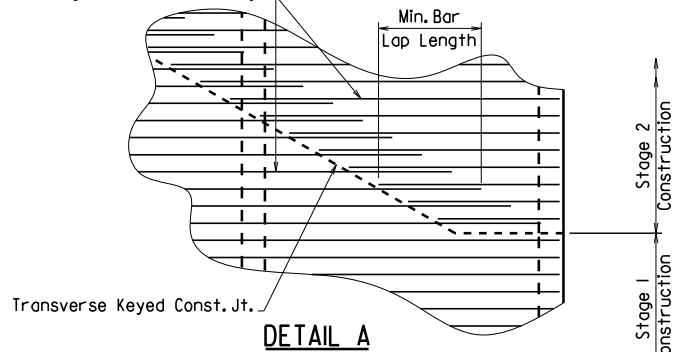
For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL

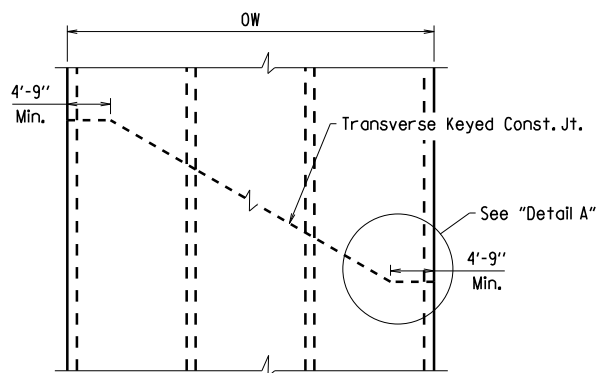
Slab bars "a", "b", "c", "d", "bl", or "f". Slab distribution and Wall reinforcing omitted for clarity.



DETAIL A

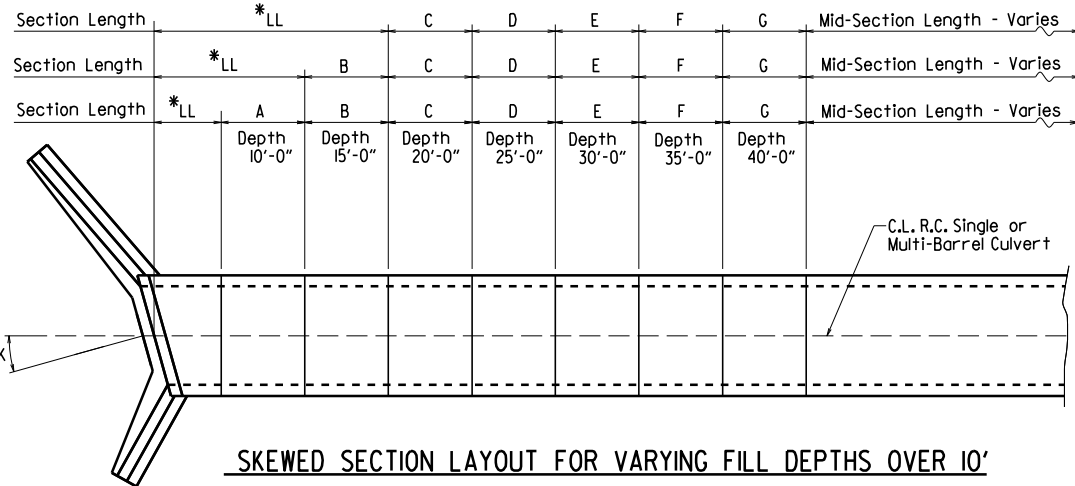
See Tabular Data Sheets for Minimum Bar Lap Lengths.

Shown for transverse reinforcing, longitudinal reinforcing similar.



SKewed TRANSVERSE JOINT DETAIL

This detail shall be used to construct a skewed transverse joint only for Multi-Barrel Culverts and only when required by the Maintenance of Traffic Plans. Otherwise, transverse joints should be made normal to the centerline of the barrel.



SKewed SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have 3/4" chamfers.

Reinforcing Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 813. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be keyed and shall be normal to the centerline of barrel except as noted. Reinforcing shall be continuous through joints unless noted otherwise. Reinforcing through stage construction joints shall provide the minimum bar lap length shown on the Tabular Data Sheets. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a fine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item 'Class S Concrete-Roadway'. Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

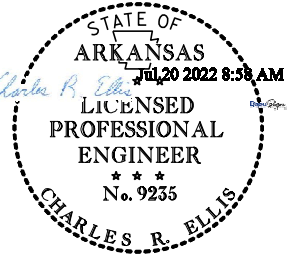
When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

SHEET 1 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
GENERAL NOTES &
LONGITUDINAL SECTION LENGTH SCHEDULE

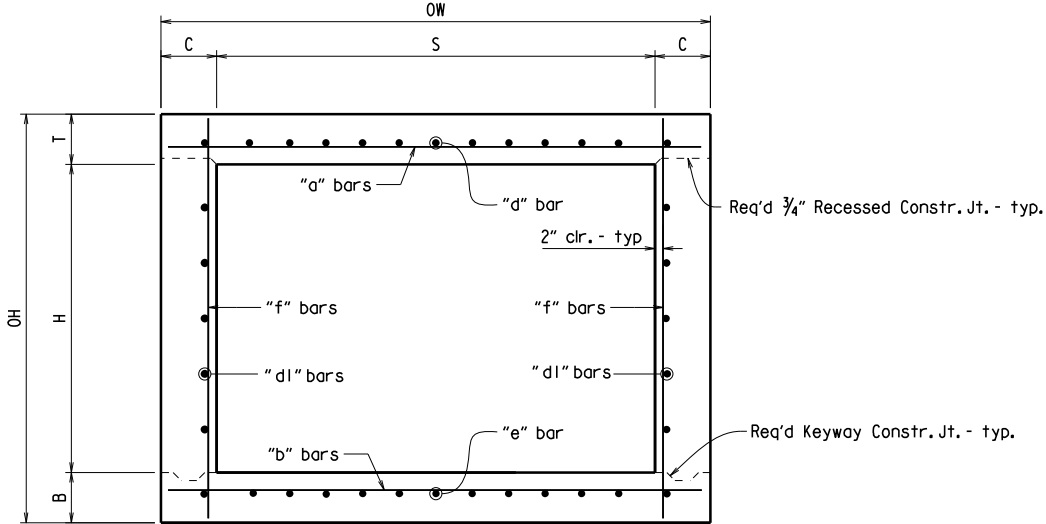
SPECIAL DETAILS



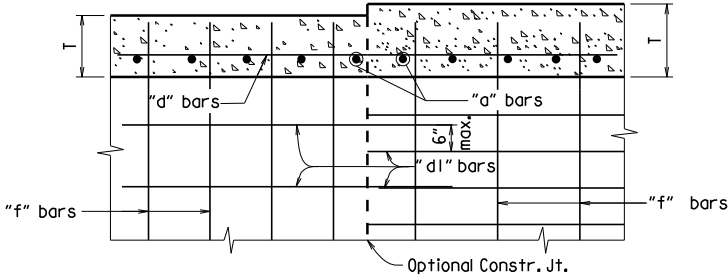
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				6	ARK.			
						JOB NO.	110709	11
								43
SPECIAL DETAILS								



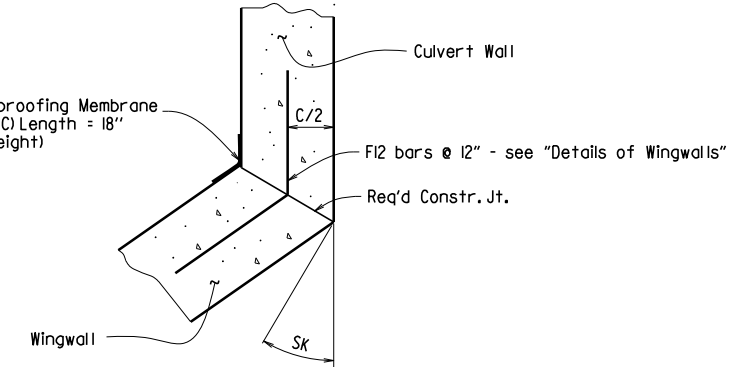
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



TYPICAL SECTION M-M

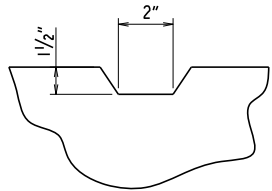


LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

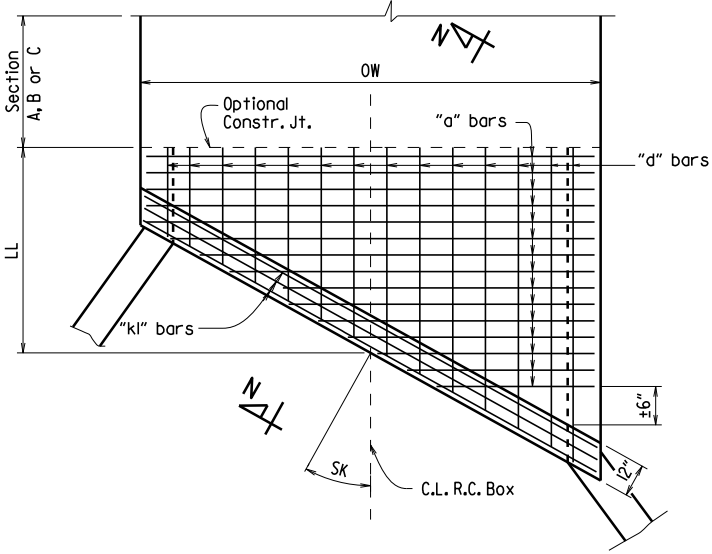


WINGWALL ATTACHMENT

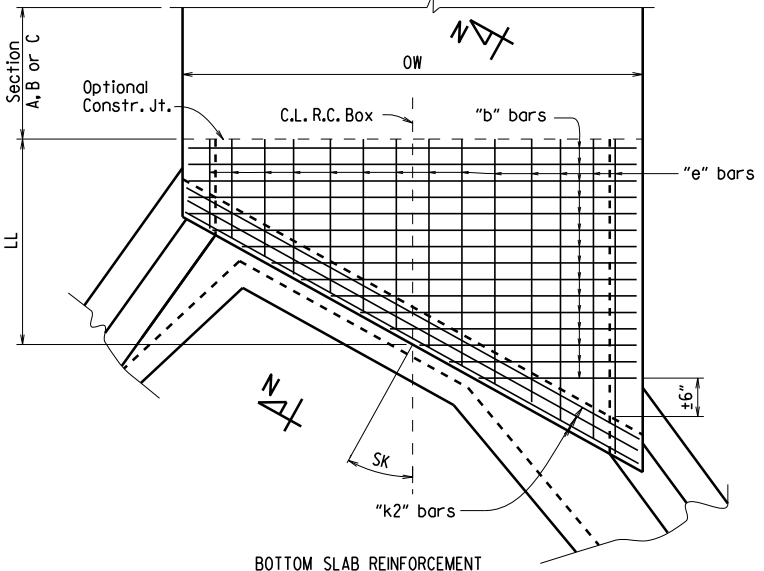
See "Details of Wingwalls" for additional information and wingwall details.



TYPICAL KEYWAY DETAIL
(All Construction Joints)



TOP SLAB REINFORCEMENT



BOTTOM SLAB REINFORCEMENT

SKewed END SECTION DETAILS

SHEET 2 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

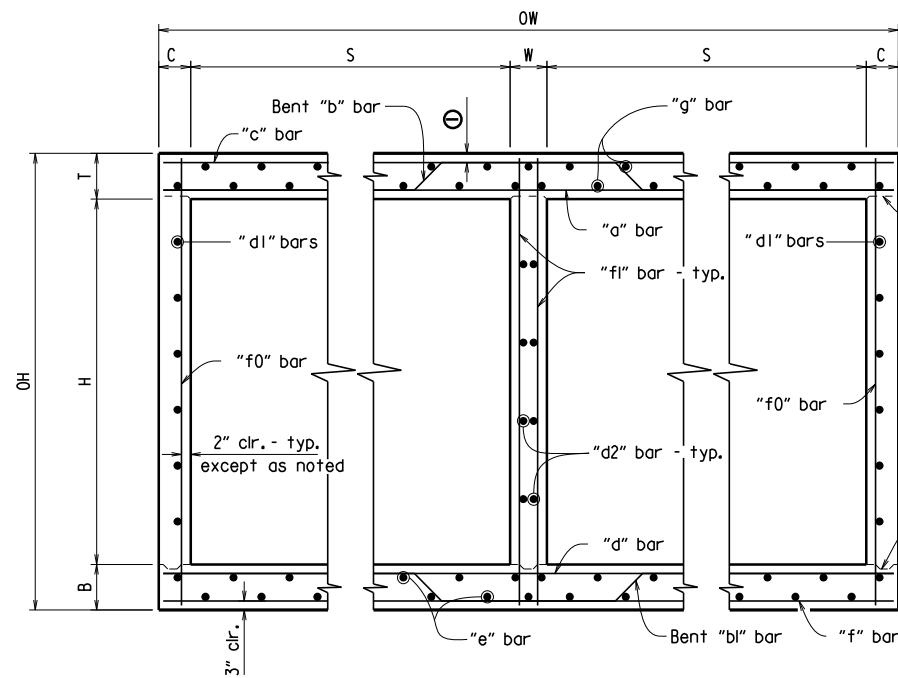
SPECIAL DETAILS



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① 2" clr. for fill depth (D) greater than 2 ft.
2 1/2" clr. for fill depth (D) equal to or less than 2 ft.

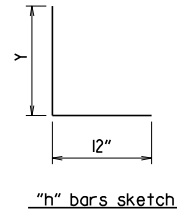
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



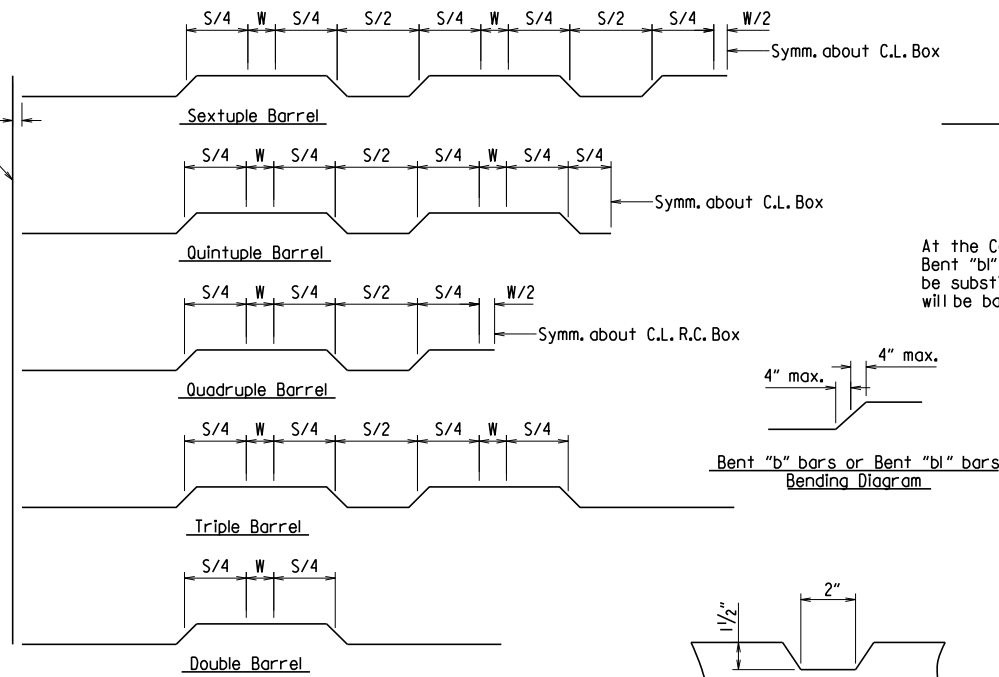
TYPICAL SECTION M-M

Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

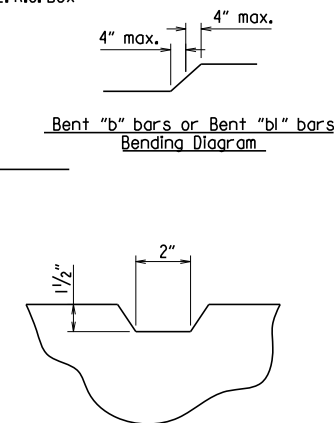
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



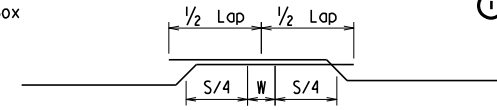
Bent "b" bars or Bent "bl" bars sketch



TYPICAL KEYWAY DETAIL
(All Construction Joints)

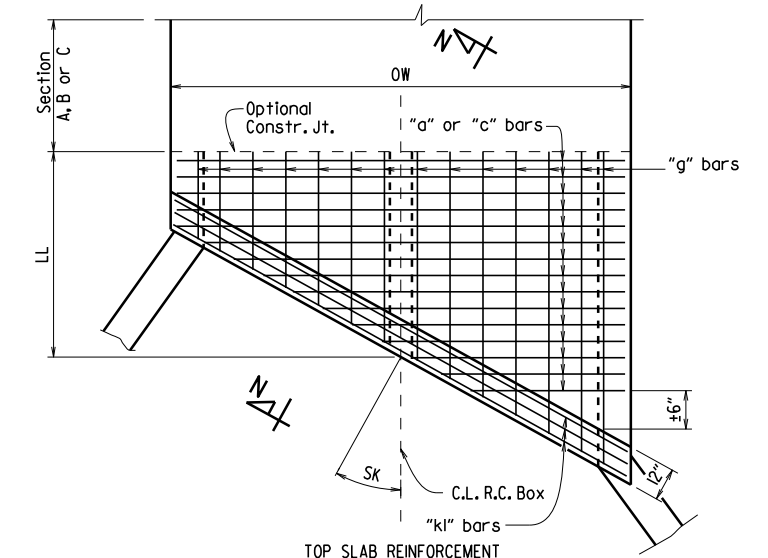
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				6	ARK.			
				JOB NO.		110709	12	43

SPECIAL DETAILS

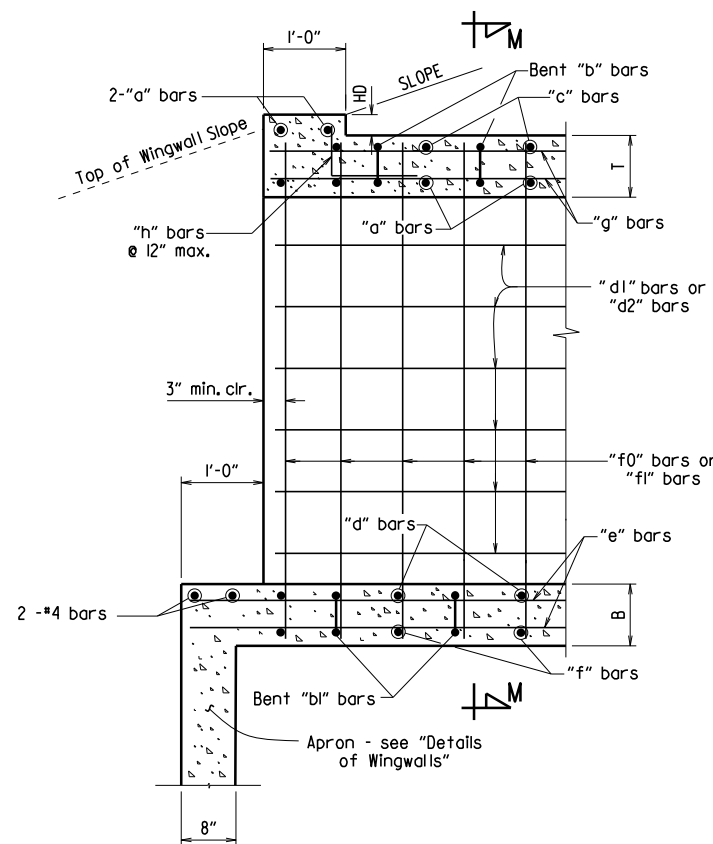


Lap Detail
For Bent "b" bars and Bent "bl" bars

At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

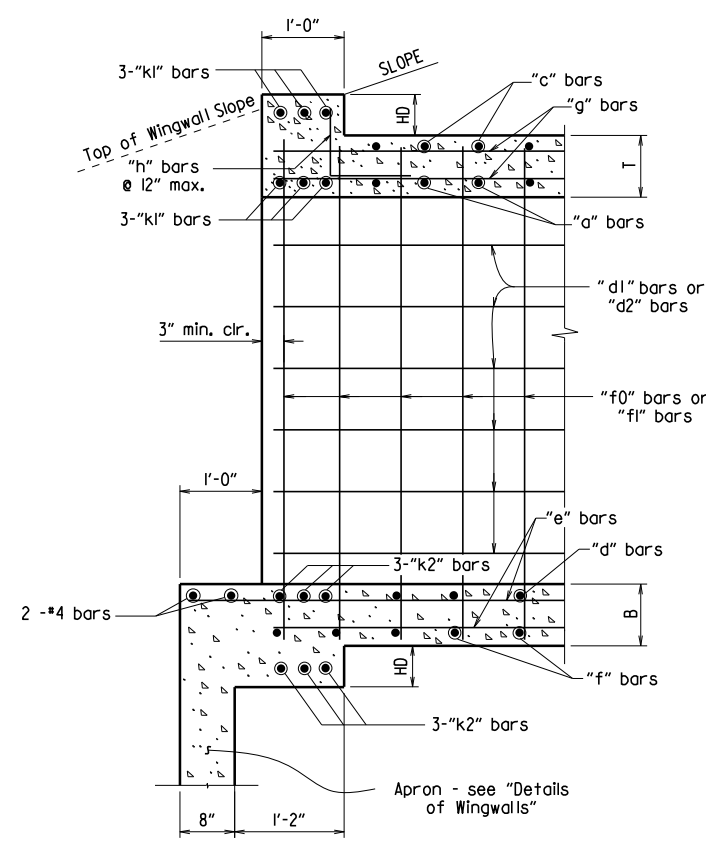


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



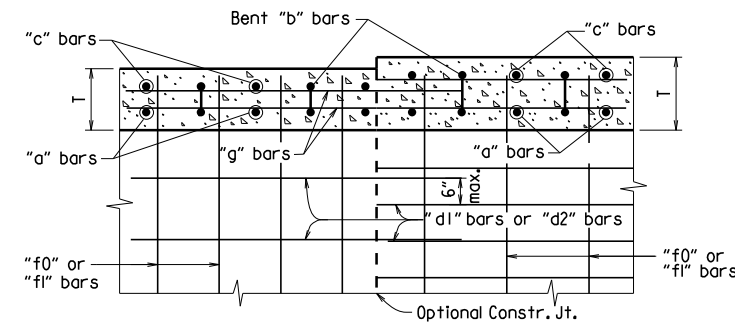
PART LONGITUDINAL SECTION

(Non-Skewed Ends)

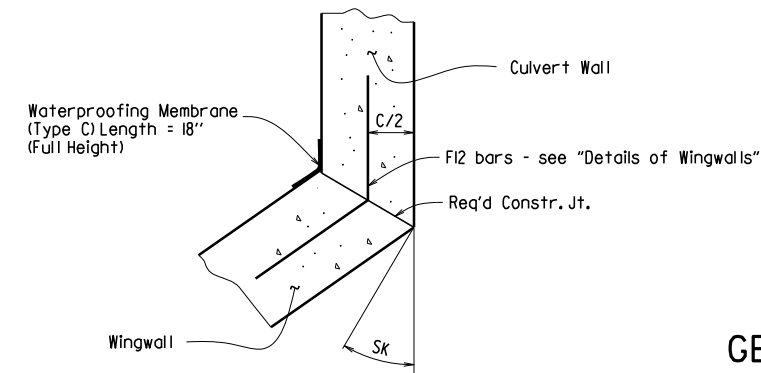


PART LONGITUDINAL SECTION N-N

(Skewed Ends)

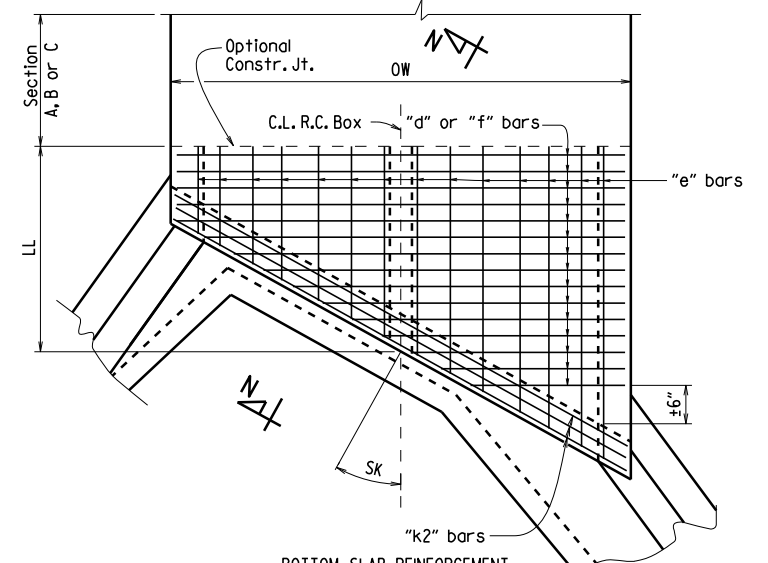


LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.



SKewed END SECTION DETAILS
Straight "d" bars in top.
Straight "f" bars in bottom.

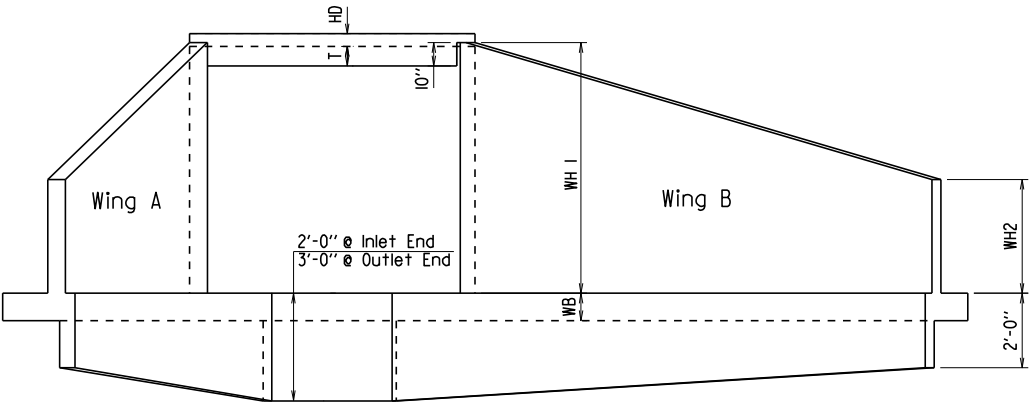
SKewed END SECTION DETAILS

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

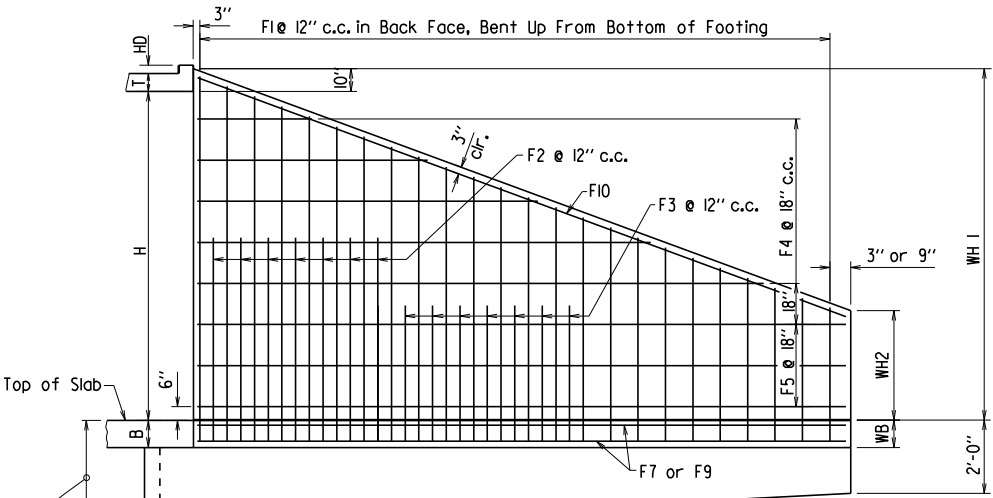


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110709	13	43
SPECIAL DETAILS								



END ELEVATION

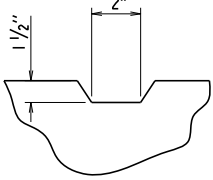
Flared Wingwalls Shown



WINGWALL ELEVATION

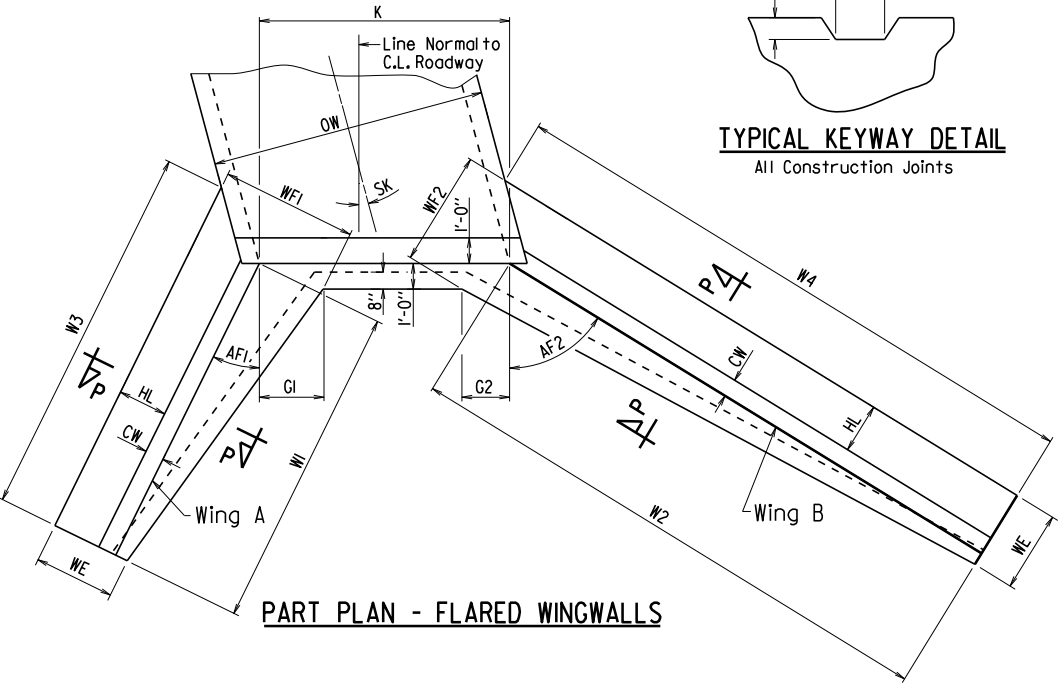
Showing Back Face Reinforcement

Note: See "Wingwall Section P-P" for additional details and reinforcing.

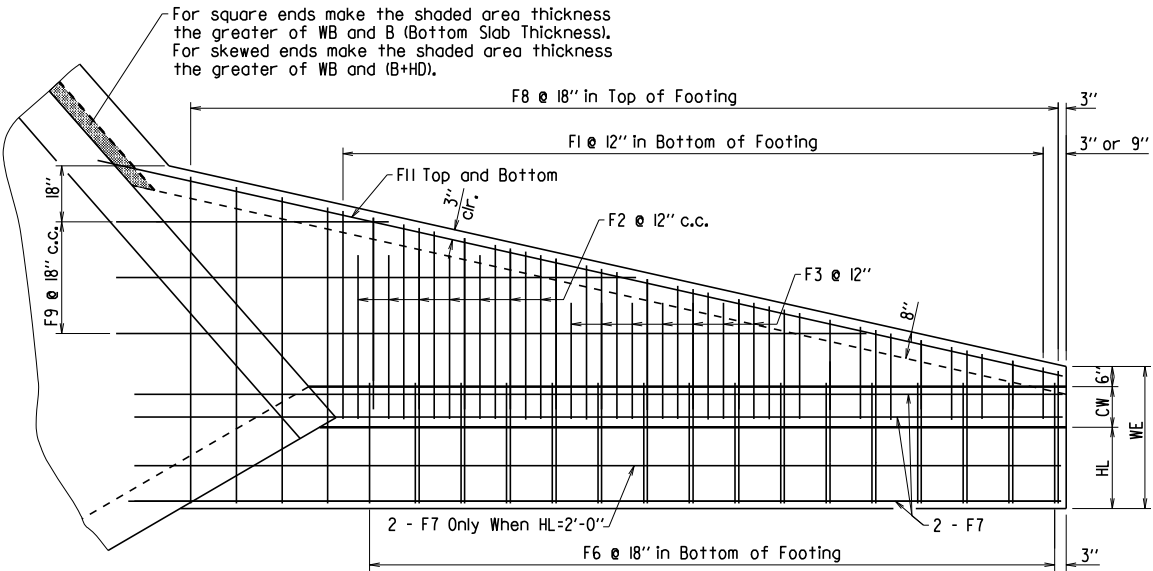


TYPICAL KEYWAY DETAIL

All Construction Joints

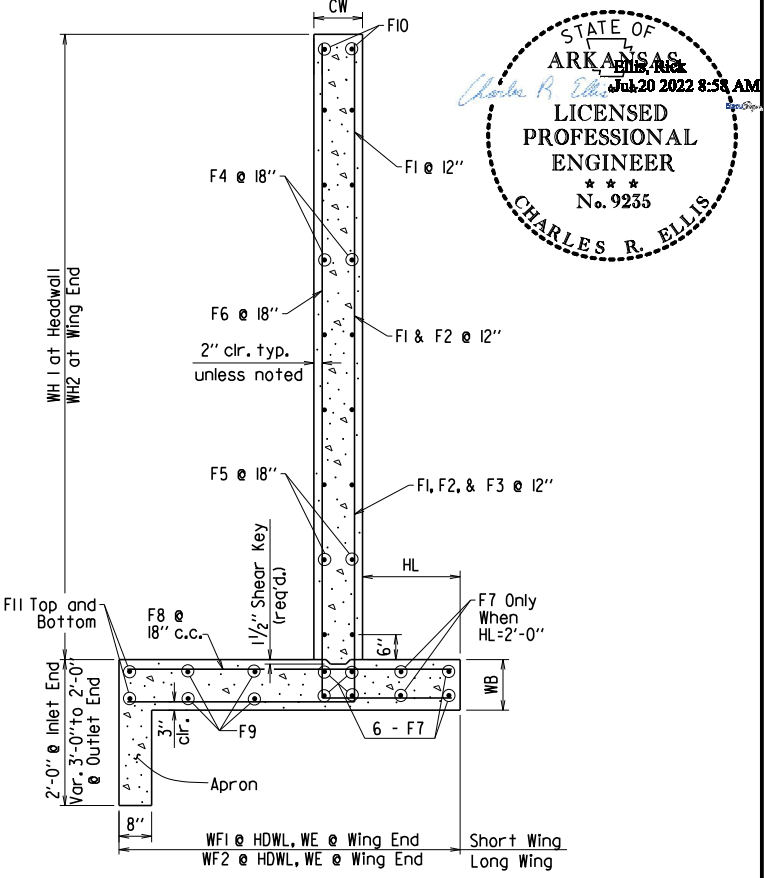


PART PLAN - FLARED WINGWALLS

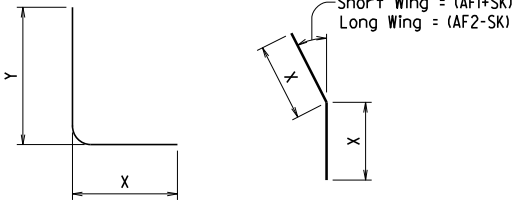


PLAN - FLARED WINGWALLS

Showing Footing Reinforcement

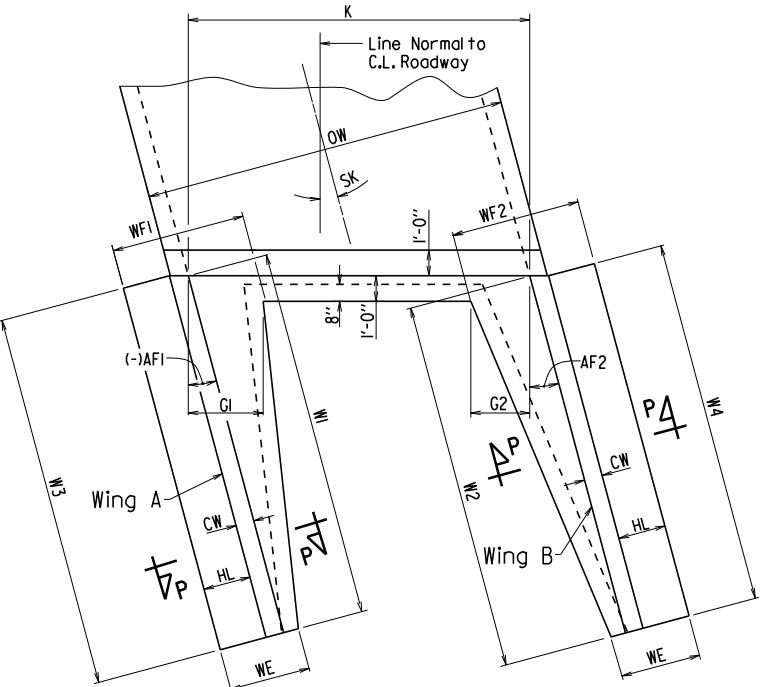


WINGWALL SECTION P-P

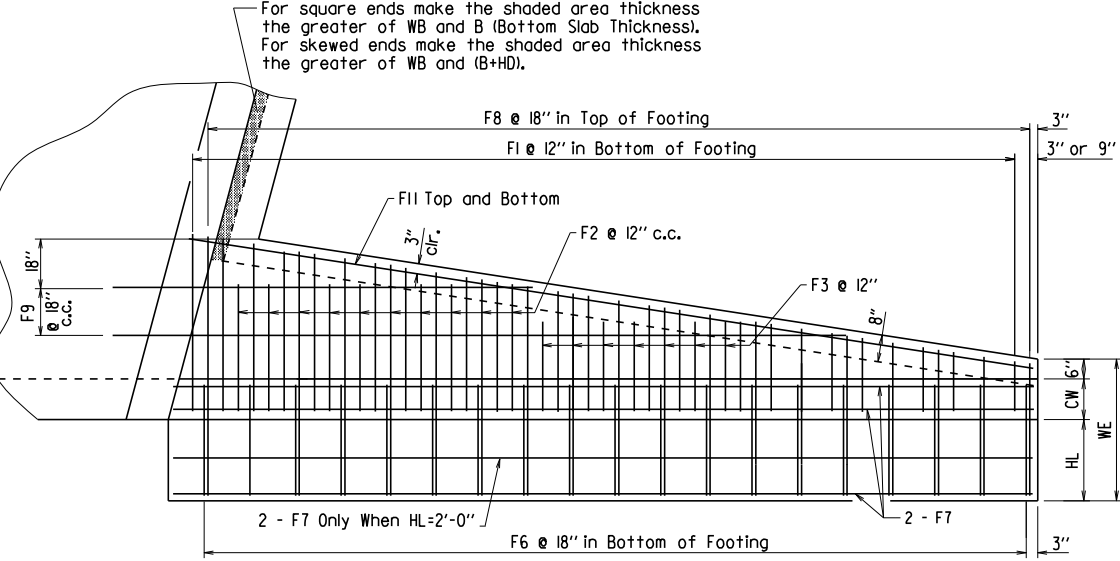


F1, F2, F3, & F6 BARS

F12 is a straight bar for parallel wingwalls

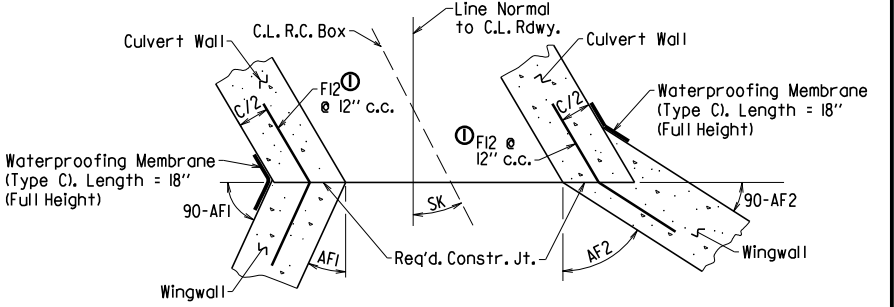


PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS

Showing Footing Reinforcement



CONSTRUCTION JOINTS

Flared Wingwalls Shown

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS



CLEARING AND GRUBBING:
SAND BAG DITCH CHECKS (E-5)
(4 LOCATIONS = 88 BAGS)
SILT FENCE (E-II)
(2 LOCATIONS = 435 LIN. FT.)

STA. 107+40.00
BEGIN JOB 110709
BEGIN SITE 1
LOG MILE 10.65

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	14	43
TEMPORARY EROSION CONTROL DETAILS						



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REVISIONS

DATE OF REVISION	REVISION

STAGE 1:
WATTLE DITCH CHECKS (E-I)
(2 LOCATIONS = 18 LIN. FT.)
SAND BAG DITCH CHECKS (E-5)
(6 LOCATIONS = 132 BAGS)

STA. 107+40.00
BEGIN JOB 110709
BEGIN SITE 1
LOG MILE 10.65

STA. 112+80.00
END SITE 1

HWY. 118 - SITE 1
CLEARING & GRUBBING

LEGEND

- (E-I) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE
PLACED AS CLEARING AND GRUBBING
OPERATIONS ARE STARTED.

STAGE 2:
SAND BAG DITCH CHECKS (E-5)
(5 LOCATIONS = 110 BAGS)

STA. 107+40.00
BEGIN JOB 110709
BEGIN SITE 1
LOG MILE 10.65

STA. 112+80.00
END SITE 1

HWY. 118 - SITE 1
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

CLEARING AND GRUBBING:
SAND BAG DITCH CHECKS (E-5)
(6 LOCATIONS = 132 BAGS)
SILT FENCE (E-II)
(3 LOCATIONS = 810 LIN. FT.)

STA. 207+00.00
BEGIN SITE 2
LOG MILE 8.37

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	15	43
TEMPORARY EROSION CONTROL DETAILS						



Jun 12 2023 3:33 PM

REVISIONS

DATE OF REVISION	REVISION

STAGE 1:
WATTLE DITCH CHECKS (E-I)
(2 LOCATIONS = 18 LIN. FT.)
SAND BAG DITCH CHECKS (E-5)
(4 LOCATIONS = 88 BAGS)

STA. 207+00.00
BEGIN SITE 2
LOG MILE 8.37

STA. 212+70.76
END SITE 2
END JOB 110709

HWY. 50 - SITE 2
CLEARING & GRUBBING

LEGEND

- (E-I) = WATTLE DITCH CHECK
- (E-5) = SAND BAG DITCH CHECK
- (E-II) = SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE
PLACED AS CLEARING AND GRUBBING
OPERATIONS ARE STARTED.

STAGE 2:
SAND BAG DITCH CHECKS (E-5)
(5 LOCATIONS = 110 BAGS)

STA. 207+00.00
BEGIN SITE 2
LOG MILE 8.37

STA. 212+70.76
END SITE 2
END JOB 110709

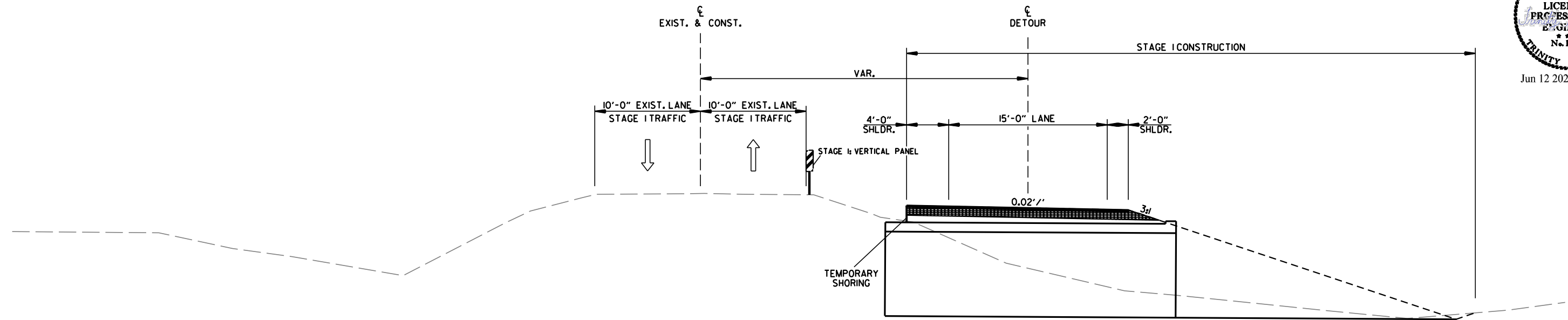
HWY. 50 - SITE 2
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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MAINTENANCE OF TRAFFIC DETAILS						

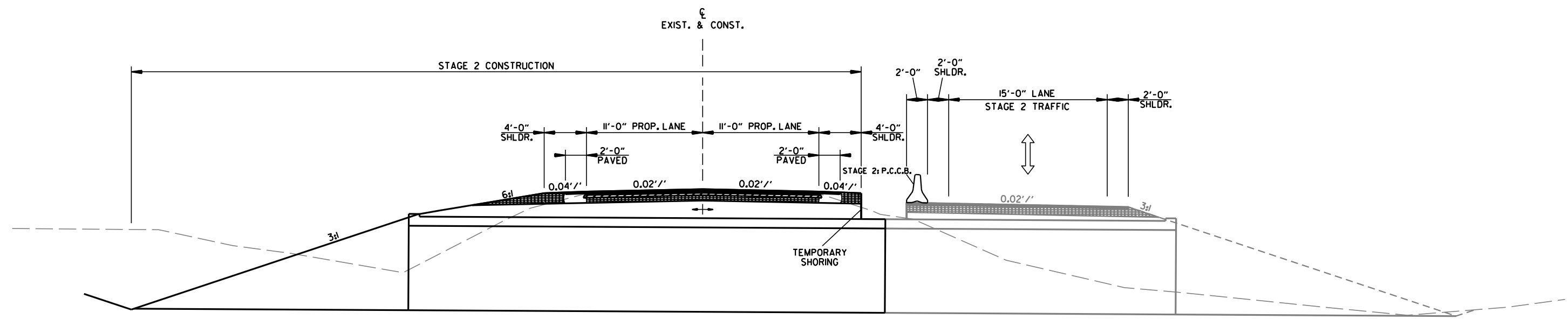


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SITES 1 & 2
STAGE 1 CONSTRUCTION



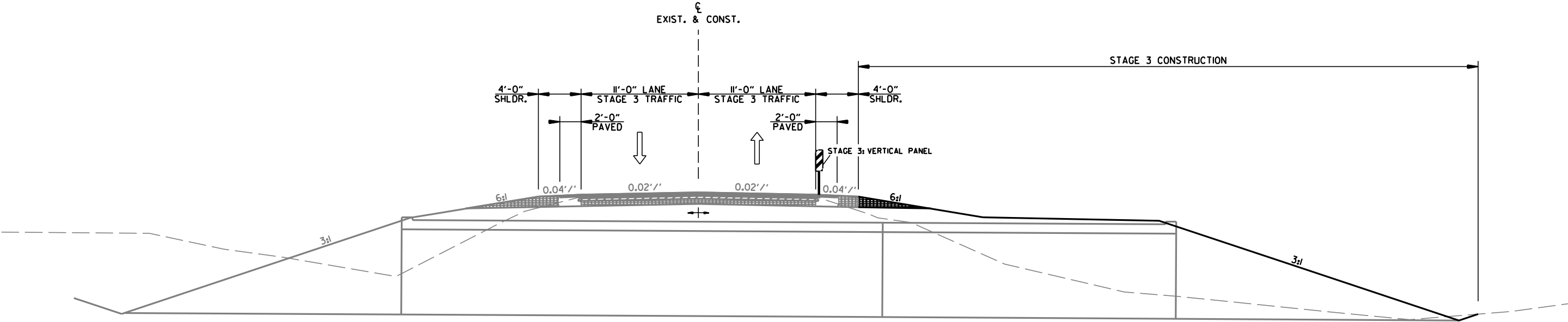
SITES 1 & 2
STAGE 2 CONSTRUCTION

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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MAINTENANCE OF TRAFFIC DETAILS						



Jun 12 2023 3:33 PM

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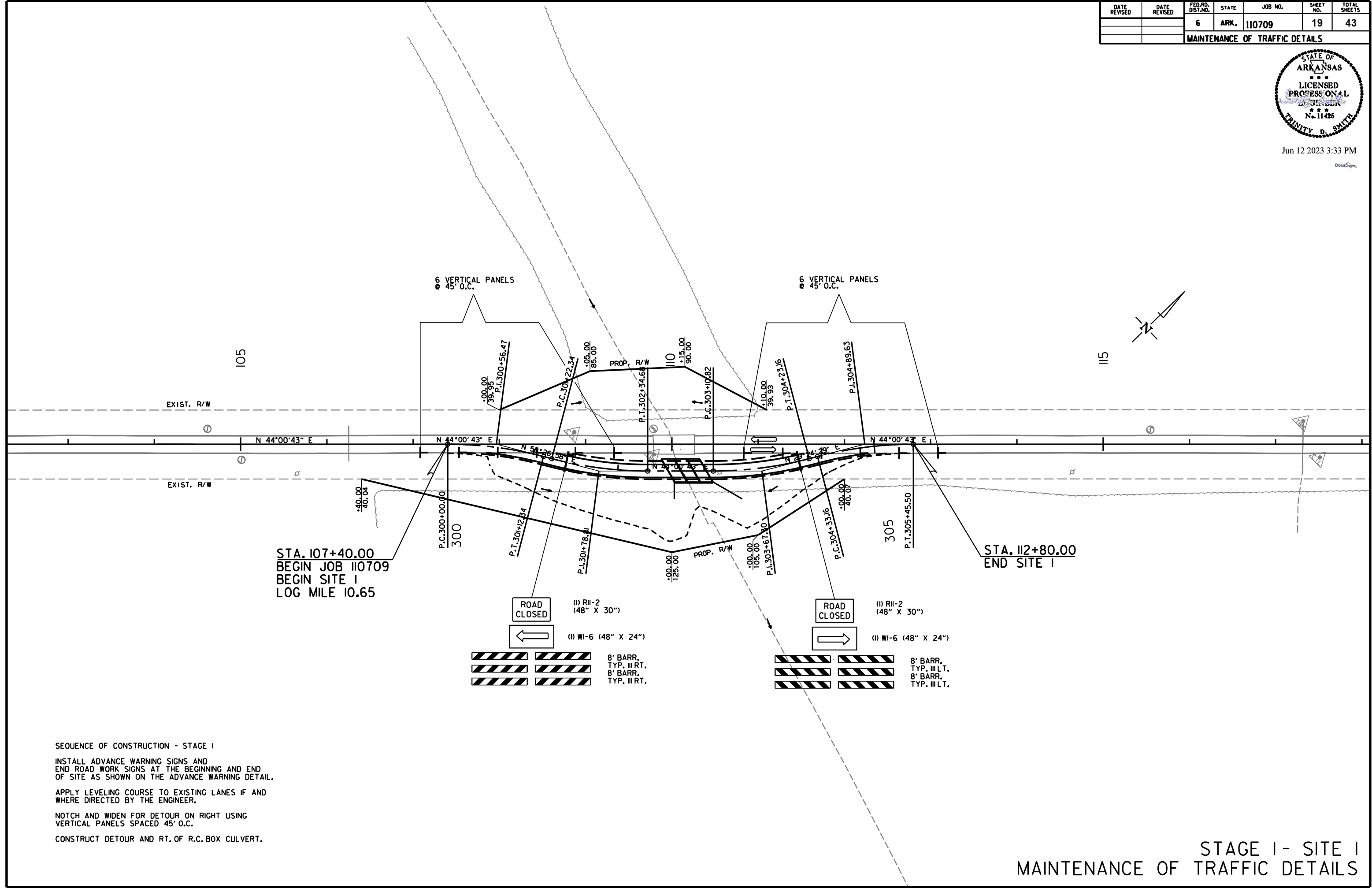
SITES 1 & 2
STAGE 3 CONSTRUCTION

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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MAINTENANCE OF TRAFFIC DETAILS						



Jun 12 2023 3:33 PM

Drawn by



STA. 107+40.00
BEGIN JOB 110709
BEGIN SITE I
LOG MILE 10.65

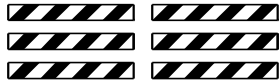
STA. 112+80.00
END SITE I

ROAD
CLOSED

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



(1) WI-6 (48" X 24")



8' BARR.
TYP. III RT.
8' BARR.
TYP. III RT.

ROAD
CLOSED

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



(1) WI-6 (48" X 24")



8' BARR.
TYP. III LT.
8' BARR.
TYP. III LT.

SEQUENCE OF CONSTRUCTION - STAGE I

INSTALL ADVANCE WARNING SIGNS AND
END ROAD WORK SIGNS AT THE BEGINNING AND END
OF SITE AS SHOWN ON THE ADVANCE WARNING DETAIL.

APPLY LEVELING COURSE TO EXISTING LANES IF AND
WHERE DIRECTED BY THE ENGINEER.

NOTCH AND WIDEN FOR DETOUR ON RIGHT USING
VERTICAL PANELS SPACED 45' O.C.

CONSTRUCT DETOUR AND RT. OF R.C. BOX CULVERT.

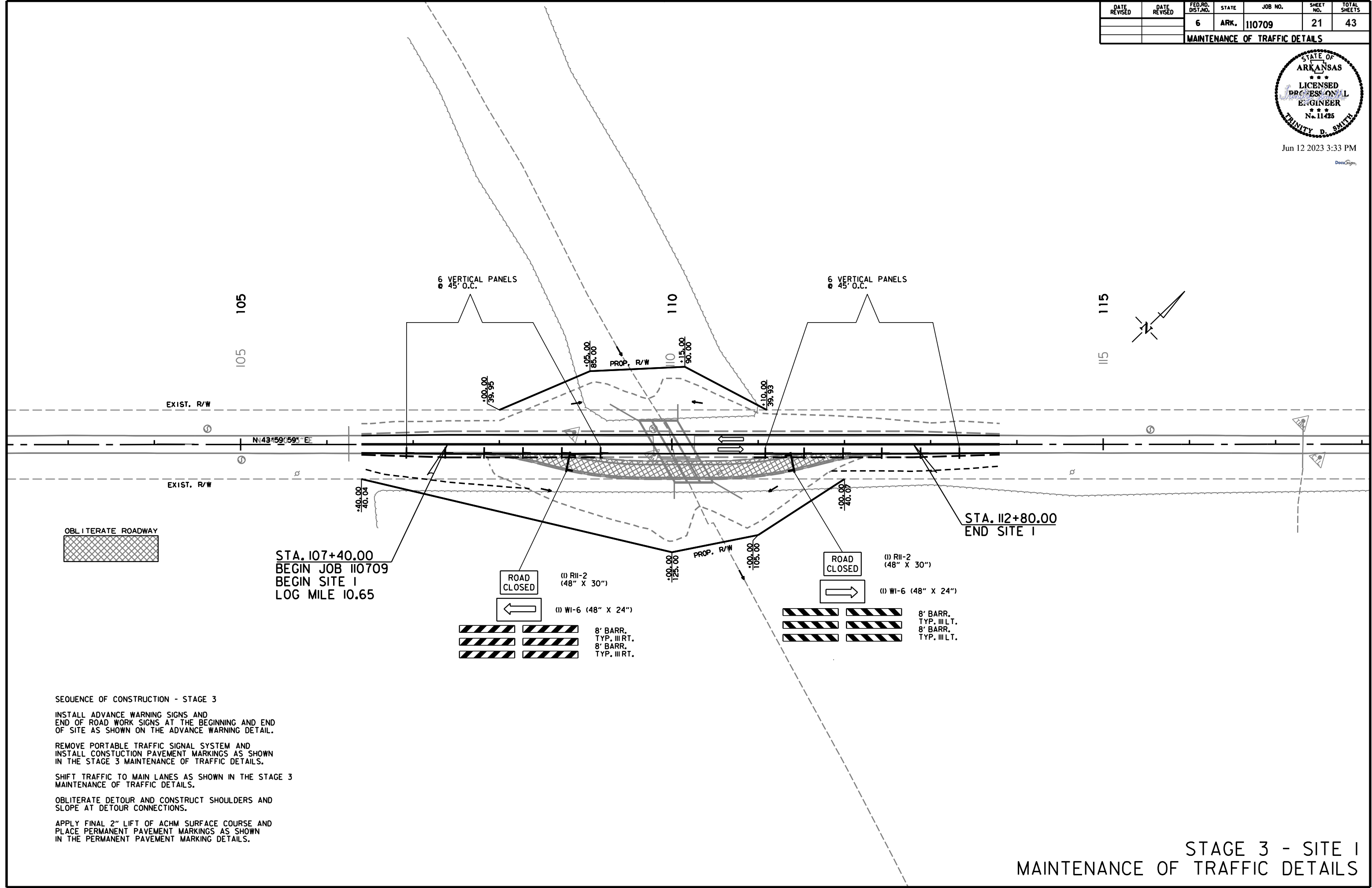
STAGE I - SITE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	21	43
MAINTENANCE OF TRAFFIC DETAILS						



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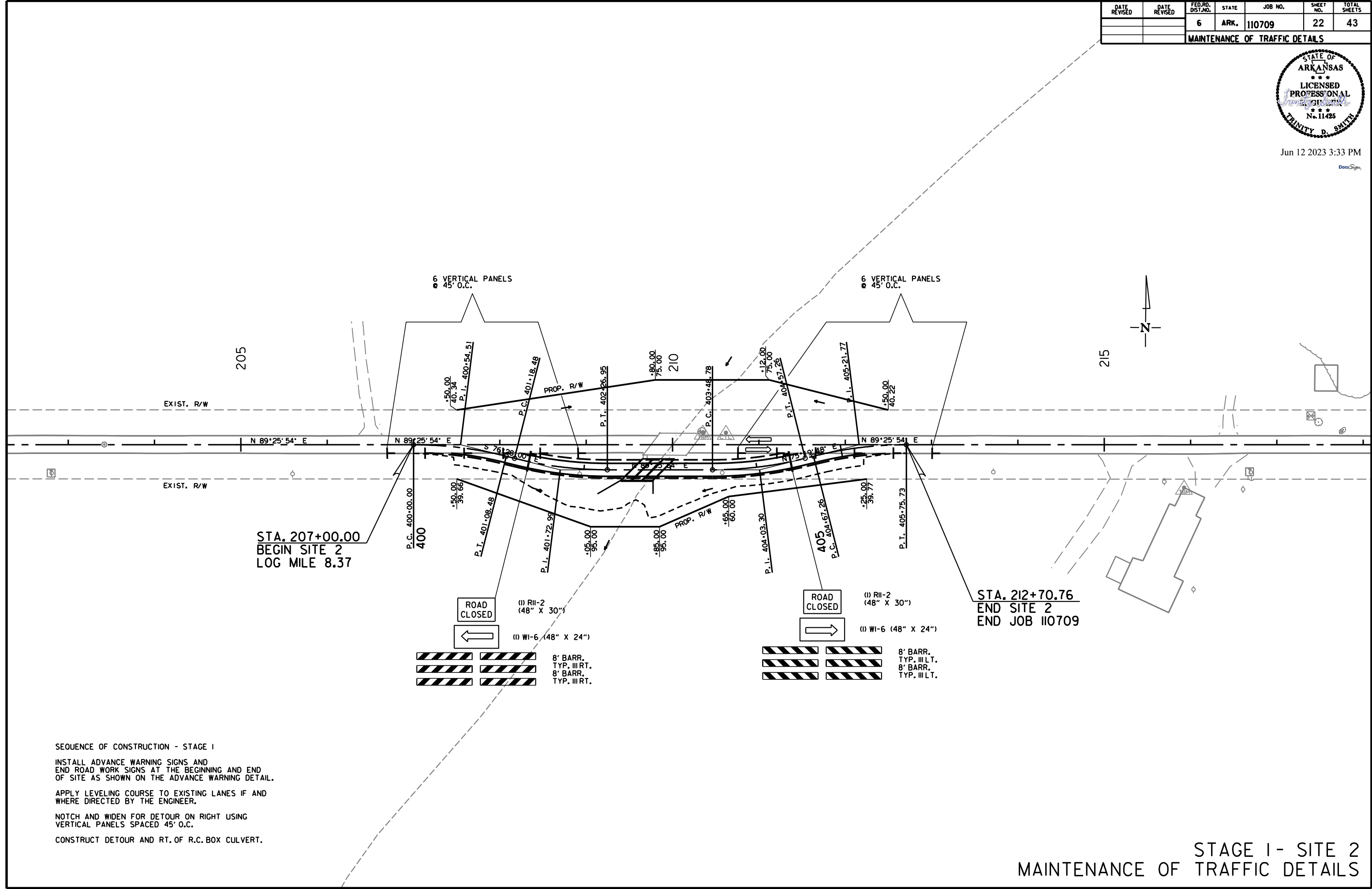
STAGE 3 - SITE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	22	43
MAINTENANCE OF TRAFFIC DETAILS						



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SEQUENCE OF CONSTRUCTION - STAGE I

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF SITE AS SHOWN ON THE ADVANCE WARNING DETAIL.

APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

NOTCH AND WIDEN FOR DETOUR ON RIGHT USING VERTICAL PANELS SPACED 45' O.C.

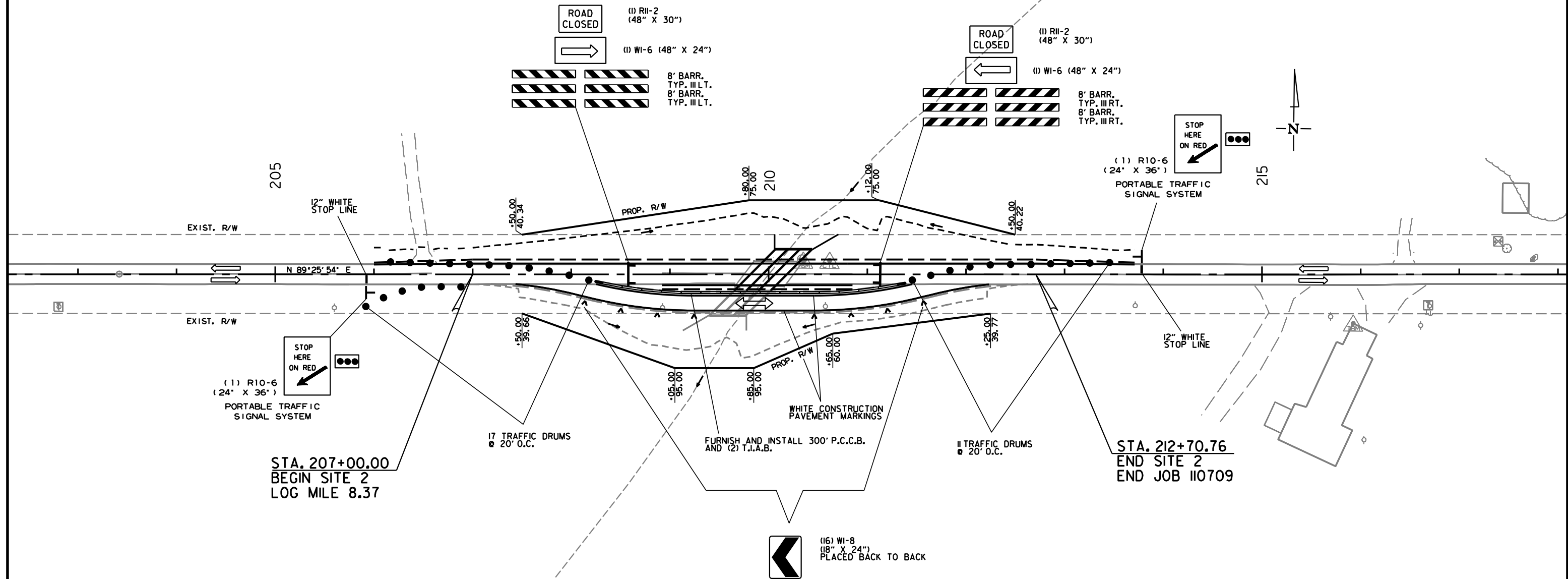
CONSTRUCT DETOUR AND RT. OF R.C. BOX CULVERT.

STAGE I- SITE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	23	43
MAINTENANCE OF TRAFFIC DETAILS						



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SEQUENCE OF CONSTRUCTION - STAGE 2

INSTALL ADVANCE WARNING SIGNS AND
END ROAD WORK SIGNS AT THE BEGINNING AND END
OF SITE AS SHOWN ON THE ADVANCE WARNING DETAIL.

INSTALL PORTABLE TRAFFIC SIGNAL SYSTEM AND
CONSTRUCTION PAVEMENT MARKINGS AS SHOWN
IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS

SHIFT TRAFFIC TO DETOUR AS SHOWN IN THE STAGE 2
MAINTENANCE OF TRAFFIC DETAILS.

NOTCH AND WIDEN TO CONSTRUCT ROADWAY AND
LT. OF R.C. BOX CULVERT.

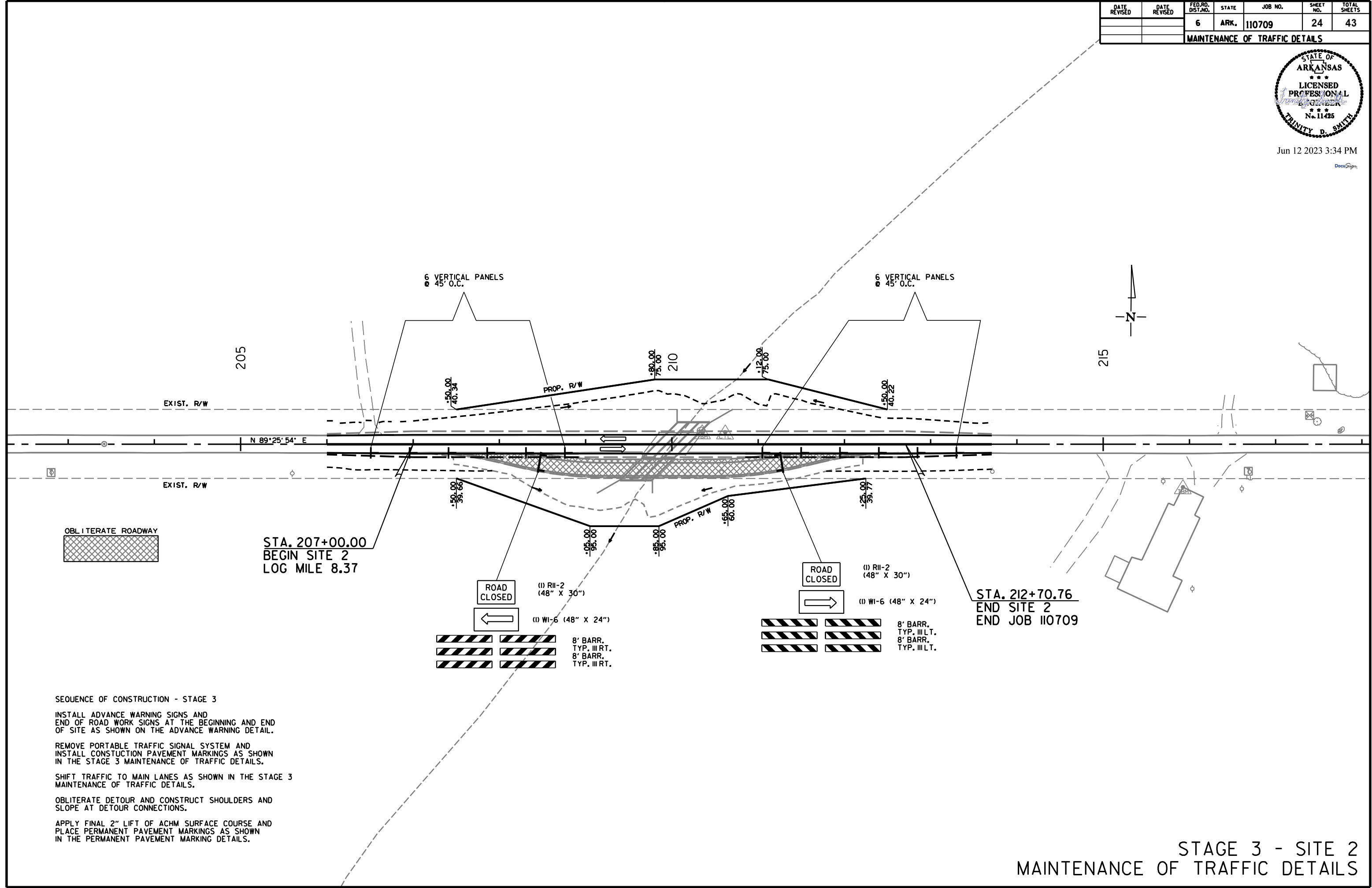
STAGE 2 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	24	43
MAINTENANCE OF TRAFFIC DETAILS						



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STAGE 3 - SITE 2
MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION - STAGE 3

INSTALL ADVANCE WARNING SIGNS AND END OF ROAD WORK SIGNS AT THE BEGINNING AND END OF SITE AS SHOWN ON THE ADVANCE WARNING DETAIL.

REMOVE PORTABLE TRAFFIC SIGNAL SYSTEM AND INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

SHIFT TRAFFIC TO MAIN LANES AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.

OBLITERATE DETOUR AND CONSTRUCT SHOULDERS AND SLOPE AT DETOUR CONNECTIONS.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND PLACE PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

PERMANENT PAVEMENT MARKINGS

SITE 1:
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 1480 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 1480 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) = 10 EACH

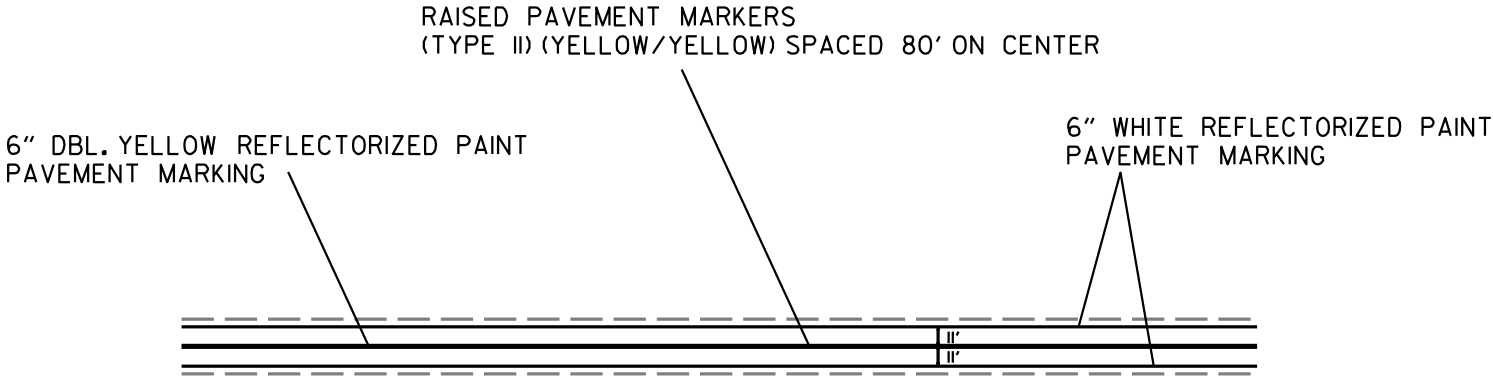
SITE 2:
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 1542 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 1542 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) = 10 EACH

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	25	43
PERMANENT PAVEMENT MARKING DETAILS						



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TYPICAL STRIPING DETAIL



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ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED	
							NO.	SQ. FT.			EACH	RIGHT					LEFT
			LIN. FT. - EACH														
W20-1	ROAD WORK 1500 FT.	48"x48"	4	8	4	8	8	128.0									
W20-1	ROAD WORK 1000 FT.	48"x48"	4		4	4	4	64.0									
W20-1	ROAD WORK 500 FT.	48"x48"	4		4	4	4	64.0									
W20-4	ONE LANE ROAD 1000 FT.	48"x48"		8		8	8	128.0									
W20-4	ONE LANE ROAD 1/2 MILE	48"x48"		8		8	8	128.0									
W3-3	SIGNAL AHEAD	30"x30"		8		8	8	50.0									
W3-4	BE PREPARED TO STOP	36"x36"		8		8	8	72.0									
W3-5	REDUCED SPEED AHEAD (25)	36"x36"		8		8	8	72.0									
G20-2	END ROAD WORK	48"x24"	4	4	4	4	4	32.0									
R2-1	SPEED LIMIT 25 MPH	48"x60"		8		8	8	160.0									
R2-12	END WORK ZONE SPEED LIMIT	24"x30"		4		4	4	20.0									
R10-6	STOP HERE ON RED	24"x36"		4		4	4	20.0									
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	4	40.0									
W1-6	LARGE ARROW	48"x24"	4	4	4	4	4	32.0									
W1-8	CHEVRONS	18"x24"		32		32	32	96.0									
	VERTICAL PANELS		24		24	24			24								
	TRAFFIC DRUMS			56		56				56							
	TYPE III BARRICADE-RT. (8')		4	4	4	4					32						
	TYPE III BARRICADE-LT. (8')		4	4	4	4						32					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			560		560							560				
	TEMPORARY IMPACT ATTENUATION BARRIER			4		4								4			
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			4		4									4		
	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED			20		20										20.00	
TOTALS:									1106.0	24	56	32	32	560	4	4	20.00

NOTE: THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CCNSTRUCTION.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		REFLECTORIZED PAINT PAVEMENT MARKING	
							TYPE II (YELLOW/YELLOW)	EACH	6"	
									WHITE	YELLOW
					LIN. FT. - EACH	LIN. FT.				LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS	3200	2283	6044		11527					
CONSTRUCTION PAVEMENT MARKINGS (WORDS)										
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)										
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		3200				3200				
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)				20			20			
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")				3022					3022	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")				3022						3022
TOTALS:					11527	3200	20		3022	3022

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

NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT.
THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

REMOVAL AND DISPOSAL OF GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
109+25	110+80	SITE 1 LT. & RT.	104
TOTAL:			104

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

REMOVAL AND DISPCOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
109+06	SITE 1 - 36" X 24' C.M SIDE DRAIN ON RT.	1
TOTAL:		1

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
106+40	113+80	STAGE 1 - SITE 1	1699	1020
106+40	113+80	STAGE 2 - SITE 1	1191	1579
106+40	113+80	STAGE 3 - SITE 1	163	208
206+00	213+70.76	STAGE 1 - SITE 2	475	1135
206+00	213+70.76	STAGE 2 - SITE 2	731	838
206+00	213+70.76	STAGE 3 - SITE 2	219	155
110+00	110+00	CHANNEL CHANGE - SITE 1	1360	
210+00	210+00	CHANNEL CHANGE - SITE 2	620	
TOTALS:			6458	4935

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

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

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	50
TOTAL:			50

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
106+40	112+00	SITE 1 LT. & RT.	6	6
TOTALS:			6	6

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	27	43
QUANTITIES						



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EROSION CONTROL															
STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL							*SEDIMENT REMOVAL & DISPOSAL
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE (20") DITCH CHECKS	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	(E-1) LIN. FT.	(E-5) BAG	(E-6) CU.YD.	(E-11) LIN. FT.	
ENTIRE	PROJECT	SITE 1 - CLEARING AND GRUBBING						1.29	1.29	26.3		88		435	20
ENTIRE	PROJECT	SITE 1 - STAGE 1						0.60	0.60	12.2	18	132			8
ENTIRE	PROJECT	SITE 1 - STAGE 2						0.51	0.51	10.4		110			7
ENTIRE	PROJECT	SITE 1 - STAGE 3	1.69	3.38	1.69	172.4	1.69	0.18	0.18	3.7					
ENTIRE	PROJECT	SITE 2 - CLEARING AND GRUBBING						1.13	1.13	23.1		132		810	36
ENTIRE	PROJECT	SITE 2 - STAGE 1						0.46	0.46	9.4	18	88			4
ENTIRE	PROJECT	SITE 2 - STAGE 2						0.53	0.53	10.8		110			5
ENTIRE	PROJECT	SITE 2 - STAGE 3	1.46	2.92	1.46	148.9	1.46	0.14	0.14	2.9					
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			0.79	1.58	0.79	80.6	0.79	1.21	1.21	24.7	18	176	114	311	20
TOTALS:			3.94	7.88	3.94	401.9	3.94	6.05	6.05	123.5	54	836	114	1556	100

BASIS OF ESTIMATE:
LIME 2 TONS / ACRE OF SEEDING
WATER..... 102.0 M.G. / ACRE OF SEEDING
WATER..... 20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER..... 12.6 GAL. / SQ. YD. OF SOLID SODDING
SAND BAG DITCH CHECKS..... 22 BAGS / LOCATION
ROCK DITCH CHECKS..... 3 CU.YD./LOCATION

NOTE: THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETER EROSION AND SEDIMENTATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

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

CONCRETE DITCH PAVING							
STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
108+00.00	109+25.00	SITE 1 LT.	125.00	6.32	87.78	55.56	0.70
110+10.00	111+00.00	SITE 1 LT.	90.00	6.32	63.20	40.00	0.50
110+85.00	111+81.00	SITE 1 RT.	96.00	6.32	67.41	42.67	0.54
210+65.00	212+45.00	SITE 2 LT.	180.00	6.32	126.40	80.00	1.01
208+14.00	209+17.00	SITE 2 RT.	103.00	6.32	72.33	45.78	0.58
209+82.00	210+74.00	SITE 2 RT.	92.00	6.32	64.60	40.89	0.52
TOTALS:					481.72	304.90	3.85

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

4" PIPE UNDERDRAIN				
STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			500	2
TOTALS:			500	2

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

BENCH MARKS		
STATION	LOCATION	BENCH MARKS
		EACH
110+00	SITE 1 - HDWL. OF R.C. BOX CULVERT ON RT.	1
210+00	SITE 2 - HDWL. OF R.C. BOX CULVERT ON RT.	1
TOTAL:		2

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

EROSION CONTROL MATTING				
STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
107+90.00	109+95.00	SITE 1 RT.	205.00	182.22
206+50.00	210+00.00	SITE 2 LT.	350.00	311.11
TOTAL:				493.33

NOTE: AVERAGE WIDTH = 8'-0"

REMOVAL OF EXISTING BRIDGE STRUCTURE			
STATION	STATION	LOCATION	LUMP SUM
109+79	110+26	BR. NO. M1829 (SITE NO. 1)	1.00
209+66	210+35	BR. NO. M3876 (SITE NO. 2)	1.00



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STRUCTURES

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	CLASS 5 CONCRETE- ROADWAY	REINF. STEEL- ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.- ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
					LIN. FT.	CU.YD.	POUND	CU.YD.	SQ.YD.	
STRUCTURES OVER 20' - 0" SPAN										
110+00	TRI. 12' X 8' X 84" R.C. BOX CULVERT ON 30° R.T. FWD. SKEW	12	8	84	344.07	49532	149	47	0.59	SPECIAL DETAILS, RCB-1, RCB-2
210+00	TRI. 8' X 6' X 96" R.C. BOX CULVERT ON 45° LT. FWD. SKEW	8	6	96	253.81	34163	99	39	0.49	SPECIAL DETAILS, RCB-1, RCB-2
TOTALS:					597.88	83695	248	86	1.08	

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
106+40.00	107+40.00	SITE 1	20.00	222.22
112+80.00	113+80.00	SITE 1	20.00	222.22
206+00.00	207+00.00	SITE 2	20.00	222.22
212+70.76	213+70.76	SITE 2	20.00	222.22
TOTAL:				888.88

NOTE: COORDINATE COLD MILLING STOCKPILE LOCATIONS WITH DISTRICT ENGINEER.
STOCKPILE LOCATIONS SHALL BE NO FURTHER THAN FIVE MILES FROM EACH SITE.

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10
TOTAL:	10

NOTE: QUANTITY 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	10	20
TOTALS:	10	20

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")																	
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	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	TOTAL PG 64-22								
						TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON															FEET	TON	FEET	TON	TON	FEET	TON	TON
MAIN LANES																																	
106+40.00	107+40.00	SITE 1 - TRANSITION	100.00	89.25	89.25				20.00	222.22	37.78	37.78	5.46	60.67	330.00	10.01	5.25	58.33	220.00	6.42	25.00	277.78	220.00	30.56	36.98								
107+40.00	109+43.00	SITE 1 - NOTCH AND WIDEN	203.00	107.00	217.21	32.71	737.79	36.89				36.89	6.46	145.71	330.00	24.04	6.25	140.97	220.00	15.51	26.00	586.44	220.00	64.51	80.02								
109+43.00	110+57.00	SITE 1 - FULL DEPTH	114.00	197.50	225.15	44.71	566.33	28.32				28.32	22.46	284.49	330.00	46.94	22.25	281.83	220.00	31.00	26.00	329.33	220.00	36.23	67.23								
110+57.00	112+80.00	SITE 1 - NOTCH AND WIDEN	223.00	107.00	238.61	32.71	810.48	40.52				40.52	6.46	160.06	330.00	26.41	6.25	154.86	220.00	17.03	26.00	644.22	220.00	70.86	87.89								
112+80.00	113+80.00	SITE 1 - TRANSITION	100.00	89.25	89.25				20.00	222.22	37.78	37.78	5.46	60.67	330.00	10.01	5.25	58.33	220.00	6.42	25.00	277.78	220.00	30.56	36.98								
206+00.00	207+00.00	SITE 2 - TRANSITION	100.00	89.25	89.25				20.00	222.22	37.78	37.78	5.46	60.67	330.00	10.01	5.25	58.33	220.00	6.42	25.00	277.78	220.00	30.56	36.98								
207+00.00	209+47.00	SITE 2 - NOTCH AND WIDEN	247.00	107.00	264.29	32.71	897.71	44.89				44.89	6.46	177.29	330.00	29.25	6.25	171.53	220.00	18.87	26.00	713.56	220.00	78.49	97.36								
209+47.00	210+53.00	SITE 2 - FULL DEPTH	106.00	197.50	209.35	44.71	526.58	26.33				26.33	22.46	264.53	330.00	43.65	22.25	262.06	220.00	28.83	26.00	306.22	220.00	33.68	62.51								
210+53.00	212+70.76	SITE 2 - NOTCH AND WIDEN	217.76	107.00	233.00	32.71	791.44	39.57				39.57	6.46	156.30	330.00	25.79	6.25	151.22	220.00	16.63	26.00	629.08	220.00	69.20	85.83								
212+70.76	213+70.76	SITE 2 - TRANSITION	100.00	89.25	89.25				20.00	222.22	37.78	37.78	5.46	60.67	330.00	10.01	5.25	58.33	220.00	6.42	25.00	277.78	220.00	30.56	36.98								
300+00.00	301+44.00	DETOUR TRANSITION - SITE 1	144.00	VAR.	93.50												VAR.	116.48	220.00	12.81				12.81									
301+44.00	304+02.00	DETOUR LANES - SITE 1	258.00	142.25	367.01												21.00	602.00	220.00	66.22				66.22									
304+02.00	305+45.50	DETOUR TRANSITION - SITE 1	143.50	VAR.	89.00												VAR.	107.75	220.00	11.85				11.85									
400+00.00	401+45.00	DETOUR TRANSITION - SITE 2	145.00	VAR.	95.25												VAR.	119.32	220.00	13.13				13.13									
401+45.00	404+31.00	DETOUR LANES - SITE 2	286.00	142.25	406.84												21.00	667.33	220.00	73.41				73.41									
404+31.00	405+75.73	DETOUR TRANSITION - SITE 2	144.73	VAR.	93.75												VAR.	116.43	220.00	12.81				12.81									
ADDITIONAL FOR LEVELING																																	
107+40.00	109+43.00	SITE 1 LEVELING	203.00						20.00	451.11	76.69	76.69					20.00	451.11	VAR.	25.03				25.03									
110+57.00	112+80.00	SITE 1 LEVELING	223.00						20.00	495.56	84.25	84.25					20.00	495.56	VAR.	46.95				46.95									
207+00.00	209+47.00	SITE 2 LEVELING	247.00						20.00	548.89	93.31	93.31					20.00	548.89	VAR.	111.60				111.60									
210+53.00	212+70.76	SITE 2 LEVELING	217.76						20.00	483.91	82.26	82.26					20.00	483.91	VAR.	61.44				61.44									
TOTALS:					2889.96		4330.33	216.52		2868.35	487.63	704.15		1431.06		236.12		5104.57		588.80		4319.97		475.21	1064.01								

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	29	43
SUMMARY OF QUANTITIES AND REVISIONS						



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SUMMARY OF QUANTITIES			
ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	6	STATION
201	GRUBBING	6	STATION
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	1	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	104	LIN. FT.
SP, SS, & 210	UNCLASSIFIED EXCAVATION	6458	CU. YD.
SP & 210	COMPACTED EMBANKMENT	4935	CU. YD.
SP & 210	SOIL STABILIZATION	50	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	2890	TON
SS & 401	TACK COAT	724	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	226	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	10	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	1008	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	56	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	889	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	10	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	10	TON
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	1106	SQ. FT.
SS & 604	BARRICADES	64	LIN. FT.
SS & 604	TRAFFIC DRUMS	56	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	560	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	11527	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	3200	LIN. FT.
SS & 604	VERTICAL PANELS	24	EACH
SP, SS, & 605	CONCRETE DITCH PAVING (TYPE B)	482	SQ. YD.
SS & 611	4" PIPE UNDERDRAINS	500	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	2	EACH
620	LIME	8	TON
620	SEEDING	3.94	ACRE
SS & 620	MULCH COVER	9.99	ACRE
620	WATER	530.3	M. GAL.
621	TEMPORARY SEEDING	6.05	ACRE
621	SILT FENCE	1556	LIN. F.T.
621	SAND BAG DITCH CHECKS	836	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	100	CU. YD.
621	ROCK DITCH CHECKS	114	CU. YD.
621	WATTLE (20")	54	LIN. FT.
623	SECOND SEEDING APPLICATION	3.94	ACRE
624	SOLID SODDING	391	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	493	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
SP	PORTABLE TRAFFIC SIGNAL SYSTEM - ACTUATED	20.00	WEEK
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	3022	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	3022	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	20	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	4	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	4	EACH
STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	248	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY	597.88	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	83695	POUND

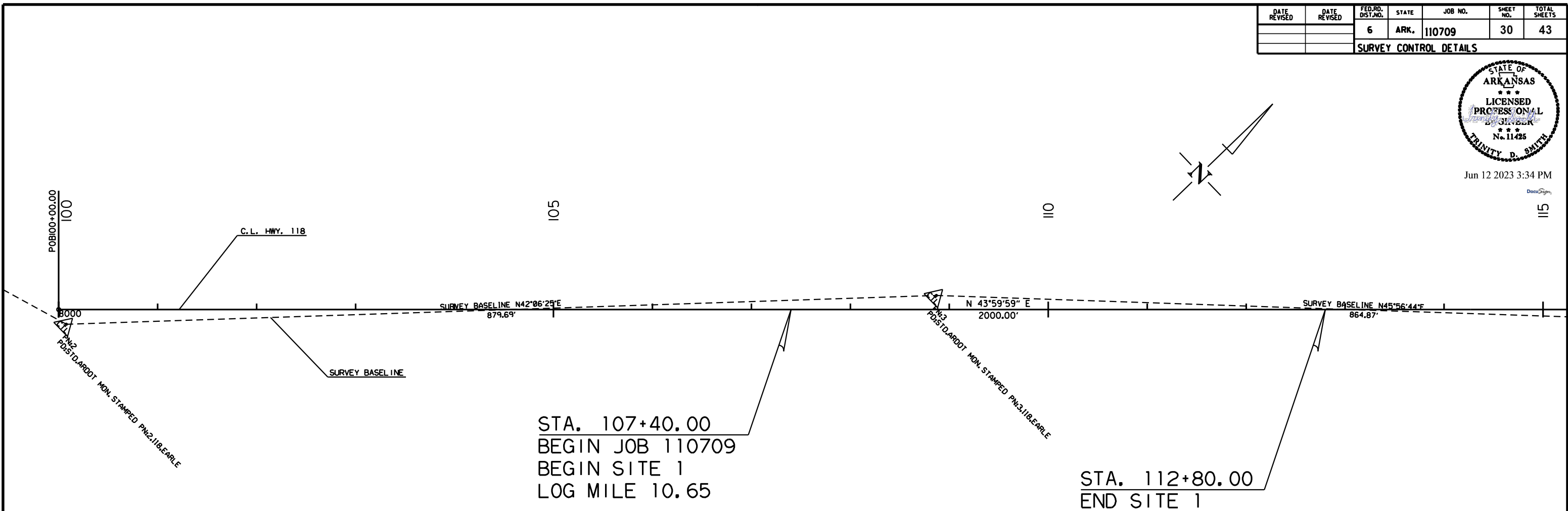
REVISIONS		
DATE	REVISION	SHEET NUMBER

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	30	43
SURVEY CONTROL DETAILS						



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SURVEY CONTROL COORDINATES

Project Name: s110709
Date: 9/10/2019
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	356533.4320	1783123.5967	216.596	CTL	STD. ARDOT MON. STAMPED PN# 1
2	356783.1267	1783921.6128	214.036	CTL	STD. ARDOT MON. STAMPED PN# 2
3	357435.7617	1784511.4549	212.092	CTL	STD. ARDOT MON. STAMPED PN# 3
4	358037.1435	1785133.0219	212.347	CTL	STD. ARDOT MON. STAMPED PN# 4
5	358847.9414	1785919.1503	211.999	CTL	STD. ARDOT MON. STAMPED PN# 5
6	358959.6854	1828048.7056	226.802	CTL	STD. ARDOT MON. STAMPED PN# 6
7	358974.1663	1829054.6988	227.647	CTL	STD. ARDOT MON. STAMPED PN# 7
8	359011.1346	1830048.6372	222.641	CTL	STD. ARDOT MON. STAMPED PN# 8
9	358990.5003	1830890.2551	223.431	CTL	STD. ARDOT MON. STAMPED PN# 9
10	358999.2809	1831664.5117	220.610	CTL	STD. ARDOT MON. STAMPED PN# 10
900	356672.4047	1783714.7518	215.728	TBM	AHTD CAP 24" REBAR
901	357484.2787	1784594.2971	213.002	TBM	SQUARE CUT ON SE CRNR BR
902	358052.6844	1785089.2082	209.059	TBM	SQUARE CUT ON W END CU
903	358834.4075	1785849.1539	209.684	TBM	SQUARE CUT ON S END CUS
904	358963.4026	1827765.1688	225.579	TBM	AHTD CAP 24" REBAR
905	359011.0416	1830021.8635	223.449	TBM	SQUARE CUT ON NE CRNR BR
906	358952.8360	1830579.8586	223.652	TBM	SQUARE CUT NW CRNR CONC
907	358996.4547	1832239.8869	215.850	TBM	SQUARE CUT ON S END CU
998	358649.5769	1839182.1489	226.490	BM	NGS DISK STAMPED R 174 1956
999	358074.8748	1839310.2040	227.766	TBM	AHTD CAP 24" REBAR

*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 0.9999371868 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 s110709gi.ctb
HORIZONTAL DATUM: NAD 83 (2011)
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: HZ BASED ON STATIC OBS ON PTS: 1-5-6-10
CONVERGENCE ANGLE: 01-00-20 RIGHT AT LT: N 35-18-25.37 LG: W090-16-18.52
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 118 - SITE 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	356787.8657	1783905.5772
8001	POE	120+00.00	358226.5497	1785294.8894

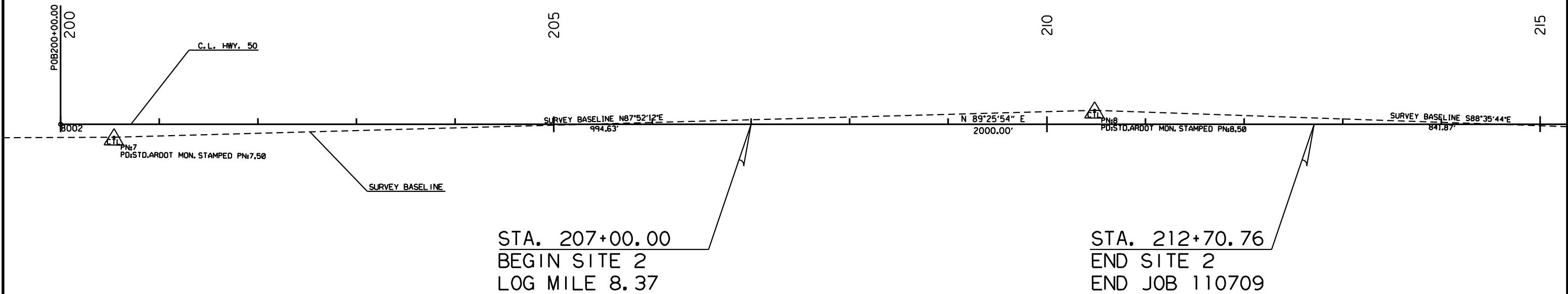
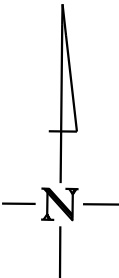
SITE 1
SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	31	43
SURVEY CONTROL DETAILS						



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Drawn by



HWY. 50 - SITE 2

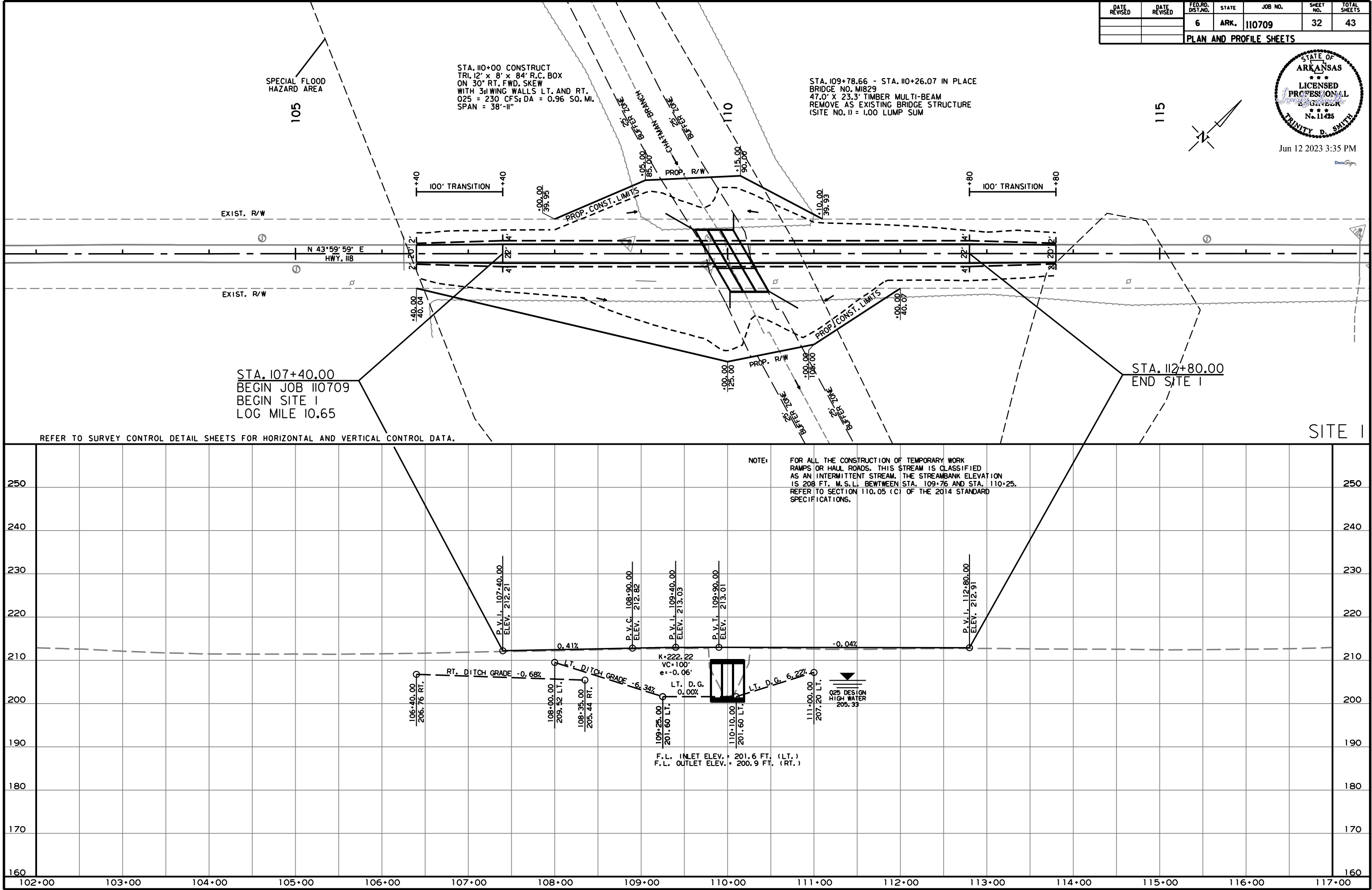
POINT NO.	TYPE	STATION	NORTHING	EASTING
8002	POB	200+00.00	358986.6582	1828986.9819
8003	POE	220+00.00	359006.4940	1830986.8835

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	32	43
PLAN AND PROFILE SHEETS						



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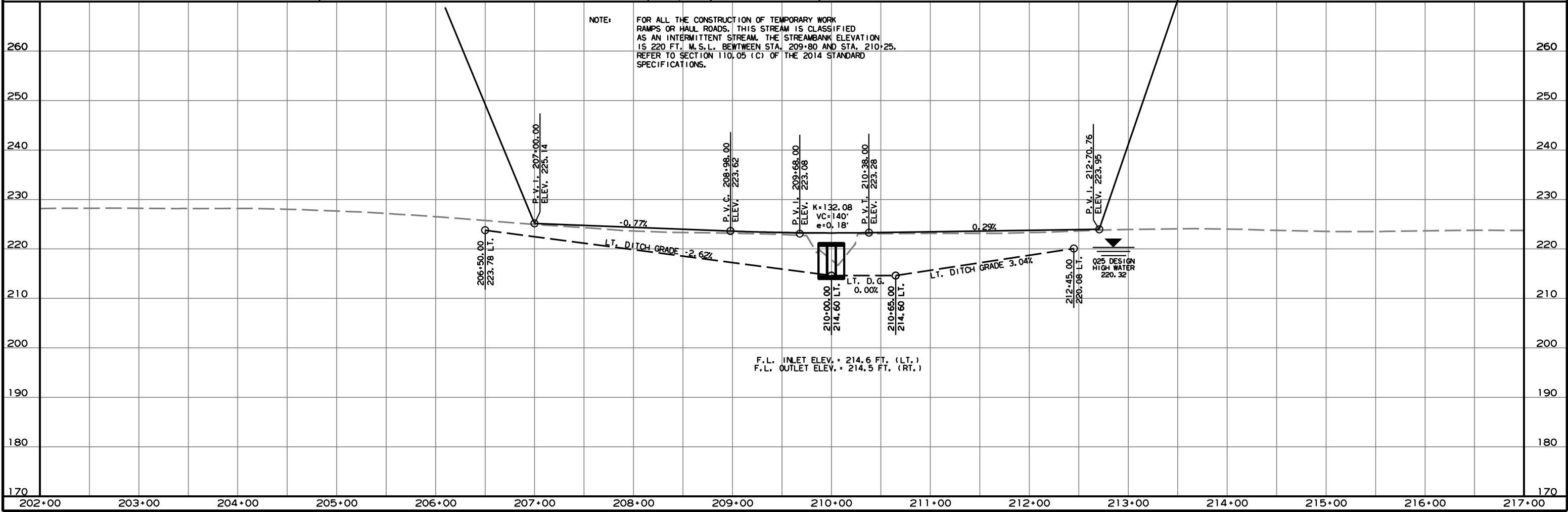
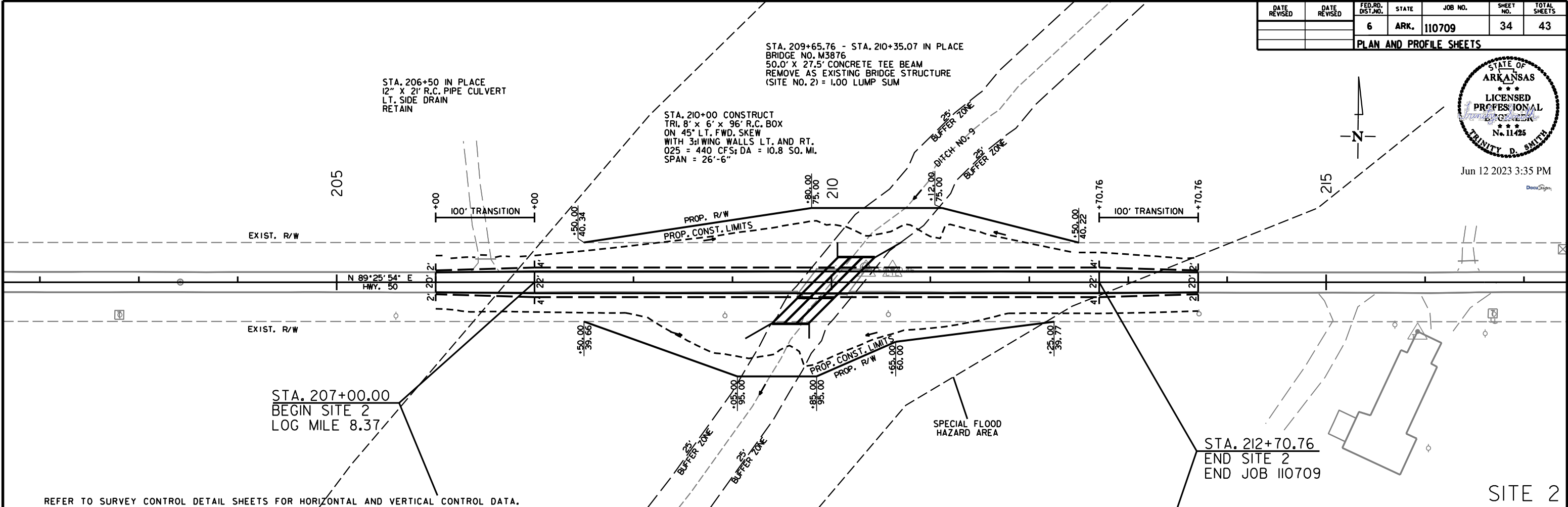
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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	34	43
PLAN AND PROFILE SHEETS						



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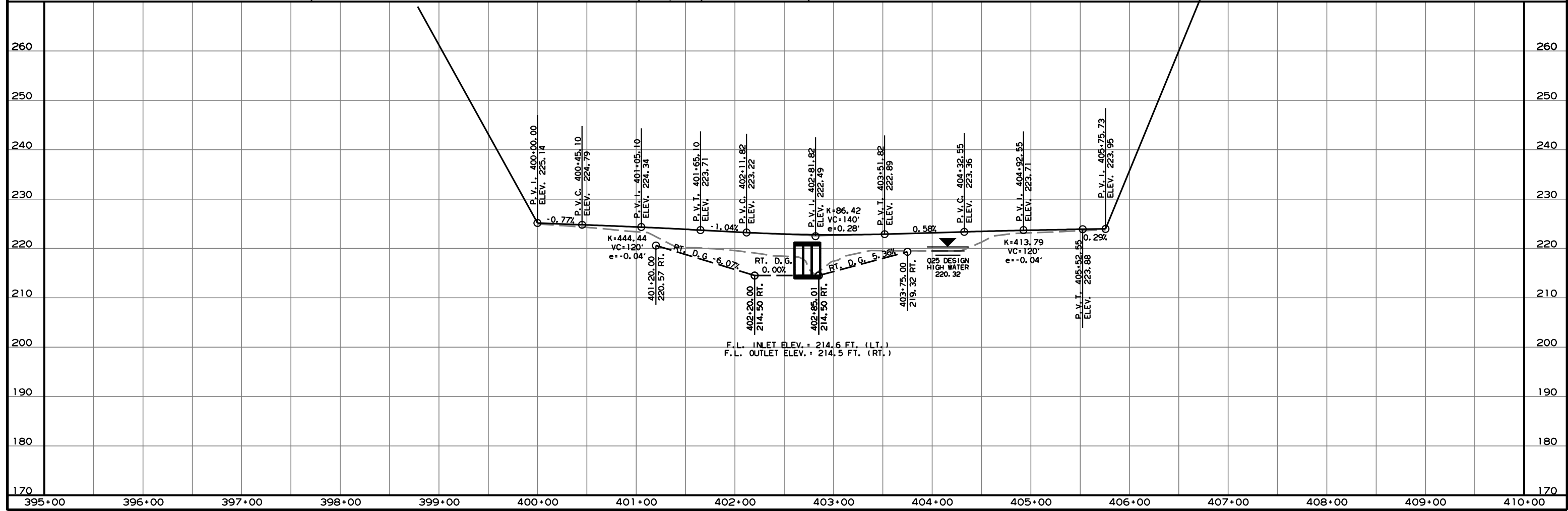
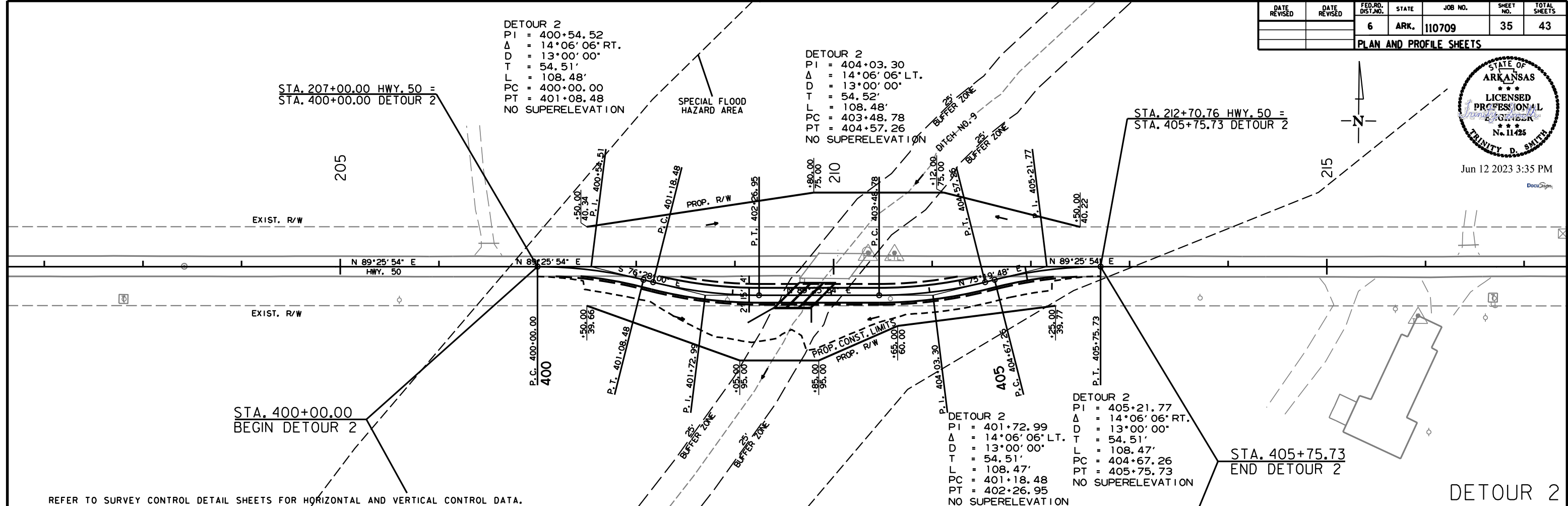
NOTE:
FOR ALL THE CONSTRUCTION OF TEMPORARY WORK
RAMPS OR HALL ROADS, THIS STREAM IS CLASSIFIED
AS AN INTERMITTENT STREAM. THE STREAMBANK ELEVATION
IS 220 FT. M.S.L. BETWEEN STA. 209+80 AND STA. 210+25.
REFER TO SECTION 110.05 (C) OF THE 2014 STANDARD
SPECIFICATIONS.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	35	43
PLAN AND PROFILE SHEETS						

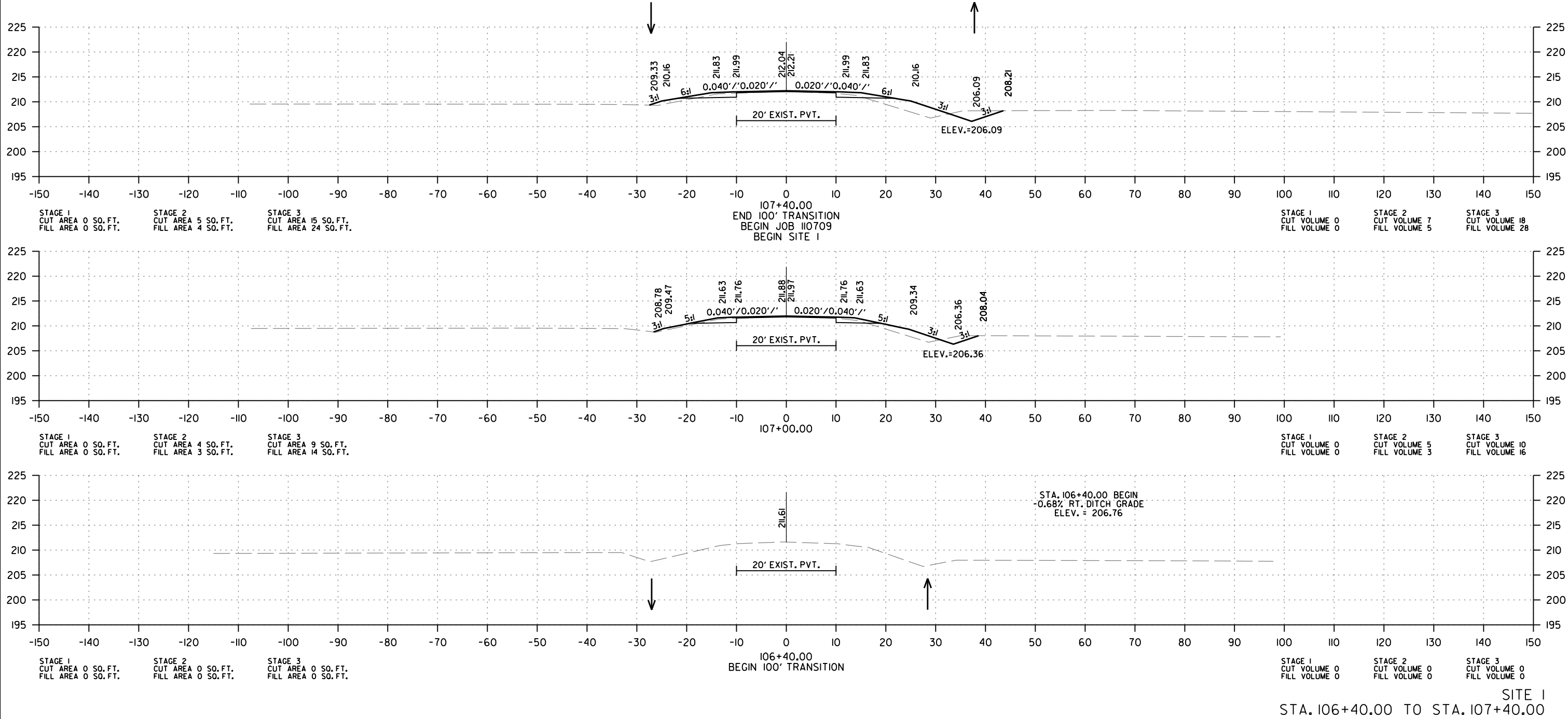


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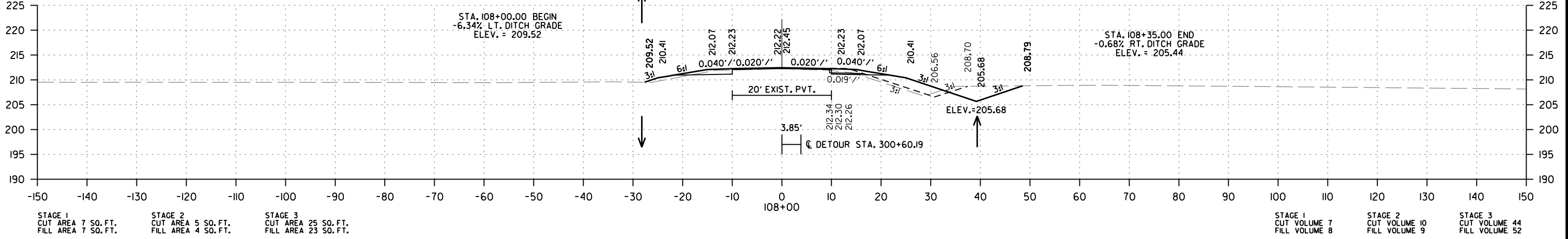
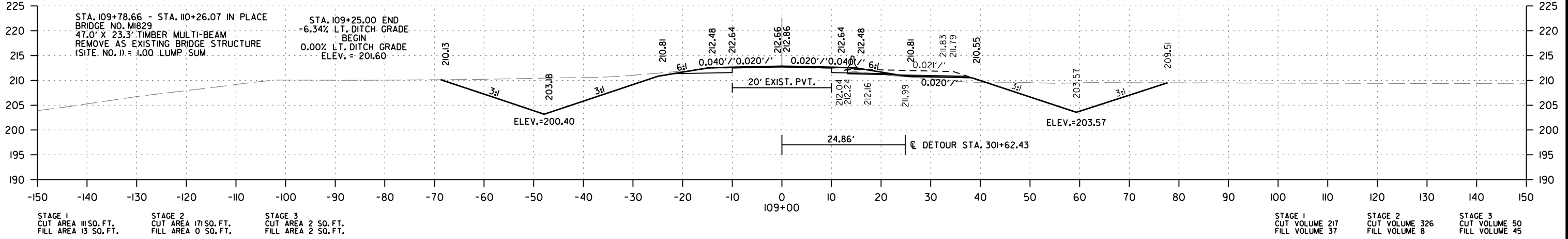
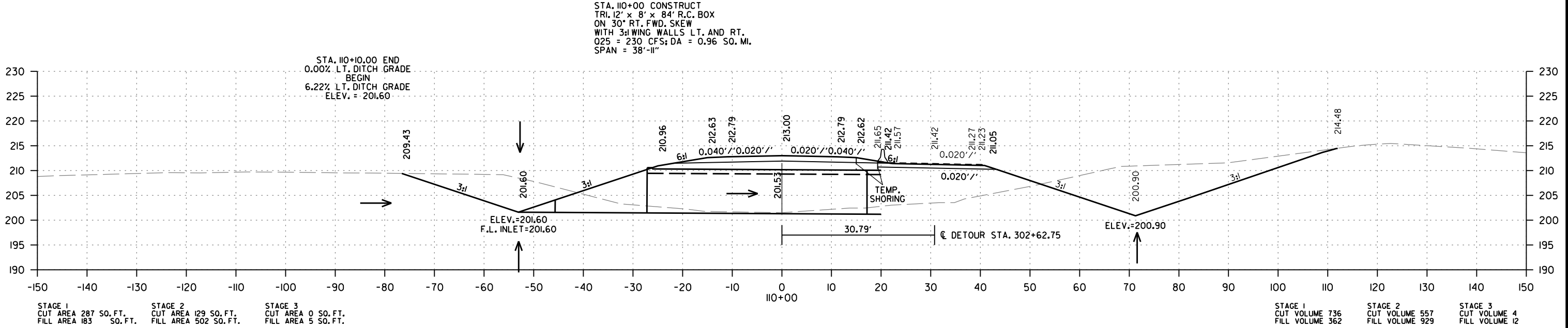
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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	36	43
CROSS SECTIONS						

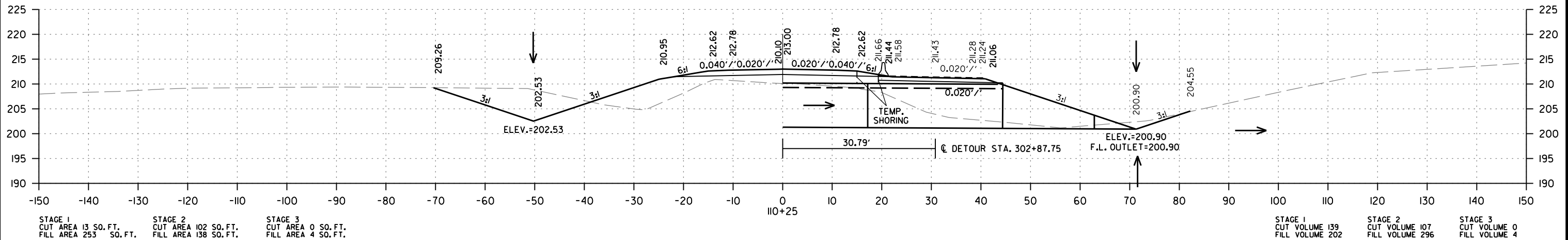
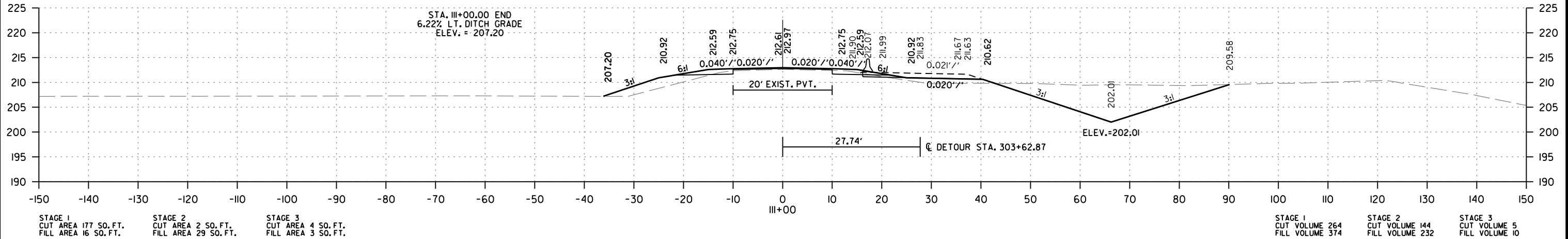
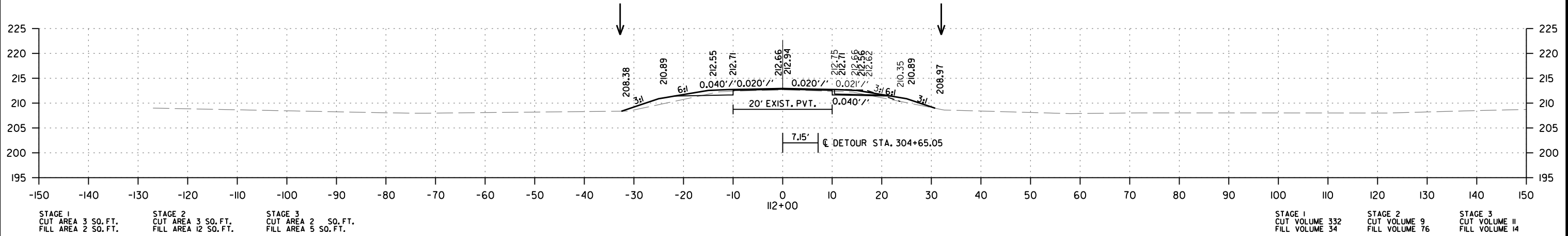


DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	37	43
CROSS SECTIONS						



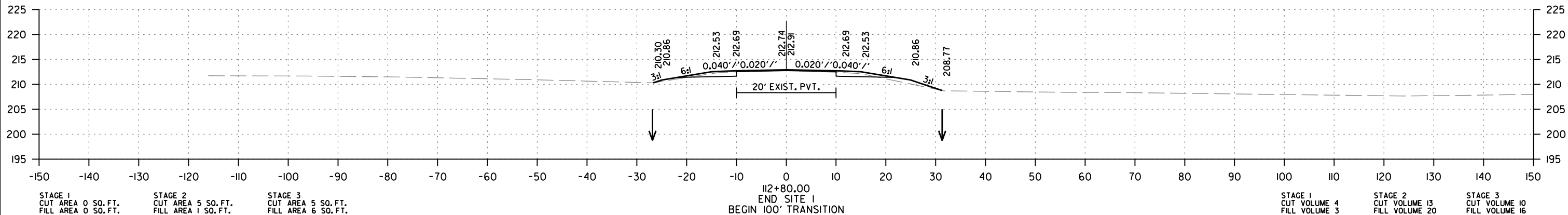
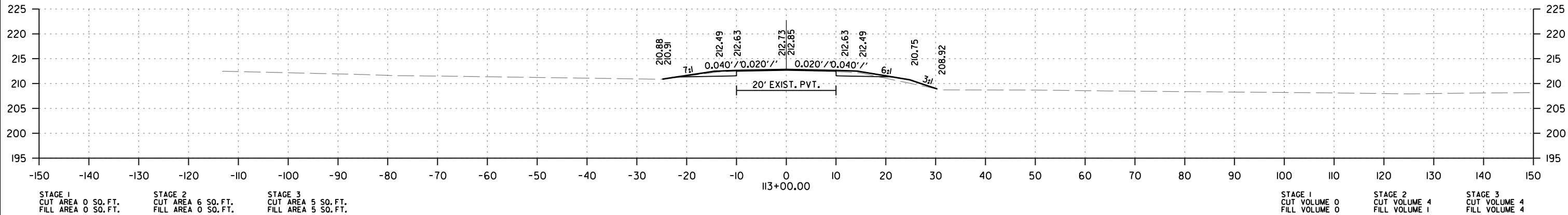
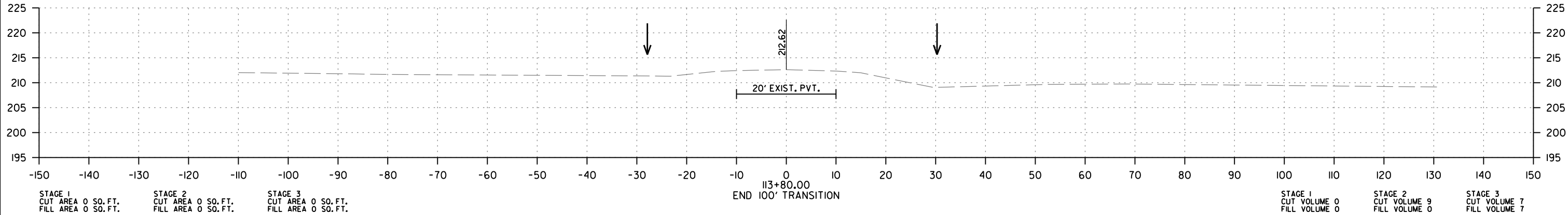
SITE 1
STA. 108+00 TO STA. 110+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	38	43
CROSS SECTIONS						



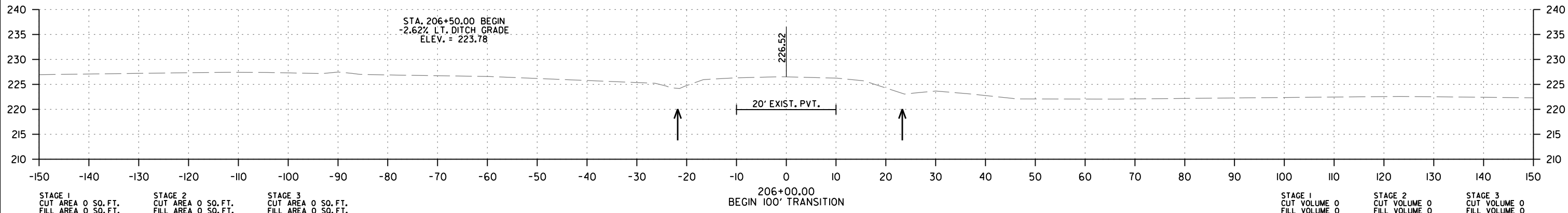
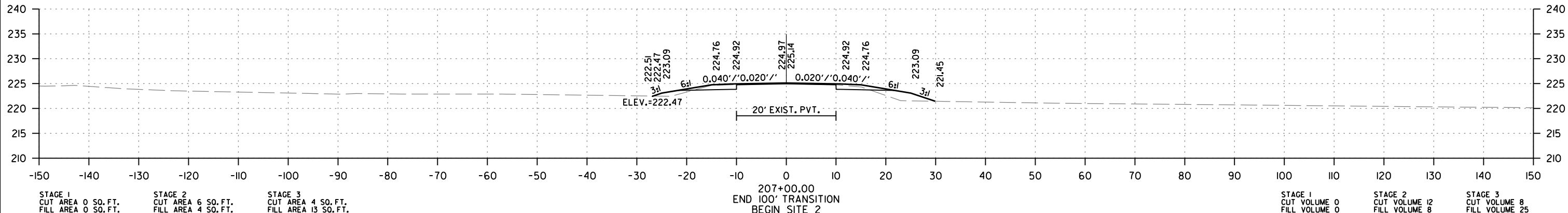
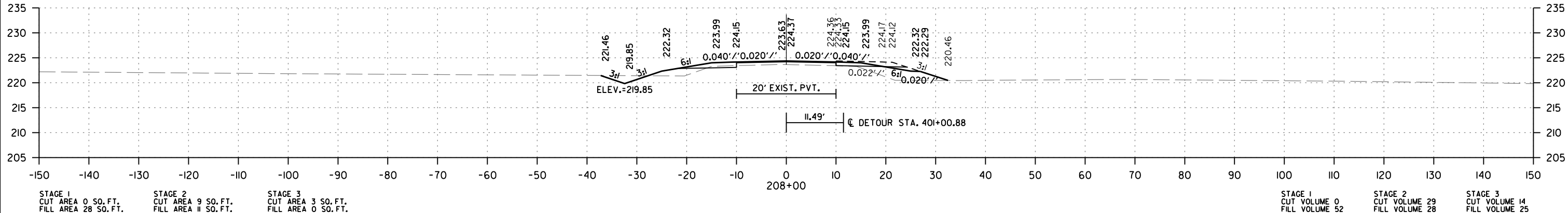
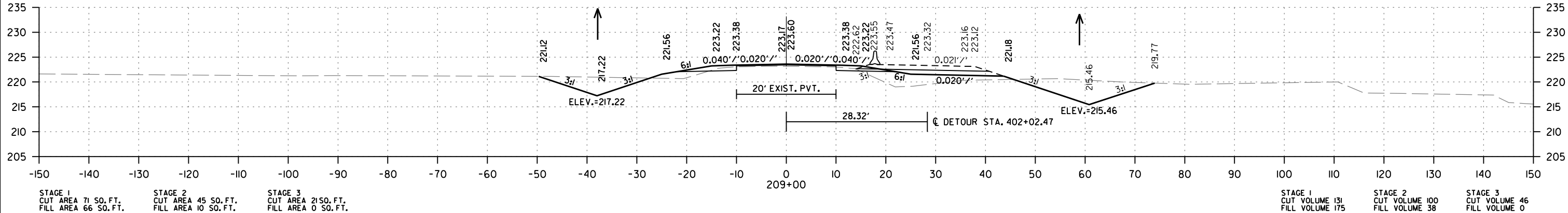
SITE I
STA. IIO+25 TO STA. I12+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	39	43
CROSS SECTIONS						



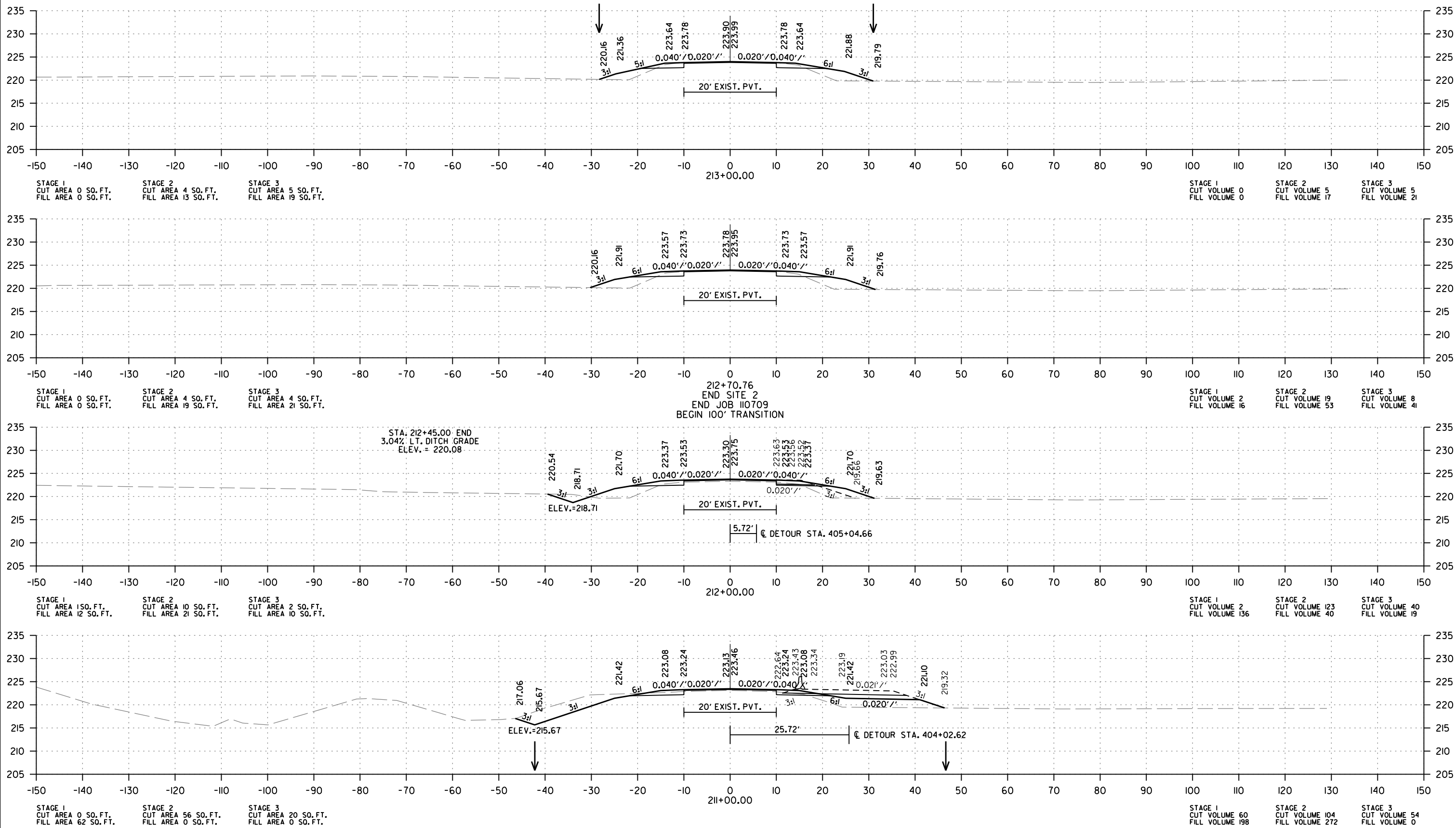
SITE 1
STA. 112+80.00 TO STA. 113+80.00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	40	43
CROSS SECTIONS						



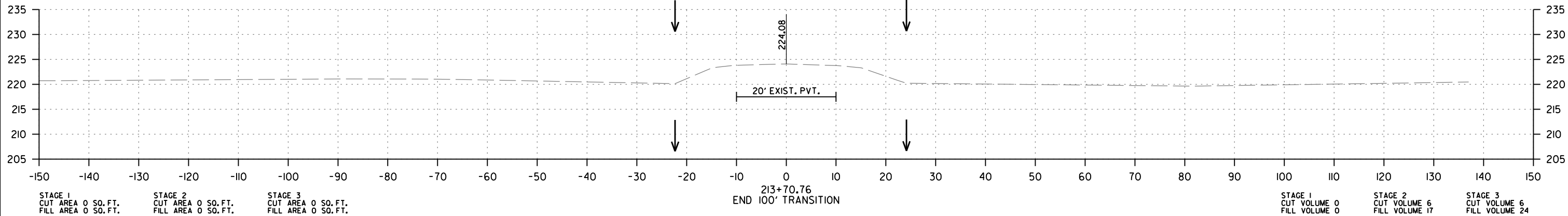
SITE 2
STA. 206+00.00 TO STA. 209+00.00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	42	43
CROSS SECTIONS						

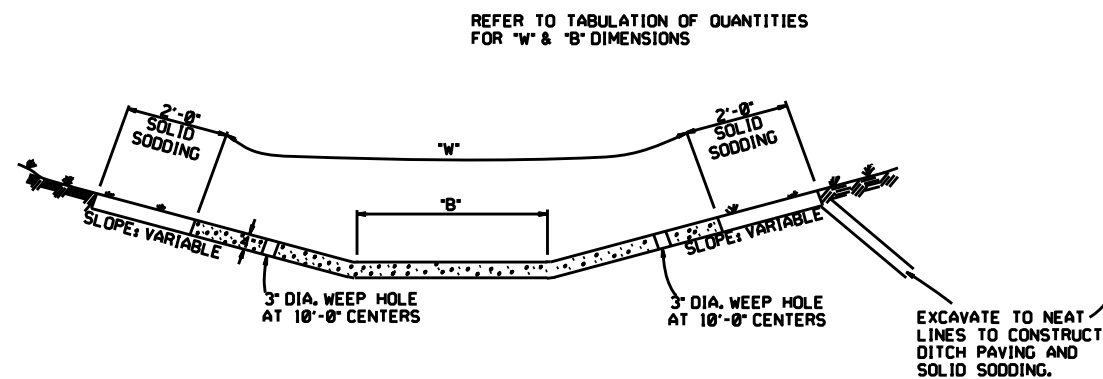


SITE 2
STA. 211+00.00 TO STA. 213+00.00

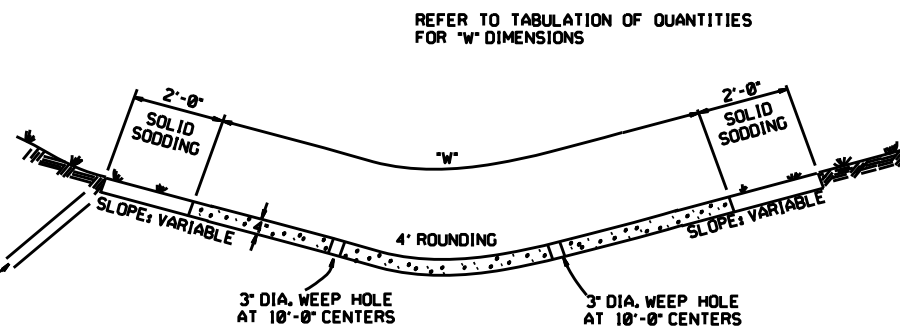
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	110709	43	43
		CROSS SECTIONS				



SITE 2
STA. 213+70.76 TO STA. 213+70.76

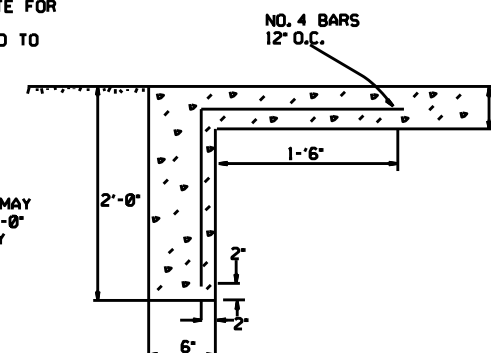


TYPE A

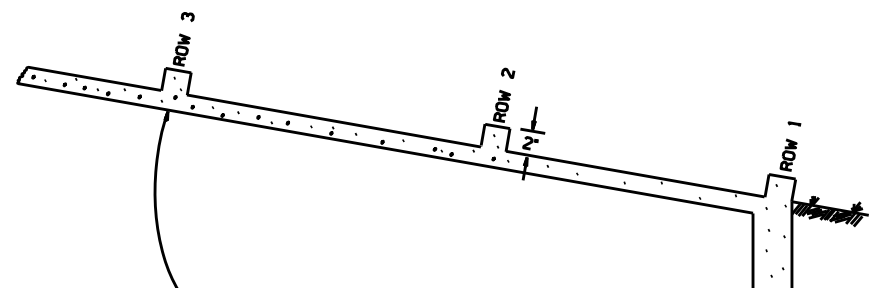


TYPE B

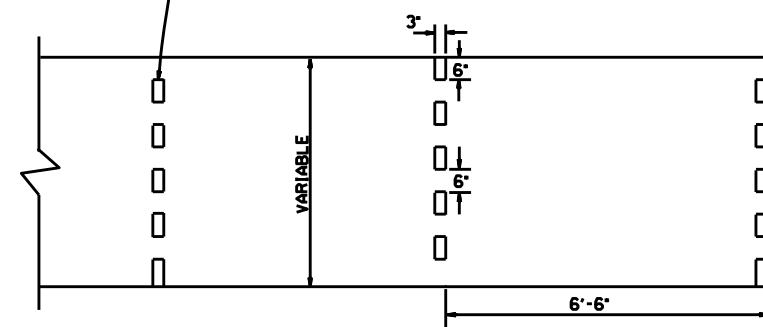
THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

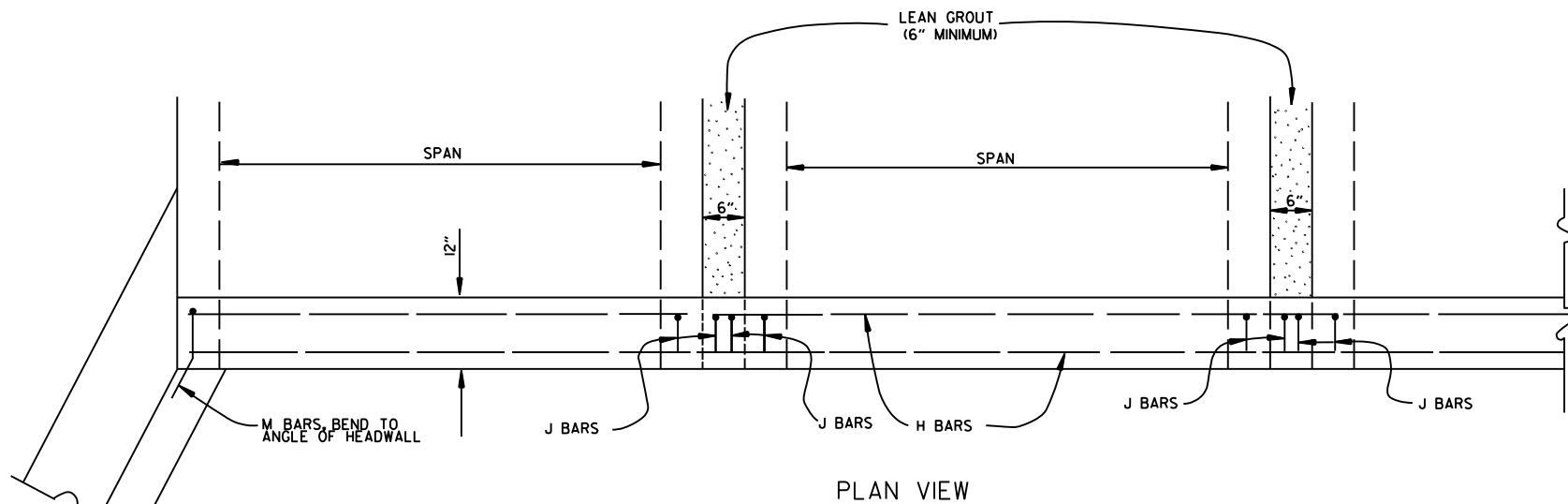
1' WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-88	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	632-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	639-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED	
10-2-72	TYPED A & B	
	REVISED AND REDRAWN	508-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1



BAR LIST				
BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	

• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE $\frac{3}{4}$ " CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS: PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85. SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS. THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE. THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

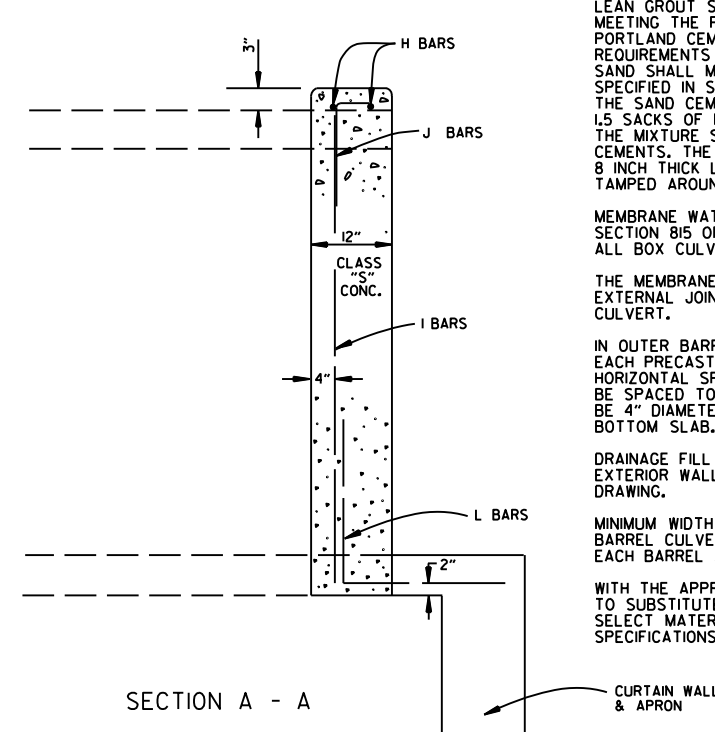
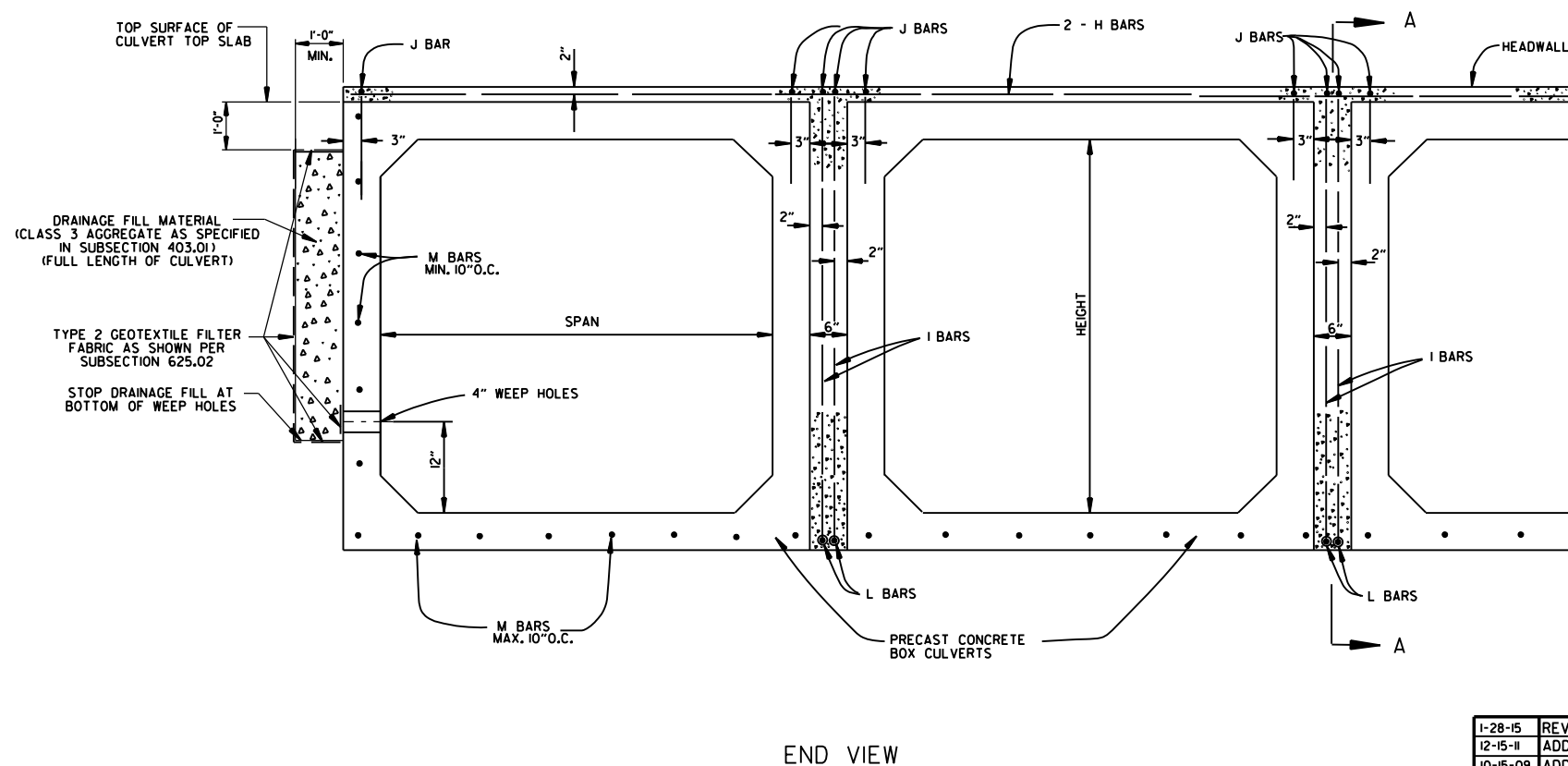
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.

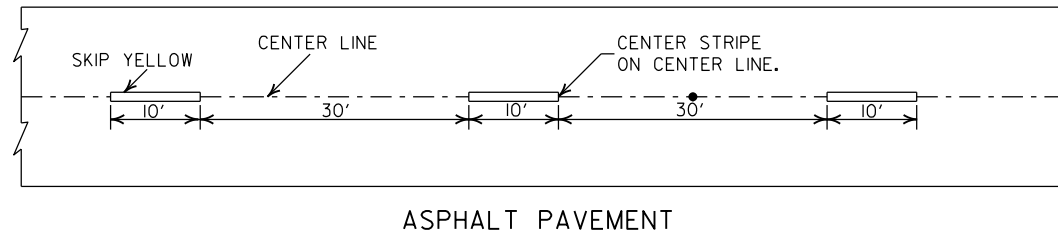
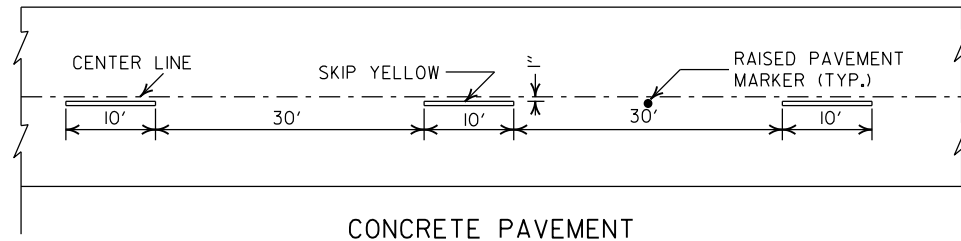


DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED: JABE	

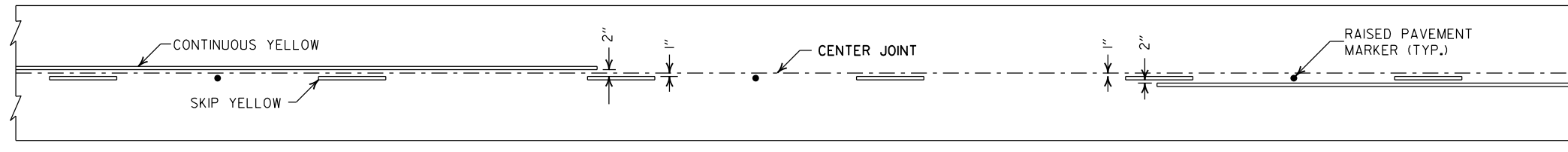
ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

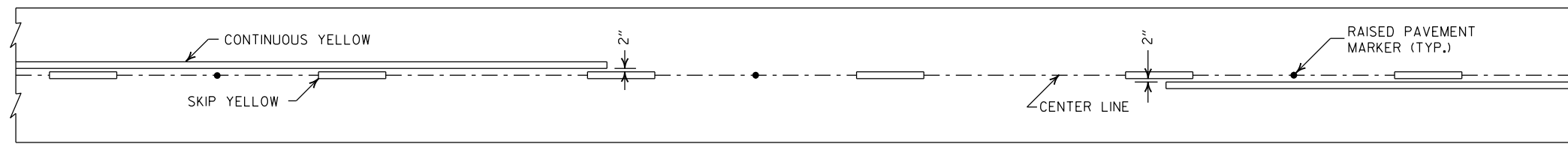
STANDARD DRAWING PBC-1



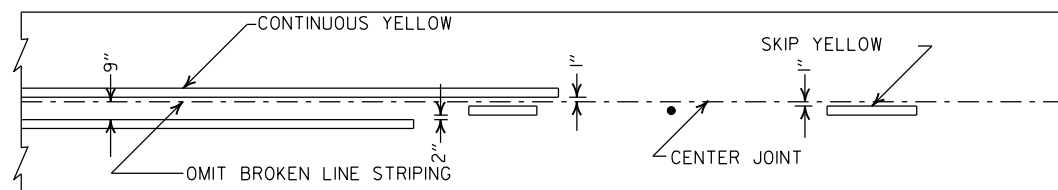
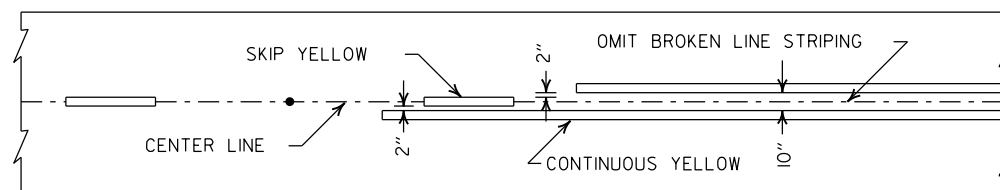
BROKEN LINE STRIPING



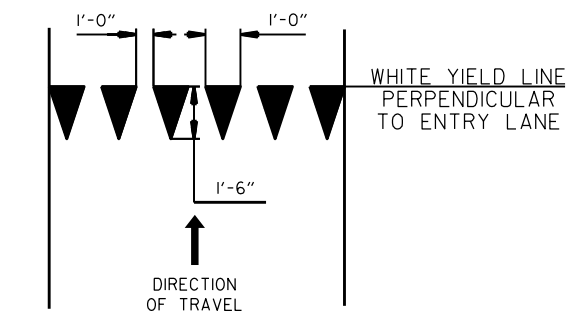
SOLID LINE STRIPING ON CONCRETE PAVEMENT



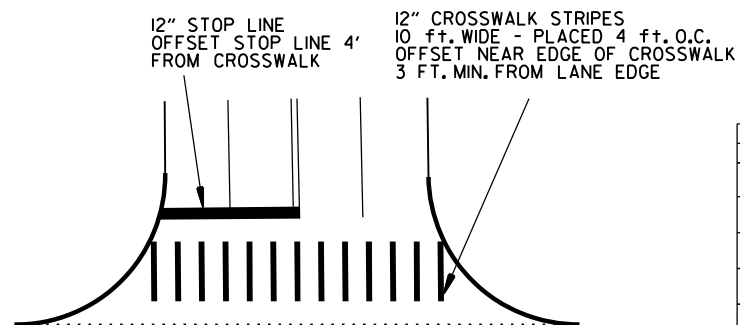
SOLID LINE STRIPING ON ASPHALT PAVEMENT



STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL

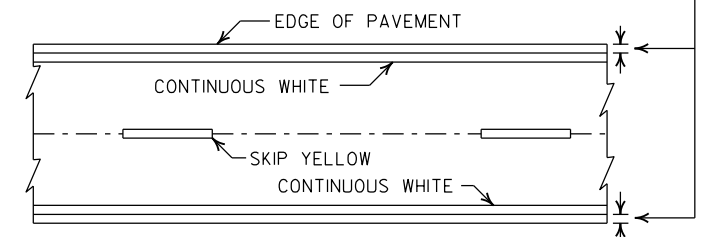


CROSSWALK AND STOP LINE DETAILS

NOTES:

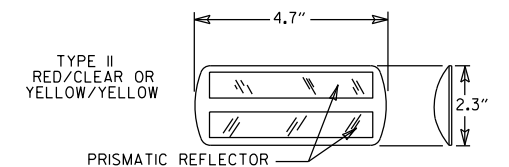
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

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

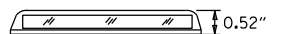


PAVEMENT EDGE LINE MARKING

NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



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 ARDOT QUALIFIED PRODUCTS LIST.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

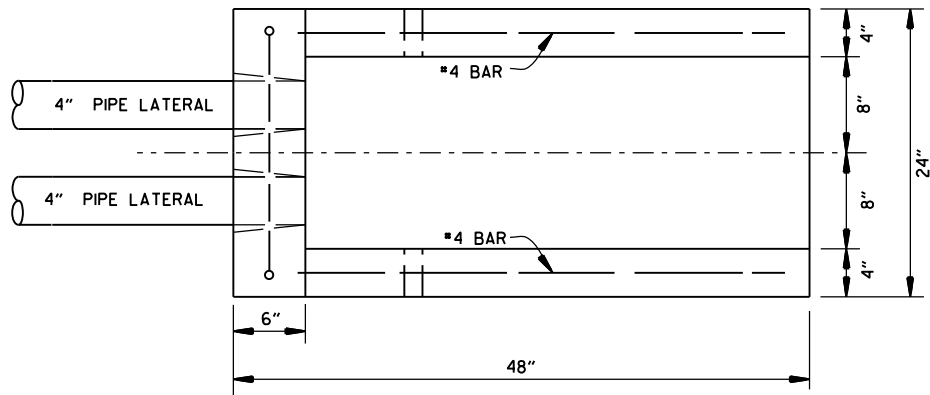
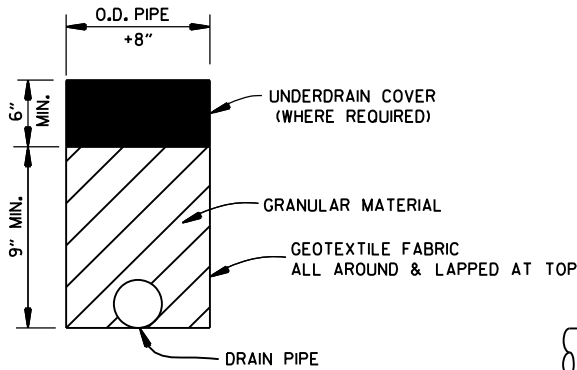
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & 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

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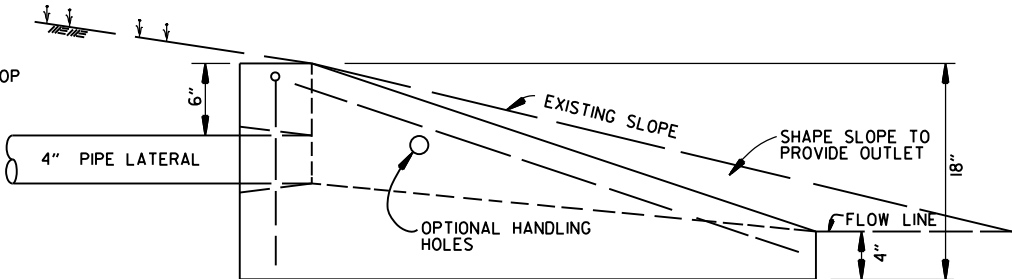
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

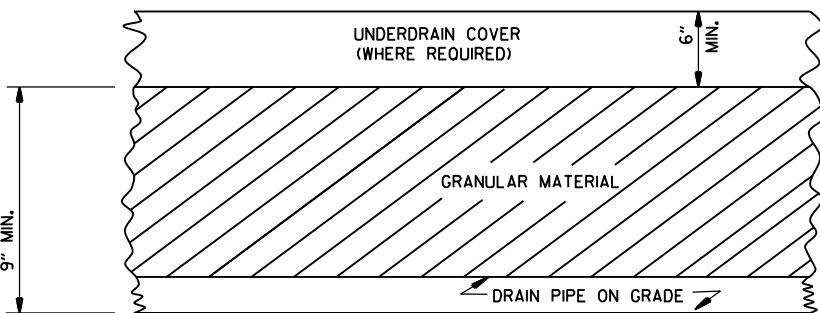
NOTE:
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



PLAN VIEW



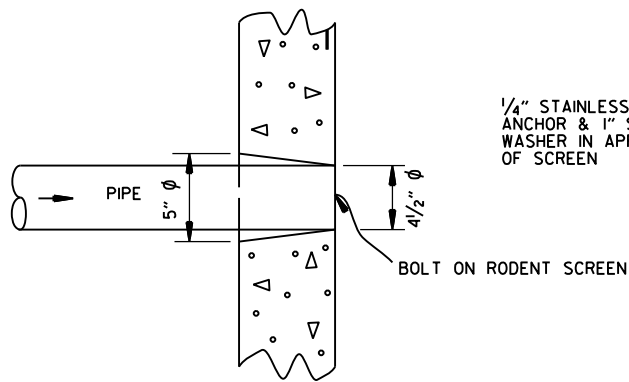
SIDE VIEW



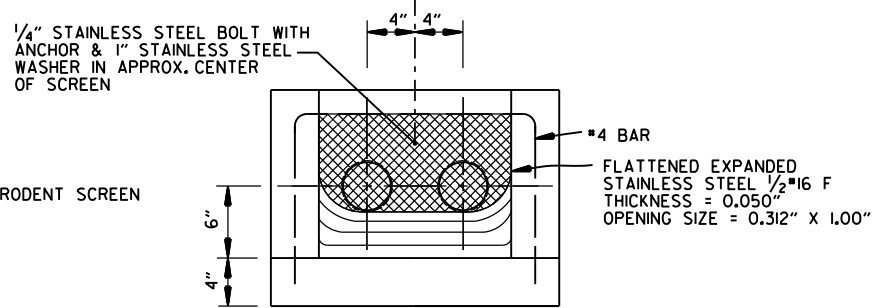
DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.
2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.
3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."
7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.



DETAIL OF HOLE FOR 4" PIPE

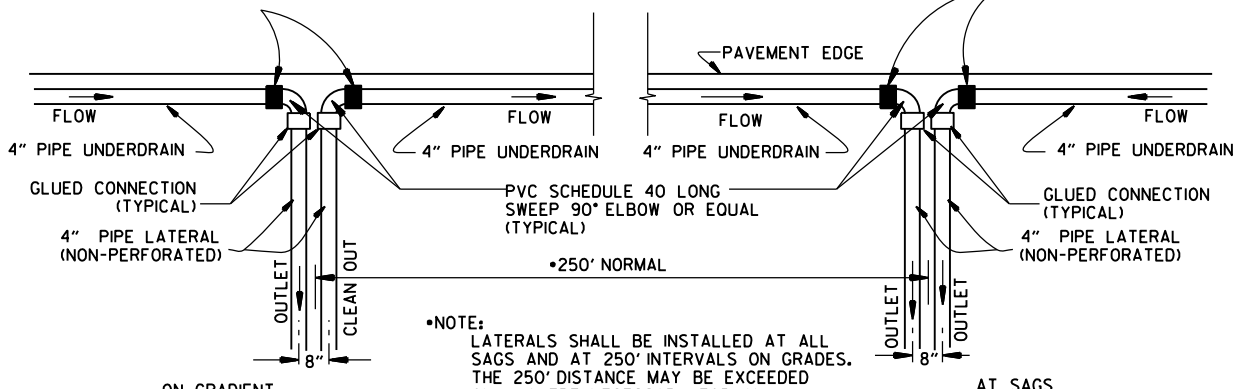


FRONT VIEW
(DETAIL OF RODENT SCREEN)

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

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.

12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
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

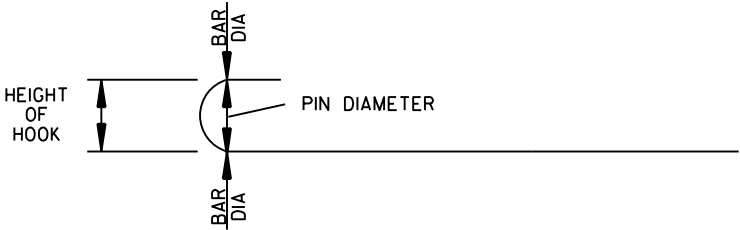
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2 1/4"	4"
4	3 "	4 1/2"
5	3 3/4"	5"
6	4 1/2"	6"
7	5 1/4"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "bl", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2 3/4 INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "bl", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

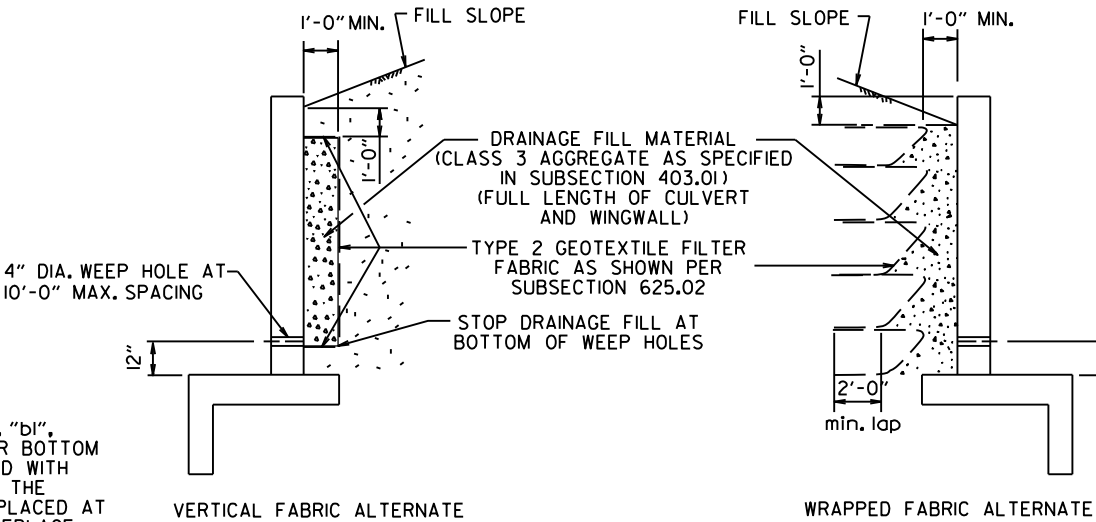
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "bl", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

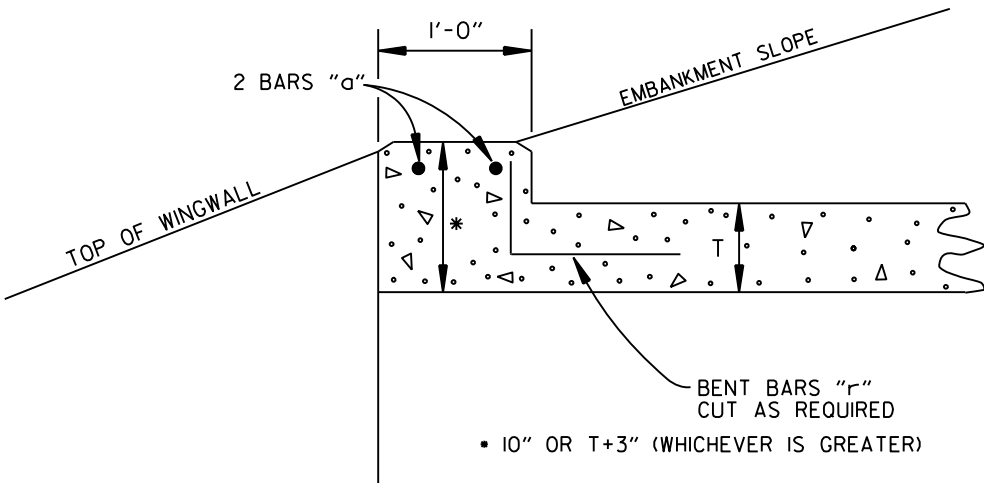
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS 1/2 INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

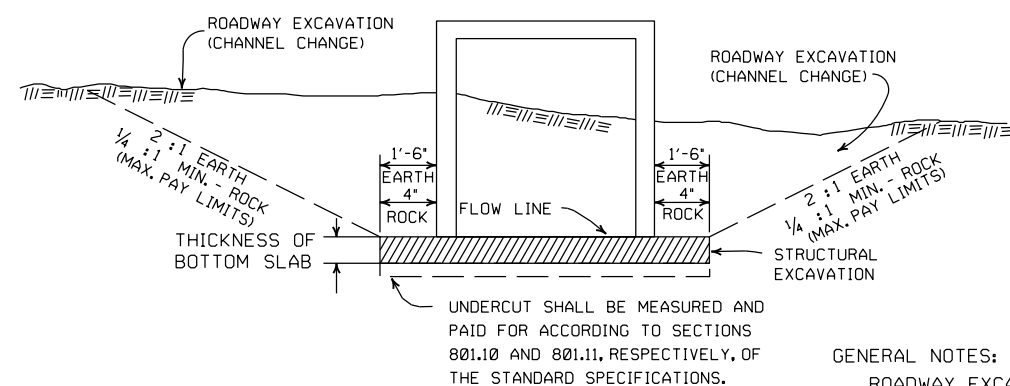
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX
CULVERT DETAILS

STANDARD DRAWING RCB-1



The diagram is a plan view of a culvert structure. At the top, the text 'SOLID SODDING' is written. Below it, a dashed rectangular box is labeled 'R. C. BOX CULV'T.'. Inside this box, a horizontal rectangle is labeled 'SOLID SODDING'. Below this rectangle, a vertical double-headed arrow is labeled '2''. To the left and right of the central rectangle are two trapezoidal shapes representing wing walls. Each wing wall is labeled 'SOLID SODDING' and has a diagonal double-headed arrow labeled '2'' indicating its width. The entire diagram is labeled 'PLAN' at the bottom.

EXCAVATION LINE

CL OF ROADWAY

PLAN

GRADE LINE

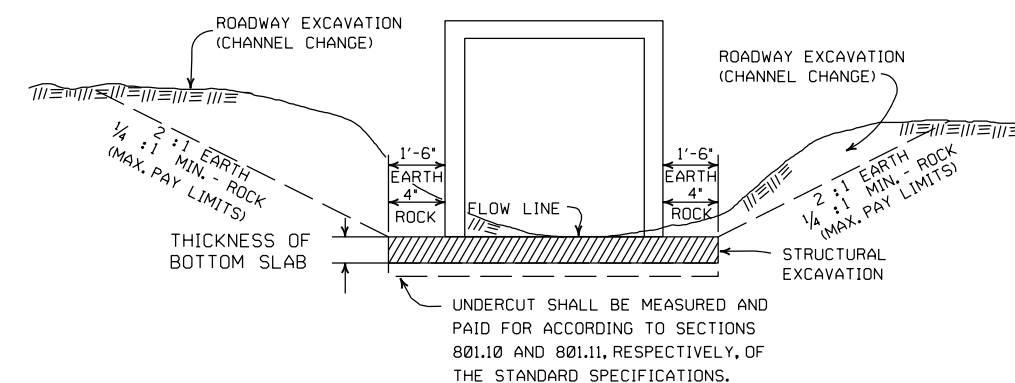
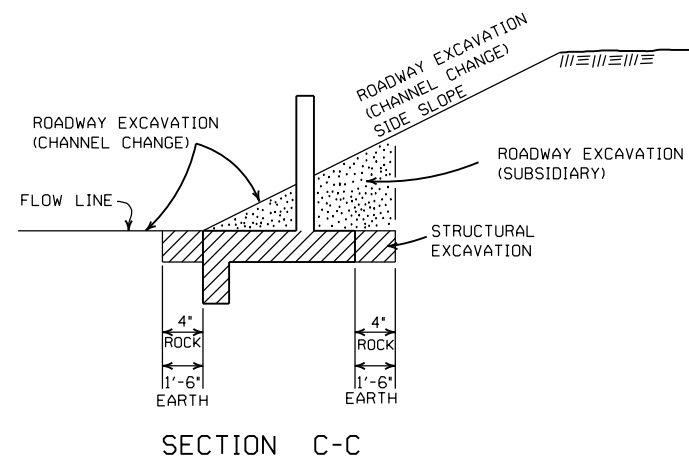
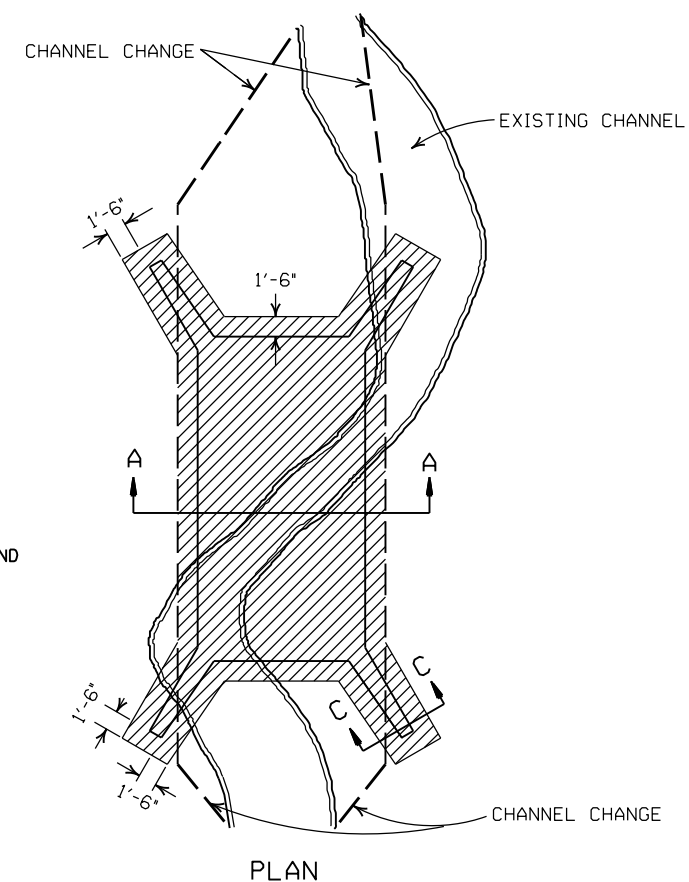
ORIGINAL GROUND

EMBANKMENT-PLACED IN HORIZONTAL LAYERS

BACKFILL-PLACED IN HORIZONTAL LAYERS

LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT



DETAILS THROUGH EXISTING CHANNELS

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72
DATE	REVISION	FILE NUMBER

ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		RC	96		RC	96	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		RC	96		RC	96		RC	96		RC	96	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139		0.042	149	
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168		0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168		0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.054	178		0.062	197		0.068	211		0.072	221	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178		0.062	197		0.068	211		0.078	235		0.088	259	
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.066	206		0.076	230		0.086	254		0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149		0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187		0.068	211		0.078	235		0.088	259		0.098	283		0.100	288	
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288		0.100	288	
3° 30'	0.030	90		0.038	113		0.046	139		0.056	171		0.066	206		0.076	230		0.086	254		0.096	278		0.100	288		0.100	288	
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283		0.100	288		0.100	288	
4° 00'	0.034	97		0.042	121		0.052	151		0.062	185		0.072	221		0.084	250		0.094	274		0.100	288		0.100	288		0.100	288	
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254		0.096	278		0.100	288		0.100	288		0.100	288	
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.088	259		0.098	283		0.100	288		0.100	288		0.100	288	
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288		0.100	288		0.100	288		0.100	288	
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		0.100	288		0.100	288		0.100	288		0.100	288	
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221		0.088	259		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288	
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
8° 30'	0.060	144		0.072	179		0.086	223		0.096	261		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
10° 00'	0.066	155		0.080	195		0.094	240		0.100	270		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
11° 00'	0.070	162		0.084	203		0.096	244		0.100	270		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
12° 00'	0.074	169		0.088	211		0.098	248		0.100	270		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
13° 00'	0.076	173		0.090	215		0.100	252	300																					
14° 00'	0.080	180		0.094	222		0.100	252	300																					
15° 00'	0.082	184		0.096	226		0.100	252	300																					
16° 00'	0.086	191		0.098	230		0.100	252	300																					
17° 00'	0.088	194		0.100	234		0.100	252	300																					
18° 00'	0.090	198		0.100	234		0.100	252	300																					
19° 00'	0.092	202		0.100	234		0.100	252	300																					
20° 00'	0.094	205		0.100	234		0.100	252	300																					
21° 00'	0.096	209		0.100	234		0.100	252	300																					
22° 00'	0.096	209		0.100	234		0.100	252	300																					
23° 00'	0.098	212		0.100	234		0.100	252	300																					
24° 00'	0.098	212		0.100	234		0.100	252	300																					
25° 00'	0.100	216		0.100	234		0.100	252	300																					

NC - NORMAL CROWN

RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE

e - RATE OF SUPERELEVATION (FT. PER FT.)

Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)

L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)

d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)

C - NORMAL CROWN (FT.)

•UNLESS OTHERWISE NOTED.

</

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION
TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)

GENERAL NOTES

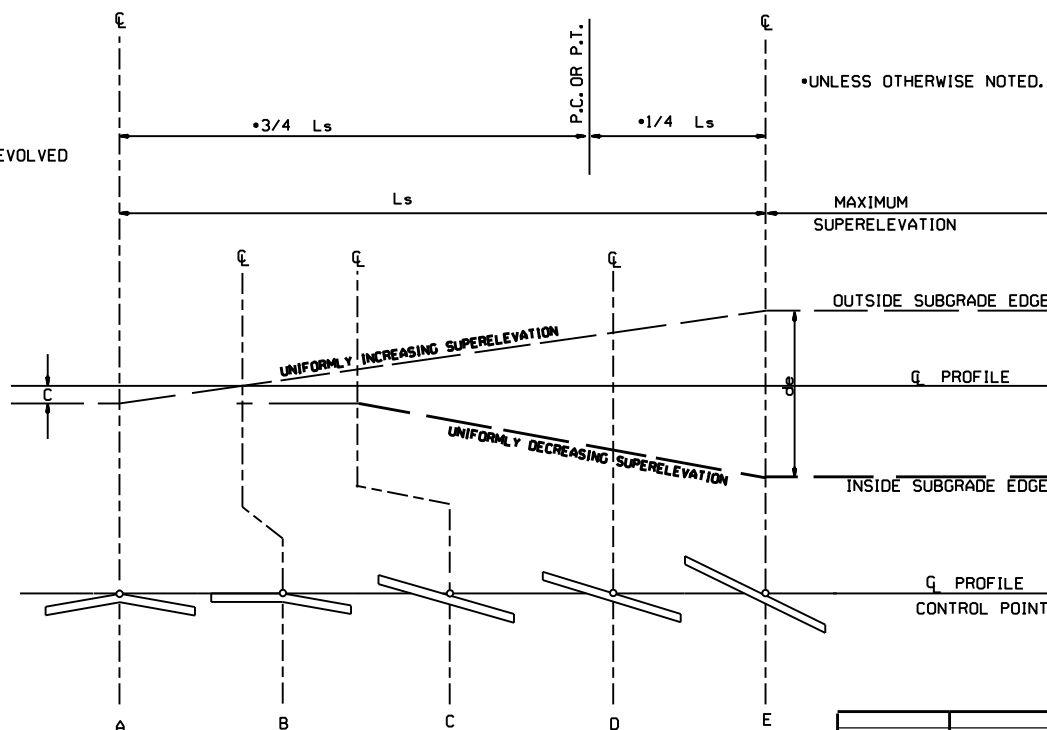
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3	LANE	UNDIVIDED	-	-	-	-	+20%
4	LANE	UNDIVIDED	-	-	-	-	+50%
5	LANE	UNDIVIDED	-	-	-	-	+80%
6	LANE	UNDIVIDED	-	-	-	-	+100%

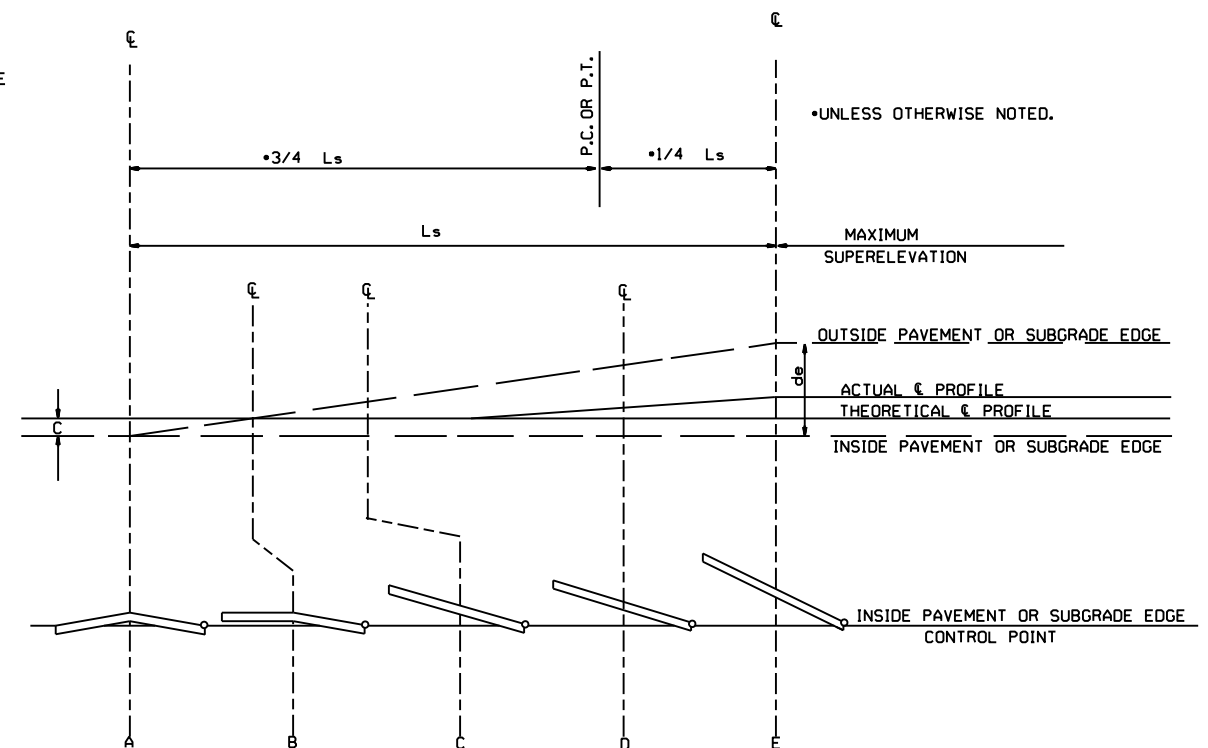
NOTE: MAINTAIN NORMAL CROWN ON INSIDE
UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE
COMPUTED ON STRAIGHT LINE METHOD
USING APPLICABLE Ls.

$$\text{SUPERELEVATION FORMULA} = \frac{Lde}{L_s}$$



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE


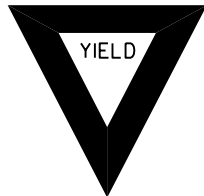

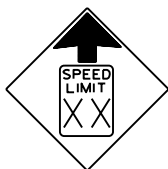

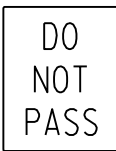



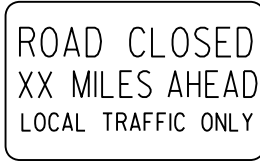


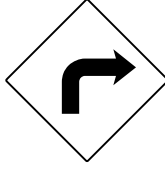




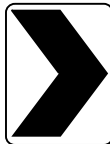
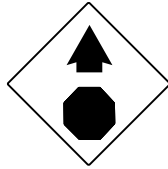
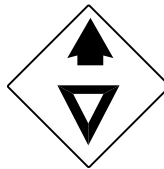
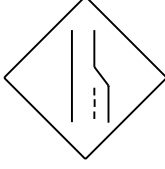

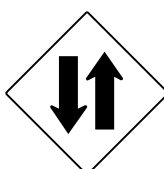

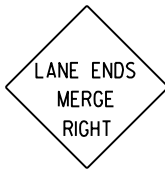


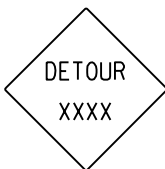






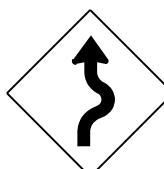
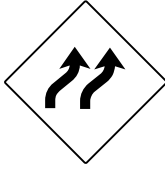


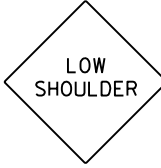

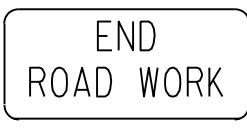
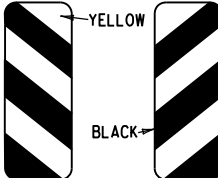


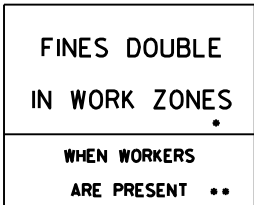
NOTE: MAINTAIN NORMAL CROWN ON
INSIDE UNTIL SUPERELEVATION
EXCEEDS 2C.

11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-8
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

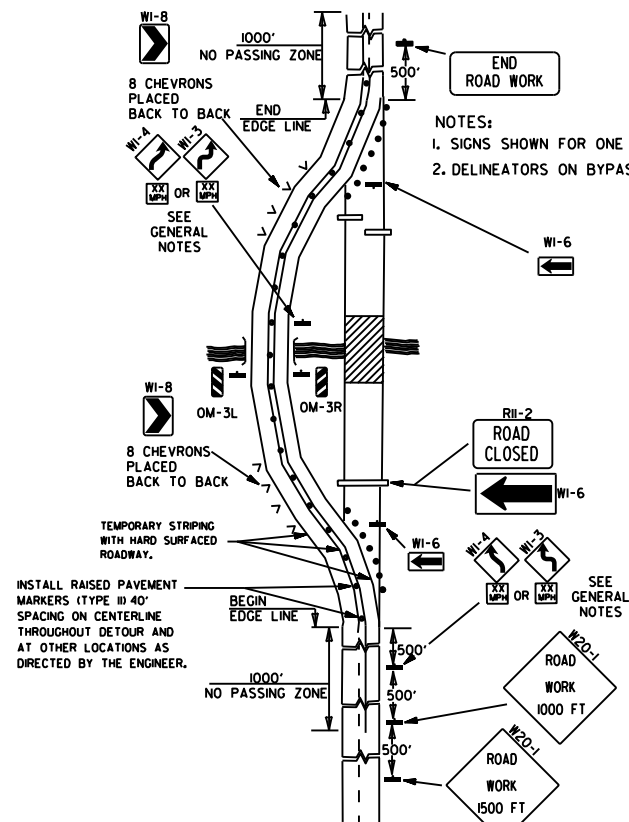
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

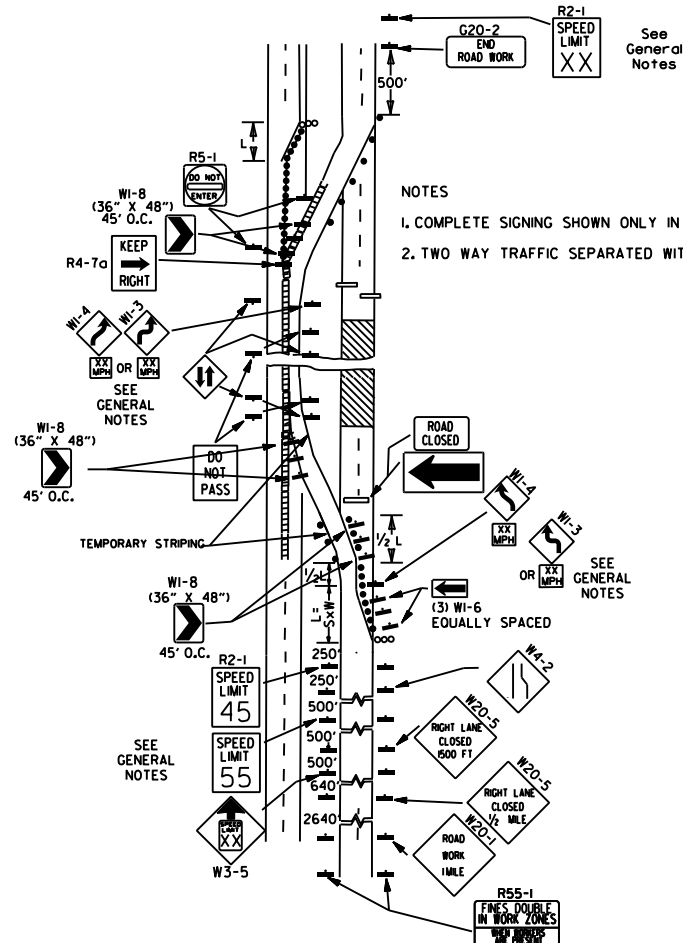
<div>RI-I</div> <div></div> <div>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</div>	<div>RI-2</div> <div></div> <div>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</div>	<div>R2-I</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>W3-5</div> <div></div> <div>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</div>	<div>W3-5a</div> <div></div> <div>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</div>	<div>R4-I</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>R4-2</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>ADVANCE DISTANCES (XXXX)</div> <div>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</div> <div>GENERAL NOTES: 1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. 2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. 3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. 6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. 7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. 8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. 10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN. • NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</div>
<div>R5-I</div> <div></div> <div>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</div>	<div>R1I-2</div> <div></div> <div>48"x30"</div>	<div>R1I-3A</div> <div></div> <div>60"x30"</div>	<div>R1I-4</div> <div></div> <div>60"x30"</div>	<div>W2I-5a</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>WI-I</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>WI-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	
<div>WI-3</div> <div></div> <div>STD. 48"x48"</div>	<div>WI-4</div> <div></div> <div>STD. 48"x48"</div>	<div>WI-6</div> <div></div> <div>STD. 48"x24" SPECIAL 60"x30"</div>	<div>WI-8</div> <div></div> <div>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</div>	<div>W3-I</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W3-2</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W4-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	
<div>W5-I</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W6-3</div> <div></div> <div>EXPWY. 36"x36" SPECIAL 48"x48"</div>	<div>W8-7</div> <div></div> <div>EXPWY. 36"x36" FWY. 48"x48"</div>	<div>W9-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W13-I</div> <div></div> <div>STD. 24"x24"</div>	<div>W20-I</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-2</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-3</div> <div></div> <div>STD. 48"x48"</div>
<div>W20-4</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-5</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-7a</div> <div></div> <div>18" 500 FEET 24" W16-2 STD. 36"x36" FWY. 48"x48"</div>	<div>W2I-2</div> <div></div> <div>STD. 30"x30" SPECIAL 36"x36"</div>	<div>W2I-5</div> <div></div> <div>STD. 30"x30" SPECIAL 36"x36"</div>	<div>W24-I</div> <div></div> <div>STD. 36"x36"</div>	<div>WI-4b</div> <div></div> <div>STD. 48"x48"</div>	<div>R56-I</div> <div></div> <div>STD. 18"x18"</div>
<div>W8-II</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W8-9</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>G20-I</div> <div></div> <div>60"x24"</div>	<div>G20-2</div> <div></div> <div>48"x24"</div>	<div>OM-3L OM-3R</div> <div></div> <div>12"x36"</div>	<div>M4-9</div> <div></div> <div>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</div>	<div>M4-10</div> <div></div> <div>48"x18"</div>	<div>R55-I</div> <div></div> <div>36"x60" • USE 6" C LETTERS •• USE 4" D LETTERS</div>

11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W2I-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
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	
DATE	REVISION	FILMED

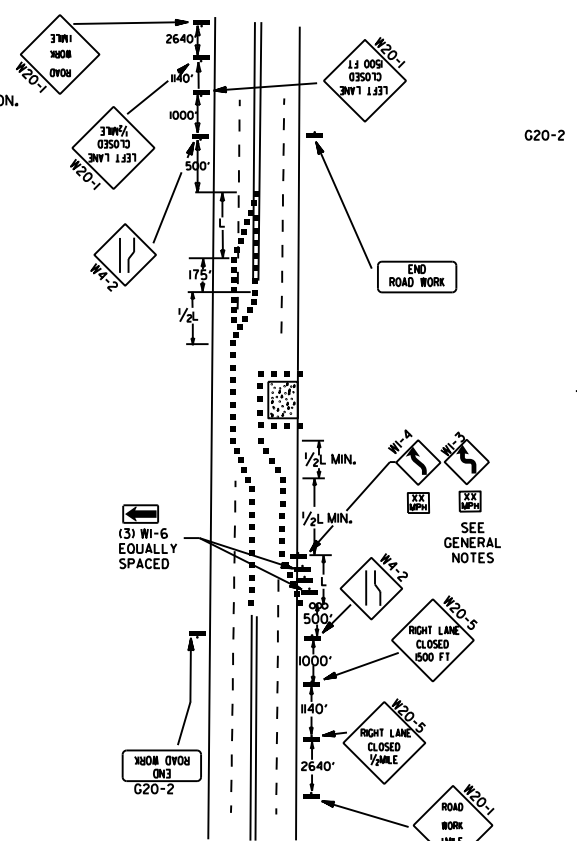
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



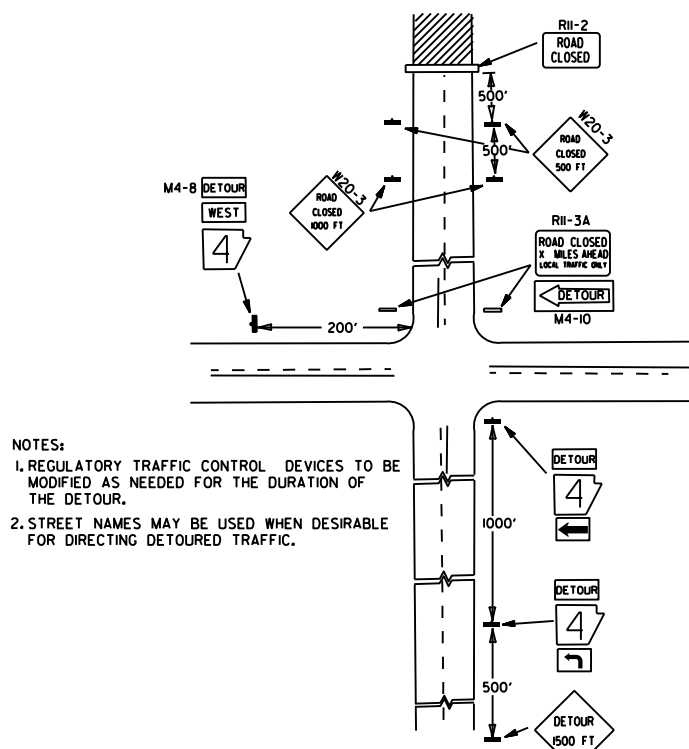
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



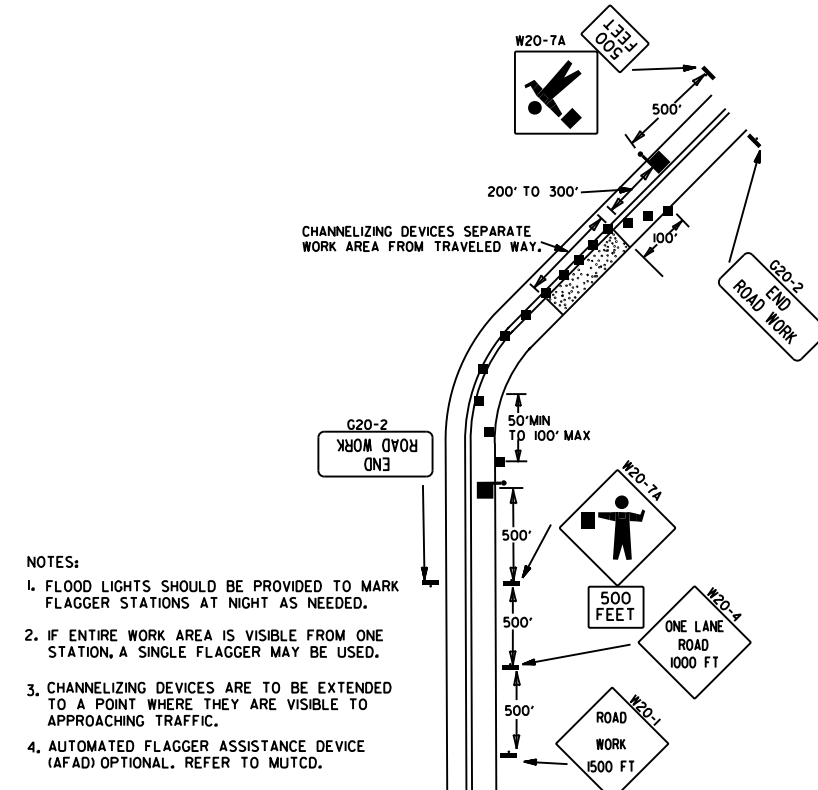
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



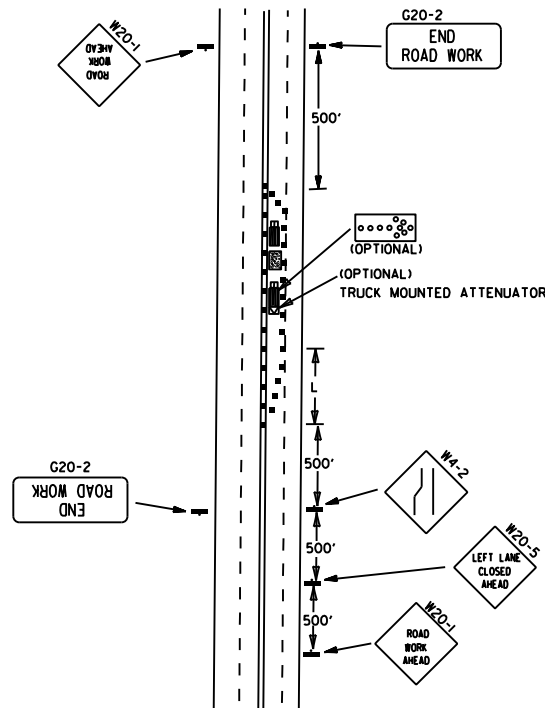
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



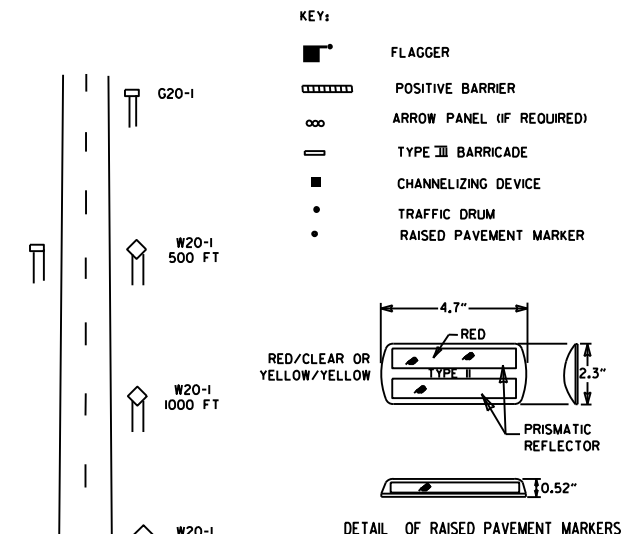
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(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.



- GENERAL NOTES:
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
8. 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 ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

05-20-21	REVISED NOTE 7	
11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
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	
DATE	REVISION	FILMED

(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

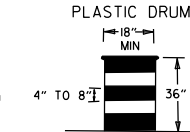
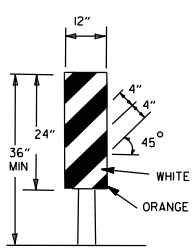
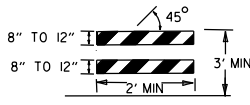
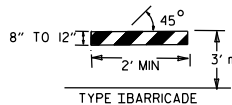
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

CHANNELIZING DEVICES

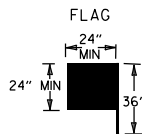
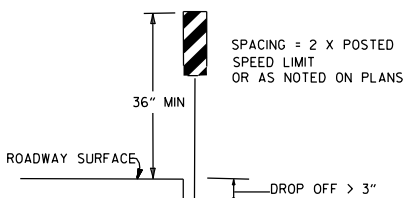


• WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES



VERTICAL PANEL PLACEMENT



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

KEY:

- ○ ○ ○ ARROW PANEL (IF REQUIRED)
- CHANNELIZING DEVICE
- TRAFFIC DRUM

GENERAL NOTES:

- A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
- WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(XX) 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-(65) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(XX) 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.
- 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 (1/2 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
- FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
- 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. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
- ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

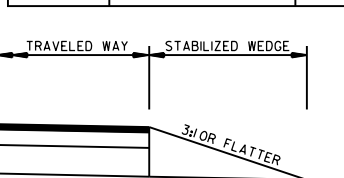
(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

TRAFFIC CONTROL DEVICES

VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
≤ 3"	CENTERLINE	STANDARD LANE CLOSURE ⁽⁶⁾	STANDARD LANE CLOSURE ⁽⁶⁾
> 3"	CENTERLINE	STANDARD LANE CLOSURE ⁽⁶⁾	STANDARD LANE CLOSURE ⁽⁶⁾
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9 AND TRAFFIC DRUMS ⁽¹⁾	W8-9 AND TRAFFIC DRUMS ⁽¹⁾
> 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS ⁽³⁾
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER ⁽⁴⁾ & EDGE LINES	PRECAST CONCRETE BARRIER ⁽⁴⁾ & EDGE LINES

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 3"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS



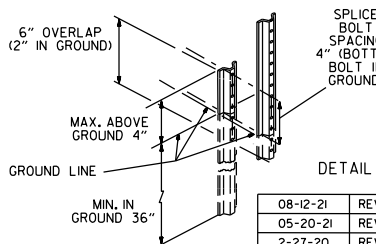
STABILIZED WEDGE

NOTE: MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



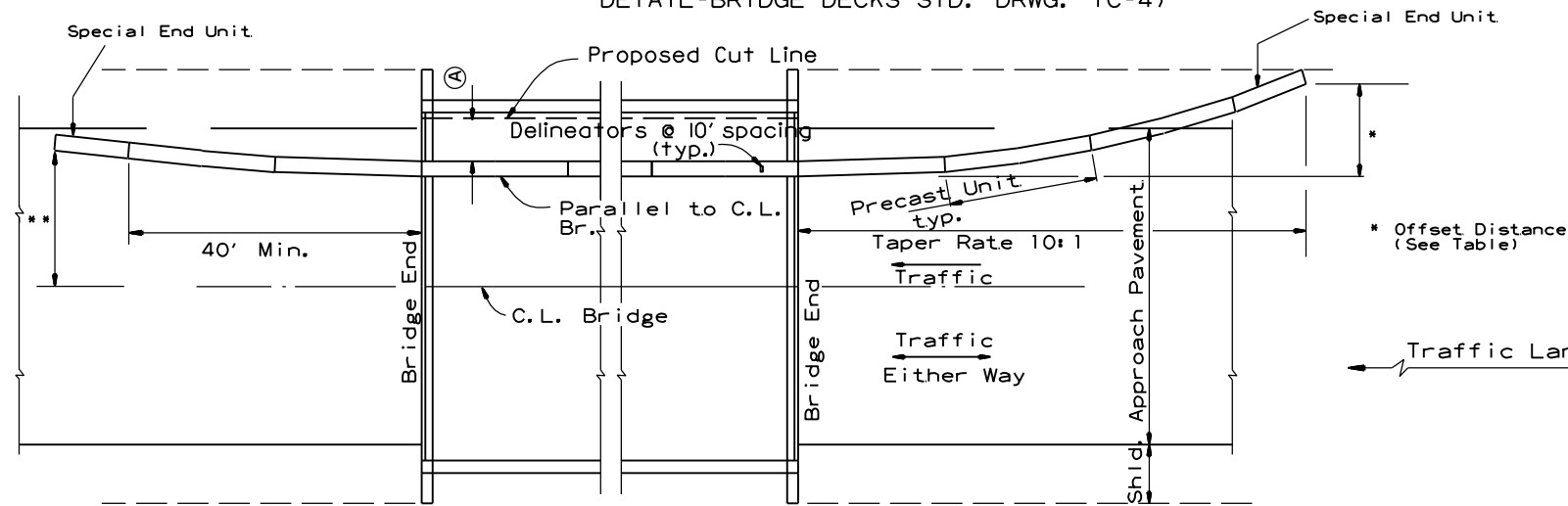
DETAIL OF SPLICES

DATE	REVISION	FILED
08-12-21	REVISED TRAFFIC CONTROL DEVICES AND NOTES	
05-20-21	REVISED NOTE 10	
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
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 W6-18 & 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

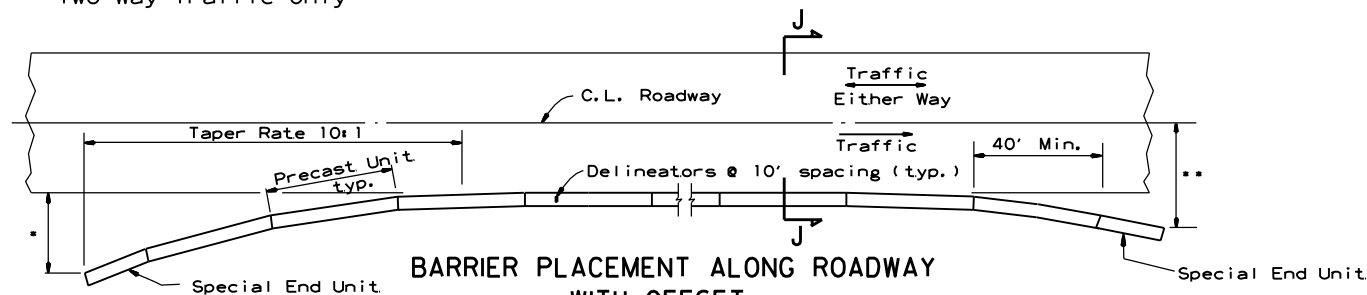
- (A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

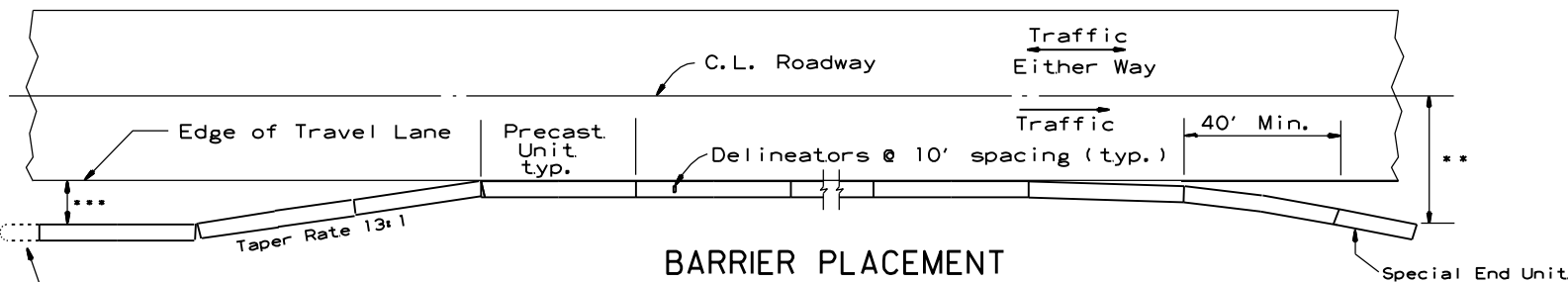
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see "Barrier Placement With Attenuator" Detail shown below.

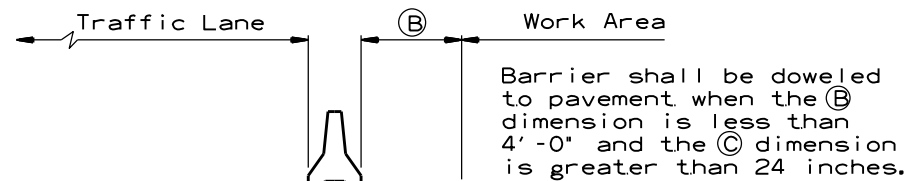


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

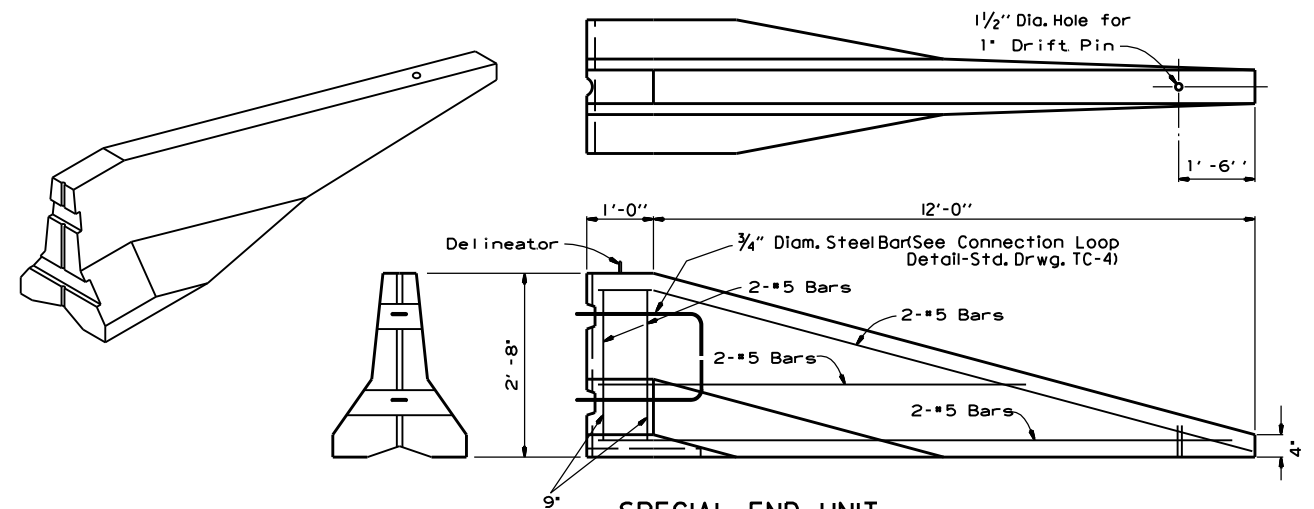
** Offset Distance For Two Way Traffic Only

***Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator



SECTION J-J

No Scale



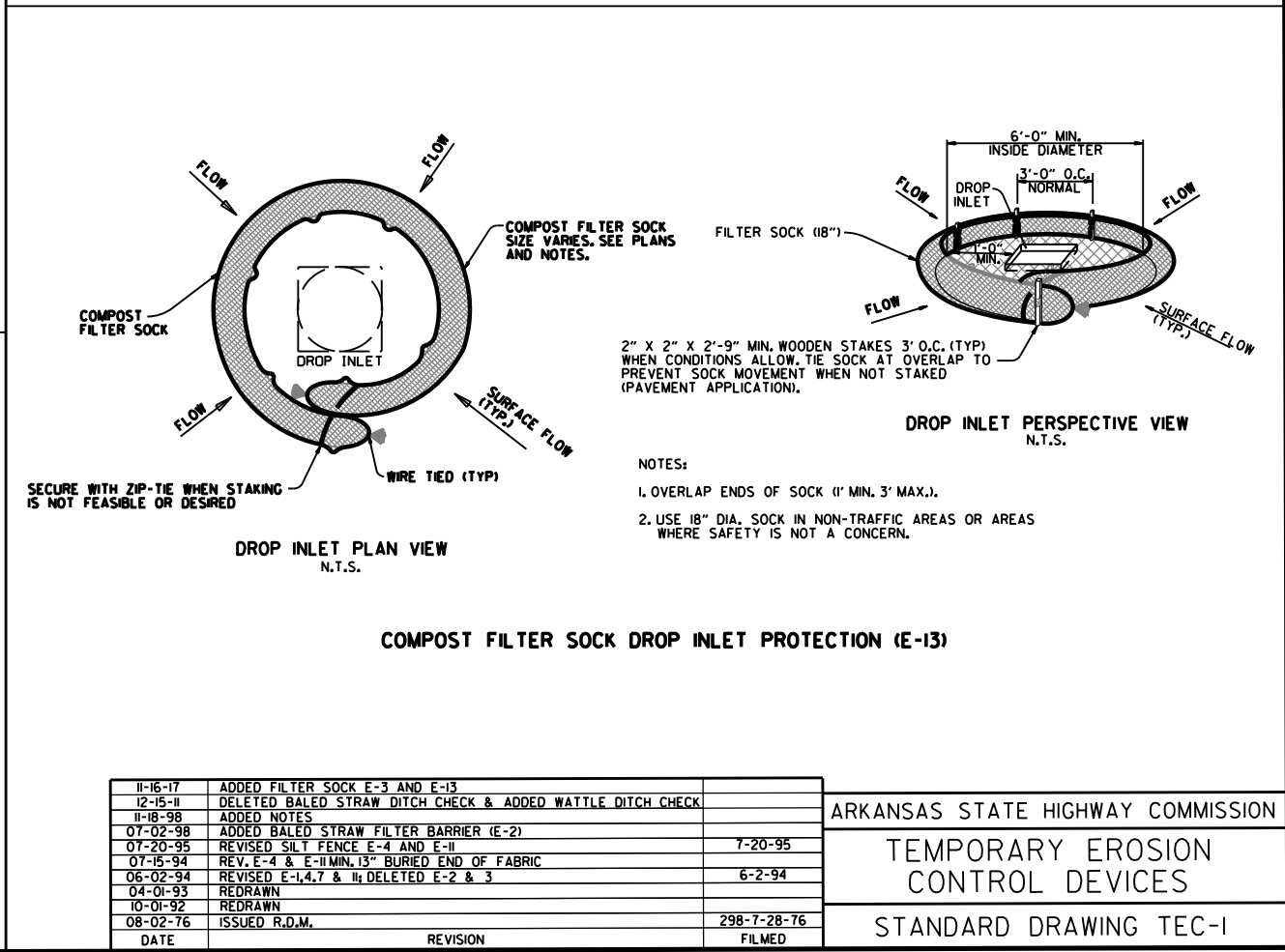
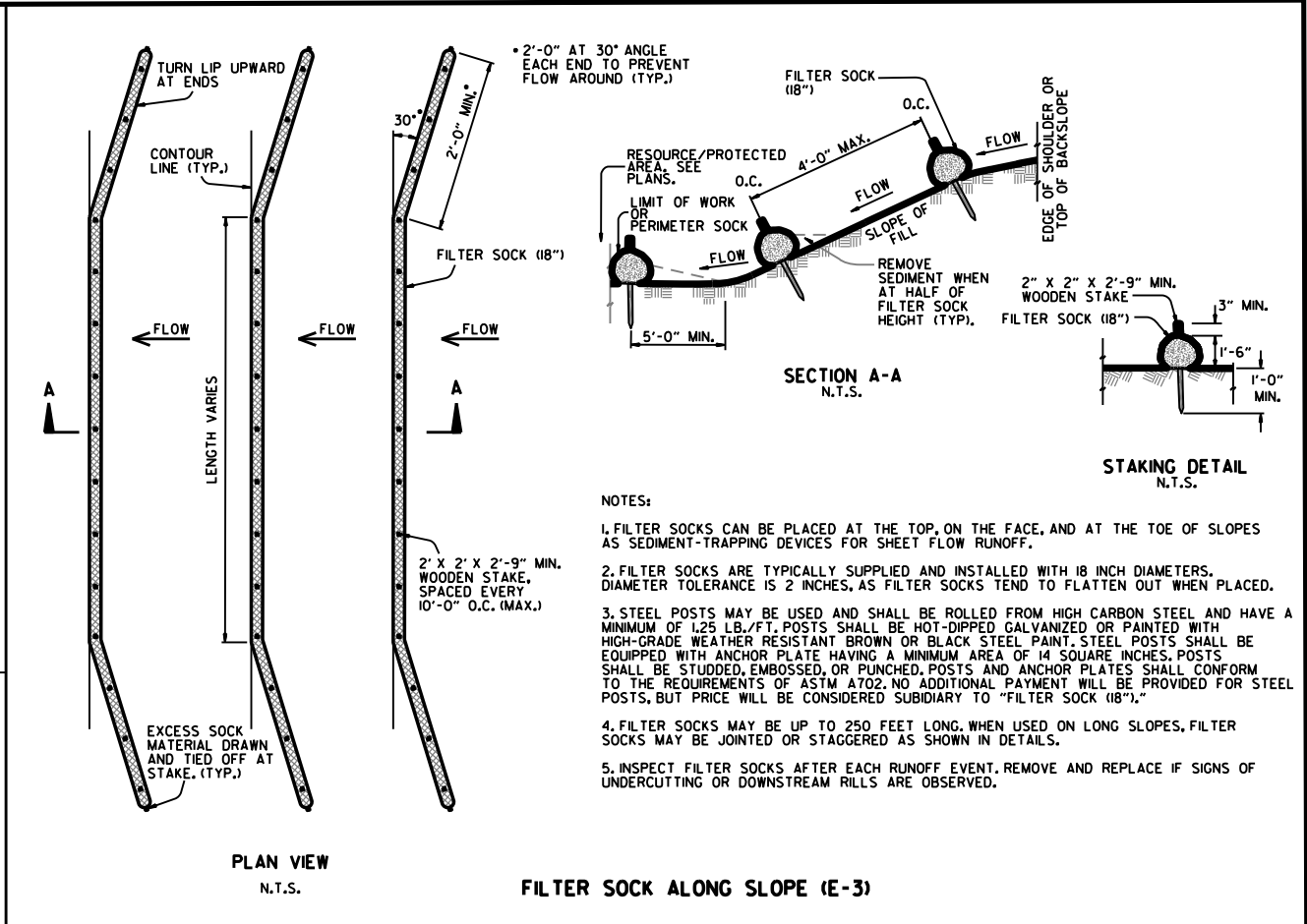
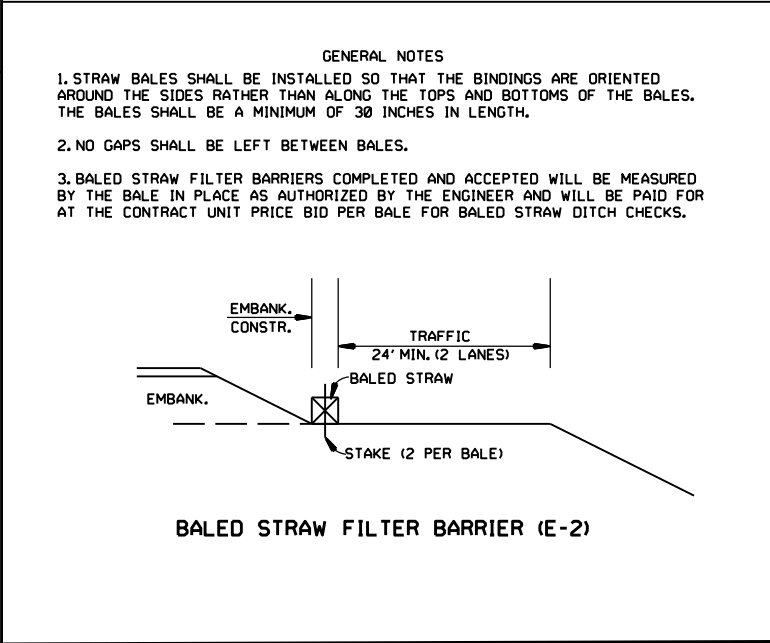
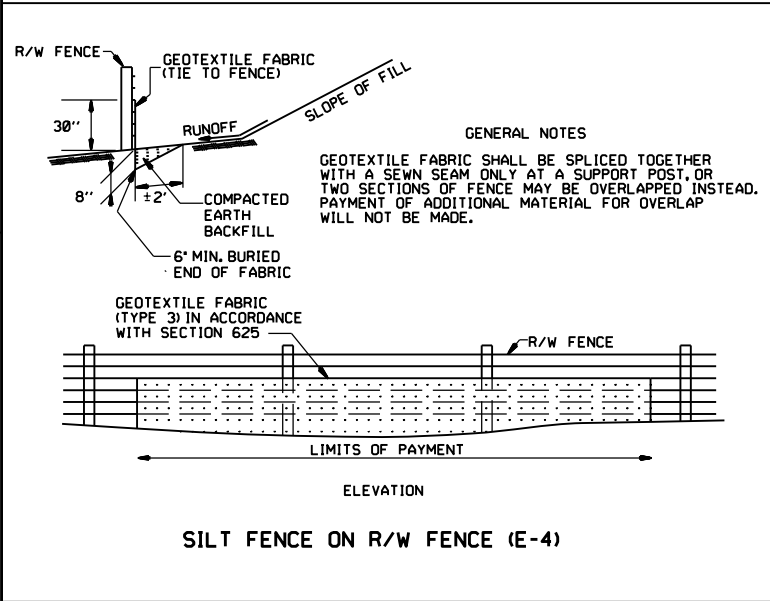
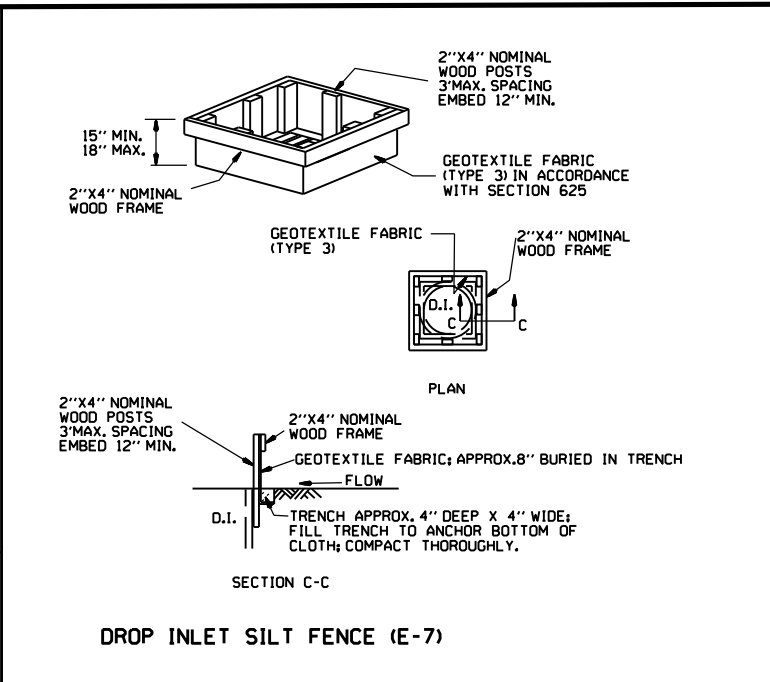
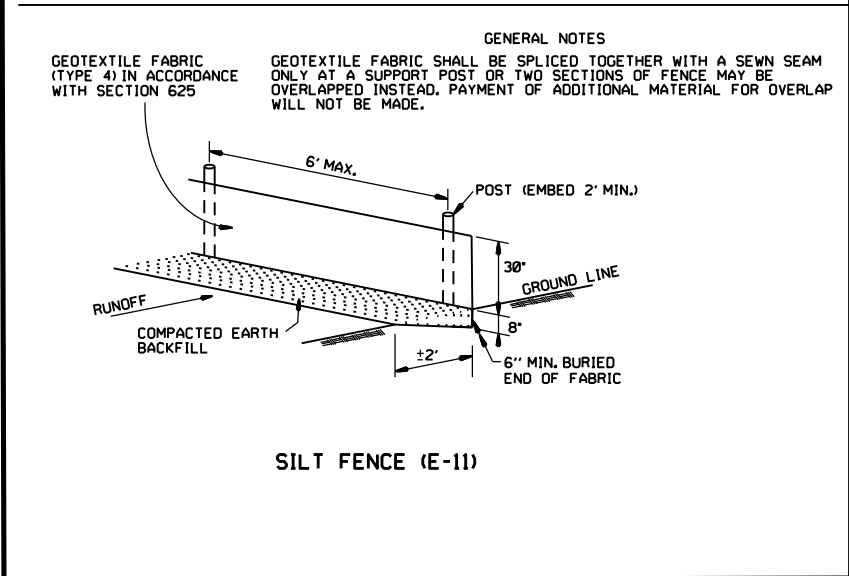
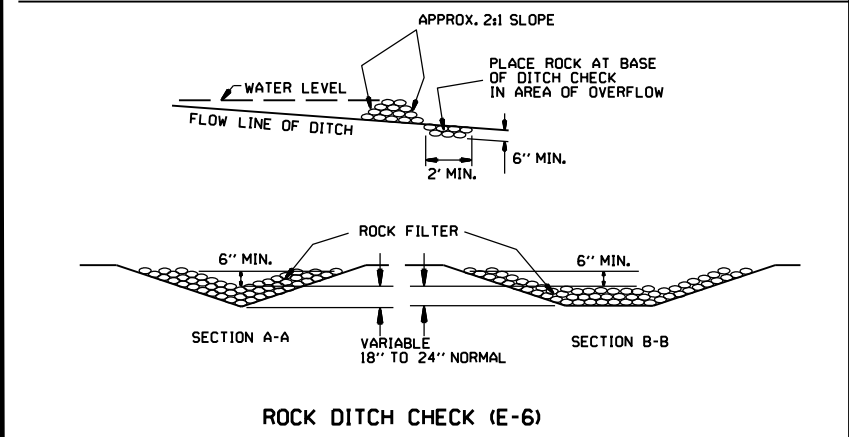
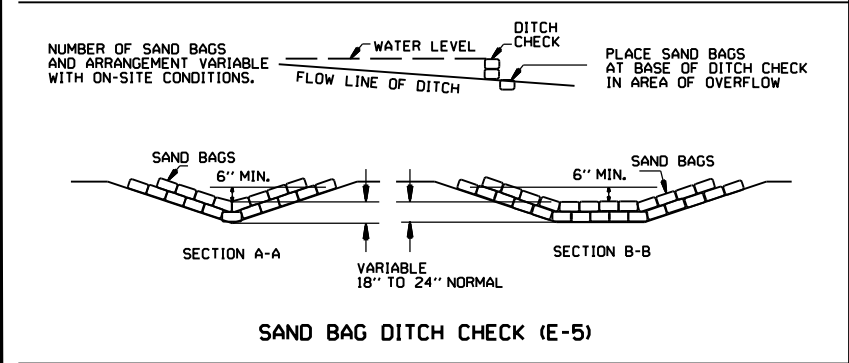
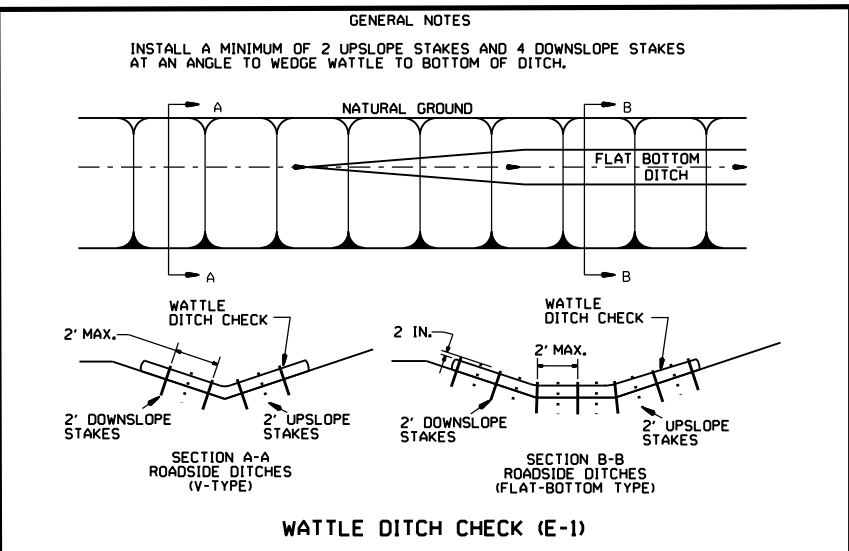
SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with a Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

ARIZONA STATE HIGHWAY COMMISSION		
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER		
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	
DATE	REVISION	FILMED
STANDARD DRAWING TC-5		



11-16-17	ADDED FILTER SOCK E-3 AND E-13		
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		
11-18-98	ADDED NOTES		
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC		
06-02-94	REVISED E-1, 4, 7 & 11; DELETED E-2 & 3	6-2-94	
04-01-93	REDRAWN		
10-01-92	REDRAWN		
08-02-76	ISSUED R.D.M.	298-7-28-76	
DATE	REVISION	FILMED	

ARKANSAS STATE HIGHWAY COMMISSION

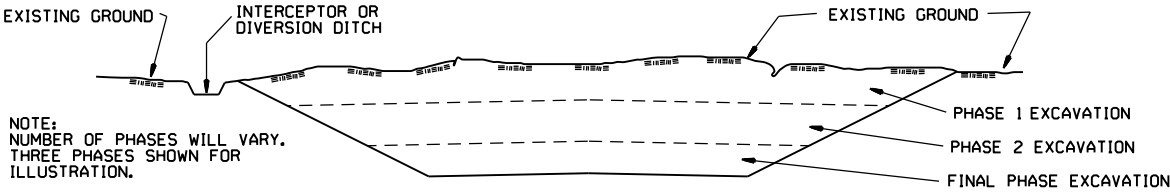
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-1

CLEARING AND GRUBBING

- CONSTRUCTION SEQUENCE
- 1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES ,DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
 - 2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION

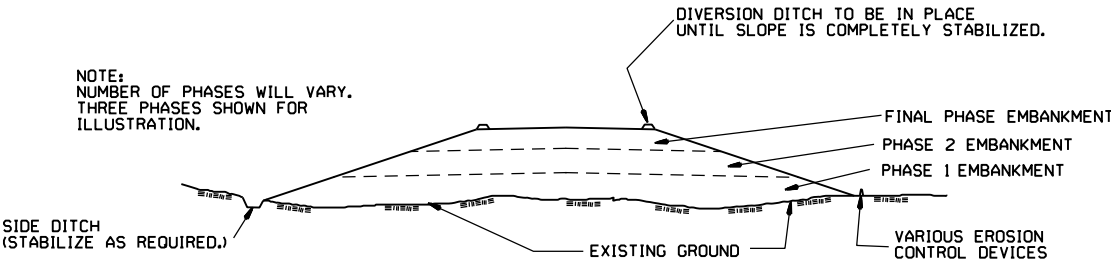


GENERAL NOTE

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

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

EMBANKMENT



GENERAL NOTE

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

- CONSTRUCTION SEQUENCE
- 1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
 - 2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
 - 3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
 - 4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

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