DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
09-22-21				6	ARK.			
				JOB NO.		100762	1	57

② HWY. 358 . HWY. 412 STRS. & APPRS. (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

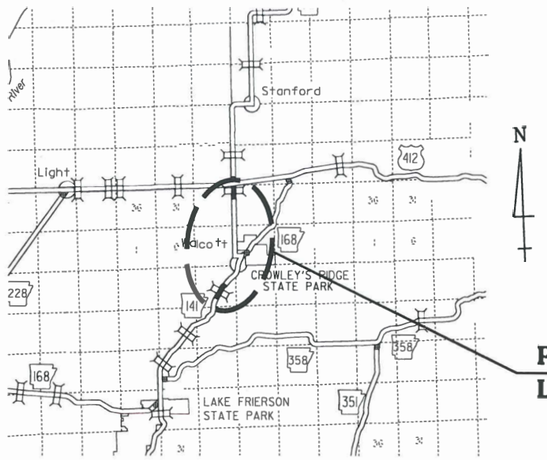
HWY. 358 - HWY. 412
STRS. & APPRS. (S)

GREENE COUNTY

HWY. 141 SECTION 2

JOB 100762

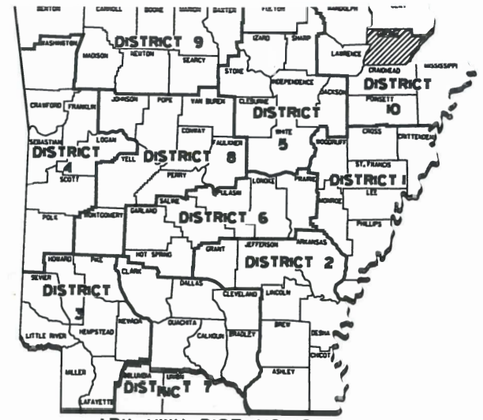
F.A.P. ACNHPP-0028(49)



PROJECT LOCATION

VICINITY MAP

NOT TO SCALE

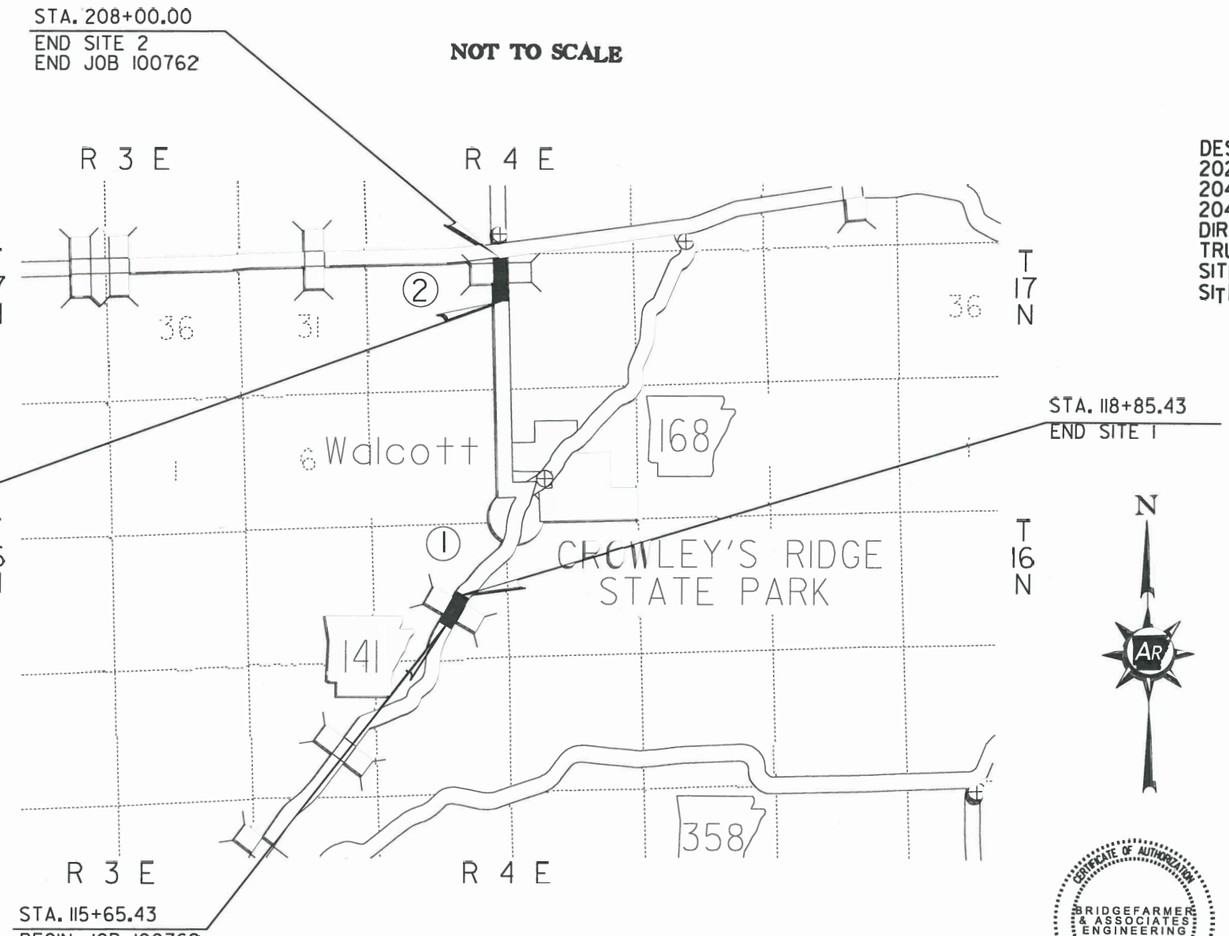


ARK. HWY. DIST. NO. 10

STRUCTURES OVER 20'-0" SPANS

① STA. 117+20.72 - CONSTRUCT
TRIPLE 8' X 7' X 63' R.C. BOX CULVERT
ON 20° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q25=269.34 CFS D.A.= 97.88 ACRES
SPAN= 26'-11½"

② STA. 206+00.00 - CONSTRUCT
QUAD. 10' X 6' X 66' R.C. BOX CULVERT
ON 20° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q25=1032.50 CFS D.A.= 1137 ACRES
SPAN = 44'-8⅜"



DESIGN TRAFFIC DATA

DESIGN YEAR	2041
2021 ADT	1,100
2041 ADT	1,400
2041 DHV	154
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	6%
SITE 1 AVERAGE RUNNING SPEED	35 MPH
SITE 2 DESIGN SPEED	55 MPH

SITE 1			
	BEGIN JOB	MID-POINT OF JOB	END JOB
LATITUDE	36°01'47" N	36°01'49" N	36°01'51" N
LONGITUDE	90°40'51" W	90°40'50" W	90°40'48" W

SITE 2			
	BEGIN JOB	MID-POINT OF JOB	END JOB
LATITUDE	36°03'58" N	36°04'01" N	36°04'03" N
LONGITUDE	90°40'21" W	90°40'21" W	90°40'21" W

PROJECT LENGTH COMPUTED ALONG C.L. CONSTRUCTION		
GROSS LENGTH OF PROJECT	720.00 FEET OR	0.136 MILES
NET LENGTH OF ROADWAY	648.34 FEET OR	0.123 MILES
NET LENGTH OF BRIDGES	71.66 FEET OR	0.013 MILES
NET LENGTH OF PROJECT	720.00 FEET OR	0.136 MILES

CERTIFICATE OF AUTHORIZATION
BRIDGEFARMER & ASSOCIATES ENGINEERING
No 945
ARKANSAS ENGINEER

P.E. JOB 100762

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11404
9-21-0922

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
06-30-21			
08-30-21			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100762	2	57

(2) INDEX OF SHEETS, STANDARD DRAWINGS, GOVERNING SPECS., AND GENERAL NOTES

INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, GENERAL NOTES, AND STANDARD DRAWINGS
3 - 5	TYPICAL SECTIONS OF IMPROVEMENT
6 - 15	SPECIAL DETAILS
16 - 21	TEMPORARY EROSION CONTROL DETAILS
22 - 28	MAINTENANCE OF TRAFFIC DETAILS
29 - 30	PERMANENT PAVEMENT MARKING DETAILS
31 - 35	QUANTITIES
36	SUMMARY OF QUANTITIES AND REVISIONS
37 - 40	SURVEY CONTROL DETAILS
41 - 43	PLAN AND PROFILE SHEETS
44 - 57	CROSS SECTIONS

NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	11-07-19
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
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
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
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
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-4	WIRE FENCE TYPE C AND D	08-22-02

GENERAL NOTES

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

2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.

3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS.

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

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

7. THIS PROJECT IS COVERED UNDER A NATIONWIDE 14 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENT MATERIALS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.

9. THE EXISTING PAVEMENT TO BE REMOVED 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 PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

10. 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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHANNAR M. TOM
2021-08-30

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
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
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
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
800-1	STRUCTURES
804-2	REINFORCING STEEL FOR STRUCTURES
JOB 100762	BIDDING REQUIREMENTS AND CONDITIONS
JOB 100762	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100762	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100762	CARGO PREFERENCE ACT REQUIREMENTS
JOB 100762	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 100762	ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 100762	FLEXIBLE BEGINNING OF WORK
JOB 100762	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100762	MAINTENANCE OF TRAFFIC
JOB 100762	MANDATORY ELECTRONIC CONTRACT
JOB 100762	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 100762	NESTING SITES OF MIGRATORY BIRDS
JOB 100762	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA BATS
JOB 100762	PLASTIC PIPE
JOB 100762	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 100762	SHORING FOR CULVERTS
JOB 100762	SOIL STABILIZATION
JOB 100762	SPECIAL CLEARING PUP SEASON REQUIREMENTS
JOB 100762	SPECIAL CLEARING REQUIREMENTS
JOB 100762	STORM WATER POLLUTION PREVENTION PLAN
JOB 100762	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100762	UTILITY ADJUSTMENTS
JOB 100762	WARM MIX ASPHALT

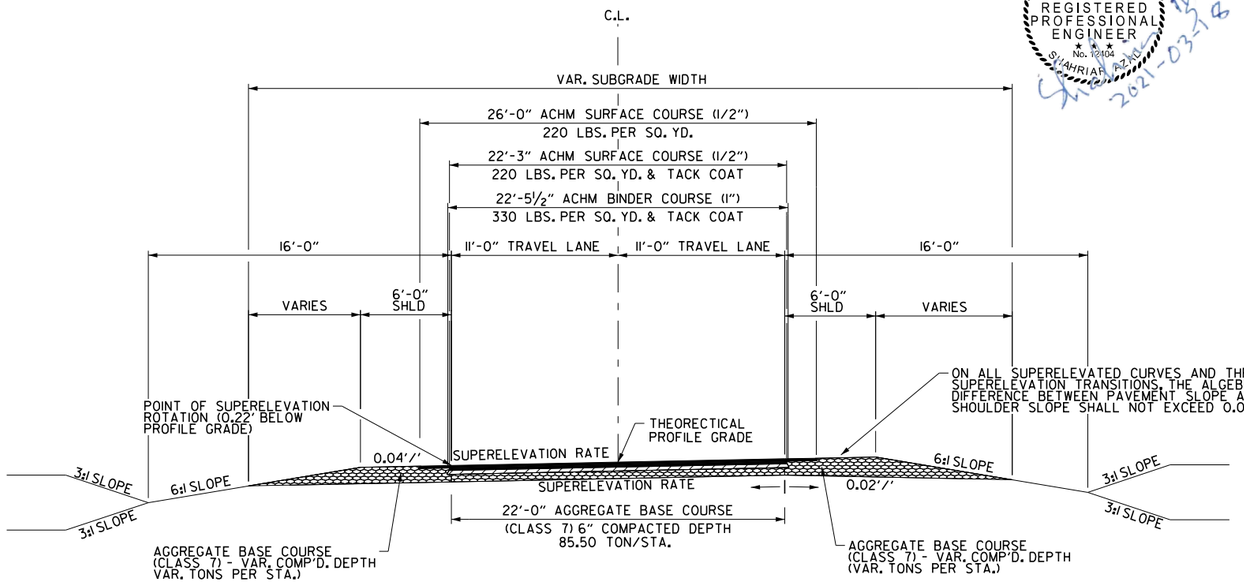
INDEX OF SHEETS, STANDARD DRAWINGS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	3	57

(2) TYPICAL SECTIONS OF IMPROVEMENT

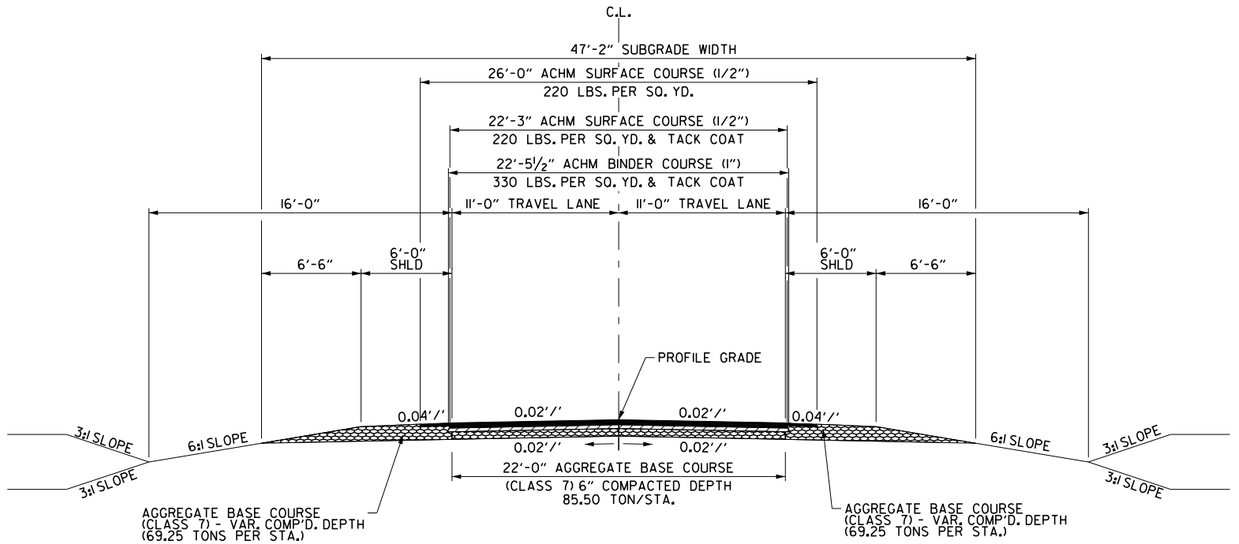
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19404
SIAHRIAR AZAD
2021-03-16



TYPICAL SECTIONS OF IMPROVEMENT - SUPERELEVATION
STA 114+65.43 - STA 116+81.85
STA 117+46.54 - STA 119+85.43

NOTES:

1. 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.
2. 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 DOESN'T MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. ON ALL SUPERPAVED CURVES AND THROUGH SUPERELEVATION TRANSITION, THE ALGEBRIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%



TYPICAL SECTIONS OF IMPROVEMENT - NORMAL CROWN
STA 116+81.85 - STA 117+46.54

TYPICAL SECTIONS OF IMPROVEMENT

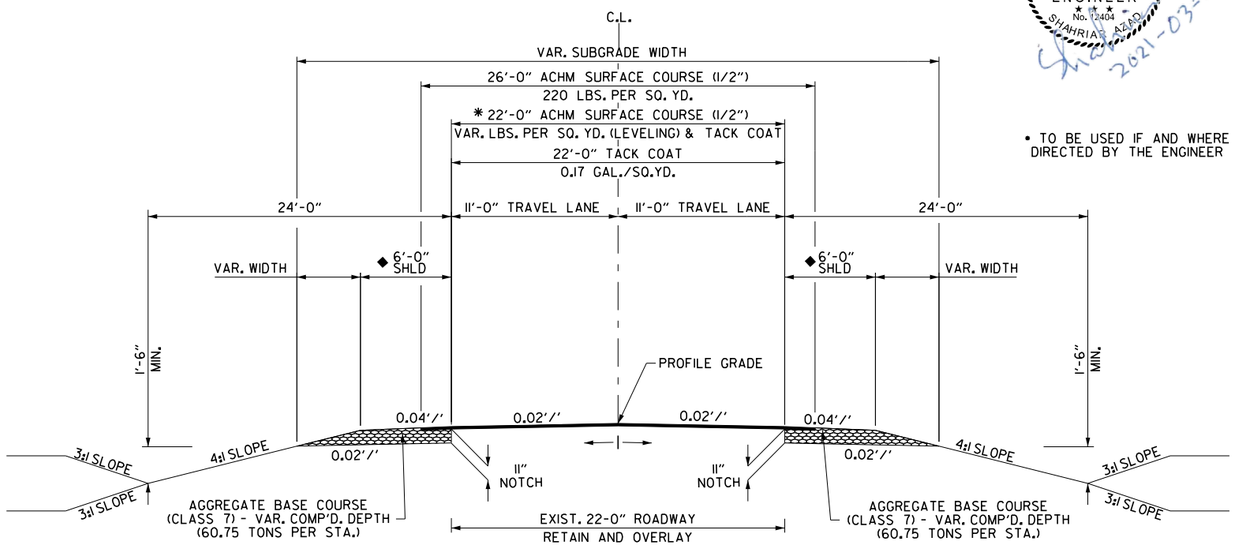
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				6	ARK.			
				JOB NO.		100762	4	57

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-18



NOTCH AND WIDENING

STA 203+00.00 - STA 204+00.00
STA 208+00.00 - STA 209+00.00

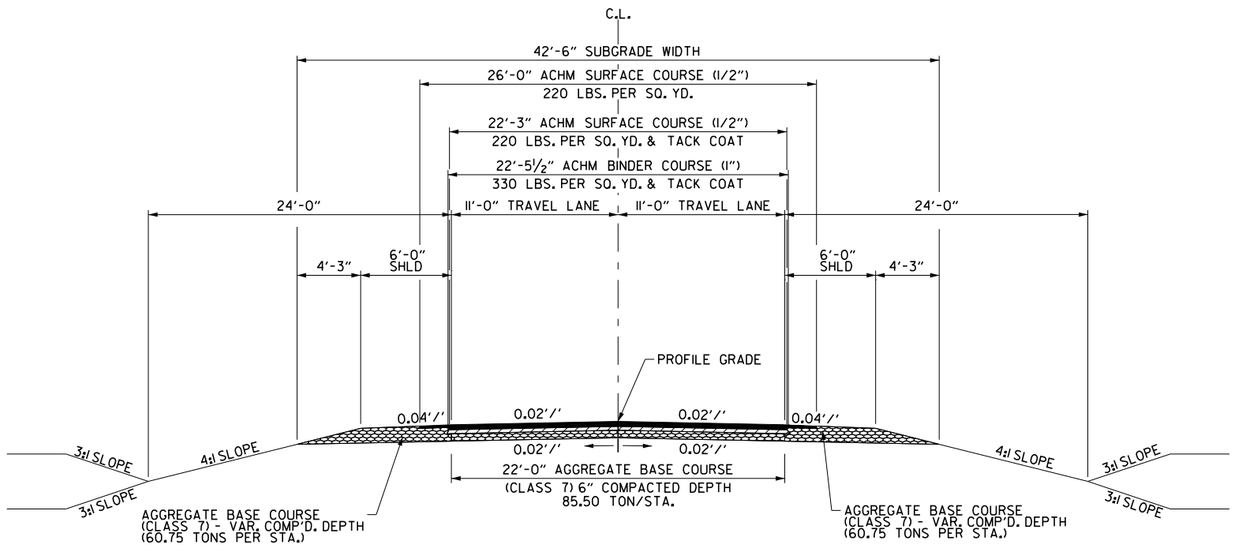
• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

◆ SHOULDER TRANSITION FROM 4'-0" AT STA. 203+00.00 TO 6'-0" AT STA. 204+00.00

◆ SHOULDER TRANSITION FROM 6'-0" AT STA. 208+00.00 TO 4'-0" AT STA. 209+00.00

NOTES:

1. 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.
2. 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 DOESN'T MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTION OF NOTCH AND WIDENING. CALCULATION WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



TYPICAL SECTIONS OF IMPROVEMENT - NORMAL CROWN
STA 204+00.00 - STA 208+00.00

TYPICAL SECTIONS OF IMPROVEMENT

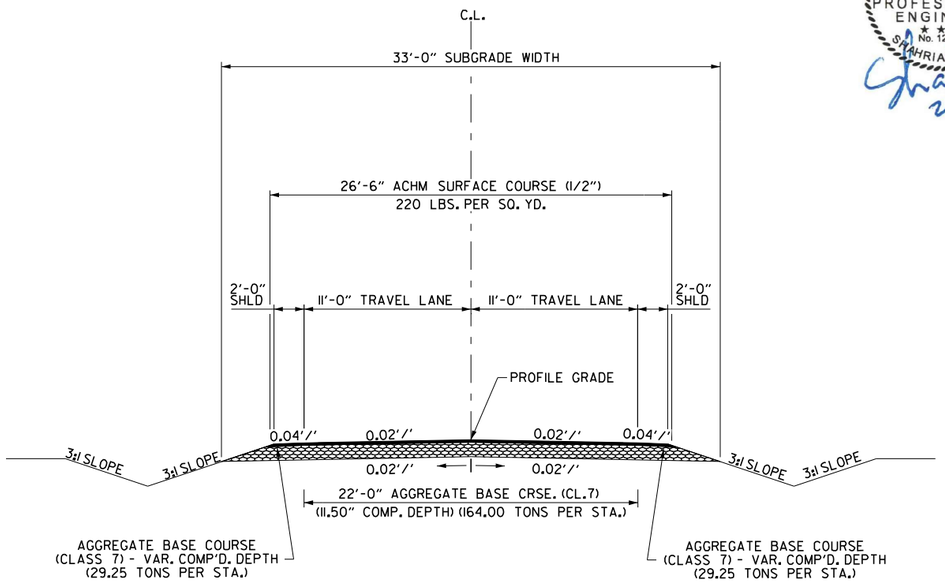
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3/5/2021
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				6	ARK.			
				JOB NO.		100762	5	57

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08

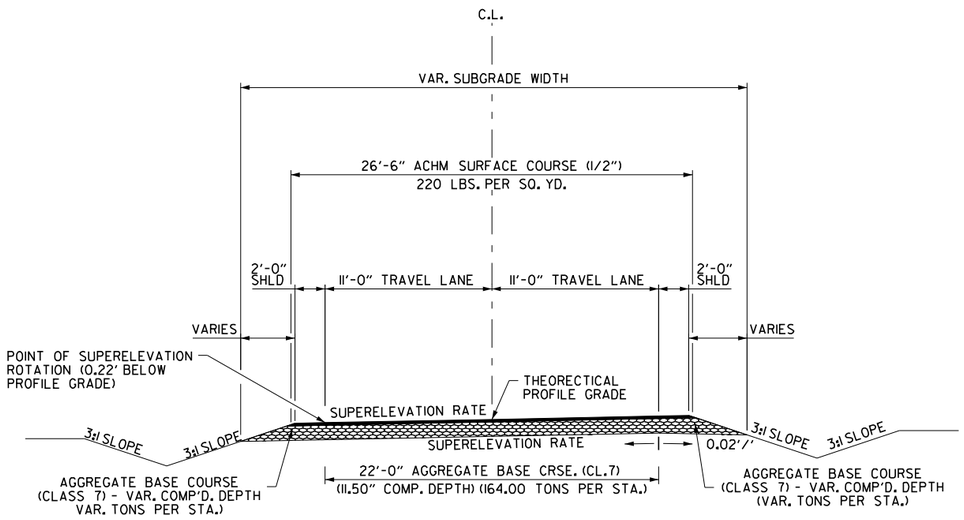


TYPICAL SECTIONS OF IMPROVEMENT - DETOUR ROAD NORMAL CROWN

STA 300+00.00 - STA 301+91.52
STA 308+14.56 - STA 310+06.08

NOTES:

1. 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.
2. 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 DOESN'T MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. ON ALL SUPERPAVED CURVES AND THROUGH SUPERELEVATION TRANSITION, THE ALGEBRIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08%



TYPICAL SECTIONS OF IMPROVEMENT - DETOUR ROAD SUPERELEVATION

STA 301+91.52 - STA 308+14.56

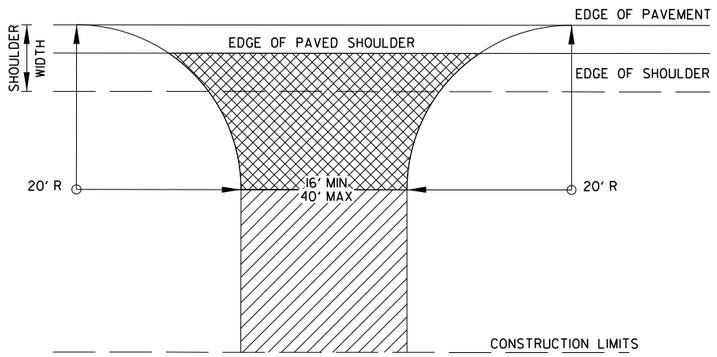
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	6	57
				(2) SPECIAL DETAILS				



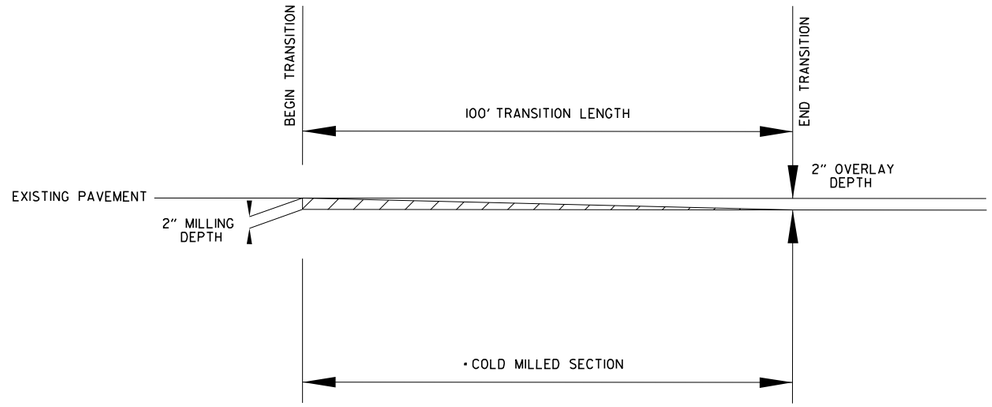


ACHM SURFACE COURSE (1/2")
(220 LBS./SQ.YD.) & AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH)

AGGREGATE BASE COURSE (CLASS 7)
9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY

TURNOUTS SHALL BE MODIFIED AS NECESSARY TO MEET LOCAL CONDITION AS DIRECTED BY THE ENGINEER.

DETAIL FOR DRIVEWAY TURNOUTS



DETAIL SHOWING TAPER TO EXISTING PAVEMENT

• TO BE USED AS DIRECTED BY THE ENGINEER

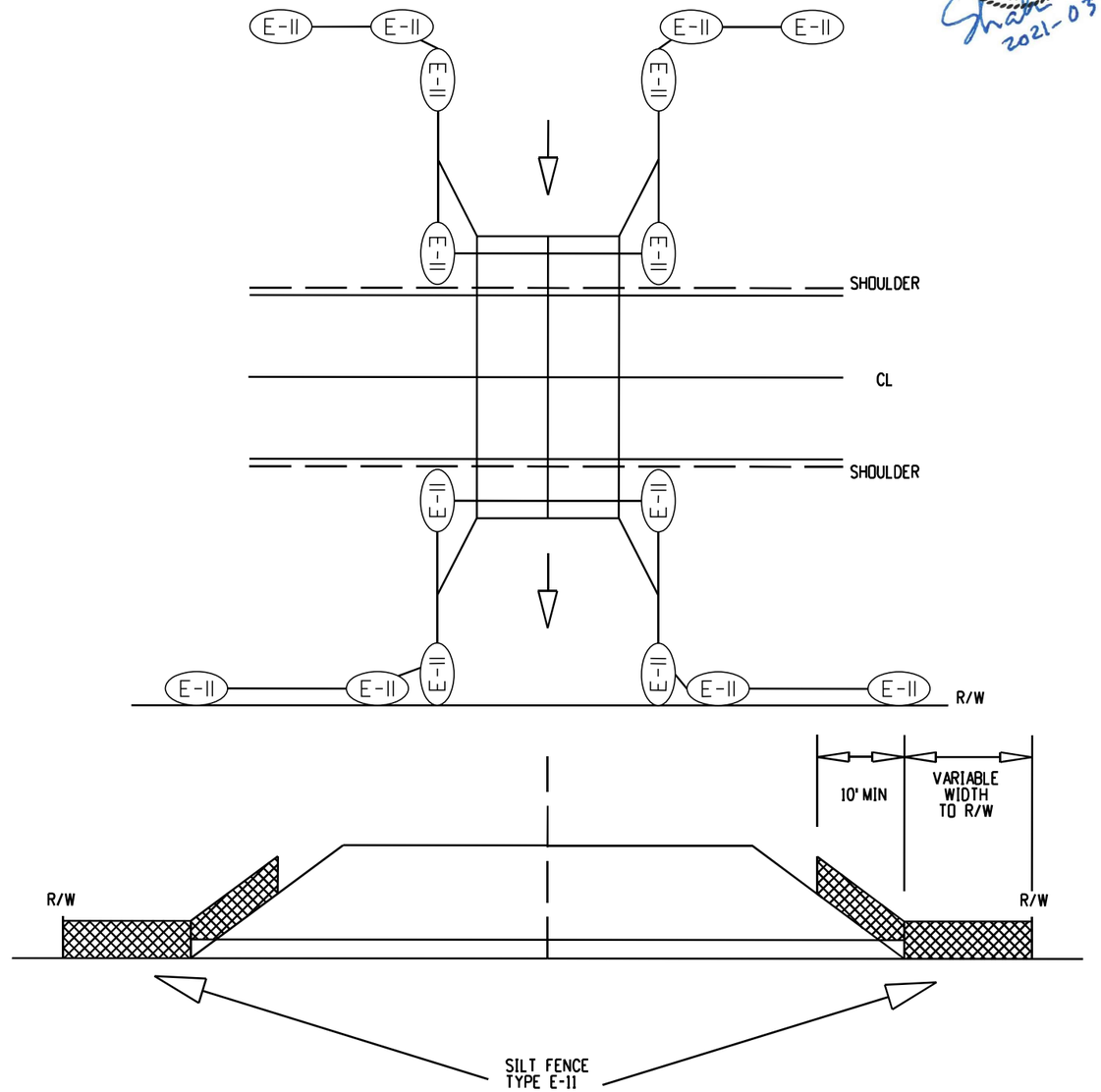
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				6	ARK.			
				JOB NO.		100762	7	57

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08



DETAIL OF SILT FENCE AT R.C. BOX

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				6	ARK.			
				JOB NO.		100762	8	57

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
26'-9"	7'-0"	0'-9"	0'-8"	-20	3:1	26'-11 1/2"	2'-0"	7'-10"	2'-4"	50	10	3'-2"	4'-2 1/8"	3'-7 3/4"	1'-1 7/8"	0'-9 3/4"	25'-6"	16'-6"	28'-8 3/8"	19'-8 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
12.36	1223

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	26	L	Min	3'-4"	4	12	5	L	4'-0"		-	-	-	L	-		4	18	6	Min
					Max	9'-8"																5'-3"
				X	Min	0'-9"				X	1'-7"					X	-					Max
					Max	1'-9"																19'-2"
				Y	Min	2'-8"				Y	2'-6"					Y	-					
					Max	8'-0"																
WING B	4	12	17	L	Min	3'-4"	4	12	3	L	3'-7"		-	-	-	L	-		4	18	6	Min
					Max	9'-2"																3'-4"
				X	Min	0'-9"				X	1'-2"					X	-					Max
					Max	1'-3"																12'-4"
				Y	Min	2'-8"				Y	2'-6"					Y	-					
					Max	8'-0"																

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY			F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS			F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS			REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	4	25'-2"	4	18	17	X	Min	2'-4"	4	8	29'-6"	6	18	18	Min			4	18	2	Min			4	2	25'-7"	4	2	28'-3"	6	12	7	L	3'-4"		755
									Max	2'-4"							2'-8"						40'-7"														
																	Max						Max														
								Y	Min	2'-10"							3'-8"						40'-7"												X	1'-8"	
									Max	8'-0"																											
WING B	4	18	4	16'-2"	4	18	11	X	Min	2'-4"	4	8	20'-6"	6	18	11	Min			-	-	-	Min			4	2	16'-11"	4	2	17'-6"	6	12	7	L	3'-4"		468
									Max	2'-4"							2'-8"						-														
								Y	Min	3'-0"							Max						Max												X	1'-8"	
									Max	8'-0"							3'-2"						-														

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

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"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 18381
JESSE D. HARRELL
3-4-2021

TABULAR DATA BY: DCD DATE: 09/29/2020
CHECKED BY: JDH DATE: 09/30/2020

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.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																																									
20	3:1	5	8	7	6'-10"	9	3	9	8.5	8	26'-9"	8'-6"	6	9	Max 26'-5" Min 4'-8" 26'-5"	11 3	7	9	Max 26'-5" Min 4'-8" 26'-5"	11 3	4	6.5	Max 26'-5" Min 4'-8" 26'-5"	15 4	4	7.5	Max 26'-5" Min 4'-8" 26'-5"	13 4	4	5	34	8'-2"	4	12	32	8'-2"	4	12	53	Max 11'-7" Min 1'-10"	4	12	53	Max 11'-7" Min 1'-10"	4	12	7	LONG 11'-4" SHORT 2'-0"	4	12	14	LONG 8'-3" SHORT 5'-1"

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
4	28'-2"	6	4	28'-2"	6	4	1'-8"	0'-8"	30

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
15.67	2600

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

INLET SLOPE SECTION(S)

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.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL																																									

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D

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

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	CLEAR SPAN (FT.)	CLEAR HEIGHT (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 LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL																																									
A	5	8	7	9	9	8.5	8	26'-9"	8'-6"	49.33	4	26'-5"	8	26'-10"	6	26'-5"	18	32	4	26'-5"	4	26'-9"	4	26'-5"	13	45	4	5	236	8'-2"	4	12	196	8'-2"	4	12	53	4	12	53	4	12	14	4	12	28

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR 60) LBS.
108.49	14081

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 117+21

SPECIAL DETAILS

Robert.Darrington@m23/2021 11:33:18 AM

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.		100762	9	57

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 18381
JESSE D. HARRELL
3-4-2021

TABULAR DATA BY: DCD DATE: 09/29/2020
CHECKED BY: JDH DATE: 09/30/2020

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		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
26'-9"	7'-0"	0'-9"	0'-8"	-20	3:1	26'-11 1/2"	2'-0"	7'-10"	2'-4"	50	10	3'-2"	4'-2 1/8"	3'-7 3/4"	1'-1 7/8"	0'-9 3/4"	25'-6"	16'-6"	28'-8 3/8"	19'-8 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
13.48	1223

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	26	L	Min	3'-4"	4	12	5	L	4'-0"	-	-	-	L	-	4	18	6	Min	4	18	4	25'-2"
					Max	9'-8"														5'-3"				
				X	Min	0'-9"				X	1'-7"				X	-				Max				
					Max	1'-9"														19'-2"				
				Y	Min	2'-8"				Y	2'-6"				Y	-								
					Max	8'-0"																		
WING B	4	12	17	L	Min	3'-4"	4	12	3	L	3'-7"	-	-	-	L	-	4	18	6	Min	4	18	4	16'-2"
					Max	9'-2"														3'-4"				
				X	Min	0'-9"				X	1'-2"				X	-				Max				
					Max	1'-3"														12'-4"				
				Y	Min	2'-8"				Y	2'-6"				Y	-								
					Max	8'-0"																		

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	17	X	Min	5-1"	4	8	29'-9"	6	18	18	Min	4	18	2	Min	4	2	25'-7"	4	2	28'-3"	6	12	7	L	3'-4"	755
					Max	10'-3"							2'-8"				40'-7"												
					Min	2'-4"							Max				Max										X	1'-8"	
					Max	2'-4"							3'-8"				40'-7"												
				Y	Min	2'-10"																							
					Max	8'-0"																							
WING B	4	18	11	X	Min	5-3"	4	8	20'-9"	6	18	11	Min	-	-	-	Min	4	2	16'-11"	4	2	17'-6"	6	12	7	L	3'-4"	468
					Max	10'-3"							2'-8"				-												
					Min	2'-4"							Max				Max										X	1'-8"	
					Max	2'-4"							3'-2"				-												
				Y	Min	3'-0"																							
					Max	8'-0"																							

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"

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																			
20	3:1	5	8	7	6'-10"	9	3	9	8.5	8	26'-9"	8'-6"	6	9	Max 26'-5" / Min 4'-8"	11	7	9	Max 26'-5" / Min 4'-8"	11	4	6.5	Max 26'-5" / Min 4'-8"	15	4	7.5	Max 26'-5" / Min 4'-8"	13	4	5	34	8'-2"
															26'-5"	3			26'-5"	3			26'-5"	4			26'-5"	4				

INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH	CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
4	12	32	8'-2"	4	12	53	Max 11'-7" / Min 1'-10"	4	12	53	Max 11'-7" / Min 1'-10"	4	12	7	LONG 11'-4" / SHORT 2'-0"	4	12	14	LONG 8'-3" / SHORT 5'-1"	15.67	2600

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D
4	28'-2"	6	4	28'-2"	6	4	1'-8"	0'-8"	30

OUTLET SLOPE SECTION(S)

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.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	LENGTH = OW - 4" + BENDS SPACING	LENGTH = OW - 4" + BENDS NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	BOTTOM SLAB REINFORCING STEEL SPACING	BOTTOM SLAB REINFORCING STEEL NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH
D	S	H	T	B	C	W	OW	OH	SL																				

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D	CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
																	TOTAL	

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS			
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D

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.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

TRIPLE BARREL BOX CULVERT
Sta. 117+21

SPECIAL DETAILS

Ver. 1.17 FILENAME S:\1441\01\DGN\Plans\00_Culvert Details\b100762_cl_117+34.dgn

Ver. Jul7 FILENAME S:\1441\2\01\DGN\Plans\00_Culvert Details\bl00762_c2_206+00.dgn Robert.Darrington 3/23/2021 11:33:29 AM

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.		100762	10	57

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
43'-1"	6'-0"	0'-9"	0'-8"	-20	3:1	44'-8 3/8"	2'-0"	6'-10"	2'-0"	50	10	3'-2"	3'-8 7/8"	3'-3 7/8"	0'-5 3/4"	0'-5 7/8"	22'-6"	14'-6"	26'-0 3/8"	18'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
11.37	984

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY			F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	23	L	Min	3'-0"	-	-	-	-	-	-	-	-	4	18	4	Min	4	18	4	22'-2"	4	18	15	X	Min	4'-9"	4	8	26'-10"	6	18	15	Min	2'-8"	-	-	-	-	4	2	22'-6"	4	2	24'-8"	6	12	6	L	3'-4"	581
					Max	8'-3"												7'-7"								Max	9'-3"									Max	-													
				X	Min	0'-9"												Max								Min	2'-4"								Min													X	1'-8"	
					Max	1'-4"												14'-7"								Max	2'-4"								Max	3'-3"													
				Y	Min	2'-4"																				Min	2'-6"																						
					Max	7'-0"																				Max	7'-0"																						
WING B	4	12	15	L	Min	3'-0"	-	-	-	-	-	-	-	-	4	18	4	Min	4	18	4	14'-2"	4	18	10	X	Min	4'-9"	4	8	18'-10"	6	18	10	Min	2'-8"	-	-	-	-	4	2	14'-10"	4	2	15'-5"	6	12	6	L	3'-4"	403
					Max	7'-10"												4'-10"								Max	9'-3"									Max	-													
				X	Min	0'-9"												Max								Min	2'-4"								Min													X	1'-8"	
					Max	0'-11"												9'-4"								Max	2'-4"								Max	2'-10"													
				Y	Min	2'-4"																				Min	2'-6"																						
					Max	7'-0"																				Max	7'-0"																						

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

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: DCD DATE: 09/29/2020
CHECKED BY: JDH DATE: 09/30/2020

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.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIB. REINF. STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIB. REINF. STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIB. REINF. STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																																									
20	3	5	10	6	9'-10"	12	3	12	6.5	8	43'-1"	8'-0"	5	6	Max	28	5	7	Max	24	4	5.5	Max	31	4	7.5	Max	23	5	7	35	7'-8"	4	12	66	7'-8"	4	9	119	Max	4	9	119	Max	4	12	6	LONG	4	12	12	LONG
															42'-9"				42'-9"				42'-9"				42'-9"												17'-6"			17'-6"				17'-5"			13'-7"
															Min				Min				Min				Min												Min			Min				SHORT			MID
															4'-6"				4'-6"				4'-6"				4'-6"												1'-10"			1'-10"				2'-0"			9'-8"
															42'-9"	4			42'-9"	4			42'-9"	5			42'-9"	4																				12	SHORT
																																																			5'-9"

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
4	23'-8"	12	4	23'-8"	12	4	1'-11"	0'-11"	47

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
39.07	5652

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIB. REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIB. REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIB. REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D

HDWL DEPTH. HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D

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

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.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIB. REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIB. REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIB. REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL																																									
A	5	10	6	12	12	6.5	8	43'-1"	8'-0"	46.33	5	42'-9"	7	43'-10"	4	42'-9"	17	32	4	42'-9"	4	43'-9"	4	42'-9"	11	50	5	7	158	7'-8"	4	12	276	7'-8"	4	9	119	4	9	119	4	12	12	4	12	36

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
179.61	22090

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUADRUPLE BARREL BOX CULVERT
Sta. 206+00

SPECIAL DETAILS

Robert.Darrington 3/23/2021 11:33:37 AM

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.		100762	11	57

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 18381
JESSE D. HARRELL
3-4-2021

TABULAR DATA BY: DCD DATE: 09/29/2020
CHECKED BY: JDH DATE: 09/30/2020

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
43'-1"	6'-0"	0'-9"	0'-8"	-20	3:1	44'-8 3/8"	2'-0"	6'-10"	2'-0"	50	10	3'-2"	3'-8 7/8"	3'-3 7/8"	0'-5 3/4"	0'-5 7/8"	22'-6"	14'-6"	26'-0 3/8"	18'-0 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
12.89	984

	F1						F2				F3				F4				F5				F6						F7			F8				F9				F10			F11			F12				REINF. STEEL QTY. PER WING (LBS)
WING	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 VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY			BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	LENGTHS VARY		BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	
WING A	4	12	23	L	Min	3'-0"	-	-	-	L -	-	-	-	L -	4	18	4	Nlin	4	18	4	22'-2"	4	18	15	L	Min	4'-9"	4	8	26'-10"	6	18	15	Min	2'-8"	-	-	-	Min	-	4	2	22'-6"	4	2	24'-8"	6	12	6	L	3'-4"	581
					Max	8'-3"												7'-7"									Max	9'-3"							Max					Max										
				X	Min	0'-9"				X -				X -				Max								X	Min	2'-4"							2'-8"					-								X	1'-8"	
					Max	1'-4"																					Max	2'-4"							Max														
				Y	Min	2'-4"				Y -				Y -				Max								Y	Min	2'-6"							3'-3"					-										
					Max	7'-0"												14'-7"									Max	7'-0"																						
WING B	4	12	15	L	Min	3'-0"	-	-	-	L -	-	-	-	L -	4	18	4	Nlin	4	18	4	14'-2"	4	18	10	L	Min	4'-9"	4	8	18'-10"	6	18	10	Min	2'-8"	-	-	-	Min	-	4	2	14'-10"	4	2	15'-5"	6	12	6	L	3'-4"	403
					Max	7'-10"												4'-10"									Max	9'-3"							Max					Max										
				X	Min	0'-9"				X -				X -				Max								X	Min	2'-4"							2'-8"					-								X	1'-8"	
					Max	0'-11"																					Max	2'-4"																						
				Y	Min	2'-4"				Y -				Y -				Nax								Y	Min	2'-6"							2'-10"					-										
					Max	7'-0"												9'-4"									Max	7'-0"																						

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"

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
20	3:1	5	10	6	9'-10"	12	3	12	6.5	8	43'-1"	8'-0"	5	6	Max 42'-9" Min 4'-6"	28	5	7	Max 42'-9" Min 4'-6"	24	4	5.5	Max 42'-9" Min 4'-6"	31	4	7.5	Max 42'-9" Min 4'-6"	23	5	7	35	7'-8"	4	12	66	7'-8"	4	9	119	Max 17'-6" Min 1'-10"	4	9	119	Max 17'-6" Min 1'-10"	4	12	6	LONG 17'-5"	4	12	12	LONG 13'-7"
															42'-9"	4			42'-9"	4			42'-9"	5			42'-9"	4																											6	SHORT 2'-0"			12	MID 9'-8"
																																																										12	SHORT 5'-9"

"k1" HDWL BARS			"k2" HDWL BARS			"h" HDWL BARS			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D
4	23'-8"	12	4	23'-8"	12	4	1'-11"	0'-11"	47

CLASS "S" CONCRETE (Includes HDWL)	(1) REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
39.07	5652

OUTLET SLOPE SECTION(S)

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.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	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	SPACING	NO. REQ'D
HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS				
---	---	---	---	---	---	---
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D	

CLASS 'S' CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	

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.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

QUADRUPLE BARREL BOX CULVERT
Sta. 206+00

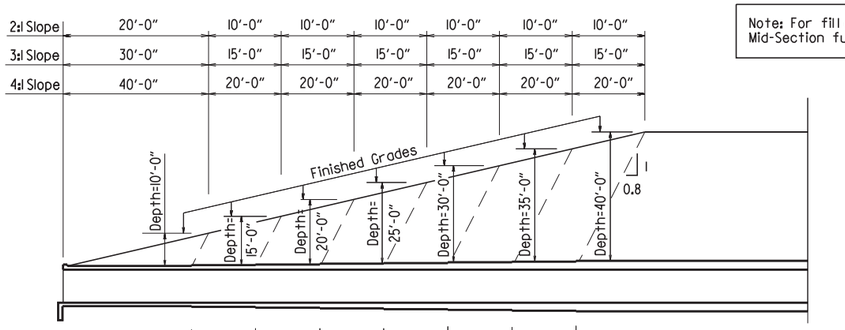
SPECIAL DETAILS

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				6	ARK.			
				JOB NO.		100762	12	57

SPECIAL DETAILS



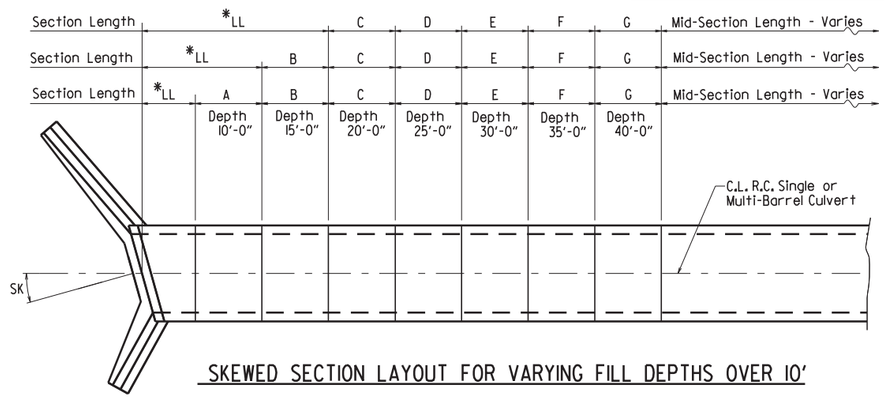
Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"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

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

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

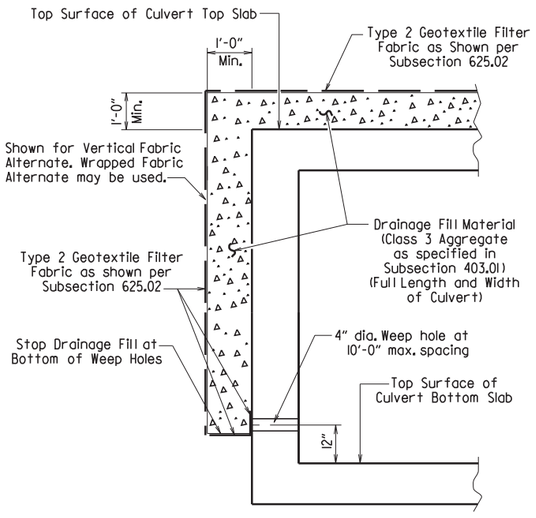
Lengths for Non-Skewed Boxes

*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.



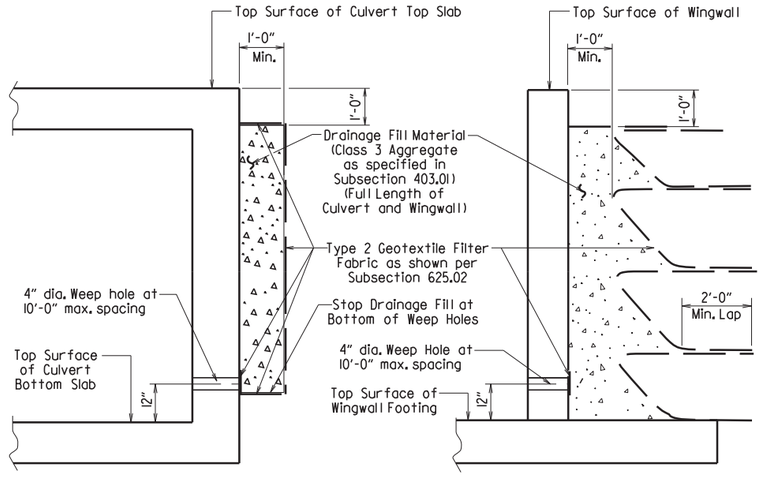
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 18381
JESSE D. HARRELL
3-4-2021



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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

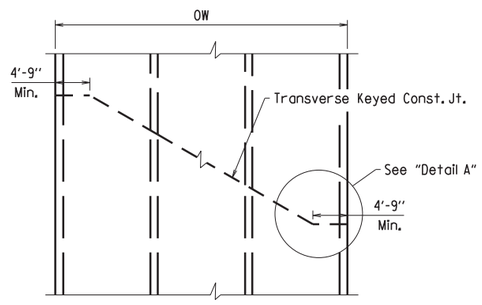


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

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

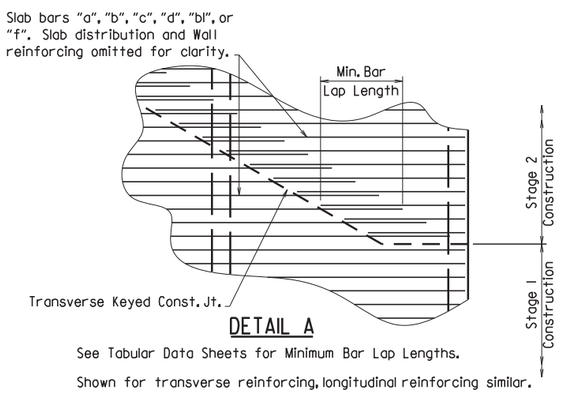
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL



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.



DETAIL A

See Tabular Data Sheets for Minimum Bar Lap Lengths.

Shown for transverse reinforcing, longitudinal reinforcing similar.

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 ¾" 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 815. 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 tine 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

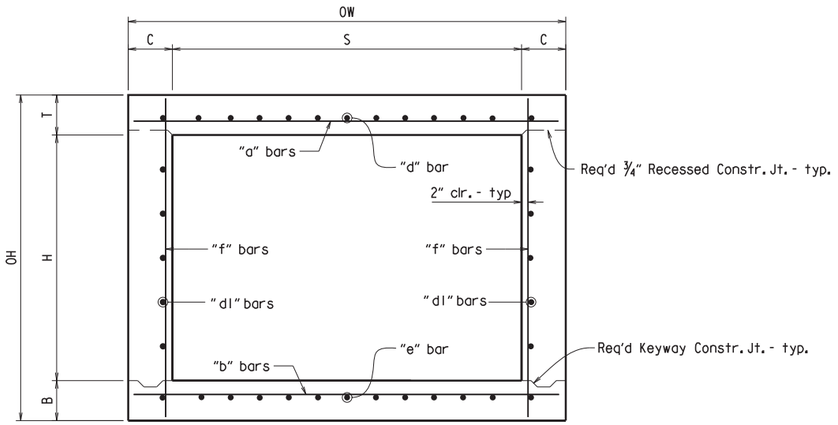
GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

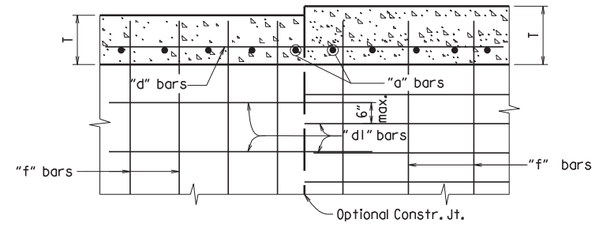
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				6	ARK.			
				JOB NO.		100762	13	57

(1) SPECIAL DETAILS

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



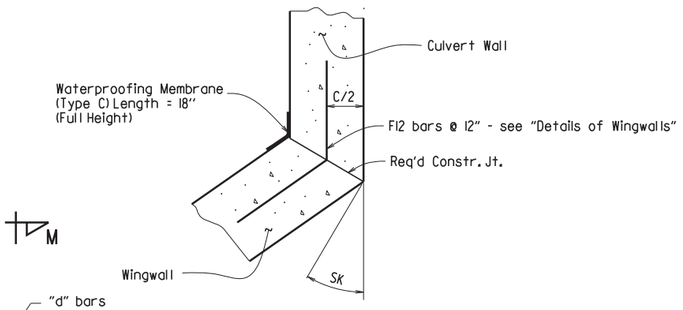
TYPICAL SECTION M-M



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

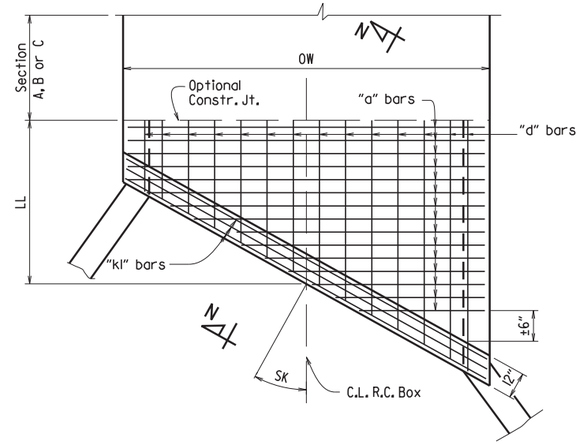
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

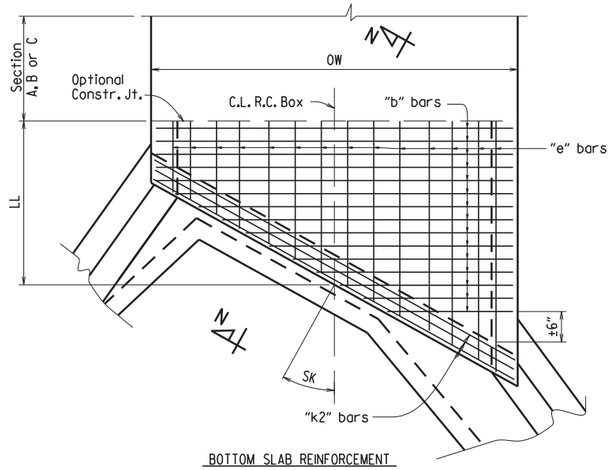


WINGWALL ATTACHMENT

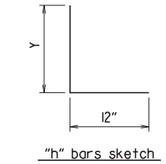
See "Details of Wingwalls" for additional information and wingwall details.



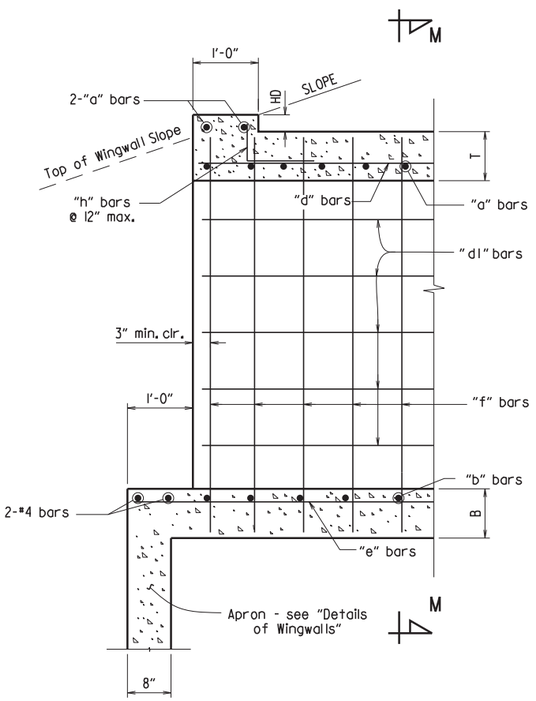
TOP SLAB REINFORCEMENT



BOTTOM SLAB REINFORCEMENT

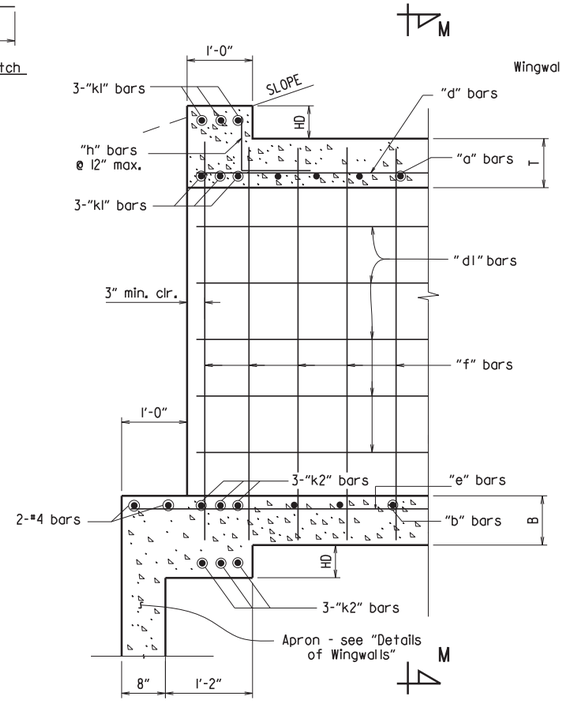


"h" bars sketch



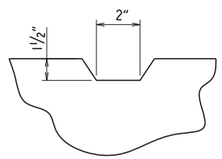
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 18381
JESSE D. HARRELL
3-4-2021

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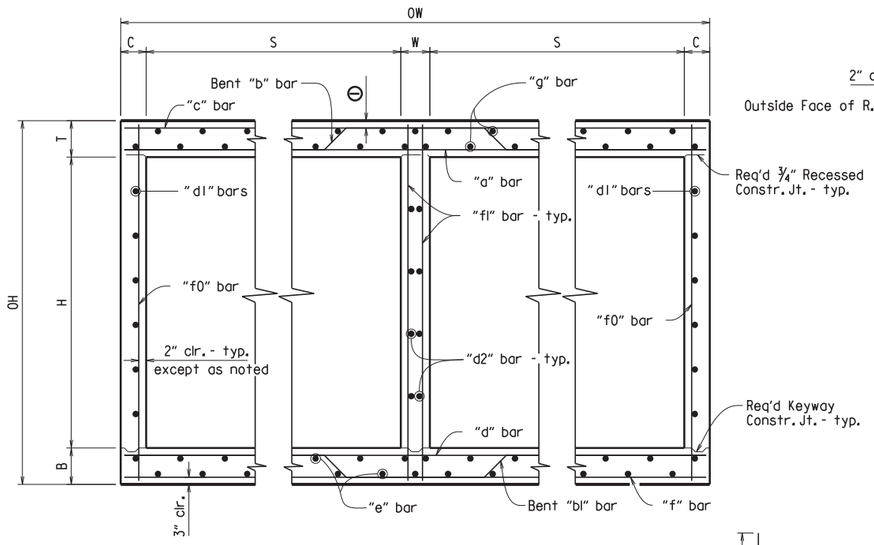
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				6	ARK.			
				JOB NO.		100762	14	57

1 SPECIAL DETAILS

STATE OF ARKANSAS
No. 18381
JESSE D. HARRELL
REGISTERED PROFESSIONAL ENGINEER
3-4-2021

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

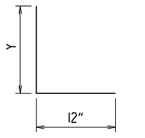
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



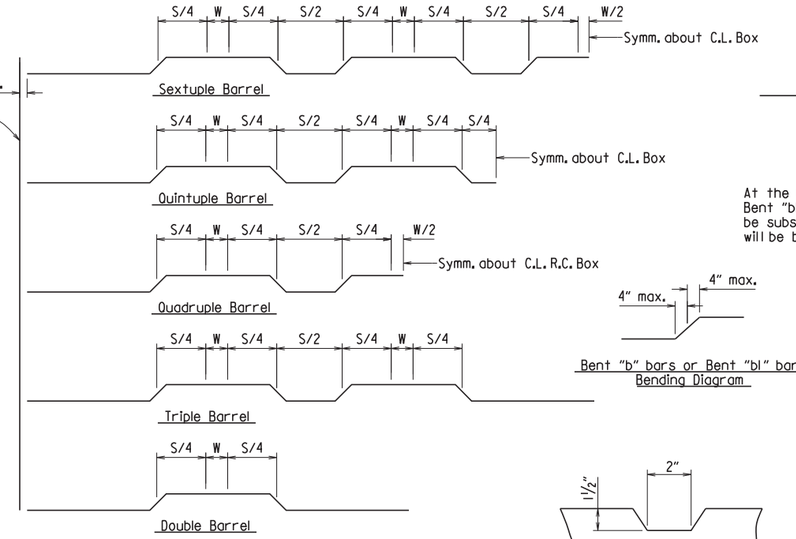
TYPICAL SECTION M-M

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

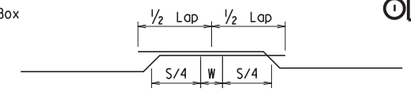
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



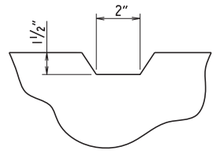
Bent "b" bars or Bent "bl" bars sketch



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

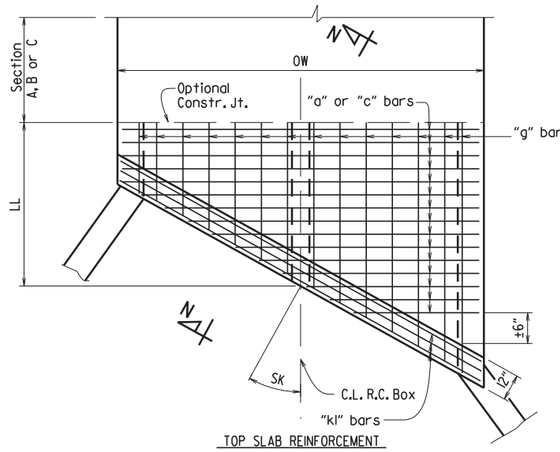
At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

Bent "b" bars or Bent "bl" bars
Bending Diagram

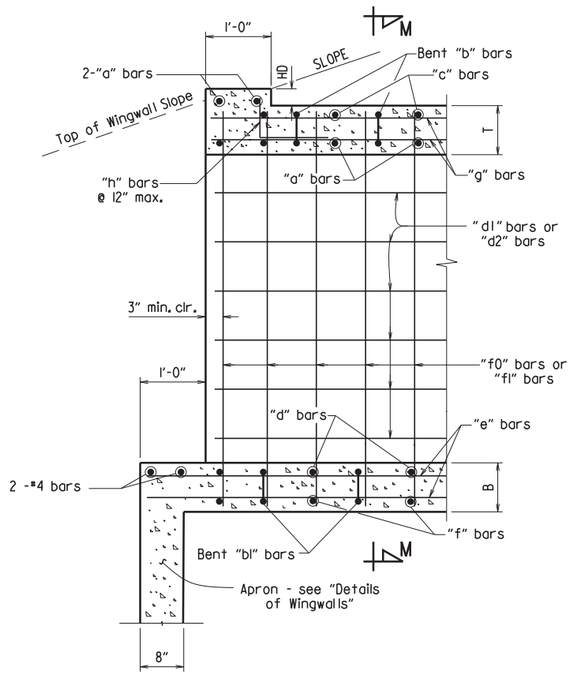


TYPICAL KEYWAY DETAIL

(All Construction Joints)

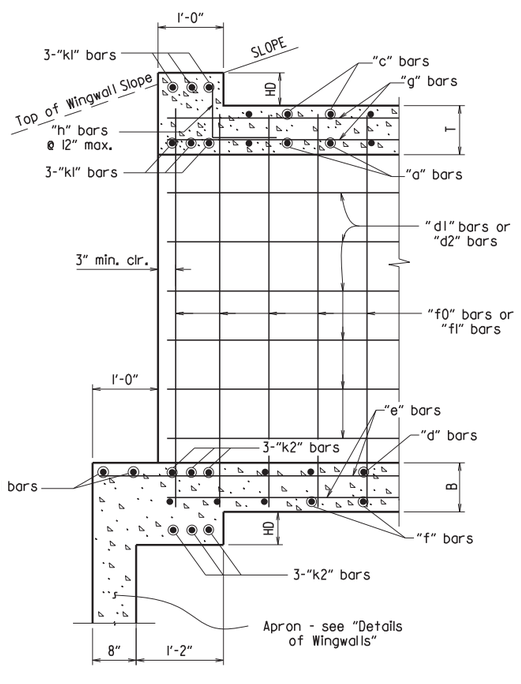


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



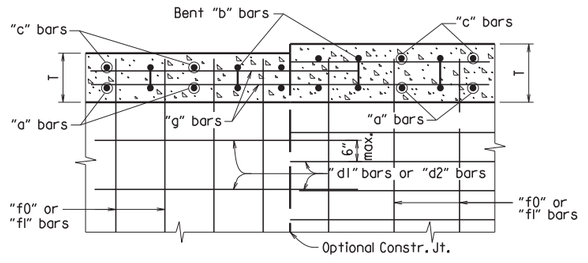
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

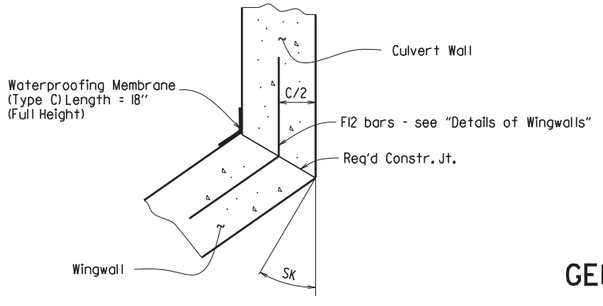
(Skewed Ends)



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

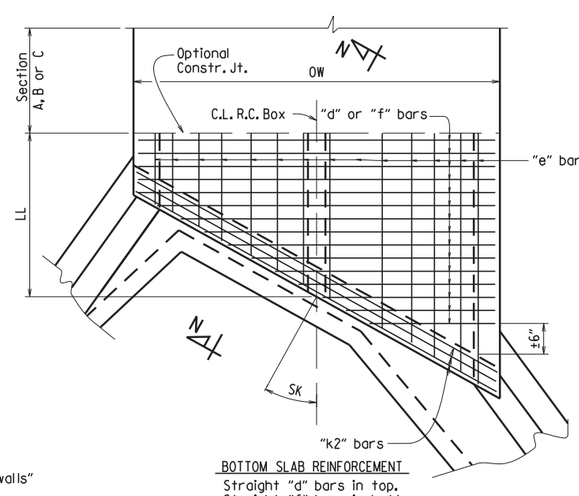
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

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



BOTTOM SLAB REINFORCEMENT
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

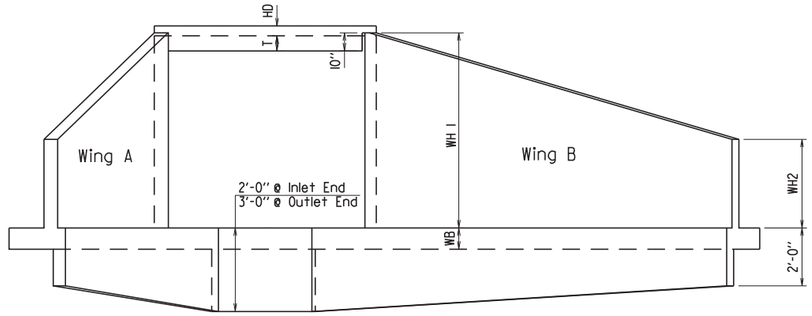
SPECIAL DETAILS

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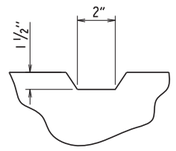
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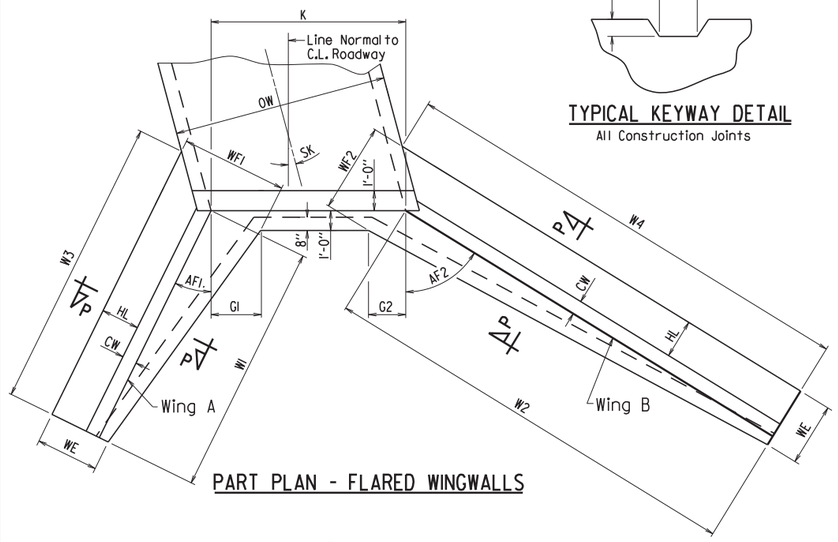
① SPECIAL DETAILS



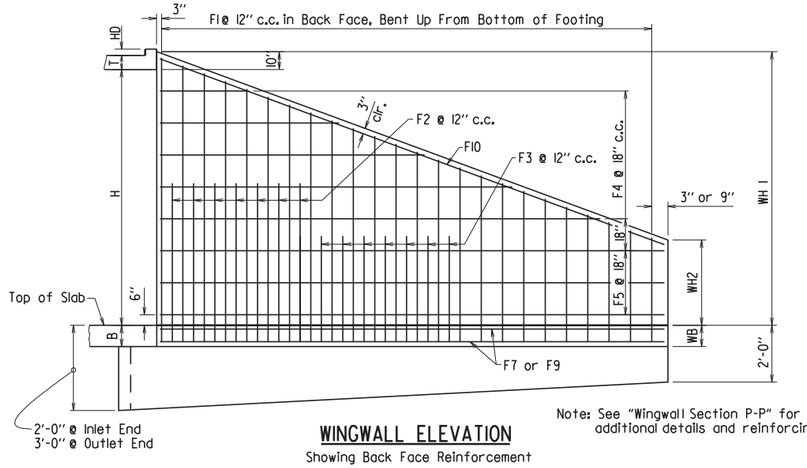
END ELEVATION
Flared Wingwalls Shown



TYPICAL KEYWAY DETAIL
All Construction Joints

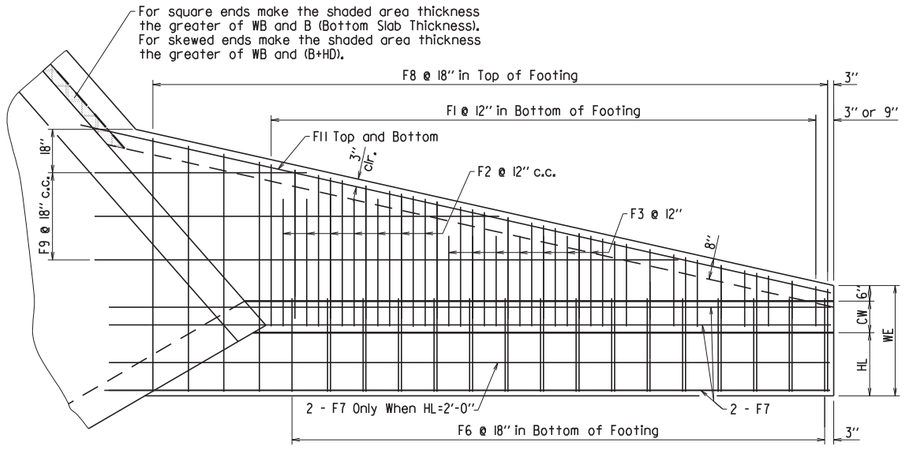


PART PLAN - FLARED WINGWALLS

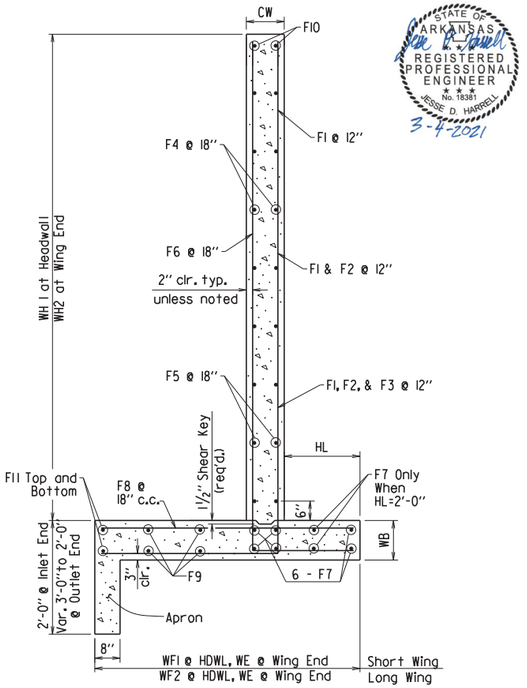


WINGWALL ELEVATION
Showing Back Face Reinforcement

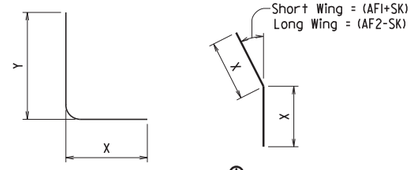
Note: See "Wingwall Section P-P" for additional details and reinforcing.



PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



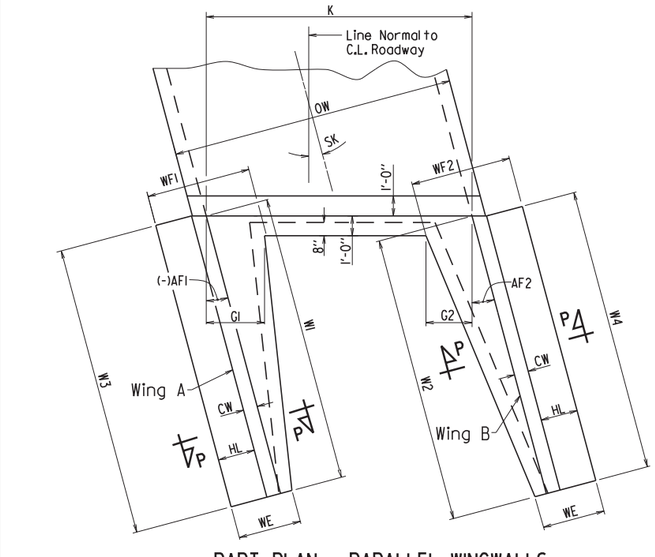
WINGWALL SECTION P-P



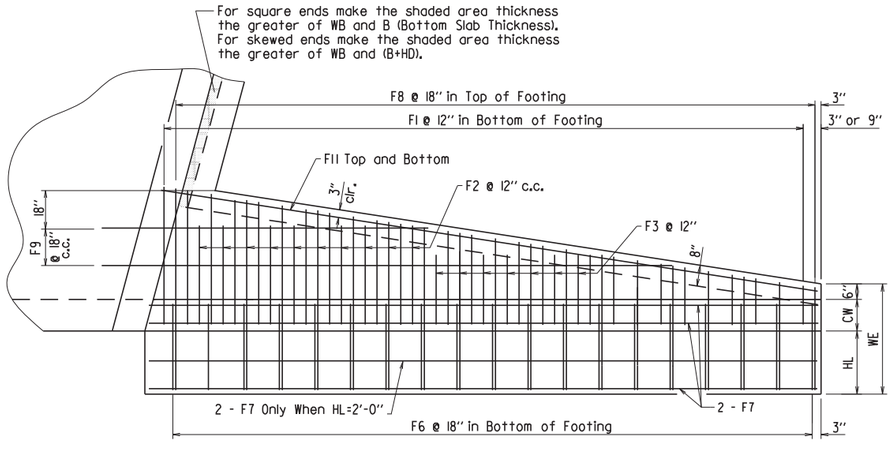
F1, F2, F3, & F6 BARS

①F12 BAR

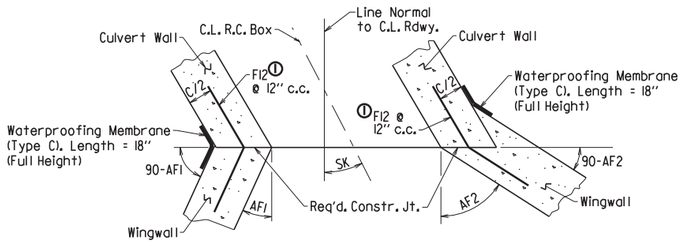
①F12 is a straight bar for parallel wingwalls



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

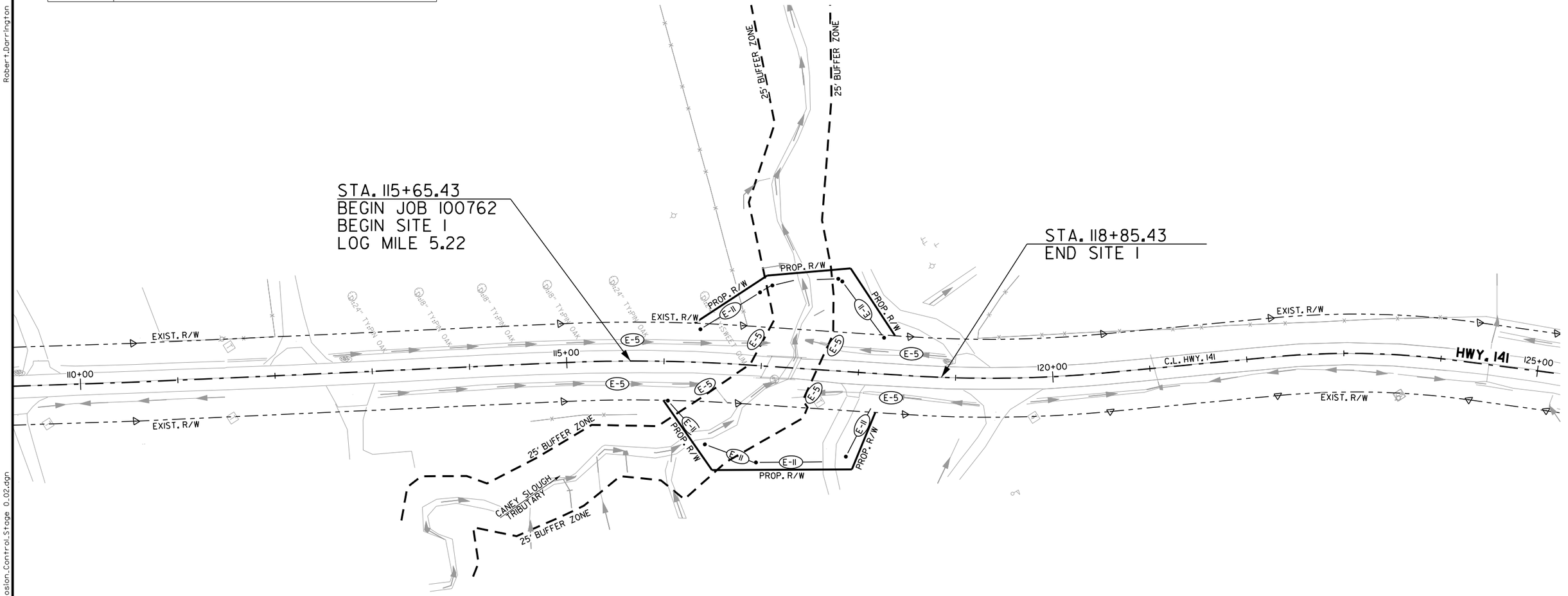
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REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	16	57
				(2)	TEMPORARY EROSION CONTROL			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR MAD
2021-03-18



LEGEND

(E-5)	SAND BAG DITCH CHECKS
(E-11)—(E-11)	SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

SITE 1
CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

Robert.Darrington 3/15/2021 10:52:58 AM
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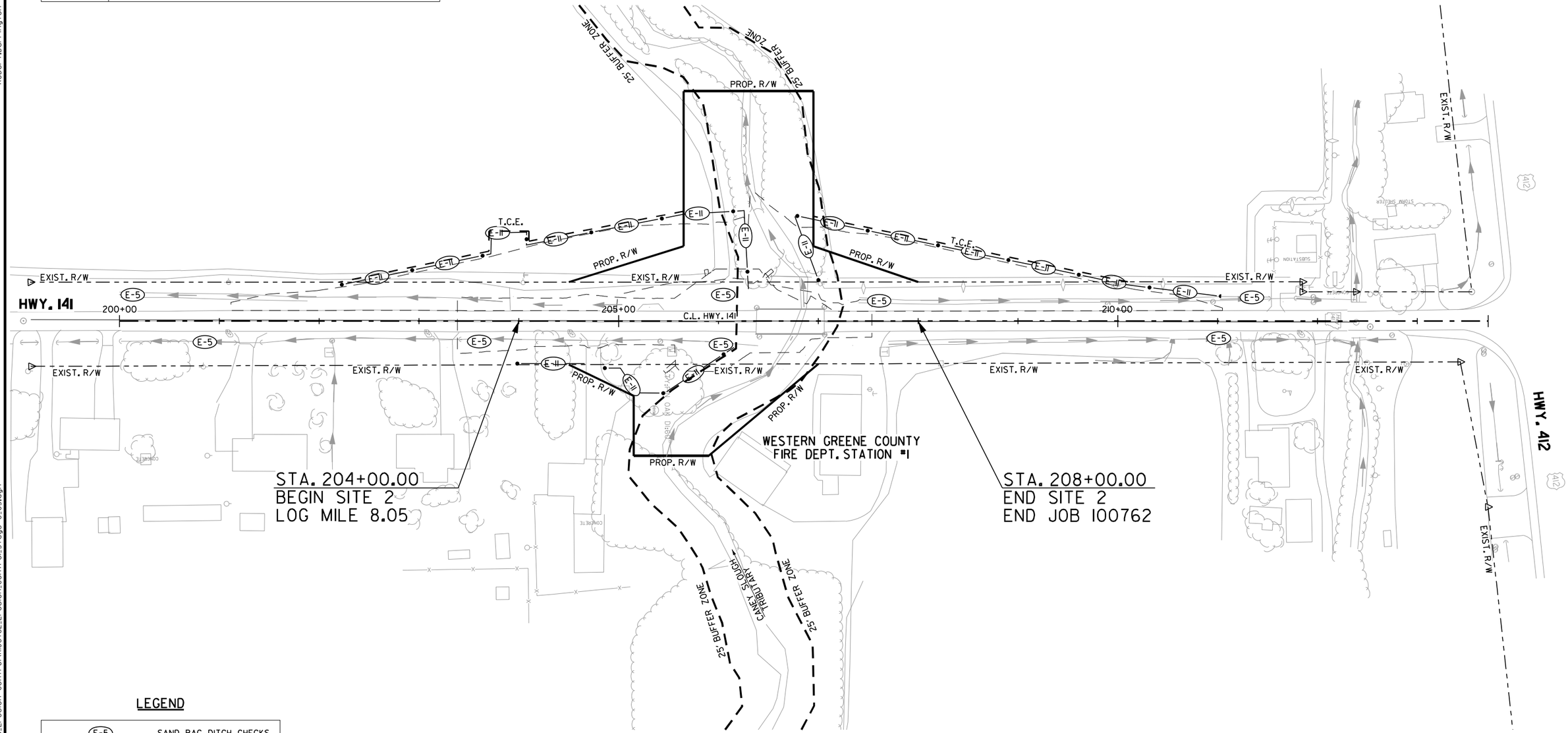
REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	17	57

(2) TEMPORARY EROSION CONTROL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08



LEGEND

E-5	SAND BAG DITCH CHECKS
E-11 — E-11	SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

SITE 2
CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

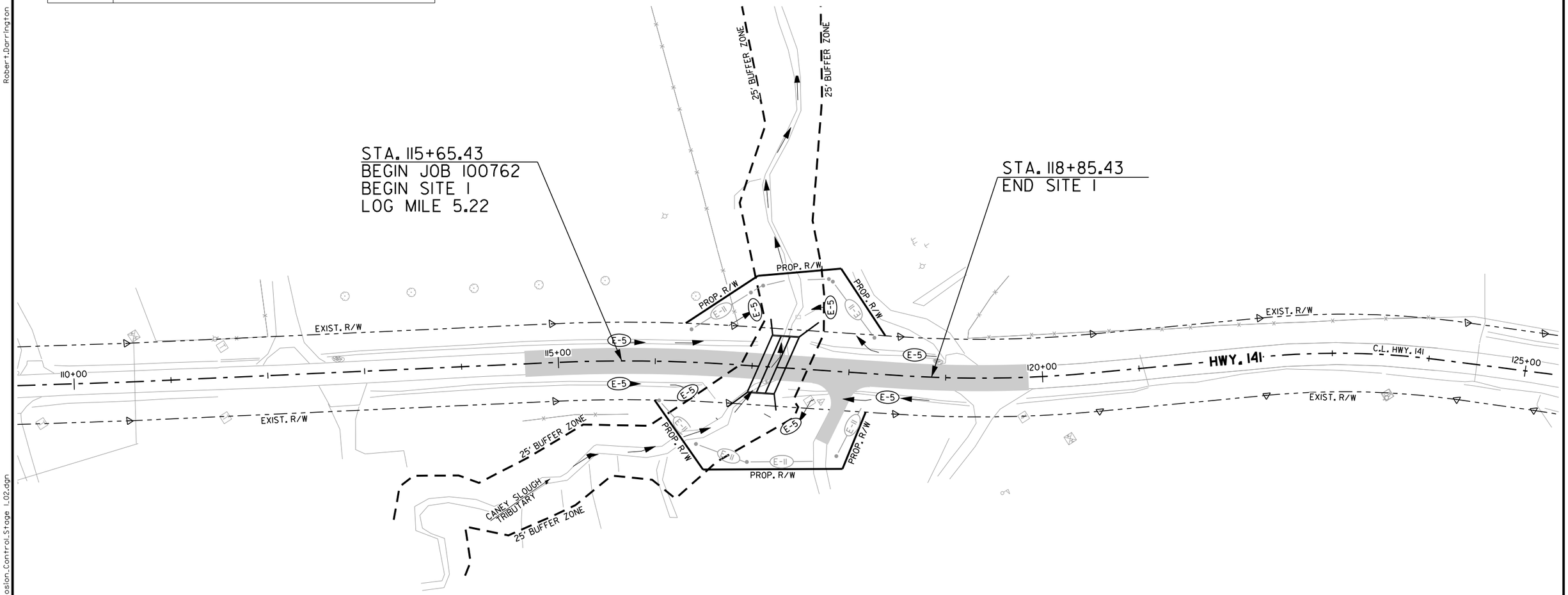
11:34:02 AM 2/23/2021 Robert.Darrington
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REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	18	57
				(2)	TEMPORARY EROSION CONTROL			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHID AR. AZAD
2021.03.16



LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE

SITE 1 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

Robert.Darrington 3/15/2021 10:53:00 AM

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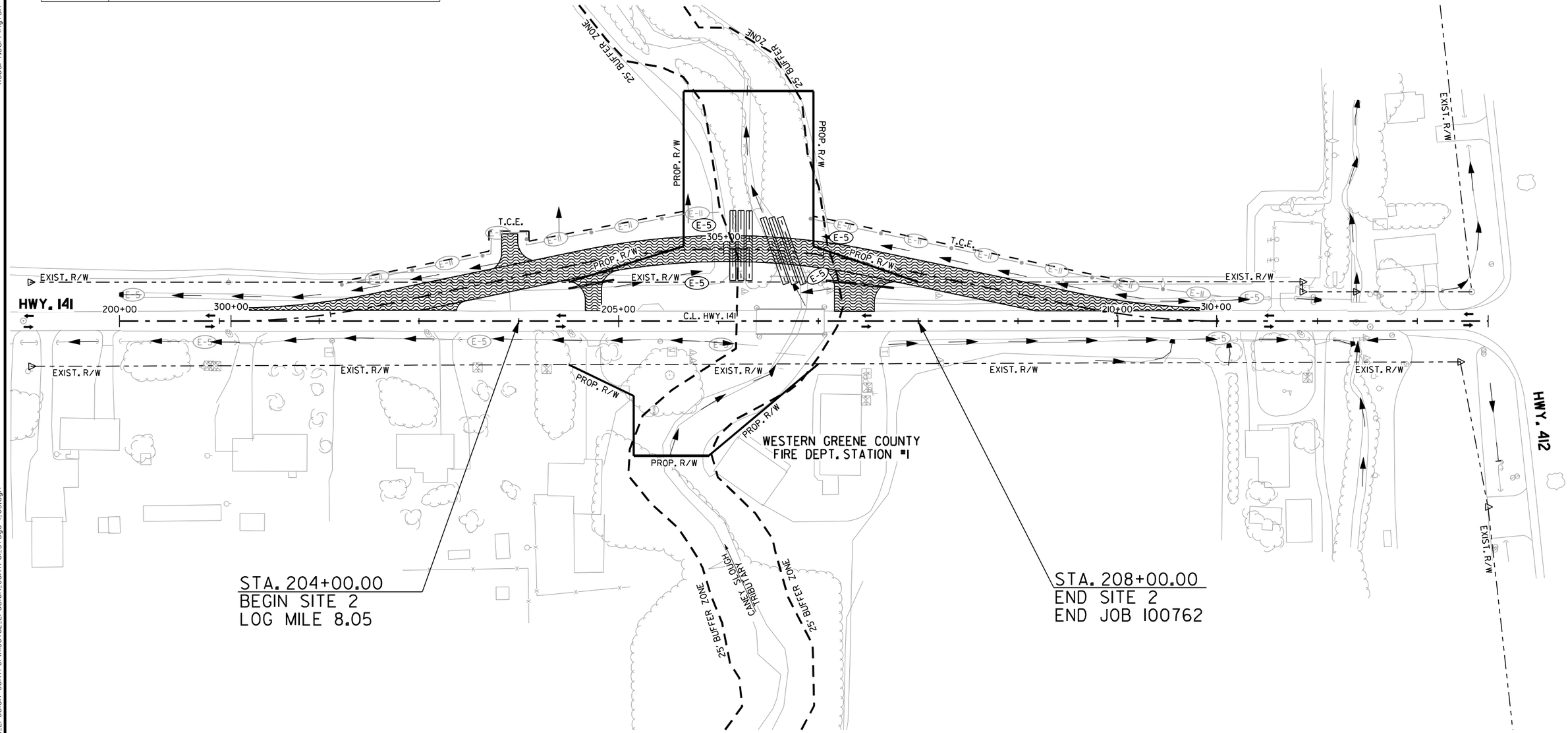
REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	19	57

(2) TEMPORARY EROSION CONTROL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08



LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE

SITE 2 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

3:59:01 PM 3/5/2021 Robert.Darrington

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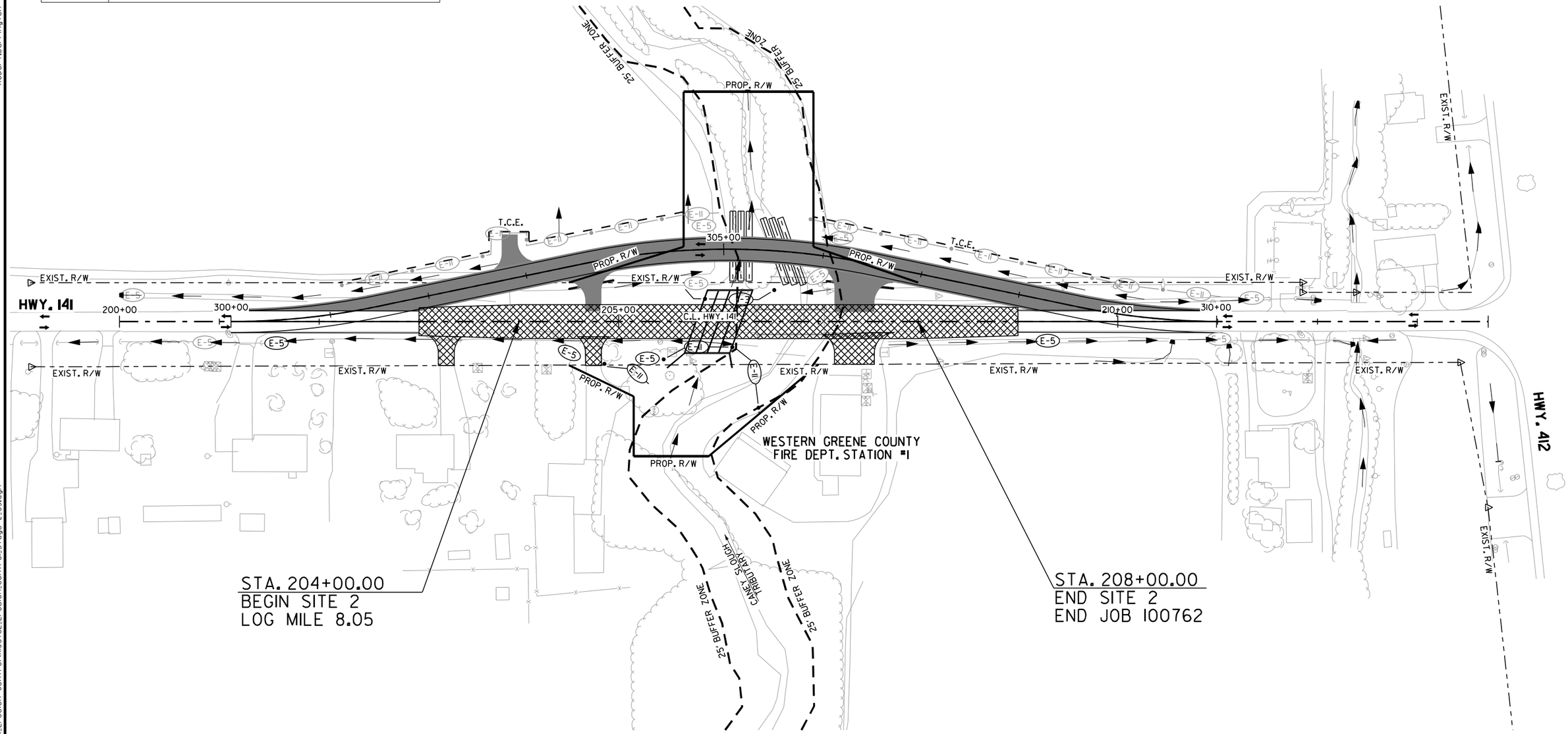
REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	20	57

(2) TEMPORARY EROSION CONTROL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08



STA. 204+00.00
BEGIN SITE 2
LOG MILE 8.05

STA. 208+00.00
END SITE 2
END JOB 100762

LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE

SITE 2 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

3:59:04 PM 3/5/2021 Robert.Darrington

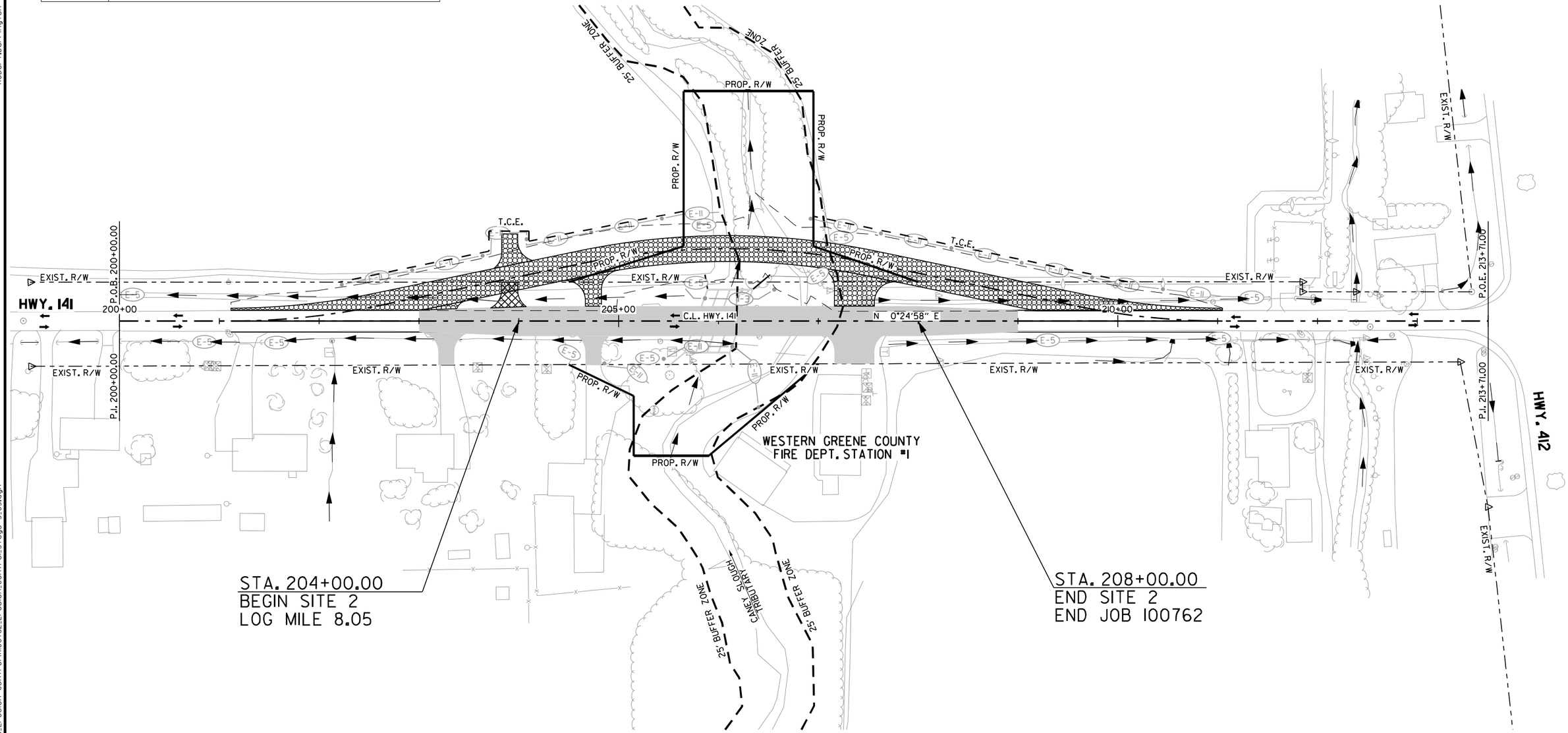
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REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	21	57
				(2) TEMPORARY EROSION CONTROL				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-04



LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE

SITE 2 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

Robert.Darrington 3/5/2021 3:59:05 PM

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CONSTRUCTION SEQUENCE:

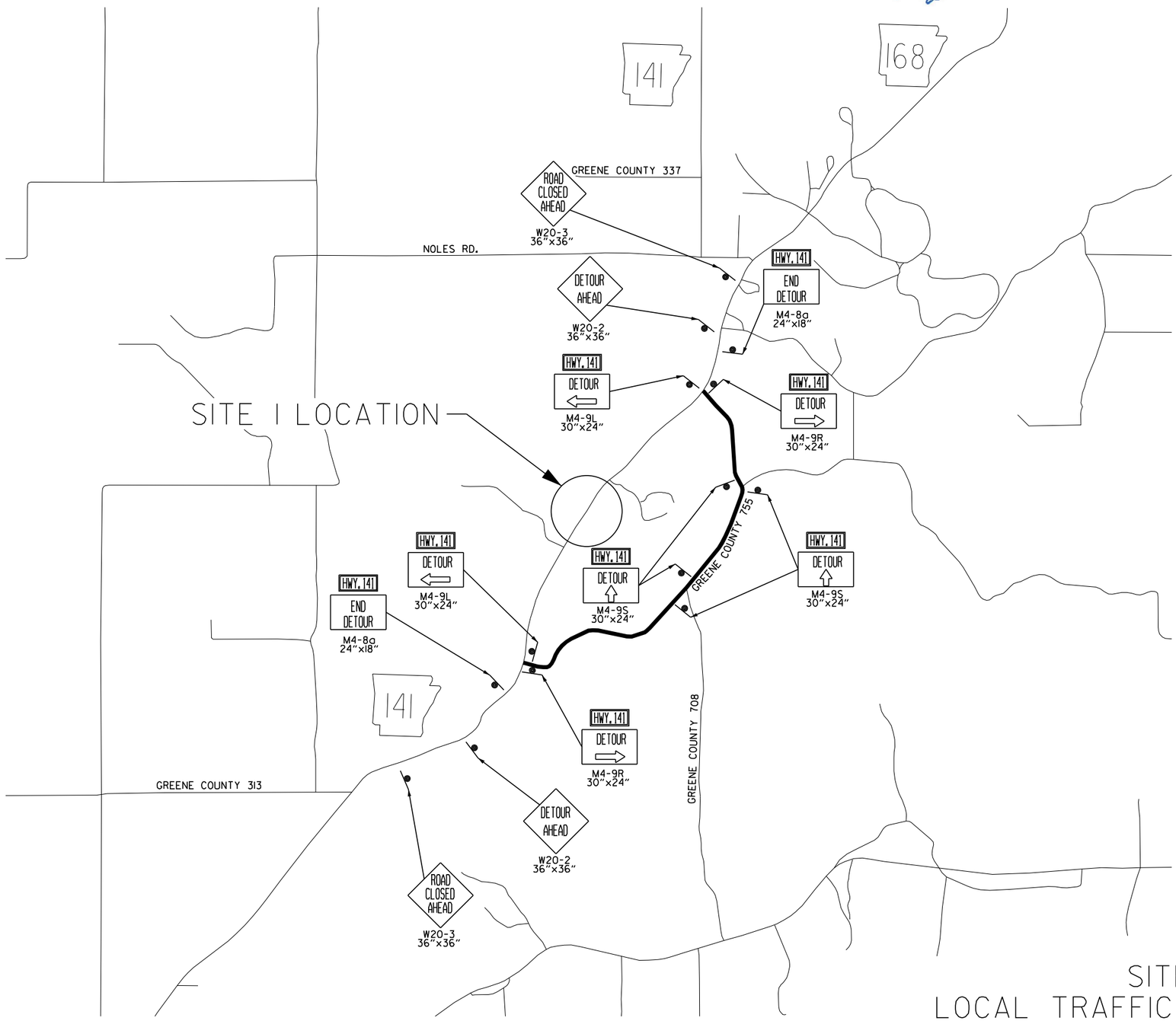
STAGE 1: CLOSE HIGHWAY 141. REMOVE EXISTING BRIDGE STRUCTURE. OBLITERATE EXISTING ROADWAY. CONSTRUCT BARRELS OF R.C. BOX CULVERT. CONSTRUCT FULL DEPTH SECTIONS OF PROPOSED ROADWAY. PLACE FINAL LIFT OF PAVEMENT AND TRANSITIONS. INSTALL PERMANENT PAVEMENT MARKINGS. OPEN HIGHWAY 141. UTILIZE TRAFFIC DRUMS AT 20' O.C. SPACING AT LANE EDGE ON LT. AND RT. CONSTRUCT HEADWALLS AND WINGWALLS OF R.C. BOX CULVERT AFTER HWY. 141 IS RETURNED TO THE NORMAL PATTERN.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12406
SHAHRIAR LAZAD
2021-03-08

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100762	22	57

(2) MAINTENANCE OF TRAFFIC DETAILS



SITE 1
LOCAL TRAFFIC DETOUR PLAN
MAINTENANCE OF TRAFFIC DETAILS

Robert.Darrington 3/8/2021 4:21:36 PM

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CONSTRUCTION SEQUENCE:

STAGE 1: CLOSE HIGHWAY 141. REMOVE EXISTING BRIDGE STRUCTURE. OBLITERATE EXISTING ROADWAY. CONSTRUCT BARRELS OF R.C. BOX CULVERT. CONSTRUCT FULL DEPTH SECTIONS OF PROPOSED ROADWAY. PLACE FINAL LIFT OF PAVEMENT AND TRANSITIONS. INSTALL PERMANENT PAVEMENT MARKINGS. OPEN HIGHWAY 141. UTILIZE TRAFFIC DRUMS AT 20' O.C. SPACING ON LANE EDGE LT. AND RT. CONSTRUCT HEADWALLS AND WINGWALLS OF R.C. BOX CULVERT AFTER HWY. 141 IS RETURNED TO THE NORMAL PATTERN.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	23	57

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR MAD
2021-03-18

SITE 2 LOCATION

SITE 1 LOCATION

Walcott

HWY. 141 CLOSED
2 MILES AHEAD
LARGE TRUCKS
TAKE DETOUR
1 MILE AHEAD

HWY. 141 CLOSED
4 MILES AHEAD
LARGE TRUCKS
TAKE DETOUR
1 MILE AHEAD

HWY. 141 CLOSED
2 MILES AHEAD
LARGE TRUCKS
TAKE DETOUR
1 MILE AHEAD

HWY. 141 / TRUCK ROUTE / R14-1 24"x18" / DETOUR / M4-9R 30"x24"

HWY. 141 / TRUCK ROUTE / R14-1 24"x18" / DETOUR / M4-9S 30"x24"

HWY. 141 / TRUCK ROUTE / R14-1 24"x18" / DETOUR / M4-9L 30"x24"

HWY. 141 / TRUCK ROUTE / R14-1 24"x18" / END DETOUR / M4-8a 24"x18"

6.0" Radius, 1.5" Border, Black on, Orange;
"HWY. 141 CLOSED", C;
"4 MILES AHEAD", C;
"LARGE TRUCKS", C;
"TAKE DETOUR", C;
"1 MILE AHEAD", C;

6.0" Radius, 1.5" Border, Black on, Orange;
"HWY. 141 CLOSED", C;
"2 MILES AHEAD", C;
"LARGE TRUCKS", C;
"TAKE DETOUR", C;
"1 MILE AHEAD", C;

SITE 1
TRUCK DETOUR PLAN
MAINTENANCE OF TRAFFIC DETAILS

10:53:01 AM 3/15/2021 Robert.Darrington

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CONSTRUCTION SEQUENCE:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY CULVERT CROSS DRAIN AT DETOUR STATIONS 305+17.32 AND 305+59.60. DRAINAGE TO BE MAINTAINED THROUGH EXISTING BRIDGE AND TEMPORARY CROSS CULVERT AT DETOUR STATION 305+59.60. CONSTRUCT DETOUR. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

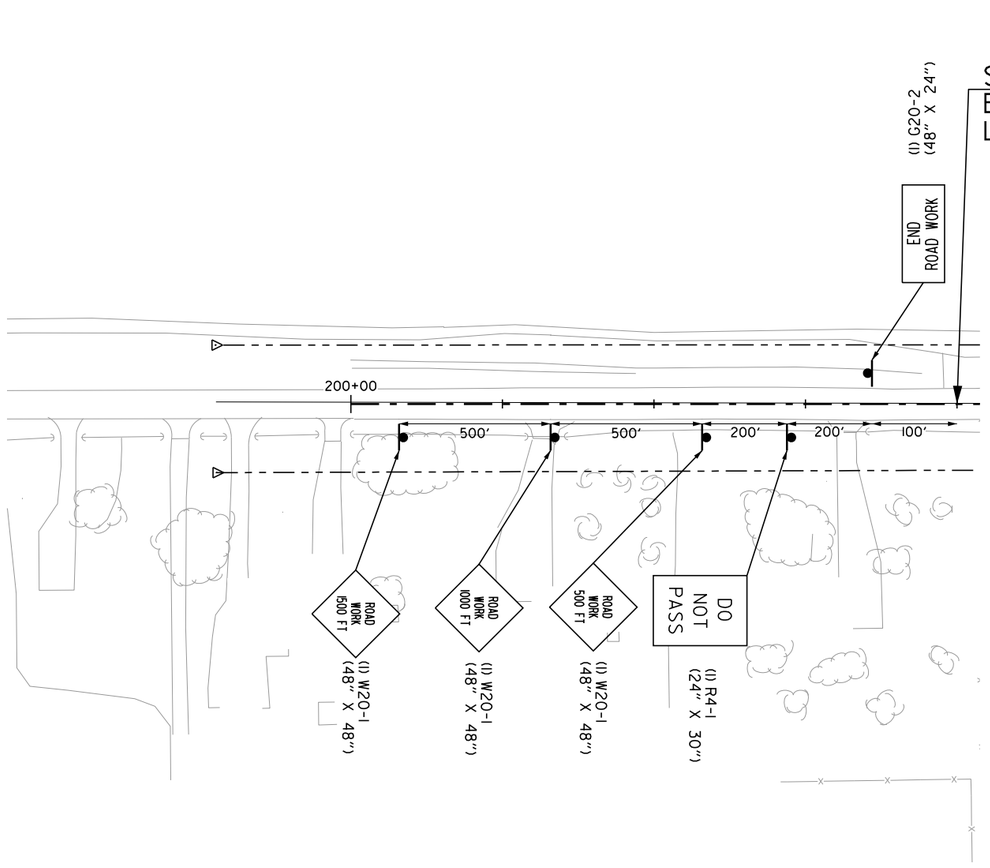
STAGE 2: SHIFT TRAFFIC ONTO DETOUR. CONSTRUCT BARRELS OF R.C. BOX CULVERT. CONSTRUCT WINGWALLS ON THE EAST SIDE OF THE R.C. BOX CULVERT. DIVERT DRAINAGE THROUGH R.C. BOX CULVERT AND TEMPORARY CULVERT CROSS DRAIN AT DETOUR STATION 305+17.32. REMOVE EXISTING BRIDGE. FILL EXISTING CHANNEL. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT LANE EDGE ON RT. CONSTRUCT FULL DEPTH SECTIONS OF PROPOSED ROADWAY.

STAGE 3: SHIFT TRAFFIC BACK TO MAIN LANES. OBLITERATE DETOUR. CONSTRUCT WINGWALLS ON THE WEST SIDE OF THE R.C. BOX CULVERT. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT LANE EDGE ON LT. PLACE FINAL LIFT OF PAVEMENT AND TRANSITIONS. INSTALL PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
SHAHRIAR ADAMI
NO. 12404
2021-03-18

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	24	57

(2) MAINTENANCE OF TRAFFIC DETAILS



SHOULDER CLOSED — (2) W21-5a * (36" X 36")

DO NOT PASS — (1) R4-1 * (24" X 30")

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

SITE 2
ADVANCED WARNING SIGNS
MAINTAINING OF TRAFFIC DETAILS

11:15:21 AM 3/18/2021 Robert.Darrington
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CONSTRUCTION SEQUENCE:

STAGE 1: CLOSE HIGHWAY 141. REMOVE EXISTING BRIDGE STRUCTURE. OBLITERATE EXISTING ROADWAY. CONSTRUCT BARRELS OF R.C. BOX CULVERT. CONSTRUCT FULL DEPTH SECTIONS OF PROPOSED ROADWAY. PLACE FINAL LIFT OF PAVEMENT AND TRANSITIONS. INSTALL PERMANENT PAVEMENT MARKINGS. OPEN HIGHWAY 141. UTILIZE TRAFFIC DRUMS AT 20' O.C. SPACING ON LANE EDGE LT. AND RT. CONSTRUCT HEADWALLS AND WINGWALLS OF R.C. BOX CULVERT AFTER HWY. 141 IS RETURNED TO THE NORMAL PATTERN.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	25	57

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12454
SHAHRIAR KLAP
2021-03-18

STA. 115+65.43
BEGIN JOB 100762
BEGIN SITE 1
LOG MILE 5.22

STA. 118+85.43
END SITE 1

ROAD CLOSED
R11-2 48"×30"
16' BARR TYP. III LT.
16' BARR TYP. III RT.

TRAFFIC DRUMS @ 20' O.C. (TYP.)

P.I. 110+55.16
= 0° 45'34.38"
N 30°00'49.83" E
'24.21" E
110+00
EXIST. R/W
115+00
P.I. 115+86.68
PROP. R/W
P.C. 114+94.82
P.T. 116+78.34
N 36°26'13.86" E
P.C. 118+50.41
P.I. 119+53.16
120+00
P.I. 120+55.47
N 27°12'33.83" E
C.L. HWY. 141
HWY. 141
N 39°59'25.24" E
125+00
P.I. 123+19.61
P.C. 122+27.94
P.T. 124+10.52
P.C. 125+24.03

CANEY SLOUGH TRIBUTARY

CONSTRUCT DRIVEWAY
18" RCP PIPE CULVERT

LEGEND

- CONSTRUCT TEMPORARY PAVEMENT
- CONSTRUCT PERMANENT PAVEMENT
- TEMPORARY PAVEMENT
- PERMANENT PAVEMENT
- BRIDGE
- REMOVE PAVEMENT
- TRAFFIC FLOW
- CHANNELIZATION DEVICE
- TYPE III BARRICADE
- CONSTRUCTION SIGN
- CHANNELIZATION DEVICE (VERTICAL PANEL)

SITE 1- STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

7:48:17 AM 3/17/2021 Robert.Darrington

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CONSTRUCTION SEQUENCE:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY CULVERT CROSS DRAIN AT DETOUR STATIONS 305+17.32 AND 305+59.60. DRAINAGE TO BE MAINTAINED THROUGH EXISTING BRIDGE AND TEMPORARY CROSS CULVERT AT DETOUR STATION 305+59.60. CONSTRUCT DETOUR. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

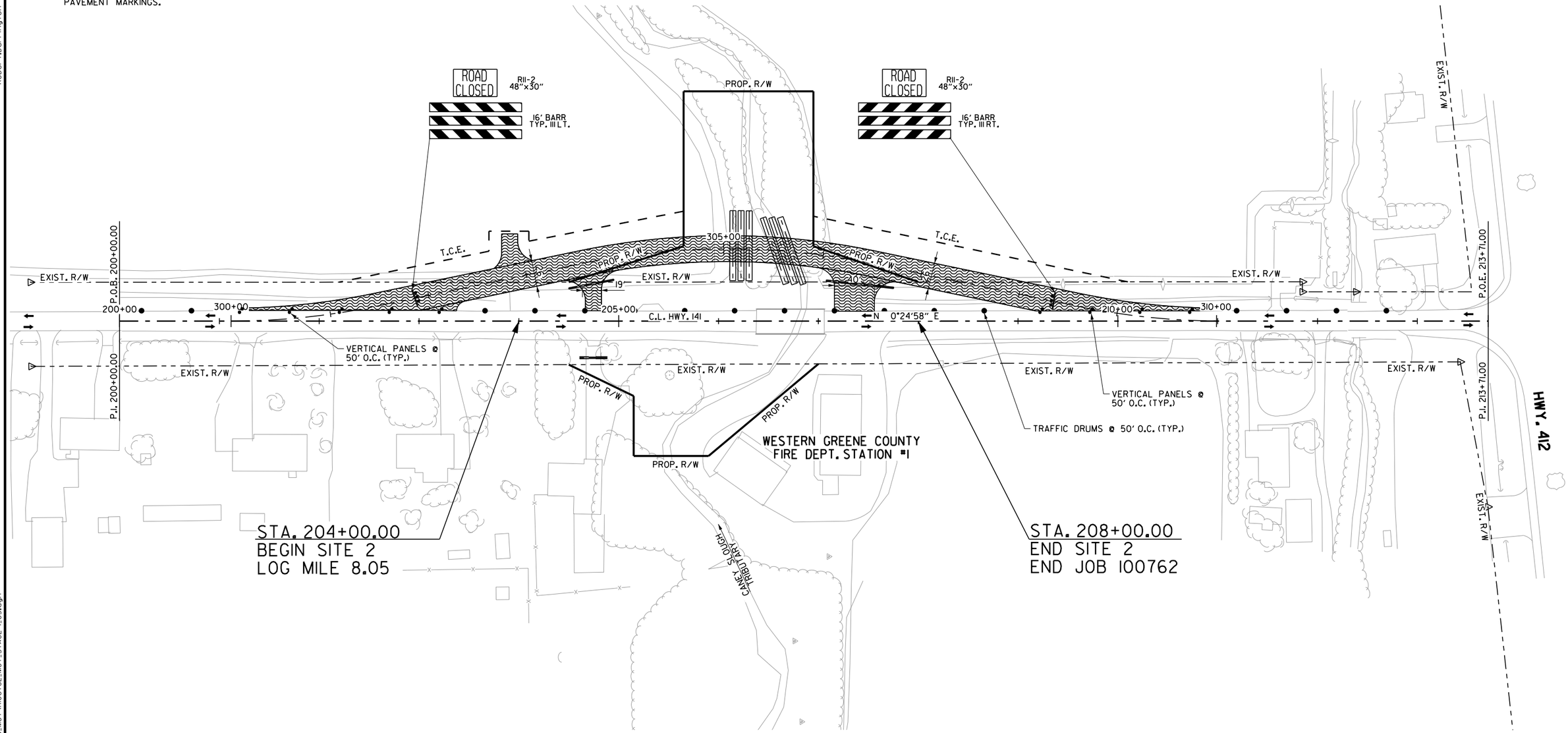
STAGE 2: SHIFT TRAFFIC ONTO DETOUR. CONSTRUCT BARRELS OF R.C. BOX CULVERT. CONSTRUCT WINGWALLS ON THE EAST SIDE OF THE R.C. BOX CULVERT. DIVERT DRAINAGE THROUGH R.C. BOX CULVERT AND TEMPORARY CULVERT CROSS DRAIN AT DETOUR STATION 305+17.32. REMOVE EXISTING BRIDGE. FILL EXISTING CHANNEL. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT LANE EDGE ON RT. CONSTRUCT FULL DEPTH SECTIONS OF PROPOSED ROADWAY.

STAGE 3: SHIFT TRAFFIC BACK TO MAIN LANES. OBLITERATE DETOUR. CONSTRUCT WINGWALLS ON THE WEST SIDE OF THE R.C. BOX CULVERT. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT LANE EDGE ON LT. PLACE FINAL LIFT OF PAVEMENT AND TRANSITIONS. INSTALL PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
SHAHRIAR ADENI
NO. 12404
2021-03-18

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	26	57

(2) MAINTENANCE OF TRAFFIC DETAILS



LEGEND

- CONSTRUCT TEMPORARY PAVEMENT
- CONSTRUCT PERMANENT PAVEMENT
- TEMPORARY PAVEMENT
- PERMANENT PAVEMENT
- BRIDGE
- REMOVE PAVEMENT
- TRAFFIC FLOW
- CHANNELIZATION DEVICE
- TYPE III BARRICADE
- CONSTRUCTION SIGN
- CHANNELIZATION DEVICE (VERTICAL PANEL)

SITE 2 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

10:53:06 AM
3/15/2021
Robert.Darrington
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CONSTRUCTION SEQUENCE:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY CULVERT CROSS DRAIN AT DETOUR STATIONS 305+17.32 AND 305+59.60. DRAINAGE TO BE MAINTAINED THROUGH EXISTING BRIDGE AND TEMPORARY CROSS CULVERT AT DETOUR STATION 305+59.60. CONSTRUCT DETOUR. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

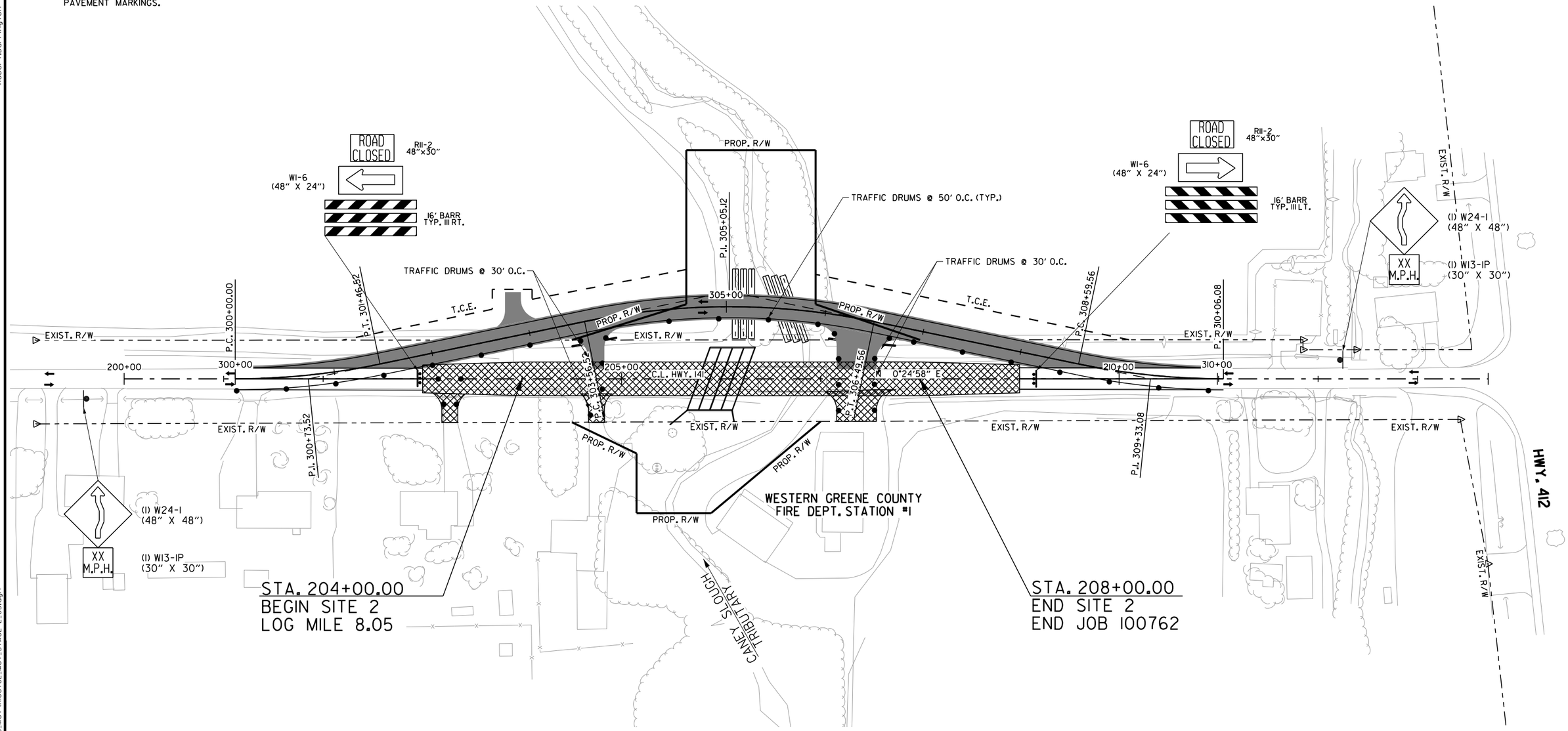
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STAGE 3: SHIFT TRAFFIC BACK TO MAIN LANES. OBLITERATE DETOUR. CONSTRUCT WINGWALLS ON THE WEST SIDE OF THE R.C. BOX CULVERT. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT LANE EDGE ON LT. PLACE FINAL LIFT OF PAVEMENT AND TRANSITIONS. INSTALL PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 12404
SHAHRIAR KZAD
2021-03-24

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	27	57

(2) MAINTENANCE OF TRAFFIC DETAILS



LEGEND

- CONSTRUCT TEMPORARY PAVEMENT
- CONSTRUCT PERMANENT PAVEMENT
- TEMPORARY PAVEMENT
- PERMANENT PAVEMENT
- BRIDGE
- REMOVE PAVEMENT
- TRAFFIC FLOW
- CHANNELIZATION DEVICE
- TYPE III BARRICADE
- CONSTRUCTION SIGN
- CHANNELIZATION DEVICE (VERTICAL PANEL)

SITE 2 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

10:53:08 AM 3/15/2021 Robert.Darrington

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CONSTRUCTION SEQUENCE:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY CULVERT CROSS DRAIN AT DETOUR STATIONS 305+17.32 AND 305+59.60. DRAINAGE TO BE MAINTAINED THROUGH EXISTING BRIDGE AND TEMPORARY CROSS CULVERT AT DETOUR STATION 305+59.60. CONSTRUCT DETOUR. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

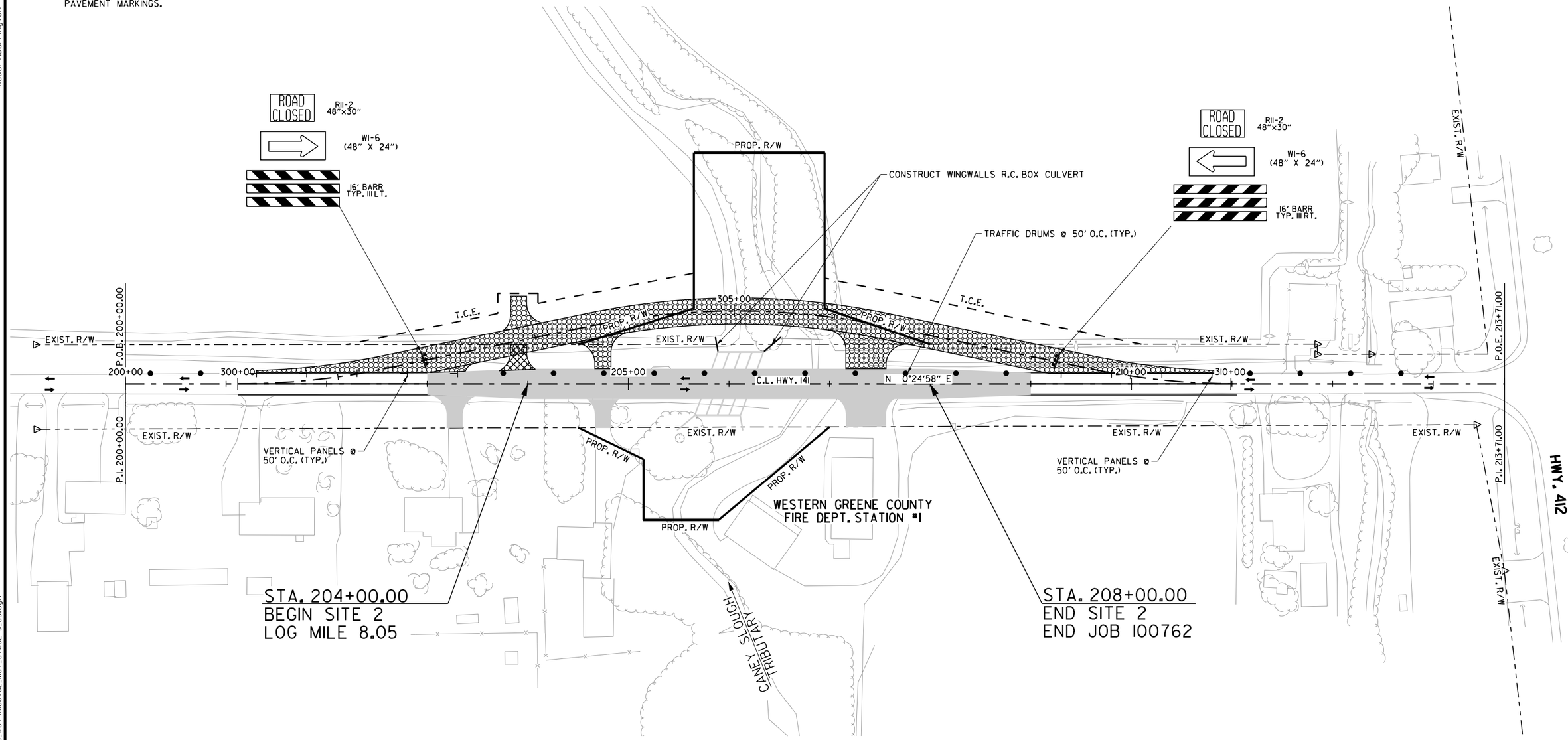
STAGE 2: SHIFT TRAFFIC ONTO DETOUR. CONSTRUCT BARRELS OF R.C. BOX CULVERT. CONSTRUCT WINGWALLS ON THE EAST SIDE OF THE R.C. BOX CULVERT. DIVERT DRAINAGE THROUGH R.C. BOX CULVERT AND TEMPORARY CULVERT CROSS DRAIN AT DETOUR STATION 305+17.32. REMOVE EXISTING BRIDGE. FILL EXISTING CHANNEL. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT LANE EDGE ON RT. CONSTRUCT FULL DEPTH SECTIONS OF PROPOSED ROADWAY.

STAGE 3: SHIFT TRAFFIC BACK TO MAIN LANES. OBLITERATE DETOUR. CONSTRUCT WINGWALLS ON THE WEST SIDE OF THE R.C. BOX CULVERT. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT LANE EDGE ON LT. PLACE FINAL LIFT OF PAVEMENT AND TRANSITIONS. INSTALL PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-04

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	28	57

(2) MAINTENANCE OF TRAFFIC DETAILS



LEGEND

- CONSTRUCT TEMPORARY PAVEMENT
- CONSTRUCT PERMANENT PAVEMENT
- TEMPORARY PAVEMENT
- PERMANENT PAVEMENT
- BRIDGE
- REMOVE PAVEMENT
- TRAFFIC FLOW
- CHANNELIZATION DEVICE
- TYPE III BARRICADE
- CONSTRUCTION SIGN
- CHANNELIZATION DEVICE (VERTICAL PANEL)

SITE 2 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

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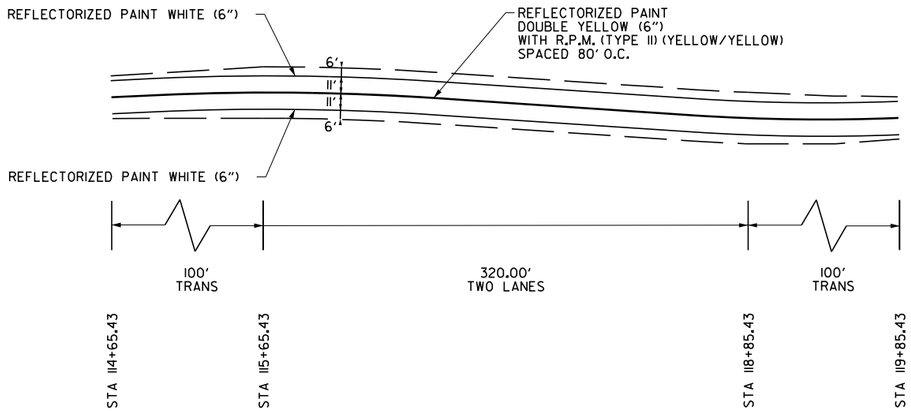
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	29	57

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
JOSHUA AZIAD

2021-03-04



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.

PERMANENT PAVEMENT MARKING DETAILS:

REFLECTORIZED PAINT PAVEMENT MARKINGS:
RT. AND LT. EDGE LINES = 1040 LIN. FT. 6" WHITE
• DBL. CENTERLINE = 1040 LN. FT. 6" YELLOW

RAISED PAVEMENT MARKERS 80' O.C.
TYPE II (YEL/YEL) ON DBL YELLOW LINES = 7 EACH

SITE I
PERMANENT PAVEMENT MARKING DETAILS

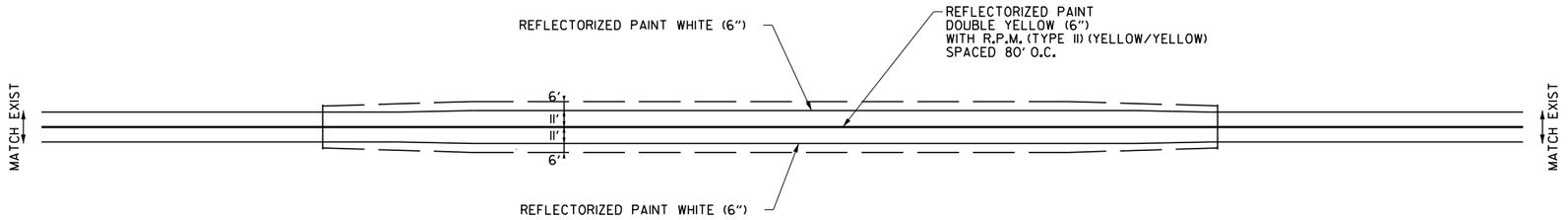
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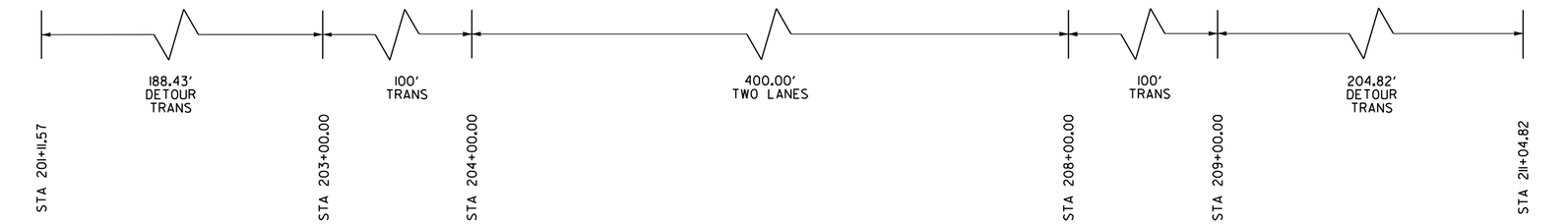
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	30	57

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08





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.

PERMANENT PAVEMENT MARKING DETAILS:

REFLECTORIZED PAINT PAVEMENT MARKINGS:
RT. AND LT. EDGE LINES = 1986 LIN. FT. 6" WHITE
• DBL. CENTERLINE = 1986 LN. FT. 6" YELLOW

RAISED PAVEMENT MARKERS 80' O.C.
TYPE II (YEL/YEL) ON DBL YELLOW LINES = 13 EACH

SITE 2
PERMANENT PAVEMENT MARKING DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	31	57

(2) QUANTITIES

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
												RIGHT	LEFT
			LIN. FT. - EACH					NO.	SQ. FT.	EACH		LIN. FT.	
G20-2	END ROAD WORK	48"x24"	2	2	2		2	2	16.0				
M4-8A	END DETOUR	24"x18"	3				3	3	9.0				
M4-9L	DETOUR LEFT	30"x24"	7				7	7	35.0				
M4-9R	DETOUR RIGHT	30"x24"	9				9	9	45.0				
M4-9S	DETOUR STRAIGHT	30"x24"	9				9	9	45.0				
R4-1	DO NOT PASS	24"x30"	2	2	2		2	2	10.0				
R11-2	ROAD CLOSED	48"x30"	6	2	2		6	6	60.0				
R14-1	TRUCK ROUTE	24"x18"	19				19	19	57.0				
W1-6	LARGE ARROW	48"x24"		2	2		2	2	16.0				
W13-1P	ADVISORY SPEED (PLAQUE)	30"x30"		2			2	2	12.5				
W20-1	ROAD WORK 1500 FT.	48"x48"	1	1	1		1	1	16.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	1	1	1		1	1	16.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2		2	2	32.0				
W20-2	DETOUR AHEAD	36"x36"	2				2	2	18.0				
W20-3	ROAD CLOSED AHEAD	36"x36"	2				2	2	18.0				
W21-5a	SHOULDER CLOSED	36"x36"	2	2	2		2	2	18.0				
W24-1	DOUBLE REVERSE CURVE (1 LANE)	48"x48"		2			2	2	32.0				
SPECIAL	HWY. 141	12"x36"	29				29	29	87.0				
SPECIAL	HWY. 141 CLOSED 2 MILES AHEAD LARGE TRUCKS TAKE DETOUR 1 MILE AHEAD	90"x78"	2				2	2	97.5				
SPECIAL	HWY. 141 CLOSED 4 MILES AHEAD LARGE TRUCKS TAKE DETOUR 1 MILE AHEAD	90"x78"	1				1	1	48.8				
	VERTICAL PANELS		9		9		9	9		9			
	TRAFFIC DRUMS		34	38	17		38	38			38		
	TYPE III BARRICADE-RT. (16')		3	1	1		3	3				48	
	TYPE III BARRICADE-LT. (16')		3	1	1		3	3					48
TOTALS:									688.8	9	38	48	48

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
									TYPE II	6"	
									(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH				LIN. FT.		LIN. FT.		EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS		1573			1573						
CONSTRUCTION PAVEMENT MARKINGS		3166				3166					
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS			858	3973			4831				
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		858	3973					4831			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	7			13					20		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	1040			1986						3026	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	1040			1986							3026
TOTALS:					1573	3166	4831	4831	20	3026	3026

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR S. AZAD
2021.03.16

QUANTITIES

11:52:21 AM 3/18/2021 Robert.Darrington
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3/15/2021
Robert.Darrington

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	32	57

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-16

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	• SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	STAGE 1-MAIN LANES-SITE 1	411	805	
ENTIRE	PROJECT	STAGE 1-MAIN LANES-SITE 2	800	1106	
ENTIRE	PROJECT	STAGE 2-MAIN LANES-SITE 2	831	215	
ENTIRE	PROJECT	STAGE 3-MAIN LANES-SITE 2	2108	502	
ENTIRE	PROJECT	APPROACHES	75	20	
ENTIRE	PROJECT	TEMPORARY APPROACHES	30	4	
		CHANNEL CHANGE - SITE 1	1245	25	
		CHANNEL CHANGE - SITE 2	3955	1740	
• ENTIRE	PROJECT	TO BE USED IF AND WHERE			75
		DIRECTED BY THE ENGINEER			
TOTALS:			**9455**	**4417**	**75**

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

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
116+00	118+20	RIGHT OF HW 141 SITE 1	3	3
116+30	118+35	LEFT OF HW 141 SITE 1	3	3
202+20	210+10	LEFT OF HW 141 SITE 2	8	8
204+50	207+00	RIGHT OF HW 141 SITE 2	3	3
TOTALS:			**17**	**17**

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB	GUARDRAIL
			LIN. FT.	LIN. FT.
117+05	117+46	LT. OF HW 141 SITE 1		41
116+95	117+36	RT. OF HWY 141 SITE 1		41
117+01	117+31	RT. OF HWY 141 SITE 1	31	
117+10	117+40	LT. OF HW 141 SITE 1	31	
206+37	207+07	RT. OF HWY. 141 SITE 2		70
206+38	207+07	LT. OF HWY 141 SITE 2		69
206+38	207+06	RT. OF HWY. 141 SITE 2	68	
206+38	207+06	LT. OF HWY 141 SITE 2	68	
TOTALS:			**198**	**221**

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.

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL					
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	SILT FENCE	•SEDIMENT REMOVAL & DISPOSAL
											(E-5)	(E-11)	
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	LIN. FT.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING - SITE 1						0.46	0.46	9.4	176	441	24
ENTIRE	PROJECT	CLEARING AND GRUBBING - SITE 2						0.98	0.98	20.0	176	1258	55
ENTIRE	PROJECT	STAGE 1- SITE 1	0.52	1.04	0.52	53.0	0.52	0.52	0.52	10.6	176		4
ENTIRE	PROJECT	STAGE 1- SITE 2						0.71	0.71	14.5	88		
ENTIRE	PROJECT	STAGE 2 - SITE 1											4
ENTIRE	PROJECT	STAGE 2 - SITE 2	0.57	1.14	0.57	58.1	0.57	0.32	0.32	6.5	88	308	11
ENTIRE	PROJECT	STAGE 3 - SITE 1											
ENTIRE	PROJECT	STAGE 3 - SITE 2	1.70	3.40	1.70	173.4	1.70						
•ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.66	1.32	0.66	67.3	0.66	0.75	0.75	15.3	88	502	25
TOTALS:			**3.45**	**6.90**	**3.45**	**351.8**	**3.45**	**3.74**	**3.74**	**76.3**	**792**	**2509**	**123**

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

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.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
117+21	HDWL. OF R.C. BOX CULVERT ON LT.	1
206+00	HDWL. OF R.C. BOX CULVERT ON LT.	1
TOTAL:		2

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

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QUANTITIES

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3/15/2021
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	33	57

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
SHAHRIAR KHALED
No. 12405
2021-03-15

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
118+00	18" x 20' CMP SIDE DRAIN RT (SITE 1)	1
203+28	18" x 25' CMP SIDE DRAIN RT. (SITE 2)	1
204+75	18" x 24' CMP SIDE DRAIN RT. (SITE 2)	1
TOTAL:		**3**

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

REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	LOCATION	LUMP SUM
117+08	117+38	HWY. 141 SITE 1	1.00
206+38	207+06	HWY. 141 SITE 2	1.00

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS	
		(SINGLE)	(DOUBLE)
	EACH		
ENTIRE PROJECT (SITE 1)	4	2	1
ENTIRE PROJECT (SITE 2)	2	2	
TOTALS:	**6**	**4**	**1**

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
116+72	116+83	LT. OF HWY. 141 SITE 1	34
TOTAL:			34

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	75
ENGINEER	
TOTAL:	75

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D)
			LIN. FT.
116+30	116+72	LT. OF HWY. 141 SITE 1	54
TOTAL:			54

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERTS		SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		18"	72"									
		LIN. FT.		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
305+17	TEMP. TRI. 72" X 70' PIPE CULVERT DETOUR (SITE 2)		210									PCC-1, PCM-1
305+59	TEMP. TRI. 72" X 70' PIPE CULVERT DETOUR (SITE 2)		210									PCC-1, PCM-1
303+62	TEMP. 18" X 46' PIPE CULVERT	46										PCC-1, PCM-1, PCP-1,PCP-2, PCP-3
306+33	TEMP. 18" X 68' PIPE CULVERT	68										PCC-1, PCM-1, PCP-1,PCP-2, PCP-3
SUBTOTALS:		**114**	**420**									
STRUCTURES OVER 20' - 0" SPAN												
117+21	TRIPLE 8' x 7' x 63' R.C. BOX CULVERT (SITE 1)			8	7	63	165.67	21727	84	32	0.40	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
206+00	QUAD. 10' x 6' x 66' R.C. BOX CULVERT (SITE 2)			10	6	66	282.01	35362	142	38	0.48	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
SUBTOTALS:							**447.68**	**57089**	**226**	**70**	**0.88**	
TOTALS:		**114**	**420**				**447.68**	**57089**	**226**	**70**	**0.88**	

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

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

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

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QUANTITIES

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2/23/2021
Robert.Darrington

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	34	57

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-04

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.
116+18.35	116+66.08	RIGHT OF HWY 141.	58.31	4.00	25.92	25.92	0.33
117+12.94	117+71.31	RIGHT OF HWY 141.	76.35	4.00	33.93	33.93	0.43
116+36.52	117+24.24	LEFT OF HWY 141.	102.69	4.00	45.64	45.64	0.58
117+56.11	118+29.55	LEFT OF HWY 141.	89.98	6.00	59.99	39.99	0.50
TOTALS:					165.48	145.48	1.84

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
ENTIRE	PROJECT	TO BE USED IF AND WHERE	300.00	266.67
		DIRECTED BY THE ENGINEER		
TOTAL:				266.67

NOTE: AVERAGE WIDTH = 8'-0"

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
114+65.43	115+65.43	MAIN LANES SITE 1	22.00	244.44
118+85.43	119+85.43	MAIN LANES SITE 1	22.00	244.44
203+00.00	204+00.00	MAIN LANES SITE 2	20.00	222.22
208+00.00	209+00.00	MAIN LANES SITE 2	20.00	222.22
TOTAL:				**933.32**

NOTE: AVERAGE MILLING DEPTH 1".

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	15	30
DIRECTED BY THE ENGINEER		
TOTALS:	**15**	**30**

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 18"	STANDARD DRAWINGS
			FEET	SQ. YD.	TON	TON	LIN. FT.	
		SITE 1						
118+00	RIGHT	HWY. 141 SITE 1	14	110.93	12.20	45.30	44	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
		SITE 2						
203+27	RIGHT	HWY. 141 SITE 2	16	35.07	3.86	14.32		
203+91	LEFT	HWY. 141 SITE 2	16	30.43	3.35	12.43		
204+75	RIGHT	HWY. 141 SITE 2	16	53.54	5.89	21.86	28	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
207+36	RIGHT	HWY. 141 SITE 2	40	94.43	10.39	38.56		
• ENTIRE PROJECT TEMPORARY DRIVES						300.00		
TOTALS:				**324.40**	**35.69**	**432.47**	**72**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

•FOR INFORMATION ONLY

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

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QUANTITIES

Robert.Darrington 2/23/2021 11:34:33 AM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	35	57

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	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
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
		SITE 1																							
114+65.43	115+65.43	TRANSITION	100.00	210.50	210.50	44.71	496.78	24.84				24.84	22.46	249.56	330.00	41.18	22.25	247.22	220.00	27.19	26.00	288.89	220.00	31.78	58.97
115+65.43	116+81.85	MAINLANES-FULL DEPTH- SUPERELEVATION	116.42	216.25	251.76	44.71	578.35	28.92				28.92	22.46	290.53	330.00	47.94	22.25	287.82	220.00	31.66	26.00	336.32	220.00	37.00	68.66
116+81.85	117+46.54	MAINLANES-FULL DEPTH- NORMAL CROWN	64.69	218.25	141.19	44.71	321.37	16.07				16.07	22.46	161.44	330.00	26.64	22.25	159.93	220.00	17.59	26.00	186.88	220.00	20.56	38.15
117+46.54	118+85.43	MAINLANES-FULL DEPTH- SUPERELEVATION	138.89	240.25	333.68	44.71	689.97	34.50				34.50	22.46	346.61	330.00	57.19	22.25	343.37	220.00	37.77	26.00	401.24	220.00	44.14	81.91
118+85.43	119+85.43	TRANSITION	100.00	245.25	245.25	44.71	496.78	24.84				24.84	22.46	249.56	330.00	41.18	22.25	247.22	220.00	27.19	26.00	288.89	220.00	31.78	58.97
		SITE 2																							
203+00.00	204+00.00	TRANSITION	100.00	139.50	139.50	4.46	49.56	2.48	20.00	222.22	37.78	40.26	2.29	25.44	330.00	4.20	2.17	24.11	220.00	2.65	26.00	288.89	220.00	31.78	34.43
204+00.00	205+75.00	MAINLANES-FULL DEPTH- NORMAL CROWN	175.00	235.25	411.69	44.71	869.36	43.47				43.47	22.46	436.72	330.00	72.06	22.25	432.64	220.00	47.59	26.00	505.56	220.00	55.61	103.20
205+75.00	206+25.00	MAINLANES-FULL DEPTH- NORMAL CROWN	50.00	252.75	126.38	44.71	248.39	12.42				12.42	22.46	124.78	330.00	20.59	22.25	123.61	220.00	13.60	26.00	144.44	220.00	15.89	29.49
206+25.00	208+00.00	MAINLANES-FULL DEPTH- NORMAL CROWN	175.00	223.50	391.13	44.71	869.36	43.47				43.47	22.46	436.72	330.00	72.06	22.25	432.64	220.00	47.59	26.00	505.56	220.00	55.61	103.20
208+00.00	209+00.00	TRANSITION	100.00	139.50	139.50	4.46	49.56	2.48	20.00	222.22	37.78	40.26	2.29	25.44	330.00	4.20	2.17	24.11	220.00	2.65	26.00	288.89	220.00	31.78	34.43
		SITE2- DETOUR																							
300+00.00	301+89.36	WIDENING	189.36	91.00	172.32	11.00	231.44	11.57				11.57									10.75	226.18	220.00	24.88	24.88
301+89.36	302+24.52	WIDENING-TURNING MOVEMENT	35.16	230.25	80.96	31.25	122.08	6.10				6.10									31.00	121.11	220.00	13.32	13.32
302+24.52	304+66.52	MAINLANES- FULL DEPTH SUPER TRANSITION	242.00	230.75	558.42	27.17	730.57	36.53				36.53									26.58	714.71	220.00	78.62	78.62
304+66.52	305+39.56	MAINLANES- FULL DEPTH SUPERELEVATION	73.04	232.00	169.45	27.17	220.50	11.03				11.03									26.58	215.71	220.00	23.73	23.73
305+39.56	308+20.21	MAINLANES- FULL DEPTH SUPER TRANSITION	280.65	228.25	640.58	27.17	847.25	42.36				42.36									26.58	828.85	220.00	91.17	91.17
308+20.21	310+06.08	WIDENING	185.87	111.25	206.78	11.17	230.69	11.53				11.53									10.92	225.52	220.00	24.81	24.81
ADDITIONAL FOR LEVELING																									
		SITE 2																							
203+20.80	204+00.00	TRANSITION	79.20						VAR.	176.00	29.92	29.92					VAR.	88.00	VAR.	8.89					8.89
208+00.00	208+20.00	TRANSITION	20.00						VAR.	44.44	7.55	7.55					VAR.	22.22	VAR.	1.22					1.22
TOTALS:					4219.09		7052.01	352.61		664.88	113.03	465.64		2346.80		387.24		2432.89		265.59		5567.64		612.46	878.05

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% 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.

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QUANTITIES

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	17	STATION
201	GRUBBING	17	STATION
202	REMOVAL AND DISPOSAL OF CURB	198	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE	34	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	3	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	221	LIN. FT.
SS & 210	UNCLASSIFIED EXCAVATION	9455	CU. YD.
210	COMPACTED EMBANKMENT	4417	CU. YD.
SP & 210	SOIL STABILIZATION	75	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	4652	TON
SS & 401	TACK COAT	496	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	371	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	16	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	867	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	47	TON
412	COLD MILLING ASPHALT PAVEMENT	933	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	15	TON
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SP, SS, & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	18" TEMPORARY CULVERT	114	LIN. FT.
603	72" TEMPORARY CULVERT	420	LIN. FT.
SS & 604	SIGNS	689	SQ. FT.
SS & 604	BARRICADES	96	LIN. FT.
SS & 604	TRAFFIC DRUMS	38	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	3166	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	4831	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	4831	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	1573	LIN. FT.
SS & 604	VERTICAL PANELS	9	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE B)	165	SQ. YD.
SP, SS, & 606	18" SIDE DRAIN	72	LIN. FT.
606	SELECTED PIPE BEDDING	75	CU. YD.
619	WIRE FENCE (TYPE C)	54	LIN. FT.
620	LIME	7	TON
620	SEEDING	3.45	ACRE
SS & 620	MULCH COVER	7.19	ACRE
620	WATER	430.8	M. GAL.
621	TEMPORARY SEEDING	3.74	ACRE
621	SILT FENCE	2509	LIN. FT.
621	SAND BAG DITCH CHECKS	792	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	123	CU. YD.
623	SECOND SEEDING APPLICATION	3.45	ACRE
624	SOLID SODDING	215	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	267	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	6	EACH
637	MAILBOX SUPPORTS (SINGLE)	4	EACH
637	MAILBOX SUPPORTS (DOUBLE)	1	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	3026	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	3026	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	20	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	226	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	447.68	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	57089	POUND

REVISIONS

DATE	REVISION	SHEET NUMBER
6/30/2021	REVISED STANDARD DRAWINGS TC-2 AND TC-3	2, 36
8/30/2021	REVISED STANDARD DRAWING TC-3	2, 36
9/22/2021	REVISED FEDERAL AID PROJECT NUMBER	1, 36

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JUSTIN A. CLAY
No. 14412
2021-09-22

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED
06-30-21			
08-30-21			
09-22-21			

② SUMMARY OF QUANTITIES AND REVISIONS

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100762	36	57

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	37	57
				(2) SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-04

SURVEY CONTROL COORDINATES

Project Name: s100762
Date: 10/20/2017
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	619362.4564	1702034.6424	353.81	CTL	ARDOT STD.MON.STAMPED PN:1
2	620107.6525	1702420.8457	338.80	CTL	ARDOT STD.MON.STAMPED PN:2
3	620474.3486	1702668.3342	340.87	CTL	ARDOT STD.MON.STAMPED PN:3
4	620852.5985	1702936.3367	353.86	CTL	ARDOT STD.MON.STAMPED PN:4
5	621124.9684	1703148.0033	358.21	CTL	ARDOT STD.MON.STAMPED PN:5
6	632193.4376	1704763.0315	287.91	CTL	ARDOT STD.MON.STAMPED PN:6
7	633159.9371	1704740.4135	287.84	CTL	ARDOT STD.MON.STAMPED PN:7
8	633849.5231	1704745.9479	288.32	CTL	ARDOT STD.MON.STAMPED PN:8
9	634314.0191	1704786.8732	287.49	CTL	ARDOT STD.MON.STAMPED PN:9
100	634561.4912	1704877.2845	287.91	GPS	ARDOT GPS MON. 280021
101	617726.2747	1701583.6952	403.27	GPS	ARDOT GPS MON. 280025
102	618927.2968	1701780.8398	352.98	GPS	ARDOT GPS MON. 280025A
900	619459.2036	1702041.8786	343.16	TBM	SQ CUT WEST END RCP SQ CUT WEST 141
901	620312.6490	1702600.6368	336.73	TBM	SQ CUT SE BR COR 141 WALCOTT
902	620662.3914	1702797.4415	339.18	TBM	SQ CUT TOP WEST END RCP 141 WALCOTT
903	621243.0269	1703308.0896	345.53	TBM	SQ CUT WEST END RCP 141 WALCOTT
904	624015.2499	1705116.8395	346.59	TBM	SQ CUT TOP OF OLD ISLAND 141 WALCOTT
905	627163.6561	1704735.5744	295.55	TBM	SQ CUT NW COR BRIDGE 141 WALCOTT
906	632304.0450	1704766.1331	287.86	TBM	SQUARE CUT CENT E HW 141 WALCOTT
907	633781.9404	1704815.5466	291.58	TBM	X CUT IN BOLT ON FH 141 WALCOTT
990	634568.5899	1704810.5871	286.28	BM	NGS BM F335 141 WALCOTT
998	629218.8119	1704763.2537	286.36	BM	NGS BM G335 141 WALCOTT

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.999957453 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 s100762gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 280021 - 280025
CONVERGENCE ANGLE: 0-46-22 RIGHT AT LAT N 36-02-25 LON w090-40-18.8
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE. LE.

C.L. HWY. 141 @ M2005

POINT NO.	TYPE	STATION	NORTHING	EASTING
8001	P.O.B.	100+00.00	618816.0975	1701770.6552
8002	P.C.	103+17.92	619114.7284	1701879.7125
8004	P.T.	105+85.71	619356.2465	1701994.4845
8005	P.I.	110+55.16	619759.5985	1702234.6768
8006	P.C.	114+94.82	620140.2967	1702454.5956
8008	P.T.	116+78.34	620293.7379	1702555.1023
8009	P.C.	118+50.41	620432.1674	1702657.3001
8011	P.T.	120+55.47	620606.2158	1702765.3127
8012	P.C.	122+27.94	620759.5983	1702844.1723
8014	P.T.	124+10.52	620911.3623	1702945.0036
8015	P.C.	125+24.03	620998.3223	1703017.9468
8017	P.T.	127+04.46	621116.1803	1703153.5843
8018	P.C.	127+65.37	621148.4296	1703205.2616
8020	P.T.	129+74.79	621289.3200	1703358.9204
8021	P.O.E.	131+40.86	621420.0804	1703461.2965

C.L. HWY. 141 @ M2009

POINT NO.	TYPE	STATION	NORTHING	EASTING
8030	P.O.B	200+00.00	633026.7664	1704730.8772
8031	P.O.E	213+71.00	634397.7299	1704740.8331

C.L. DETOUR

POINT NO.	TYPE	STATION	NORTHING	EASTING
8040	P.O.B/P.C.	300+00.00	633138.3382	1704731.6874
8042	P.T.	301+46.52	633283.9432	1704717.8090
8043	P.C.	303+56.52	633489.8683	1704676.6404
8045	P.T.	306+49.56	633780.8613	1704678.7536
8046	P.C.	308+59.56	633986.1667	1704722.9085
8048	P.T.	310+06.08	634131.5548	1704738.9002

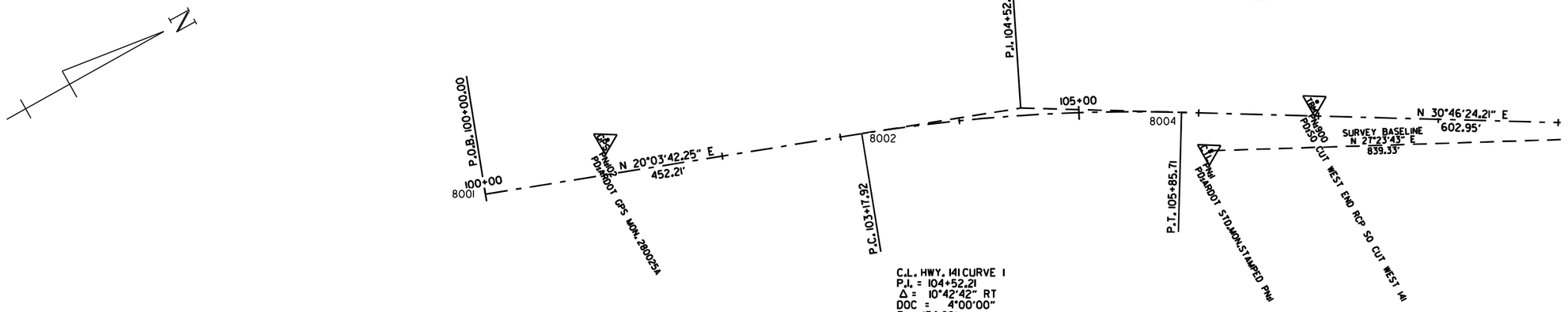
SITES 1&2
SURVEY CONTROL DETAILS

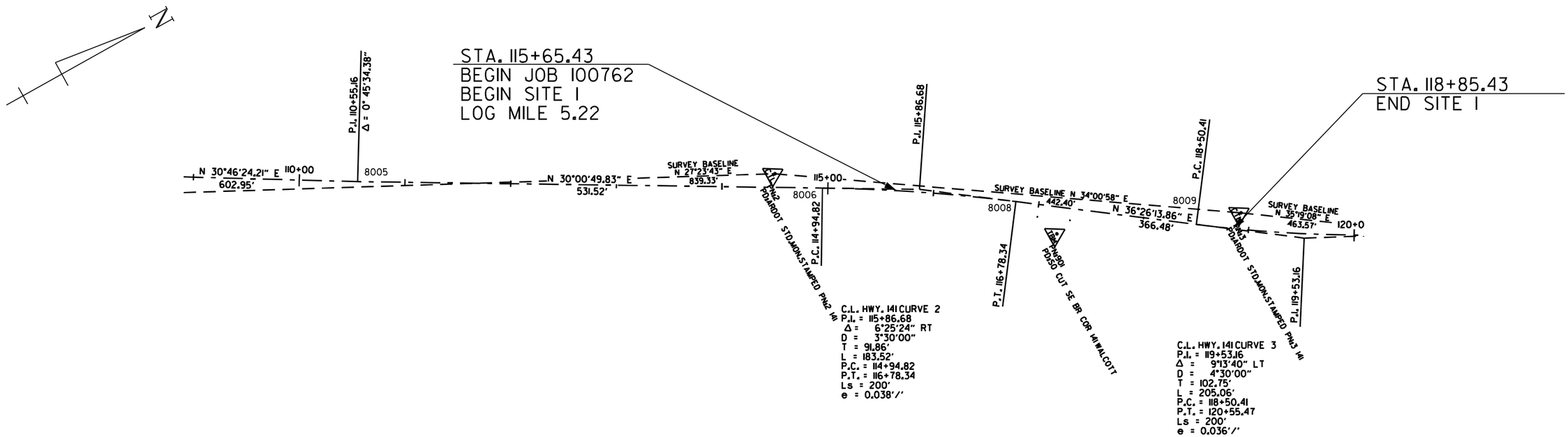
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	38	57

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08





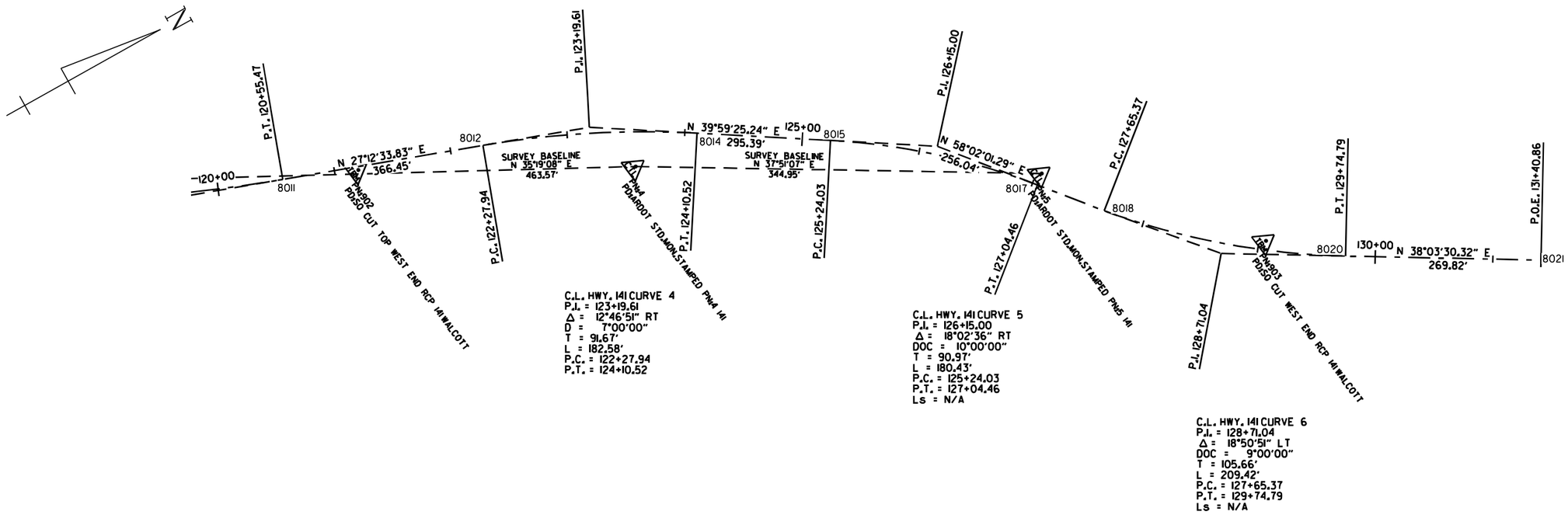
SITE 1
SURVEY CONTROL DETAILS

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3/8/2021
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	39	57

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08



C.L. HWY. 141 CURVE 4
P.I. = 123+19.61
Δ = 12°46'51" RT
D = 7°00'00"
T = 91.67'
L = 182.58'
P.C. = 122+27.94
P.T. = 124+10.52

C.L. HWY. 141 CURVE 5
P.I. = 126+15.00
Δ = 18°02'36" RT
DOC = 10°00'00"
T = 90.97'
L = 180.43'
P.C. = 125+24.03
P.T. = 127+04.46
Ls = N/A

C.L. HWY. 141 CURVE 6
P.I. = 128+71.04
Δ = 18°50'51" LT
DOC = 9°00'00"
T = 105.66'
L = 209.42'
P.C. = 127+65.37
P.T. = 129+74.79
Ls = N/A

SITE I
SURVEY CONTROL DETAILS

Robert.Darrington 3/8/2021 11:00:25 AM

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	40	57

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08

N

P.O.B. 200+00.00
200+00
P.I. 200+00.00

SURVEY BASELINE N 01°20'26" W
966.76'

PN6 PDIARDOT STDJMON.STAMPED PN6 141

PN906 PDISQUARE CUT CENT E HW 141WALCOTT

C.L. HWY. 141
P.J. = 305+05.12
Δ = 23°26'36" RT
D = 8°00'00"
T = 148.60'
L = 293.04'
P.C. = 303+56.52
P.T. = 306+49.56
Ls = 275
e = 0.094 '/'

C.L. HWY. 141
P.J. = 300+73.52
Δ = 11°43'18" LT
D = 8°00'00"
T = 73.52'
L = 146.52'
P.C. = 300+00.00
P.T. = 301+46.52

N

STA. 300+00.00
BEGIN DETOUR

P.I. 305+05.12
305+00

P.T. 301+46.52
8042
N 11°18'20" W
432.80'
8043
8045
N 12°08'16" E
432.98'
P.C. 308+59.56
8046
P.T. 310+06.08

STA. 310+06.08
END DETOUR

P.O.E. 213+71.00
P.I. 213+71.00

P.O.B. 200+00.00
200+00
8030
P.C. 300+00.00
300+00
8040
N 0°24'58" E
73.52'
P.I. 300+00.00
P.I. 300+73.52
P.C. 303+56.52
205+00
SURVEY BASELINE N 00°27'35" E
689.61'
P.T. 306+49.56
N 0°24'58" E
1371.00'
210+00
N 0°24'58" E
73.52'
310+00
8048
8031
SURVEY BASELINE N 05°02'07" E
466.30'
P.I. 309+33.08

PN7 PDIARDOT STDJMON.STAMPED PN7 141

PN907 PDI CUT IN TOP OF T ON FH 141WALCOTT

PN8 PDIARDOT STDJMON.STAMPED PN8 141

C.L. HWY. 141
P.J. = 309+33.08
Δ = 11°43'18" LT
D = 8°00'00"
T = 73.52'
L = 146.52'
P.C. = 308+59.56
P.T. = 310+06.08

PN9 PDIARDOT STDJMON.STAMPED PN9 141

PN990 PDIWCS BM F355 PDIARDOT GPS MON. 280021

STA. 204+00.00
BEGIN SITE 2
LOG MILE 8.05

STA. 208+00.00
END SITE 2
END JOB 100762

SITE 2
SURVEY CONTROL DETAILS

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Robert.Darrington 3/8/2021 4:53:16 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	41	57

(2) PLAN & PROFILE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SAHRIAR AZAD
2021-03-08

12:49:52 PM
3/8/2021
Robert.Barrington

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	UNIT
116+72.27	116+83.03	LT. OF NB HWY 141	34 LIN.FT.

FENCING

STA.	STA.	SIDE	TYPE	UNIT
116+30.00	116+72.27	LT. OF NB HWY 141	D	54 LIN.FT.

STA. 115+65.43
BEGIN JOB 100762
BEGIN SITE 1
LOG MILE 5.22

STA. 118+85.43
END SITE 1

STA. 117+20.72 - CONSTRUCT
TRIPLE 8' X 7' X 63' R.C. BOX CULVERT
ON 20° LT.FWD.SKEW
WITH 3:1 WINGS LT. & RT.
SPAN=26'-11½"
Q25=269.34 CFS D.A.= 97.88 ACRES

DENOTES BRIDGE REMOVAL

P.I. 110+55.16
Δ = 0° 45' 34.38"

110+00
N 30°46'24.21" E

HWY. 141

N 30°00'49.83" E

EXIST. R/W

100' TRANS.

P.I. 115+86.68

115+00

P.C. 114+94.82

C.D.P.

CONST. LIMIT

PROP. R/W

+00.00 -93.00

+30.00 -40.00

+85.00 -106.00

+35.00 -40.00

P.C. 118+50.41

N 36°26'13.86" E

20+00

C.L. HWY. 141

P.T. 116+78.34

+00.00 40.00

+55.00 110.00

+00.00 100.00

+20.00 40.00

P.I. 119+53.16

P.T. 120+55.47

P.I. 123+19.61

N 27°12'33.83" E

125+00

N 39°59'25.24" E

P.C. 122+27.94

P.T. 124+10.52

P.C. 125+24.03

CANEY SLOUGH TRIBUTARY

C.L. HWY. 141 CURVE 2
P.I. = 115+86.68
Δ = 6°25'24" RT
D = 3°30'00"
T = 91.86'
L = 183.52'
P.C. = 114+94.82
P.T. = 116+78.34
Ls = 200'
e = 0.038'/'

C.L. HWY. 141 CURVE 3
P.I. = 119+53.16
Δ = 9°13'40" LT
D = 4°30'00"
T = 102.75'
L = 205.06'
P.C. = 118+50.41
P.T. = 120+55.47
Ls = 200'
e = 0.036'/'

C.L. HWY. 141 CURVE 4
P.I. = 123+19.61
Δ = 12°46'51" RT
D = 7°00'00"
T = 91.67'
L = 182.58'
P.C. = 122+27.94
P.T. = 124+10.52

STA. 117+06 - STA. 117+37 IN PLACE
24' X 31' BRIDGE NO. M2005 CONSISTING OF
COMP STEEL GIRDERS ON TIMBER CAPS
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)
1.00 LUMP SUM

STA. 118+00.00 - IN PLACE
18" X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 44' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH RT. =
10 CU. YDS. EMBK.
35 CU. YDS. EXC.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 114+65.43 BEGIN SUPER ELEVATION (MATCH EXISTING 0.043'/' LT., 0.012'/' RT.)
STA. 115+86.58 MAX SUPER ELEVATION (0.008'/')
STA. 116+77.17 MAX SUPER ELEVATION (0.008'/')
STA. 116+81.85 END SUPER ELEVATION (N.C.)

STA. 115+65.43
END JOB SITE 1
BEGIN JOB 100762
BEGIN SITE 1
BEGIN PROFILE GRADE
ELEV. 338.01
LOG MILE 5.22

UNNAMED STREAM:
THIS STREAM IS CLASSIFIED AS INTERMITTENT.
THE TOP OF THE CHANNEL ELEVATION IS
333 FT. MSL. REFER TO SECTION 110.06(c)
TEMPORARY FILL OF THE 2014 STANDARD
SPECIFICATIONS.

STA. 117+46.54 BEGIN SUPER ELEVATION (N.C.)
STA. 118+85.43 MAX SUPER ELEVATION (0.025'/')
STA. 119+85.43 END SUPER ELEVATION (MATCH EXISITING 0.114'/' LT., 0.059'/' RT.)

V.P.C. 115+65.43
ELEV. 338.01

-1.48%

EXISTING GROUND @ PGL

L.V.C. = 320.00'
G1 -1.48%
G2 4.92%
e = 2.56' PROFILE GRADE
K = 50

V.P.T. 118+85.43
ELEV. 343.52

4.92%

STA. 118+85.43
END JOB SITE 1
END PROFILE GRADE
ELEV. 343.52

100-YR
WSE=329.86

DESIGN HW
25-YR
WSE=329.18

P.V.I. 117+25.43
ELEV. 335.64

F.L. INLET RT. = 327'
F.L. OUTLET LT. = 326'

(1) +18.26 RT. D.G. 336.00' 2.78% RT. D.G.	(6) +36.58 LT. D.G. 335.00' 3.79% LT. D.G.	(10) +80.06 RT. D.G. 337.00' 2.14% RT. D.G.	(15) +29.22 LT. D.G. 339.17' 6.09% LT. D.G.
(2) +28.23 RT. D.G. 335.72' 0.44% RT. D.G.	(7) +3.17 LT. D.G. 332.57' 12.56% LT. D.G.	(11) +63.03 RT. D.G. 336.58' 4.90% RT. D.G.	(16) +90.33 LT. D.G. 336.96' 18.67% LT. D.G.
(3) +51.79 RT. D.G. 335.62' 22.06% RT. D.G.	(8) +12.53 LT. D.G. 331.40' 50.42% LT. D.G.	(12) +54.51 RT. D.G. 336.17' 2.15% RT. D.G.	(17) +75.05 LT. D.G. 334.23' 50.20% LT. D.G.
(4) +59.63 RT. D.G. 333.84' 82.03% RT. D.G.	(9) +23.14 LT. D.G. 326.01'	(13) +38.36 RT. D.G. 335.75' 40.18% RT. D.G.	(18) +57.14 LT. D.G. 326.05'
(5) +67.70 RT. D.G. 327.22'		(14) +15.57 RT. D.G. 327.00'	

HIGHWAY 141
SITE 1

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	42	57

(2) PLAN & PROFILE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08

STA. 203+90.73
CONSTRUCT APPROACH LT. =
5 CU. YDS. EXC.

STA. 206+00.00 - CONSTRUCT
QUAD. 10' X 6' X 66' R.C. BOX CULVERT
ON 20° LT. FWD. SKEW
WITH 31 WINGS LT. & RT.
SPAN=44'-8⅜"
Q25=1032.50 CFS D.A.= 1137 ACRES

HWY. 141

EXIST. R/W

P.O.B. 200+00.00

P.I. 200+00.00

200+00

205+00

C.L. HWY. 141

N 0°24'58" E

210+00

100' TRANS. & WIDENING

T.C.E.

PROP. R/W

CONST. LIMITS

+20.00 -38.98

+50.00 -39.05

+65.00 -110.00

+65.00 -75.00

+70.00 -70.00 +70.00 -90.00

+10.00 +10.00 -90.00 -80.00

+95.00 -105.00

+95.00 -75.00

+00.00 -39.20

+10.00 -39.27

PROP. R/W +95.00 -230.00

+65.00 -230.00

20' 4%

22'

6'

4%

N.C.

+50.00 43.60

+15.00 75.00

+15.00 135.00

+90.00 135.00

+00.00 42.81

STA. 204+00.00
BEGIN SITE 2
LOG MILE 8.05

STA. 208+00.00
END SITE 2
END JOB 100762

WESTERN GREENE COUNTY
FIRE DEPT. STATION #1

EXIST. R/W +10.00 -39.27

P.O.E. 213+71.00

P.I. 213+71.00

HWY. 412

STA. 201+28.94 - IN PLACE
18" X 25' C.M. PIPE CULVERT
RT. SIDE DRAIN
RETAIN

STA. 203+27.72- IN PLACE
18" X 25' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH RT. =
10 CU. YDS. EXC.

STA. 204+74.95 - IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 25' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH RT. =
10 CU. YDS. EMBK.
5 CU. YDS. EXC.

CANEY SLOUGH TRIBUTARY

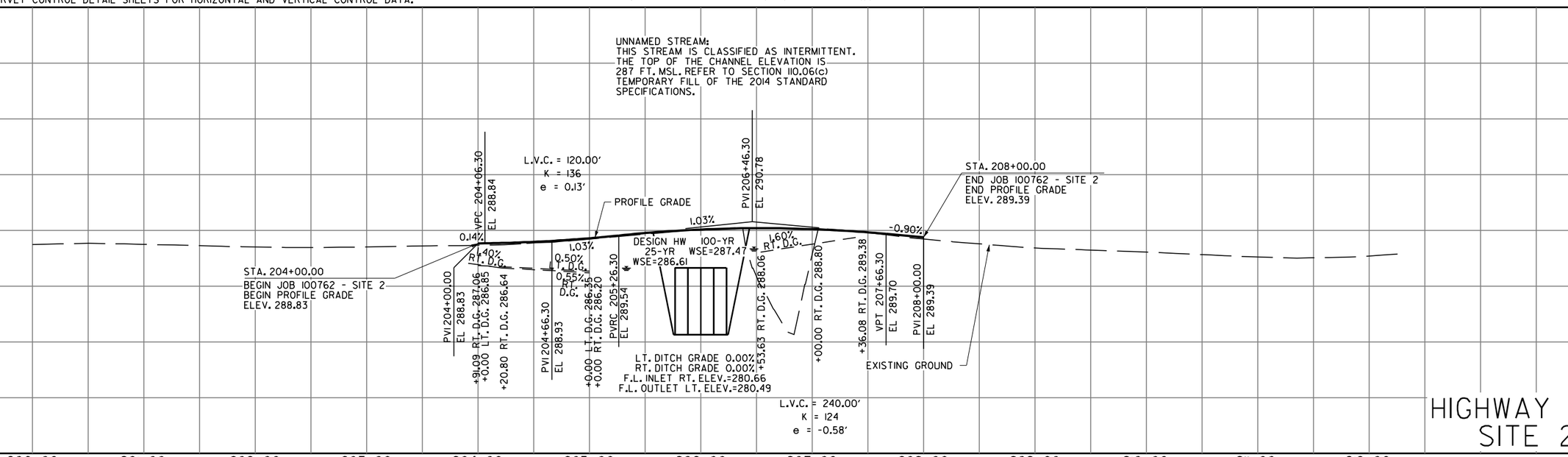
STA. 206+38 - STA. 207+06 IN PLACE
24' X 68' BRIDGE NO. M2009 CONSISTING OF
COMP. STEEL GIRDERS ON TIMBER CAPS
REMOVAL OF EXIST. BRIDGE STURCTURE (SITE NO. 2)
1.00 LUMP SUM

STA. 207+36.08
CONSTRUCT APPROACH RT. =
20 CU. YDS. EXC.

DENOTES PAVEMENT TRANSITION

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

UNNAMED STREAM:
THIS STREAM IS CLASSIFIED AS INTERMITTENT.
THE TOP OF THE CHANNEL ELEVATION IS
287 FT. MSL. REFER TO SECTION 110.06(c)
TEMPORARY FILL OF THE 2014 STANDARD
SPECIFICATIONS.



HIGHWAY 141
SITE 2

Robert.Darrington 3/8/2021 11:00:37 AM

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	43	57

(2) PLAN & PROFILE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12404
SHAHRIAR AZAD
2021-03-08

C.L. HWY. 141
P.I. = 300+73.52
Δ = 11°43'18" LT
D = 8°00'00"
T = 73.52'
L = 146.52'
P.C. = 300+00.00
P.T. = 301+46.52
NO SUPER

DETOUR STA. 302+89.41
CONSTRUCT TEMPORARY CONNECTION =
7 CU. YDS. EXC.
1 CU. YD. EMBK.

C.L. HWY. 141
P.I. = 305+05.12
Δ = 23°26'36" RT
D = 8°00'00"
T = 148.60'
L = 293.04'
P.C. = 303+56.52
P.T. = 306+49.56
Ls = 275
e = 0.094 '/'

STA. 305+17.32 - CONSTRUCT
TRI. 72" X 70' TEMPORARY PIPES
ON 1° LT. FWD. SKEW
Q2=346 CFS D.A.= 1137 ACRES

STA. 305+59.60 - CONSTRUCT
TRI. 72" X 70' TEMPORARY PIPES
ON 23° RT. FWD. SKEW
Q2=346 CFS D.A.= 1137 ACRES

HWY. 141

EXIST. R/W

P.O.B. 200+00.00

P.C. 300+00.00

P.T. 301+46.52

PROP. R/W

P.I. 305+05.12

DETOUR CONST. LIMITS

T.C.E.

C.L. DETOUR

N 11°18'20" W
432.12'

305+00

P.C. 308+59.56

P.T. 310+06.08

P.O.E. 213+71.00

EXIST. R/W

200+00 N 0°24'58" E 73.52'

300+00

C.L. HWY. 141

205+00

P.C. 303+56.52

P.T. 306+49.56

N 0°24'58" E

210+00

310+00 N 0°24'58" E 73.52'

EXIST. R/W

P.I. 200+00.00

P.I. 300+73.52

BEGIN SITE 2
C.L. HWY. 141 STA. 204+00.00

PROP. R/W

EXIST. R/W

PROP. R/W

TYP.

WESTERN GREENE COUNTY
FIRE DEPT. STATION #1

END JOB 100762
C.L. HWY. 141 STA. 208+00.00

P.I. 309+33.08

C.L. HWY. 141
P.I. = 309+33.08
Δ = 11°43'18" LT
D = 8°00'00"
T = 73.52'
L = 146.52'
P.C. = 308+59.56
P.T. = 310+06.08
NO SUPER

END DETOUR
C.L. DETOUR STA. 310+06.08 =
C.L. HWY. 141 STA. 211+04.82

P.I. 213+71.00

HWY. 412

BEGIN DETOUR
C.L. DETOUR STA. 300+00.00 =
C.L. HWY. 141 STA. 201+11.57

DETOUR STA. 303+62.39 INSTALL
18" X 46' TEMPORARY CULVERT RT.
CONSTRUCT TEMPORARY CONNECTION =
11 CU. YDS. EXC.

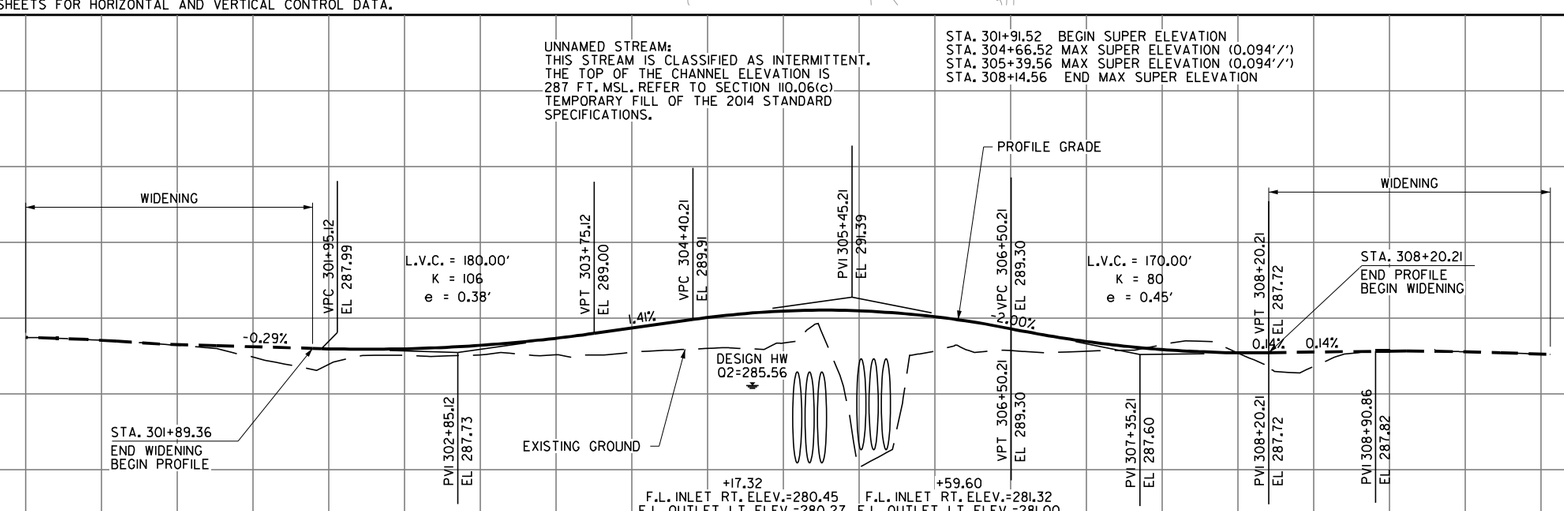
CANEY SLOUGH TRIBUTARY

DETOUR STA. 306+32.53 INSTALL
18" X 68' TEMPORARY CULVERT RT.
CONSTRUCT TEMPORARY CONNECTION =
12 CU. YDS. EXC.
3 CU. YDS. EMBK.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

UNNAMED STREAM:
THIS STREAM IS CLASSIFIED AS INTERMITTENT.
THE TOP OF THE CHANNEL ELEVATION IS
287 FT. MSL. REFER TO SECTION 110.06(c)
TEMPORARY FILL OF THE 2014 STANDARD
SPECIFICATIONS.

STA. 301+91.52 BEGIN SUPER ELEVATION
STA. 304+66.52 MAX SUPER ELEVATION (0.094'/')
STA. 305+39.56 MAX SUPER ELEVATION (0.094'/')
STA. 308+14.56 END MAX SUPER ELEVATION

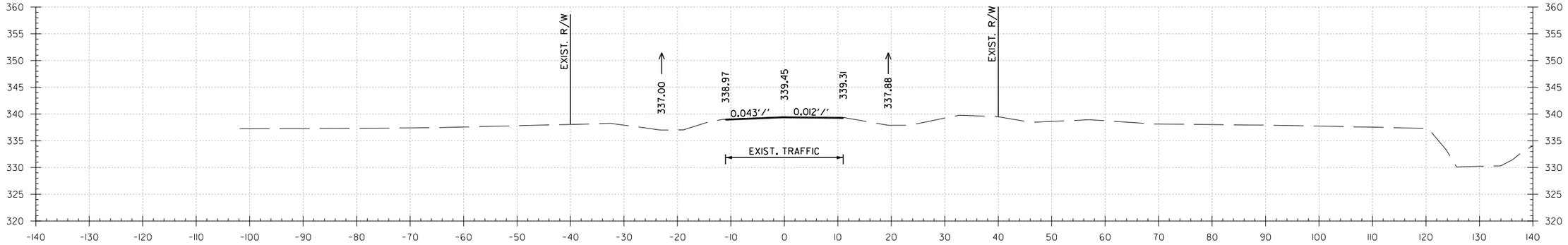


HIGHWAY 141
SITE 2 - DETOUR

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3/5/2021
Robert.Darrington
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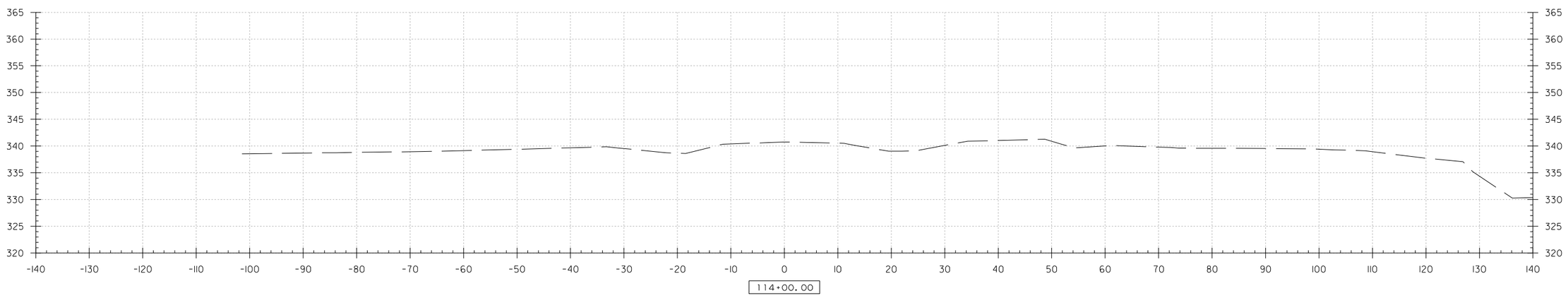
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				6	ARK.			
				JOB NO.		100762	44	57

(2) HWY. 141 CROSS SECTIONS



STAGE I
CUT AREA SQ. FT.
FILL AREA SQ. FT.

STAGE I
CUT VOLUME CU. YD.
FILL VOLUME CU. YD.



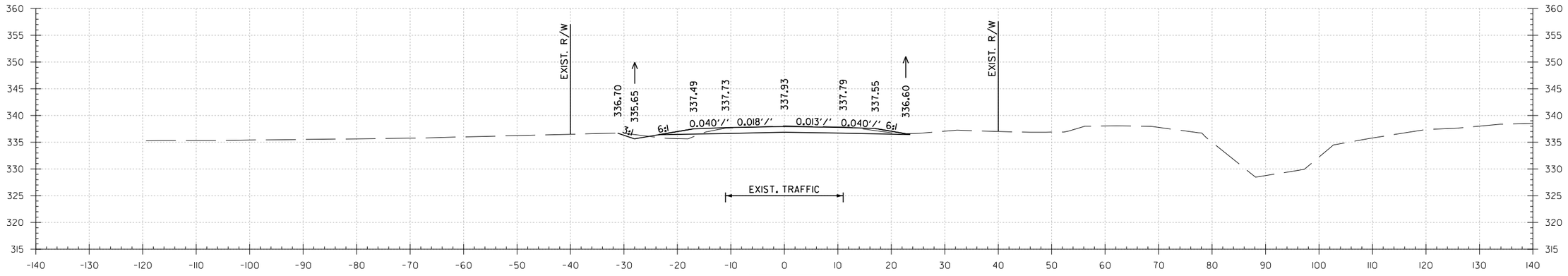
HWY. 141 - SITE 1
CROSS SECTION STA. 114+00 TO STA. 114+65

Robert.Darrington 2/23/2021 11:35:01 AM

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	45	57

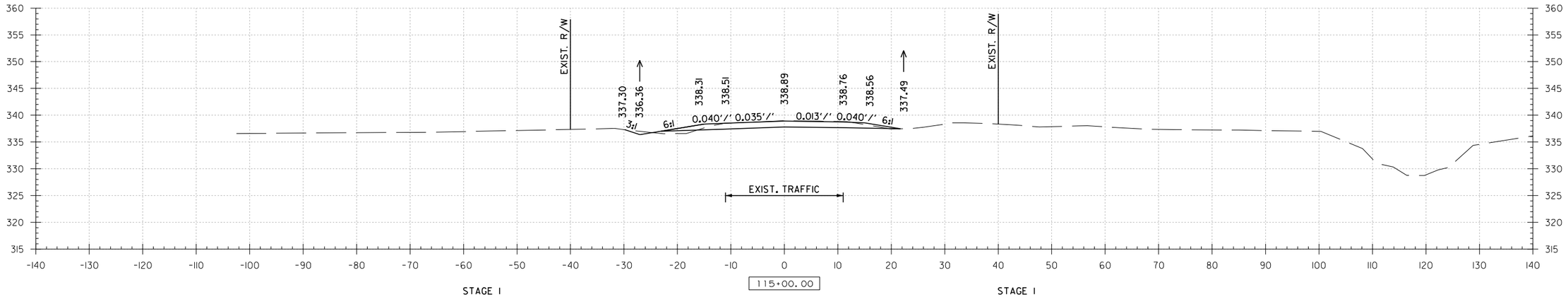
(2) HWY. 141 CROSS SECTIONS



115+65.43
END 100' TRANSITION
BEGIN SITE 1

STAGE I
CUT AREA 36 SQ. FT.
FILL AREA 6 SQ. FT.

STAGE I
CUT VOLUME 84 CU. YD.
FILL VOLUME 11 CU. YD.



115+00.00

STAGE I
CUT AREA 34 SQ. FT.
FILL AREA 4 SQ. FT.

STAGE I
CUT VOLUME 22 CU. YD.
FILL VOLUME 2 CU. YD.

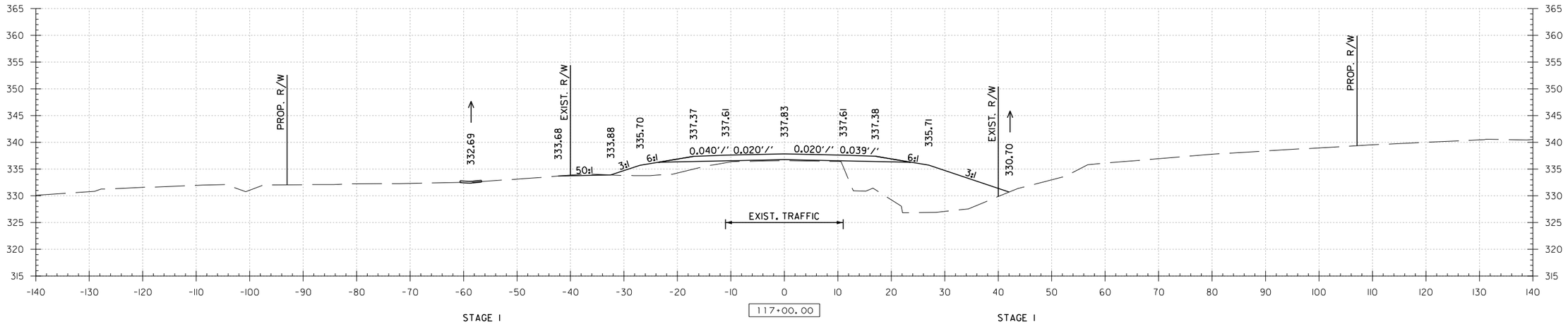
HWY. 141 - SITE 1
CROSS SECTION STA. 115+00 TO STA. 115+65

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	46	57

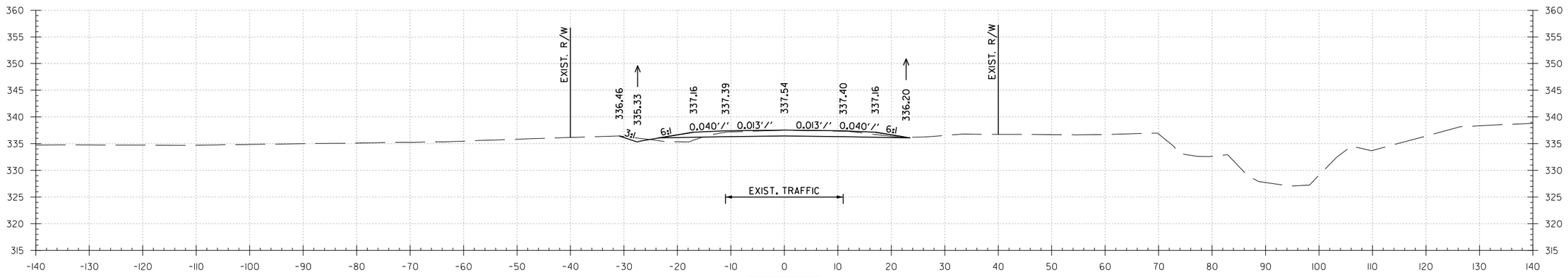
(2) HWY. 141 CROSS SECTIONS



117+00.00

STAGE I
CUT AREA 2 SQ. FT.
FILL AREA 218 SQ. FT.

STAGE I
CUT VOLUME 63 CU. YD.
FILL VOLUME 415 CU. YD.



116+00.00

STAGE I
CUT AREA 33 SQ. FT.
FILL AREA 6 SQ. FT.

STAGE I
CUT VOLUME 44 CU. YD.
FILL VOLUME 7 CU. YD.

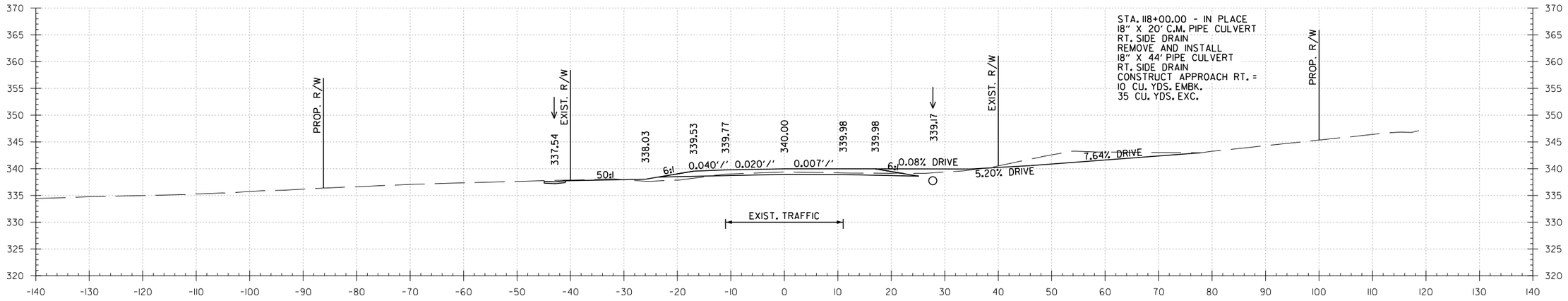
HWY. 141 - SITE 1
CROSS SECTION STA. 116+00 TO STA. 117+00

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Robert.Darrington 3/8/2021 11:00:44 AM

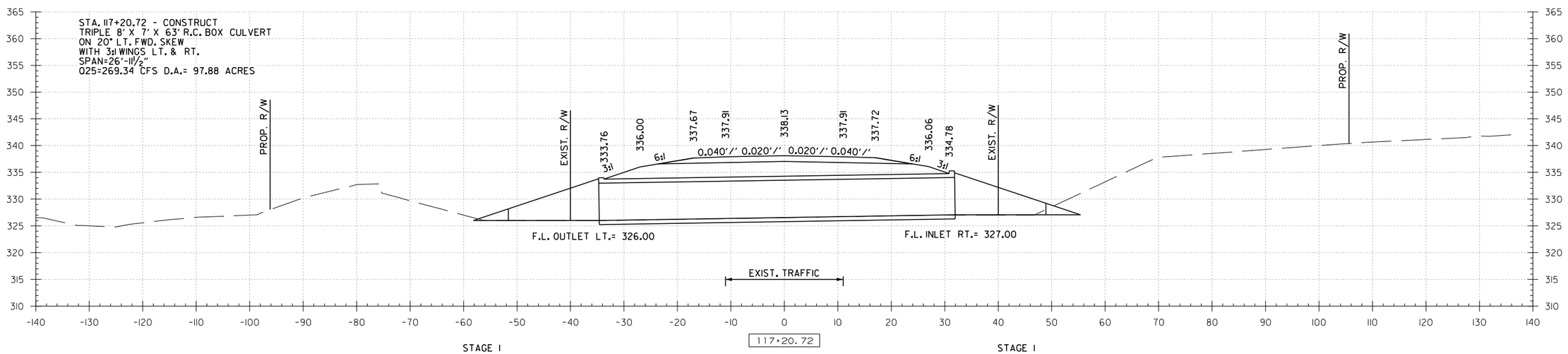
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				6	ARK.			
				JOB NO.		100762	47	57

(2) HWY. 141 CROSS SECTIONS



STAGE I
CUT AREA 14 SQ. FT.
FILL AREA 7 SQ. FT.

STAGE I
CUT VOLUME 31 CU. YD.
FILL VOLUME 218 CU. YD.



STAGE I
CUT AREA 7 SQ. FT.
FILL AREA 142 SQ. FT.

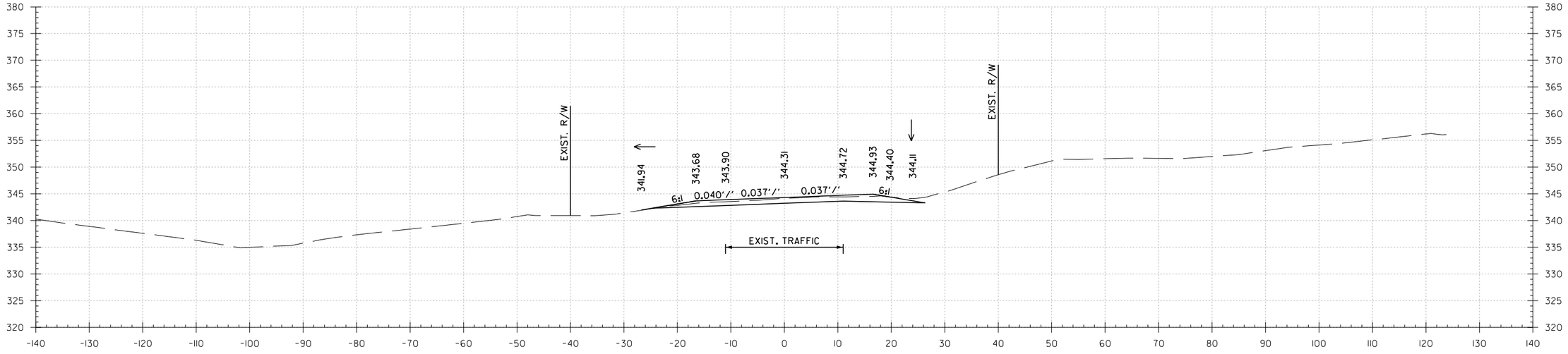
STAGE I
CUT VOLUME 3 CU. YD.
FILL VOLUME 138 CU. YD.

HWY. 141 - SITE 1
CROSS SECTION STA. 117+21 TO STA. 118+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	48	57

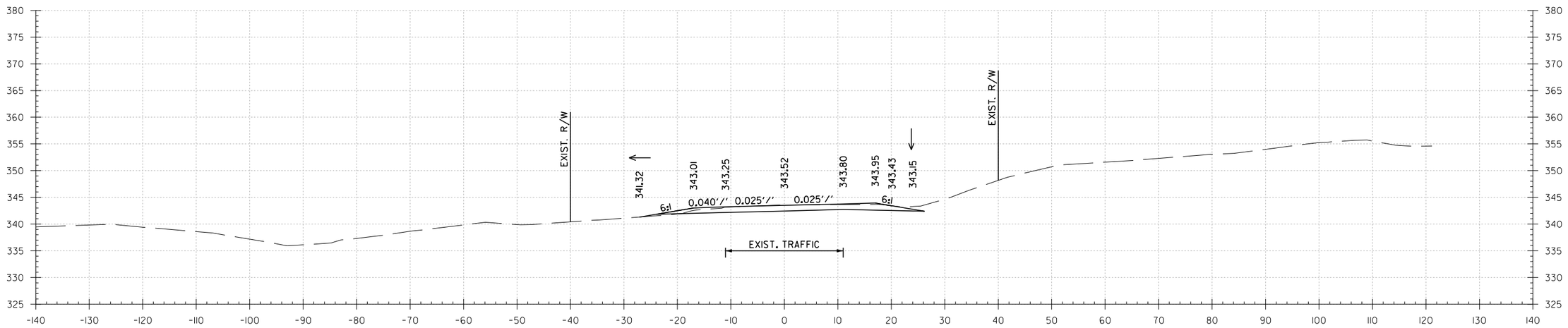
(2) HWY. 141 CROSS SECTIONS



STAGE I
CUT AREA 37 SQ. FT.
FILL AREA SQ. FT.

119+00.00

STAGE I
CUT VOLUME 21 CU. YD.
FILL VOLUME CU. YD.



STAGE I
CUT AREA 40 SQ. FT.
FILL AREA 1 SQ. FT.

118+85.43
END SITE 1
BEGIN 100' TRANSITION

STAGE I
CUT VOLUME 85 CU. YD.
FILL VOLUME 12 CU. YD.

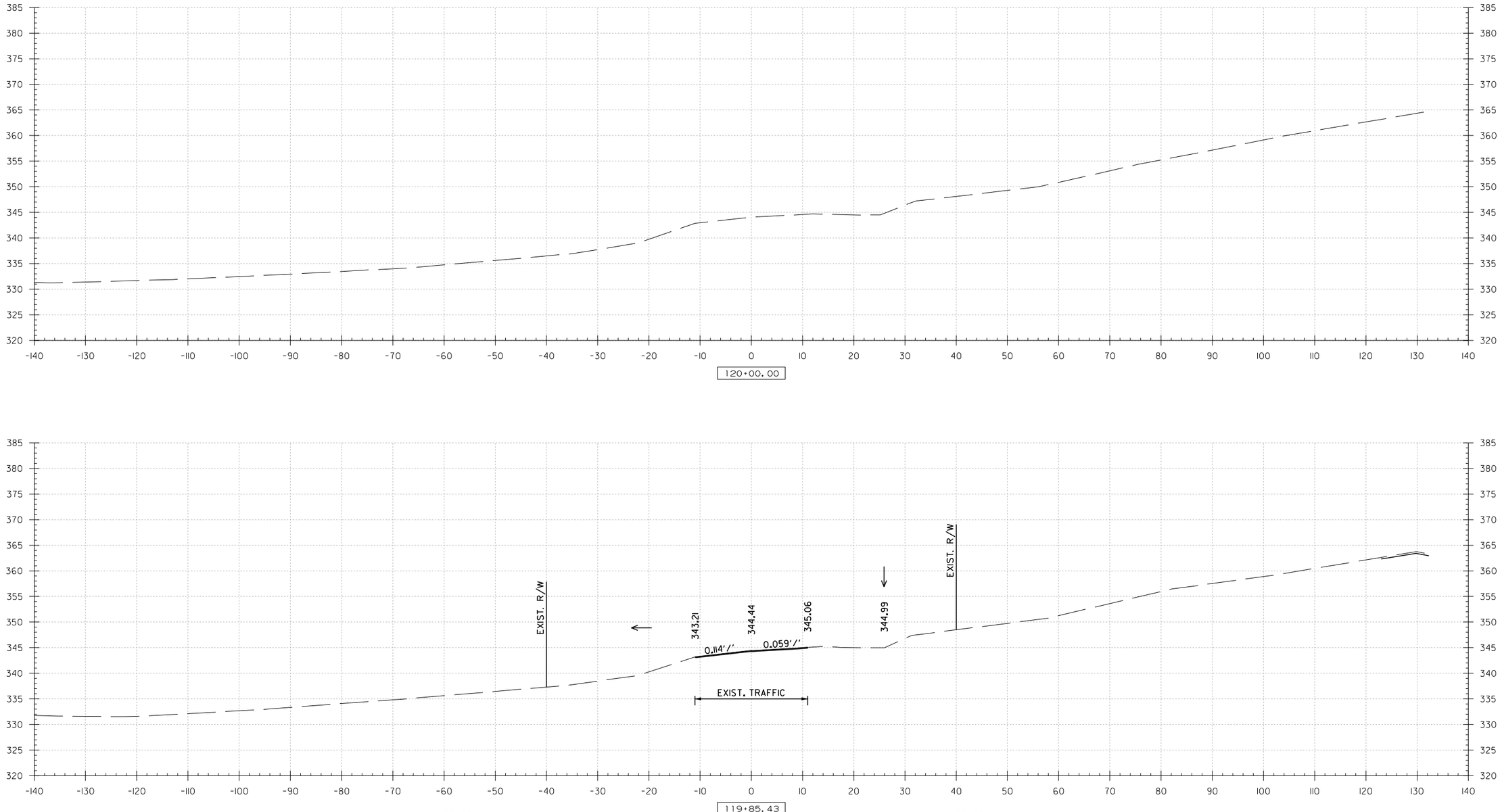
HWY. 141 - SITE 1
CROSS SECTION STA. 118+85 TO STA. 119+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	49	57

(2) HWY. 141 CROSS SECTIONS



120+00.00

119+85.43
END 100' TRANSITION

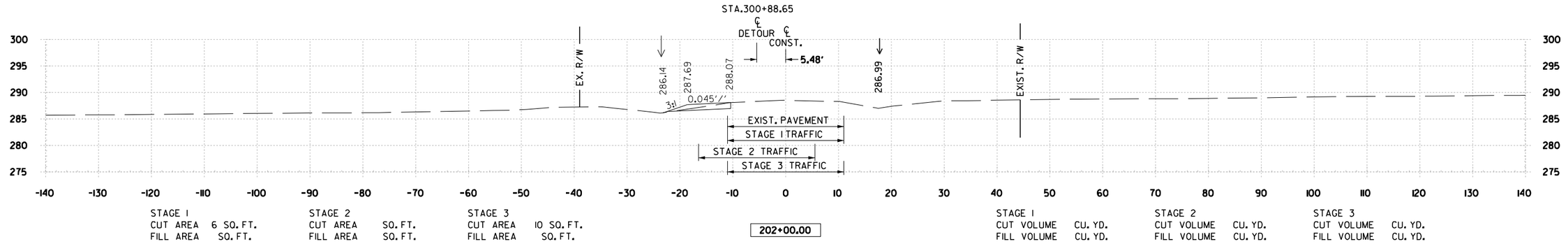
STAGE I
CUT AREA SQ. FT.
FILL AREA SQ. FT.

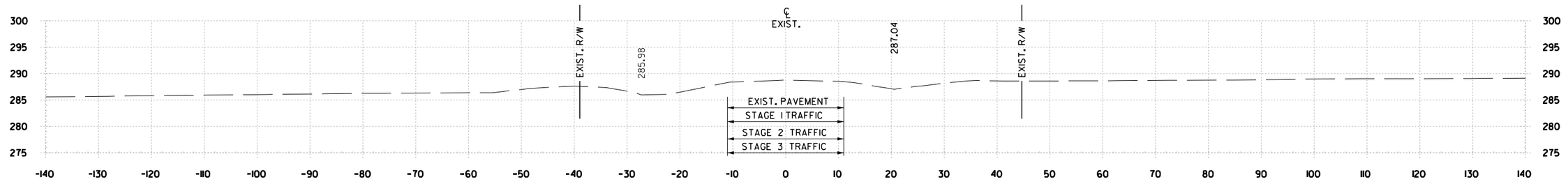
STAGE I
CUT VOLUME 5 CU. YD.
FILL VOLUME CU. YD.

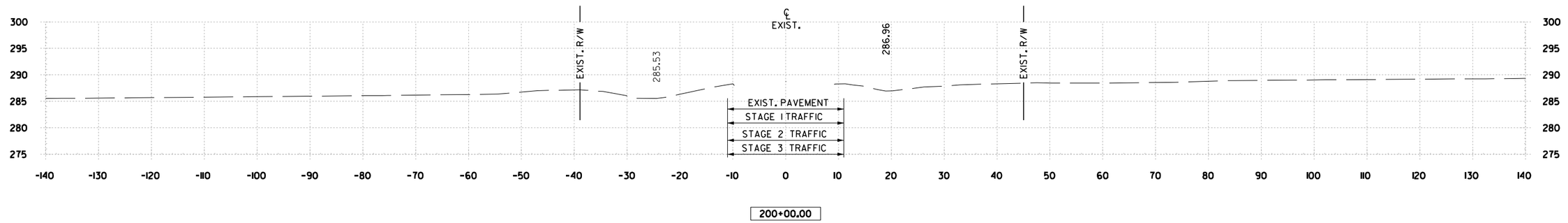
HWY. 141 - SITE 1
CROSS SECTION STA. 119+85 TO STA. 120+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	50	57
				(2)		HWY. 141 CROSS SECTIONS		





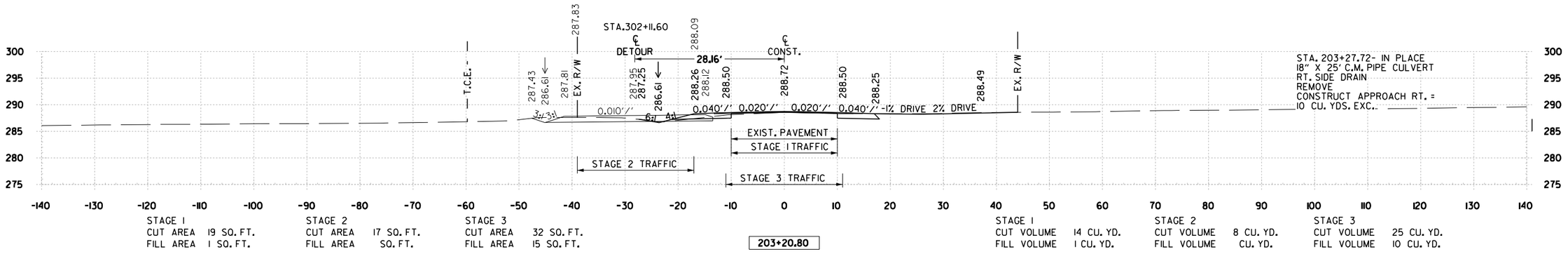


HWY. 141 - SITE 2
CROSS SECTION STA. 200+00 TO STA. 202+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	51	57
				(2)	HWY. 141 CROSS SECTIONS			



STAGE 1
CUT AREA 19 SQ. FT.
FILL AREA 1 SQ. FT.

STAGE 2
CUT AREA 17 SQ. FT.
FILL AREA SQ. FT.

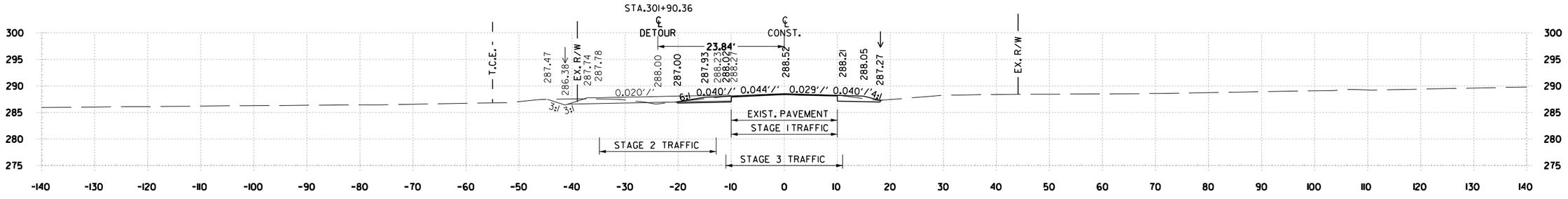
STAGE 3
CUT AREA 32 SQ. FT.
FILL AREA 15 SQ. FT.

203+20.80

STAGE 1
CUT VOLUME 14 CU. YD.
FILL VOLUME 1 CU. YD.

STAGE 2
CUT VOLUME 8 CU. YD.
FILL VOLUME CU. YD.

STAGE 3
CUT VOLUME 25 CU. YD.
FILL VOLUME 10 CU. YD.



STAGE 1
CUT AREA 18 SQ. FT.
FILL AREA 1 SQ. FT.

STAGE 2
CUT AREA 5 SQ. FT.
FILL AREA SQ. FT.

STAGE 3
CUT AREA 33 SQ. FT.
FILL AREA 11 SQ. FT.

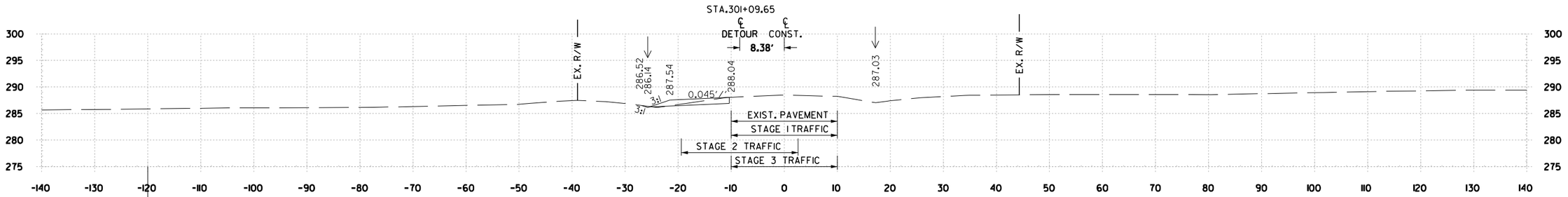
203+00.00

BEGIN 100' TRANSITION

STAGE 1
CUT VOLUME 37 CU. YD.
FILL VOLUME 3 CU. YD.

STAGE 2
CUT VOLUME CU. YD.
FILL VOLUME CU. YD.

STAGE 3
CUT VOLUME 69 CU. YD.
FILL VOLUME 16 CU. YD.



STAGE 1
CUT AREA 7 SQ. FT.
FILL AREA 1 SQ. FT.

STAGE 2
CUT AREA SQ. FT.
FILL AREA SQ. FT.

STAGE 3
CUT AREA 14 SQ. FT.
FILL AREA SQ. FT.

202+20.80

STAGE 1
CUT VOLUME 5 CU. YD.
FILL VOLUME CU. YD.

STAGE 2
CUT VOLUME CU. YD.
FILL VOLUME CU. YD.

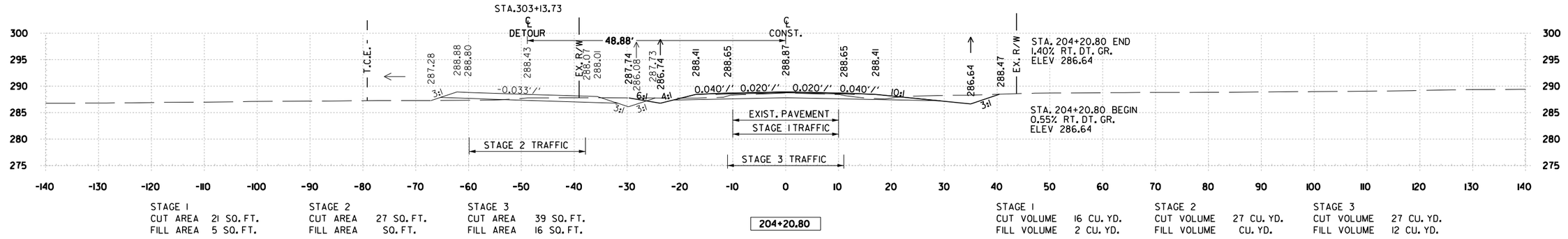
STAGE 3
CUT VOLUME 9 CU. YD.
FILL VOLUME CU. YD.

HWY. 141 - SITE 2
CROSS SECTION STA. 202+21 TO STA. 203+21

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	52	57

(2) HWY. 141 CROSS SECTIONS



STAGE 1
CUT AREA 21 SQ. FT.
FILL AREA 5 SQ. FT.

STAGE 2
CUT AREA 27 SQ. FT.
FILL AREA SQ. FT.

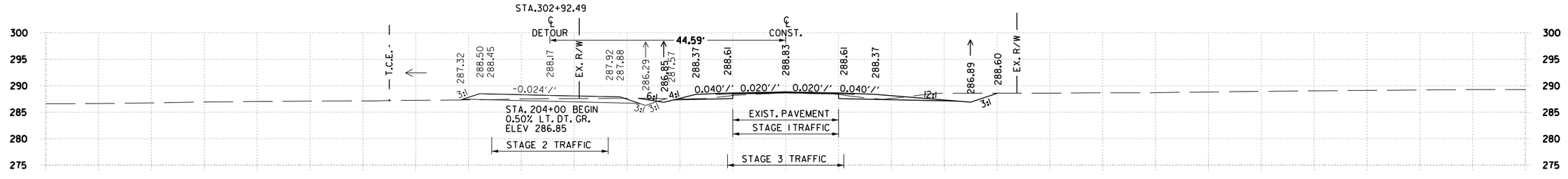
STAGE 3
CUT AREA 39 SQ. FT.
FILL AREA 16 SQ. FT.

204+20.80

STAGE 1
CUT VOLUME 16 CU. YD.
FILL VOLUME 2 CU. YD.

STAGE 2
CUT VOLUME 27 CU. YD.
FILL VOLUME CU. YD.

STAGE 3
CUT VOLUME 27 CU. YD.
FILL VOLUME 12 CU. YD.



STAGE 1
CUT AREA 20 SQ. FT.
FILL AREA 1 SQ. FT.

STAGE 2
CUT AREA 44 SQ. FT.
FILL AREA SQ. FT.

STAGE 3
CUT AREA 32 SQ. FT.
FILL AREA 15 SQ. FT.

204+00.00

END 100' TRANSITION

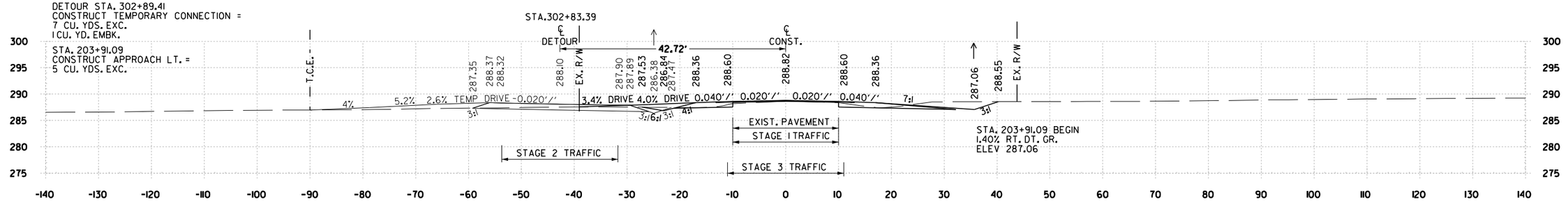
STAGE 1
CUT VOLUME 7 CU. YD.
FILL VOLUME CU. YD.

STAGE 2
CUT VOLUME 11 CU. YD.
FILL VOLUME CU. YD.

STAGE 3
CUT VOLUME 10 CU. YD.
FILL VOLUME 4 CU. YD.

DETOUR STA. 302+89.41
CONSTRUCT TEMPORARY CONNECTION =
7 CU. YDS. EXC.
1 CU. YD. EMBK.

STA. 203+91.09
CONSTRUCT APPROACH LT. =
5 CU. YDS. EXC.



STAGE 1
CUT AREA 20 SQ. FT.
FILL AREA SQ. FT.

STAGE 2
CUT AREA 24 SQ. FT.
FILL AREA SQ. FT.

STAGE 3
CUT AREA 31 SQ. FT.
FILL AREA 9 SQ. FT.

203+91.09

STAGE 1
CUT VOLUME 51 CU. YD.
FILL VOLUME 1 CU. YD.

STAGE 2
CUT VOLUME 53 CU. YD.
FILL VOLUME CU. YD.

STAGE 3
CUT VOLUME 82 CU. YD.
FILL VOLUME 31 CU. YD.

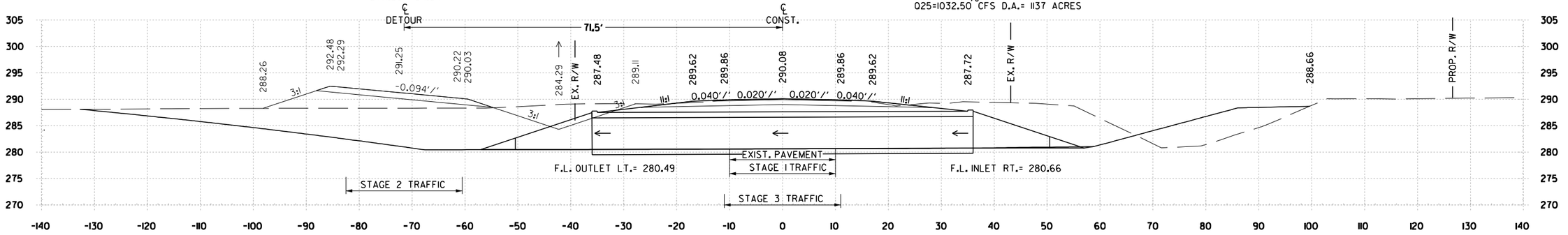
HWY. 141 - SITE 2
CROSS SECTION STA. 203+91 TO STA. 204+21

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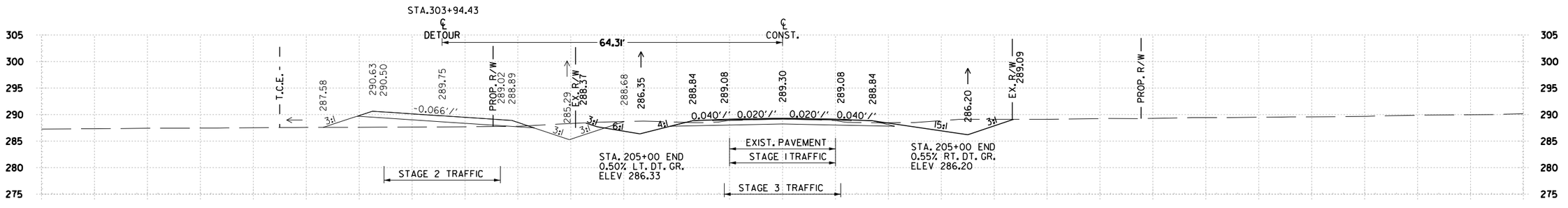
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	53	57

(2) HWY. 141 CROSS SECTIONS

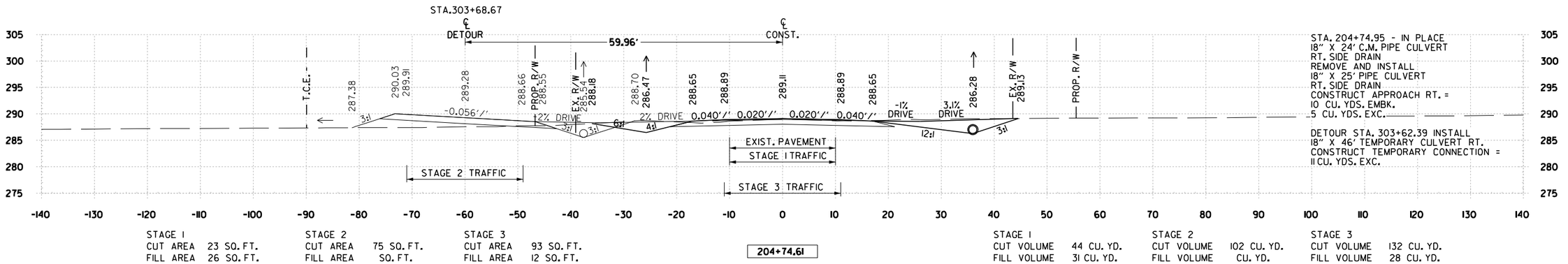
STA. 206+00.00 - CONSTRUCT
QUAD. 10' X 6' X 66' R.C. BOX CULVERT
ON 20° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
SPAN=44'-8⅜"
Q25=1032.50 CFS D.A.= 1137 ACRES



STAGE 1		STAGE 2		STAGE 3			STAGE 1		STAGE 2		STAGE 3	
CUT AREA	64 SQ. FT.	CUT AREA	57 SQ. FT.	CUT AREA	111 SQ. FT.	206+00.00	CUT VOLUME	170 CU. YD.	CUT VOLUME	228 CU. YD.	CUT VOLUME	374 CU. YD.
FILL AREA	74 SQ. FT.	FILL AREA	SQ. FT.	FILL AREA	SQ. FT.		FILL VOLUME	207 CU. YD.	FILL VOLUME	CU. YD.	FILL VOLUME	43 CU. YD.



STAGE 1		STAGE 2		STAGE 3			STAGE 1		STAGE 2		STAGE 3	
CUT AREA	28 SQ. FT.	CUT AREA	66 SQ. FT.	CUT AREA	91 SQ. FT.	205+00.00	CUT VOLUME	24 CU. YD.	CUT VOLUME	66 CU. YD.	CUT VOLUME	87 CU. YD.
FILL AREA	38 SQ. FT.	FILL AREA	SQ. FT.	FILL AREA	23 SQ. FT.		FILL VOLUME	30 CU. YD.	FILL VOLUME	CU. YD.	FILL VOLUME	16 CU. YD.



STA. 204+74.95 - IN PLACE
18" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 25' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH RT. =
10 CU. YDS. EMBK.
5 CU. YDS. EXC.

DETOUR STA. 303+62.39 INSTALL
18" X 46' TEMPORARY CULVERT RT.
CONSTRUCT TEMPORARY CONNECTION =
11 CU. YDS. EXC.

STAGE 1		STAGE 2		STAGE 3			STAGE 1		STAGE 2		STAGE 3	
CUT AREA	23 SQ. FT.	CUT AREA	75 SQ. FT.	CUT AREA	93 SQ. FT.	204+74.61	CUT VOLUME	44 CU. YD.	CUT VOLUME	102 CU. YD.	CUT VOLUME	132 CU. YD.
FILL AREA	26 SQ. FT.	FILL AREA	SQ. FT.	FILL AREA	12 SQ. FT.		FILL VOLUME	31 CU. YD.	FILL VOLUME	CU. YD.	FILL VOLUME	28 CU. YD.

HWY. 141 - SITE 2
CROSS SECTION STA. 204+75 TO STA. 206+00

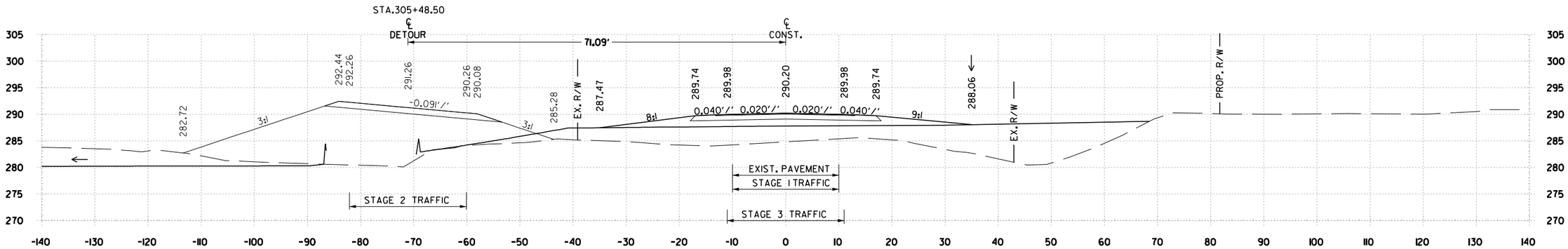
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100762	54	57

(2) HWY. 141 CROSS SECTIONS



STAGE 1
CUT AREA SQ. FT.
FILL AREA 432 SQ. FT.

STAGE 2
CUT AREA SQ. FT.
FILL AREA 65 SQ. FT.

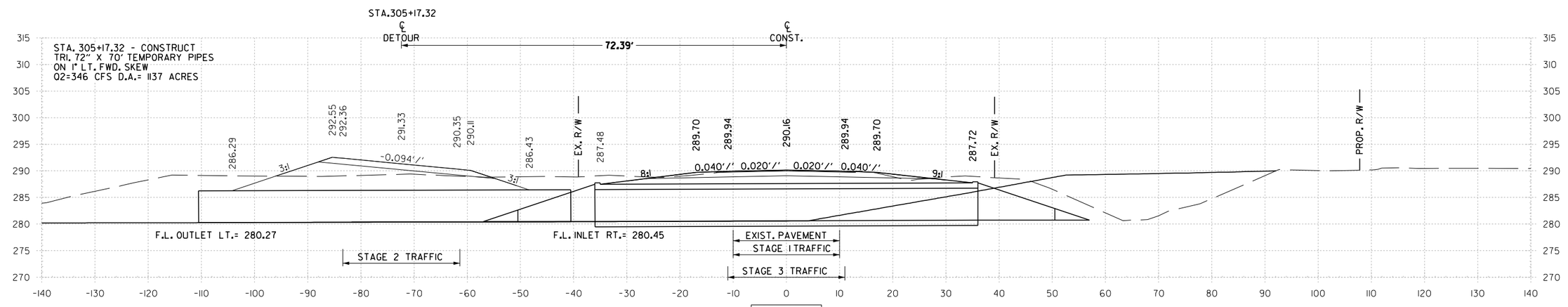
STAGE 3
CUT AREA 432 SQ. FT.
FILL AREA 11 SQ. FT.

206+53.63

STAGE 1
CUT VOLUME CU. YD.
FILL VOLUME 350 CU. YD.

STAGE 2
CUT VOLUME 63 CU. YD.
FILL VOLUME 80 CU. YD.

STAGE 3
CUT VOLUME 369 CU. YD.
FILL VOLUME 6 CU. YD.



STAGE 1
CUT AREA SQ. FT.
FILL AREA 175 SQ. FT.

STAGE 2
CUT AREA 110 SQ. FT.
FILL AREA 73 SQ. FT.

STAGE 3
CUT AREA 208 SQ. FT.
FILL AREA SQ. FT.

206+22.48

STAGE 1
CUT VOLUME 27 CU. YD.
FILL VOLUME 104 CU. YD.

STAGE 2
CUT VOLUME 70 CU. YD.
FILL VOLUME 30 CU. YD.

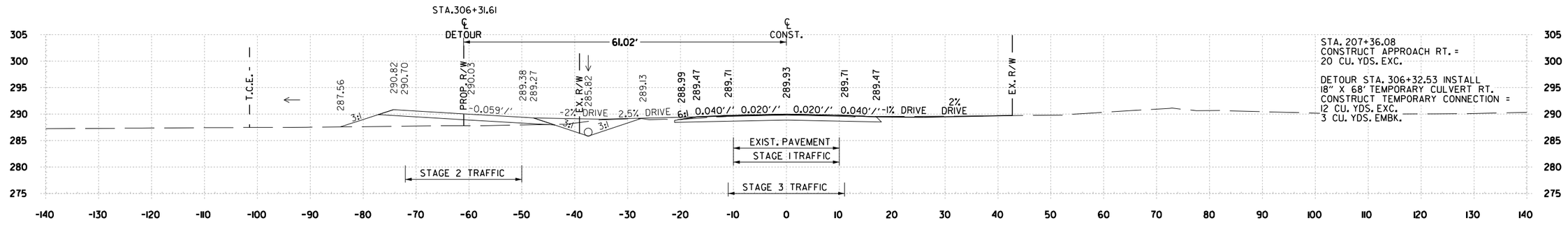
STAGE 3
CUT VOLUME 133 CU. YD.
FILL VOLUME CU. YD.

HWY. 141 - SITE 2
CROSS SECTION STA. 206+22 TO STA. 206+53

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	55	57

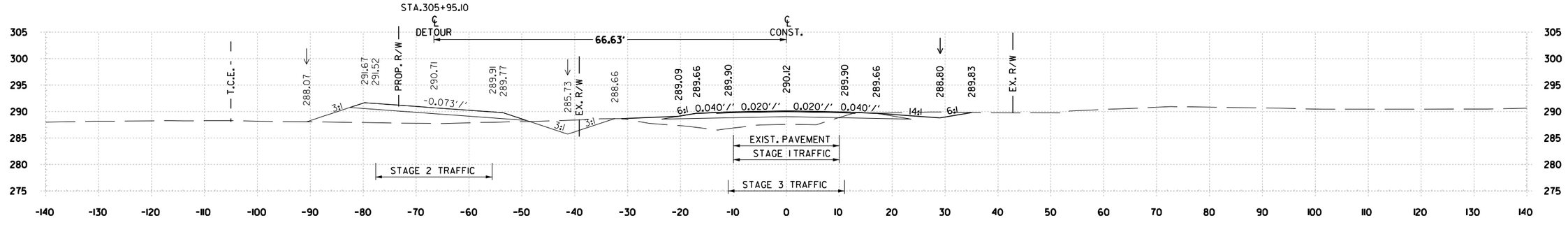
(2) HWY. 141 CROSS SECTIONS



STAGE 1 — CUT AREA 23 SQ. FT. — FILL AREA 44 SQ. FT.
STAGE 2 — CUT AREA 49 SQ. FT. — FILL AREA SQ. FT.
STAGE 3 — CUT AREA 109 SQ. FT. — FILL AREA 17 SQ. FT.

207+36.08

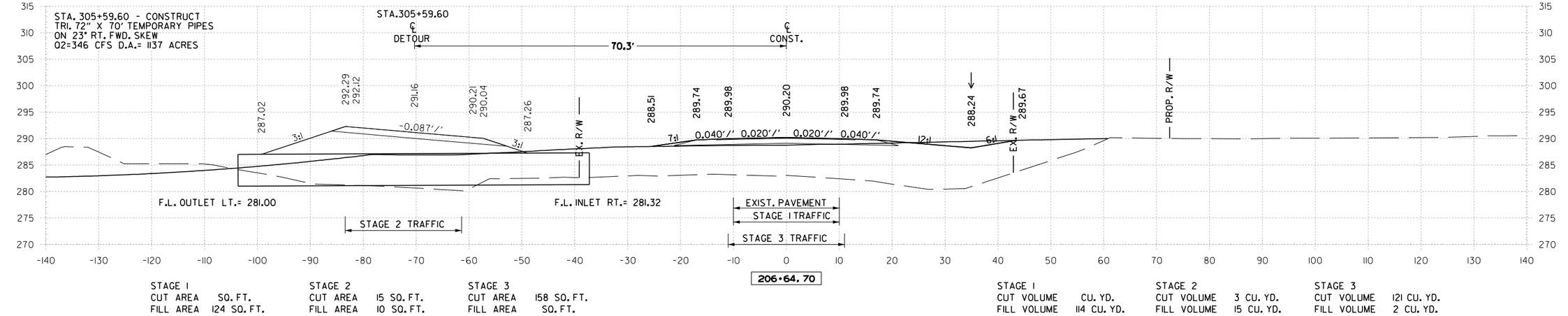
STAGE 1 — CUT VOLUME 29 CU. YD. — FILL VOLUME 74 CU. YD.
STAGE 2 — CUT VOLUME 49 CU. YD. — FILL VOLUME 37 CU. YD.
STAGE 3 — CUT VOLUME 140 CU. YD. — FILL VOLUME 25 CU. YD.



STAGE 1 — CUT AREA 21 SQ. FT. — FILL AREA 67 SQ. FT.
STAGE 2 — CUT AREA 24 SQ. FT. — FILL AREA 56 SQ. FT.
STAGE 3 — CUT AREA 100 SQ. FT. — FILL AREA 21 SQ. FT.

207+00.00

STAGE 1 — CUT VOLUME 14 CU. YD. — FILL VOLUME 125 CU. YD.
STAGE 2 — CUT VOLUME 25 CU. YD. — FILL VOLUME 43 CU. YD.
STAGE 3 — CUT VOLUME 169 CU. YD. — FILL VOLUME 14 CU. YD.



STAGE 1 — CUT AREA SQ. FT. — FILL AREA 124 SQ. FT.
STAGE 2 — CUT AREA 15 SQ. FT. — FILL AREA 10 SQ. FT.
STAGE 3 — CUT AREA 158 SQ. FT. — FILL AREA SQ. FT.

206+64.70

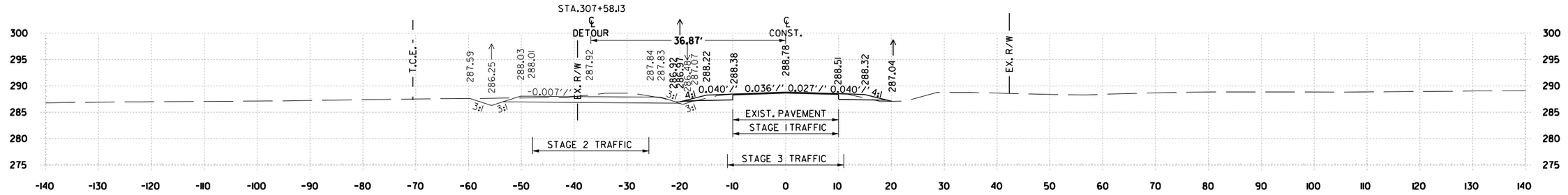
STAGE 1 — CUT VOLUME CU. YD. — FILL VOLUME 114 CU. YD.
STAGE 2 — CUT VOLUME 3 CU. YD. — FILL VOLUME 15 CU. YD.
STAGE 3 — CUT VOLUME 121 CU. YD. — FILL VOLUME 2 CU. YD.

HWY. 141 - SITE 2
CROSS SECTION STA. 206+54 TO STA. 207+36

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	56	57

(2) HWY. 141 CROSS SECTIONS



STAGE 1
CUT AREA 45 SQ. FT.
FILL AREA SQ. FT.

STAGE 2
CUT AREA 9 SQ. FT.
FILL AREA 2 SQ. FT.

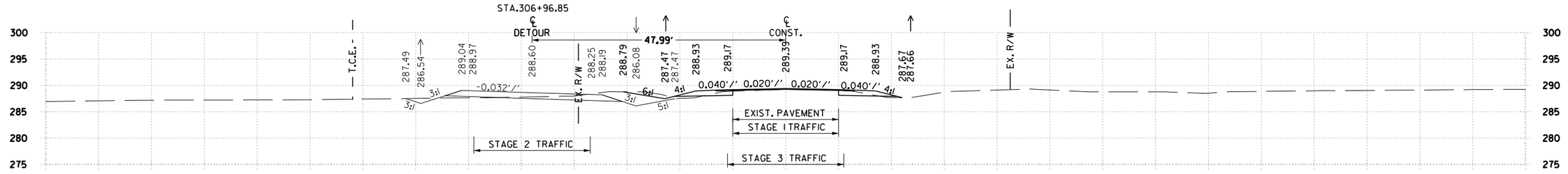
STAGE 3
CUT AREA 29 SQ. FT.
FILL AREA 40 SQ. FT.

208+60.00

STAGE 1
CUT VOLUME 93 CU. YD.
FILL VOLUME 3 CU. YD.

STAGE 2
CUT VOLUME 18 CU. YD.
FILL VOLUME 6 CU. YD.

STAGE 3
CUT VOLUME 69 CU. YD.
FILL VOLUME 80 CU. YD.



STAGE 1
CUT AREA 39 SQ. FT.
FILL AREA 3 SQ. FT.

STAGE 2
CUT AREA 7 SQ. FT.
FILL AREA 3 SQ. FT.

STAGE 3
CUT AREA 33 SQ. FT.
FILL AREA 32 SQ. FT.

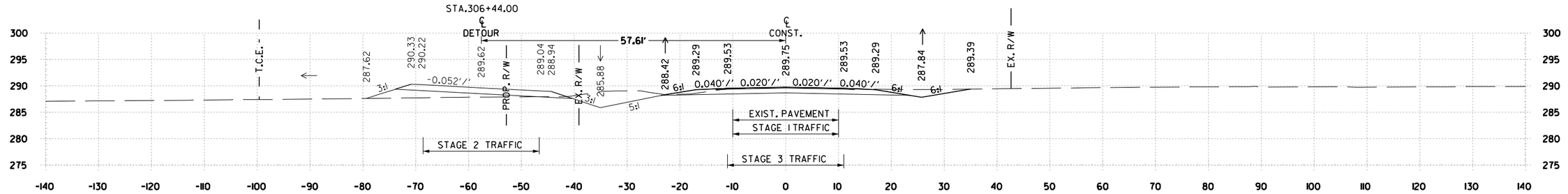
208+00.00

BEGIN 100' TRANSITION

STAGE 1
CUT VOLUME 53 CU. YD.
FILL VOLUME 22 CU. YD.

STAGE 2
CUT VOLUME 43 CU. YD.
FILL VOLUME 2 CU. YD.

STAGE 3
CUT VOLUME 68 CU. YD.
FILL VOLUME 47 CU. YD.



STAGE 1
CUT AREA 32 SQ. FT.
FILL AREA 27 SQ. FT.

STAGE 2
CUT AREA 51 SQ. FT.
FILL AREA SQ. FT.

STAGE 3
CUT AREA 59 SQ. FT.
FILL AREA 31 SQ. FT.

207+60.00

STAGE 1
CUT VOLUME 24 CU. YD.
FILL VOLUME 31 CU. YD.

STAGE 2
CUT VOLUME 44 CU. YD.
FILL VOLUME CU. YD.

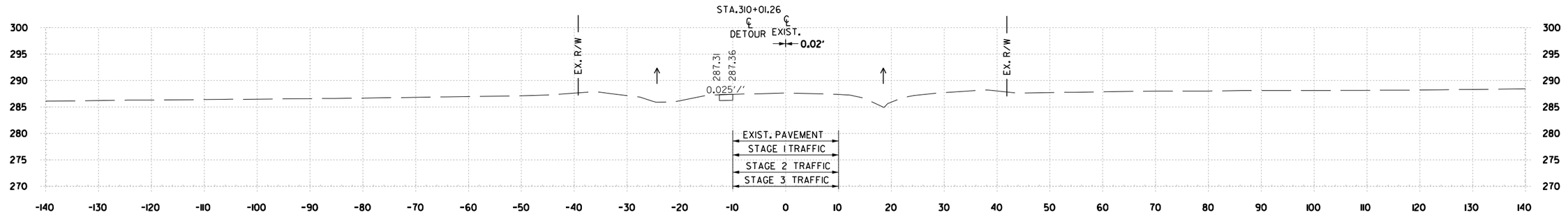
STAGE 3
CUT VOLUME 74 CU. YD.
FILL VOLUME 21 CU. YD.

HWY. 141 - SITE 2
CROSS SECTION STA. 207+60 TO STA. 208+60

11:35:07 AM
2/13/2020
Robert Barrington
S:\1442\01\DGN\Reference\1442_XS_Site 2.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100762	57	57

(2) HWY. 141 CROSS SECTIONS



STAGE 1
CUT AREA 3 SQ. FT.
FILL AREA SQ. FT.

STAGE 2
CUT AREA SQ. FT.
FILL AREA SQ. FT.

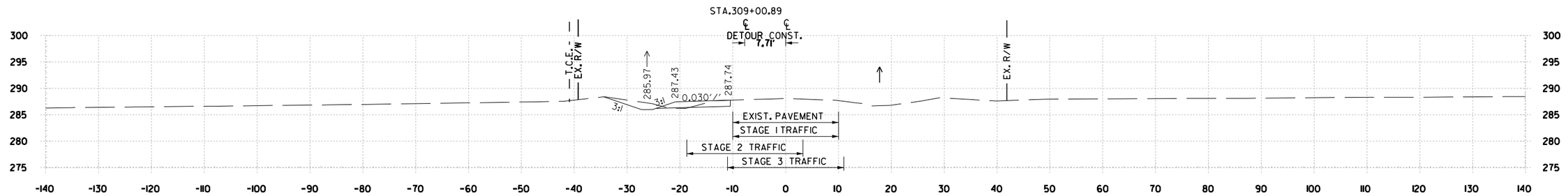
STAGE 3
CUT AREA 3 SQ. FT.
FILL AREA SQ. FT.

211+00.00

STAGE 1
CUT VOLUME 33 CU. YD.
FILL VOLUME 2 CU. YD.

STAGE 2
CUT VOLUME CU. YD.
FILL VOLUME CU. YD.

STAGE 3
CUT VOLUME 30 CU. YD.
FILL VOLUME 17 CU. YD.



STAGE 1
CUT AREA 15 SQ. FT.
FILL AREA 1 SQ. FT.

STAGE 2
CUT AREA SQ. FT.
FILL AREA SQ. FT.

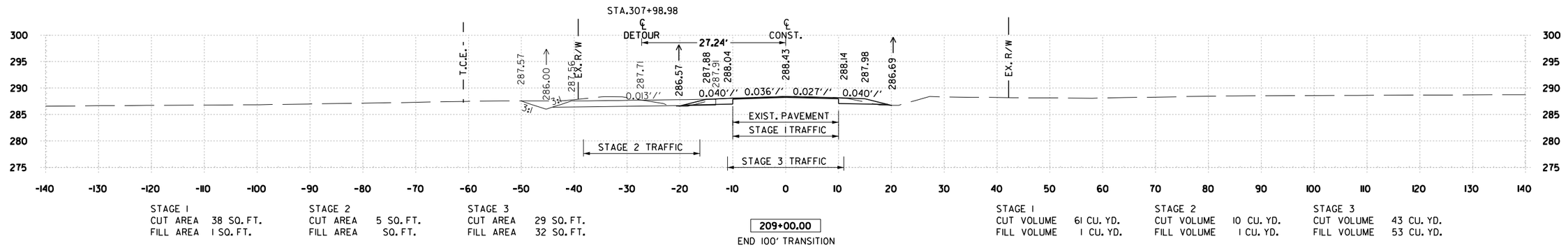
STAGE 3
CUT AREA 13 SQ. FT.
FILL AREA 9 SQ. FT.

210+00.00

STAGE 1
CUT VOLUME 98 CU. YD.
FILL VOLUME 4 CU. YD.

STAGE 2
CUT VOLUME 9 CU. YD.
FILL VOLUME CU. YD.

STAGE 3
CUT VOLUME 78 CU. YD.
FILL VOLUME 76 CU. YD.



STAGE 1
CUT AREA 38 SQ. FT.
FILL AREA 1 SQ. FT.

STAGE 2
CUT AREA 5 SQ. FT.
FILL AREA SQ. FT.

STAGE 3
CUT AREA 29 SQ. FT.
FILL AREA 32 SQ. FT.

209+00.00
END 100' TRANSITION

STAGE 1
CUT VOLUME 61 CU. YD.
FILL VOLUME 1 CU. YD.

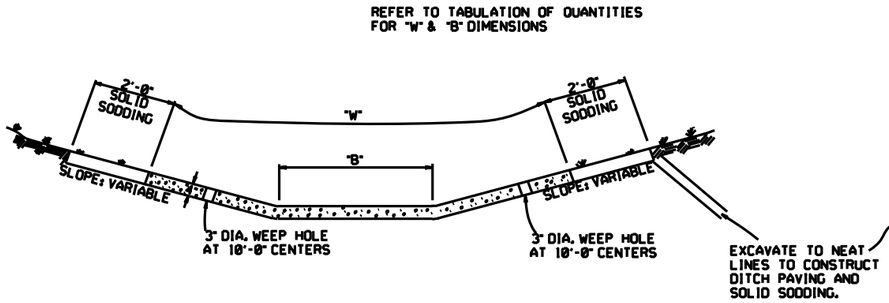
STAGE 2
CUT VOLUME 10 CU. YD.
FILL VOLUME 1 CU. YD.

STAGE 3
CUT VOLUME 43 CU. YD.
FILL VOLUME 53 CU. YD.

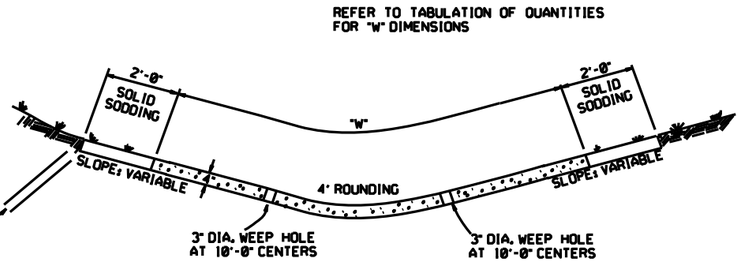
HWY. 141 - SITE 2
CROSS SECTION STA. 209+00 TO STA. 211+00

11:35:07 AM 2/23/2021 Robert.Darrington

S:\1441\2\01\DGN\Reference\1441-2_XS_Site 2.dgn

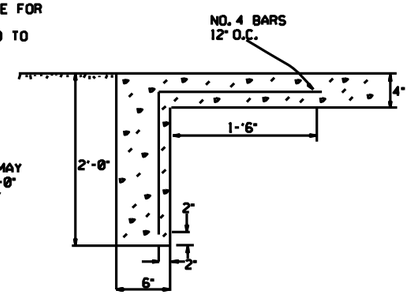


TYPE A



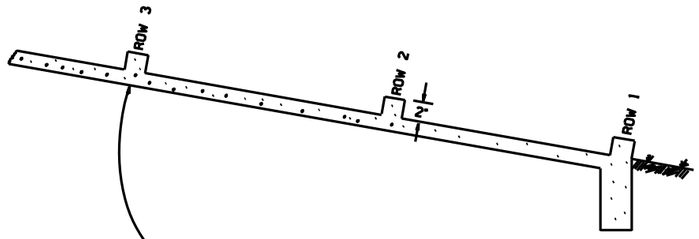
TYPE B

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

TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION



ENERGY DISSIPATORS
(NO SCALE)

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

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

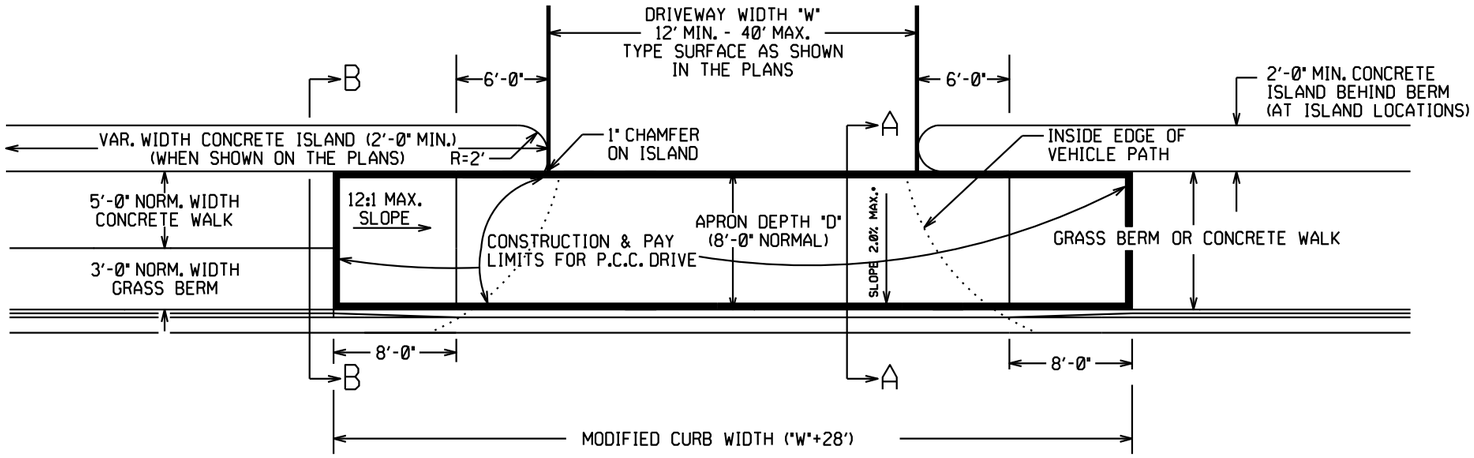
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPES A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

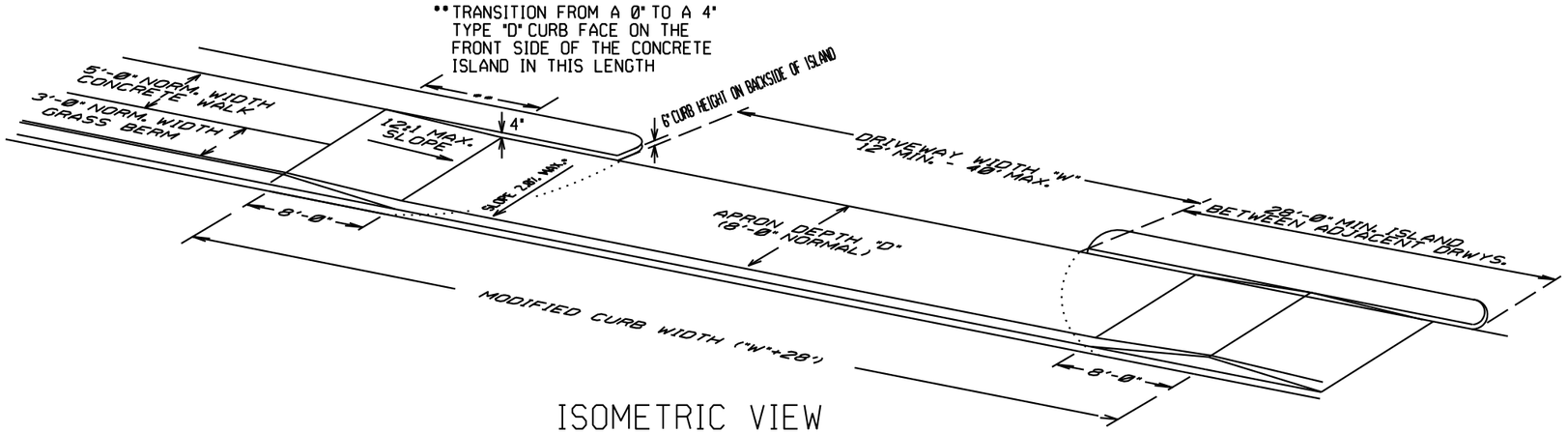
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

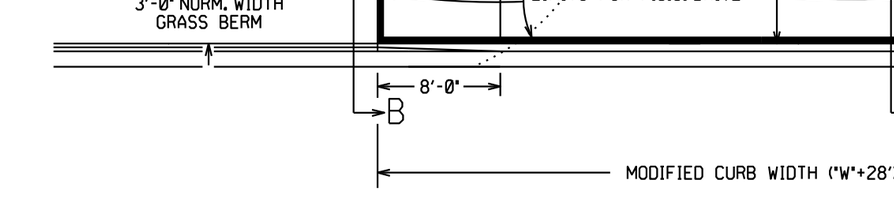
STANDARD DRAWING CDP-1



PLAN VIEW

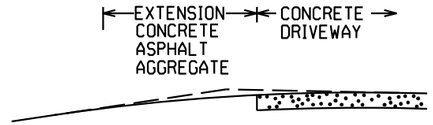


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

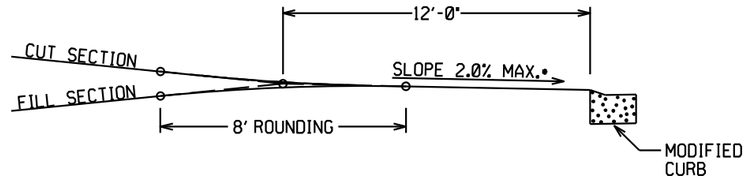
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

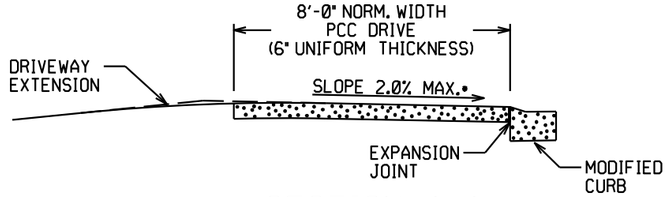
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

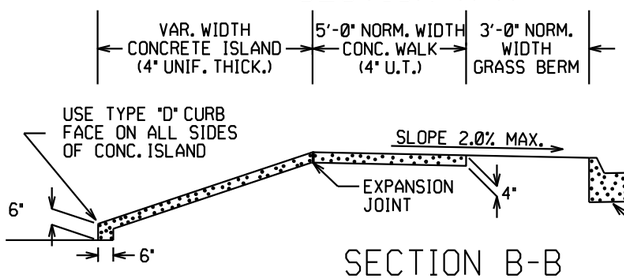


DRIVEWAY VERTICAL ALIGNMENT DETAILS

- NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A



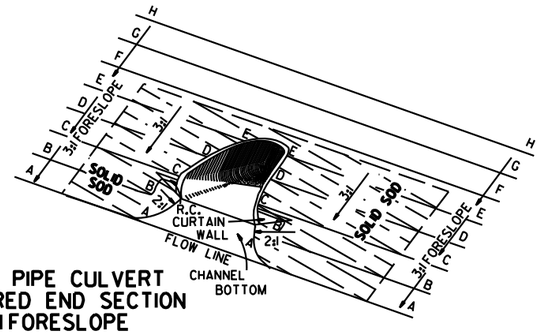
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
11-07-19		REVISED WALK DETAILS
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

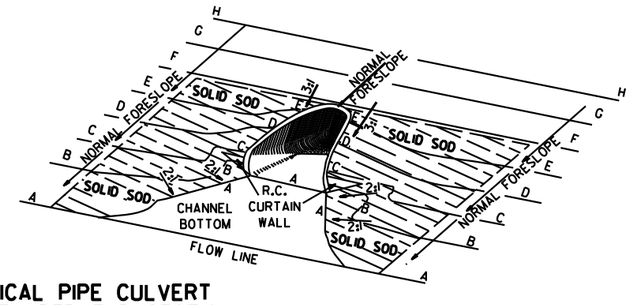
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & ISLANDS

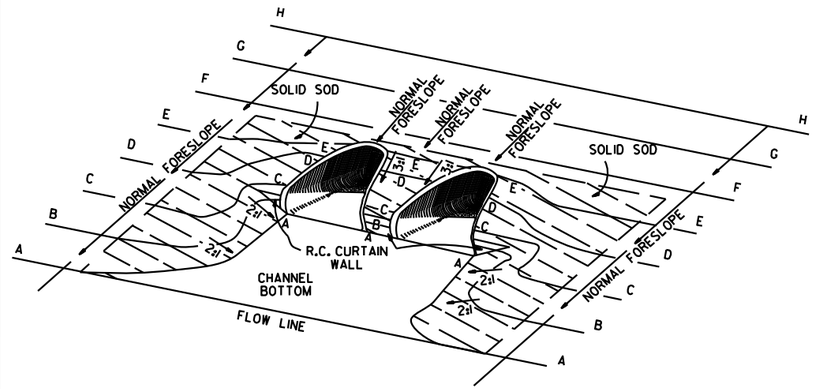
STANDARD DRAWING DR-1



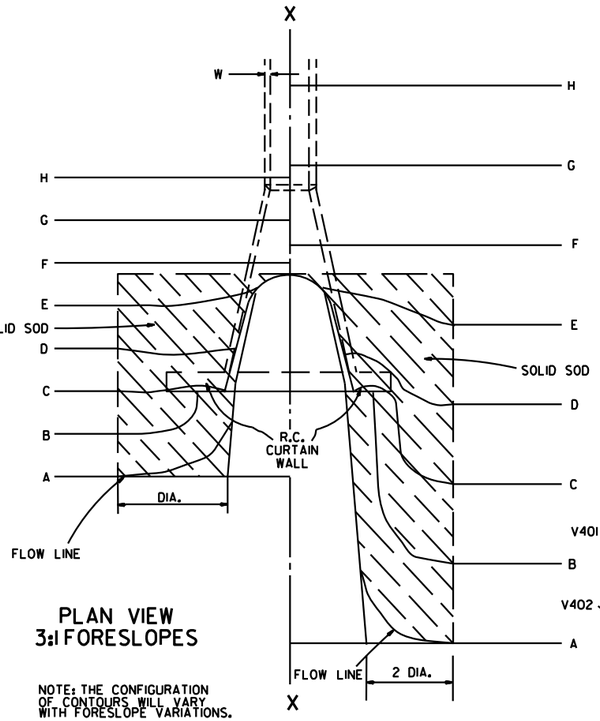
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

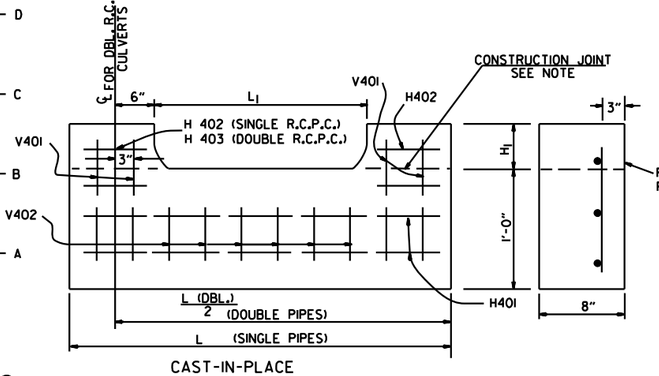
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

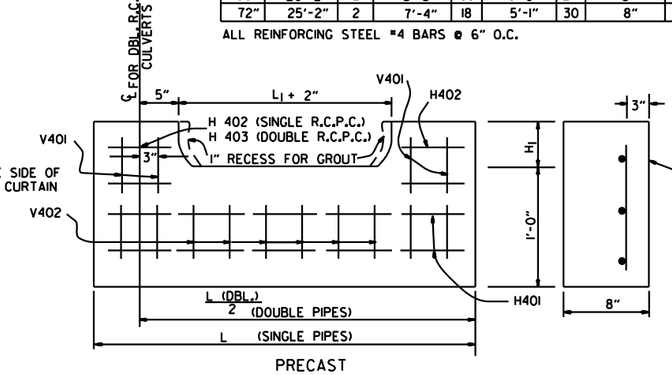
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT											
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

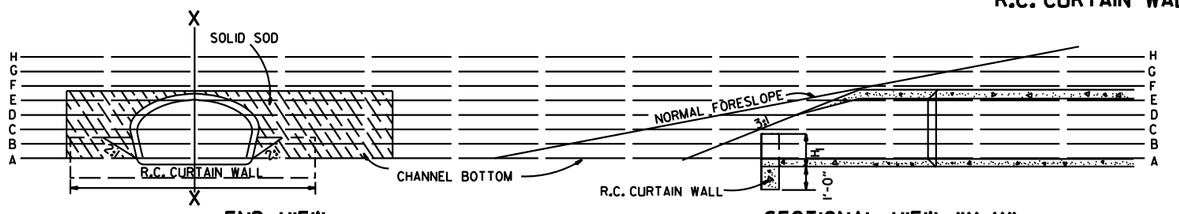
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

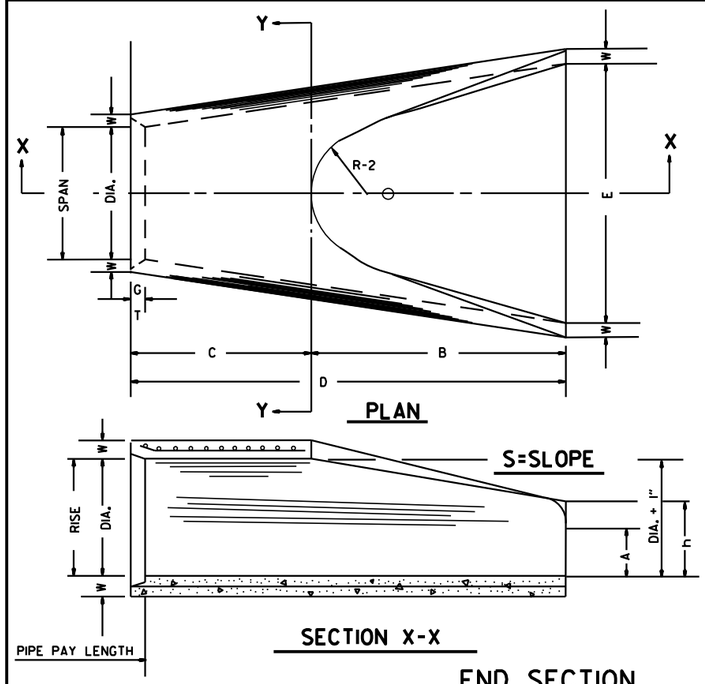


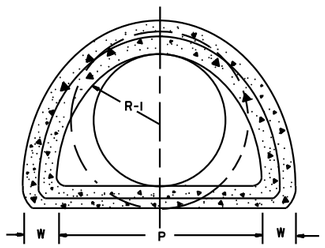
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33⅜"	16⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47⅛"	24⅛"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77⅛"	38⅝"	24"	5"	13250	4'-6"

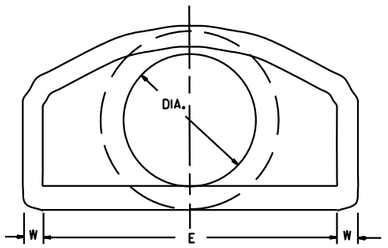
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅛"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅛"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅜"	22"	3½"	2½:1
42	51⅛	51	31⅞	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅛"	24"	5"	2¼:1

• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

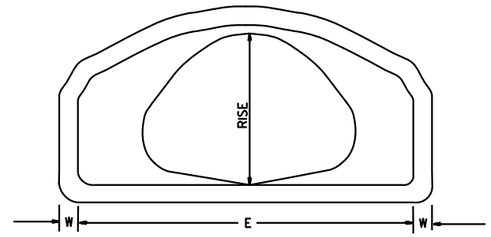


SECTION Y-Y



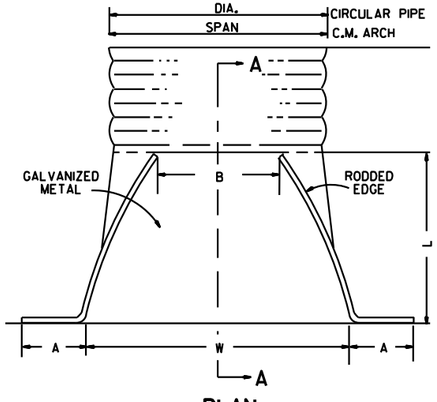
END VIEW

NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

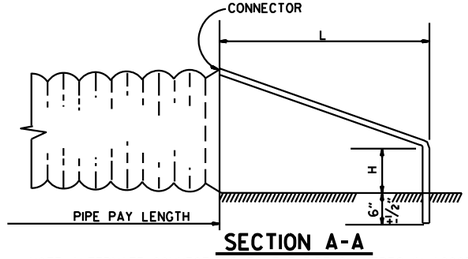


END VIEW
CONCRETE ARCH PIPE

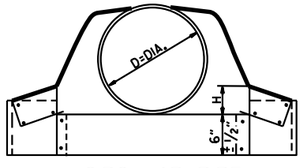
END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS



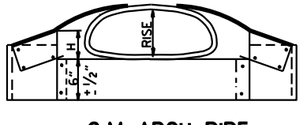
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

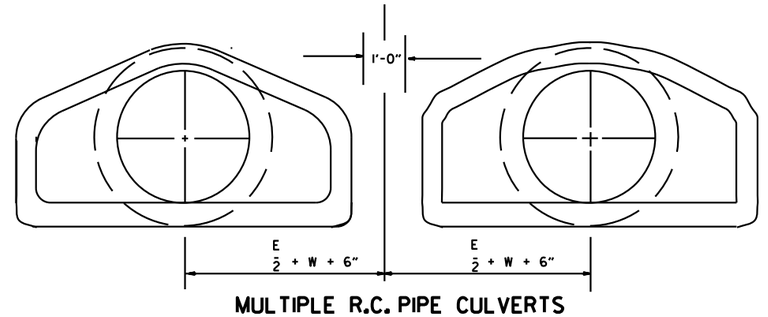
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

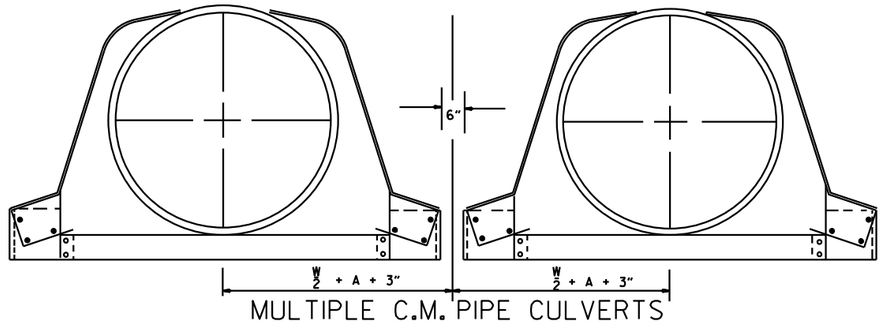
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



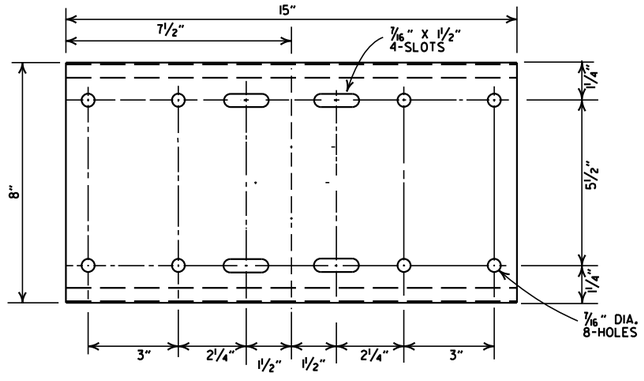
MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

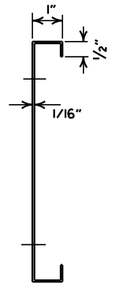
ARKANSAS STATE HIGHWAY COMMISSION

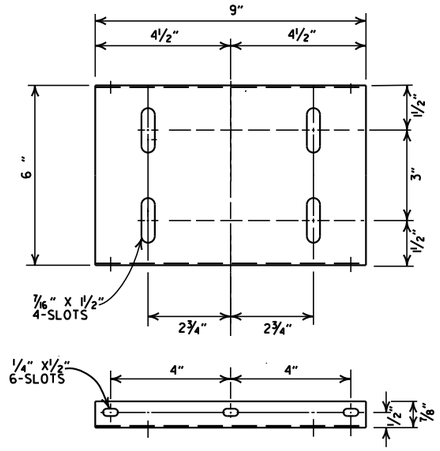
FLARED END SECTION

STANDARD DRAWING FES-2

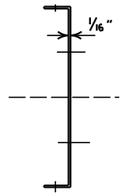


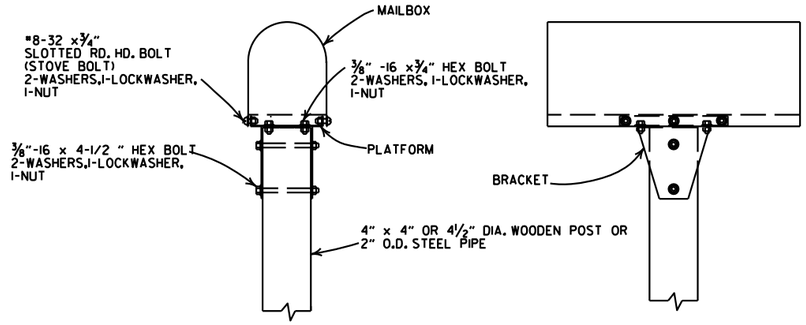
SHELF



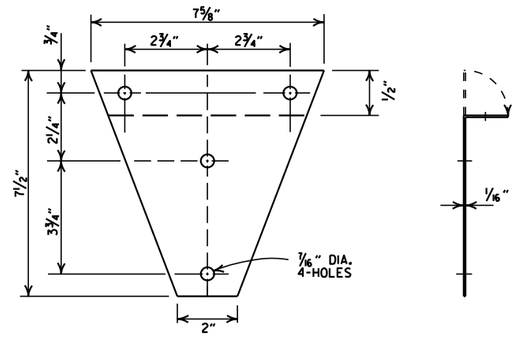


PLATFORM

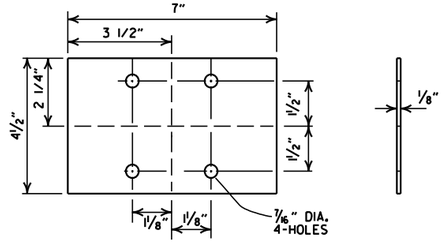




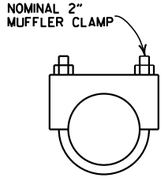
SINGLE INSTALLATION



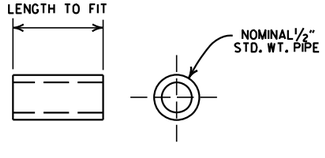
BRACKET



ANTI-TWIST PLATE



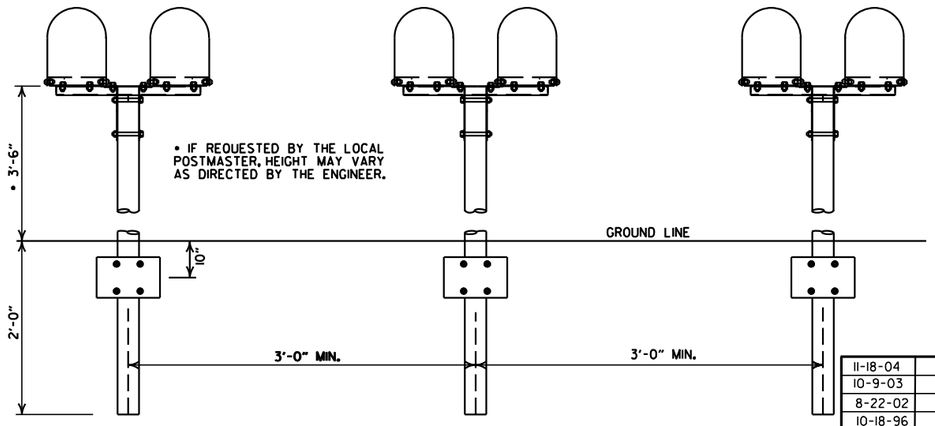
CLAMP



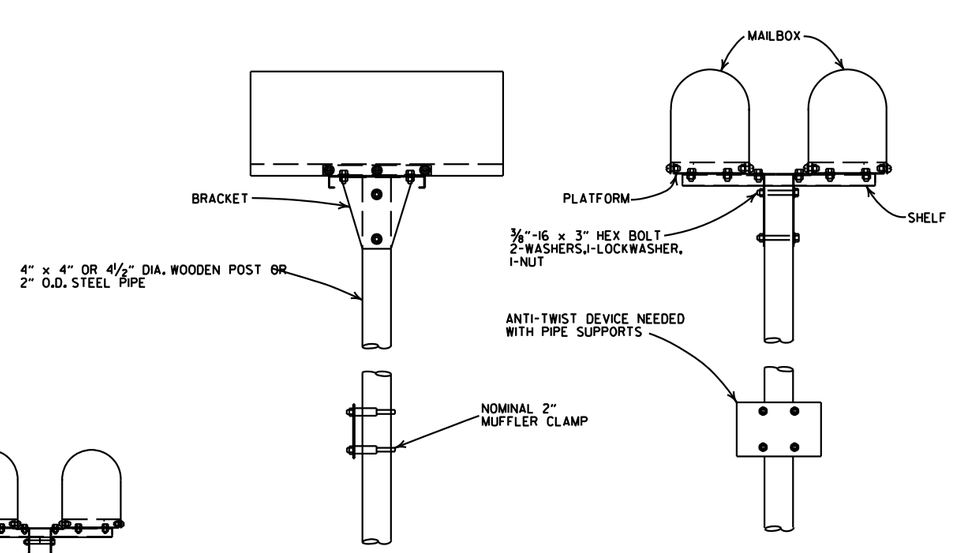
SPACER

GENERAL NOTES

1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X ¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



SPACING FOR MULTIPLE POST INSTALLATION



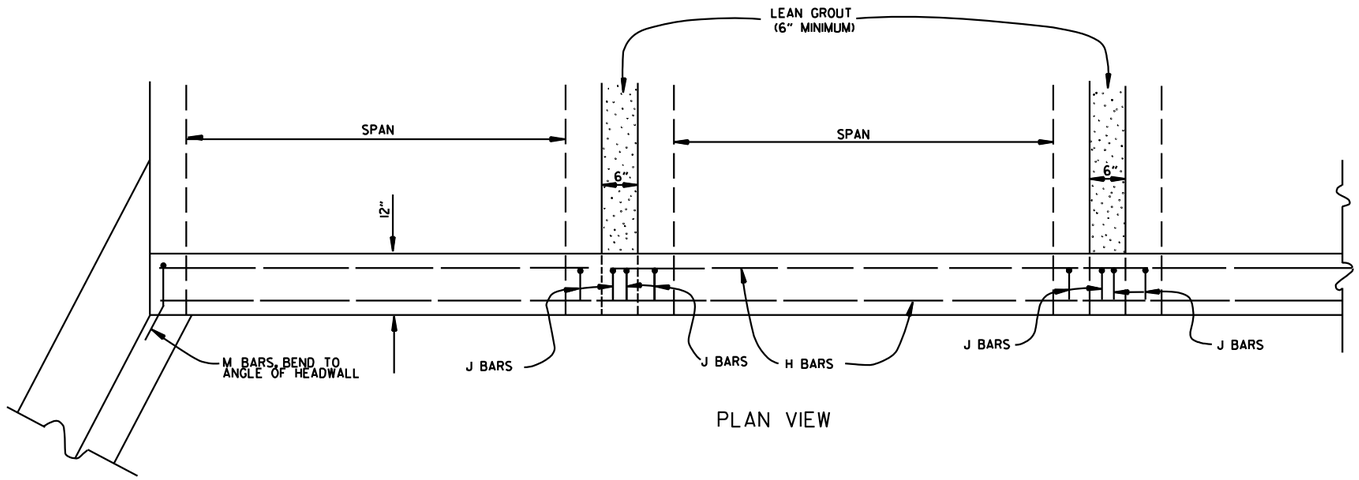
DOUBLE INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

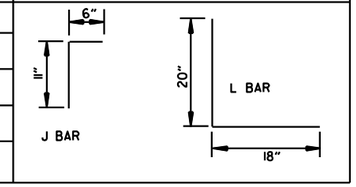
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

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



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

GENERAL NOTES

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

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

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

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

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

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

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

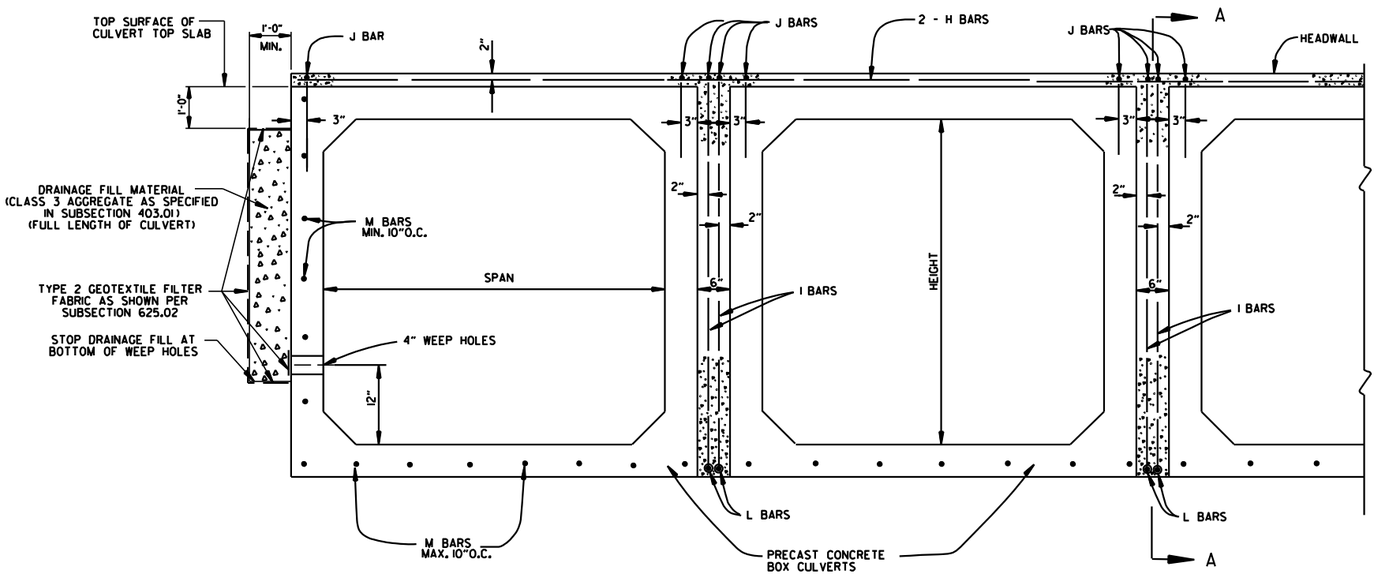
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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

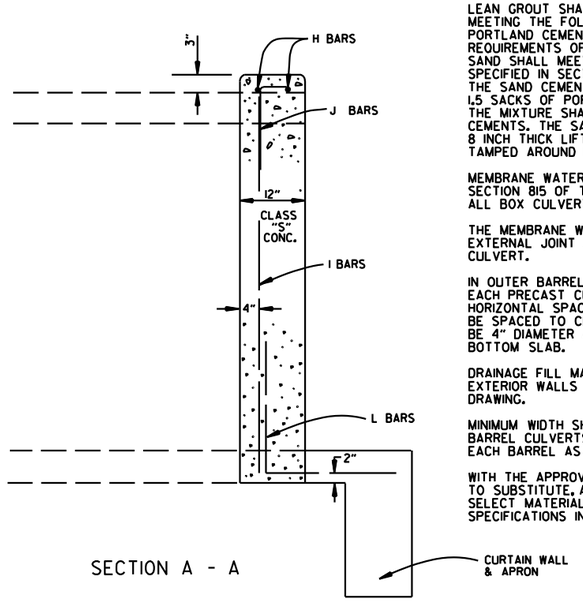
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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

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



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
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

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

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

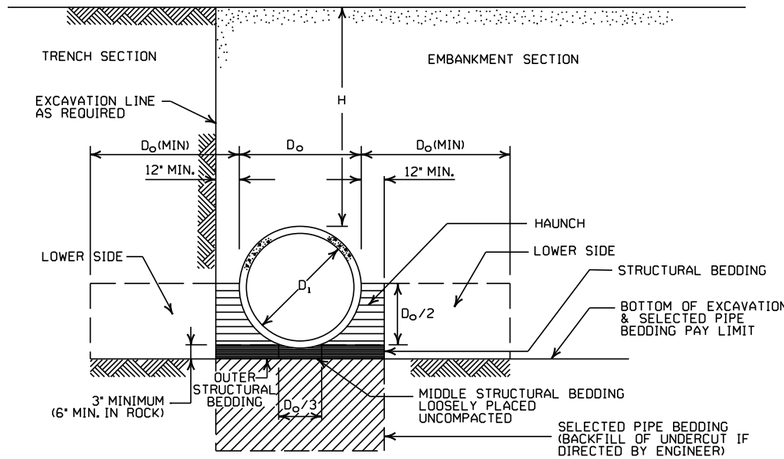
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

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

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

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

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

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

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

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

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1		INSTALLATION TYPE 2	INSTALLATION TYPE 1
36	40x31	5	0.079	3	2		12	15
42	46x36	6	0.079	3	2		13	15
48	53x41	7	0.079	3	2		13	15
54	60x46	8	0.079	3	2		13	15
60	66x51	9	0.079	3	2		13	15
66	73x55	12	0.079	3	2		15	15
72	81x59	14	0.079	3	2		15	15
78	87x63	14	0.079	3	2		15	15
84	95x67	16	0.109	3	2		15	15
90	103x71	16	0.109	3	2		15	15
96	112x75	18	0.109	3	2		15	15
102	117x79	18	0.109	3	2		15	15
108	128x83	18	0.138	3	2		15	15

CONSTRUCTION SEQUENCE

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

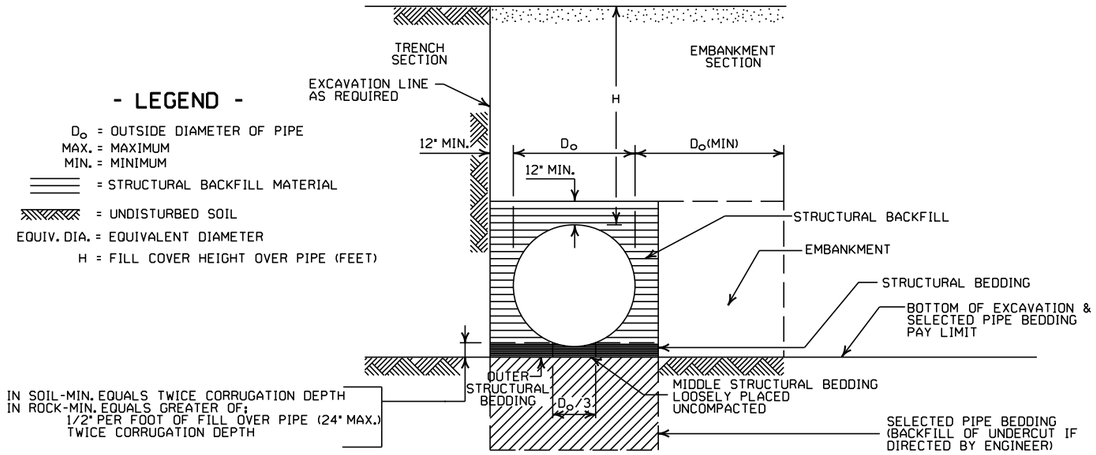
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

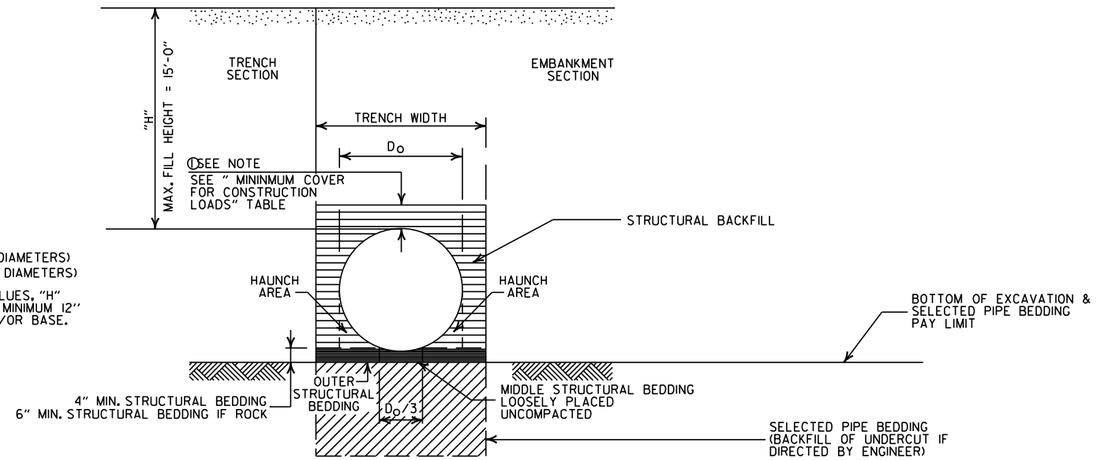
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

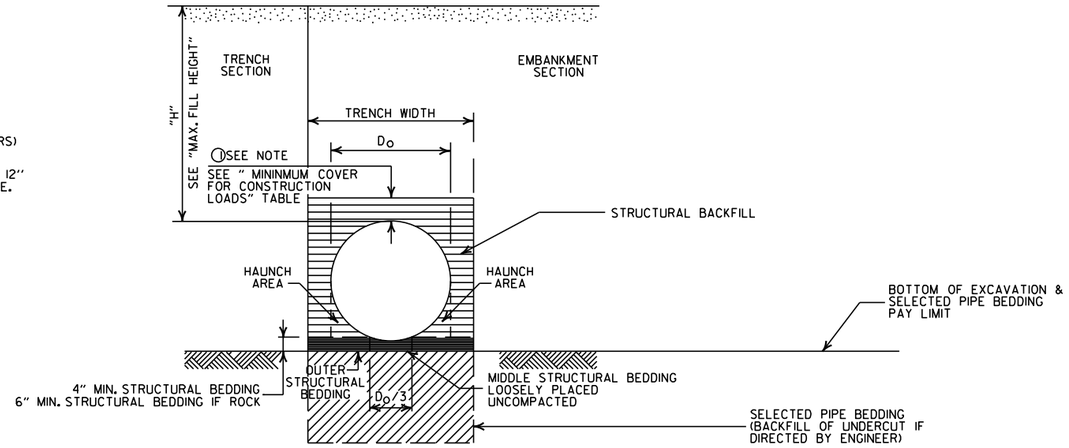
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2

INSTALLATION TYPE	**MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	*SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4) OR TYPE 1 INSTALLATION MATERIAL

*SM3 WILL NOT BE ALLOWED.

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

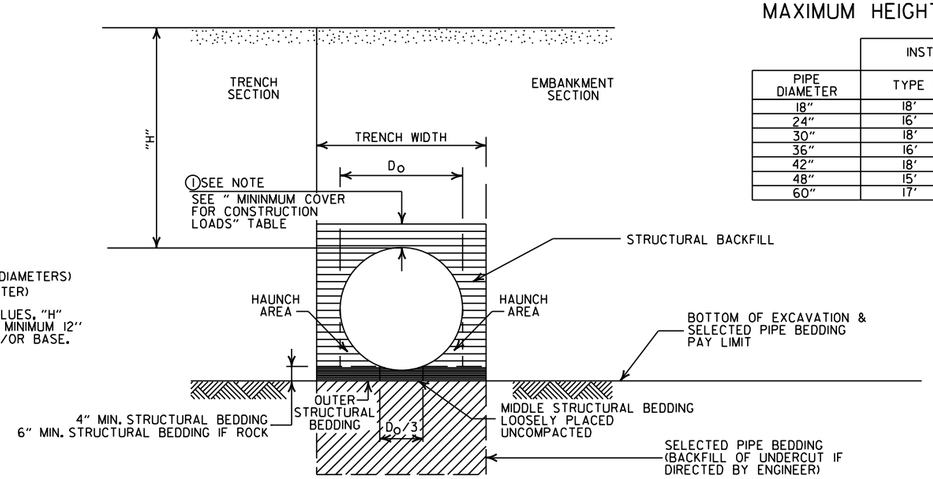
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF POLYPROPYLENE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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



MAXIMUM HEIGHT OF FILL "H"

PIPE DIAMETER	INSTALLATION TYPE TYPE 1	INSTALLATION TYPE TYPE 2
18"	18'	14'
24"	16'	12'
30"	18'	14'
36"	16'	12'
42"	18'	13'
48"	15'	11'
60"	17'	12'

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"
60"	5'-0"

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-150.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M330, TYPE S, INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2012) WITH 2013 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR POLYPROPYLENE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN SECTION 26.4.2.4 AND 30.4.2 OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 3RD EDITION (2010) WITH 2012 INTERIMS. JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

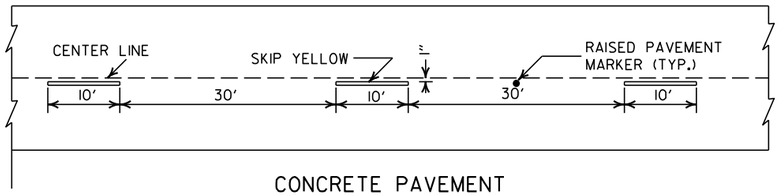
DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

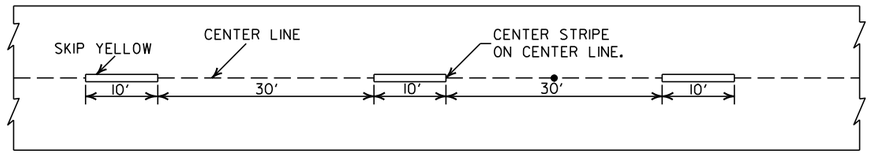
PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

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.

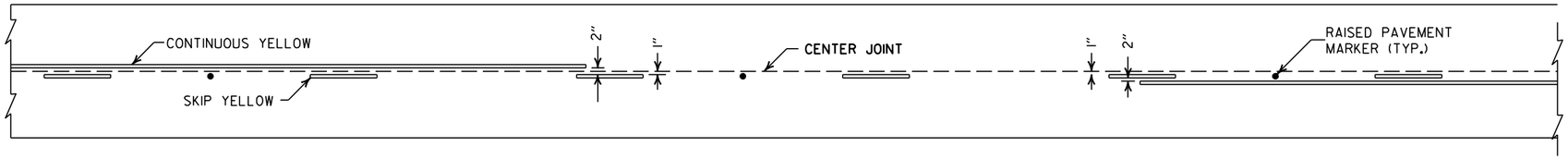


CONCRETE PAVEMENT

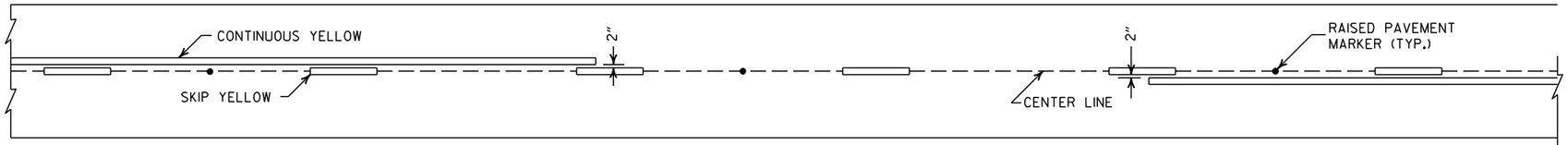


ASPHALT PAVEMENT

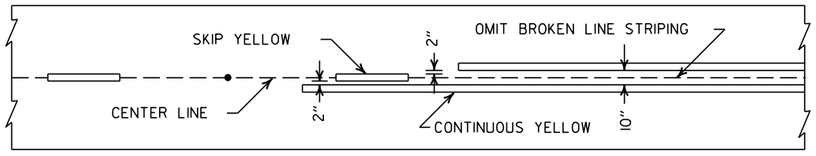
BROKEN LINE STRIPING



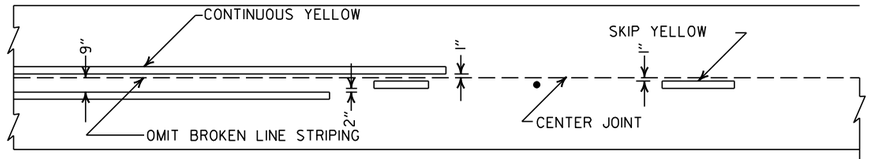
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

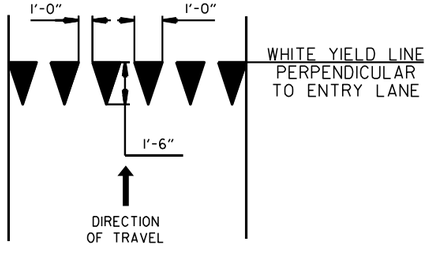


ASPHALT PAVEMENT

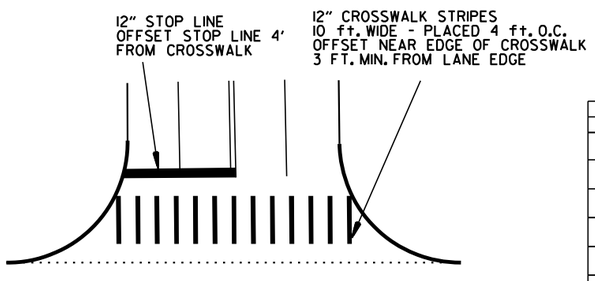


CONCRETE PAVEMENT

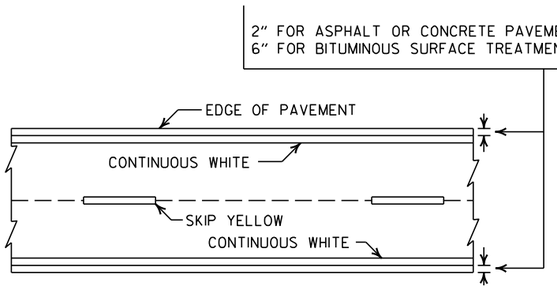
STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL



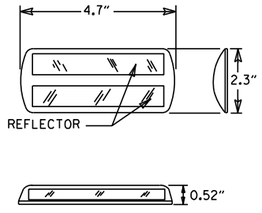
CROSSWALK AND STOP LINE DETAILS



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

DATE	REVISION	FILMED
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

ARKANSAS STATE HIGHWAY COMMISSION

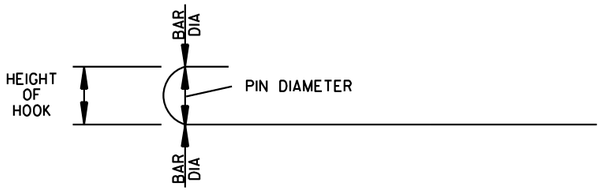
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

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

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

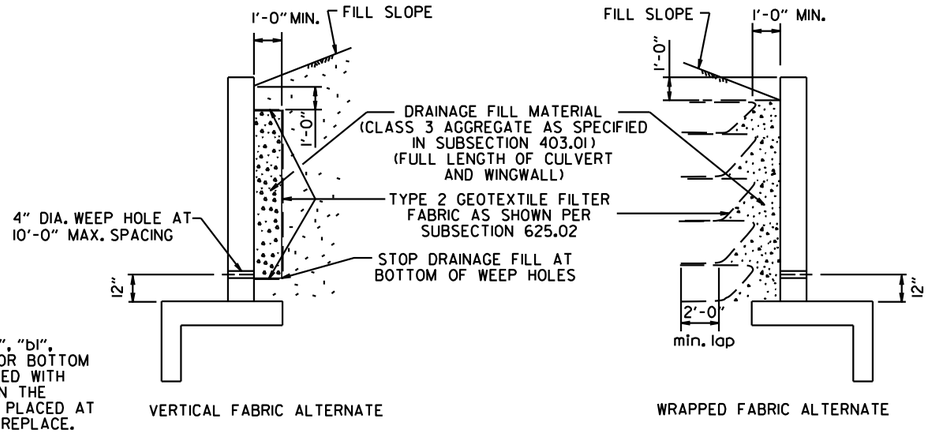
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

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

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

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

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

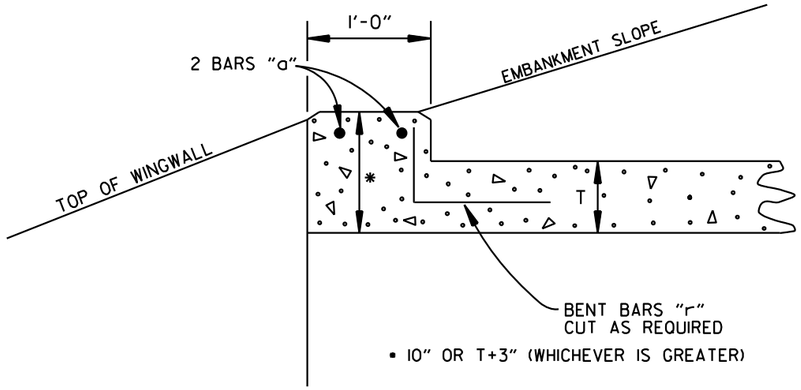
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

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

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

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



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.

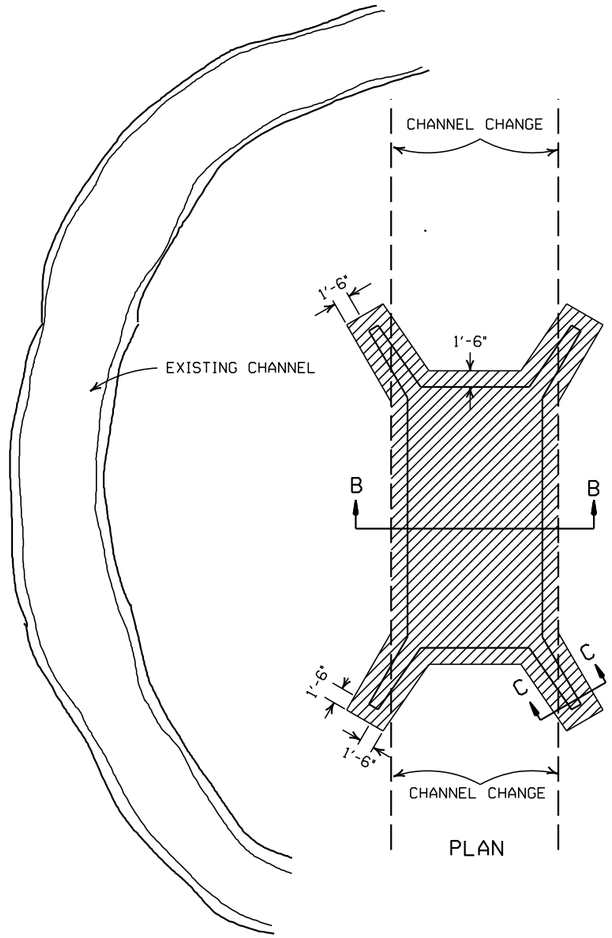
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

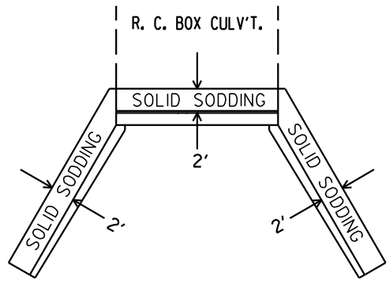
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

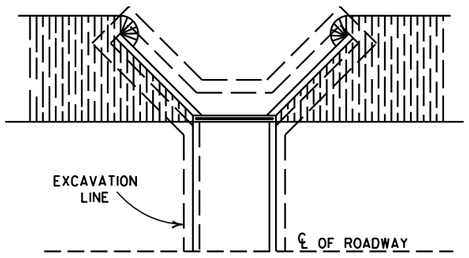
SOLID SODDING



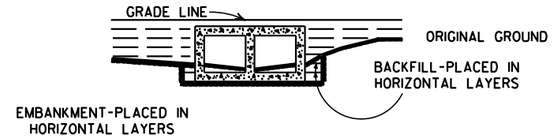
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

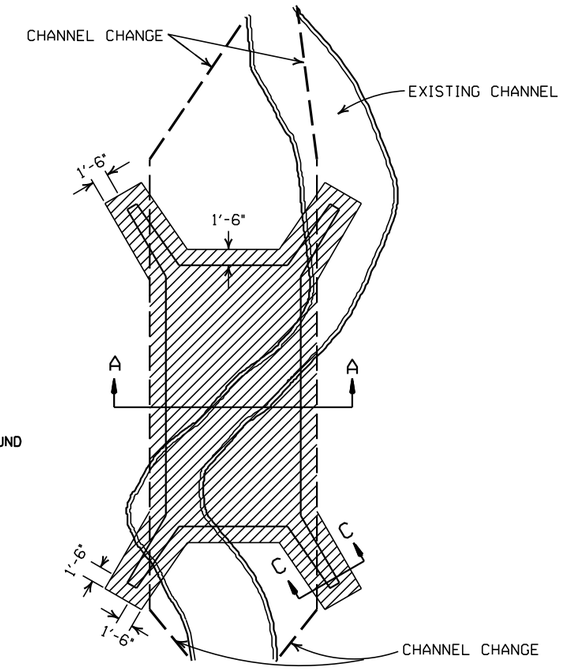


PLAN

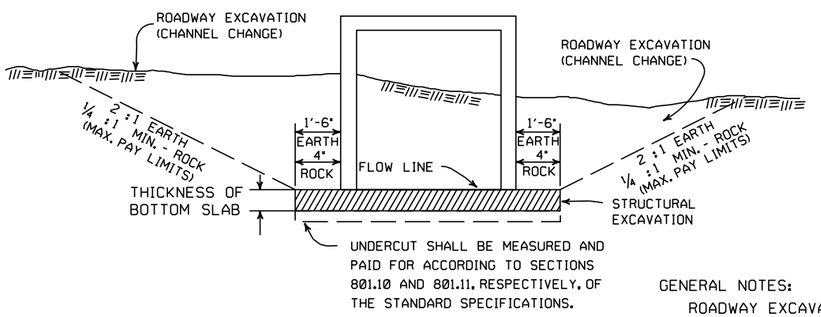


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

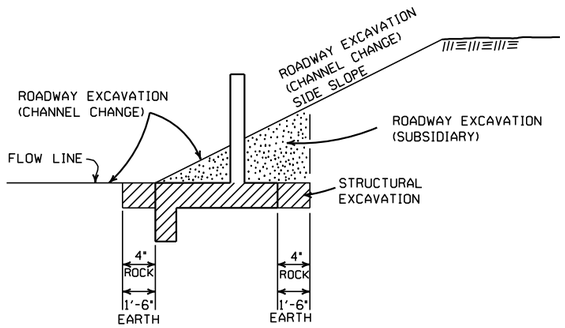


PLAN

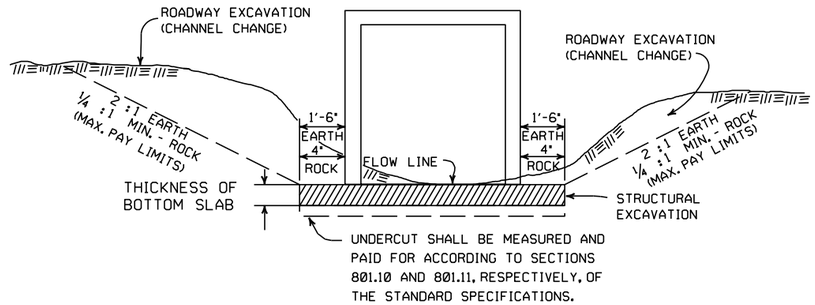


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

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

STANDARD DRAWING RCB-2

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			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
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	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158	300	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	300	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	300	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		0.056	182		0.064	202		0.070	216		0.080	240	350
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178	300	0.062	197		0.070	216		0.078	235	350	0.088	259	
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254		0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187	250	0.068	211		0.078	235		0.088	259		0.098	283	400	D MAX = 2° 45'		
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				
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278	350	D MAX = 3° 30'					
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							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274		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	350	D MAX = 4° 15'								
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	0.048	133		0.060	168		0.070	203		0.082	245		0.092	269	350	0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259	300	0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278		D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257		D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261	300																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																			
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																			
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																				
11° 00'	0.070	162		0.084	203		0.096	244																						
12° 00'	0.074	169		0.088	211	250	0.098	248																						
13° 00'	0.076	173		0.090	215		0.100	252	300																					
14° 00'	0.080	180		0.094	222		D MAX = 13° 45'																							
15° 00'	0.082	184		0.096	226																									
16° 00'	0.086	191		0.098	230																									
17° 00'	0.088	194		0.100	234																									
18° 00'	0.090	198	250	D MAX = 19° 30'																										
19° 00'	0.092	202																												
20° 00'	0.094	205																												
21° 00'	0.096	209																												
22° 00'	0.096	209																												
23° 00'	0.098	212																												
24° 00'	0.098	212																												
25° 00'	0.100	216																												
D MAX = 28° 30'																														

ABBREVIATIONS

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

GENERAL NOTES

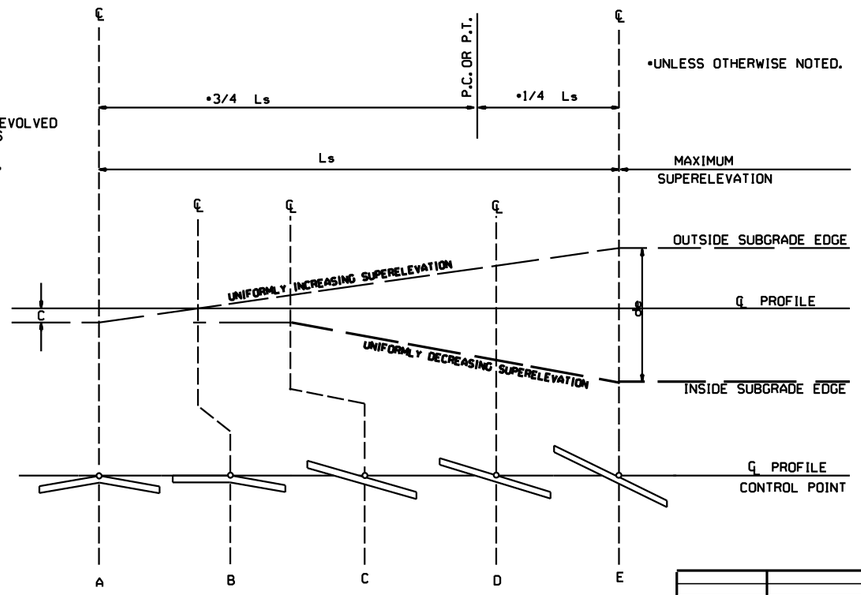
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED 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%

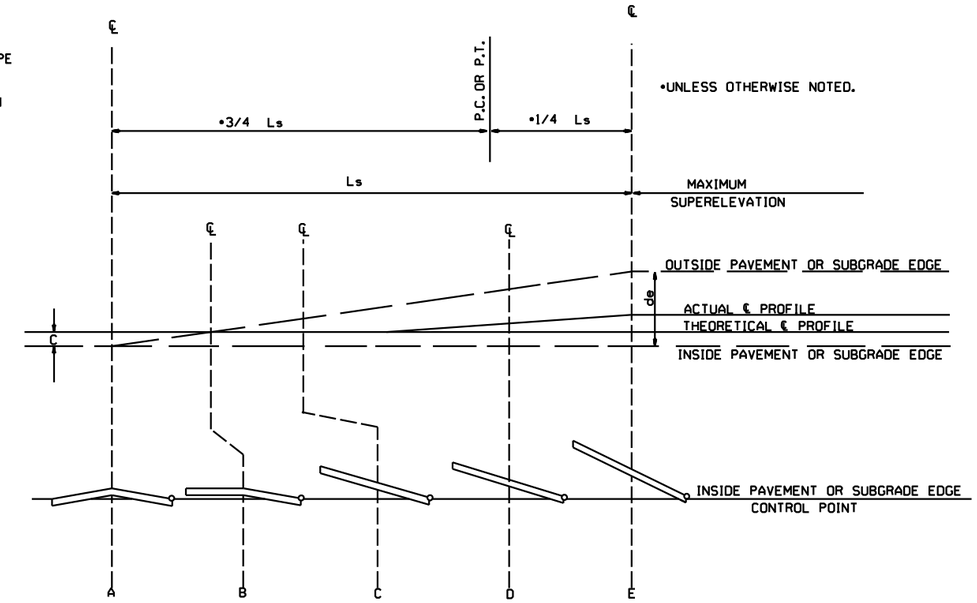
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

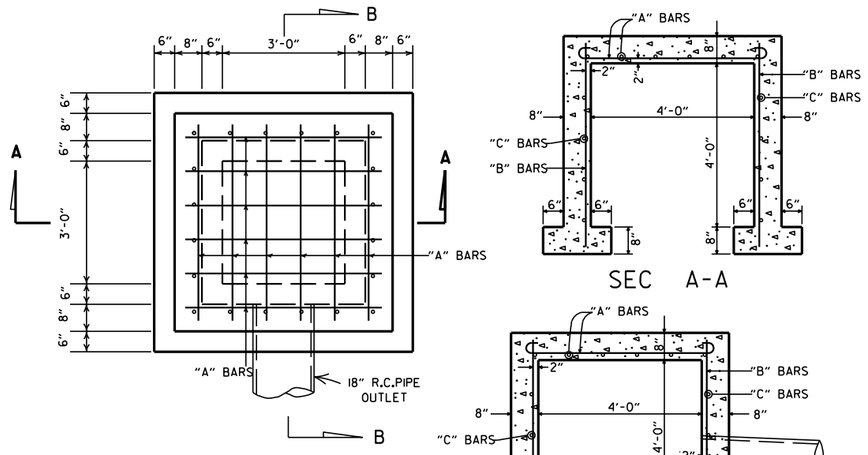
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

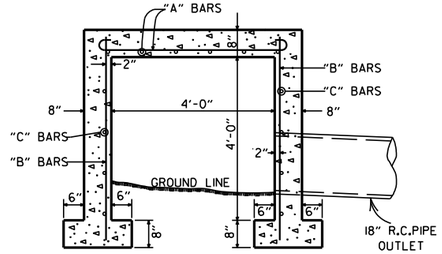
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2



SEC A-A



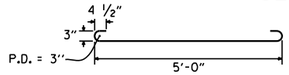
SEC B-B

NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



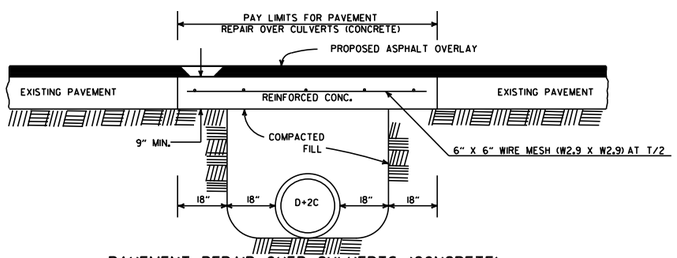
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

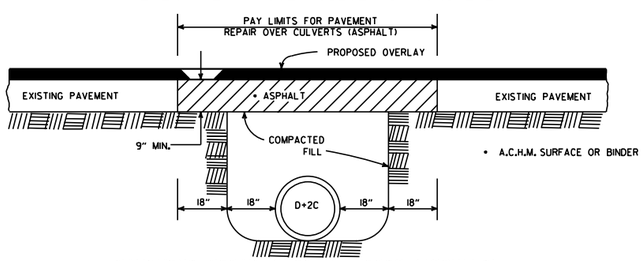
GENERAL NOTE:

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

REINFORCED CONCRETE SPRING BOX



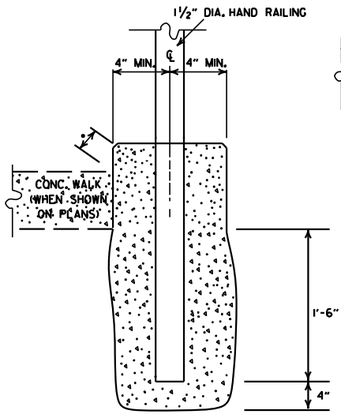
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



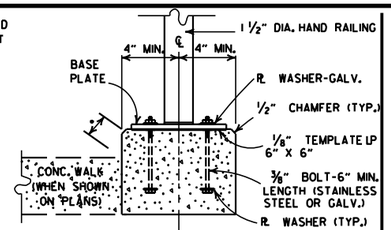
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

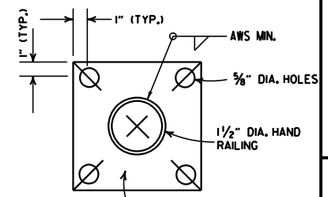
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

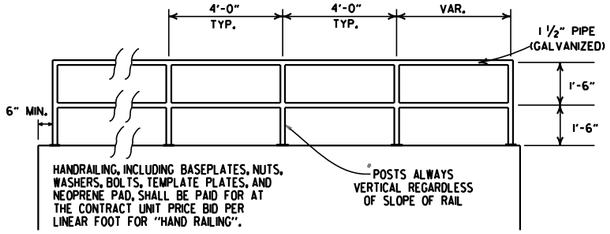


POST CONNECTION TO WALL

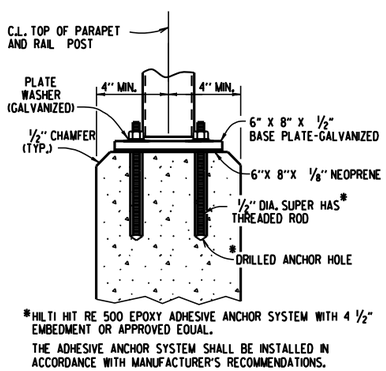


BASE PLATE

POST CONNECTION DETAILS



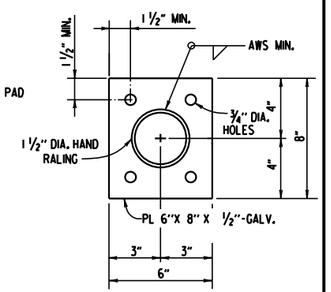
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

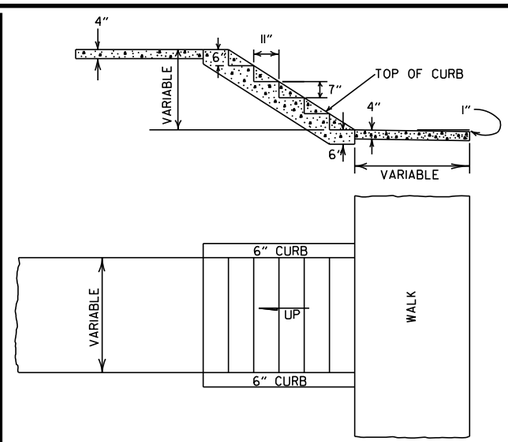
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-94	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

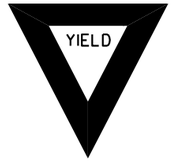
STANDARD DRAWING SI - 1

R1-1



STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

W3-5



STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

W3-5a



STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

R4-1



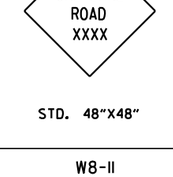
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2



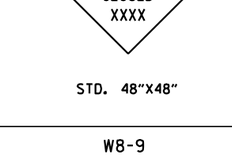
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



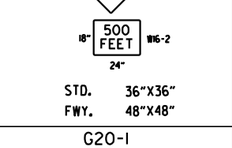
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



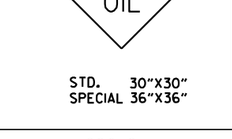
48"X30"

RII-3A



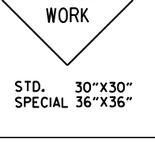
60"X30"

RII-4



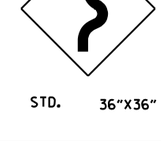
60"X30"

W21-5a



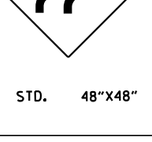
STD. 36"X36"
FWY. 48"X48"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2



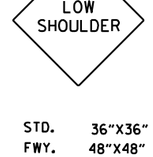
STD. 36"X36"
FWY. 48"X48"

WI-3



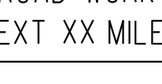
STD. 48"X48"

WI-4



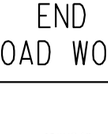
STD. 48"X48"

WI-6



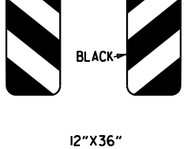
STD. 48"X24"
SPECIAL 60"X30"

WI-8



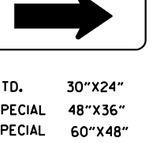
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



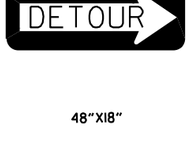
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

STD. 36"X36"
FWY. 48"X48"

G20-1

60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

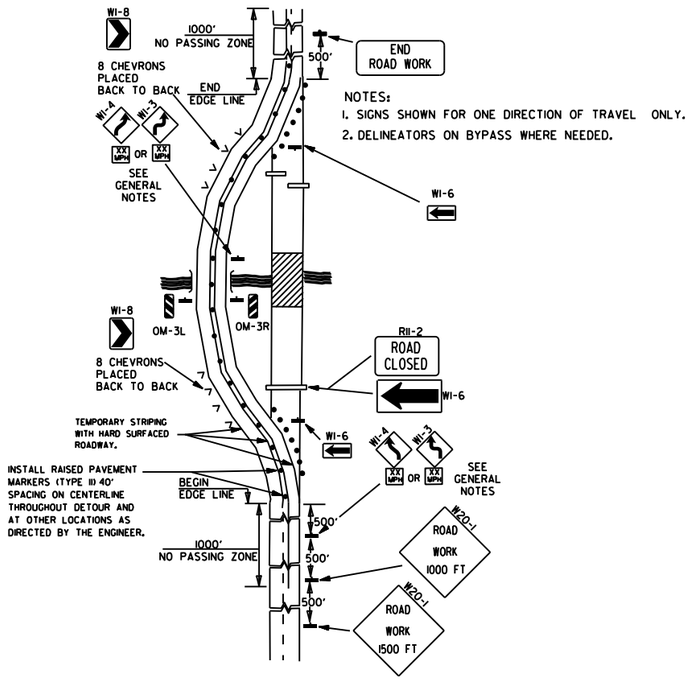
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
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	

ARKANSAS STATE HIGHWAY COMMISSION

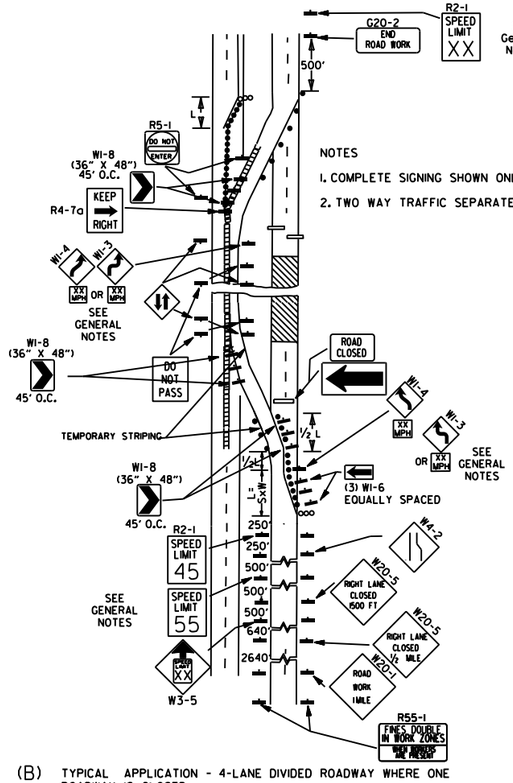
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



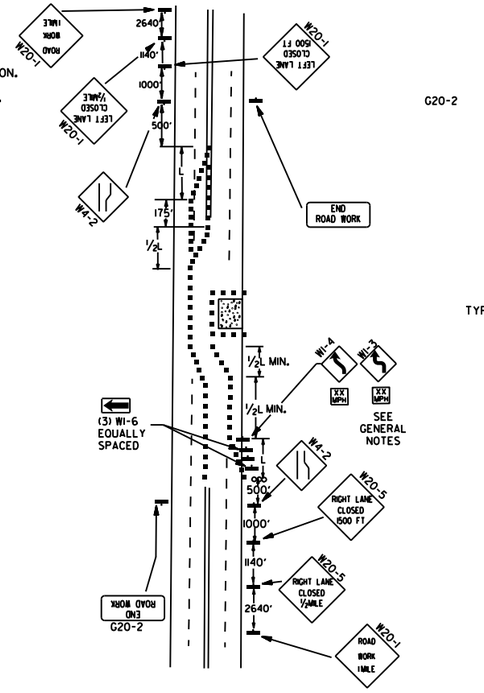
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

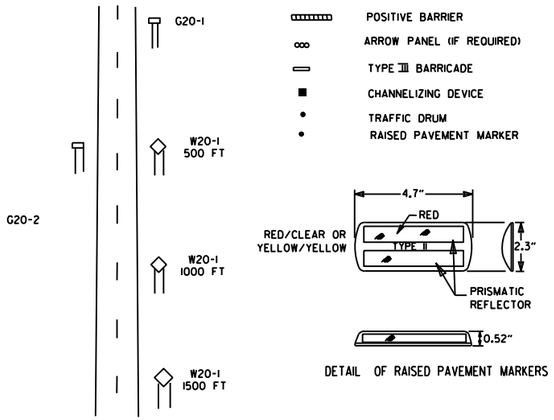


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:

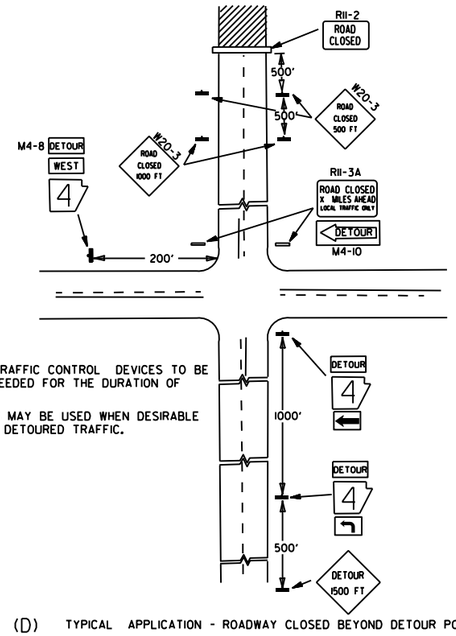
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

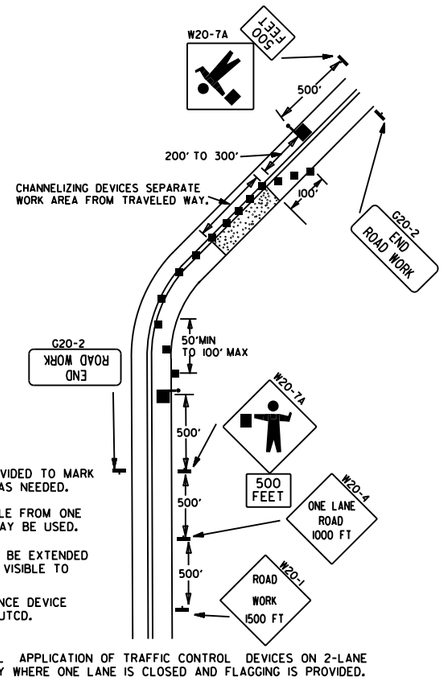
GENERAL NOTES:

1. 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 WI-3 OR WI-4 CURVE WARNING SIGNS. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-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 R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH 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).



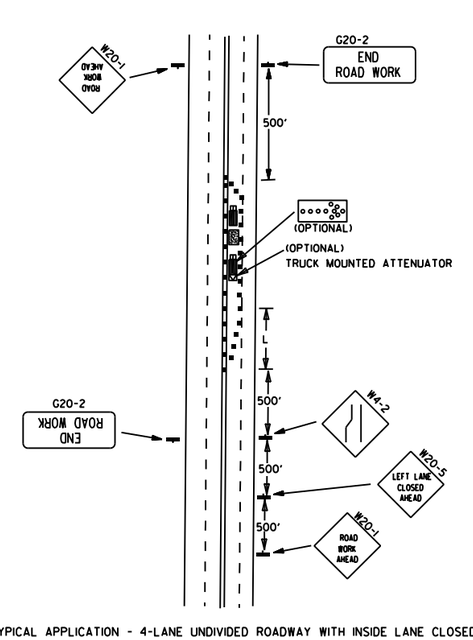
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



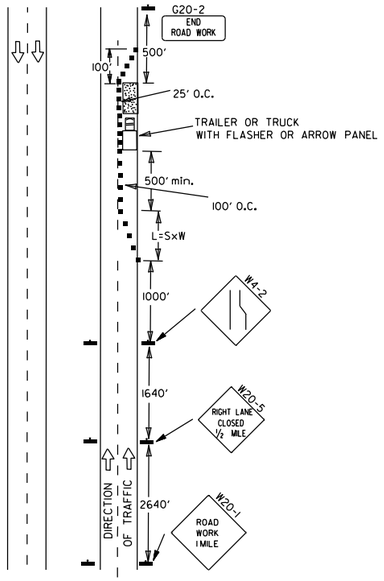
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
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	

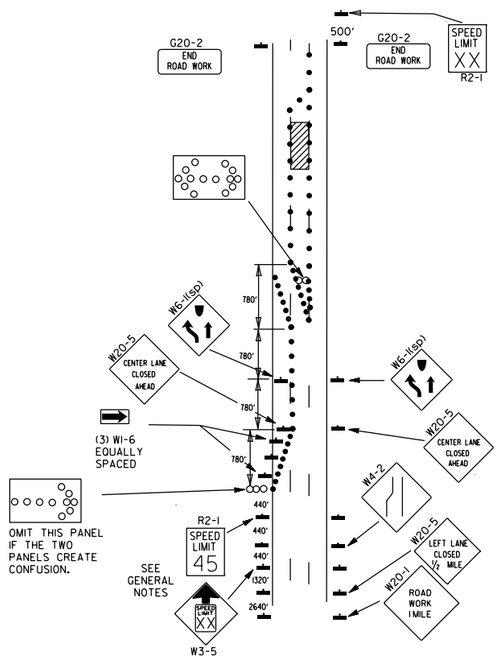
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



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



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

KEY:

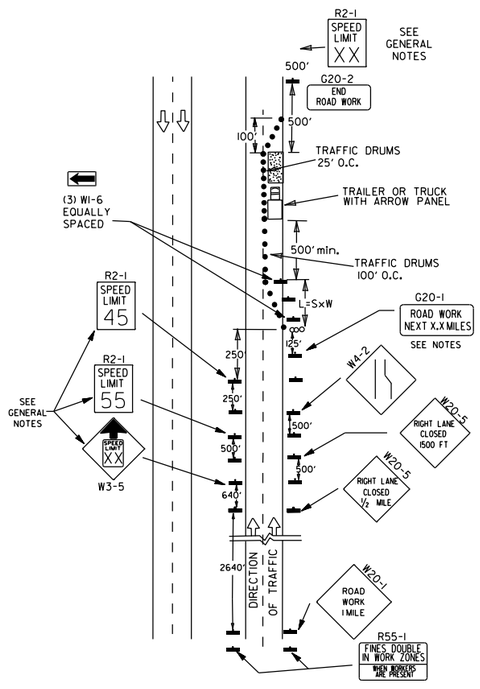
ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

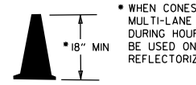
GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS, AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
11. 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).



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

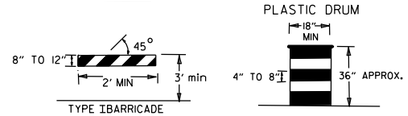
CHANNELIZING DEVICES



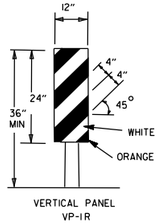
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES

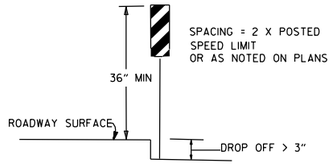
PLASTIC DRUM



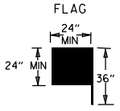
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

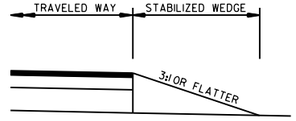
TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE[6]	STANDARD LANE CLOSURE[6]
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9 AND TRAFFIC DRUMS[1]	W8-9 AND TRAFFIC DRUMS[1]
> 3" ≤ 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[1]
> 6" ≤ 18"	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" ≤ 24"	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" ≤ 6"	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

GENERAL NOTES:

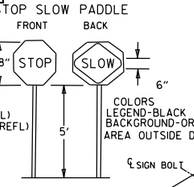
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.
6. TIME LIMITATIONS MUST CONFORM TO SECTION 603 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).

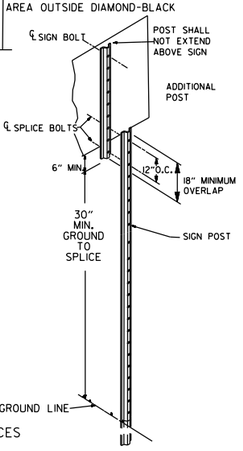


STABILIZED WEDGE

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

STOP SLOW PADDLE

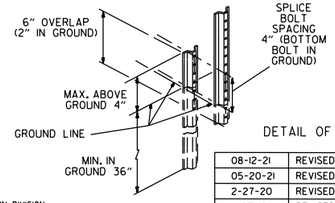




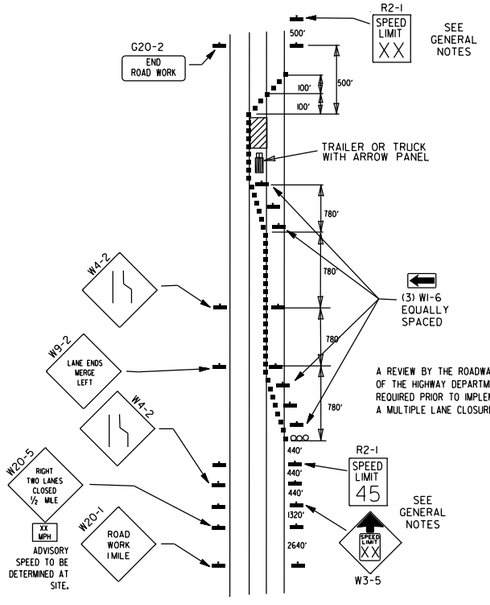
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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



A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

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

DATE	REVISION	FILMED
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 W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

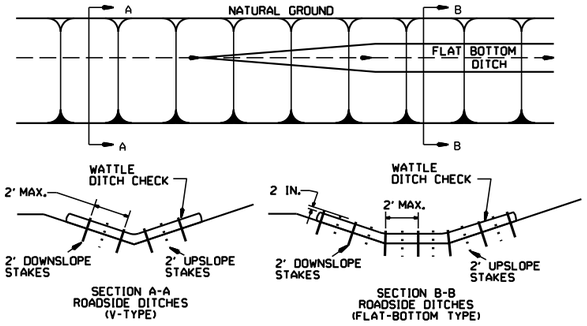
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

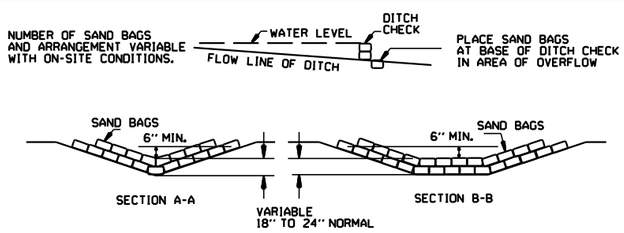
STANDARD DRAWING TC-3

GENERAL NOTES

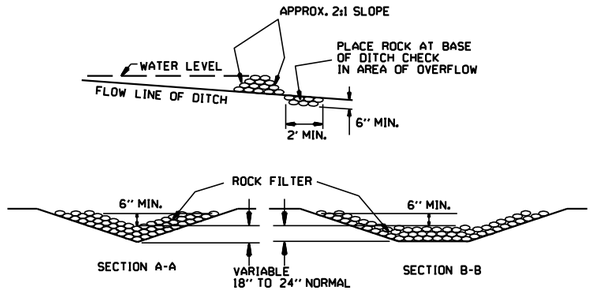
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

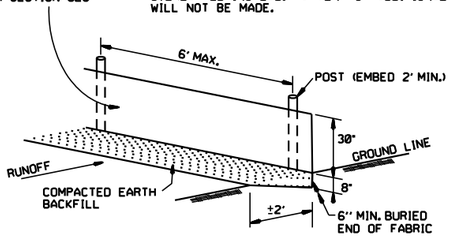


ROCK DITCH CHECK (E-6)

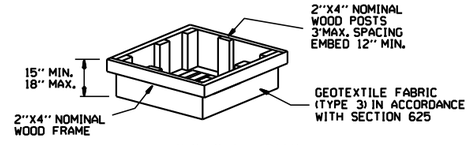
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

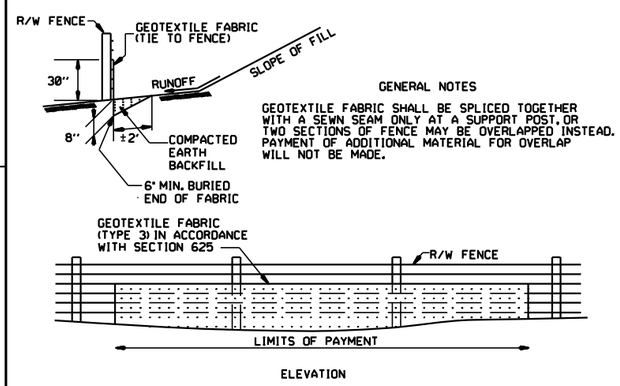
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

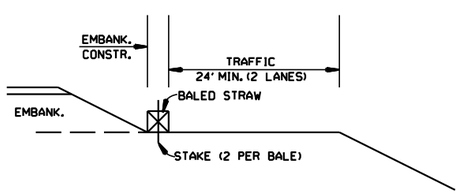
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

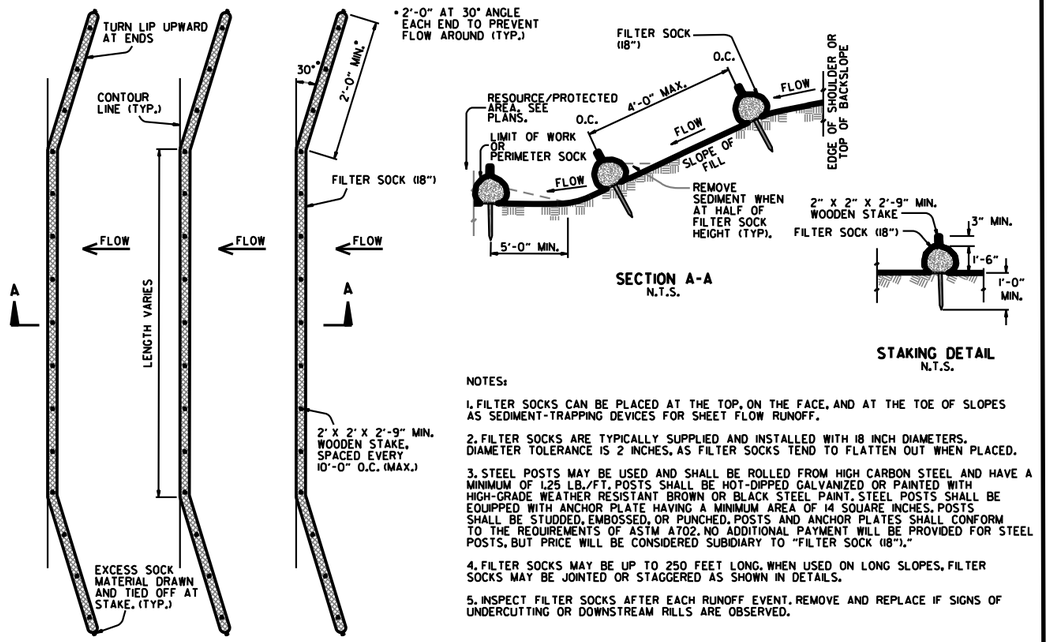
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



FILTER SOCK ALONG SLOPE (E-3)

NOTES:

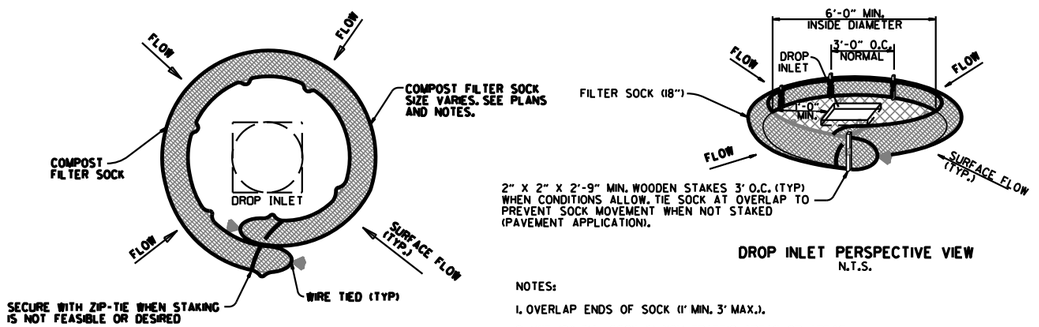
1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.



NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

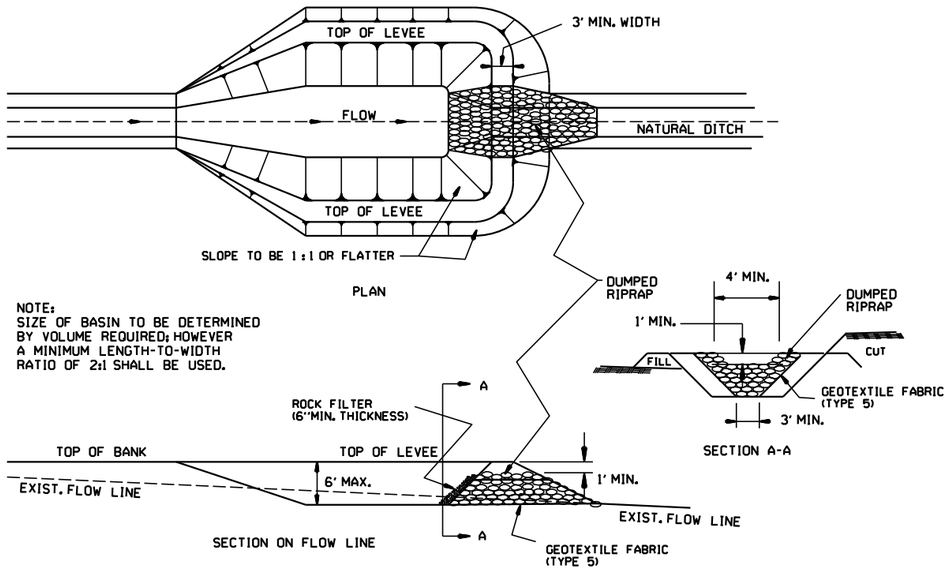
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
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

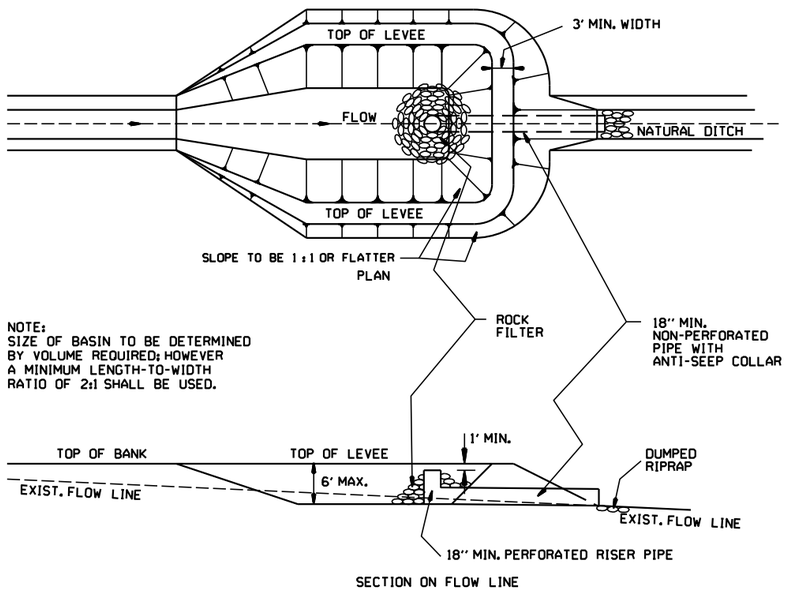
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

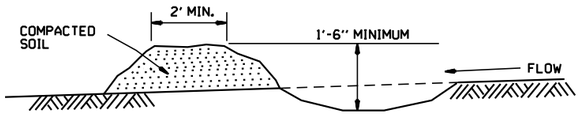
STANDARD DRAWING TEC-1



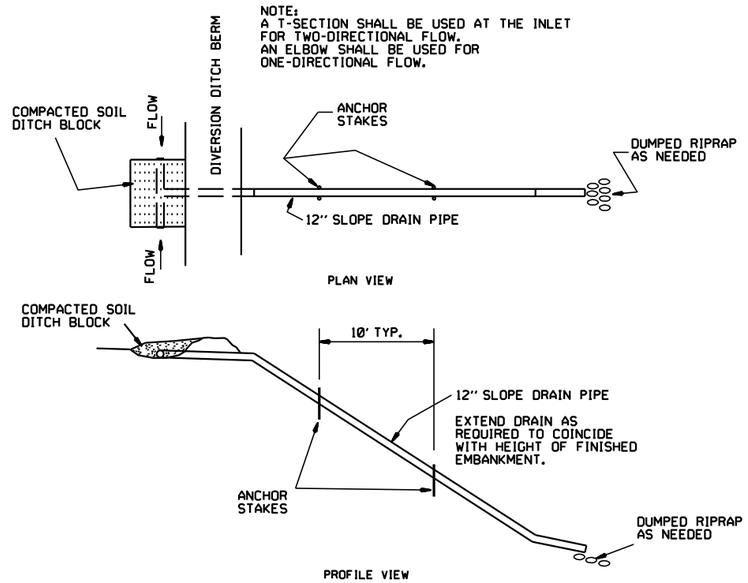
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



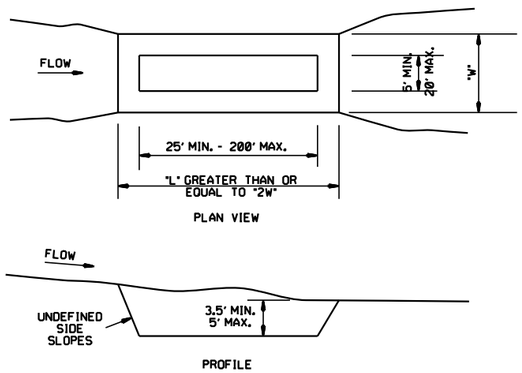
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-2

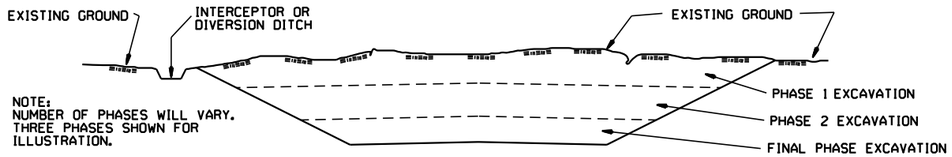
CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)

2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

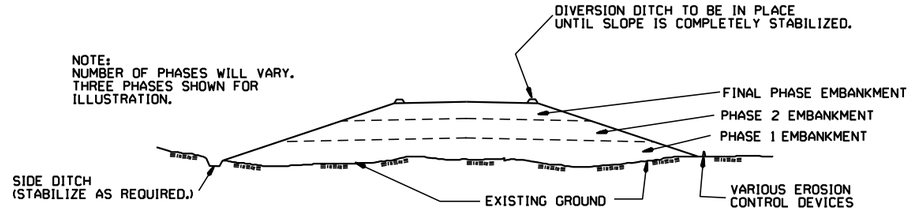
1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.

2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.

3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.

4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.

2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.

3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.

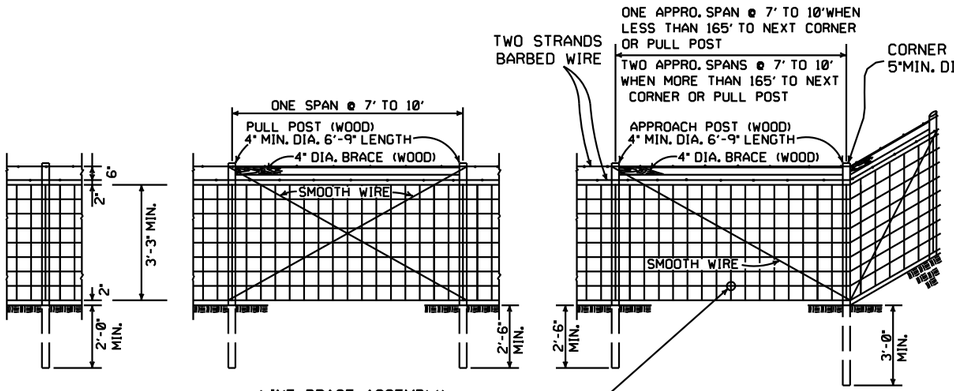
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

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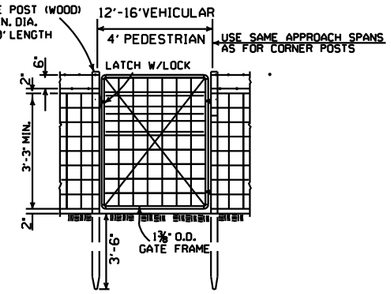
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



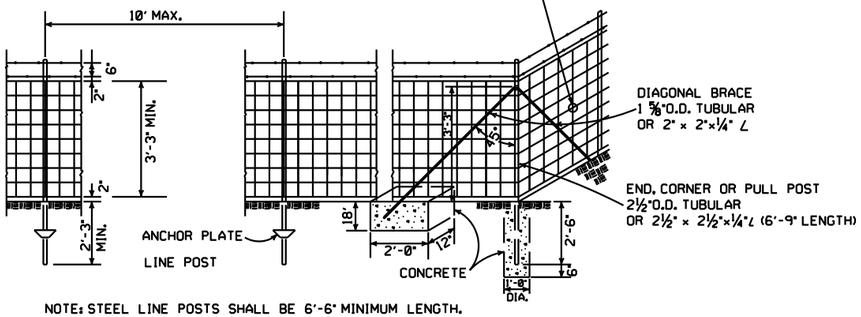
LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

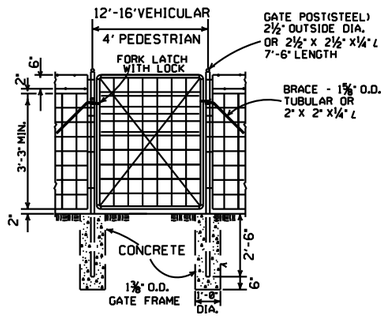


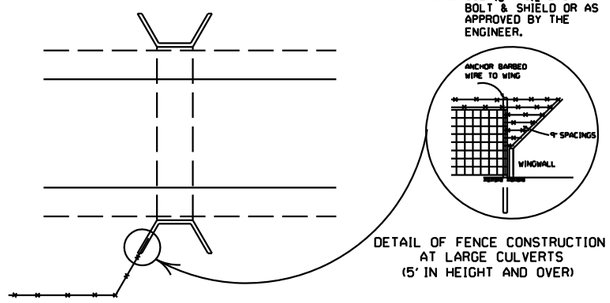
TYPE C FENCE (WOOD POSTS)

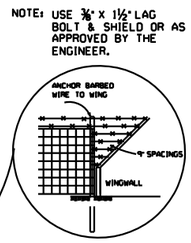
OTHER APPROVED TIES WILL BE PERMITTED



NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.







DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED.
TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

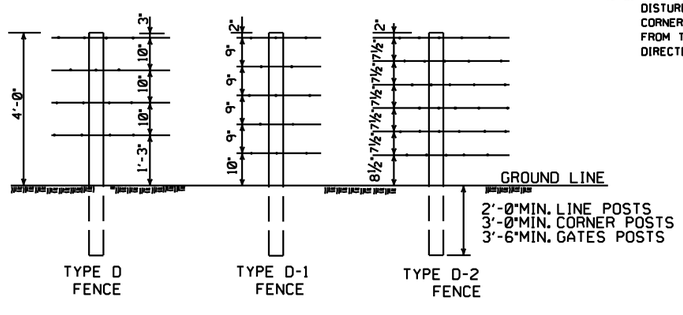
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

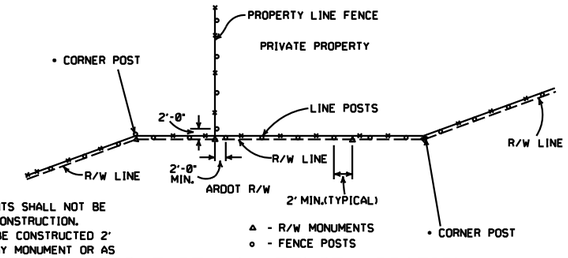
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

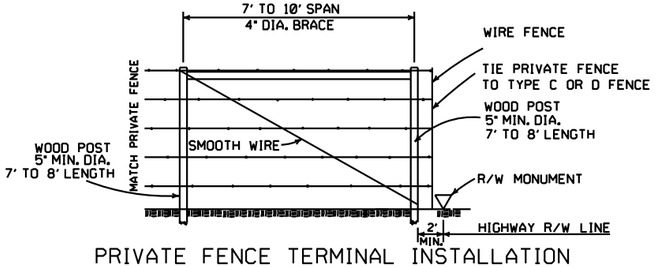


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



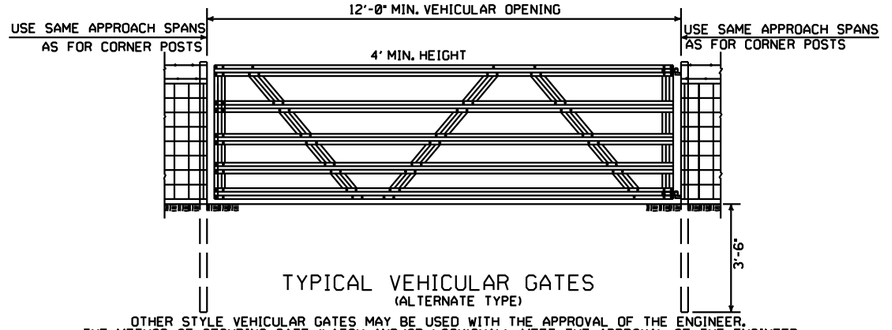
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

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WIRE FENCE
TYPE C AND D

STANDARD DRAWING WF-4