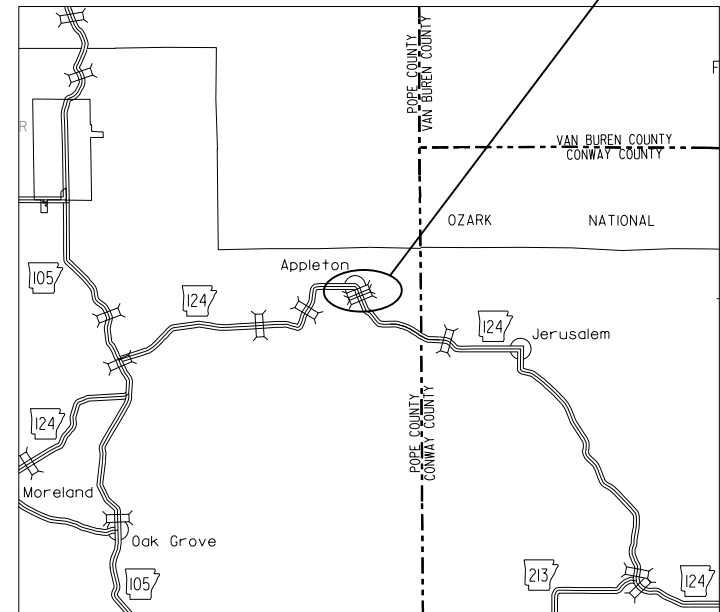


DATE REVISED	DATE REVISION	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	1	57
HWY. 124 STRS. & APPRS. (POPE CO.) (S)						

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

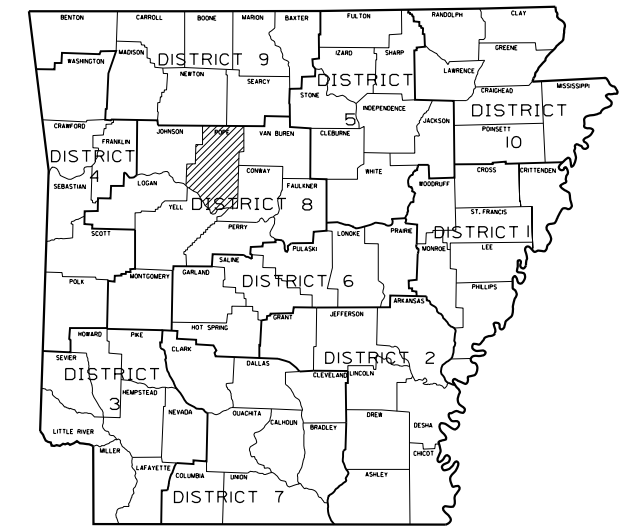
PROJECT LOCATION



VICINITY MAP

HWY. 124
STRS. & APPRS. (POPE CO.) (S)
POPE COUNTY
ROUTE 124 SECTION 2
JOB 080616
FED. AID PROJ. BFP-0058(51)

NOT TO SCALE



ARKANSAS HIGHWAY DISTRICT 8

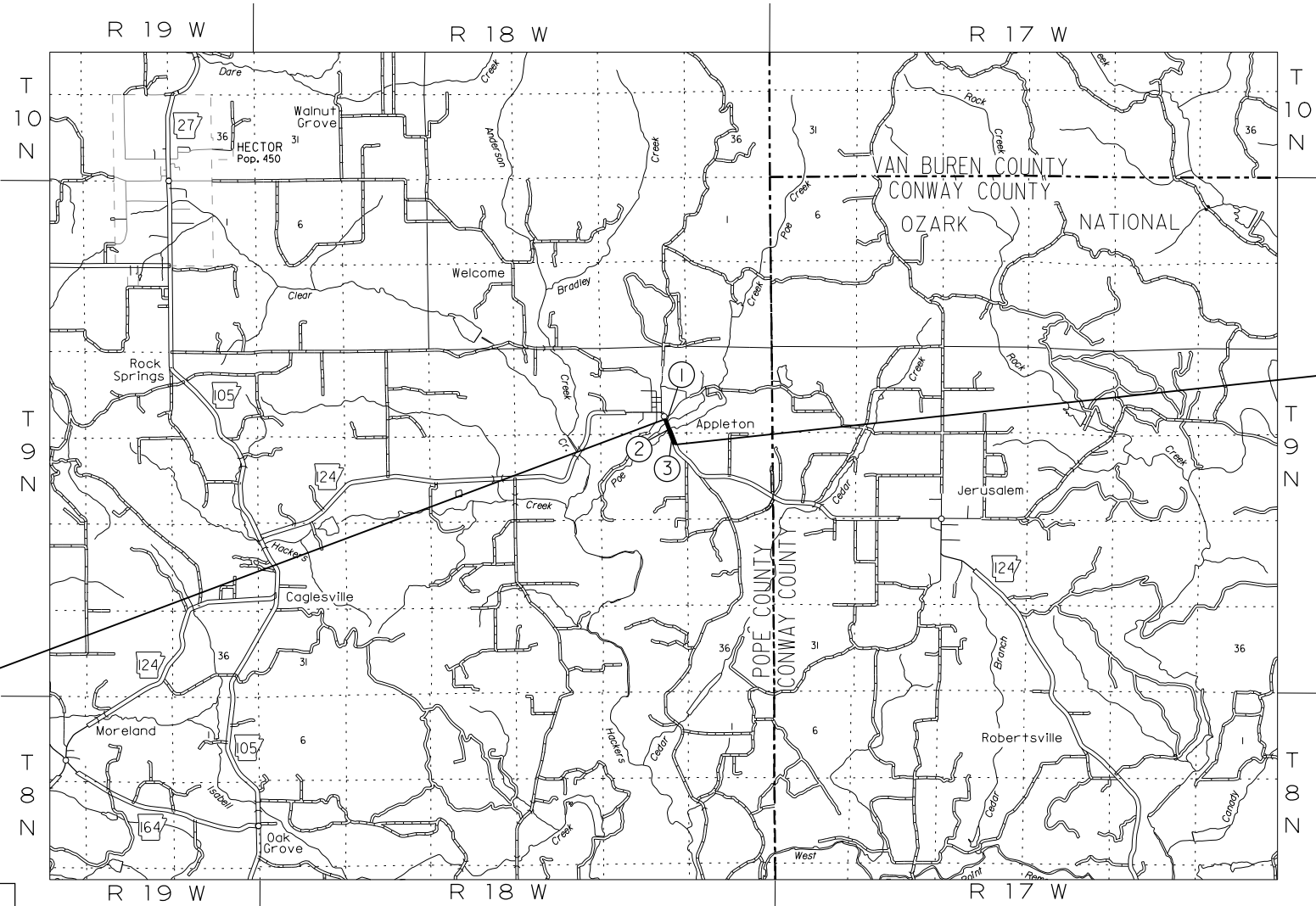
STRUCTURES OVER 20'-0" SPAN

- ① STA. 109+86.00 CONSTRUCT QUINT. 12'x8'x94' R.C. BOX CULVERT 10° RT. FWD. SKEW WITH 3:1 WINGS LT. & RT. Q25 = 3039 CFS D.A. = 7744 ACRES SPAN = 64.00'
- ② STA. 114+52.00 CONSTRUCT QUAD. 9'x6'x90' R.C. BOX CULVERT WITH 3:1 WINGS LT. & RT. Q25 = 1082 CFS D.A. = 7744 ACRES SPAN = 39.08'
- ③ STA. 118+46.00 CONSTRUCT TRP. 8'x6'x93' R.C. BOX CULVERT WITH 3:1 WINGS LT. & RT. Q25 = 619 CFS D.A. = 7744 ACRES SPAN = 26.50'

DESIGN TRAFFIC DATA

DESIGN YEAR	-----	2043
2023 ADT	-----	630
2043 ADT	-----	760
2043 DHV	-----	84
DIRECTIONAL DISTRIBUTION	-----	60%
TRUCKS	-----	10%
DESIGN SPEED	-----	40 MPH

STA. 107+25.00
BEGIN JOB 080616
L.M. 5.53



PROJECT COORDINATES			
	BEGIN	MID-POINT	END
LATITUDE	N 35°25'22"	N 35°25'15"	N 35°25'08"
LONGITUDE	W 92°52'25"	W 92°52'22"	W 92°52'19"
STATION	107+25.00	114+57.50	121+90.00

GROSS LENGTH OF PROJECT	1465.00 FEET OR 0.277 MILES
NET LENGTH OF ROADWAY	1335.42 FEET OR 0.253 MILES
NET LENGTH OF BRIDGES	129.58 FEET OR 0.025 MILES
NET LENGTH OF PROJECT	1465.00 FEET OR 0.277 MILES



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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	2	57
INDEX OF SHEETS AND STANDARD DRAWINGS						



DIGITALLY SIGNED 6/30/23

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
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
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAYLIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-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

INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	INDEX OF SHEETS AND STANDARD DRAWINGS
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES
4 - 6	TYPICAL SECTIONS OF IMPROVEMENT
7 - 17	SPECIAL DETAILS
18 - 21	TEMPORARY EROSION CONTROL DETAILS
22 - 25	MAINTENANCE OF TRAFFIC DETAILS
26	PERMANENT PAVEMENT MARKING DETAILS
27 - 29	QUANTITIES
30	SUMMARY OF QUANTITIES AND REVISIONS
31 - 32	SURVEY CONTROL DETAILS
33 - 36	PLAN AND PROFILE SHEETS
37 - 57	CROSS SECTIONS

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

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	3	57
GOVERNING SPECIFICATIONS AND GENERAL NOTES						



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GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
100-4	DEPARTMENT NAME CHANGE
102-2	ISSUANCE OF PROPOSALS
105-4	MAINTENANCE DURING CONSTRUCTION
107-2	RESTRAINING CONDITIONS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
210-1	UNCLASSIFIED EXCAVATION
303-1	AGGREGATE BASE COURSE
306-1	QUALITY CONTROL AND ACCEPTANCE
400-1	TACK COATS
400-4	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6	LIQUID ANTI-STRIP ADDITIVE
400-7	TRACKLESS TACK
404-3	DESIGN OF ASPHALT MIXTURES
409-2	ASPHALT LABORATORY FACILITY
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4	EVALUATION OF ACHM SUBLLOT REPLACEMENT MATERIAL
416-1	RECYCLED ASPHALT PAVEMENT
501-2	CEMENT
600-2	INCIDENTAL CONSTRUCTION
603-1	LANE CLOSURE NOTIFICATION
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1	CONCRETE DITCH PAVING
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
621-1	FILTER SOCKS
800-1	STRUCTURES
802-4	CEMENT
804-2	REINFORCING STEEL FOR STRUCTURES
JOB 080616	BIDDING REQUIREMENTS AND CONDITIONS
JOB 080616	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 080616	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080616	BUY AMERICA - CONSTRUCTION MATERIALS
JOB 080616	CARGO PREFERENCE ACT REQUIREMENTS
JOB 080616	COLD MILLING - COUNTY PROPERTY
JOB 080616	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 080616	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 080616	DESIGN AND QUALITY CONTROL ASPHALT MIXTURES
JOB 080616	DESIGN OF ASPHALT MIXTURES - AGGREGATES
JOB 080616	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 080616	ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 080616	FLEXIBLE BEGINNING OF WORK
JOB 080616	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080616	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 080616	MANDATORY ELECTRONIC CONTRACT
JOB 080616	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 080616	NESTING SITES OF MIGRATORY BIRDS
JOB 080616	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 080616	PARTNERING REQUIREMENTS
JOB 080616	PLASTIC PIPE
JOB 080616	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 080616	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 080616	PRICE ADJUSTMENT FOR FUEL
JOB 080616	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 080616	SHORING FOR CULVERTS
JOB 080616	SOIL STABILIZATION
JOB 080616	SPECIAL CLEARING REQUIREMENTS
JOB 080616	STORM WATER POLLUTION PREVENTION PLAN
JOB 080616	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080616	TOTAL SOLAR ECLIPSE
JOB 080616	UTILITY ADJUSTMENTS
JOB 080616	VALUE ENGINEERING
JOB 080616	WARM MIX ASPHALT

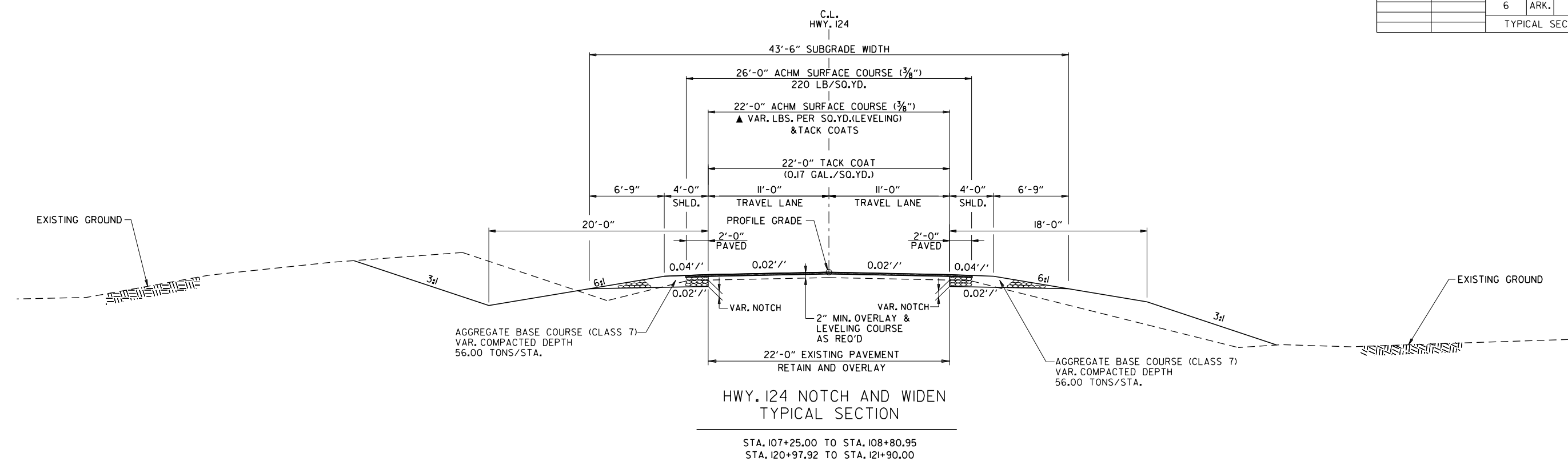
GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT, REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	4	57
TYPICAL SECTIONS OF IMPROVEMENT						



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HWY. 124 NOTCH AND WIDEN
TYPICAL SECTION

STA. 107+25.00 TO STA. 108+80.95
STA. 120+97.92 TO STA. 121+90.00

▲ TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

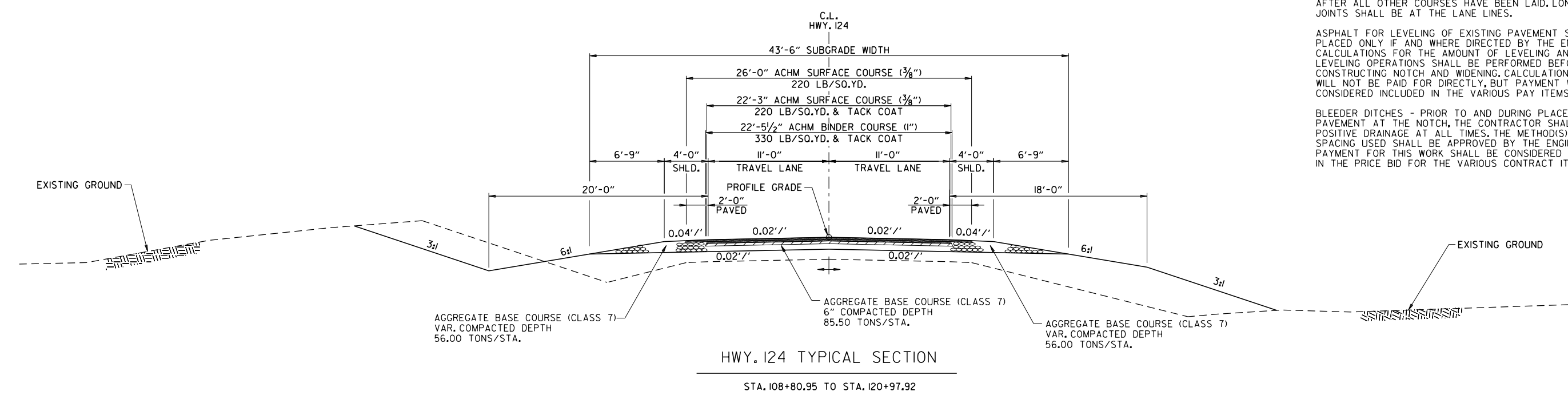
REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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

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

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



HWY. 124 TYPICAL SECTION

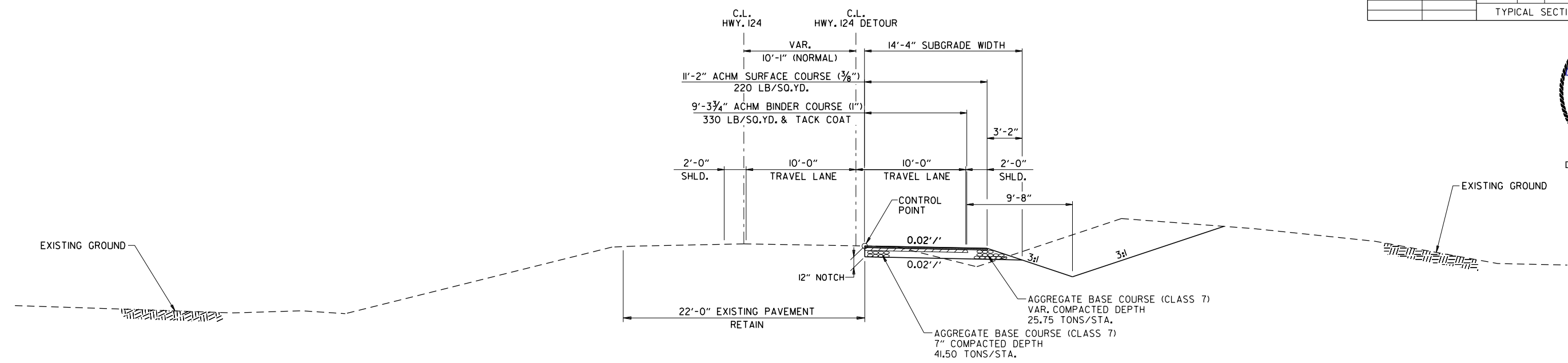
STA. 108+80.95 TO STA. 120+97.92

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		6	ARK.	080616	5	57
TYPICAL SECTIONS OF IMPROVEMENT						



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**HWY. 124 DETOUR NOTCH AND WIDEN
TYPICAL SECTION**

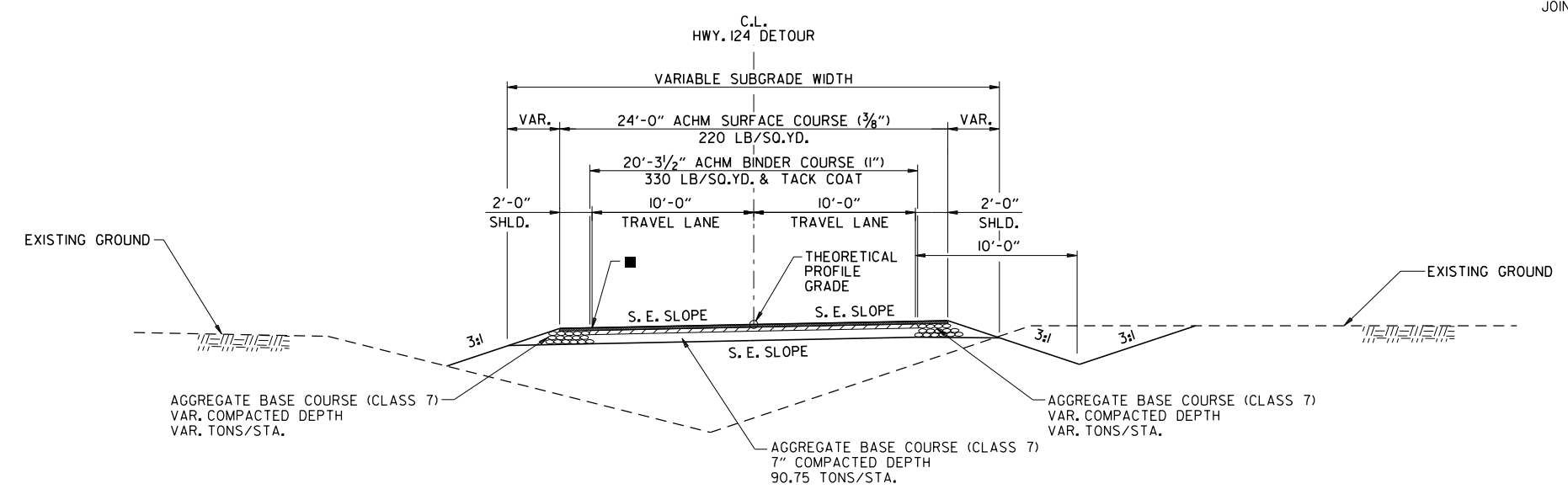
STA. 206+04.22 TO STA. 207+58.94
STA. 221+87.02 TO STA. 225+23.48

NOTE:
DIMENSIONS SHOWN REPRESENT AVERAGE WIDTHS. ACTUAL DIMENSIONS VARY WITHIN THE NOTCH AND WIDEN STATION RANGE.

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

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

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



**HWY. 124 DETOUR
TYPICAL SUPERELEVATED SECTION**

STA. 207+58.94 TO STA. 210+11.14

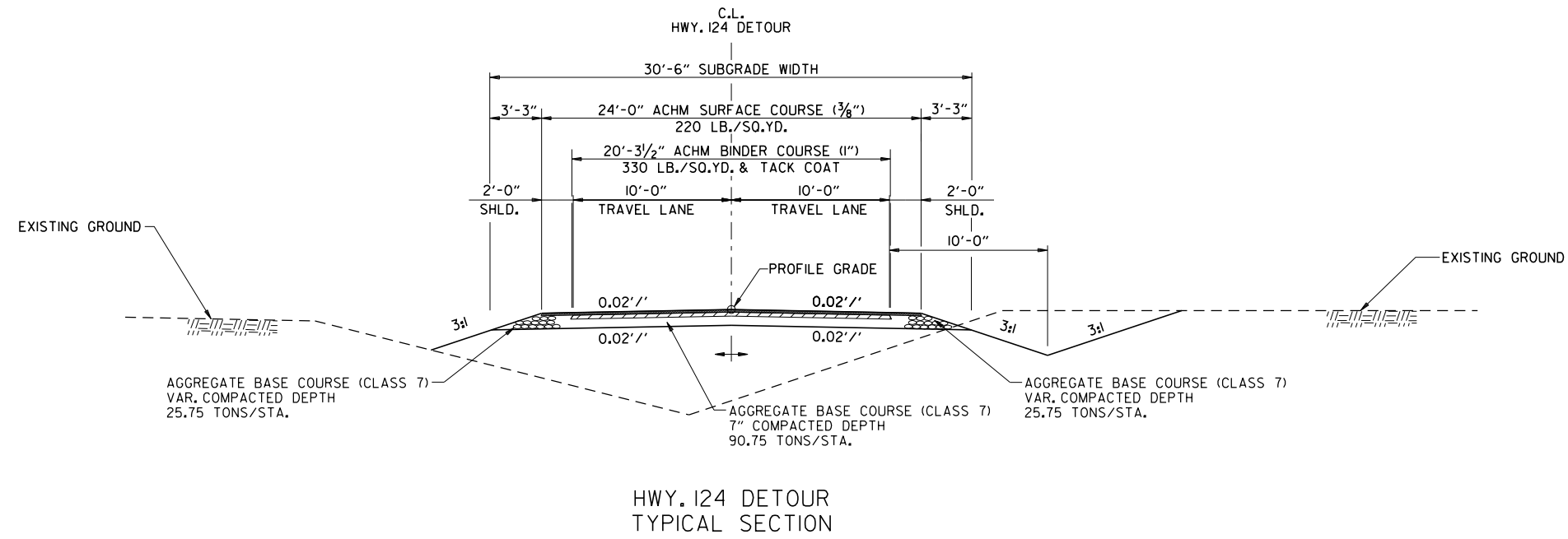
■ POINT OF SUPERELEVATION ROTATION (0.20' BELOW PROFILE GRADE).

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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	6	57
TYPICAL SECTIONS OF IMPROVEMENT						



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HWY. 124 DETOUR
TYPICAL SECTION

STA. 210+11.4 TO STA. 221+87.02

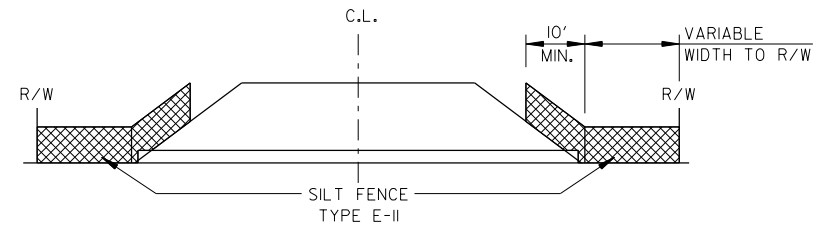
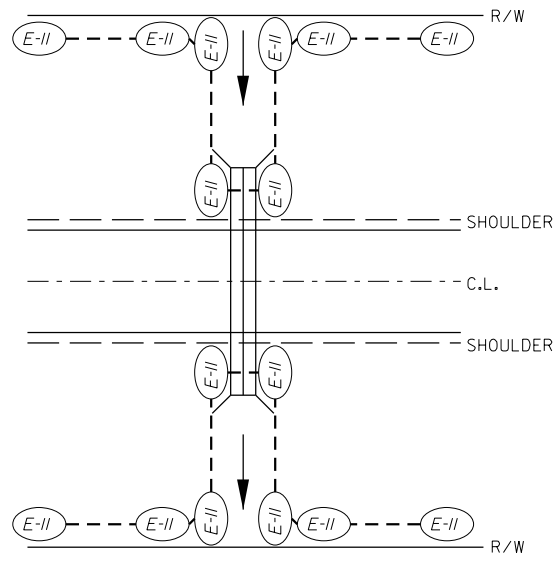
- NOTES:
- REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
 - THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
 - THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

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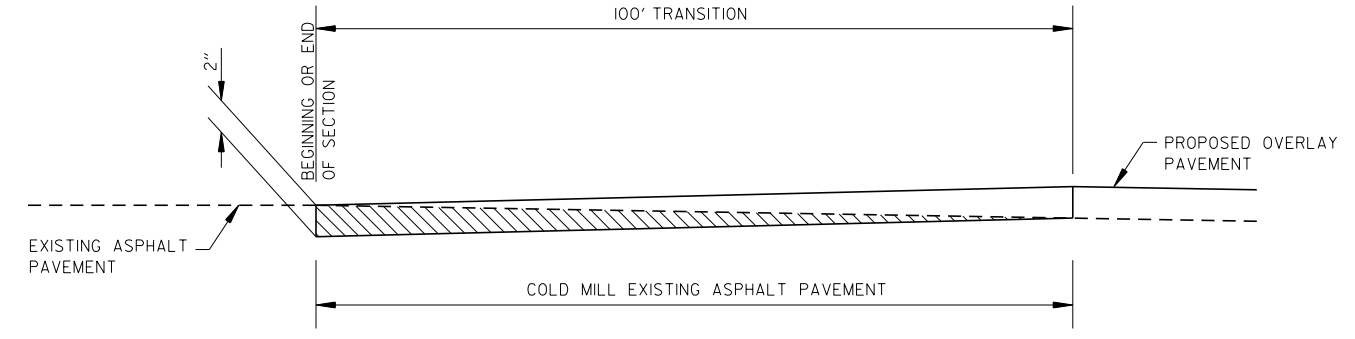
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	7	57
SPECIAL DETAILS						



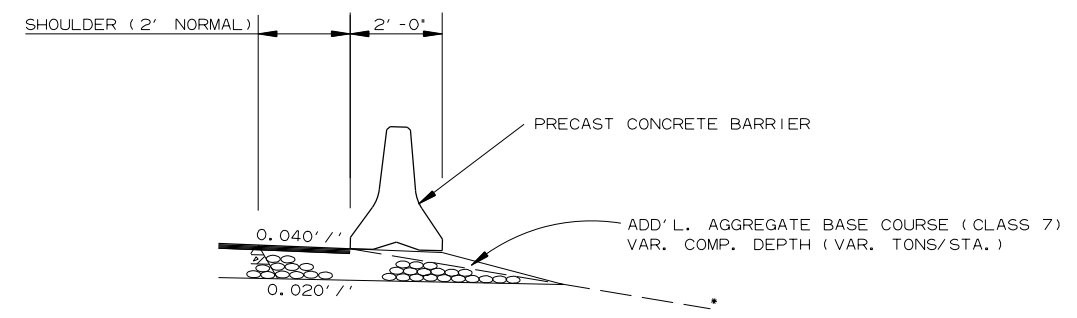
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DETAILS OF SILT FENCE AT R.C. BOX



DETAIL FOR TRANSITIONS



DETAIL FOR PCCB WIDENING AT PROPOSED DETOUR SHOULDER EDGE

* NOTE: REFER TO MAINTENANCE OF TRAFFIC DETAILS AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND PRECAST CONCRETE BARRIER.

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 REVISED DATE:



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TABULAR DATA BY: VD DATE: 08/28/2020
CHECKED BY: DLT DATE: 09/17/2020

#	Length
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

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

**MID-SECTION
BAR LAP TABLE**

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

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

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

INLET WINGWALL TABLE

OVERALL 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		CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B				
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WF	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
64'-0"	8'-0"	0'-9"	0'-8"	10	3:1	63'-7 5/8"	2'-0"	8'-10"	2'-8"	20	40	3'-2"	4'-3 5/8"	4'-6 1/8"	1'-4 1/2"	1'-6 7/8"	19'-6"	24'-0"	22'-9 3/8"	27'-3 3/8"	15.86	1444

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.	OVERALL WIDTH	OVERALL HEIGHT	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL			INTERIOR WALL REINFORCING STEEL			TOP SLAB DISTRIBUTION REINFORCING STEEL			BOTTOM SLAB DISTRIBUTION REINFORCING STEEL			SIDE WALL DISTRIBUTION REINFORCING STEEL			INTERIOR WALL DISTRIBUTION REINFORCING STEEL			CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR. 60) (Includes HDWL)										
													SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH			SIZE	SPACING	LENGTH	CU. YDS.	LBS.					
10	3:1	5	12	8	7'-8"	14	3	14	8	8	64'-0"	10'-4"	7	10	Max 63'-8"	12	Max 63'-8"	20	4	5	Max 63'-8"	24	4	6	Max 63'-8"	20	5	5	37	10'-0"	4	12	72	10'-0"	5	12	129	Max 13'-1"	5	12	129	Max 13'-1"	4	12	8	LONG 10'-10"	16	LONG 10'-10"	52.93	7673
"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		33'-2"		12		4		33'-2"		12		4		2'-1"		1'-1"		66																																

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.	OVERALL WIDTH	OVERALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL			INTERIOR WALL REINFORCING STEEL			TOP SLAB DISTRIBUTION REINF. STEEL			BOTTOM SLAB DISTRIBUTION REINF. STEEL			SIDE WALL DISTRIBUTION REINF. STEEL			INTERIOR WALL DISTRIBUTION REINF. STEEL			CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)													
											SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH			SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	CU. YDS.	LBS.					
A	12	8	14	14	8	8	8	64'-0"	10'-4"	79.1	5	63'-8"	8	65'-6"	4	63'-8"	18	52	4	63'-8"	5	65'-4"	4	63'-8"	12	79	5	5	378	10'-0"	4	12	632	10'-0"	5	12	129	5	12	129	5	12	129	4	12	16	4	12	64	531.24	633327

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVERALL WIDTH	OVERALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL			INTERIOR WALL REINFORCING STEEL			TOP SLAB DISTRIBUTION REINF. STEEL			BOTTOM SLAB DISTRIBUTION REINF. STEEL			SIDE WALL DISTRIBUTION REINF. STEEL			INTERIOR WALL DISTRIBUTION REINF. STEEL			CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)										
											SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH			SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	CU. YDS.	LBS.		
A	12	8	14	14	8	8	8	64'-0"	10'-4"	79.1	5	63'-8"	8	65'-6"	4	63'-8"	18	52	4	63'-8"	5	65'-4"	4	63'-8"	12	79	5	5	378	10'-0"	4	12	632	10'-0"	5	12	129	5	12	129	4	12	16	4	12	64	531.24	633327

**SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUINTUPLE BARREL BOX CULVERT
Sta. 109+86
SPECIAL DETAILS**





DIGITALLY SIGNED 6/30/23

TABULAR DATA BY: VD DATE: 08/28/2020
 CHECKED BY: DLT DATE: 09/17/2020

OUTLET WINGWALL TABLE

OVERALL 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 WING WALLS		LENGTH OF FOOTING HEEL		CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B				
																			WH1	WH2		
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
64'-0"	8'-0"	0'-9"	0'-8"	10	3:1	63'-7 5/8"	2'-0"	8'-10"	2'-8"	20	40	3'-2"	4'-3 5/8"	4'-6 1/8"	1'-4 1/2"	1'-6 7/8"	19'-6"	24'-0"	22'-9 3/8"	27'-3 3/8"	17.89	1444

#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

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

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.	OVERALL WIDTH	OVERALL HEIGHT	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL			INTERIOR WALL REINFORCING STEEL			TOP SLAB DISTRIBUTION REINFORCING STEEL			BOTTOM SLAB DISTRIBUTION REINFORCING STEEL			SIDE WALL DISTRIBUTION REINFORCING STEEL			INTERIOR WALL DISTRIBUTION REINFORCING STEEL			CLASS "S" CONCRETE (Includes HDWL.)	REINFORCING STEEL (GR 60) (Includes HDWL.)												
													"a"		"c"		"d"		"f"		"f0"			"f1"			"d"			"e"			"d1"			"d2"																
													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	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING			NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	CU. YDS.	LBS.
10	3:1	5	12	8	7'-8"	14	3	14	8	8	64'-0"	10'-4"	7	10	Max 63'-8" Min 8'-11"	12	5	6	Min 63'-8" Max 8'-11"	4	5	4	6	Min 63'-8" Max 8'-11"	5	5	37	10'-0"	4	12	72	10'-0"	5	12	129	5	12	129	5	12	129	4	12	8	LONG 13'-0" SHORT 1'-11"	4	12	32	16	LONG 10'-10" MID 8'-7" SHORT 4'-1"	52.93	7673

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.	OVERALL WIDTH	OVERALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINF. STEEL		BOTTOM SLAB DISTRIBUTION REINF. STEEL		SIDE WALL DISTRIBUTION REINF. STEEL		INTERIOR WALL DISTRIBUTION REINF. STEEL													
											LENGTH = OW - 4" + BENDS				LENGTH = OW - 4" + BENDS				LENGTH = OH - 4"		LENGTH = OH - 4"		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL													
											"a"	Bent "b"	"c"	SPACING	"c"	Bent "b"	"f"	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D
											SIZE	LENGTH	NO. REQ'D	SPACING	SIZE	LENGTH	NO. REQ'D	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING
F-DWL DEPTH												ADDITIONAL REINF. FOR HDWL												"h" BARS																		
HD												LBS.												SIZE Y LENGTH NO. REQ'D																		

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

SHEET 2 OF 2
 DETAILS OF R.C. BOX CULVERT
 QUINTUPLE BARREL BOX CULVERT
 Sta. 109+86
 SPECIAL DETAILS

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.
 Unless otherwise noted, all dimensions are in inches.



SPECIAL DETAILS



INLET 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 WING WALLS		LENGTH OF FOOTING HEEL		CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)	
								AT HDWL	AT WING END			WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B			
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
39'-1"	6'-0"	0'-9"	0'-8"	0	3:1	38'-0"	2'-0"	6'-10"	2'-0"	30	30	3'-2"	3'-4 7/8"	3'-4 7/8"	0'-3 1/4"	0'-3 1/4"	16'-6"	16'-6"	20'-0 3/8"	20'-0 3/8"	9.97	876

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				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINFORCING STEEL		BOTTOM SLAB DISTRIBUTION REINFORCING STEEL		SIDE WALL DISTRIBUTION REINFORCING STEEL		INTERIOR WALL DISTRIBUTION REINFORCING STEEL		CLASS "S" CONCRETE (includes HDWL)	REINFORCING STEEL (GR 60) (includes HDWL)
													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	LENGTH		
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	"a"		"c"		"d"		"f"		"g"		"h"		"i"		"j"		"k"		"l"		CU. YDS.	LBS.
													Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	LONG	SHORT			

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				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINF. STEEL		BOTTOM SLAB DISTRIBUTION REINF. STEEL		SIDE WALL DISTRIBUTION REINF. STEEL		INTERIOR WALL DISTRIBUTION REINF. STEEL		CLASS "S" CONCRETE REINFORCING STEEL (GR 60)		
											SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH		SIZE	SPACING
D	S	H	T	B	C	W	OW	OH	SL	LENGTH = OW - 4" + BENDS	LENGTH = OW - 4" + BENDS	LENGTH = OH - 4"	LENGTH = OH - 4"	LENGTH = SL	LENGTH = SL	LENGTH = SL	LENGTH = SL																

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINF. STEEL		BOTTOM SLAB DISTRIBUTION REINF. STEEL		SIDE WALL DISTRIBUTION REINF. STEEL		INTERIOR WALL DISTRIBUTION REINF. STEEL		CLASS "S" CONCRETE REINFORCING STEEL (GR 60)																	
											SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH		SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH									
D	S	H	T	B	C	W	OW	OH	SL	LENGTH = OW - 4" + BENDS	LENGTH = OW - 4" + BENDS	LENGTH = OH - 4"	LENGTH = OH - 4"	LENGTH = SL	LENGTH = SL	LENGTH = SL	LENGTH = SL																															
A	5	9	6	11	11	6.5	8	39'-1"	7'-10"	90	4	38'-9"	7	39'-8"	4	38'-9"	16	67	4	38'-9"	4	39'-7"	4	38'-9"	12	90	5	7	308	7'-6"	4	12	540	7'-6"	4	10	95	4	10	95	4	12	12	4	12	36	300.51	35991

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 Fin Dia. Table

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

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.

TABULAR DATA BY: VD DATE: 08/28/2020
 CHECKED BY: DLT DATE: 09/17/2020

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

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.

SHEET 1 OF 2
 DETAILS OF R.C. BOX CULVERT
 QUADRUPLE BARREL BOX CULVERT
 Sta. 114+52

SPECIAL DETAILS





DIGITALLY SIGNED 6/30/23

TABULAR DATA BY: VD DATE: 08/28/2020
 CHECKED BY: DLT DATE: 09/17/2020

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

Size	Length
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

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

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		CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B				
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
39'-1"	6'-0"	0'-9"	0'-8"	0	3:1	38'-0"	2'-0"	6'-10"	2'-0"	30	30	3'-2"	3'-4 7/8"	3'-4 7/8"	0'-3 1/4"	0'-3 1/4"	16'-6"	16'-6"	20'-0 3/8"	20'-0 3/8"	11.29	876

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.	OVERALL WIDTH	OVERALL HEIGHT	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINFORCING STEEL		BOTTOM SLAB DISTRIBUTION REINFORCING STEEL		SIDE WALL DISTRIBUTION REINFORCING STEEL		INTERIOR WALL DISTRIBUTION REINFORCING STEEL		CLASS "S" CONCRETE (Includes HDWL.)	REINFORCING STEEL (GR 60) (Includes HDWL.)							
													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	LENGTHS VARY	NO. REQ'D			SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																			CU. YDS.	LBS.									
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																																

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.	OVERALL WIDTH	OVERALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINFORCING STEEL		BOTTOM SLAB DISTRIBUTION REINFORCING STEEL		SIDE WALL DISTRIBUTION REINFORCING STEEL		INTERIOR WALL DISTRIBUTION REINFORCING STEEL												
											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	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D			
D	S	H	T	B	C	W	OW	OH	SL	LENGTH = OW - 4" + BENDS				LENGTH = OW - 4" + BENDS				LENGTH = OH - 4"		LENGTH = OH - 4"		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL													
HDWL DEPTH	ADDITIONAL REINF. FOR HDWL								*h* HDWL BARS																																
HD	LBS.	SIZE	Y	LENGTH	NO. REQ'D																																				
3"	52	4	0'-10"	1'-10"	4C																																				

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
TOTAL	
0.36	101

SHEET 2 OF 2
 DETAILS OF R.C. BOX CULVERT
 QUADRUPLE BARREL BOX CULVERT
 Sta. I14+52

SPECIAL DETAILS

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.
 Unless otherwise noted, all dimensions are in inches.



MID-SECTION

R.C. BOX SECTION		DESIGN FILL DEPTH (FT.)		CLEAR SPAN (FT.)		CLEAR HEIGHT (FT.)		TOP SLAB THK.		BOTTOM SLAB THK.		SIDE WALL THK.		INTERIOR WALL THK.		OVER ALL WIDTH		OVER ALL HEIGHT		SECTION LENGTH (FT.)		TOP SLAB REINFORCING STEEL		BOTTOM SLAB REINFORCING STEEL		SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINF. STEEL		BOTTOM SLAB DISTRIBUTION REINF. STEEL		SIDE WALL DISTRIBUTION REINF. STEEL		INTERIOR WALL DISTRIBUTION REINF. STEEL					
D	S	H	T	B	C	W	OW	OH	SL	LENGTH = OW - 4" + BENDS				LENGTH = OW - 4" + BENDS				LENGTH = OH - 4"		LENGTH = OH - 4"		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL									
SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L				
5	8	6	9	7	8	26'-6"	7'-6"	93	4	26'-2"	7	26'-7"	6	26'-2"	16	69	4	26'-2"	4	26'-6"	4	26'-2"	13	85	4	5.5	404	7'-2"	4	12	372	7'-2"	4	12	53	4	12	53	4	12	24

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
188.58	25148

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		BOTTOM SLAB REINFORCING STEEL		SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINFORCING STEEL		BOTTOM SLAB DISTRIBUTION REINFORCING STEEL		SIDE WALL DISTRIBUTION REINFORCING STEEL		INTERIOR WALL DISTRIBUTION REINFORCING STEEL		
D	S	H	T	B	C	W	OW	OH	SL	LENGTH = OW - 4" + BENDS				LENGTH = OW - 4" + BENDS				LENGTH = OH - 4"		LENGTH = OH - 4"		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL		LENGTH = SL				
SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	SIZE	L	

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
0.24	64
TOTAL	
0.24	64

INLET SKEWED END SECTION

SK	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				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL			INTERIOR WALL REINFORCING STEEL			TOP SLAB DISTRIBUTION REINFORCING STEEL			BOTTOM SLAB DISTRIBUTION REINFORCING STEEL			SIDE WALL DISTRIBUTION REINFORCING STEEL			INTERIOR WALL DISTRIBUTION REINFORCING STEEL			
													"a"	"c"	"d"	"f"	"g"	"h"	"i"	"j"	"k"	"l"	"m"	"n"	"o"	"p"	"q"	"r"	"s"	"t"	"u"	"v"	"w"	"x"	"y"	"z"			
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	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	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D

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

INLET 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		CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)	
								AT HDWL	AT WING END			WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B			
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
26'-6"	6'-0"	0'-9"	0'-8"	0	3:1	25'-4"	2'-0"	6'-10"	2'-0"	30	30	3'-2"	3'-4 7/8"	3'-4 7/8"	0'-3 1/4"	0'-3 1/4"	16'-6"	16'-6"	19'-11 3/8"	19'-11 3/8"	9.22	858

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"

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.

TABULAR DATA BY: VD DATE: 08/28/2020
 CHECKED BY: DLT DATE: 09/17/2020



DIGITALLY SIGNED 6/30/23

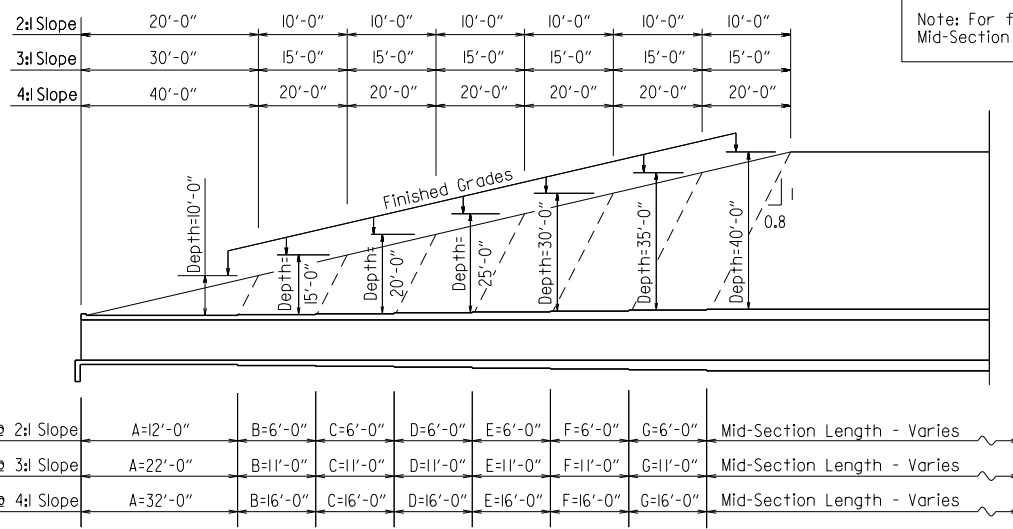
Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

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.

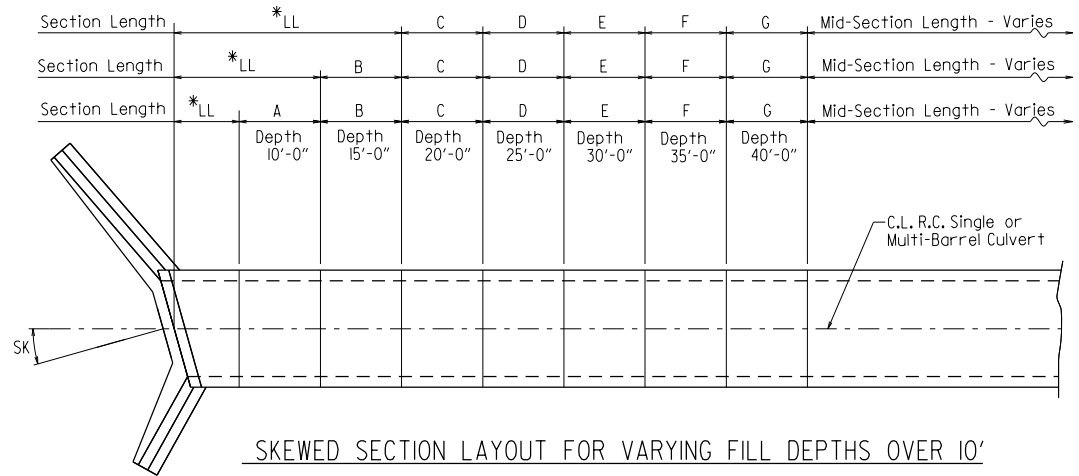


DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	14	57
SPECIAL DETAILS						



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

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



LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'
Lengths for Non-Skewed Boxes

SKewed SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

GENERAL NOTES:

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

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

LIVE LOADING: HL-93

All concrete shall be Class 5 with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have 3/8" 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.

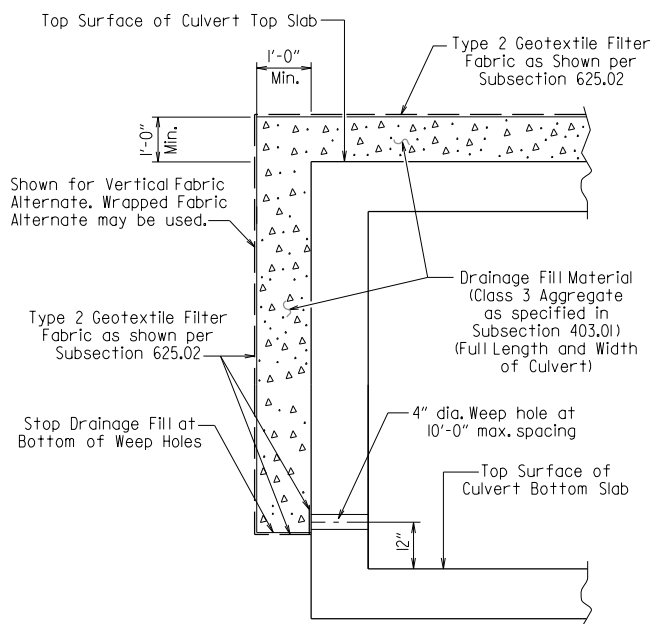
Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

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 5 Concrete.

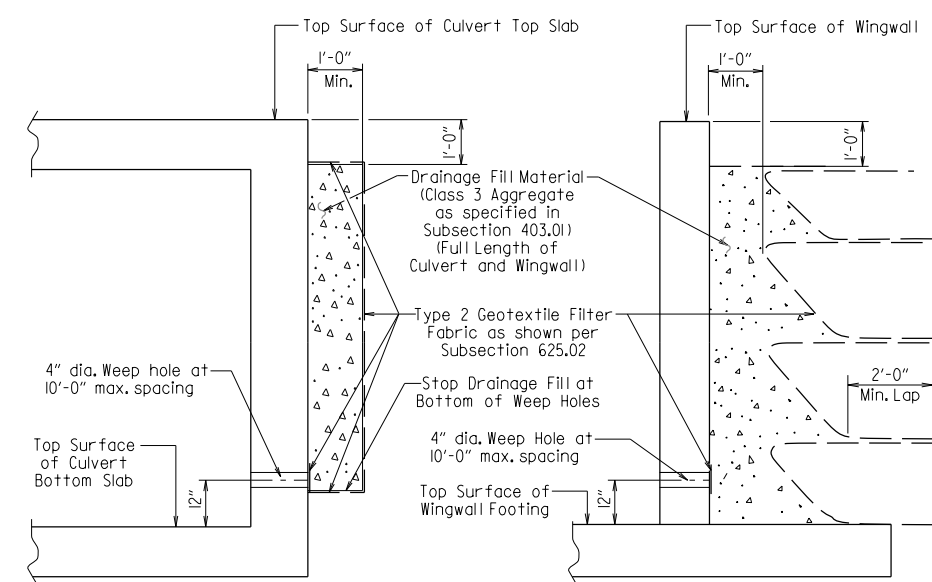
When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class 5 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.



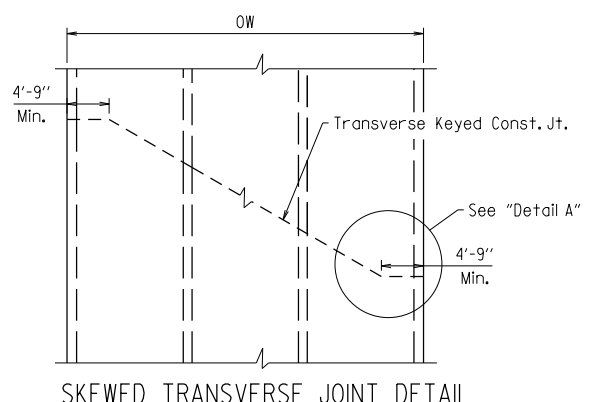
CULVERT DRAINAGE DETAIL FOR ROCK FILL

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



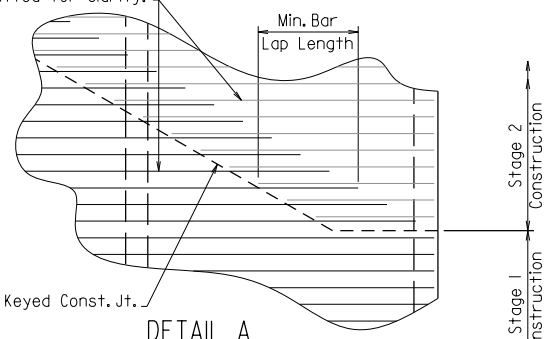
VERTICAL FABRIC ALTERNATE (Shown for Culvert, Similar for Wingwall)
WRAPPED FABRIC ALTERNATE (Shown for Wingwall, Similar for Culvert)
WINGWALL & CULVERT DRAINAGE DETAIL

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



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.

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

SPECIAL DETAILS



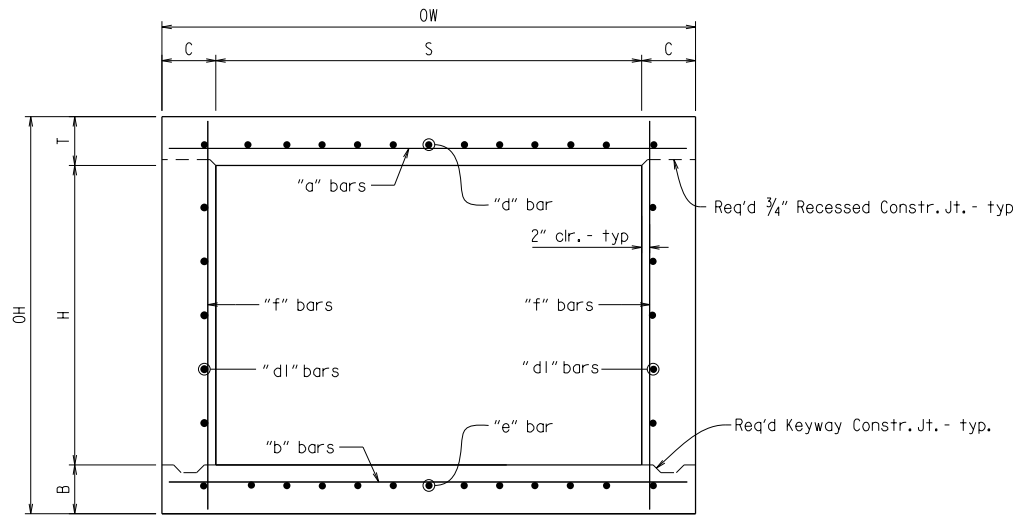
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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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SPECIAL DETAILS						

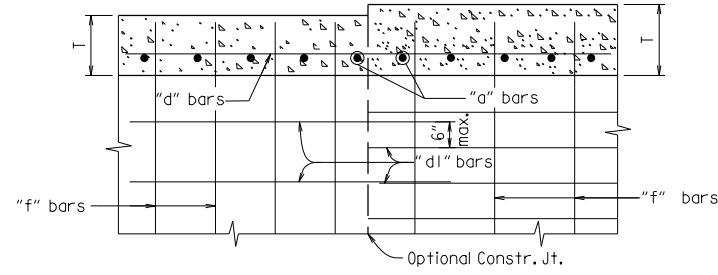


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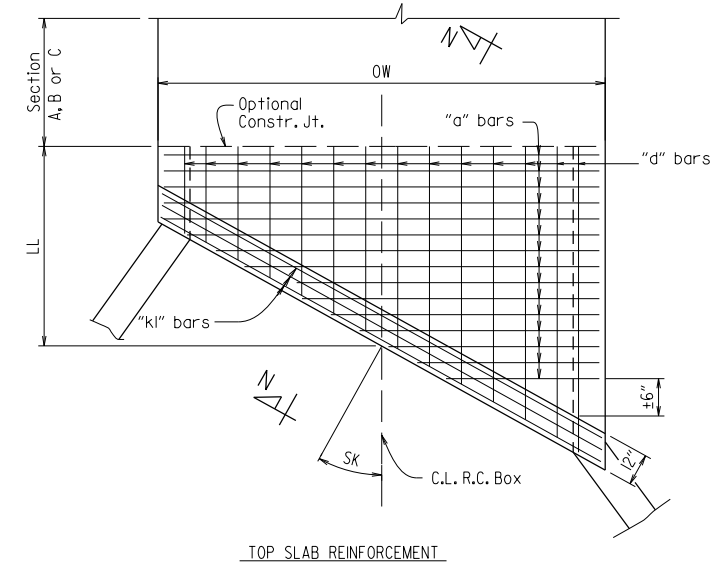
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



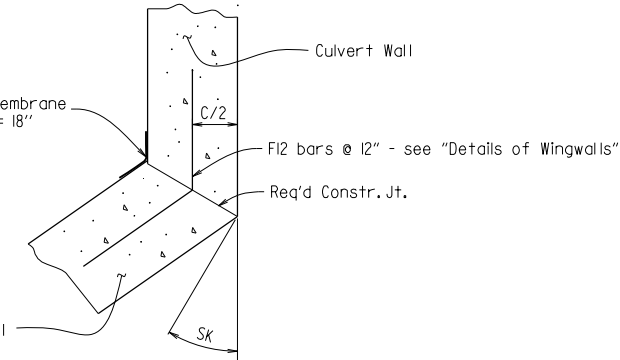
TYPICAL SECTION M-M



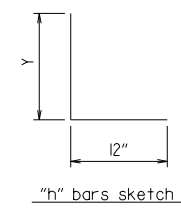
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



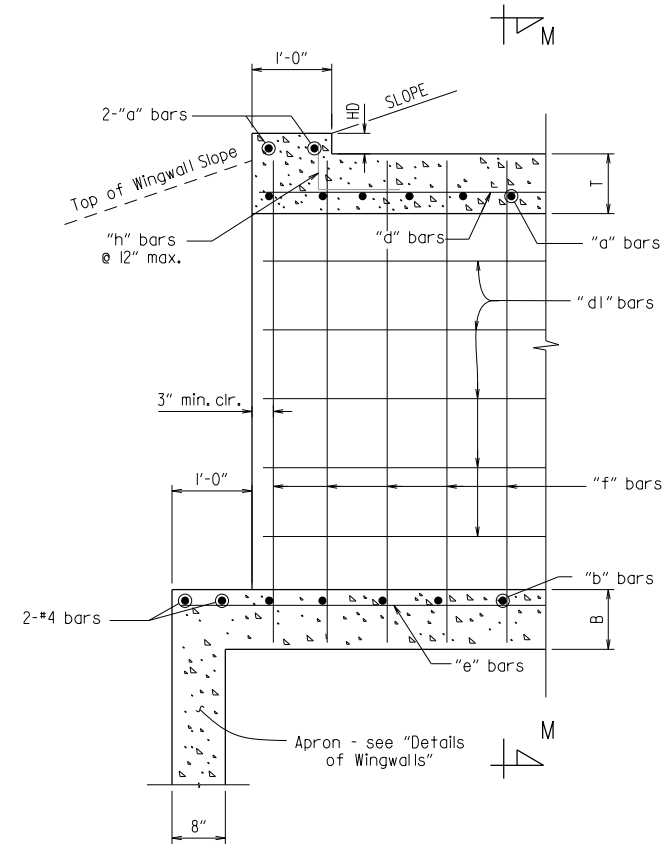
TOP SLAB REINFORCEMENT



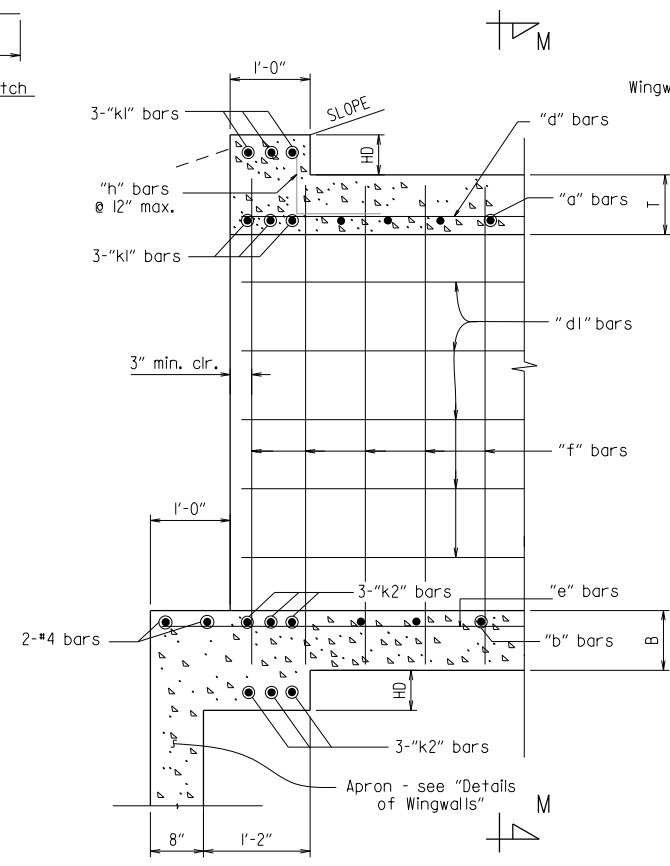
WINGWALL ATTACHMENT
See "Details of Wingwalls" for additional information and wingwall details.



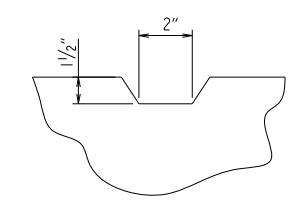
"h" bars sketch



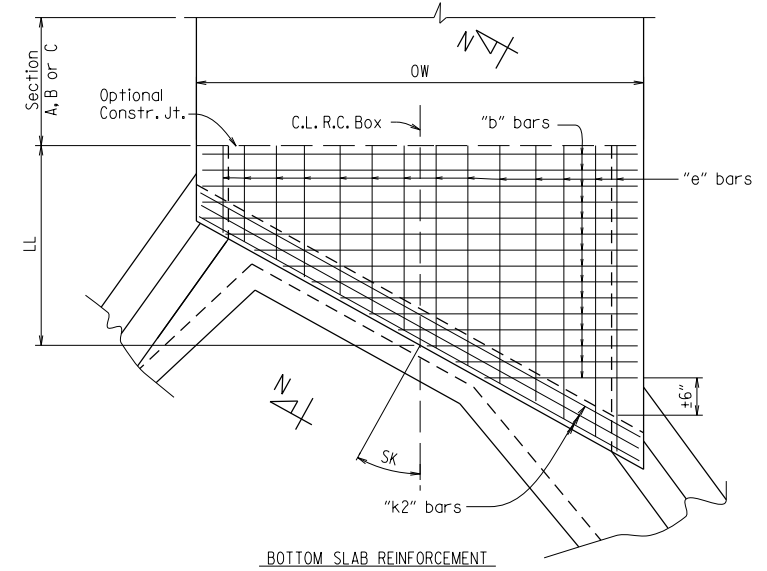
PART LONGITUDINAL SECTION
(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N
(Skewed Ends)



TYPICAL KEYWAY DETAIL
(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKewed END SECTION DETAILS

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



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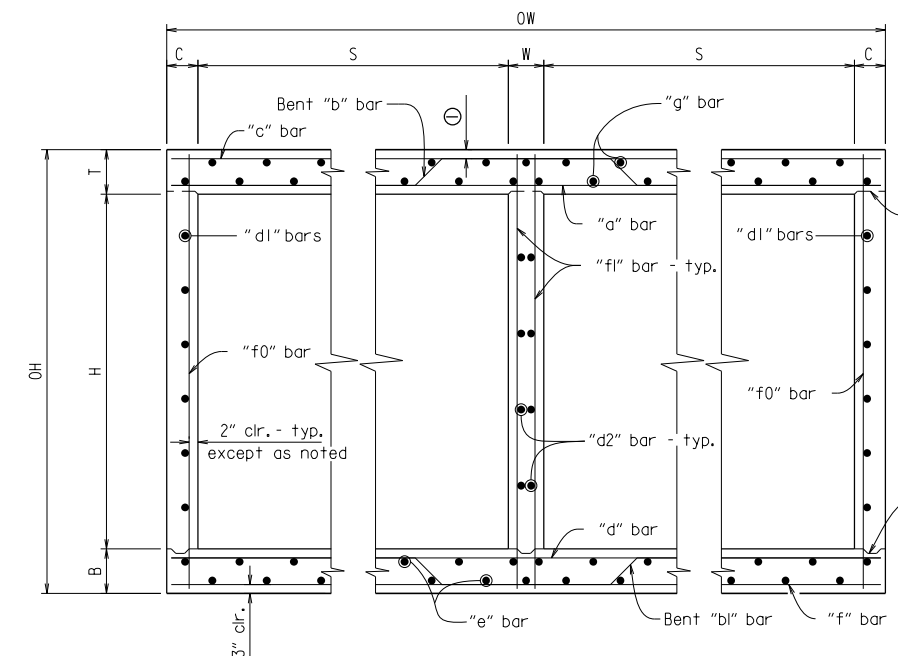
SPECIAL DETAILS



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

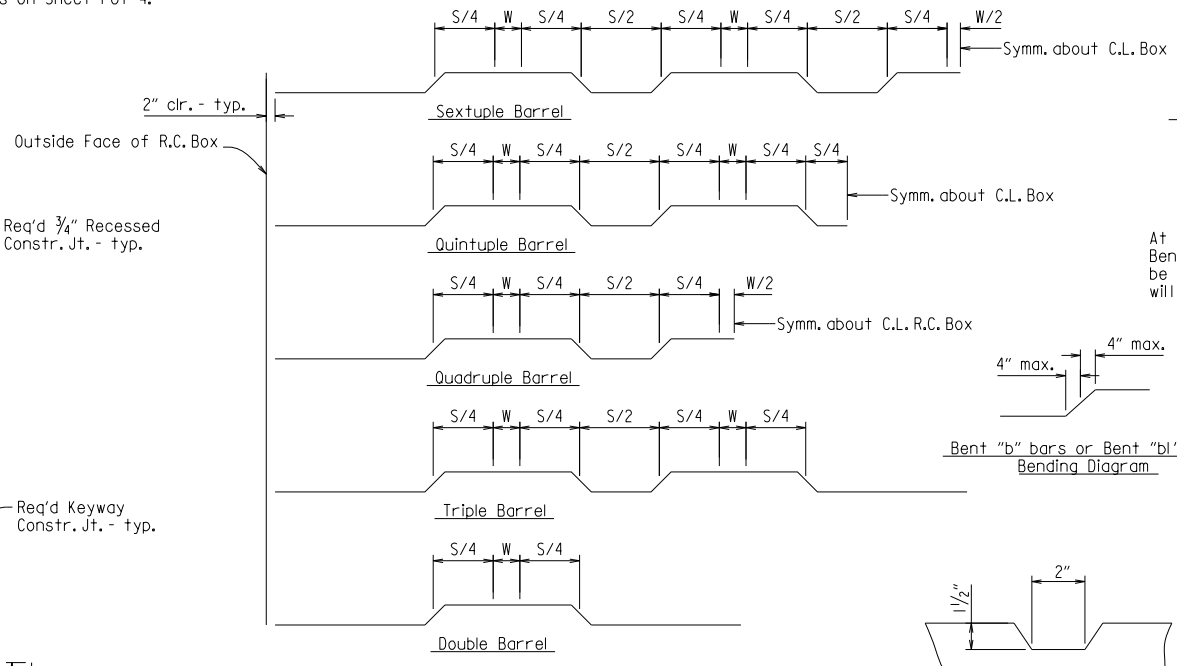
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



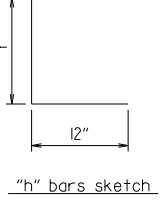
TYPICAL SECTION M-M

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

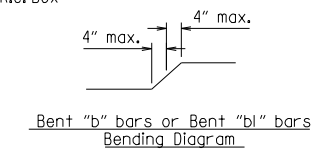
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



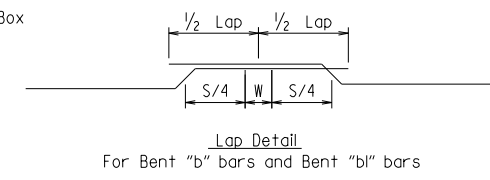
Bent "b" bars or Bent "b1" bars sketch



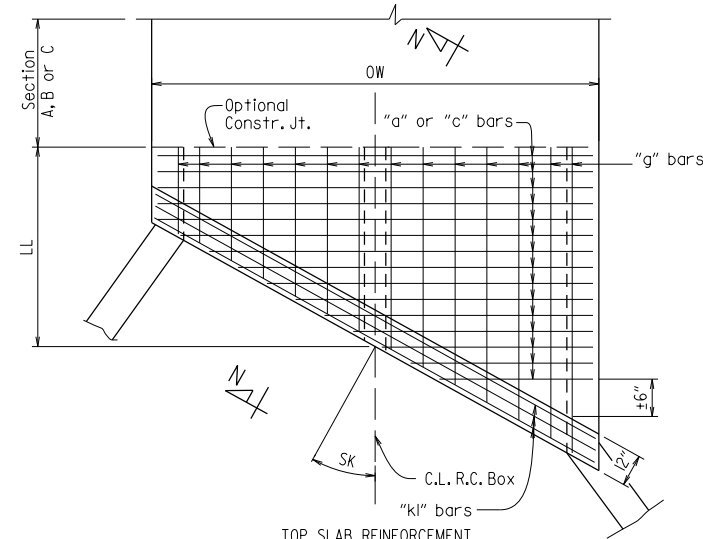
"h" bars sketch



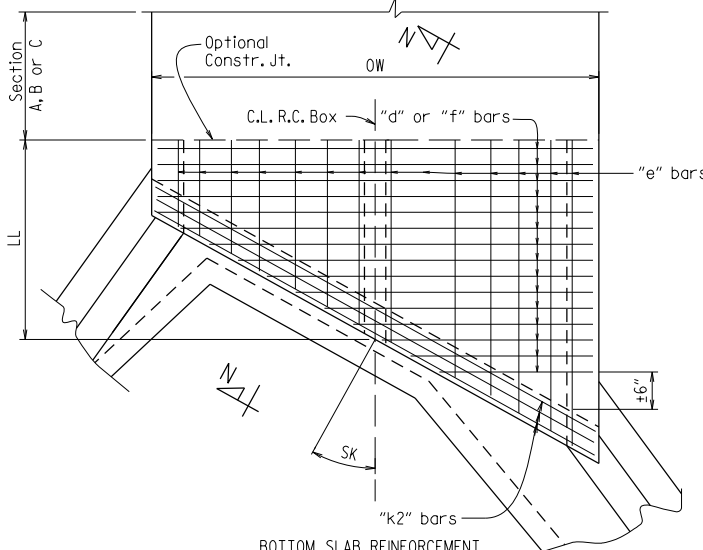
TYPICAL KEYWAY DETAIL (All Construction Joints)



At the Contractor's option in lieu of providing Bent "b" or Bent "b1" 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 "b1" bar.

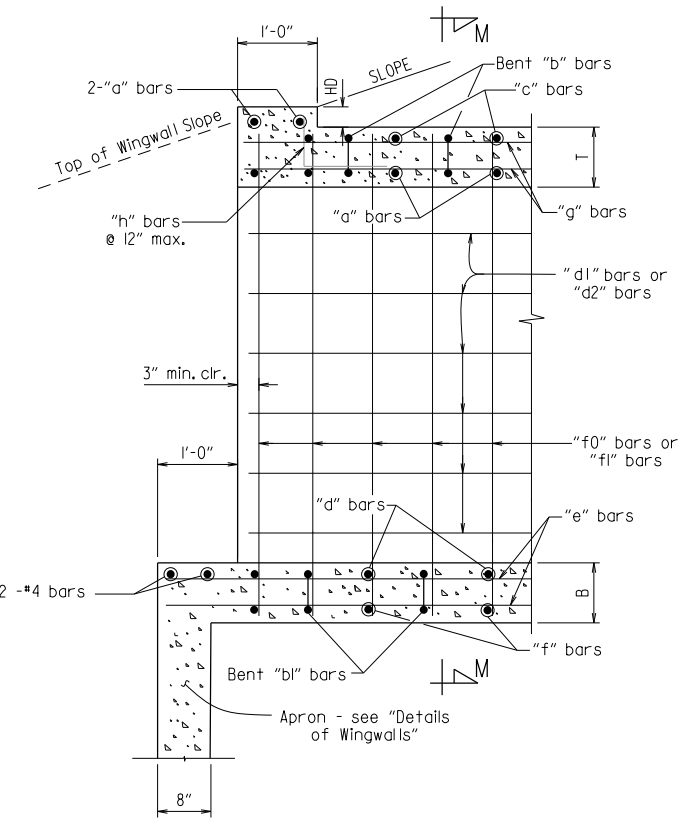


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



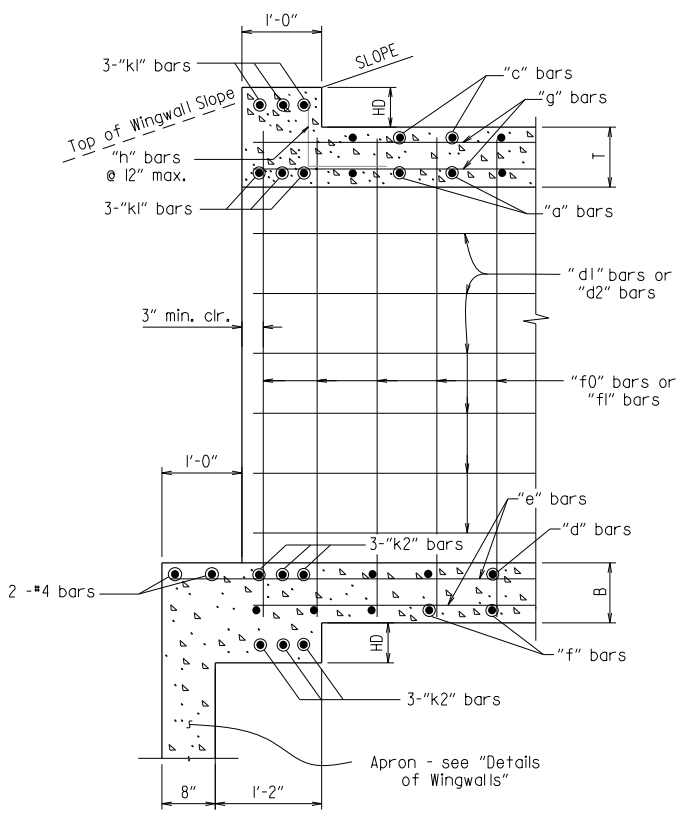
BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

SKewed END SECTION DETAILS



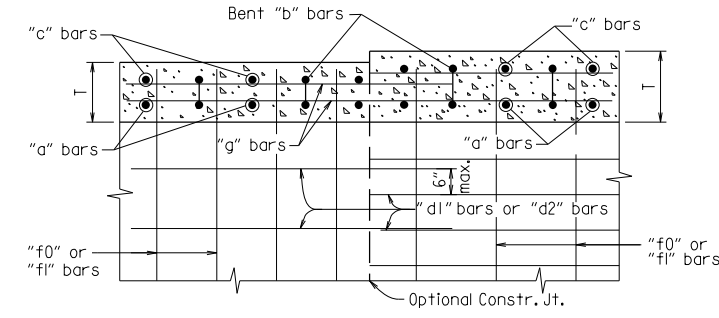
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



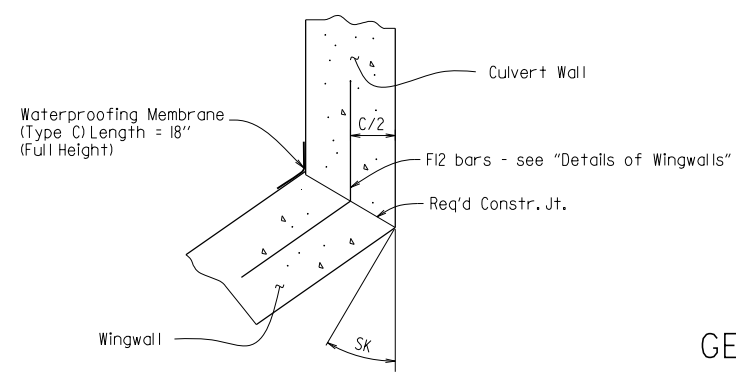
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



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

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



WINGWALL ATTACHMENT

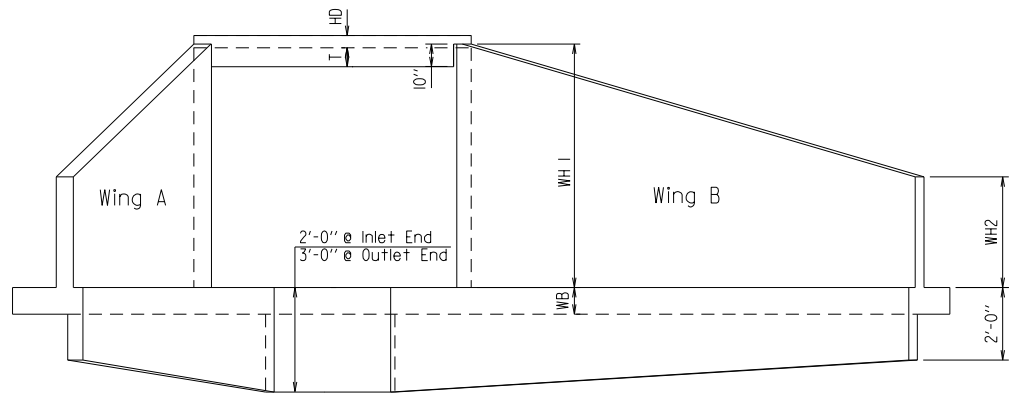
See "Details of Wingwalls" for additional information and wingwall details.

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

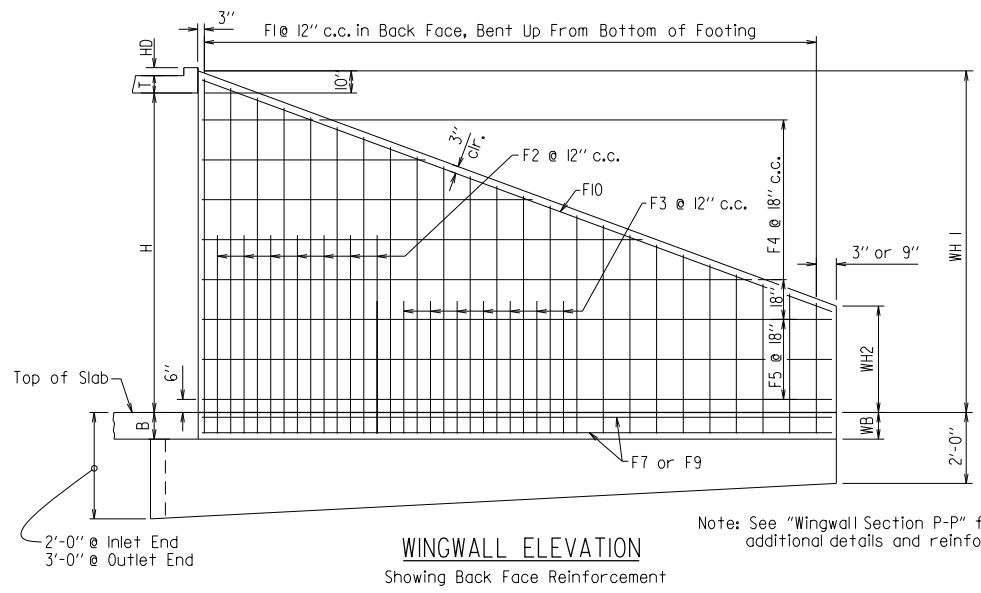


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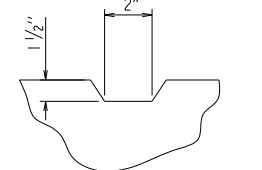
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SPECIAL DETAILS						



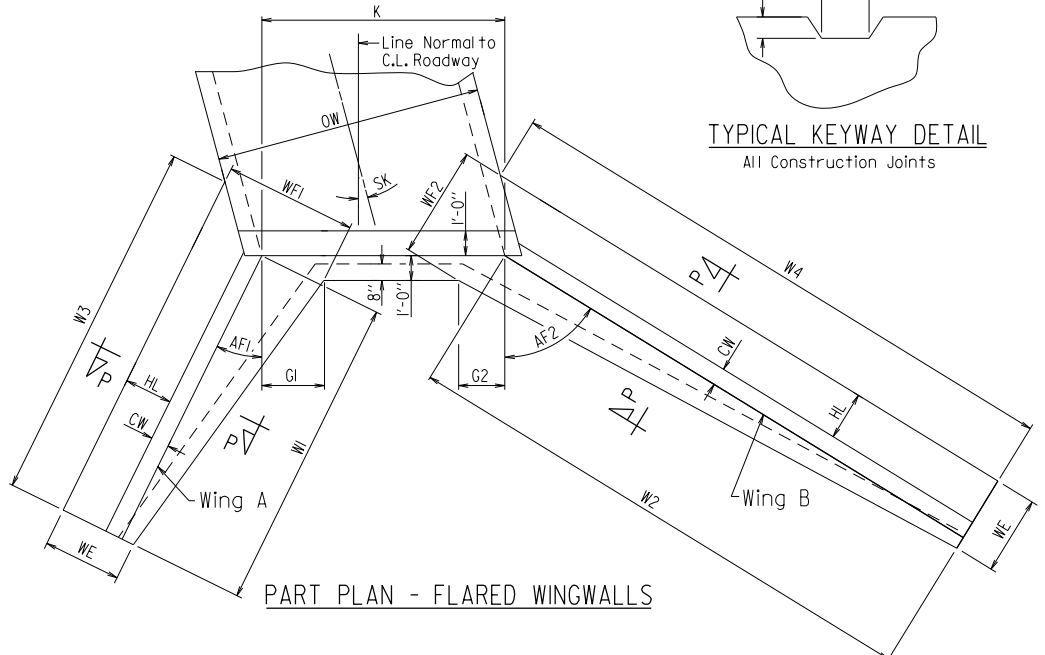
END ELEVATION
Flared Wingwalls Shown



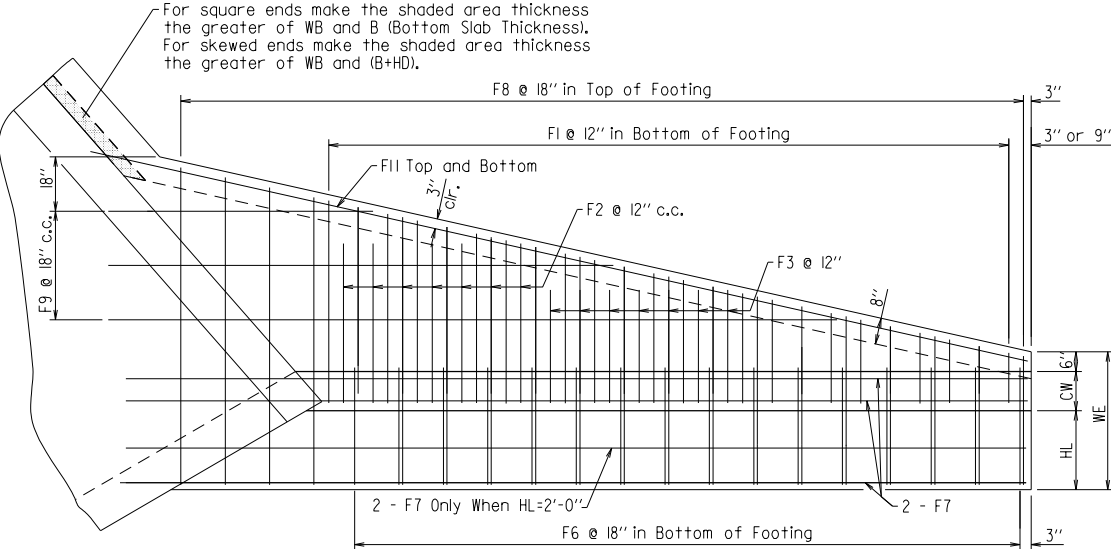
WINGWALL ELEVATION
Showing Back Face Reinforcement



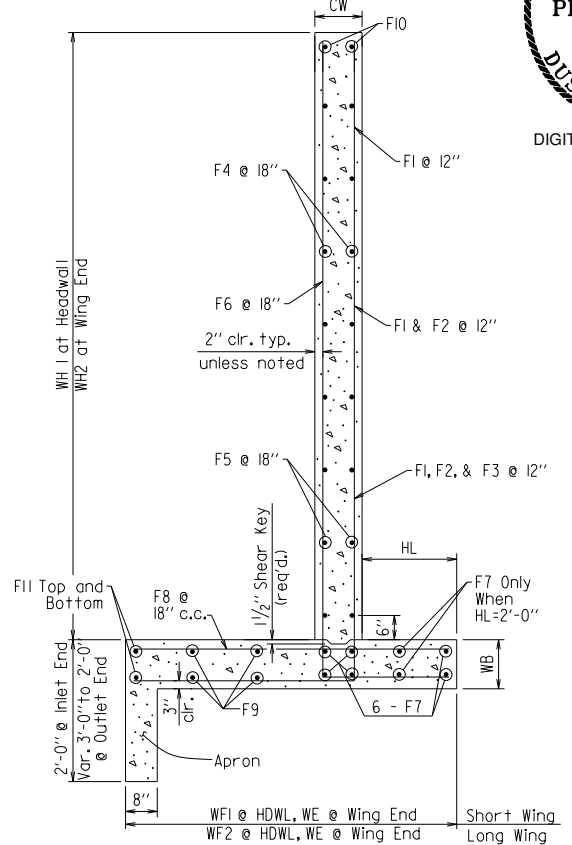
TYPICAL KEYWAY DETAIL
All Construction Joints



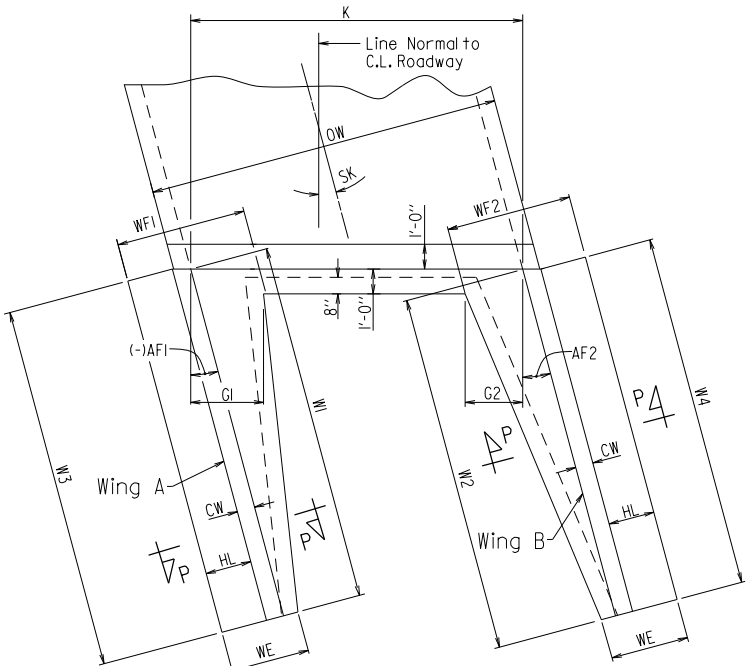
PART PLAN - FLARED WINGWALLS



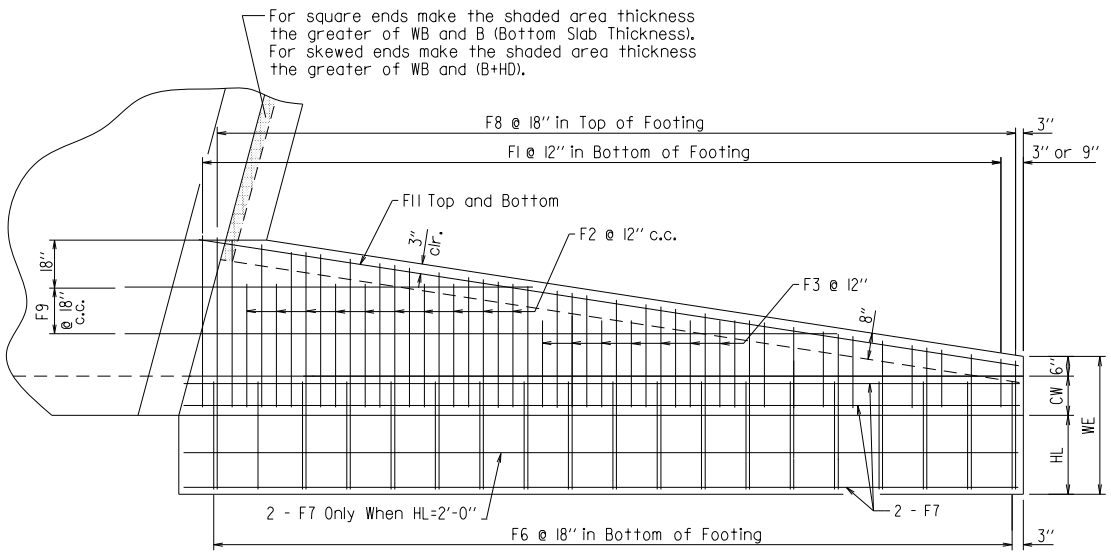
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



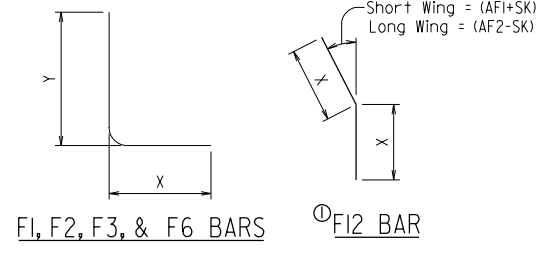
WINGWALL SECTION P-P



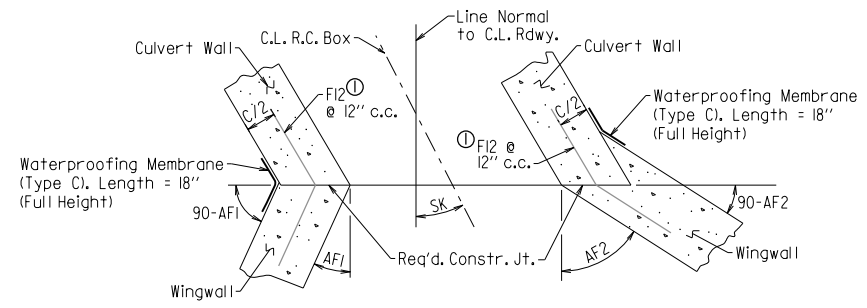
PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



F12 is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS
Flared Wingwalls Shown

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

6/29/2023 12:09:30 PM
 DKAdcock
 WORKSPACE: AHTD
 L:\2017\071622 - 080616 PollCreek Str-Apprs\Drawings\080616_SD_BOX_CULVERT_GENERAL.dgn
 REVISED DATE:



DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	18	57

TEMPORARY EROSION CONTROL DETAILS



HWY. 124

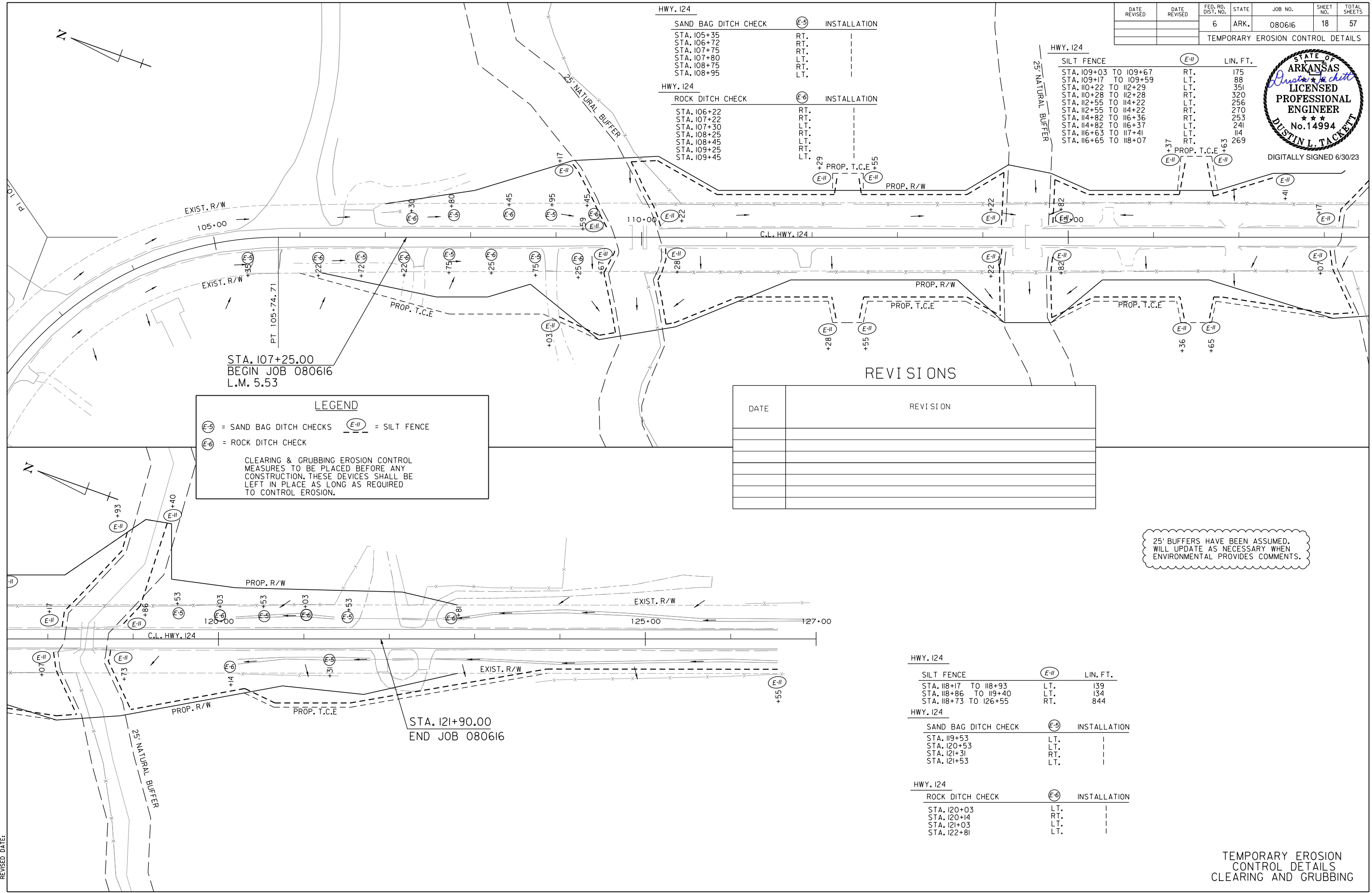
SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 105+35	RT.	---
STA. 106+72	RT.	---
STA. 107+75	RT.	---
STA. 107+80	LT.	---
STA. 108+75	RT.	---
STA. 108+95	LT.	---

HWY. 124

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 106+22	RT.	---
STA. 107+22	RT.	---
STA. 107+30	LT.	---
STA. 108+25	RT.	---
STA. 108+45	LT.	---
STA. 109+25	RT.	---
STA. 109+45	LT.	---

HWY. 124

SILT FENCE	(E-11)	LIN. FT.
STA. 109+03 TO 109+67	RT.	175
STA. 109+17 TO 109+59	LT.	88
STA. 110+22 TO 112+29	LT.	351
STA. 110+28 TO 112+28	RT.	320
STA. 112+55 TO 114+22	LT.	256
STA. 112+55 TO 114+22	RT.	270
STA. 114+82 TO 116+36	RT.	253
STA. 114+82 TO 116+37	LT.	241
STA. 116+63 TO 117+41	LT.	114
STA. 116+65 TO 118+07	RT.	269



LEGEND

(E-5) = SAND BAG DITCH CHECKS (E-11) = SILT FENCE
(E-6) = ROCK DITCH CHECK

CLEARING & GRUBBING EROSION CONTROL MEASURES TO BE PLACED BEFORE ANY CONSTRUCTION. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

25' BUFFERS HAVE BEEN ASSUMED. WILL UPDATE AS NECESSARY WHEN ENVIRONMENTAL PROVIDES COMMENTS.

HWY. 124

SILT FENCE	(E-11)	LIN. FT.
STA. 118+17 TO 118+93	LT.	139
STA. 118+86 TO 119+40	LT.	134
STA. 118+73 TO 126+55	RT.	844

HWY. 124

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 119+53	LT.	---
STA. 120+53	LT.	---
STA. 121+31	RT.	---
STA. 121+53	LT.	---

HWY. 124

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 120+03	LT.	---
STA. 120+14	RT.	---
STA. 121+03	LT.	---
STA. 122+81	LT.	---

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

6/29/2023 12:09:31 PM
DKAdcock
WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	19	57

TEMPORARY EROSION CONTROL DETAILS



HWY. 124

SILT FENCE	(E-11)	LIN. FT.
STA. 109+03 TO 109+70	RT.	RETAIN
STA. 109+70 TO 109+59	LT.	RETAIN
STA. 109+70 TO 110+29	RT.	192
STA. 110+22 TO 112+29	LT.	RETAIN
STA. 110+29 TO 112+28	RT.	RETAIN
STA. 112+55 TO 114+21	LT.	RETAIN
STA. 112+55 TO 114+21	RT.	RETAIN
STA. 114+21 TO 114+81	RT.	143
STA. 114+81 TO 116+36	LT.	RETAIN
STA. 114+82 TO 116+37	RT.	RETAIN
STA. 116+63 TO 117+41	LT.	RETAIN
STA. 116+65 TO 118+07	RT.	RETAIN

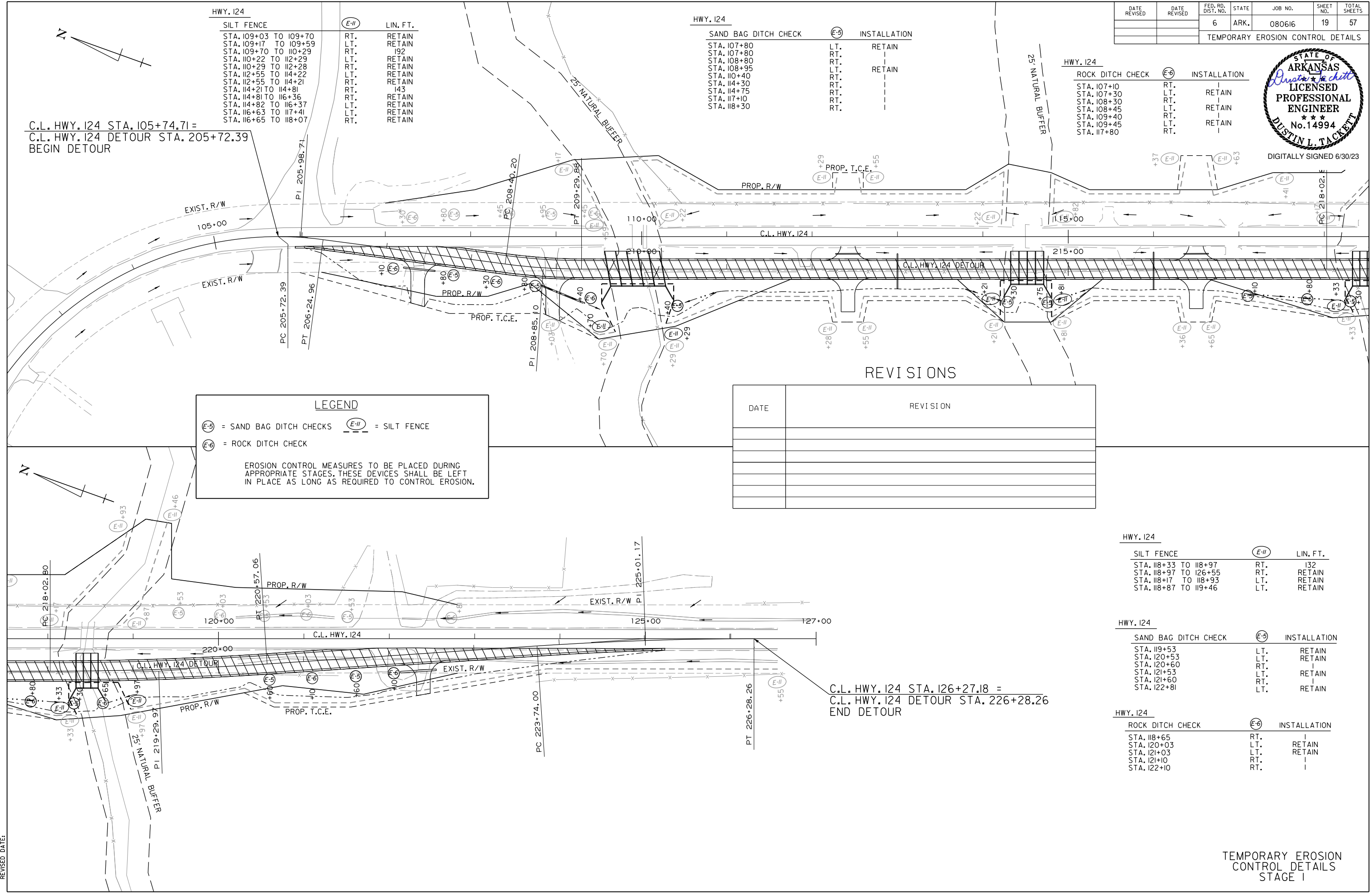
HWY. 124

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 107+80	LT.	RETAIN
STA. 107+80	RT.	RETAIN
STA. 108+80	LT.	RETAIN
STA. 108+95	RT.	RETAIN
STA. 110+40	LT.	RETAIN
STA. 114+30	RT.	RETAIN
STA. 114+75	LT.	RETAIN
STA. 117+10	RT.	RETAIN
STA. 118+30	LT.	RETAIN

HWY. 124

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 107+10	RT.	RETAIN
STA. 107+30	LT.	RETAIN
STA. 108+30	RT.	RETAIN
STA. 108+45	LT.	RETAIN
STA. 109+40	RT.	RETAIN
STA. 109+45	LT.	RETAIN
STA. 117+80	RT.	RETAIN

C.L. HWY. 124 STA. 105+74.71 =
C.L. HWY. 124 DETOUR STA. 205+72.39
BEGIN DETOUR



LEGEND

(E-5) = SAND BAG DITCH CHECKS (E-11) = SILT FENCE
(E-6) = ROCK DITCH CHECK

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

HWY. 124

SILT FENCE	(E-11)	LIN. FT.
STA. 118+33 TO 118+97	RT.	132
STA. 118+97 TO 126+55	RT.	RETAIN
STA. 118+17 TO 118+93	LT.	RETAIN
STA. 118+87 TO 119+46	LT.	RETAIN

HWY. 124

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 119+53	LT.	RETAIN
STA. 120+53	LT.	RETAIN
STA. 120+60	RT.	RETAIN
STA. 121+53	LT.	RETAIN
STA. 121+60	RT.	RETAIN
STA. 122+81	LT.	RETAIN

HWY. 124

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 118+65	RT.	RETAIN
STA. 120+03	LT.	RETAIN
STA. 121+03	RT.	RETAIN
STA. 121+10	LT.	RETAIN
STA. 122+10	RT.	RETAIN

C.L. HWY. 124 STA. 126+27.18 =
C.L. HWY. 124 DETOUR STA. 226+28.26
END DETOUR

TEMPORARY EROSION CONTROL DETAILS
STAGE I

6/29/2023 12:09:31 PM
 DKAdcock
 WORKSPACE: AHTD
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 REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	20	57

TEMPORARY EROSION CONTROL DETAILS



HWY. 124

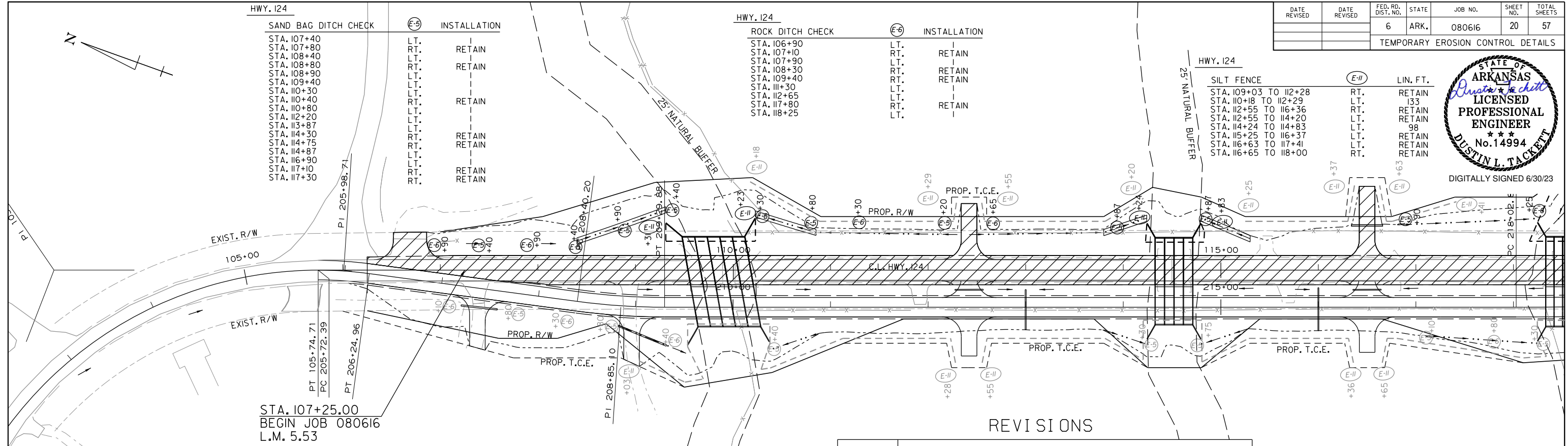
SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 107+40	LT.	RETAIN
STA. 107+80	LT.	RETAIN
STA. 108+40	LT.	RETAIN
STA. 108+80	LT.	RETAIN
STA. 108+90	LT.	RETAIN
STA. 109+40	LT.	RETAIN
STA. 110+30	LT.	RETAIN
STA. 110+40	RT.	RETAIN
STA. 110+80	RT.	RETAIN
STA. 112+20	LT.	RETAIN
STA. 113+87	LT.	RETAIN
STA. 114+30	RT.	RETAIN
STA. 114+75	RT.	RETAIN
STA. 114+87	LT.	RETAIN
STA. 116+90	LT.	RETAIN
STA. 117+10	RT.	RETAIN
STA. 117+30	RT.	RETAIN

HWY. 124

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 106+90	LT.	RETAIN
STA. 107+10	RT.	RETAIN
STA. 107+90	LT.	RETAIN
STA. 108+30	RT.	RETAIN
STA. 109+40	RT.	RETAIN
STA. 111+30	LT.	RETAIN
STA. 112+65	LT.	RETAIN
STA. 117+80	RT.	RETAIN
STA. 118+25	LT.	RETAIN

HWY. 124

SILT FENCE	(E-11)	LIN. FT.
STA. 109+03 TO 112+28	RT.	RETAIN
STA. 110+18 TO 112+29	LT.	133
STA. 112+55 TO 116+36	RT.	RETAIN
STA. 112+55 TO 114+20	LT.	RETAIN
STA. 114+24 TO 114+83	LT.	98
STA. 115+25 TO 116+37	LT.	RETAIN
STA. 116+63 TO 117+41	LT.	RETAIN
STA. 116+65 TO 118+00	RT.	RETAIN



STA. 107+25.00
BEGIN JOB 080616
L.M. 5.53

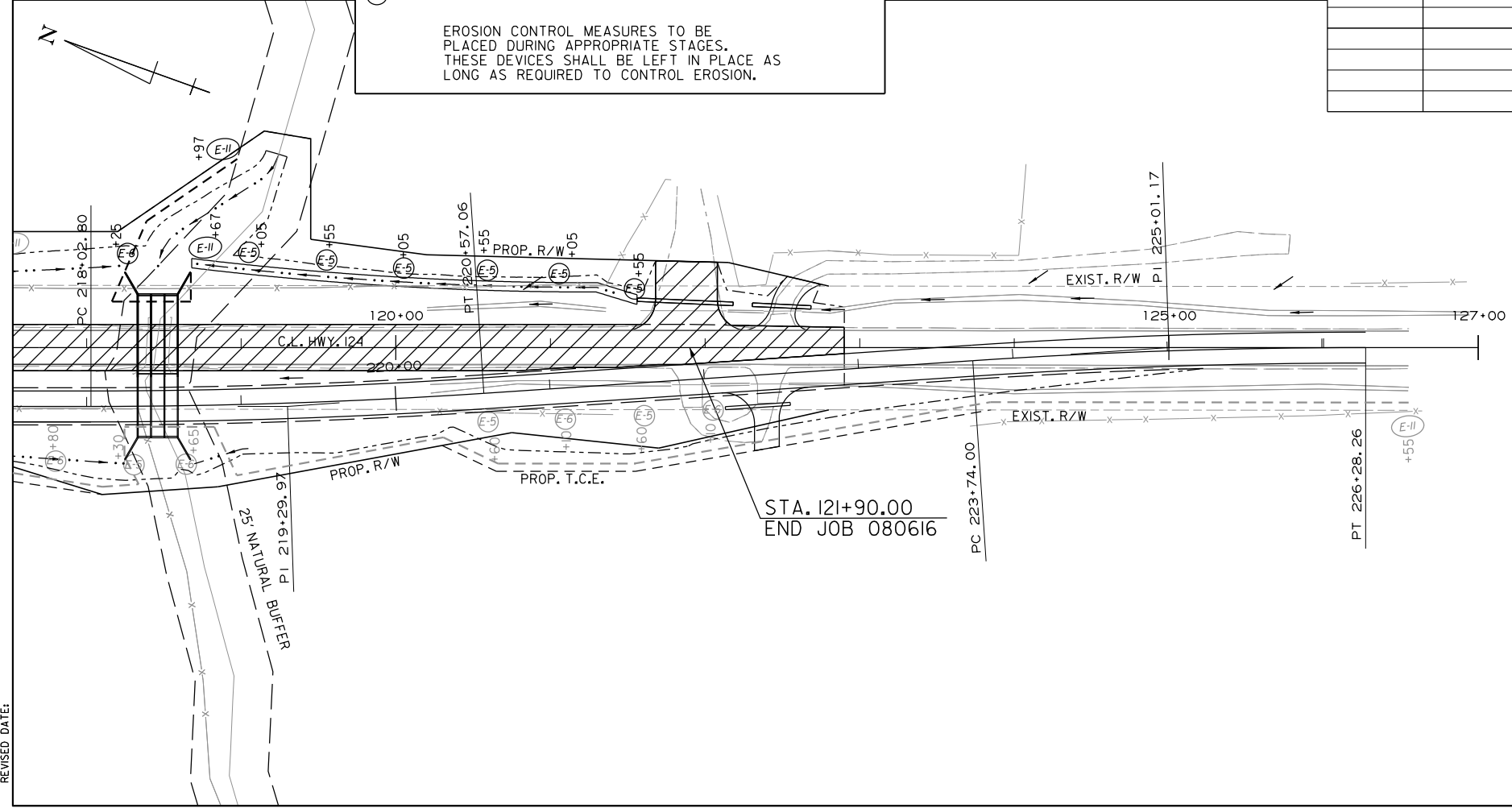
LEGEND

(E-5) = SAND BAG DITCH CHECKS (E-11) = SILT FENCE
(E-3) = FILTER SOCK

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION



HWY. 124

SILT FENCE	(E-11)	LIN. FT.
STA. 118+97 TO 118+67	LT.	198
STA. 118+00 TO 126+55	RT.	RETAIN

HWY. 124

SAND BAG DITCH CHECK	(E-5)	INSTALLATION
STA. 118+30	RT.	RETAIN
STA. 119+05	LT.	RETAIN
STA. 119+55	LT.	RETAIN
STA. 120+05	LT.	RETAIN
STA. 120+55	LT.	RETAIN
STA. 120+60	RT.	RETAIN
STA. 121+05	LT.	RETAIN
STA. 121+55	LT.	RETAIN
STA. 121+60	RT.	RETAIN

HWY. 124

ROCK DITCH CHECK	(E-6)	INSTALLATION
STA. 118+65	RT.	RETAIN
STA. 121+10	RT.	RETAIN
STA. 122+10	RT.	RETAIN

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

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 DKAdcock
 WORKSPACE: AHTD
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 REVISION DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	21	57

TEMPORARY EROSION CONTROL DETAILS



HWY. 124

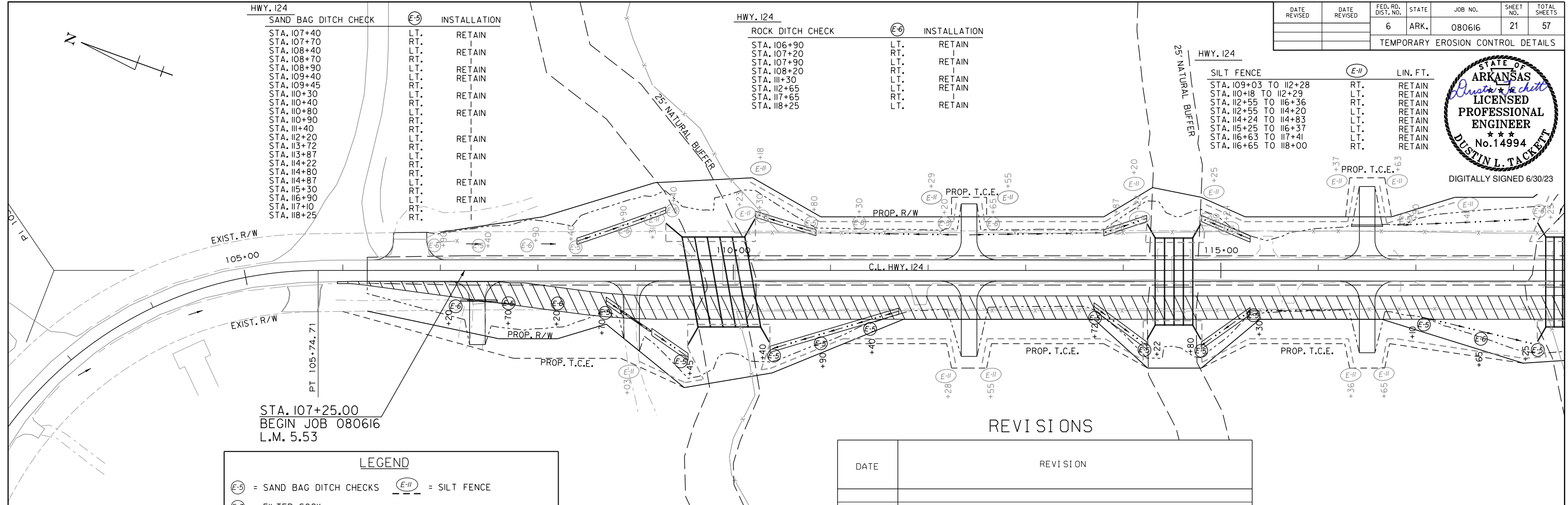
SAND BAG DITCH CHECK	INSTALLATION
STA. 107+40	LT. RETAIN
STA. 107+70	RT. RETAIN
STA. 108+40	LT. RETAIN
STA. 108+70	RT. RETAIN
STA. 108+90	LT. RETAIN
STA. 109+40	RT. RETAIN
STA. 109+45	LT. RETAIN
STA. 110+30	RT. RETAIN
STA. 110+40	LT. RETAIN
STA. 110+80	RT. RETAIN
STA. 110+90	LT. RETAIN
STA. 111+40	RT. RETAIN
STA. 112+20	LT. RETAIN
STA. 113+72	RT. RETAIN
STA. 113+87	LT. RETAIN
STA. 114+22	RT. RETAIN
STA. 114+80	LT. RETAIN
STA. 114+87	RT. RETAIN
STA. 115+30	LT. RETAIN
STA. 116+90	RT. RETAIN
STA. 117+10	LT. RETAIN
STA. 118+25	RT. RETAIN

HWY. 124

ROCK DITCH CHECK	INSTALLATION
STA. 106+90	LT. RETAIN
STA. 107+20	RT. RETAIN
STA. 107+90	LT. RETAIN
STA. 108+20	RT. RETAIN
STA. 111+30	LT. RETAIN
STA. 112+65	RT. RETAIN
STA. 117+65	LT. RETAIN
STA. 118+25	RT. RETAIN

HWY. 124

SILT FENCE	INSTALLATION	LIN. FT.
STA. 109+03 TO 112+28	RT.	RETAIN
STA. 110+18 TO 112+29	LT.	RETAIN
STA. 112+55 TO 116+36	RT.	RETAIN
STA. 112+55 TO 114+20	LT.	RETAIN
STA. 114+24 TO 114+83	LT.	RETAIN
STA. 115+25 TO 116+37	LT.	RETAIN
STA. 116+63 TO 117+41	LT.	RETAIN
STA. 116+65 TO 118+00	RT.	RETAIN



STA. 107+25.00
BEGIN JOB 080616
L.M. 5.53

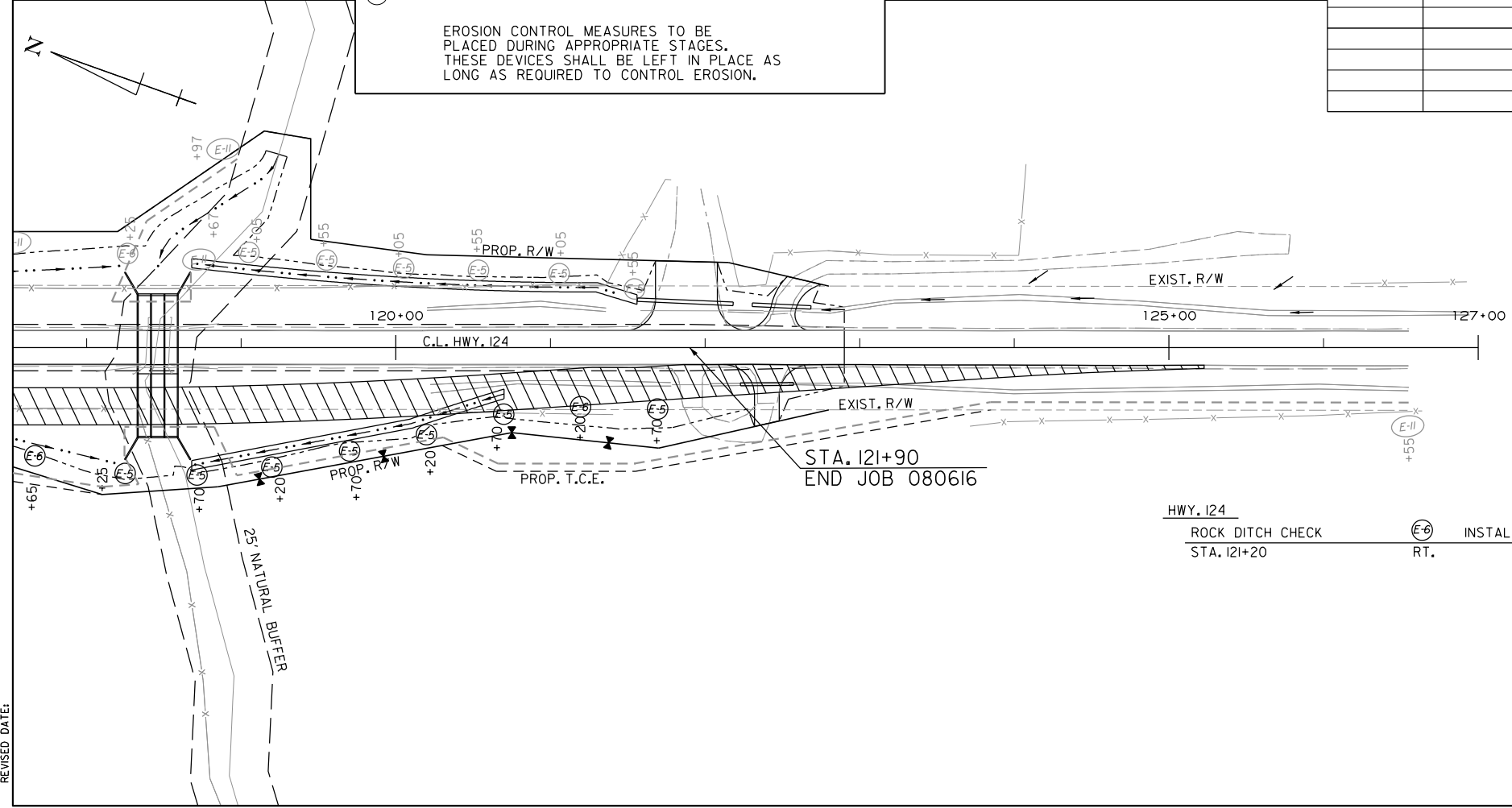
LEGEND

(E-5) = SAND BAG DITCH CHECKS (E-II) = SILT FENCE
(E-3) = FILTER SOCK

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION



STA. 121+90
END JOB 080616

HWY. 124

ROCK DITCH CHECK	INSTALLATION
STA. 121+20	RT. I

HWY. 124

SILT FENCE	INSTALLATION	LIN. FT.
STA. 118+97 TO 118+67	LT.	RETAIN
STA. 118+00 TO 126+55	RT.	RETAIN

HWY. 124

SAND BAG DITCH CHECK	INSTALLATION
STA. 118+70	RT. I
STA. 119+05	LT. RETAIN
STA. 119+20	RT. I
STA. 119+55	LT. RETAIN
STA. 119+70	RT. I
STA. 120+05	LT. RETAIN
STA. 120+20	RT. I
STA. 120+55	LT. RETAIN
STA. 120+70	RT. I
STA. 121+05	LT. RETAIN
STA. 121+55	LT. RETAIN
STA. 121+70	RT. I

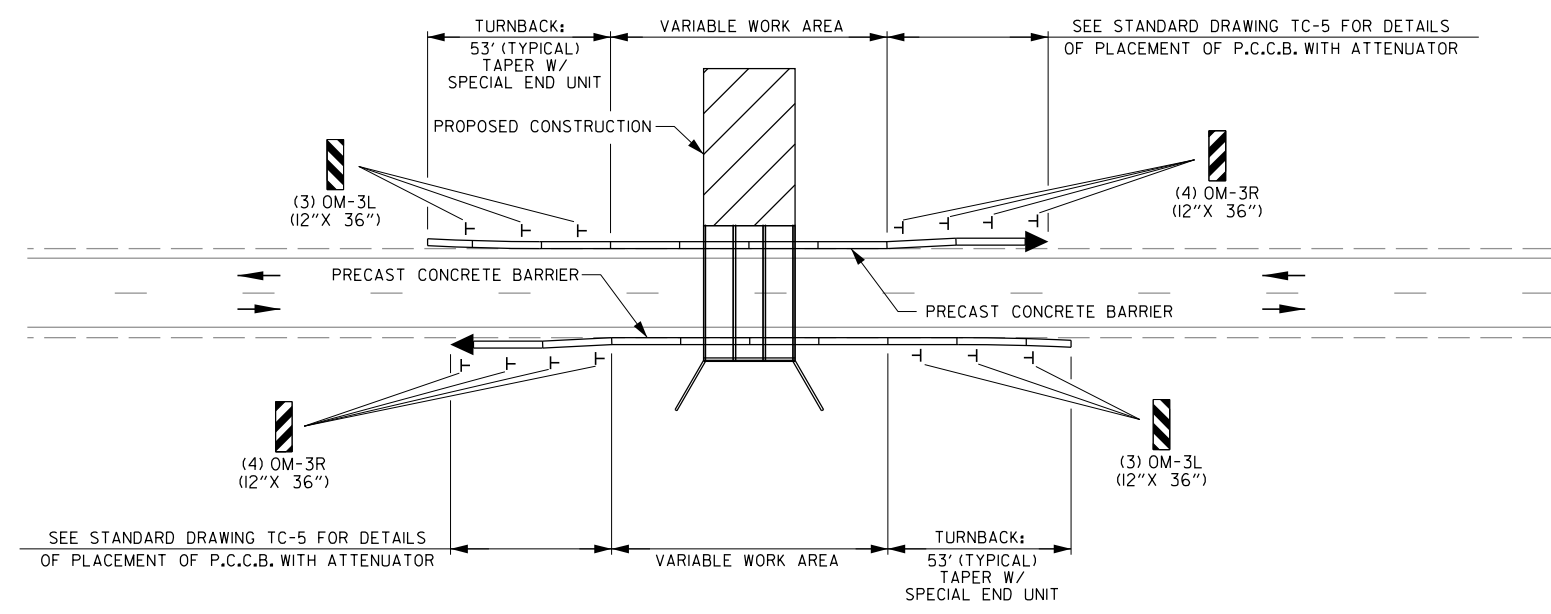
TEMPORARY EROSION CONTROL DETAILS
STAGE 3

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 REVISED DATE:

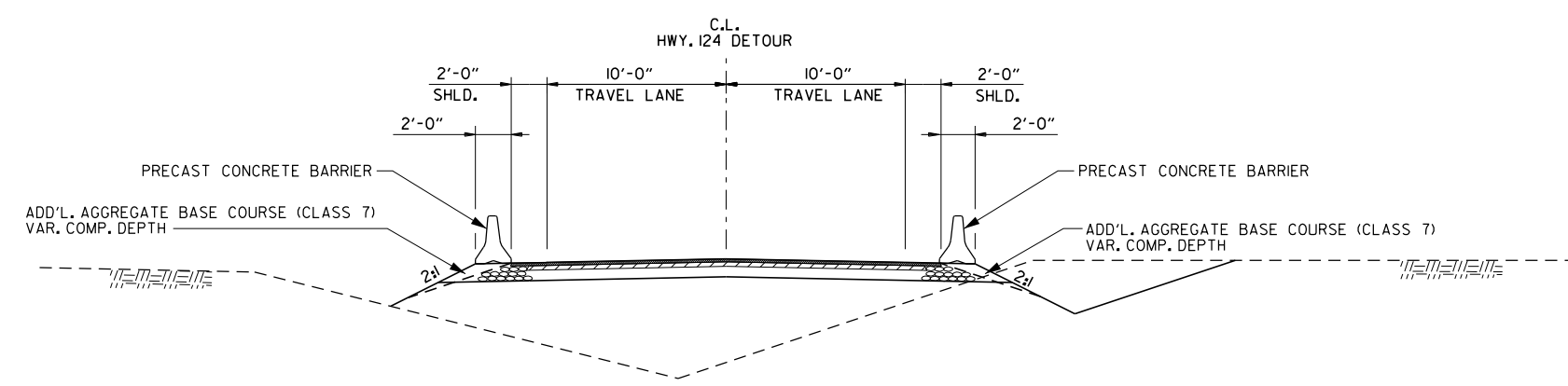
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	22	57
MAINTENANCE OF TRAFFIC DETAILS						



DIGITALLY SIGNED 6/30/23



DETAIL OF OBJECT MARKERS AT PRECAST CONCRETE BARRIER TURNBACKS



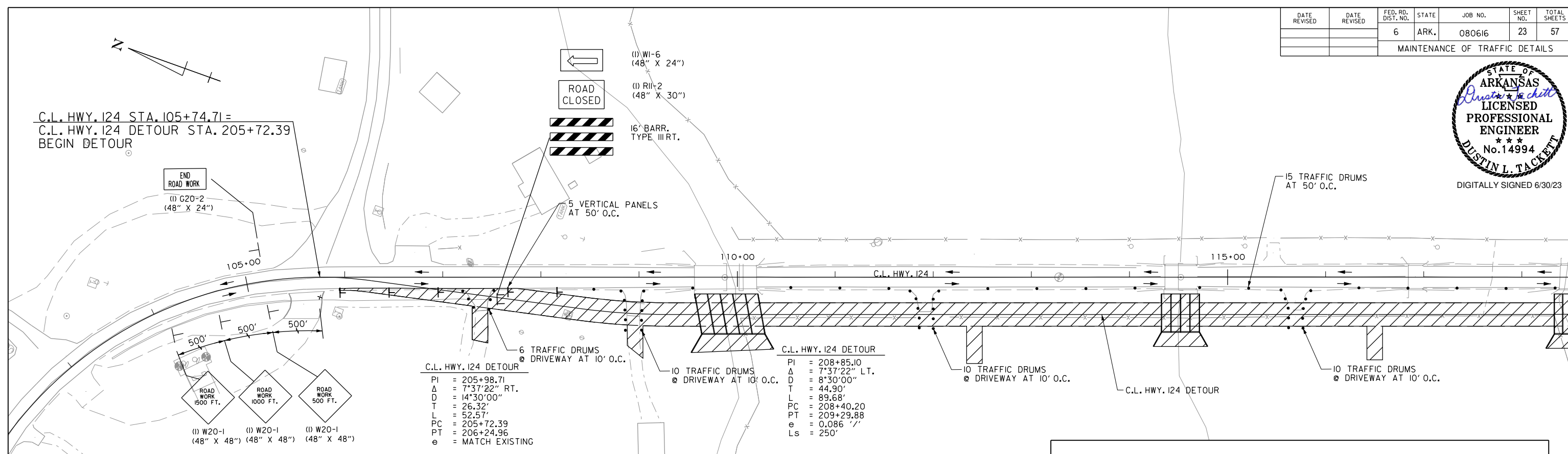
WIDENING FOR PRECAST CONCRETE BARRIER AT PROPOSED DETOUR SHOULDER EDGE

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 DKAdcock
 WORKSPACE: AHTD
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 REVISED DATE:

DATE REVISED	DATE	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	23	57
MAINTENANCE OF TRAFFIC DETAILS						



C.L. HWY. 124 STA. 105+74.71 =
C.L. HWY. 124 DETOUR STA. 205+72.39
BEGIN DETOUR



C.L. HWY. 124 DETOUR
 PI = 205+98.71
 Δ = 7°37'22" RT.
 D = 14°30'00"
 T = 26.32'
 L = 52.57'
 PC = 205+72.39
 PT = 206+24.96
 e = MATCH EXISTING

C.L. HWY. 124 DETOUR
 PI = 208+85.10
 Δ = 7°37'22" LT.
 D = 8°30'00"
 T = 44.90'
 L = 89.68'
 PC = 208+40.20
 PT = 209+29.88
 e = 0.086' /'
 Ls = 250'

STAGE I CONSTRUCTION (Hatched area)

STAGE I TRAFFIC (Arrow)

TRAFFIC DRUMS (Dot)

VERTICAL PANELS (Vertical line)

BUMP (4) W8-1 (30" X 30")

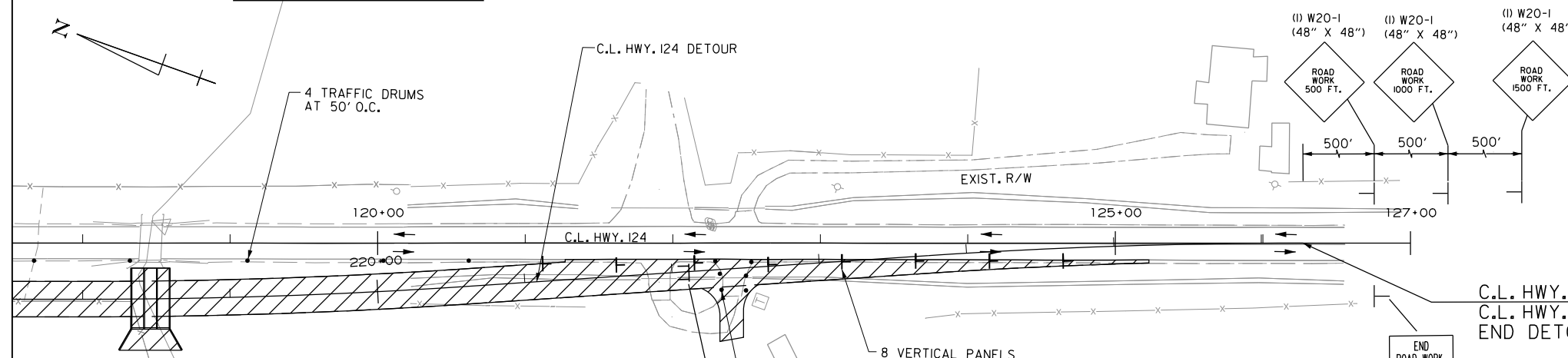
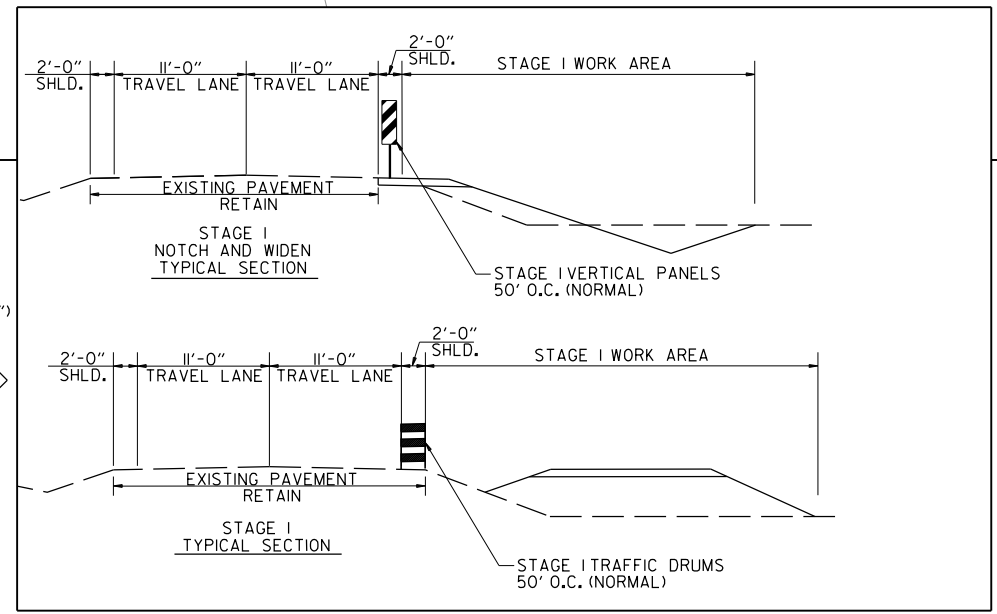
DO NOT PASS (4) R4-1 (24" X 30")

RIGHT SHOULDER CLOSED (4) W21-5a (36" X 36")

ROAD WORK (4) W8-17 (36" X 36")

SHOULDER DROP-OFF (4) W8-17P (24" X 18")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER (ALL STAGES)



C.L. HWY. 124 DETOUR
 PI = 219+29.97
 Δ = 3°48'50" LT.
 D = 1°30'00"
 T = 127.17'
 L = 254.26'
 PC = 218+02.80
 PT = 220+57.06
 e = NO SUPER

C.L. HWY. 124 DETOUR
 PI = 225+01.17
 Δ = 3°48'50" RT.
 D = 1°30'00"
 T = 127.17'
 L = 254.26'
 PC = 223+74.00
 PT = 226+28.26
 e = NO SUPER

C.L. HWY. 124 STA. 126+27.18 =
C.L. HWY. 124 DETOUR STA. 226+28.26
END DETOUR

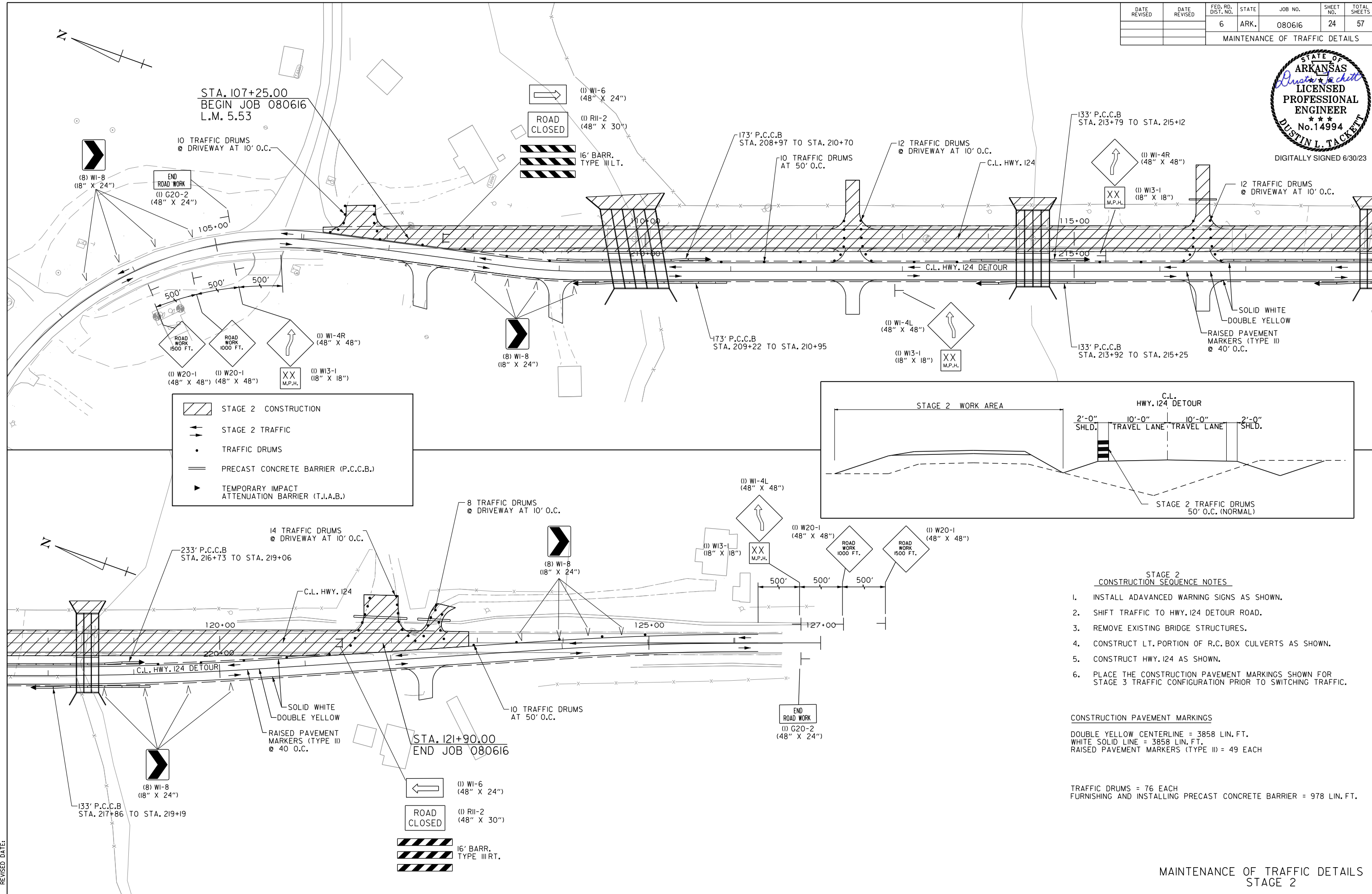
- STAGE I CONSTRUCTION SEQUENCE NOTES**
1. MAINTAIN TRAFFIC ON EXISTING LANES.
 2. INSTALL ADVANCED WARNING SIGNS AS SHOWN.
 3. CONSTRUCT RT. PORTION OF R.C. BOX CULVERT AS SHOWN.
 4. CONSTRUCT HWY. 124 DETOUR
 5. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 2 TRAFFIC CONFIGURATION PRIOR TO SWITCHING TRAFFIC.

TRAFFIC DRUMS = 6/EACH
VERTICAL PANELS = 13 EACH

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

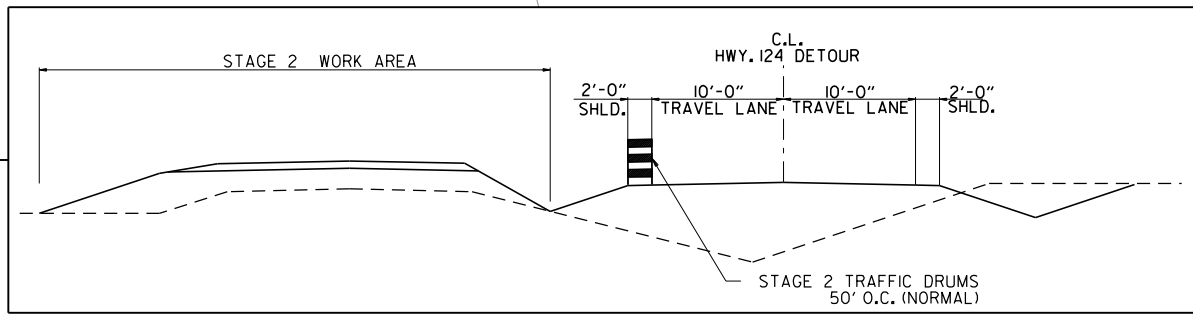
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 REVISED DATE:

DATE REVISED	DATE	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	24	57
MAINTENANCE OF TRAFFIC DETAILS						



LEGEND

- STAGE 2 CONSTRUCTION
- STAGE 2 TRAFFIC
- TRAFFIC DRUMS
- PRECAST CONCRETE BARRIER (P.C.C.B.)
- TEMPORARY IMPACT ATTENUATION BARRIER (T.I.A.B.)



- STAGE 2 CONSTRUCTION SEQUENCE NOTES**
- INSTALL ADVANCED WARNING SIGNS AS SHOWN.
 - SHIFT TRAFFIC TO HWY. 124 DETOUR ROAD.
 - REMOVE EXISTING BRIDGE STRUCTURES.
 - CONSTRUCT LT. PORTION OF R.C. BOX CULVERTS AS SHOWN.
 - CONSTRUCT HWY. 124 AS SHOWN.
 - PLACE THE CONSTRUCTION PAVEMENT MARKINGS SHOWN FOR STAGE 3 TRAFFIC CONFIGURATION PRIOR TO SWITCHING TRAFFIC.

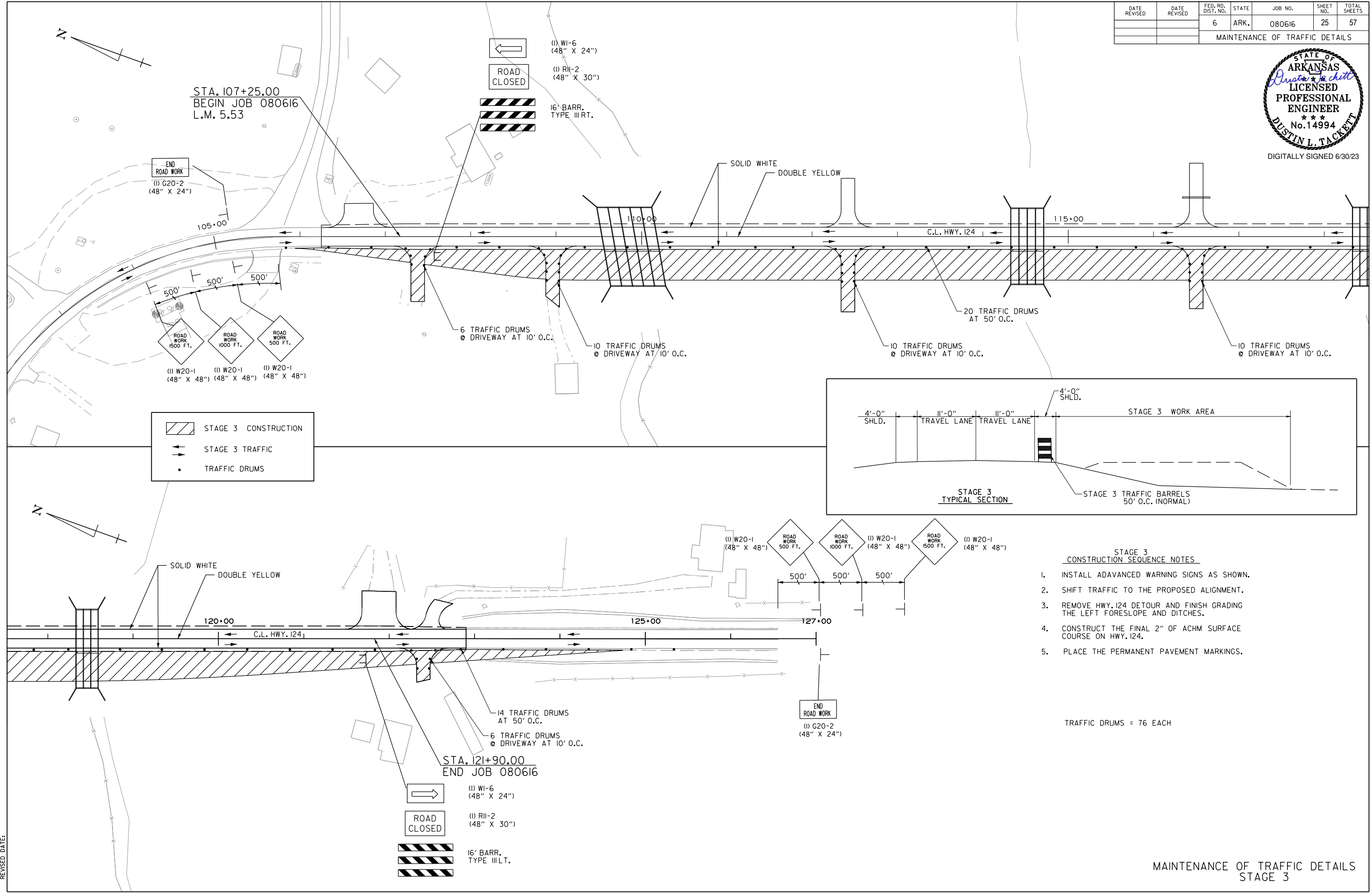
CONSTRUCTION PAVEMENT MARKINGS

DOUBLE YELLOW CENTERLINE = 3858 LIN. FT.
 WHITE SOLID LINE = 3858 LIN. FT.
 RAISED PAVEMENT MARKERS (TYPE III) = 49 EACH

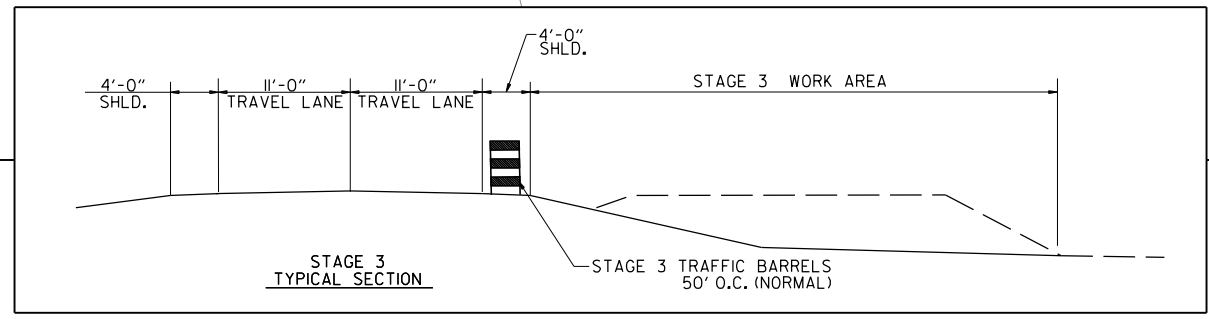
TRAFFIC DRUMS = 76 EACH
 FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 978 LIN. FT.

6/29/2023 12:09:33 PM
 WORKSPACE: AHTD
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 REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	25	57
MAINTENANCE OF TRAFFIC DETAILS						



STAGE 3 CONSTRUCTION
 STAGE 3 TRAFFIC
 TRAFFIC DRUMS



- STAGE 3 CONSTRUCTION SEQUENCE NOTES**
1. INSTALL ADVANCED WARNING SIGNS AS SHOWN.
 2. SHIFT TRAFFIC TO THE PROPOSED ALIGNMENT.
 3. REMOVE HWY. 124 DETOUR AND FINISH GRADING THE LEFT FORESLOPE AND DITCHES.
 4. CONSTRUCT THE FINAL 2" OF ACHM SURFACE COURSE ON HWY. 124.
 5. PLACE THE PERMANENT PAVEMENT MARKINGS.

TRAFFIC DRUMS = 76 EACH

6/29/2023 12:09:33 PM
 WORKSPACE: AHTD
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 REVISION DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	26	57
PERMANENT PAVEMENT MARKING DETAILS						



DIGITALLY SIGNED 6/30/23

6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
105+74.71	118+00.00	LT.	1225
105+74.71	118+00.00	RT.	1225

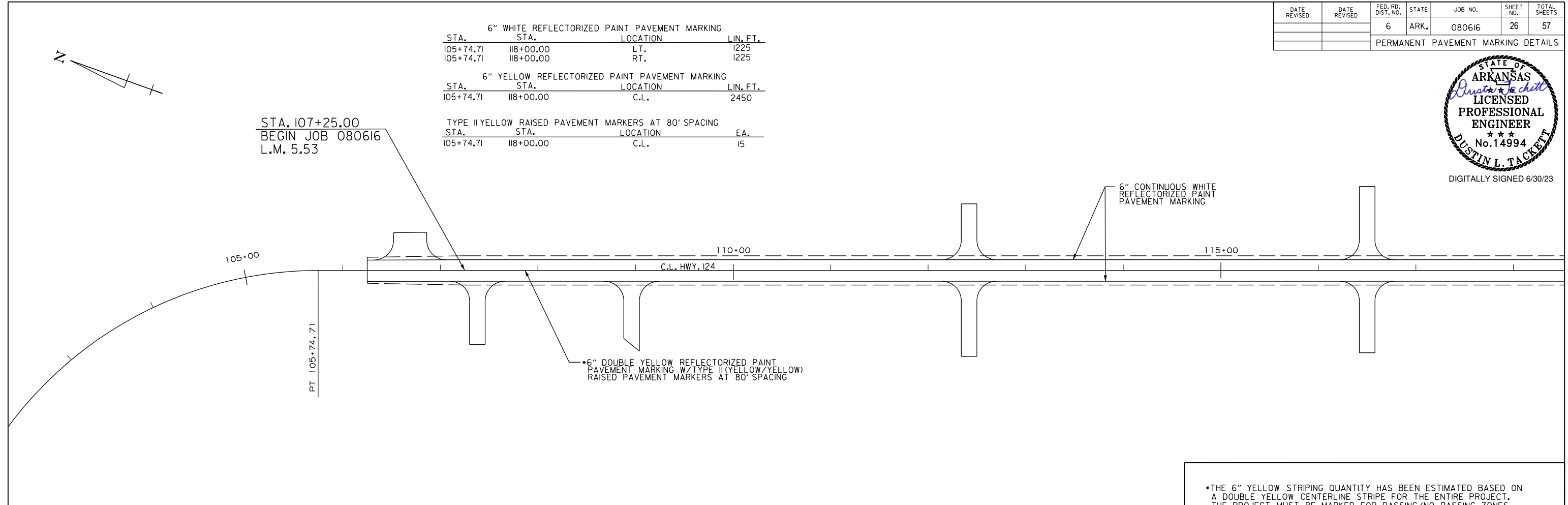
6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
105+74.71	118+00.00	C.L.	2450

TYPE II YELLOW RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
105+74.71	118+00.00	C.L.	15

STA. 107+25.00
BEGIN JOB 080616
L.M. 5.53



• 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.

6" WHITE REFLECTORIZED PAINT PAVEMENT MARKING

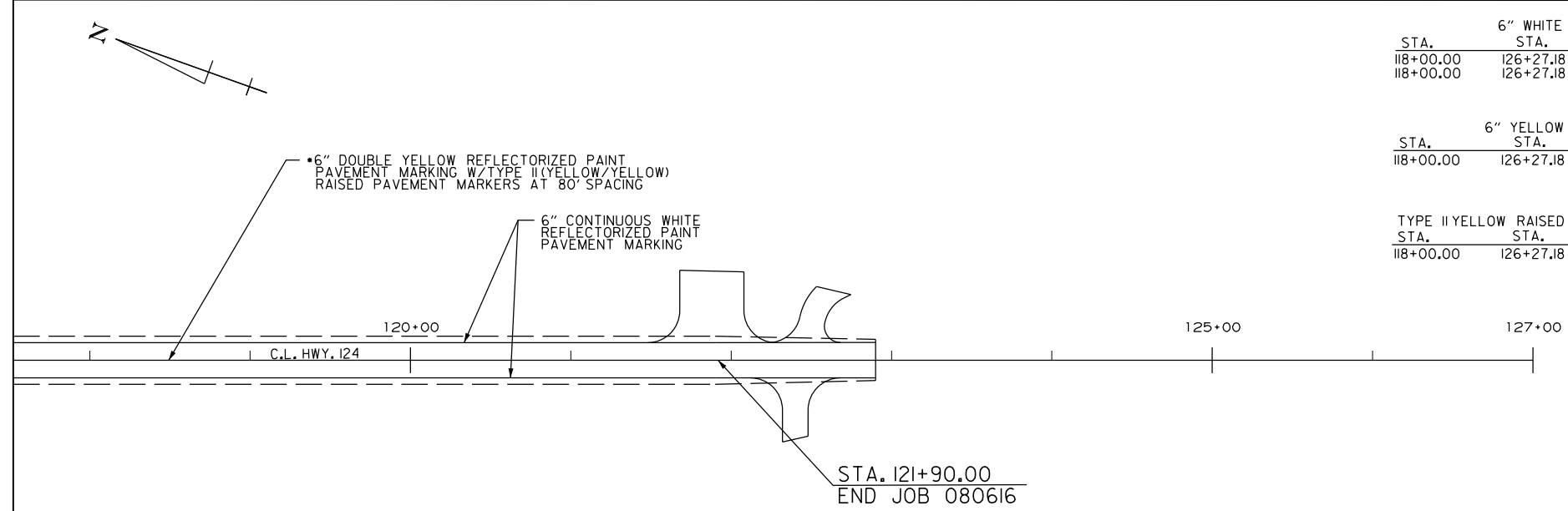
STA.	STA.	LOCATION	LIN. FT.
118+00.00	126+27.18	LT.	827
118+00.00	126+27.18	RT.	827

6" YELLOW REFLECTORIZED PAINT PAVEMENT MARKING

STA.	STA.	LOCATION	LIN. FT.
118+00.00	126+27.18	C.L.	1654

TYPE II YELLOW RAISED PAVEMENT MARKERS AT 80' SPACING

STA.	STA.	LOCATION	EA.
118+00.00	126+27.18	C.L.	10



STA. 121+90.00
END JOB 080616

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 REVISED DATE:



DIGITALLY SIGNED 6/30/23

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN. BARR. (REPAIR)			
							NO.	SQ. FT.			EACH	RIGHT				LEFT	LIN. FT.	EACH
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0										
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0										
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0										
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0										
R11-2	ROAD CLOSED	48"x30"	2	2	2	2	2	20.0										
W1-4L	REVERSE CURVE LT.	48"x48"		2		2	2	32.0										
W1-4R	REVERSE CURVE RT.	48"x48"		2		2	2	32.0										
W13-1	SPEED LIMIT (ADVISORY)	18"x18"		4		4	4	9.0										
W1-6	LARGE ARROW	48"x24"	2	2	2	2	2	16.0										
W1-8	CHEVRONS	18"x24"		32		32	32	96.0										
R4-1	DO NOT PASS	24"x30"	4			4	4	20.0										
W21-5A	RIGHT SHOULDER CLOSED	36"x36"	4			4	4	36.0										
W8-1	BUMP	30"x30"	4			4	4	25.0										
W8-17	SHOULDER DROP-OFF (SYMBOL)	36"x36"	4			4	4	36.0										
W8-17P	SHOULDER DROP-OFF (PLAQUE)	24"x18"	4			4	4	12.0										
	VERTICAL PANELS		13			13			13									
	TRAFFIC DRUMS		61	76	76	76				76								
	TYPE III BARRICADE-RT. (16')		1	1	1	1					16							
	TYPE III BARRICADE-LT. (16')		1	1	1	1					16							
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			978		978						978						
	TEMPORARY IMPACT ATTENUATION BARRIER			6		6							6					
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			6		6								6				
TOTALS:								446.0		13	76	16	16	978	6	6		

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

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		REFLECTORIZED PAINT PAVEMENT MARKING		
							TYPE II (YELLOW/YELLOW)	6" WHITE	6" YELLOW		
									LIN. FT.	LIN. FT.	LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS											
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS											
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)							49		25		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")									4104		
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")										4104	
TOTALS:								7716	1350	74	4104

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

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL	MAILBOXES	SIGNS
			LIN. FT.	EACH	EACH
107+28	107+28	HWY. 124 - LT.		2	
108+82	108+82	HWY. 124 - LT.		1	
109+27	110+49	HWY. 124 - RT.	125		
109+27	110+48	HWY. 124 - LT.	125		
111+44	111+44	HWY. 124 - LT.			1
114+08	114+96	HWY. 124 - RT.	90		
114+08	114+96	HWY. 124 - LT.	90		
116+52	117+31	HWY. 124 - RT.	80		
116+53	117+31	HWY. 124 - LT.	80		
118+06	118+85	HWY. 124 - RT.	80		
118+08	118+87	HWY. 124 - LT.	80		
122+25	122+25	HWY. 124 - LT.		2	
TOTALS:			750	6	1

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
107+38	HWY. 124 - RT.	1
108+96	HWY. 124 - RT.	1
109+16	HWY. 124 - LT.	1
121+88	HWY. 124 - LT.	1
121+90	HWY. 124 - RT.	1
122+40	HWY. 124 - RT.	1
122+50	HWY. 124 - LT.	1
TOTAL:		7

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
109+94	112+34	HWY. 124 - LT.	323	1
110+03	111+82	HWY. 124 - RT.	248	1
112+17	115+62	HWY. 124 - RT.	345	1
112+48	115+40	HWY. 124 - LT.	292	1
115+54	121+45	HWY. 124 - LT.	601	
115+76	118+49	HWY. 124 - RT.	312	
120+22	121+40	HWY. 124 - RT.	118	
TOTALS:			2239	4

REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	LOCATION	LUMP SUM
109+57	110+20	HWY. 124 - BR. NO. M1877 (SITE NO. 1)	1.00
114+36	114+69	HWY. 124 - BR. NO. M1878 (SITE NO. 2)	1.00
116+84	116+99	HWY. 124 (SITE NO. 3)	1.00
118+39	118+54	HWY. 124 (SITE NO. 4)	1.00

REMOVAL AND SALVAGE: AFTER THE DETOUR ALIGNMENT IS OPEN TO TRAFFIC, THE CONTRACTOR SHALL REMOVE EXISTING BRIDGE NO. M1877, BRIDGE NO. M1878, BRIDGE STRUCTURE AT STA. 116+90, AND BRIDGE STRUCTURE AT STA. 118+46 IN ACCORDANCE WITH SECTION 205. ALL MATERIAL FROM THE EXISTING BRIDGES SHALL BECOME THE PROPERTY OF THE CONTRACTOR EXCEPT THE CHANNEL BEAMS WHICH SHALL REMAIN THE PROPERTY OF THE STATE. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT PRIOR TO REMOVAL TO DETERMINE THE SPECIFIC PIECES DEEMED SALVAGEABLE. THE CONTRACTOR SHALL PROVIDE TEMPORARY STORAGE AND ON-SITE LOADING ONTO ARDOT EQUIPMENT FOR REMOVAL OF SALVAGE ITEMS FROM THE SITE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE ITEM 'REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)'.

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DATE REVISED	DATE	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	28	57
QUANTITIES						



DIGITALLY SIGNED 6/30/23

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL										
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	FILTER SOCKS (18")	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	*SEDIMENT REMOVAL & DISPOSAL			
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	ACRE	ACRE	M.GAL.	LIN. FT.	BAG	CU.YD.	LIN. FT.	CU. YD.
ENTIRE PROJECT		CLEARING AND GRUBBING																
ENTIRE PROJECT		STAGE 1													220	165	3454	149
ENTIRE PROJECT		STAGE 2													198	105	468	33
ENTIRE PROJECT		STAGE 3													352	75	429	37
ENTIRE PROJECT															396	80		22
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			3.13	6.27	3.13	319.7	3.13			3.97	3.97	81.0		250				
TOTALS:			3.13	6.27	3.13	319.7	3.13			3.97	3.97	81.0		250	1166	405	4351	241

BASIS OF ESTIMATE:
 LIME2 TONS / ACRE OF SEEDNG
 WATER.....102.0 M.G. / ACRE OF SEEDING
 WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
 SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
 ROCK DITCH CHECKS.....15 CU.YD./LOCATION

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

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

MAILBOXES

STATION	LOCATION	MAILBOXES	MAILBOX SUPPORTS	
			(SINGLE) EACH	(DOUBLE)
107+28	HWY. 124 - LT.	2		1
108+82	HWY. 124 - LT.	1	1	
122+25	HWY. 124 - LT.	2		1
TOTALS:			5	2

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
STATION				
106+25	109+66	HWY. 124	4	4
114+00	115+00	HWY. 124	1	1
117+36	122+90	HWY. 124	6	6
TOTALS:			11	11

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
GALLON		
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	8	16
TOTALS:	8	16

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

4" PIPE UNDERDRAIN

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

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE
			(TYPE D-1) LIN. FT.
118+30	121+70	HWY. 124 - RT.	348
TOTAL:			348

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
106+25.00	107+25.00	HWY. 124	28.00	311.11
121+90.00	122+90.00	HWY. 124	28.00	311.11
TOTAL:				622.22

COLD MILLING STOCKPILE LOCATION:
 RAINEY FIELD (PARKING LOT)
 19841 SR 124
 HECTOR, AR 72843
 LAT: N 35° 25' 26"
 LONG: W 92° 52' 49"

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (3/8") 220 LBS. PER SQ. YD. (PG 64-22)			AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS			TEMPORARY CULVERTS			STANDARD DRAWINGS
				FEET	SQ. YD.	TON		18"	24"	28"X20"	12"	18"	30"	
				LIN. FT.										
106+69	LT.	HWY. 124	34	72.45	7.97	45.56								DR-2
107+38	RT.	HWY. 124	16	37.07	4.08	57.07								DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
108+96	RT.	HWY. 124	16	37.01	4.07	56.89								DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
112+42	LT.	HWY. 124	16	37.01	4.07	49.95								DR-2
112+42	RT.	HWY. 124	16	37.01	4.07	68.31								DR-2
116+50	LT.	HWY. 124	16	37.01	4.07	66.45								DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
116+50	RT.	HWY. 124	16	37.01	4.07	64.82								DR-2
121+88	LT.	HWY. 124	40	80.43	8.85	90.46			62					DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
122+40	RT.	HWY. 124	16	41.50	4.56	33.96				34				DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
122+50	LT.	HWY. 124	16	24.15	2.66	31.77				38				DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
TEMPORARY DRIVES														
207+38	RT.	HWY. 124 DETOUR	16			53.21						38		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
208+96	RT.	HWY. 124 DETOUR	16			49.68						54		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
212+42	LT.	HWY. 124 DETOUR	16			20.69						29		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
212+42	RT.	HWY. 124 DETOUR	16			42.18								DR-2
216+50	LT.	HWY. 124 DETOUR	16			20.69						29		DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
216+50	RT.	HWY. 124 DETOUR	16			38.69								DR-2
222+40	RT.	HWY. 124 DETOUR	16			40.39							56	DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
TOTALS:				440.65	48.47	830.77	106	34	100	58	92	56		

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (3/8")...94.5% MIN. AGGR...5.5%
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
 THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
106+25.00	107+20.81	HWY. 124 RT.	95.81	85.16
106+25.00	108+40.00	HWY. 124 LT.	215.00	191.11
107+58.48	108+70.02	HWY. 124 RT.	111.54	99.15
109+31.00	110+23.00	HWY. 124 LT.	92.00	81.78
109+53.89	110+38.00	HWY. 124 RT.	84.11	74.76
115+85.00	113+80.00	HWY. 124 LT.	295.00	262.22
111+70.00	113+70.00	HWY. 124 RT.	200.00	177.78
114+24.00	114+80.00	HWY. 124 LT.	56.00	49.78
114+24.00	114+80.01	HWY. 124 RT.	56.01	49.79
115+30.00	118+68.00	HWY. 124 LT.	338.00	300.44
115+30.00	118+68.00	HWY. 124 RT.	338.00	300.44
120+69.99	122+22.89	HWY. 124 RT.	152.90	135.91
122+18.24	122+30.60	HWY. 124 LT.	12.36	10.99
122+57.17	122+90.00	HWY. 124 RT.	32.83	29.18
122+68.55	122+90.00	HWY. 124 LT.	21.45	19.07
TOTAL:				1867.56

NOTE: AVERAGE WIDTH = 8'-0"

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STRUCTURES

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	CLASS S	REINF.	UNCL. EXC.	SOLID	WATER	STD. DWG. NOS.
					CONCRETE	STEEL	FOR STR.			
					ROADWAY	ROADWAY	ROADWAY	SQ. YD.	M. GAL.	
					CU. YD.	(GRADE 60)	CU. YD.			
STRUCTURES OVER 20' - 0" SPAN										
109+86	HWY. 124 CONST. QUINT. 12' X 8' R.C. BOX CULVERT	12	8	94	670.85	8'561	295	48	0.6C	SPECIAL DETAILS, RCB-1, RCB-2
114+52	HWY. 124 CONST. QUAD. 9' X 6' R.C. BOX CULVERT	9	6	90	322.49	37945	141	33	0.42	SPECIAL DETAILS, RCB-1, RCB-2
118+46	HWY. 124 CONST. TRP. 8' X 6' R.C. BOX CULVERT	8	6	93	208.50	26992	85	28	0.35	SPECIAL DETAILS, RCB-1, RCB-2
TOTALS:					1201.84	146498	521	109	1.37	

BASIS OF ESTIMATE:

WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID	PLASTICITY	AASHTO	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC						
LM 5.62	35	25	23.20	92	52	26.10	06 RT.	0-5	27	14	A-6 (8)	BROWN
LM 5.62	35	25	23.20	92	52	26.10	15 RT.	0-5	28	21	A-6 (12)	BROWN
LM 5.73	35	25	15.40	92	52	22.40	06 LT.	0-5	20	3	A-4 (0)	BROWN
LM 5.73	35	25	15.50	92	52	22.20	15 LT.	0-5	22	4	A-4 (0)	BROWN
LM 5.73	35	25	15.50	92	52	22.20	15 LT.	0-5	ND	NP	A-2-4 (0)	BROWN

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
109+64	HWY. 124 SW HEADWALL	1
114+32	HWY. 124 SW HEADWALL	1
118+33	HWY. 124 SW HEADWALL	1
TOTAL:		3

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

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100
TOTAL:			100

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING CU. YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100
TOTAL:	100

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED	COMPACTED
			EXCAVATION	EMBANKMENT
			CU. YD.	CU. YD.
106+25	125+00	HWY. 124 - STAGE 1	2775	8208
107+25	121+90	HWY. 124 - STAGE 2	2202	8953
106+25	125+00	HWY. 124 - STAGE 3	4253	2332
ENTIRE	PROJECT	REDUCTION OF COMPACTED EMBANKMENT FOR VOLUME OF BOX CULVERTS		(3924)
ENTIRE	PROJECT	APPROACHES		368
ENTIRE	PROJECT	TEMPORARY APPROACHES		115
TOTALS:			9230	16052

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

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONCRETE DITCH PAVING	SOLID	WATER
					(TYPE B)		
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
108+40.00	109+31.00	HWY. 124 - LT.	96.00	6.00	64.00	42.67	0.54
108+70.00	108+85.00	HWY. 124 - RT.	18.00	6.00	12.00	8.00	0.10
109+17.00	109+54.00	HWY. 124 - RT.	45.00	6.00	30.00	20.00	0.25
110+23.00	110+85.00	HWY. 124 - LT.	65.00	6.00	43.33	28.89	0.36
110+38.00	111+70.00	HWY. 124 - RT.	138.00	6.00	92.00	61.33	0.77
113+70.00	114+24.00	HWY. 124 - RT.	67.00	6.00	44.67	29.78	0.38
113+80.00	114+24.00	HWY. 124 - LT.	46.00	6.00	30.67	20.44	0.26
114+80.00	115+30.00	HWY. 124 - RT.	61.00	6.00	40.67	27.11	0.34
114+80.00	115+30.00	HWY. 124 - LT.	54.00	6.00	36.00	24.00	0.30
118+68.00	120+70.00	HWY. 124 - RT.	208.00	6.00	138.67	92.44	1.16
118+68.00	121+56.00	HWY. 124 - LT.	290.00	6.00	193.33	128.89	1.62
TOTALS:					725.34	483.55	6.08

BASIS OF ESTIMATE:

WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (3/8")									
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL	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
						TOTAL WID.	SQ. YD.	GALLON	TOTAL WID.	SQ. YD.	GALLON														
MAIN LANES																									
106+25.00	107+25.00	TRANSITION	100.00																						
107+26.00	108+90.96	HWY. 124 - NOTCH & WIDEN	166.06	112.00	174.66	22.00	381.21	19.06																	
108+80.95	120+97.92	HWY. 124 - FULL DEPTH	1216.97	197.50	2403.52	44.71	6045.41	302.27																	
120+97.92	121+90.00	HWY. 124 - NOTCH & WIDEN	92.08	112.00	103.13	22.00	225.08	11.25																	
121+90.00	122+90.00	TRANSITION	100.00																						
ADDITIONAL FOR LEVELING																									
107+25.00	108+90.95	HWY. 124 - NOTCH & WIDEN	155.95																						
120+97.92	121+90.00	HWY. 124 - NOTCH & WIDEN	92.08																						
ADDITIONAL FOR BOX CULVERTS																									
108+70.00	111+70.00	HWY. 124 - FULL DEPTH	300	VAR.	58.06																				
113+70.00	115+30.00	HWY. 124 - FULL DEPTH	180.00	VAR.	17.12																				
117+07.00	120+70.00	HWY. 124 - FULL DEPTH	363.00	VAR.	34.64																				
DETOUR																									
206+04.22	207+58.94	HWY. 124 DETOUR - NOTCH & WIDEN	154.72	67.25	104.05	9.31	180.10	8.01																	
207+58.94	210+11.14	HWY. 124 DETOUR - FULL DEPTH, S.E.	252.20	142.25	358.75	20.25	568.57	28.43																	
210+11.14	221+87.02	HWY. 124 DETOUR - FULL DEPTH	1175.88	142.25	1672.69	20.25	2650.96	132.55																	
221+87.02	225+23.48	HWY. 124 DETOUR - NOTCH & WIDEN	336.46	67.25	226.27	9.31	348.16	17.41																	
ADDITIONAL FOR SUPERELEVATION																									
207+58.94	210+11.14	HWY. 124 DETOUR - FULL DEPTH, S.E.	252.20	VAR.	2.32																				
ADDITIONAL FOR MAINTENANCE OF TRAFFIC																									
208+96.76	210+96.32	HWY. 124 DETOUR	198.56	VAR.	59.44																				
213+59.00	215+45.00	HWY. 124 DETOUR	186.00	VAR.	41.32																				
216+66.00	219+38.00	HWY. 124 DETOUR	272.00	VAR.	65.07																				
TOTALS:					5321.04		10379.49	518.98		1095.17	186.17	705.15		6764.58		1116.16		7426.43		816.90		5416.29		668.48	1485.38

BASIS OF ESTIMATE:

ACHM SURFACE COURSE (3/8").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER

ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% 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.



DIGITALLY SIGNED 6/30/23

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 REVISED DATE:

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	11	STATION
201	GRUBBING	11	STATION
202	REMOVAL AND DISPOSAL OF FENCE	2239	LN. FT.
202	REMOVAL AND DISPOSAL OF GATES	4	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	7	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	750	LN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS	1	EACH
202	REMOVAL AND DISPOSAL OF MAILBOXES	5	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION	9230	CU. YD.
SP & 210	COMPACTED EMBANKMENT	16052	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	6152	TON
SS & 401	TACK COAT	721	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1067	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	49	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (3/8")	1449	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (3/8")	84	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	622	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	8	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	100	TON
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	12" TEMPORARY CULVERT	58	LN. FT.
603	18" TEMPORARY CULVERT	92	LN. FT.
603	30" TEMPORARY CULVERT	56	LN. FT.
SS & 604	SIGNS	446	SQ. FT.
SS & 604	BARRICADES	32	LN. FT.
SS & 604	TRAFFIC DRUMS	76	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	978	LN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	7716	LN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	1350	LN. FT.
SS & 604	VERTICAL PANELS	13	EACH
SP, SS, & 605	CONCRETE DITCH PAVING (TYPE B)	725	SQ. YD.
SP, SS, & 606	18" SIDE DRAIN	106	LN. FT.
SP, SS, & 606	24" SIDE DRAIN	34	LN. FT.
SS & 606	28" X 20" SIDE DRAIN	100	LN. FT.
SS & 606	SELECTED PIPE BEDDING	100	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	500	LN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	4	EACH
SS & 619	WIRE FENCE (TYPE D-1)	348	LN. FT.
620	LIME	6	TON
620	SEEDING	3.13	ACRE
SS & 620	MULCH COVER	7.10	ACRE
620	WATER	408.2	M. GAL.
621	TEMPORARY SEEDING	3.97	ACRE
621	SILT FENCE	4351	LN. FT.
621	SAND BAG DITCH CHECKS	1166	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	241	CU. YD.
621	ROCK DITCH CHECKS	405	CU. YD.
SS & 621	FILTER SOCK (18")	250	LN. FT.
623	SECOND SEEDING APPLICATION	3.13	ACRE
624	SOLID SODDING	593	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	1888	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	5	EACH
637	MAILBOX SUPPORTS (SINGLE)	1	EACH
637	MAILBOX SUPPORTS (DOUBLE)	2	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	4104	LN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	4104	LN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	74	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	6	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	6	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
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)	1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 4)	1.00	LUMP SUM
601	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	521	CU. YD.
SP, SS, & 802	CLASS 5 CONCRETE-ROADWAY	1201.84	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	146498	POUND

REVISIONS

DATE	REVISION	SHEET NUMBER
10/12/2023	ADDED "SP &" TO CLEARING ITEM NUMBER.	30

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
10-12-2023		6	ARK.	080616	30	57
SUMMARY OF QUANTITIES & REVISIONS						



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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	31	57
SURVEY CONTROL DETAILS						



DIGITALLY SIGNED 6/30/23

SURVEY CONTROL COORDINATES

Project Name: s080616
Date: 12/16/2019
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	398101.3597	1051649.3600	497.467	CTL	ARDOT STD. MON. STAMPED PN: 1
2	398033.0867	1051933.2869	501.112	CTL	ARDOT STD. MON. STAMPED PN: 2
3	397716.6645	1052143.5451	488.581	CTL	ARDOT STD. MON. STAMPED PN: 3
4	397183.8909	1052325.9081	474.974	CTL	ARDOT STD. MON. STAMPED PN: 4
5	396714.0756	1052487.9868	474.881	CTL	ARDOT STD. MON. STAMPED PN: 5
6	396259.9274	1052667.4134	494.483	CTL	ARDOT STD. MON. STAMPED PN: 6
7	395757.4633	1052832.4998	522.660	GPS	ARDOT STD. MON. STAMPED PN: 7
100	398155.5104	1049606.7558	525.443	GPS	ARDOT GPS #580036
101	398067.6218	1051328.5773	492.932	GPS	ARDOT GPS #580036A
901	398068.8423	1051341.3172	493.092	TBM	CHSQ IN S HW
902	397806.8435	1052056.2344	494.622	TBM	CHSQ IN E HW 21.6' S OF C/L HWY. 124
903	396622.9772	1052491.3179	476.258	TBM	CHSQ IN NW COR OF BR

ALIGNMENT NAME: HWY. 124

POINT	STATION	TYPE	NORTHING	EASTING
8000	100+00.00	POB	398081.3753	1051615.2949
8001	101+00.00	PC	398078.7765	1051715.2617
8002	105+74.71	PT	397816.8251	1052077.0595
8003	127+00.00	POE	395815.6523	1052792.7185

ALIGNMENT NAME: HWY. 124 DETOUR

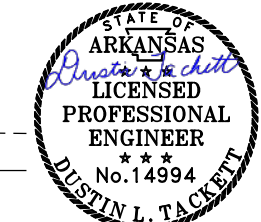
POINT	STATION	TYPE	NORTHING	EASTING
8002	205+72.39	PC	397816.8251	1052077.0595
8101	206+24.96	PT	397766.2944	1052091.4217
8102	208+40.20	PC	397555.8047	1052136.3750
8103	209+29.88	PT	397469.6052	1052160.8753
8104	218+02.80	PC	396647.6637	1052454.8179
8105	220+57.06	PT	396411.2786	1052548.3378
8106	223+74.00	PC	396120.6079	1052674.6764
8107	226+28.26	PT	395884.2228	1052768.1963

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.999920848143 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 s080616gi.cti
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 580036 - 580036A
CONVERGENCE ANGLE: 00 30 28.74 LEFT AT LAT N 35 25 16.70 LON W 92 52 22.71
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

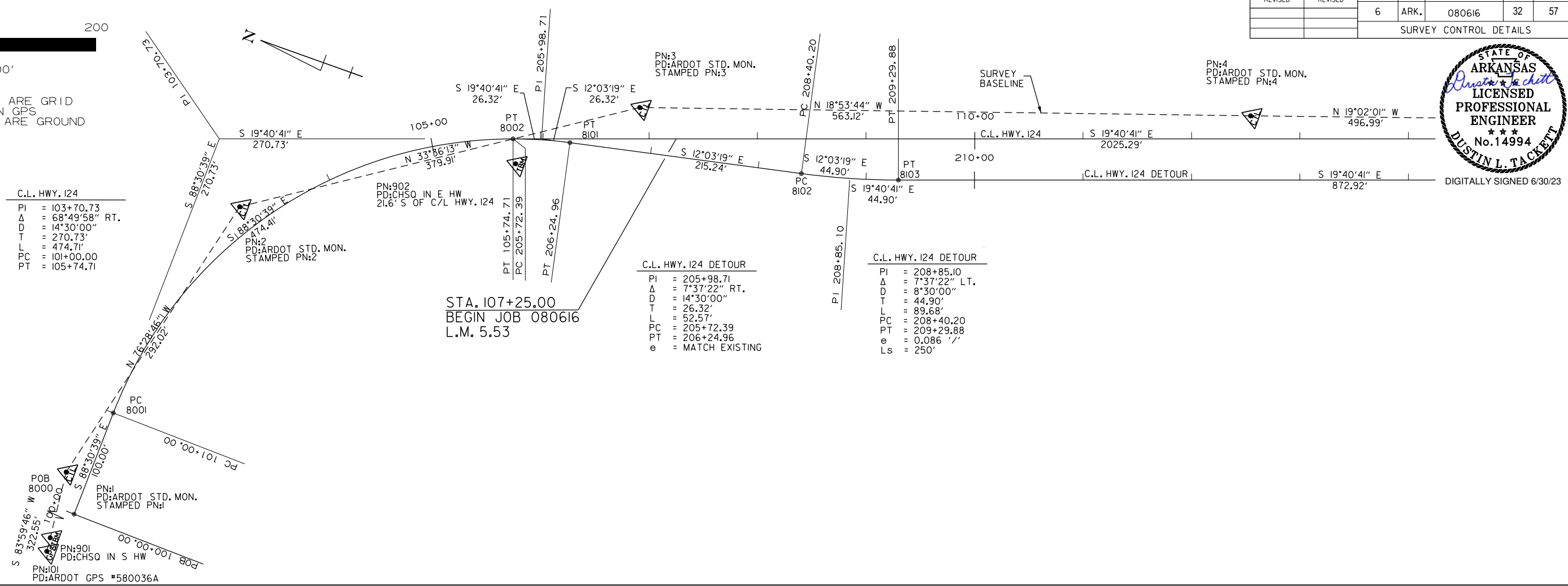
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		6	ARK.	080616	32	57
SURVEY CONTROL DETAILS						



ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

C.L. HWY. 124

PI	= 103+70.73
Δ	= 68°49'58" RT.
D	= 14°30'00"
T	= 270.73'
L	= 474.71'
PC	= 101+00.00
PT	= 105+74.71



STA. 107+25.00
BEGIN JOB 080616
L.M. 5.53

C.L. HWY. 124 DETOUR

PI	= 205+98.71
Δ	= 7°37'22" RT.
D	= 14°30'00"
T	= 26.32'
L	= 52.57'
PC	= 205+72.39
PT	= 206+24.96
e	= MATCH EXISTING

C.L. HWY. 124 DETOUR

PI	= 208+85.10
Δ	= 7°37'22" LT.
D	= 8°30'00"
T	= 44.90'
L	= 89.68'
PC	= 208+40.20
PT	= 209+29.88
e	= 0.086' /'
Ls	= 250'



ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

STA. 121+90.00
END JOB 080616

C.L. HWY. 124 DETOUR

PI	= 219+29.97
Δ	= 3°48'50" LT.
D	= 1°30'00"
T	= 127.17'
L	= 254.26'
PC	= 218+02.80
PT	= 220+57.06
e	= NO SUPER

C.L. HWY. 124 DETOUR

PI	= 225+01.17
Δ	= 3°48'50" RT.
D	= 1°30'00"
T	= 127.17'
L	= 254.26'
PC	= 223+74.00
PT	= 226+28.26
e	= NO SUPER

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SURVEY CONTROL DETAILS

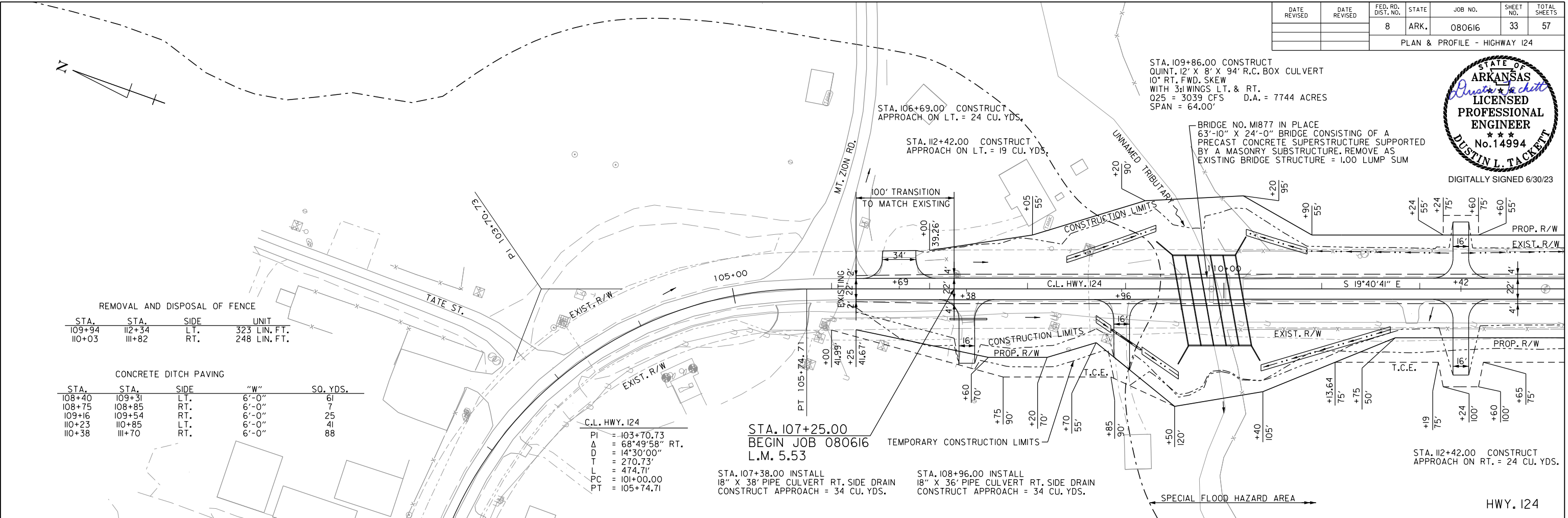
DATE REVISED	DATE	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		8	ARK.	080616	33	57

PLAN & PROFILE - HIGHWAY I24



STA. 109+86.00 CONSTRUCT
QUINT. 12' X 8' X 94' R.C. BOX CULVERT
10' RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q25 = 3039 CFS D.A. = 7744 ACRES
SPAN = 64.00'

BRIDGE NO. M1877 IN PLACE
63'-10" X 24'-0" BRIDGE CONSISTING OF A
PRECAST CONCRETE SUPERSTRUCTURE SUPPORTED
BY A MASONRY SUBSTRUCTURE. REMOVE AS
EXISTING BRIDGE STRUCTURE = 1.00 LUMP SUM



REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	UNIT
109+94	112+34	LT.	323 LIN. FT.
110+03	111+82	RT.	248 LIN. FT.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
108+40	109+31	LT.	6'-0"	61
108+75	108+85	RT.	6'-0"	7
109+16	109+54	RT.	6'-0"	25
110+23	110+85	LT.	6'-0"	41
110+38	111+70	RT.	6'-0"	88

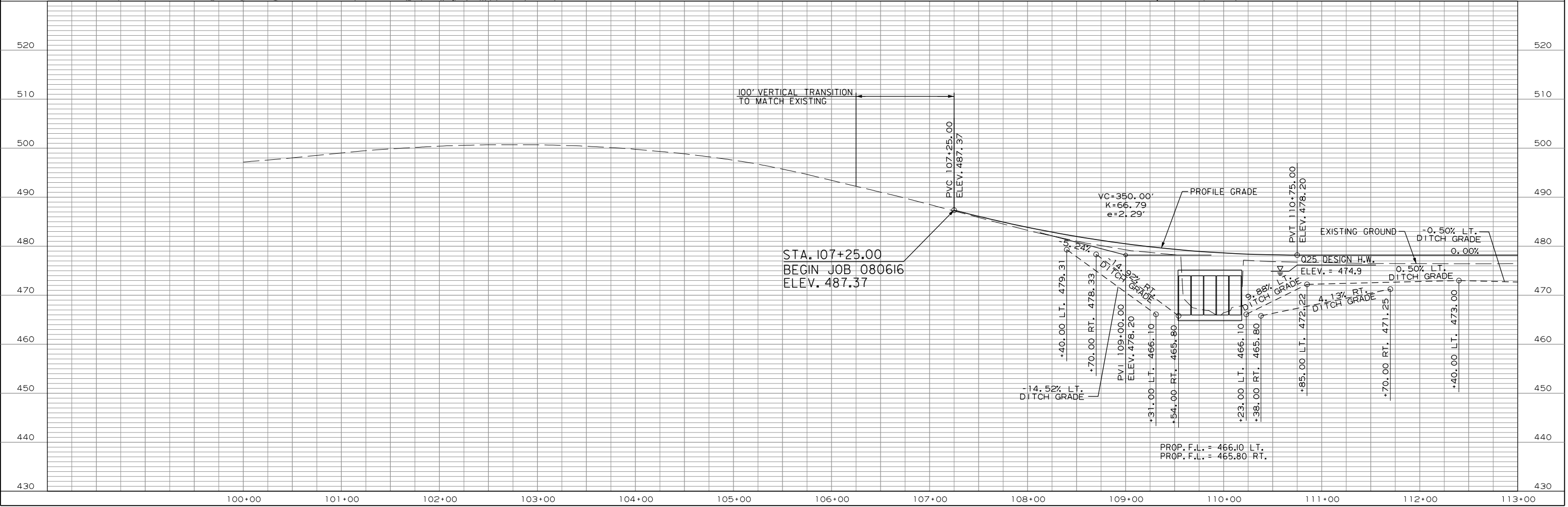
C.L. HWY. I24
 PI = 103+70.73
 Δ = 68°49'58" RT.
 D = 14°30'00"
 L = 270.73'
 T = 474.71'
 PC = 101+00.00
 PT = 105+74.71

STA. 107+25.00
 BEGIN JOB 080616
 L.M. 5.53

STA. 107+38.00 INSTALL
18" X 38' PIPE CULVERT RT. SIDE DRAIN
CONSTRUCT APPROACH = 34 CU. YDS.

STA. 108+96.00 INSTALL
18" X 36' PIPE CULVERT RT. SIDE DRAIN
CONSTRUCT APPROACH = 34 CU. YDS.

STA. 112+42.00 CONSTRUCT
APPROACH ON RT. = 24 CU. YDS.

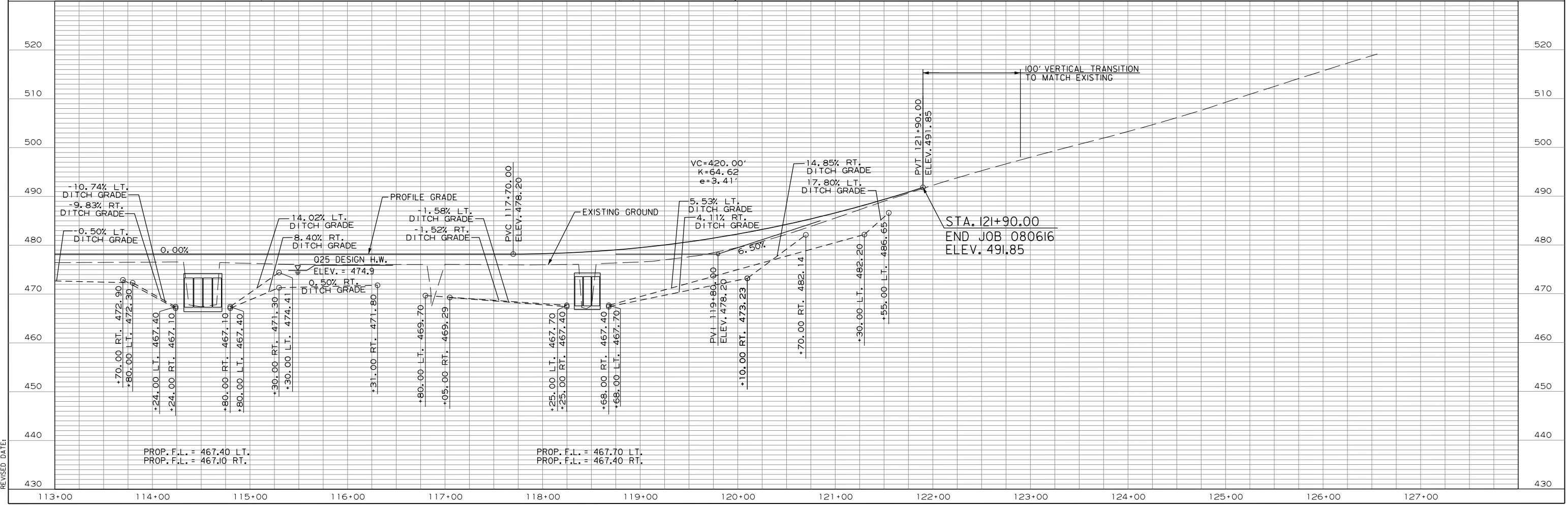
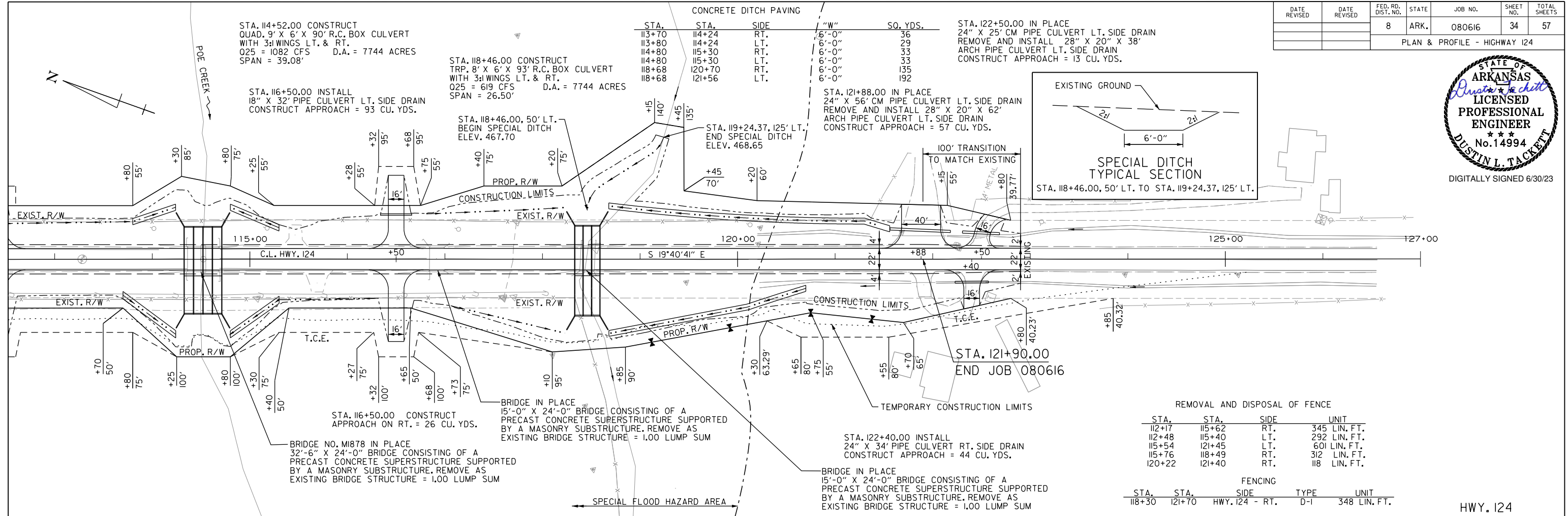
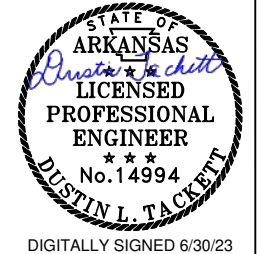


STA. 107+25.00
 BEGIN JOB 080616
 ELEV. 487.37

PROP. F.L. = 466.10 LT.
 PROP. F.L. = 465.80 RT.

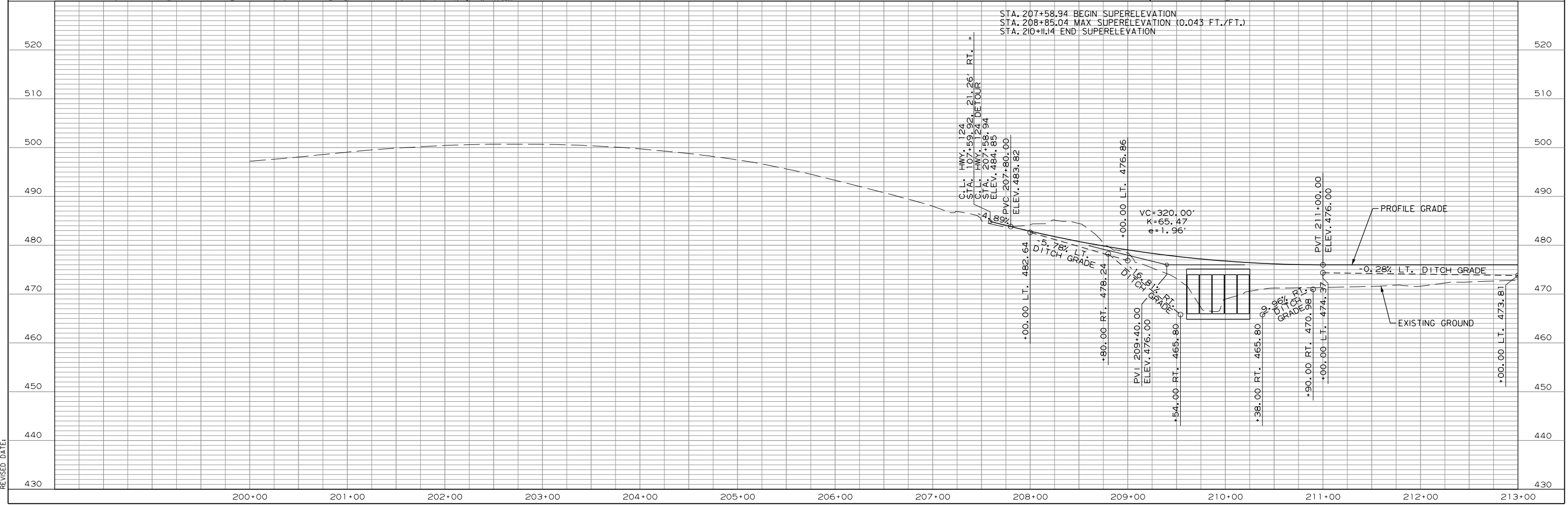
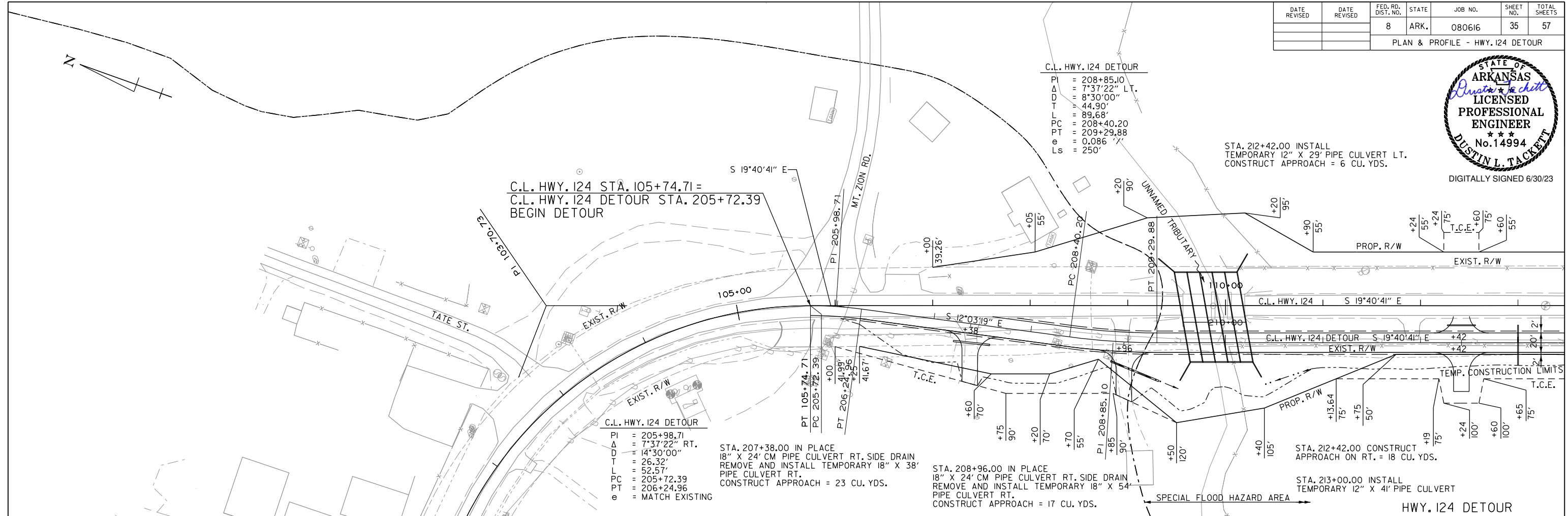
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 REVISED DATE:

DATE REVISED	DATE	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		8	ARK.	080616	34	57
PLAN & PROFILE - HIGHWAY I24						



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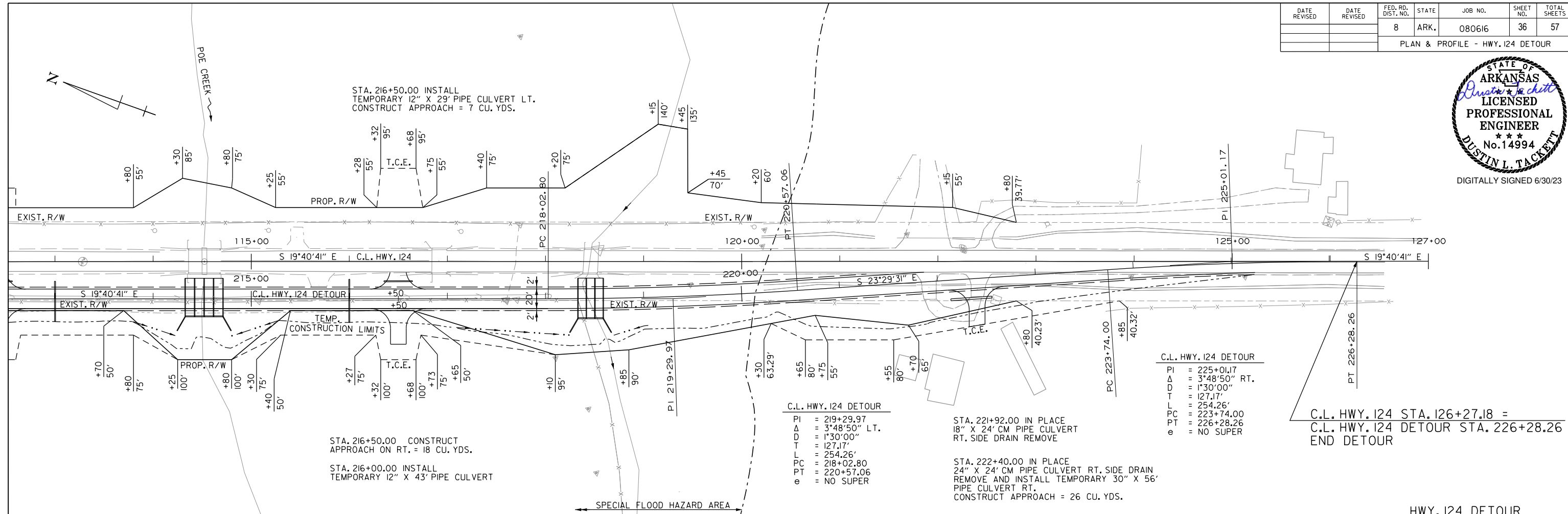
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PLAN & PROFILE - HWY. 124 DETOUR						



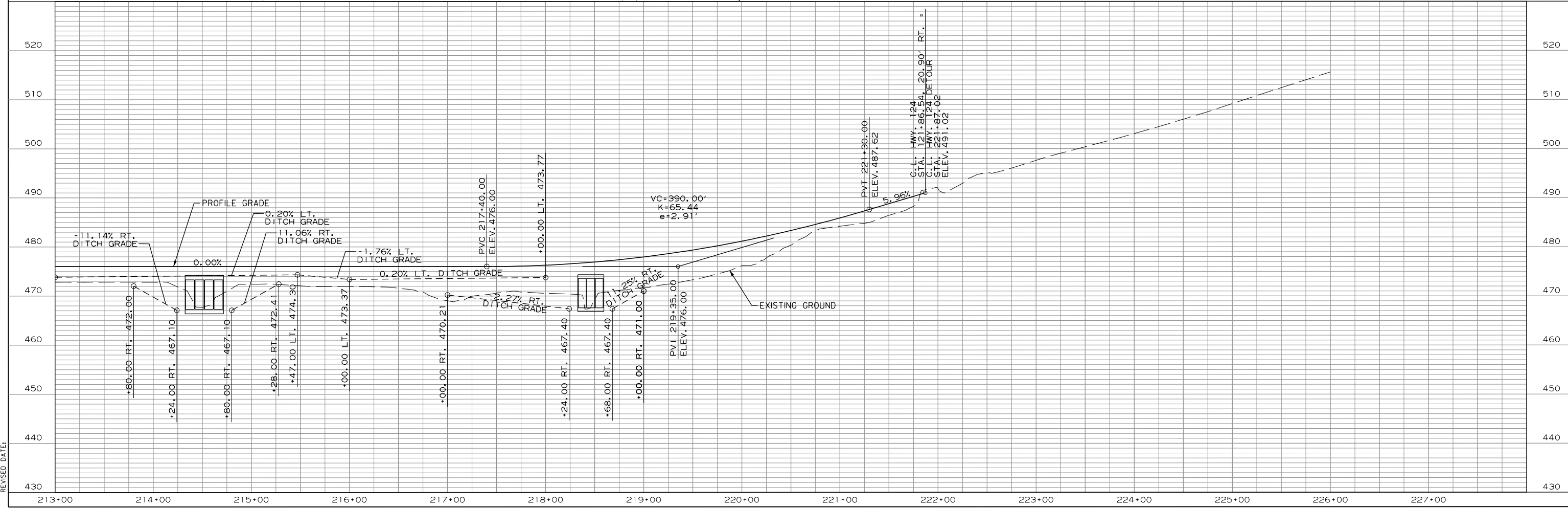
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 REVISED DATE:

DATE REVISED	DATE REVISION	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		8	ARK.	080616	36	57

PLAN & PROFILE - HWY. 124 DETOUR

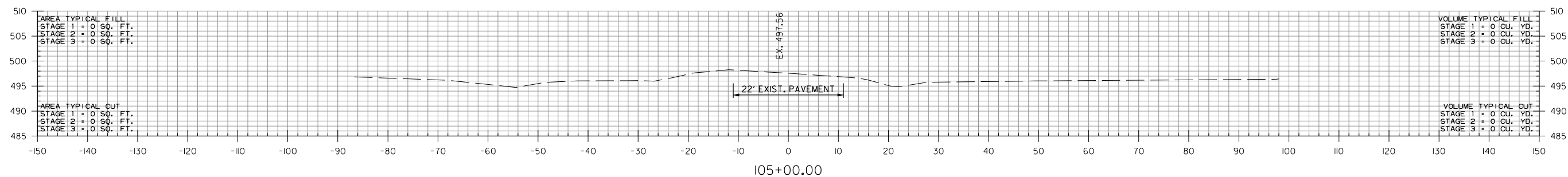
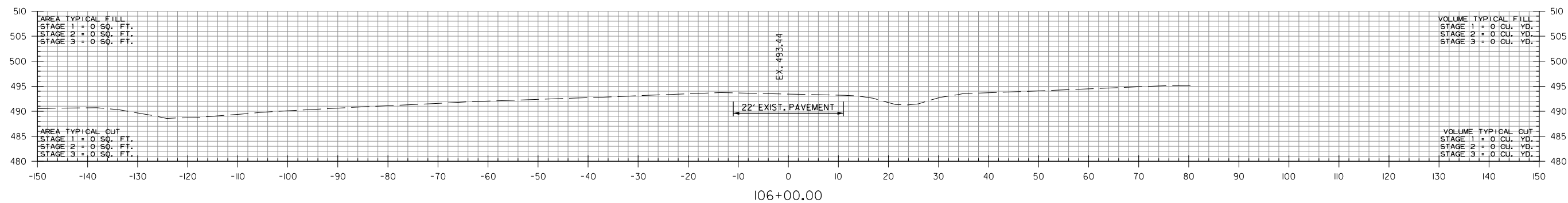
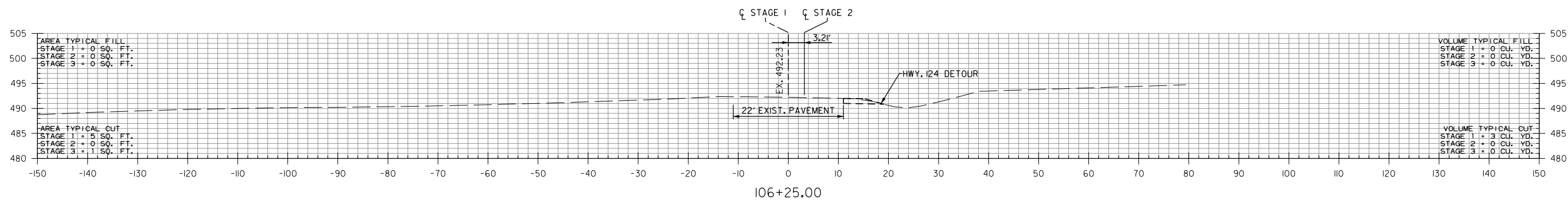


HWY. 124 DETOUR



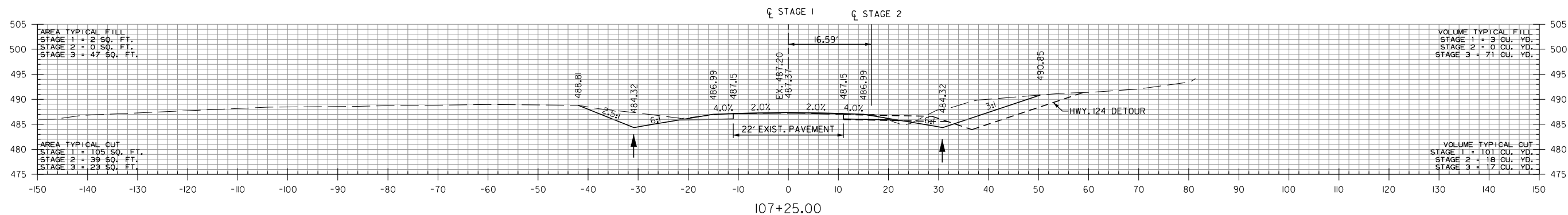
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CROSS SECTIONS						

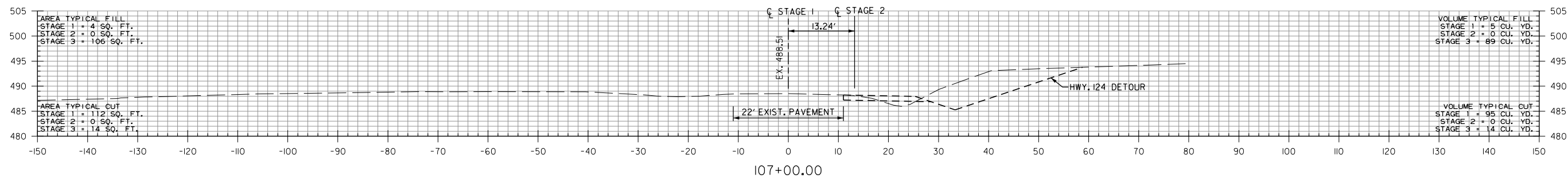


HWY. 124
 STA. 105+00 TO STA. 106+25

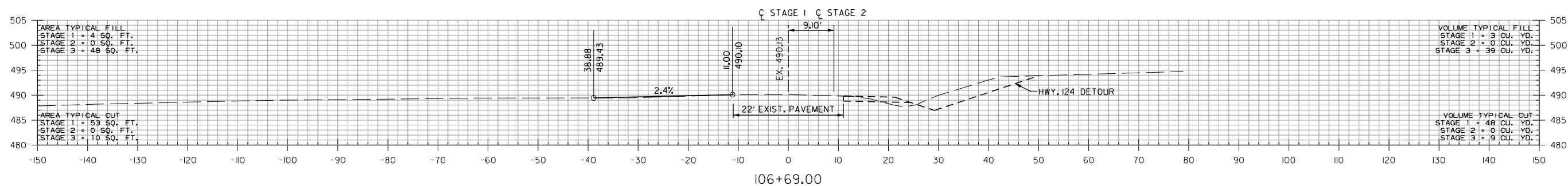
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	38	57
CROSS SECTIONS						



107+25.00
STA. 107+25.00 BEGIN JOB 080616

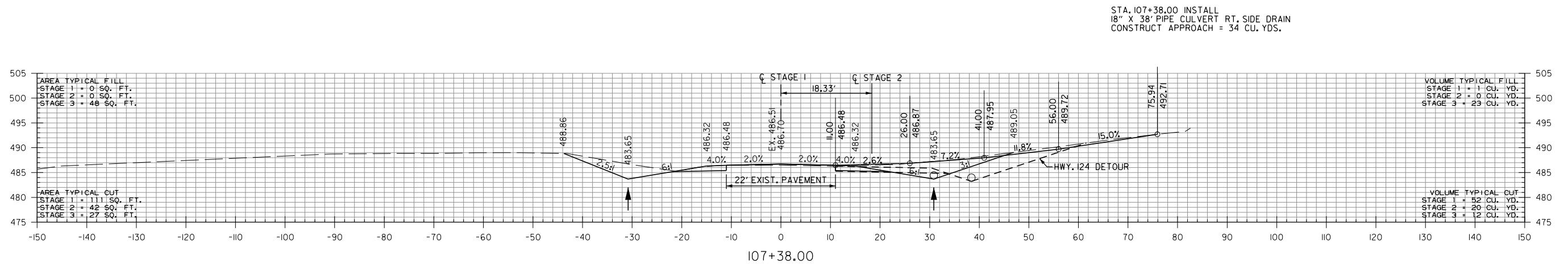
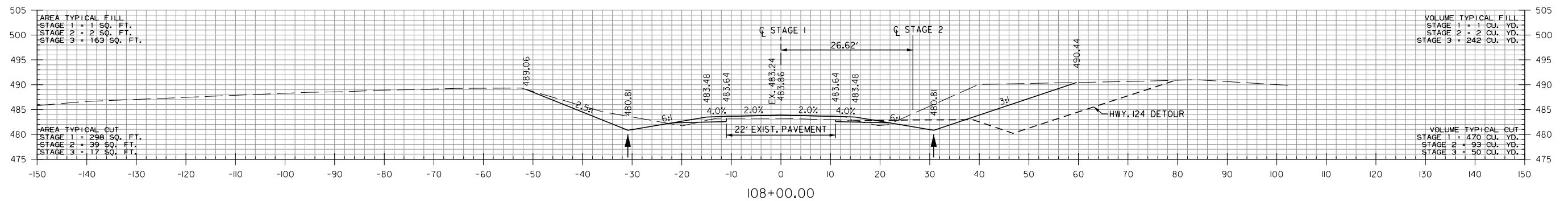
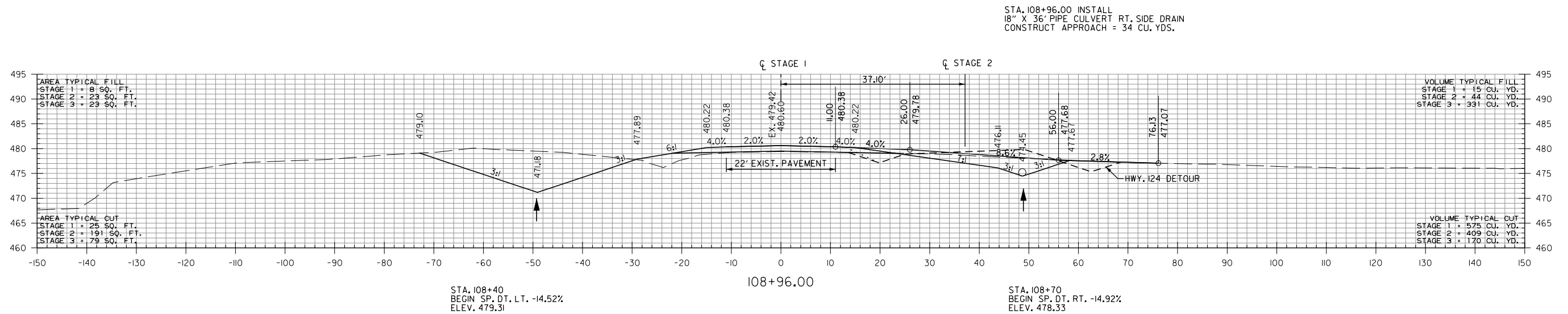


107+00.00
STA. 106+69 CONSTRUCT
APPROACH ON LT. = 24 CU. YDS.



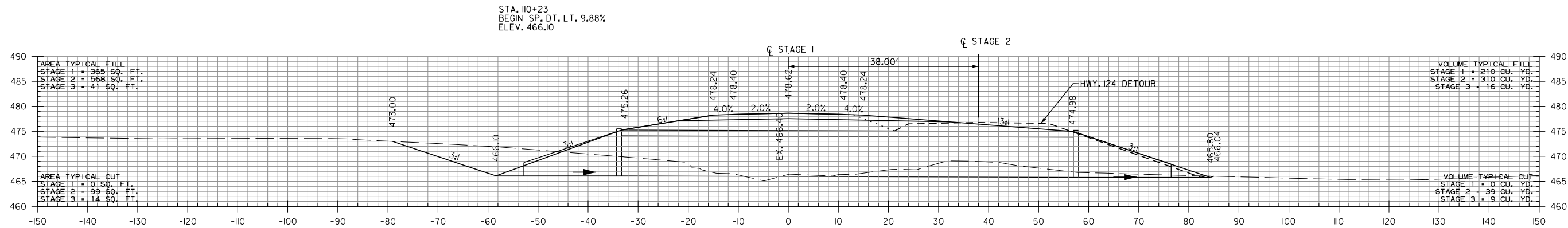
106+69.00
HWY. 124
STA. 106+69 TO STA. 107+25

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	39	57
CROSS SECTIONS						

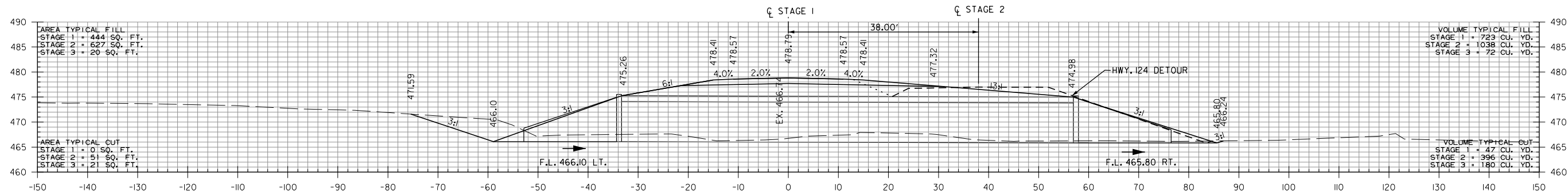


HWY. 124
STA. 107+38 TO STA. 108+96

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	40	57
CROSS SECTIONS						

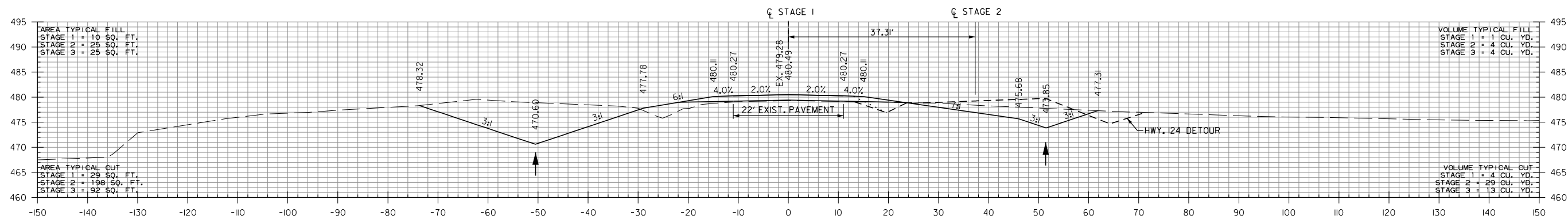


110+00.00
STA. 109+86.00 CONSTRUCT
QUINT. 12' X 8' X 94' R.C. BOX CULVERT
10' RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q25 = 3039 CFS D.A. = 7744 ACRES
SPAN = 64.00'



STA. 109+31
END SP. DT. LT. -14.52%
ELEV. 466.10

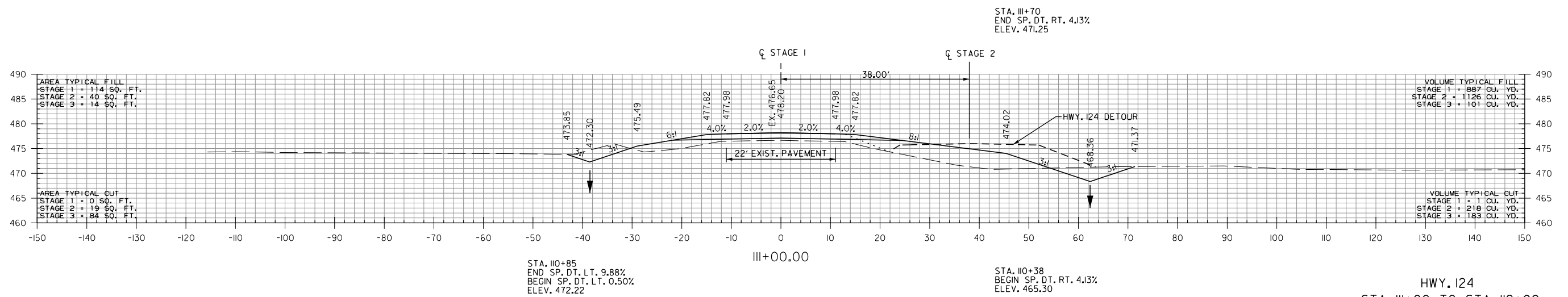
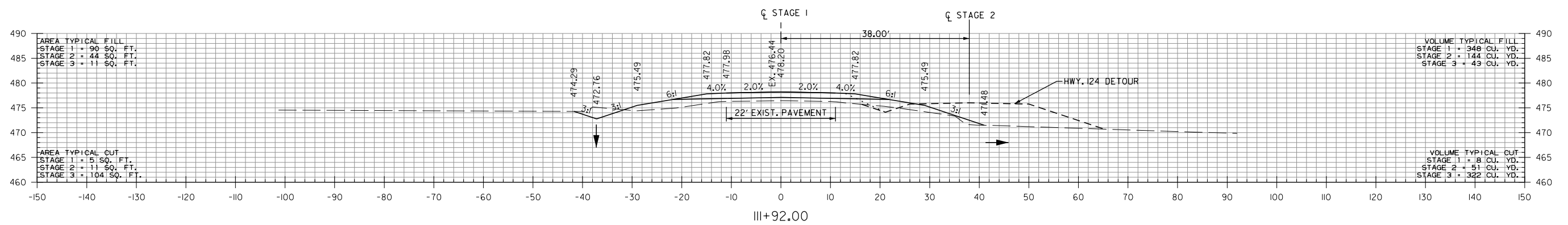
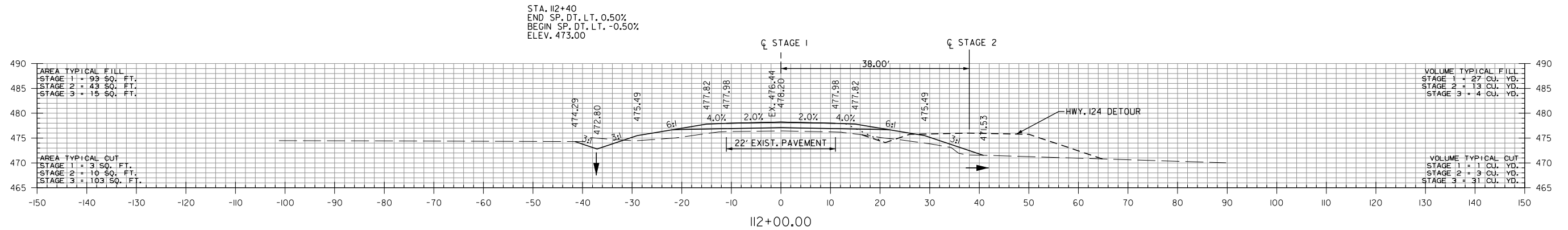
STA. 109+54
BEGIN SP. DT. RT. -14.92%
ELEV. 465.80



HWY. 124
STA. 109+00 TO STA. 110+00

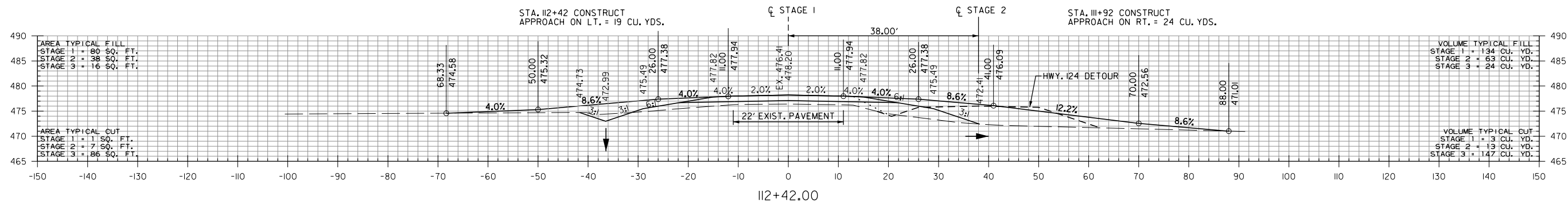
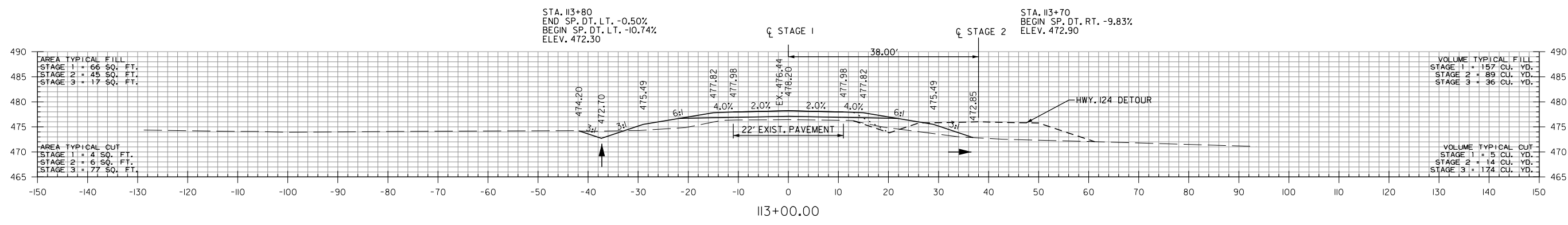
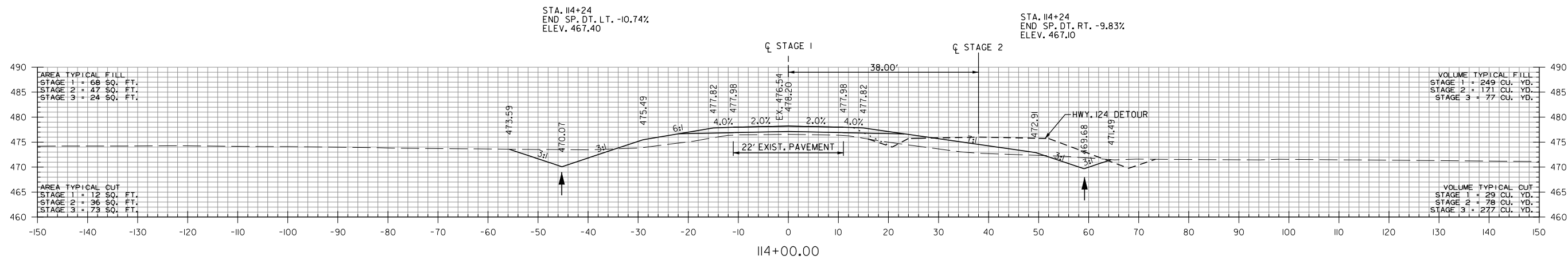
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 DKAdcock
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 REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	41	57
CROSS SECTIONS						



HWY. 124
STA. III+00 TO STA. II2+00

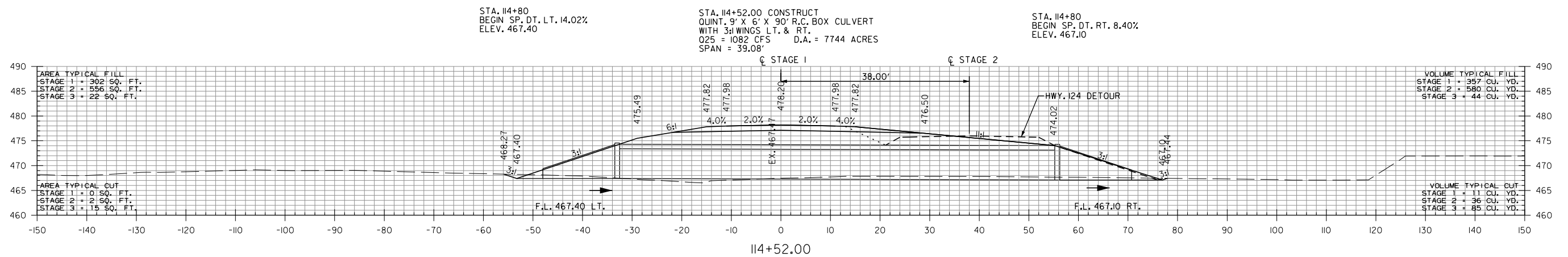
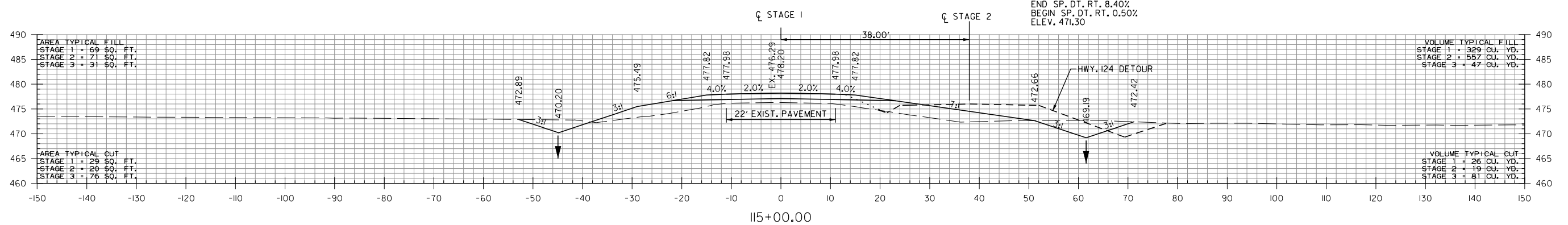
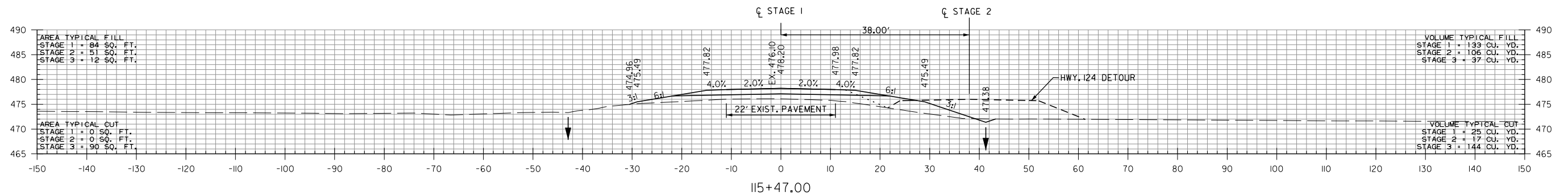
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	42	57
CROSS SECTIONS						



HWY. 124
STA. 112+42 TO STA. 114+00

6/29/2023 12:09 PM
 DKAdcock
 WORKSPACE: AHTD
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 REVISED DATE:

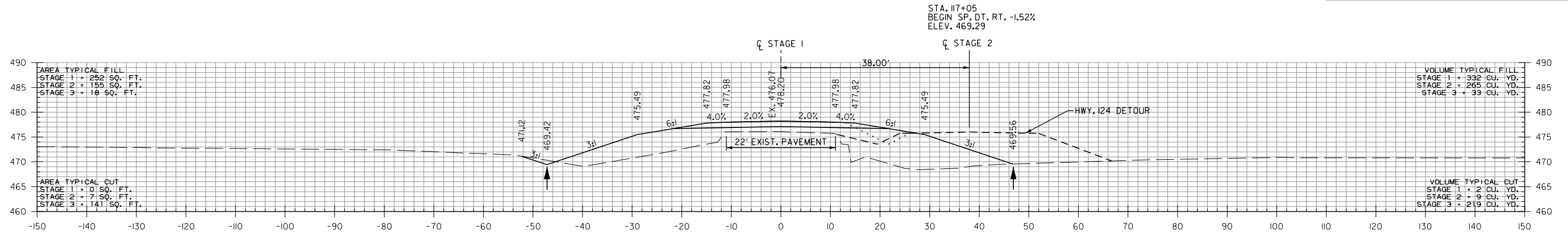
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	43	57
CROSS SECTIONS						



HWY. 124
 STA. 114+52 TO STA. 115+47

6/29/2023 12:019 PM
 DKAdcock
 WORKSPACE: AHTD
 L:\2017\07622 - 080616 PolkCreek Str-Apprs\Drawings\080616_CX_HWY_124.dgn
 REVISED DATE:

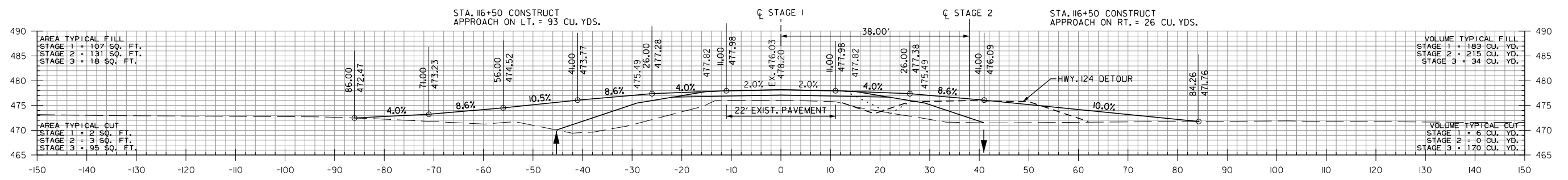
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	44	57
CROSS SECTIONS						



STA. 117+05
 BEGIN SP. DT. RT. -1.52%
 ELEV. 469.29

117+00.00

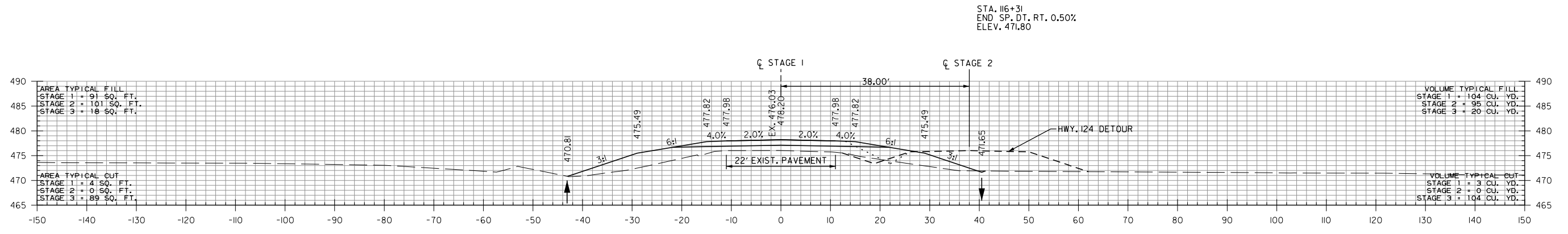
STA. 116+80
 BEGIN SP. DT. LT. -1.58%
 ELEV. 469.70



STA. 116+50 CONSTRUCT
 APPROACH ON LT. = 93 CU. YDS.

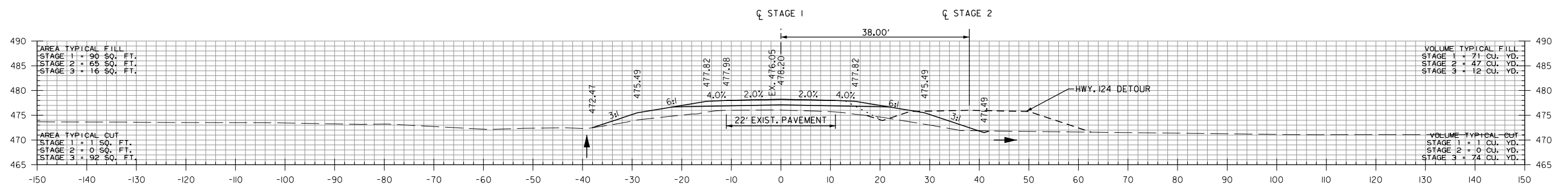
116+50.00

STA. 116+50 CONSTRUCT
 APPROACH ON RT. = 26 CU. YDS.



STA. 116+31
 END SP. DT. RT. 0.50%
 ELEV. 471.80

116+00.00

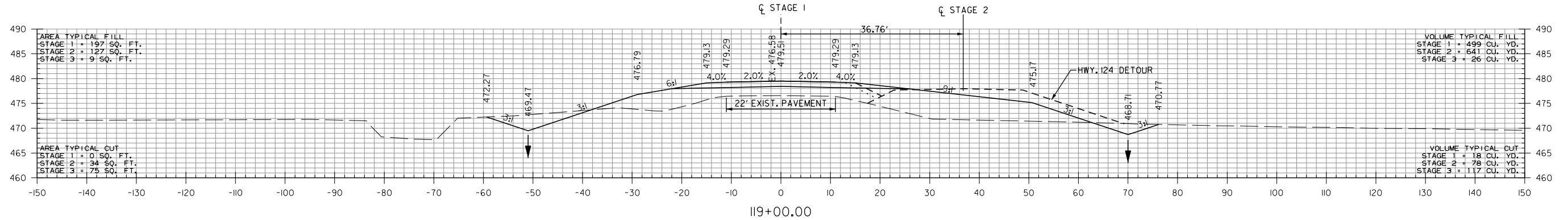


115+69.00

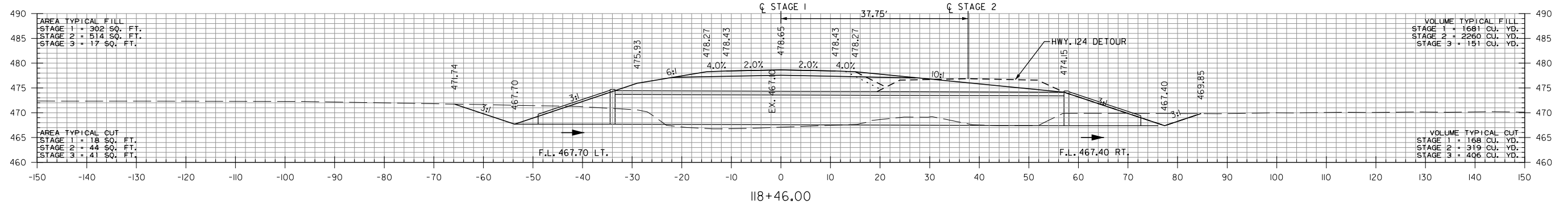
HWY. 124
 STA. 115+69 TO STA. 117+00

6/29/2023 12:00:20 PM
 DKAdcock
 WORKSPACE: AHTD
 L:\2017\07622 - 080616 PolkCreek Str-Apprs\Drawings\080616.CX.HWY 124.dgn
 REVISED DATE:

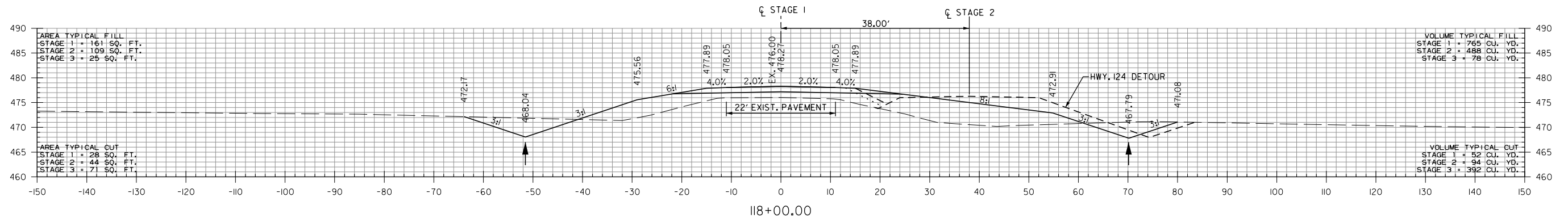
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	45	57
CROSS SECTIONS						



STA. 118+68 BEGIN SP. DT. LT. 5.53% ELEV. 467.70
 STA. 118+46.00 CONSTRUCT TRP. 8' X 6' X 93' R.C. BOX CULVERT WITH 3:1 WINGS LT. & RT. Q25 = 619 CFS D.A. = 7744 ACRES SPAN = 26.50'
 STA. 118+68 BEGIN SP. DT. RT. 4.11% ELEV. 467.40



STA. 118+25 END SP. DT. LT. -1.58% ELEV. 467.70
 STA. 118+25 END SP. DT. RT. -1.52% ELEV. 467.40

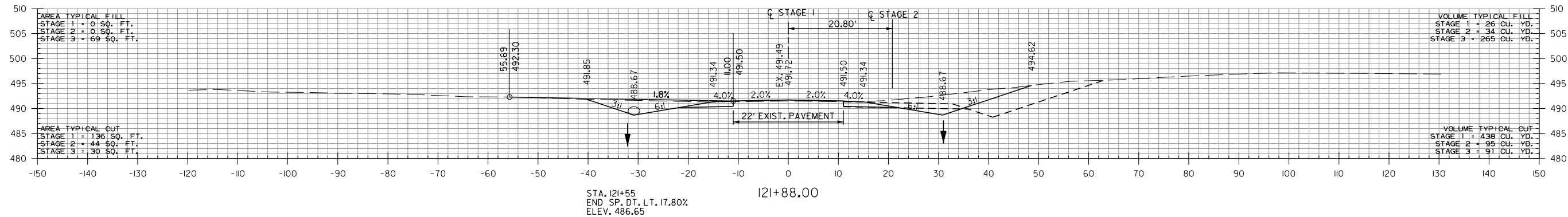


HWY. 124
 STA. 118+00 TO STA. 119+00

6/29/2023 12:00:20 PM
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 WORKSPACE: AHTD
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 REVISED DATE:

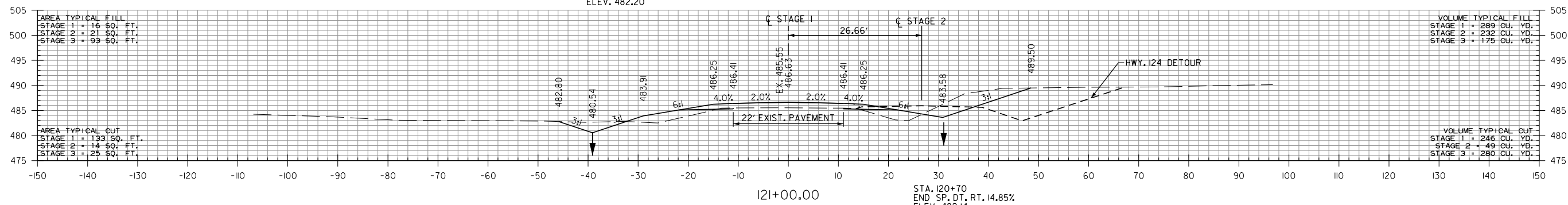
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	46	57
CROSS SECTIONS						

STA. I21+88.00 IN PLACE
 24" X 56' CM PIPE CULVERT LT. SIDE DRAIN
 REMOVE AND INSTALL 28" X 20" X 62'
 ARCH PIPE CULVERT LT. SIDE DRAIN
 CONSTRUCT APPROACH = 57 CU. YDS.



STA. I21+55
 END SP. DT. LT. 17.80%
 ELEV. 486.65

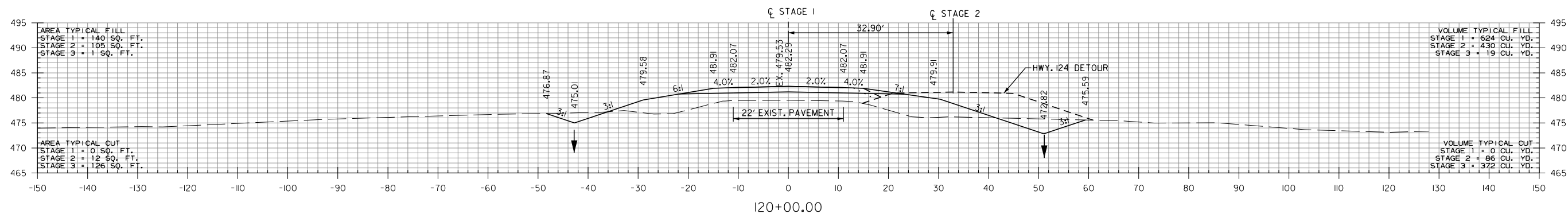
STA. I21+30
 END SP. DT. LT. 5.53%
 BEGIN SP. DT. LT. 17.80%
 ELEV. 482.20



STA. I21+00.00

STA. I20+70
 END SP. DT. RT. 14.85%
 ELEV. 482.14

STA. I20+10
 END SP. DT. RT. 4.11%
 BEGIN SP. DT. RT. 14.85%
 ELEV. 473.23

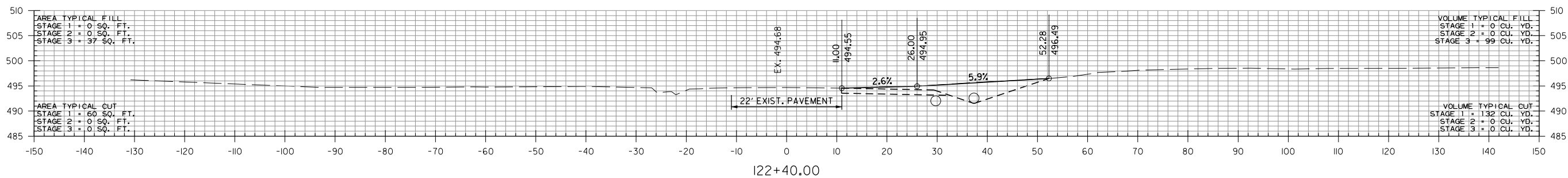


STA. I20+00.00

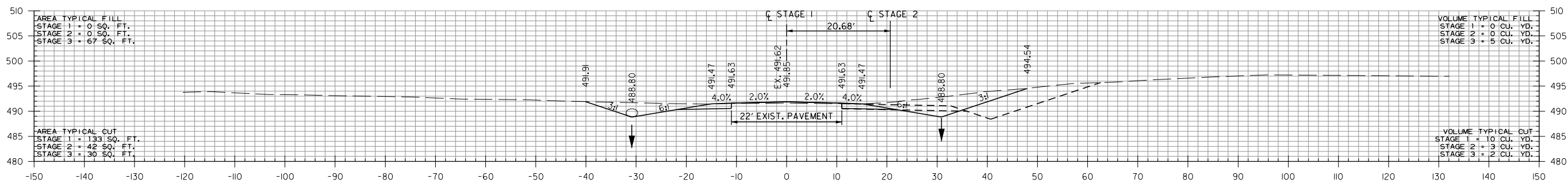
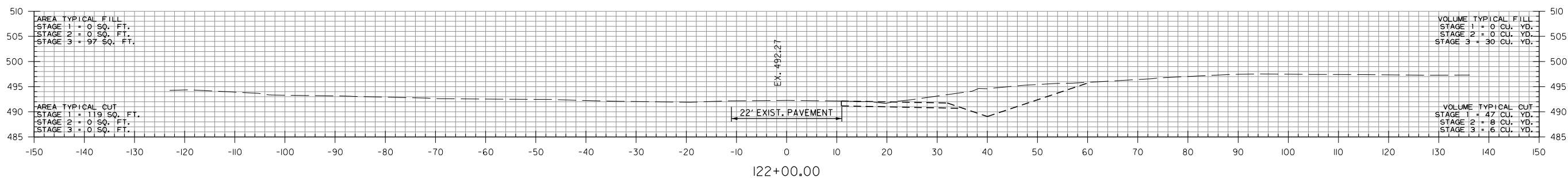
HWY. I24
 STA. I20+00 TO STA. I21+88

6/29/2023 12:02:20 PM
 DKAdcock
 WORKSPACE: AHTD
 L:\2017\07622 - 080616 PolkCreek Str-Apprs\Drawings\080616_CX_Hwy_I24.dgn
 REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	47	57
CROSS SECTIONS						



STA. 122+40.00 INSTALL
 24" X 34' PIPE CULVERT RT. SIDE DRAIN
 CONSTRUCT APPROACH = 44 CU. YDS.

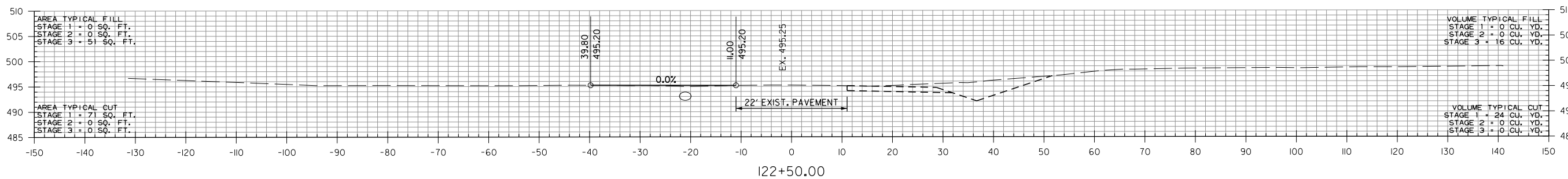
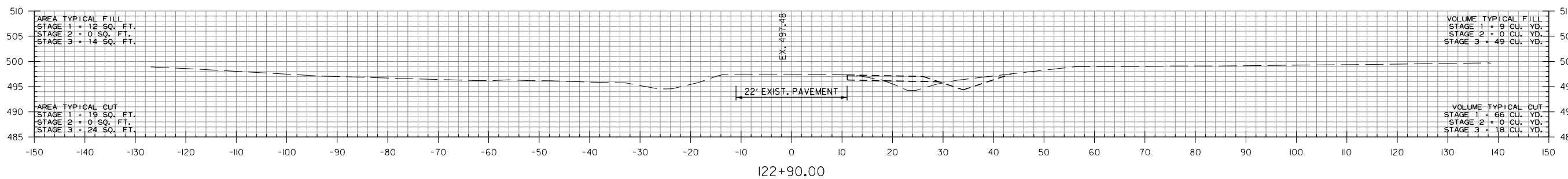
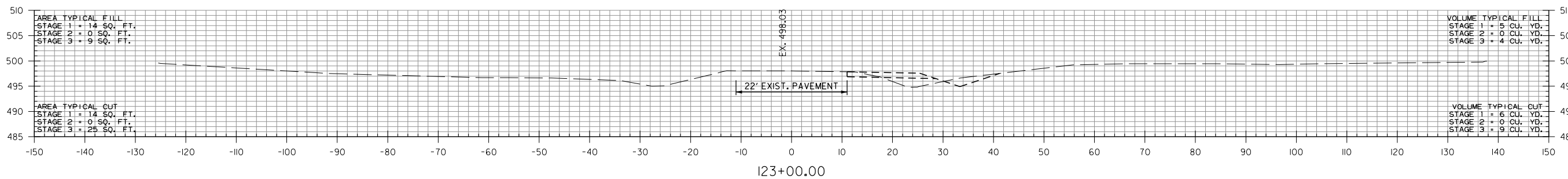


STA. 121+90.00 END JOB 080616

HWY. 124
 STA. 121+90 TO STA. 122+40

6/29/2023 12:02:20 PM
 DKAdcock
 WORKSPACE: AHTD
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 REVISED DATE:

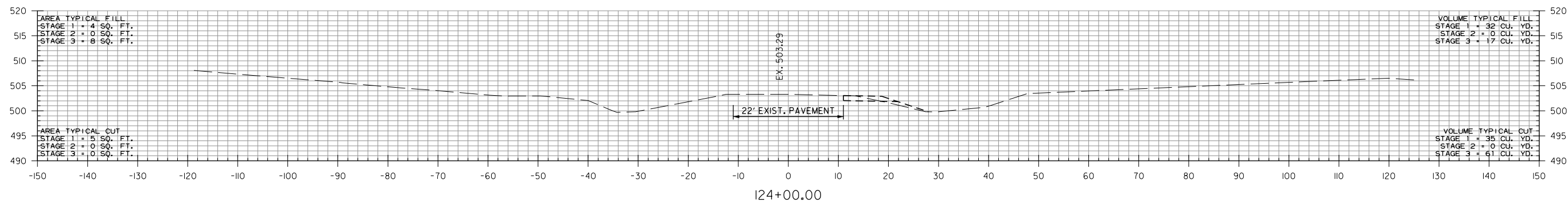
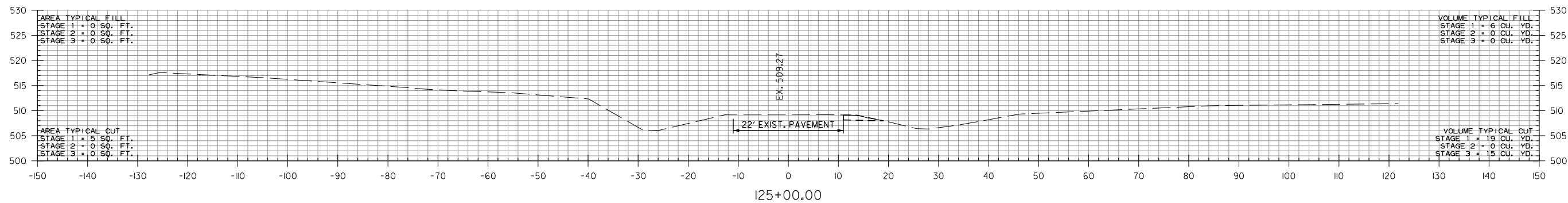
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	48	57
CROSS SECTIONS						



STA. 122+50.00 IN PLACE
 24" X 25' CM PIPE CULVERT LT. SIDE DRAIN
 REMOVE AND INSTALL 28" X 20" X 38'
 ARCH PIPE CULVERT LT. SIDE DRAIN
 CONSTRUCT APPROACH = 13 CU. YDS.

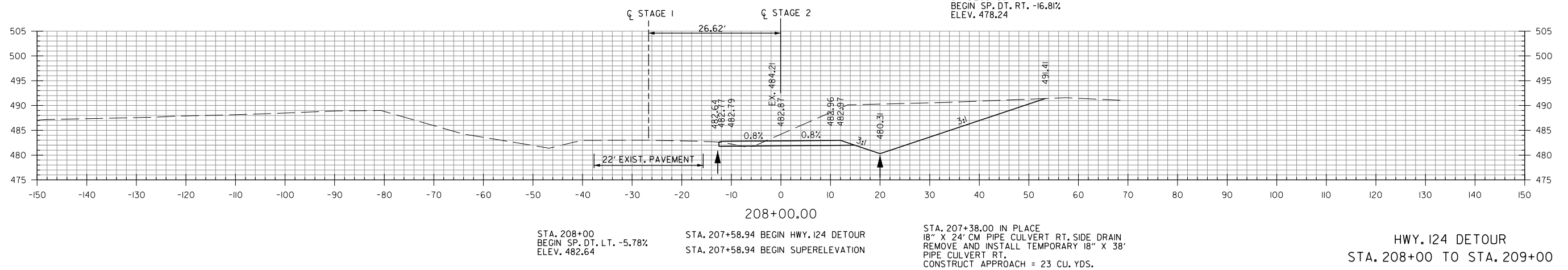
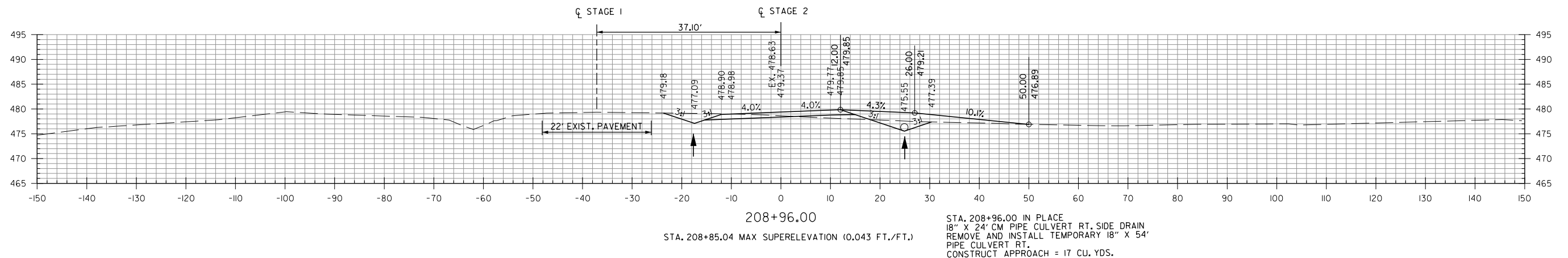
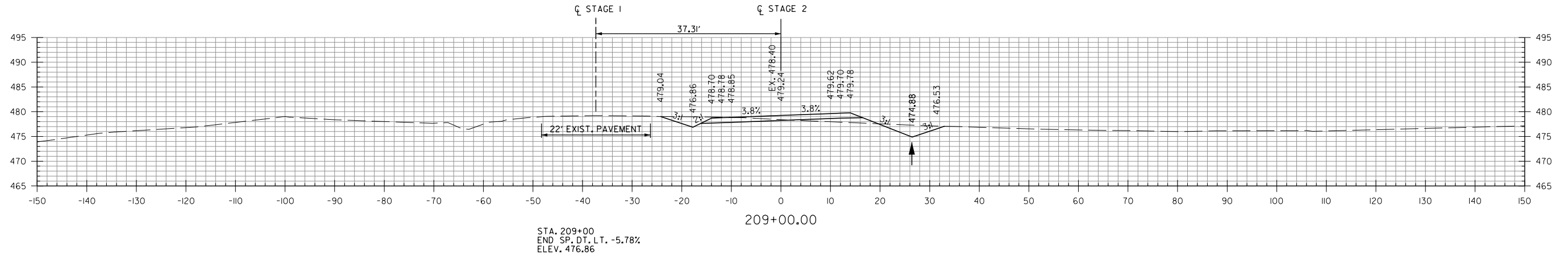
HWY. 124
 STA. 122+50 TO STA. 123+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	49	57
CROSS SECTIONS						



HWY. 124
STA. 124+00 TO STA. 125+00

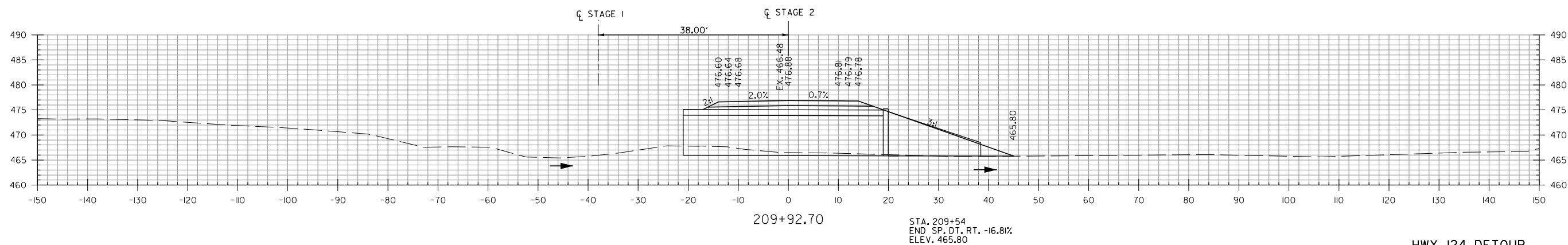
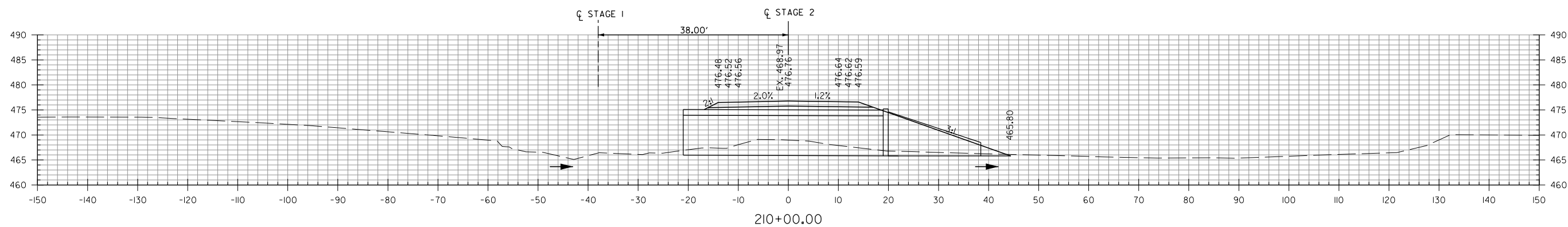
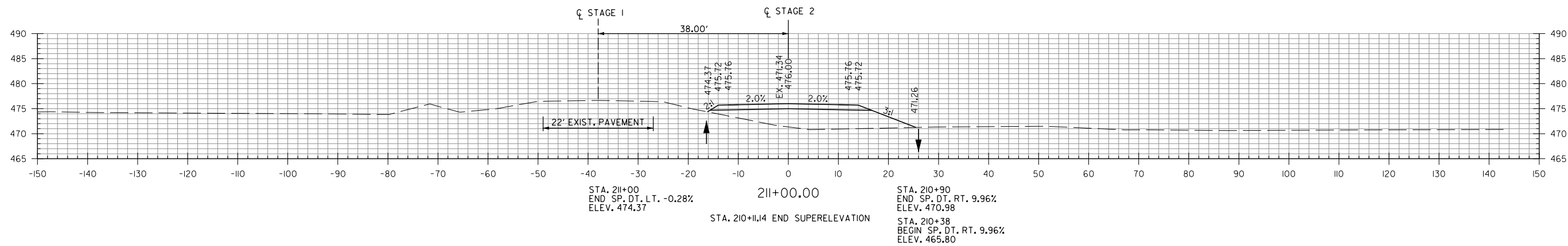
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	50	57
CROSS SECTIONS						



HWY. I24 DETOUR
 STA. 208+00 TO STA. 209+00

6/29/2023 12:00:20 PM
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 WORKSPACE: AHTD
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 REVISED DATE:

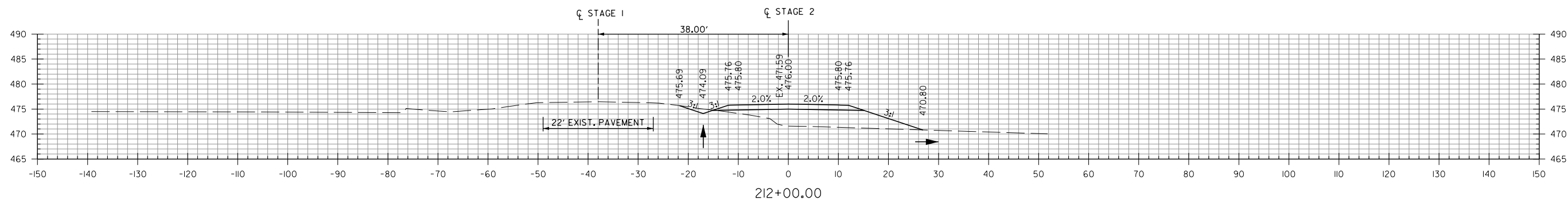
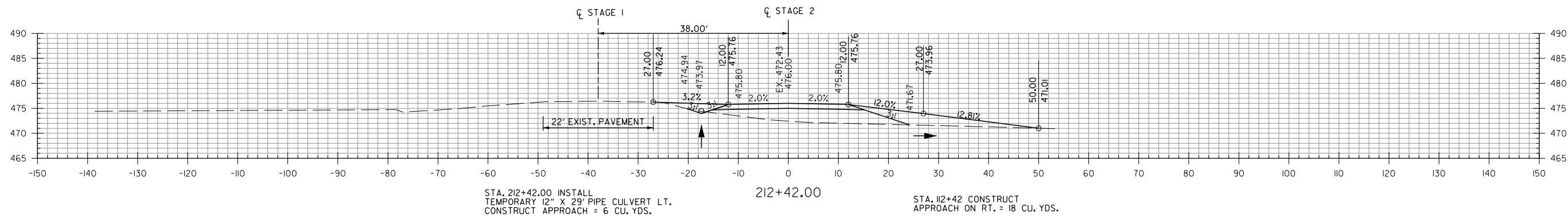
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	51	57
CROSS SECTIONS						



HWY. 124 DETOUR
 STA. 209+92.70 TO STA. 211+00

6/29/2023 12:02:21 PM
 DKAdcock
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 REVISED DATE:

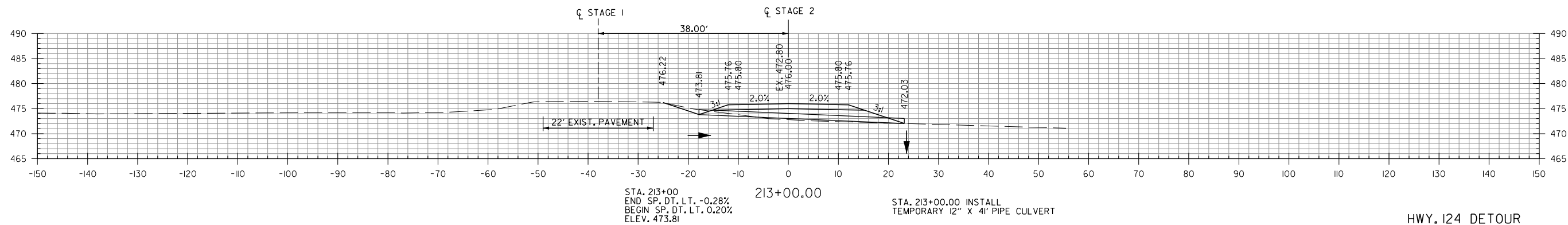
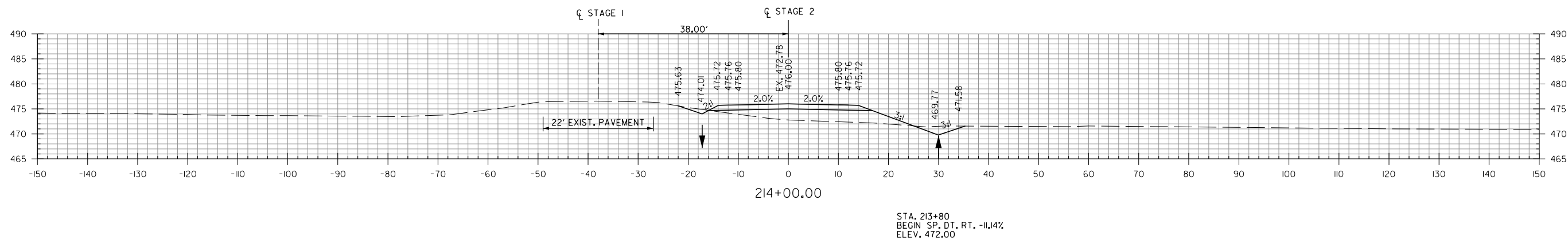
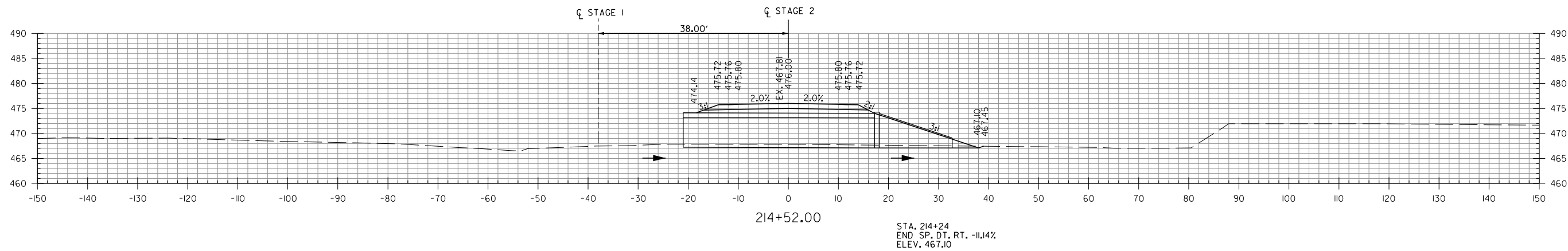
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	52	57
CROSS SECTIONS						



HWY. I24 DETOUR
 STA. 212+00 TO STA. 212+42

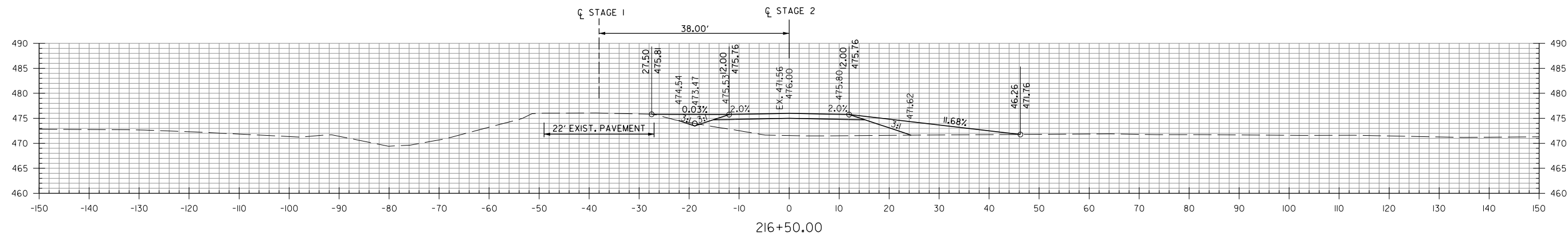
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 REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	53	57
CROSS SECTIONS						



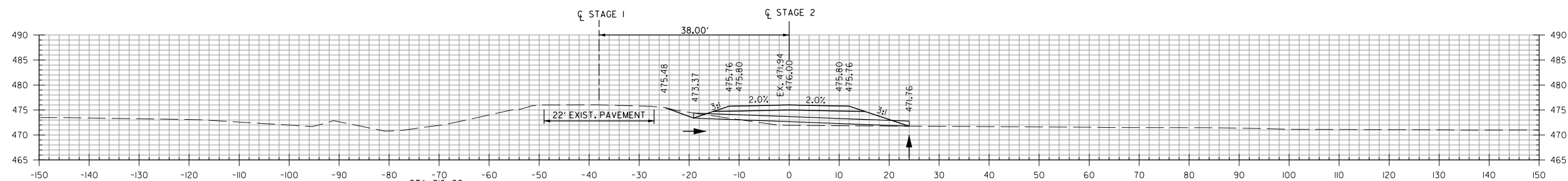
HWY. 124 DETOUR
STA. 213+00 TO STA. 214+52

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	54	57
CROSS SECTIONS						



STA. 216+50.00 INSTALL
TEMPORARY 12" X 29' PIPE CULVERT LT.
CONSTRUCT APPROACH = 7 CU. YDS.

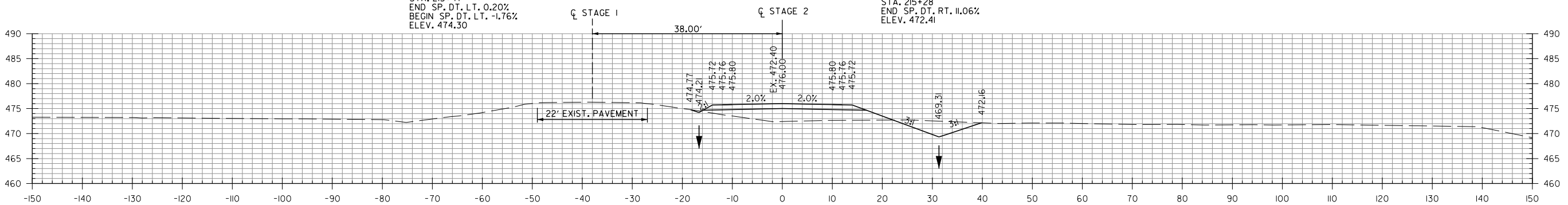
STA. 216+50.00 CONSTRUCT
APPROACH ON RT. = 18 CU. YDS.



STA. 216+00
END SP. DT. LT. -1.76%
BEGIN SP. DT. LT. 0.20%
ELEV. 473.37

STA. 216+00.00 INSTALL
TEMPORARY 12" X 43' PIPE CULVERT

STA. 215+28
END SP. DT. RT. 11.06%
ELEV. 472.41



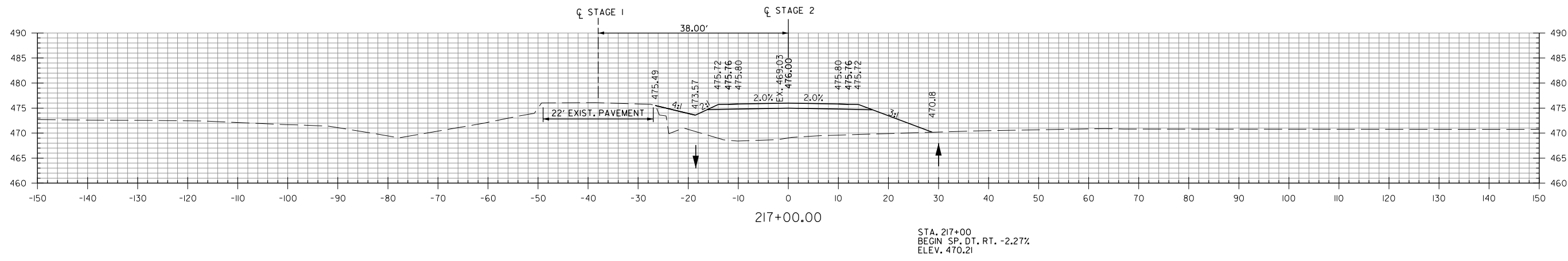
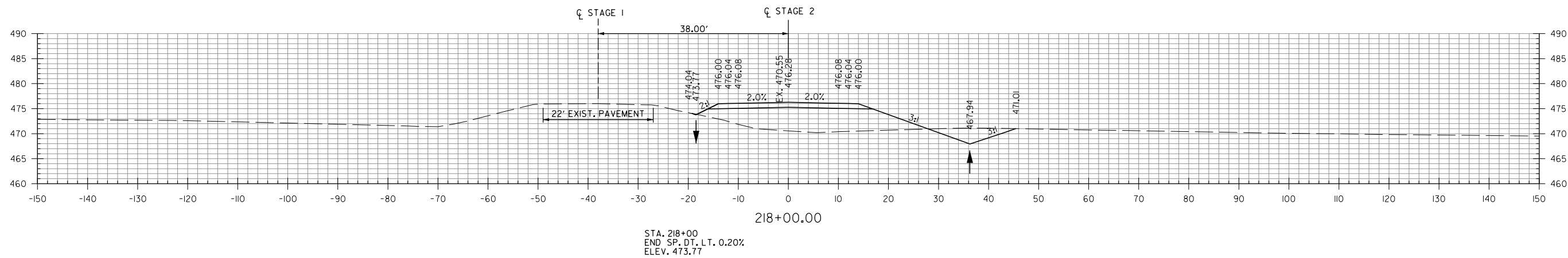
STA. 215+47
END SP. DT. LT. 0.20%
BEGIN SP. DT. LT. -1.76%
ELEV. 474.30

STA. 214+80
BEGIN SP. DT. RT. 11.06%
ELEV. 467.10

HWY. 124 DETOUR
STA. 215+00 TO STA. 216+50

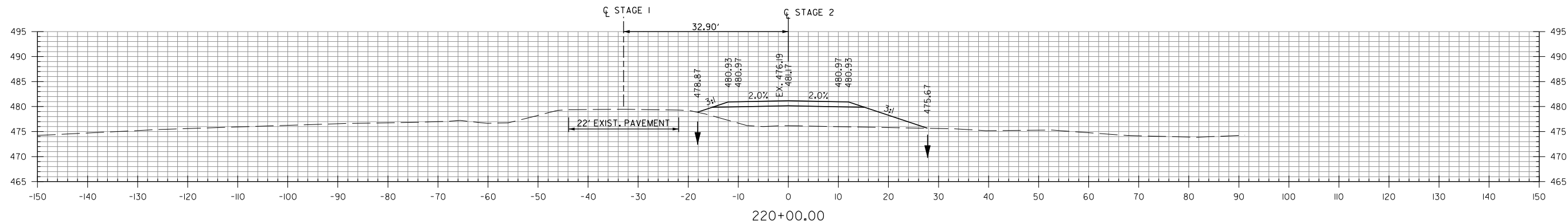
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 WORKSPACE: AHTD
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 REVISED DATE:

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	55	57
CROSS SECTIONS						

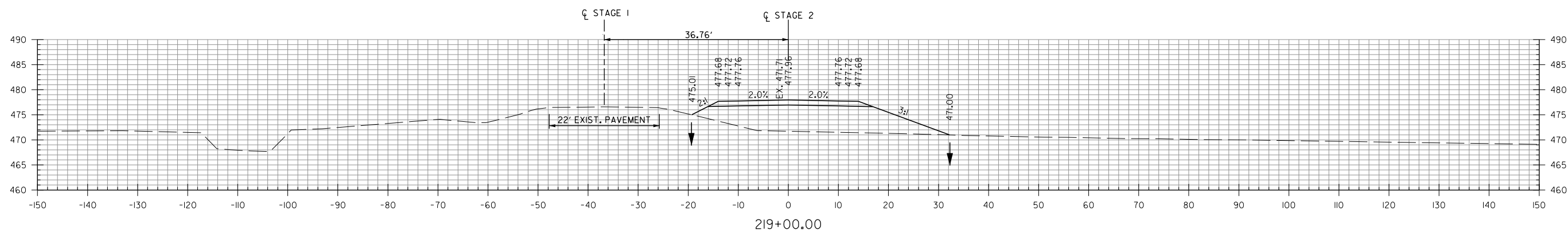


HWY. 124 DETOUR
 STA. 217+00 TO STA. 218+00

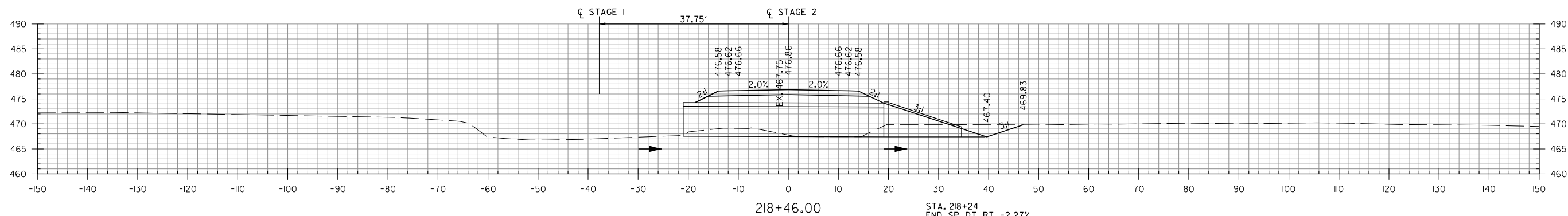
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	56	57
CROSS SECTIONS						



STA. 219+00
 END SP. DT. RT. II.25%
 ELEV. 471.00



STA. 218+68
 BEGIN SP. DT. RT. II.25%
 ELEV. 467.40

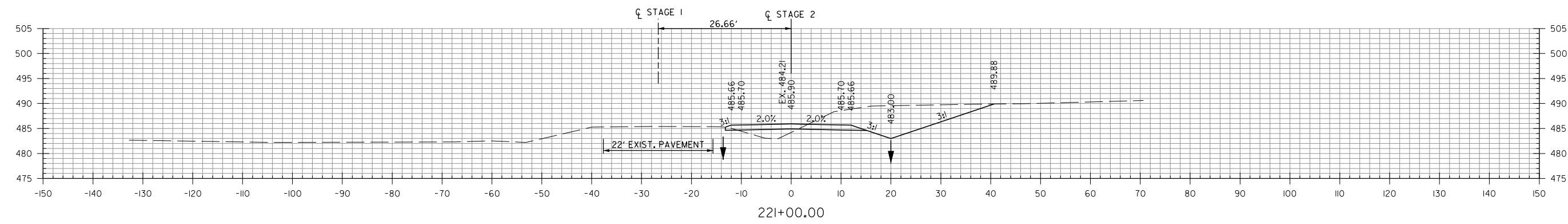


STA. 218+46
 END SP. DT. RT. -2.27%
 ELEV. 467.40

HWY. I24 DETOUR
 STA. 218+46 TO STA. 220+00

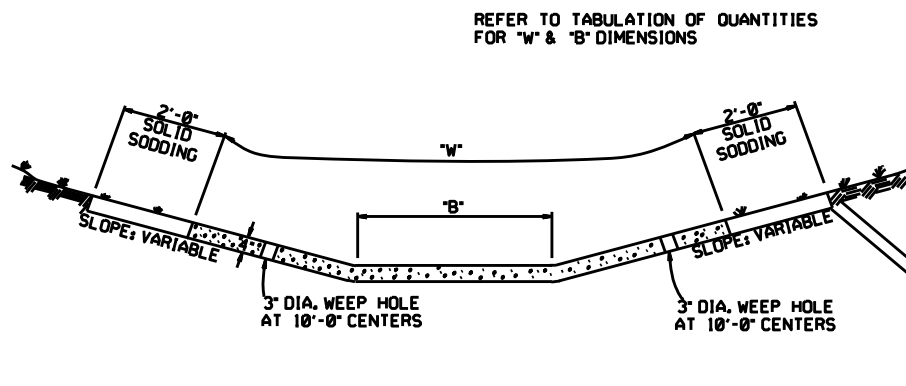
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080616	57	57
CROSS SECTIONS						

STA. 222+40.00 IN PLACE
 24" X 24' CM PIPE CULVERT RT. SIDE DRAIN
 REMOVE AND INSTALL TEMPORARY 30" X 56'
 PIPE CULVERT RT.
 CONSTRUCT APPROACH = 26 CU. YDS.

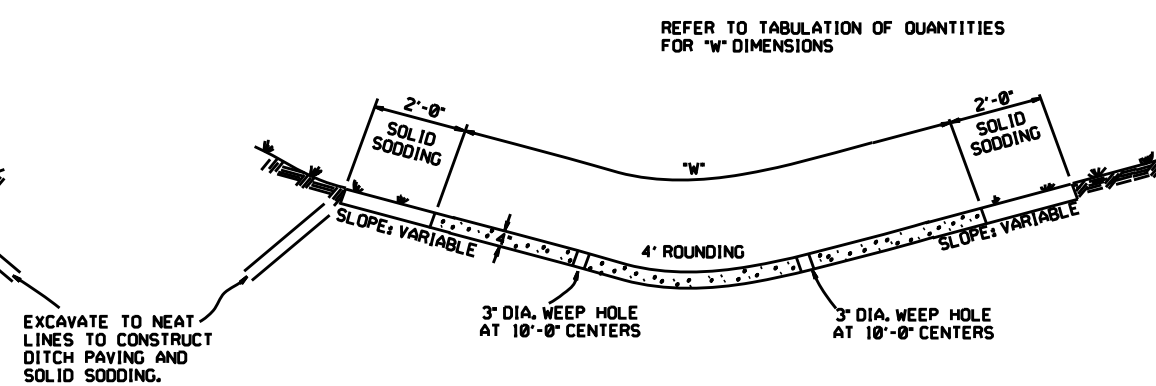


HWY. 124 DETOUR
 STA. 221+00 TO STA. 221+00

6/29/2023 12:02:21 PM
 DKAdcock
 WORKSPACE: AHTD
 L:\2017\07622 - 080616 PollCreek Str-Apprs\Drawings\080616.CX.HWY 124.dgn
 REVISED DATE:



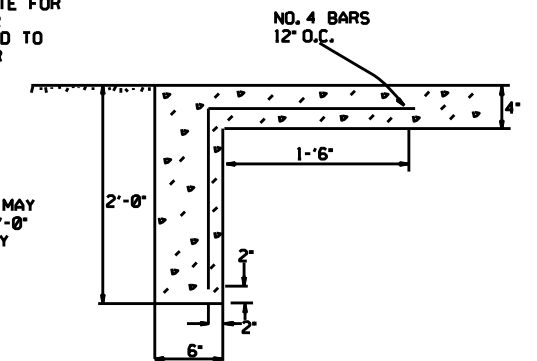
TYPE A



TYPE B

EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

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



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

TOE WALL DETAIL FOR CONCRETE DITCH PAVING

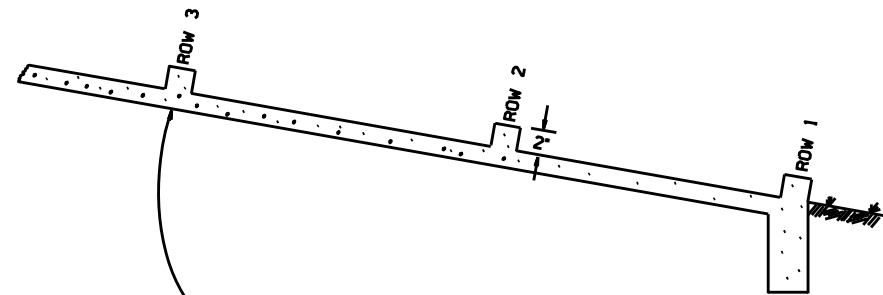
GENERAL NOTES:

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.

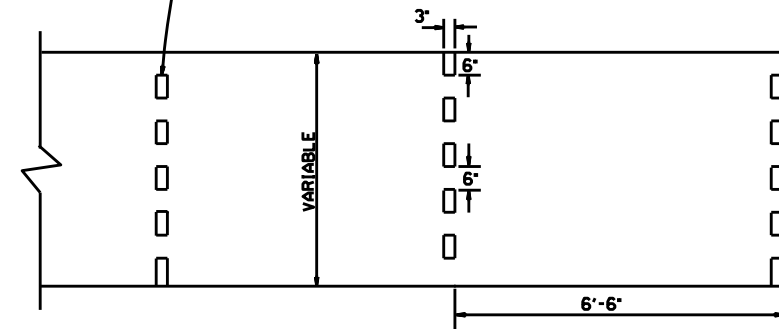
SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

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.



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



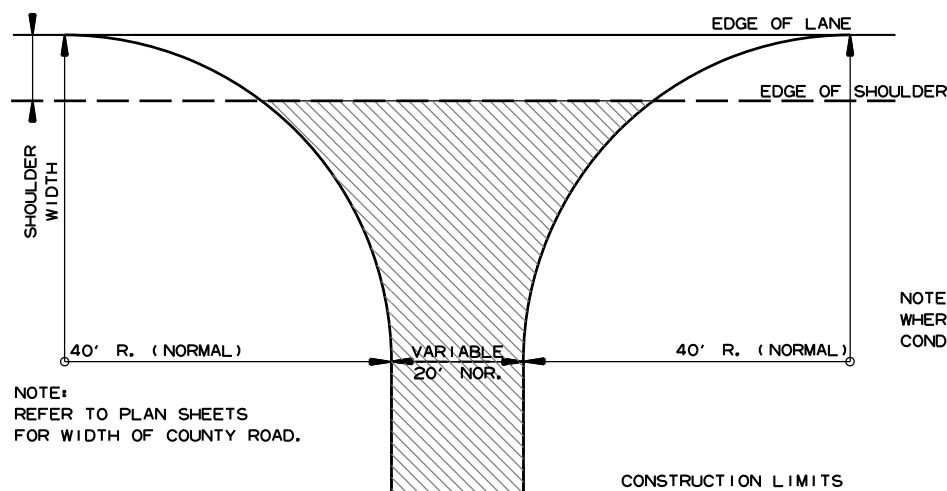
ENERGY DISSIPATORS
(NO SCALE)

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	1111-30-89	
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	508-11-1-84	
11-1-84	ADDED		
11-1-84	EXCAVATION DETAILS ADDED		
10-2-72	TYPED A & B		
	REVISED AND REDRAWN	508-10-2-72	
	DATE		
	REVISION		

ARKANSAS STATE HIGHWAY COMMISSION


CONCRETE DITCH PAVING

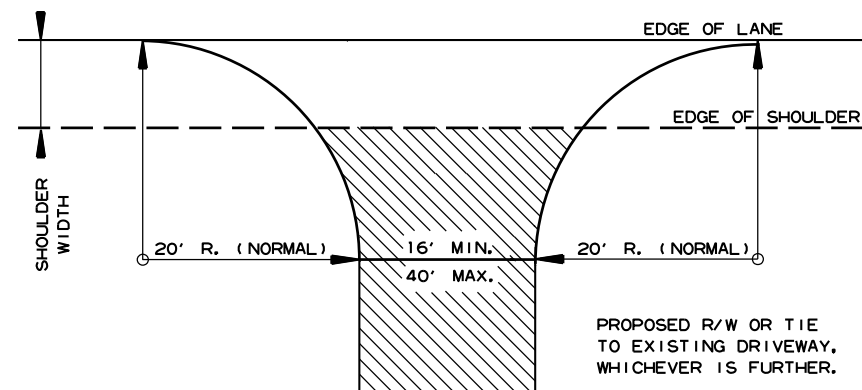
STANDARD DRAWING CDP-1



NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.


DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION

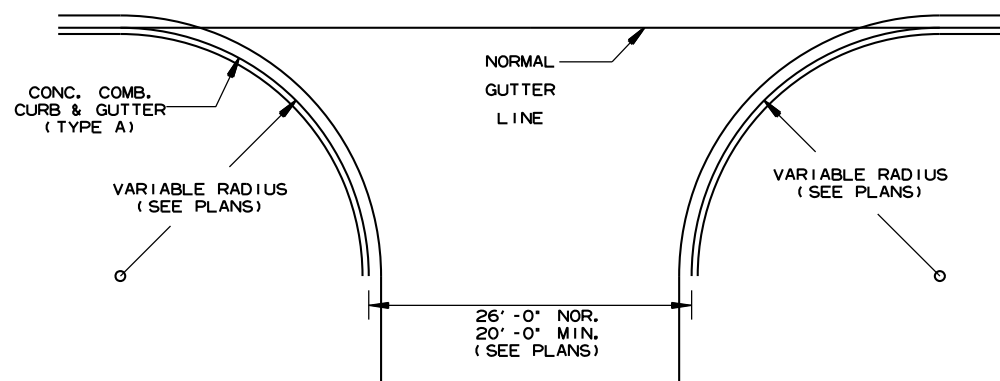
 ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH, UNLESS OTHERWISE
SPECIFIED IN PLANS.



NOTE: TURNOUTS AND PRIVATE DRIVES
SHALL BE MODIFIED WHERE NECESSARY
TO MEET LOCAL CONDITIONS AS DIRECTED
BY THE ENGINEER.

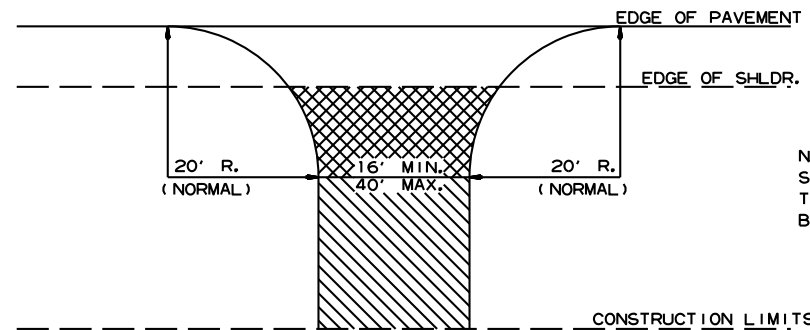
DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)

 ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.





NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS,
& COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF TURNOUTS, ASPHALT STREETS,
COUNTY ROADS & STATE HIGHWAYS
CURB & GUTTER SECTION



NOTE: TURNOUTS AND PRIVATE DRIVES
SHALL BE MODIFIED WHERE NECESSARY
TO MEET LOCAL CONDITIONS AS DIRECTED
BY THE ENGINEER.

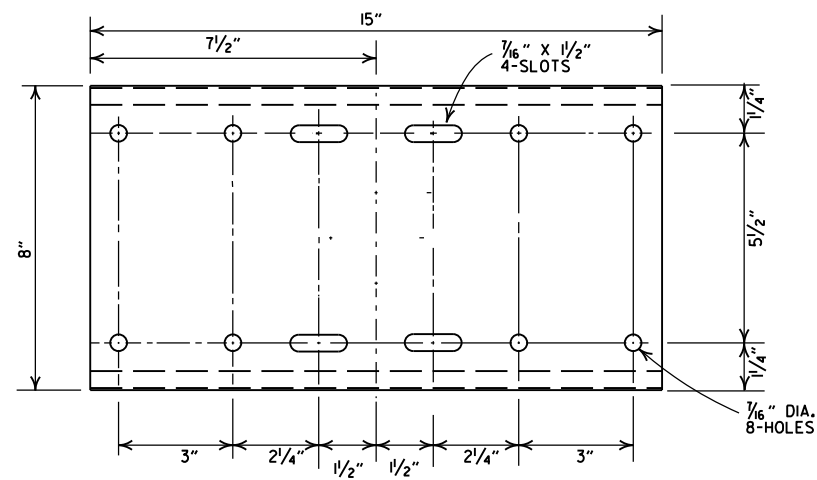
 ASPHALT CONCRETE HOT MIX SURFACE
COURSE (220 LBS. PER SQ. YD.)
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR
6" CONCRETE IF CONCRETE DRIVE EXIST.

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

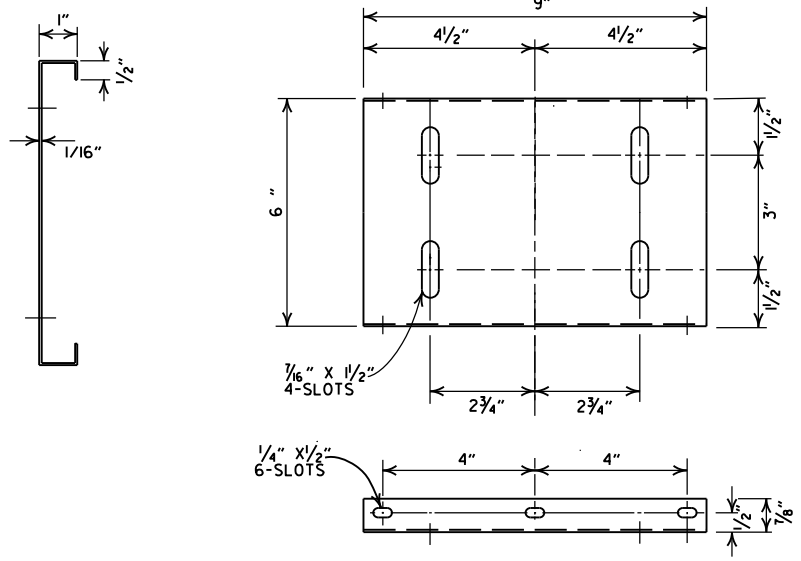
DETAIL FOR DRIVEWAY TURNOUTS
(COLLECTORS)

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

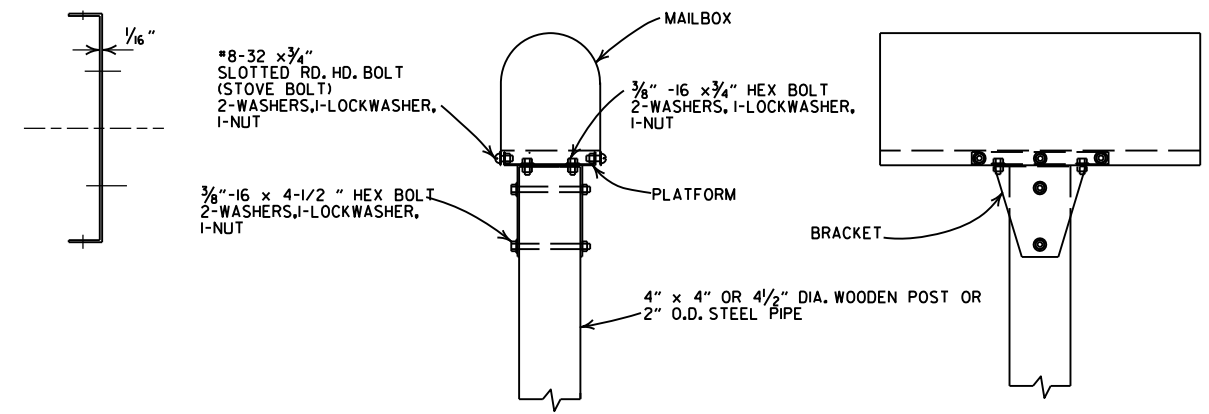
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & STREET
TURNOUTS
STANDARD DRAWING DR-2



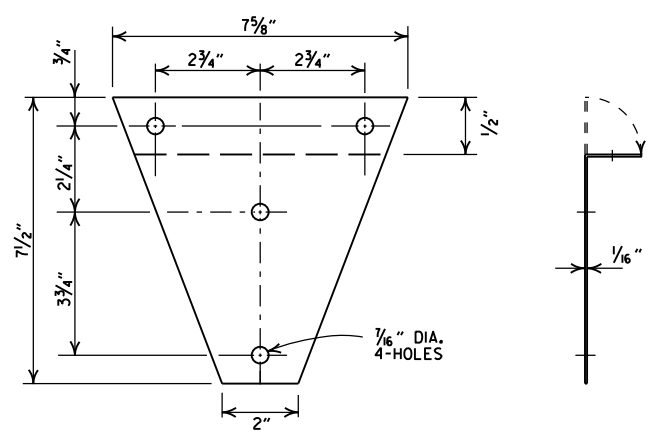
SHELF



PLATFORM

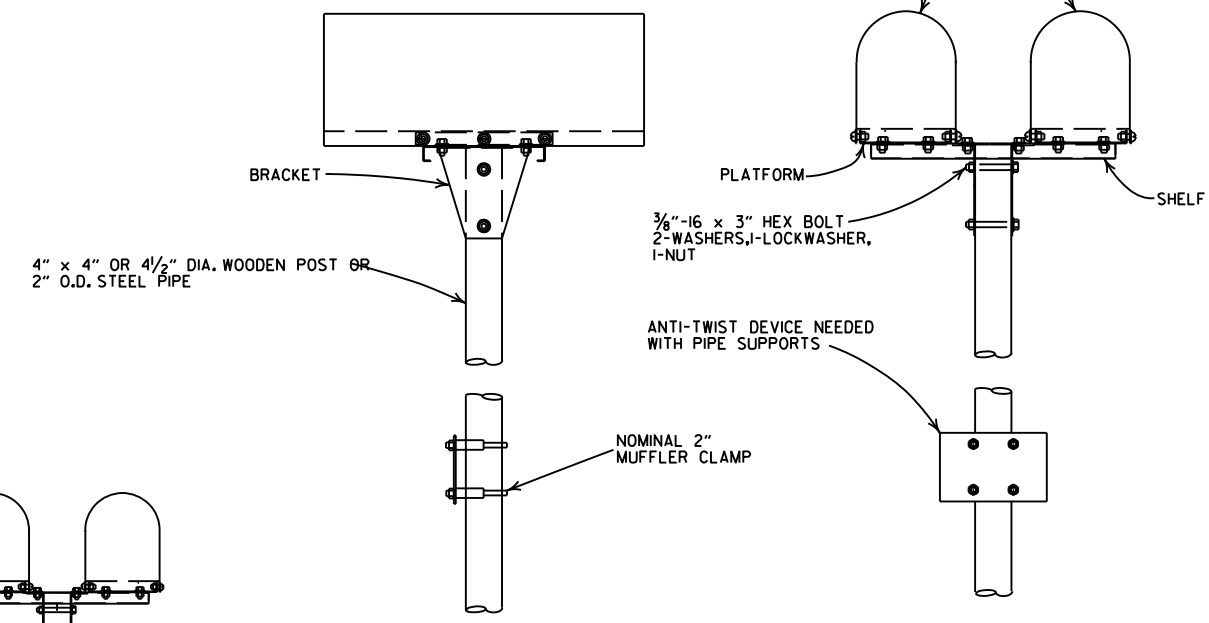


SINGLE INSTALLATION

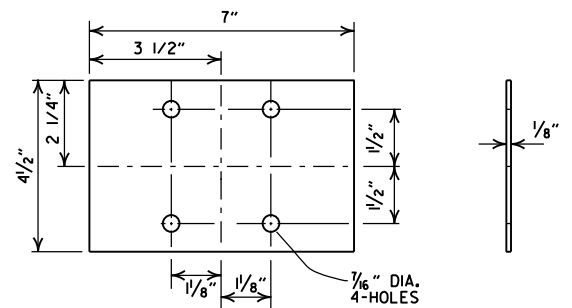


BRACKET

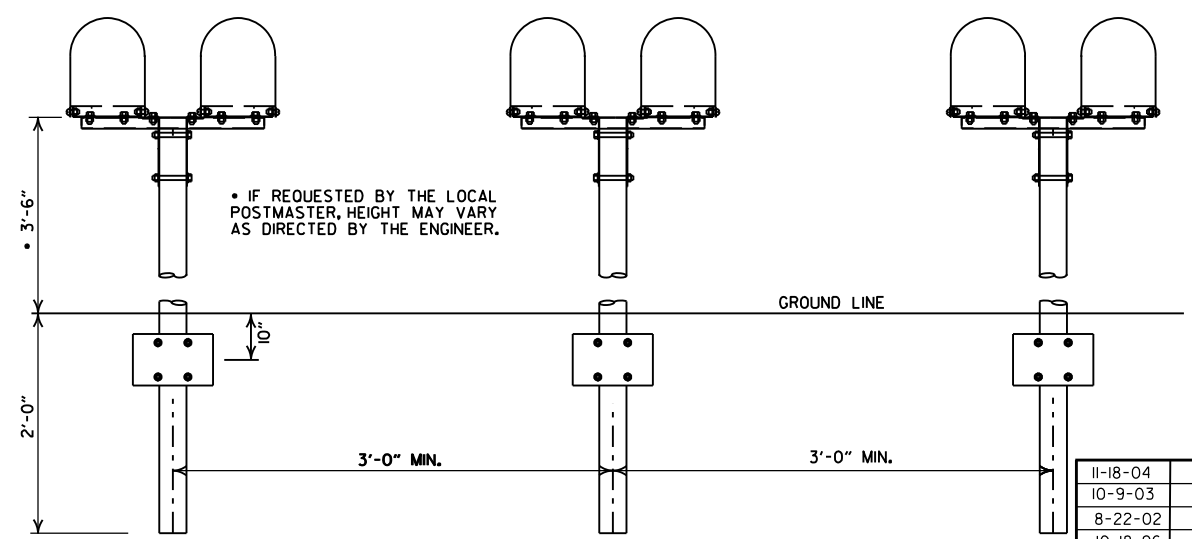
- GENERAL NOTES**
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
 2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
 3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF 3/4" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 x 3/4" 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.



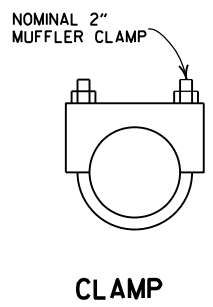
DOUBLE INSTALLATION



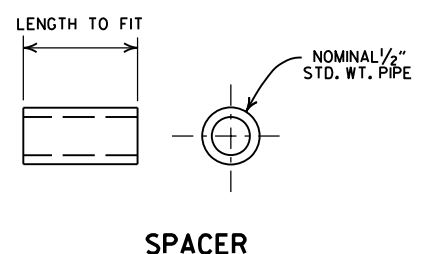
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP

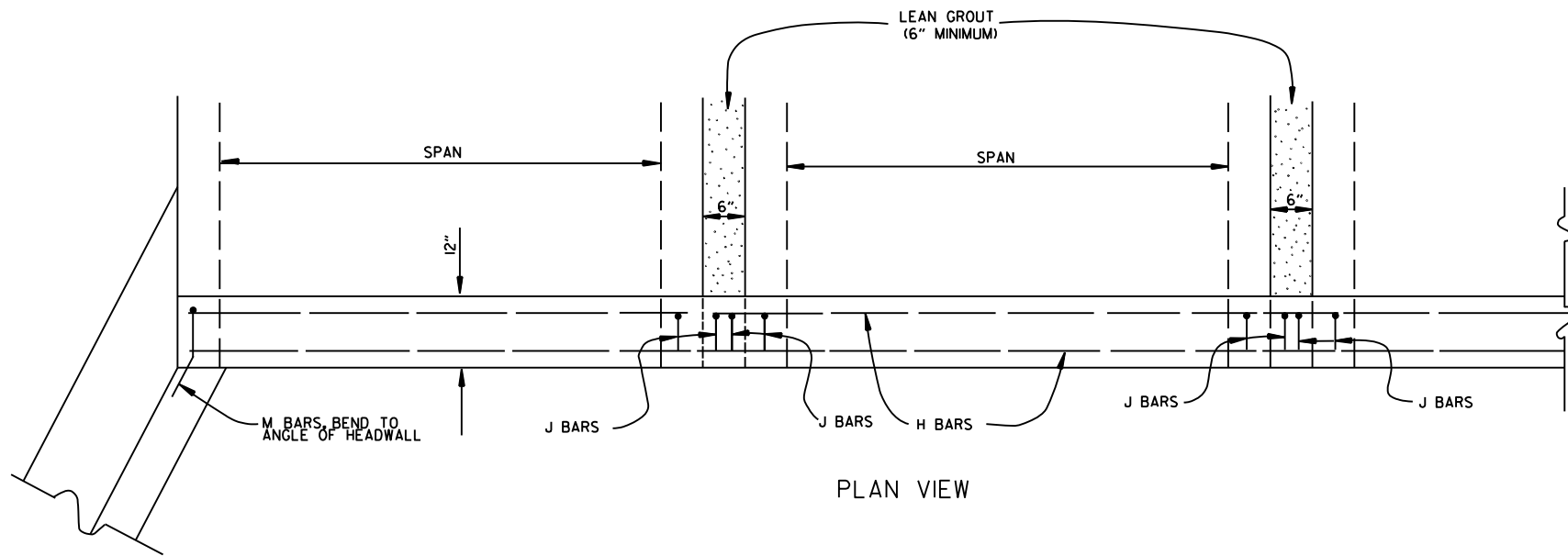


SPACER

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	120-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS
STANDARD DRAWING MB-1



BAR LIST

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

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

GENERAL NOTES

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

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

ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFERS.

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

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

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

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

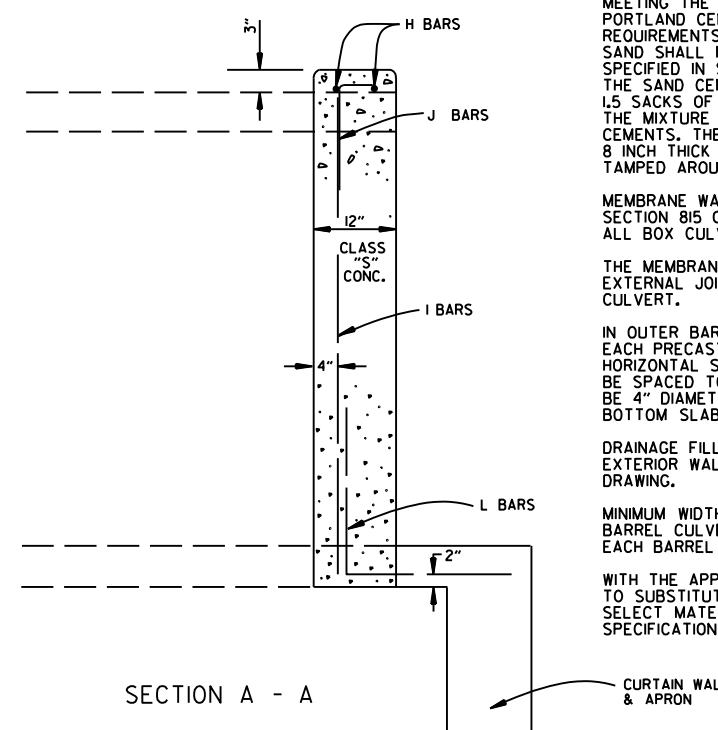
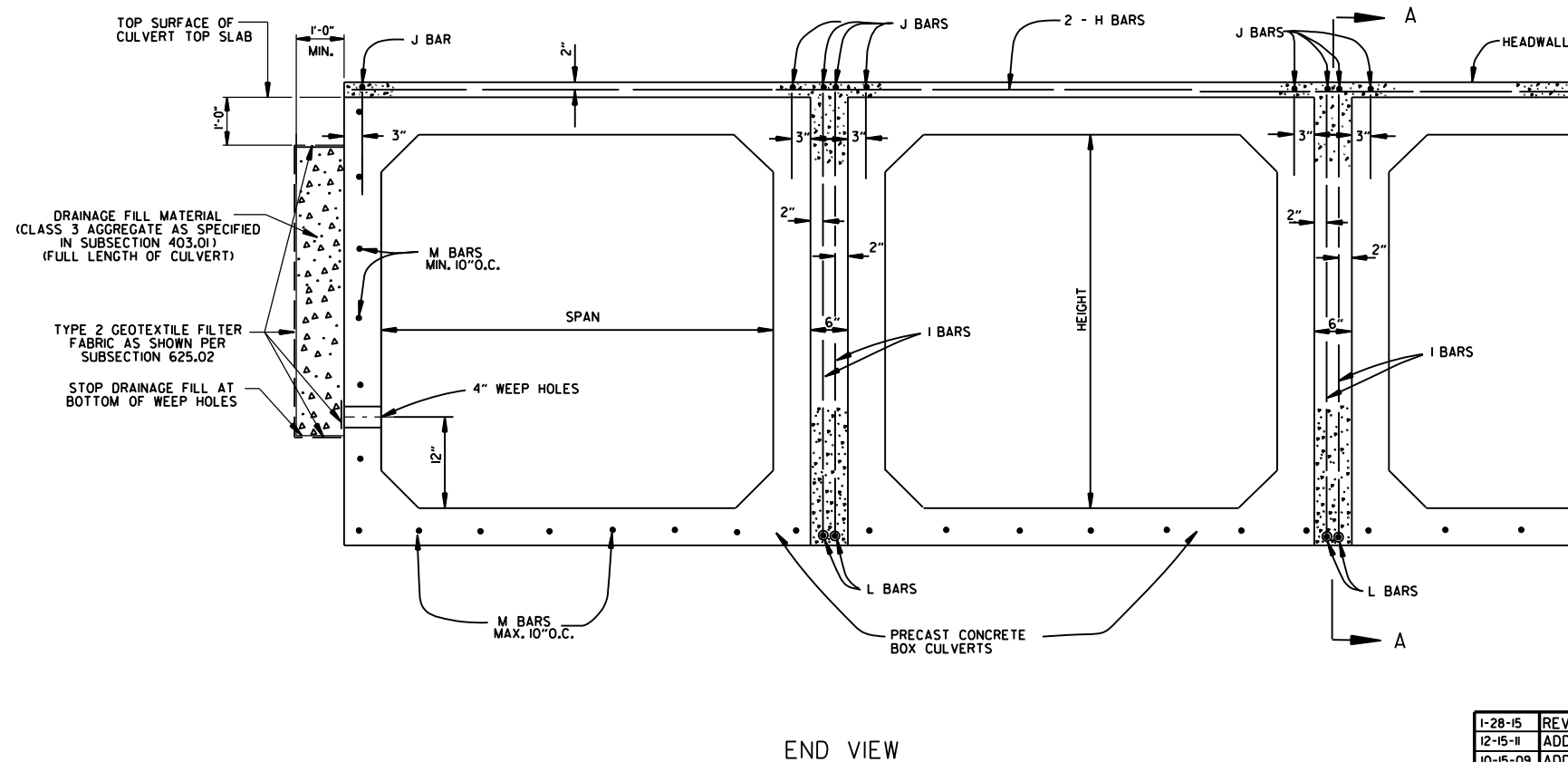
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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

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

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

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



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	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA. INCHES	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51½	51	31½	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	87½	87
120	154	154	96¾	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

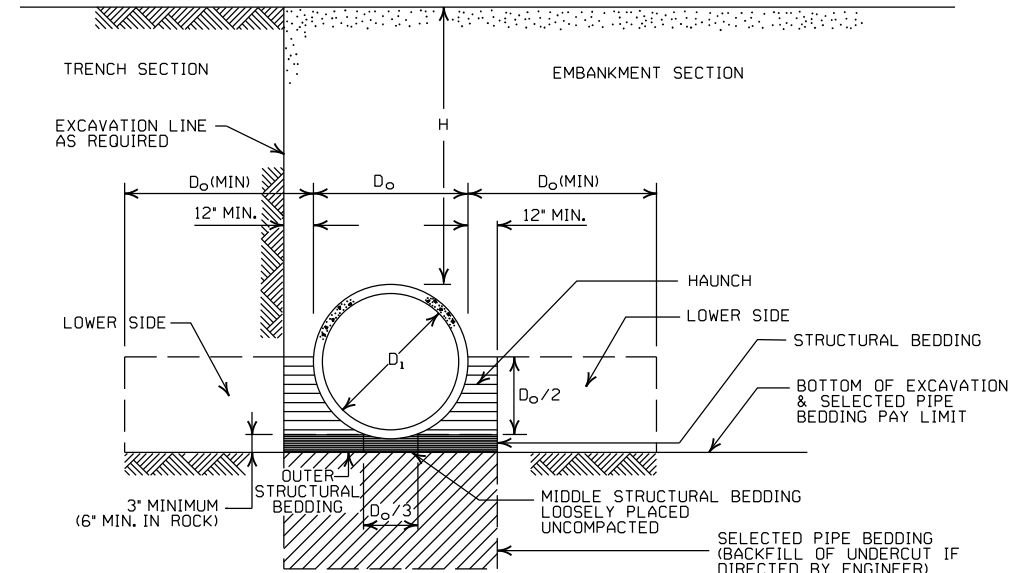
- LEGEND -

- D₁ = NORMAL INSIDE DIAMETER OF PIPE
- D_o = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- [Symbol] = 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

INSTALLATION TYPE	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
PIPE ID (IN.)	TYPE 1 OR 2	TYPE 3	ALL	ALL
	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 MINIMUM 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
2 3/8 INCH BY 1/2 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

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.

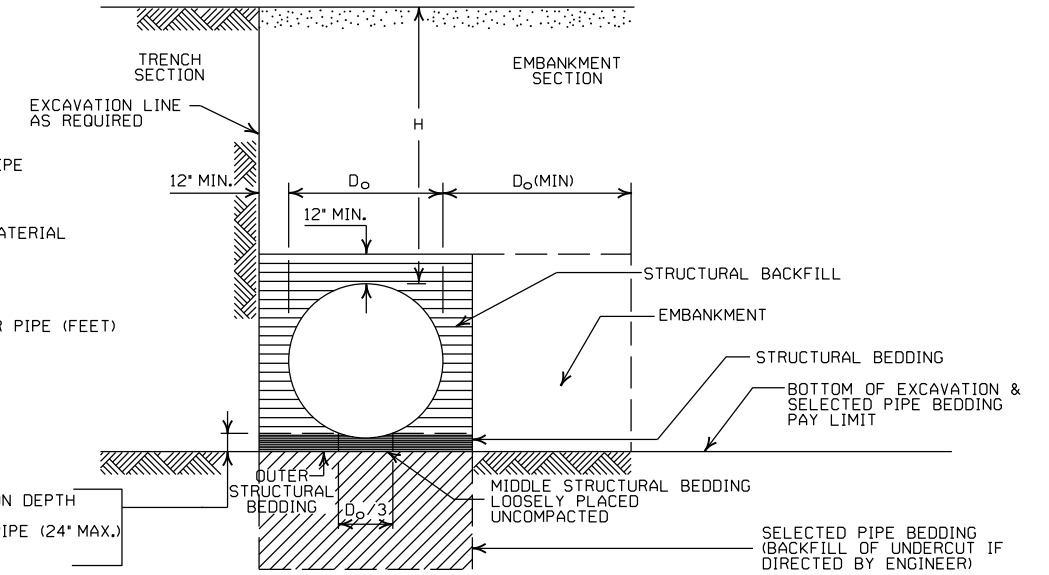
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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.

- LEGEND -

- D_o = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- [Symbol] = STRUCTURAL BACKFILL MATERIAL
- [Symbol] = UNDISTURBED SOIL
- EQUIV. DIA. = EQUIVALENT DIAMETER
- H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/8" x 1/2" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" x 1" OR 5" x 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS 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."

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
2 3/8 INCH BY 1/2 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

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)			
				INSTALLATION			INSTALLATION			
				TYPE 1	TYPE 1		TYPE 1	TYPE 1		
2 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM										
15	17x13	3	0.064	2	15	0.060	2	15		
18	21x15	3	0.064	2	15	0.060	2	15		
21	24x18	3	0.064	2,25	15	0.060	2,25	15		
24	28x20	3	0.064	2,5	15	0.075	2,5	15		
30	35x24	3	0.079	3	12	0.075	3	12		
36	42x29	3 1/2	0.079	3	12	0.105	3	12		
42	49x33	4	0.079	3	12	0.105	3	12		
48	57x38	5	0.109	3	13	0.135	3	13		
54	64x43	6	0.109	3	14	0.135	3	14		
60	71x47	7	0.138	3	15	0.164	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				INSTALLATION			
			TYPE 2	TYPE 1	TYPE 2	TYPE 1	TYPE 2	TYPE 1	TYPE 2	TYPE 1
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

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

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

DATE	REVISION	DATE FILMED
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



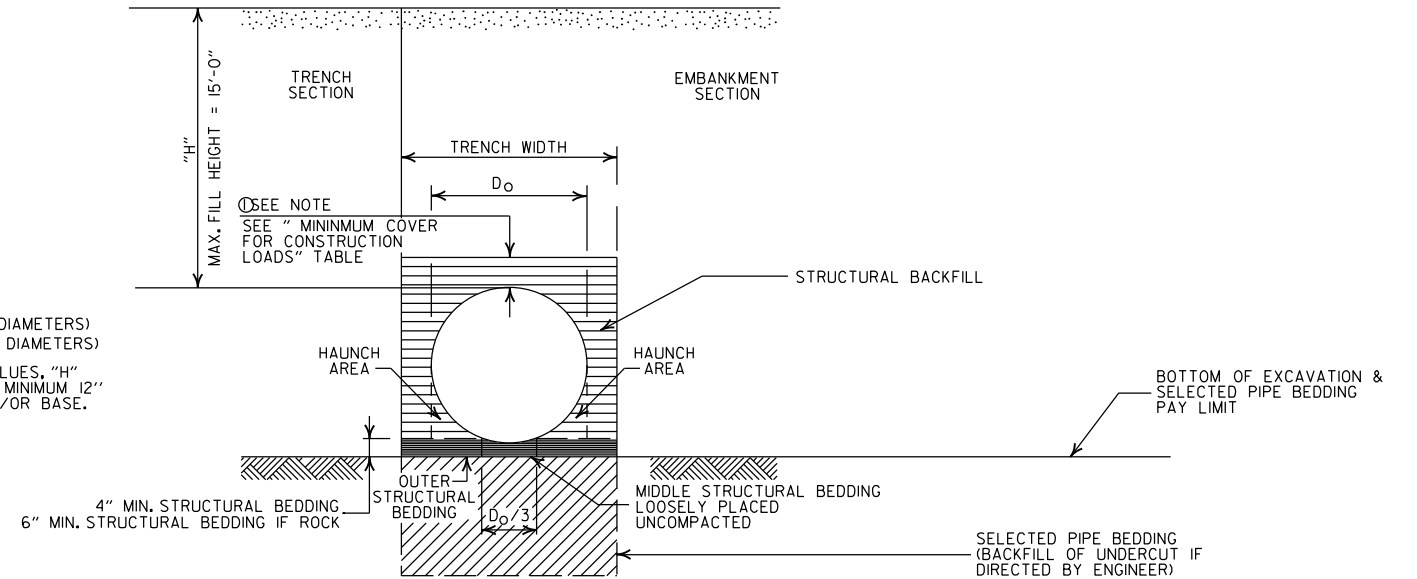
INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

- 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 1/2 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

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

CONSTRUCTION SEQUENCE

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- 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.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

- PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- 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.
- 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.
- 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."
- 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."
- 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.
- HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- 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.)
 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	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 1/4 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"

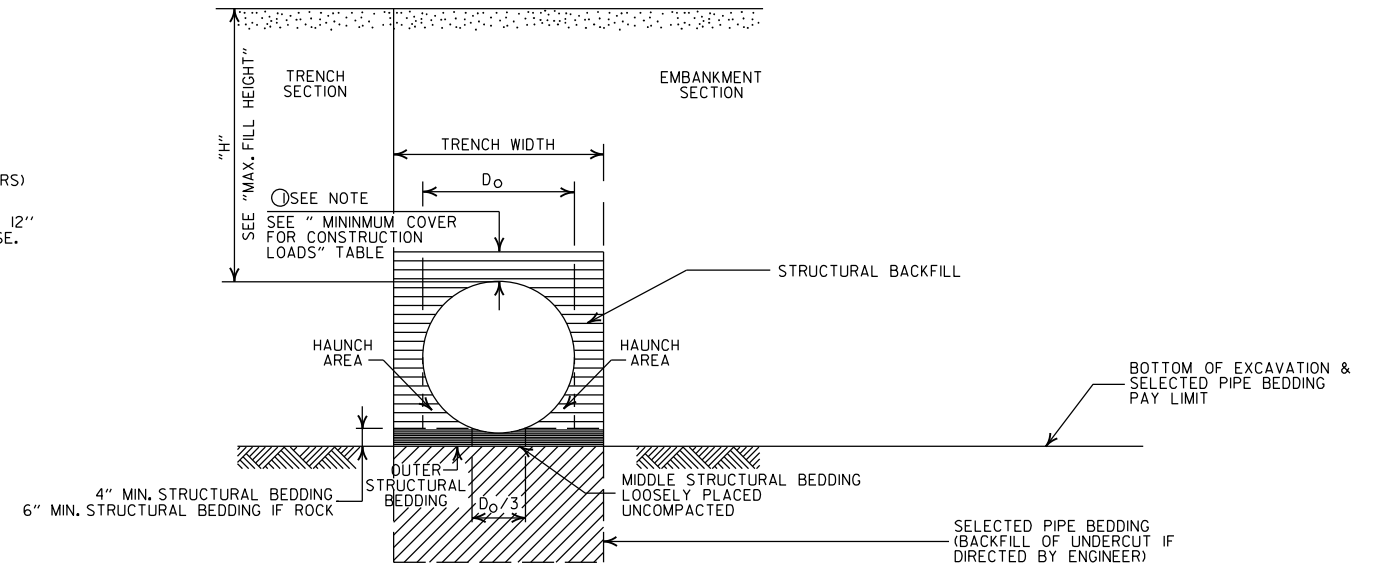
MULTIPLE INSTALLATION OF PVC PIPES

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.



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

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- 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.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

GENERAL NOTES

- PIPE SHALL CONFORM TO ASTM F949, CELL CLASS I2454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- 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.
- 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.
- 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."
- 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."
- 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.
- PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- 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 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 POLYPROPYLENE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

① NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

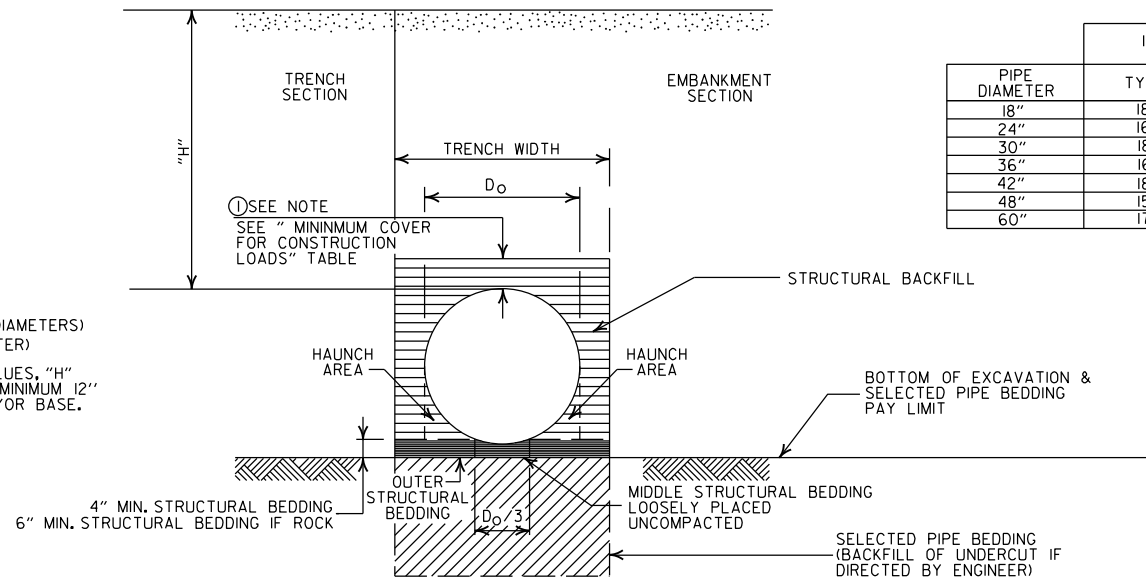
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"
60"	5'-0"

GENERAL NOTES

- PIPE SHALL CONFORM TO AASHTO M330, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SIXTH EDITION (2012) WITH 2013 INTERIMS.
- 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.
- 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.
- 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."
- 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."
- 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.
- POLYPROPYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- 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.

MAXIMUM HEIGHT OF FILL "H"

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



EMBANKMENT AND TRENCH INSTALLATIONS

- 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

- PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
- INSTALL PIPE TO GRADE.
- COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
- 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.
- PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

- LEGEND -

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

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

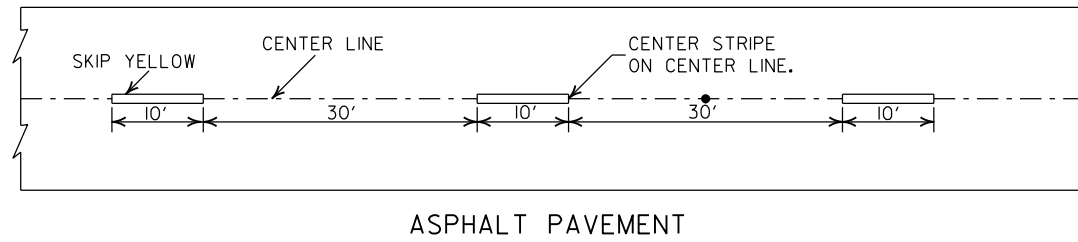
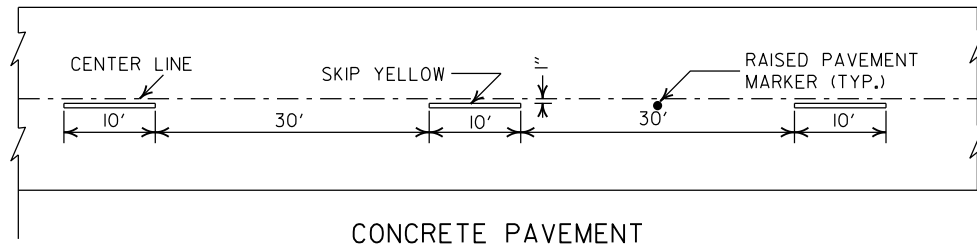
02-27-20	REVISED		
11-07-19	ISSUED		
DATE	REVISION		DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(POLYPROPYLENE)

STANDARD DRAWING PCP-3

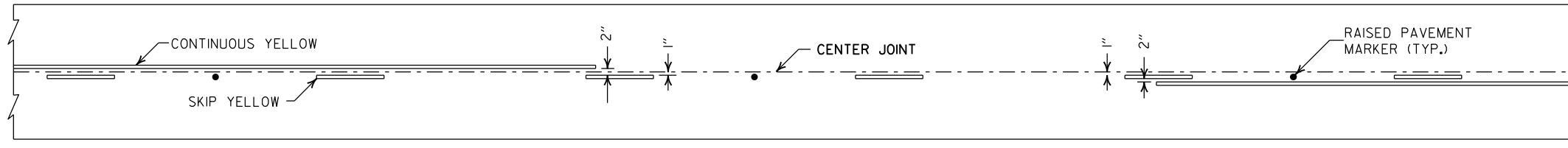




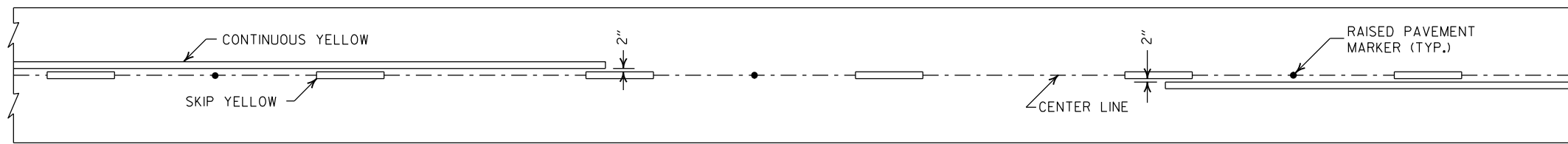
CONCRETE PAVEMENT

ASPHALT PAVEMENT

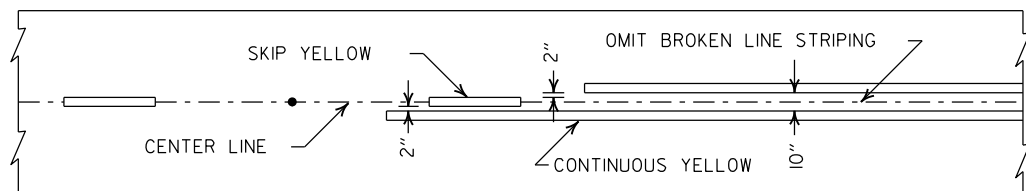
BROKEN LINE STRIPING



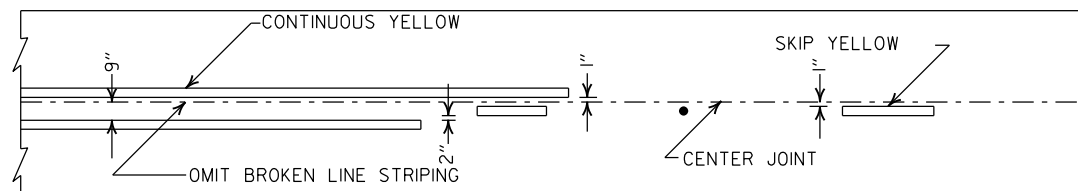
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

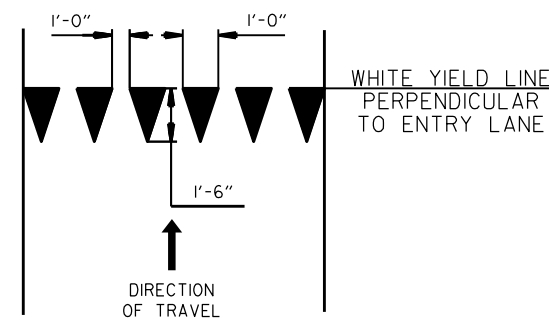


ASPHALT PAVEMENT

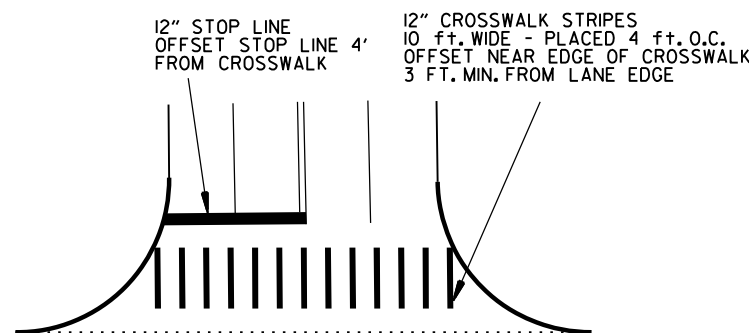


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

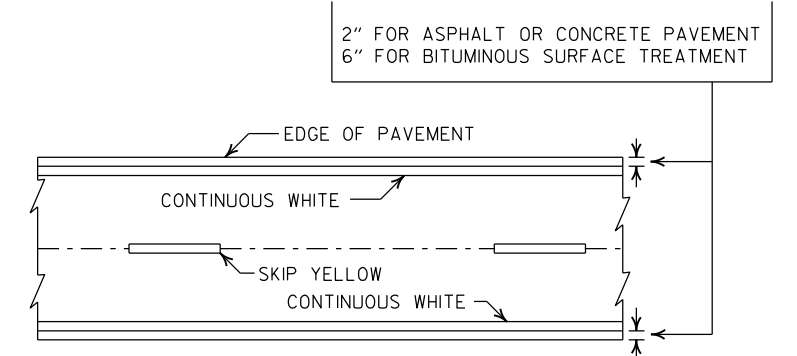


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

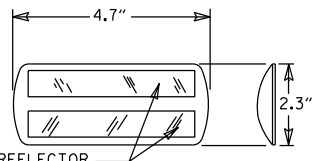
- NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
 2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
 3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE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



PAVEMENT EDGE LINE MARKING

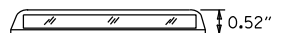
NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



PRISMATIC REFLECTOR

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

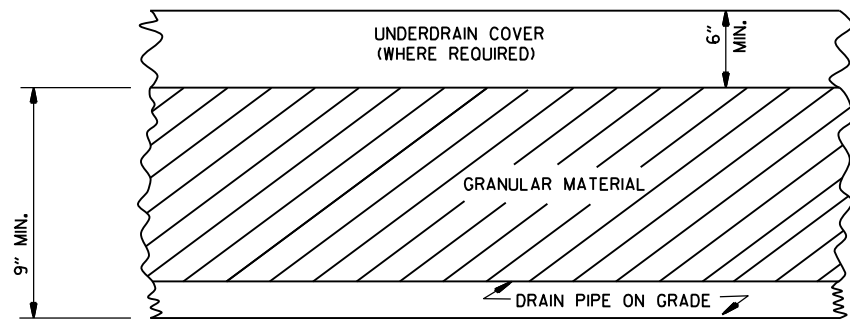
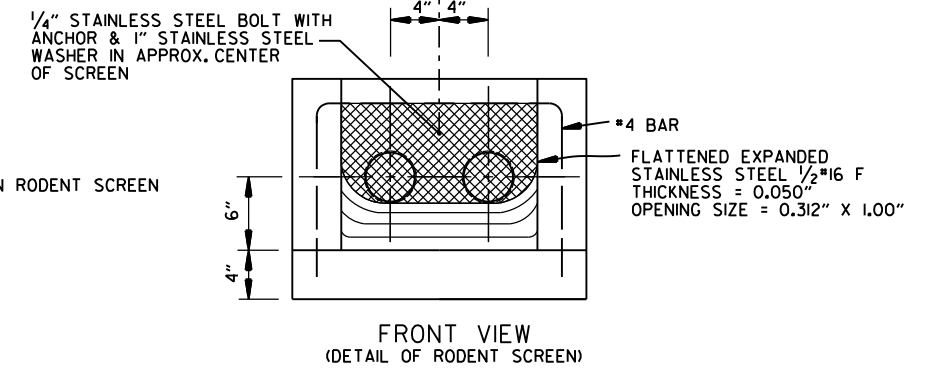
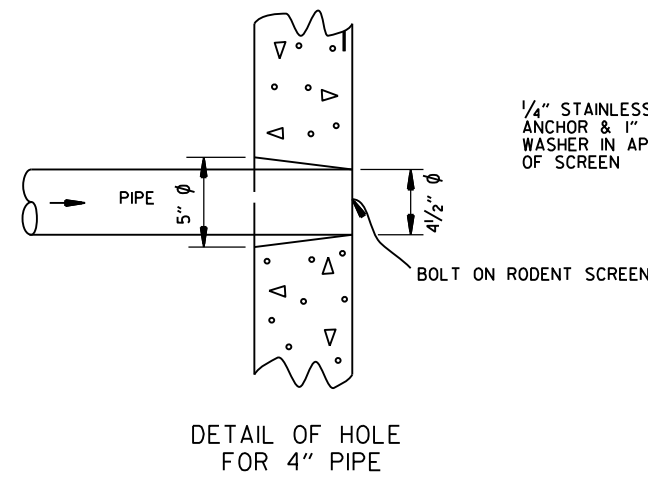
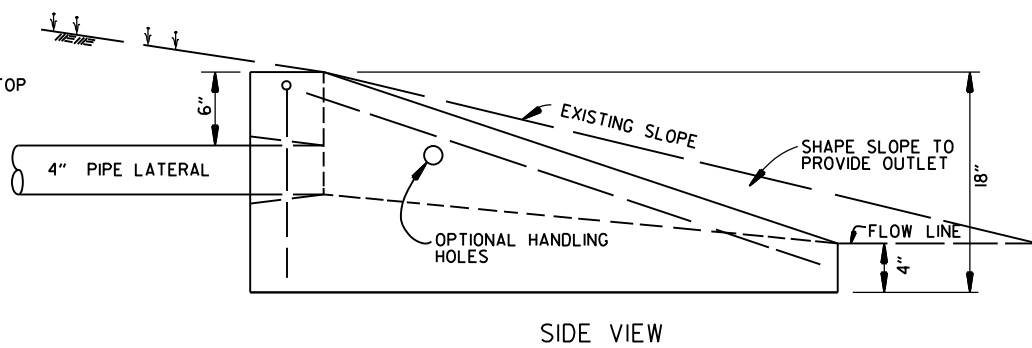
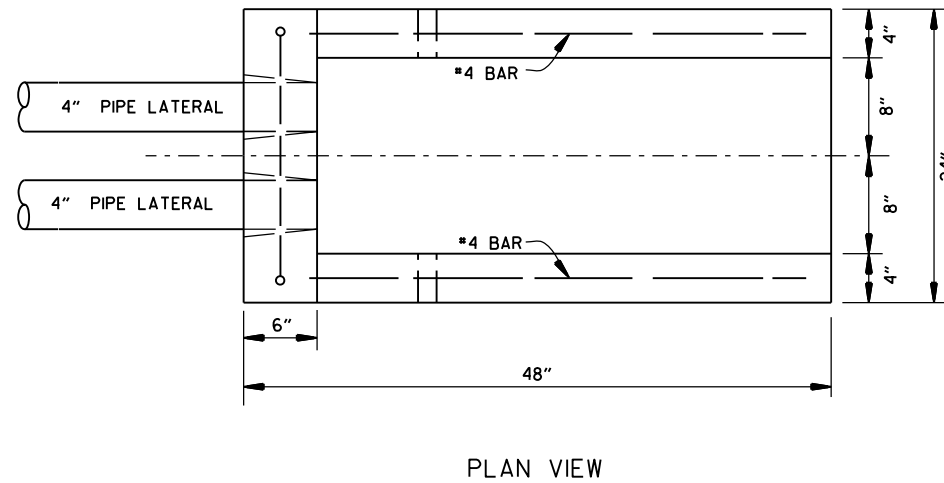
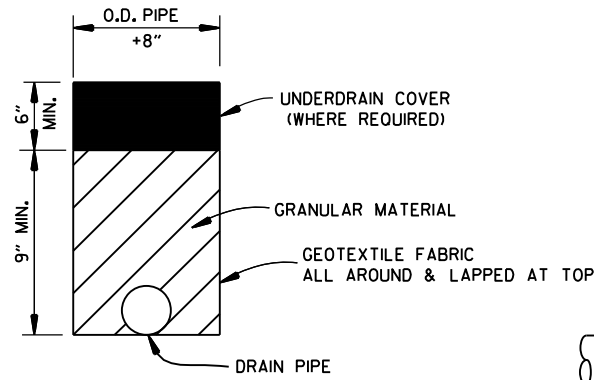
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

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

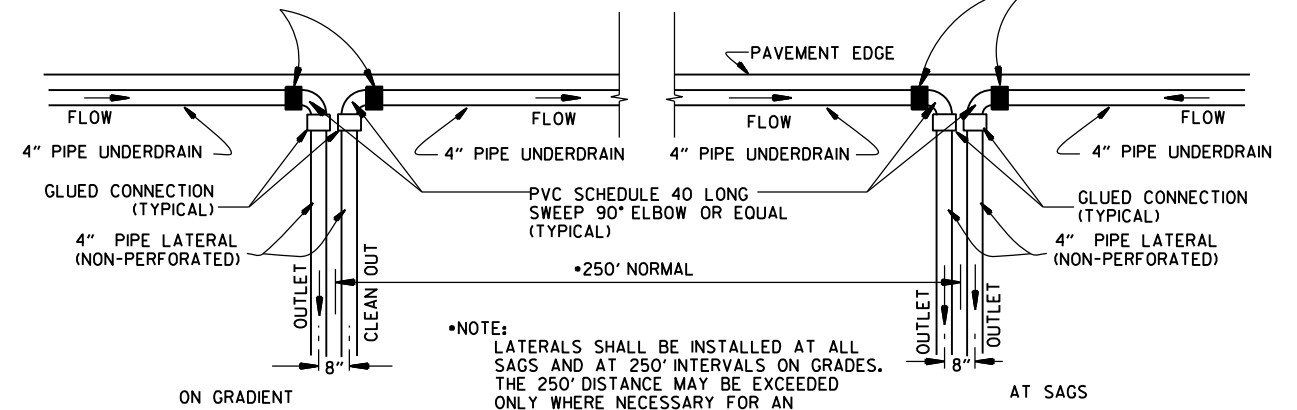


DETAILS OF PIPE UNDERDRAIN

FERNCO I056-44 (4" CI/PLASTIC) OR FERNCO I051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO I056-44 (4" CI/PLASTIC) OR FERNCO I051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



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

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

NOTES FOR PIPE UNDERDRAINS

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

12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE: 5 1/2" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11-3-94	REVISED FOR DUAL LATERALS	11-3-94
10-1-92	SUBSTITUTED GEOTEXTILE	10-1-92
8-15-91	ADDED POLYETHYLENE PIPE	8-15-91
11-8-90	DELETED ALTERNATE NOTE	11-8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

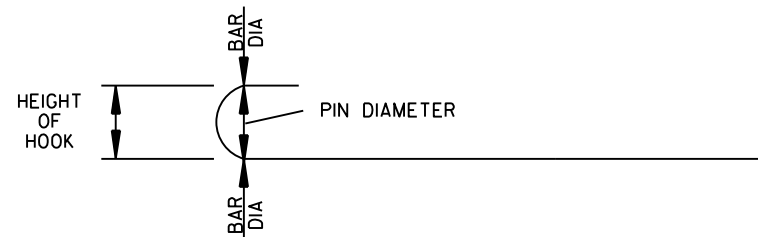
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

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

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2 3/4 INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "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

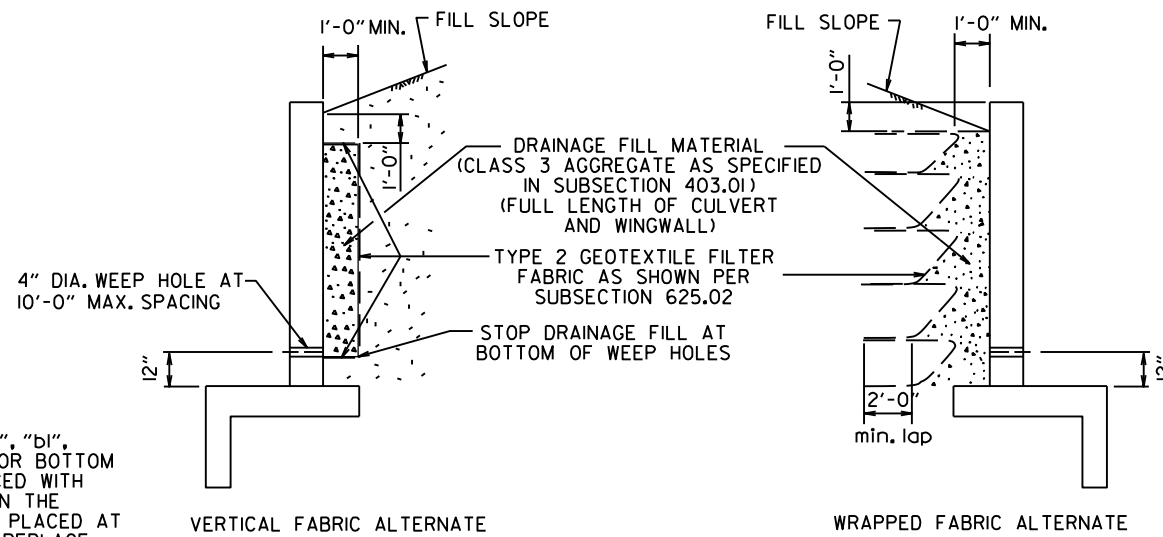
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

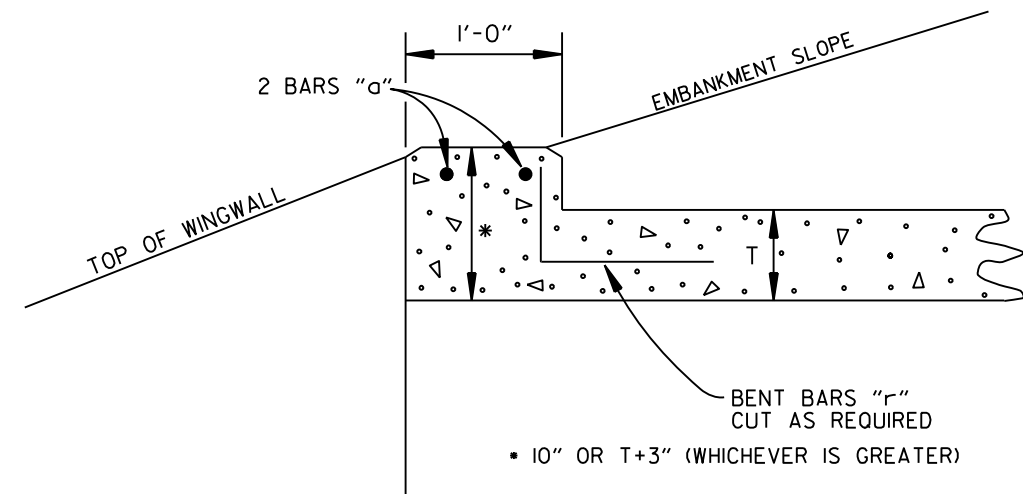
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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 1/2 INCH.

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

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

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



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

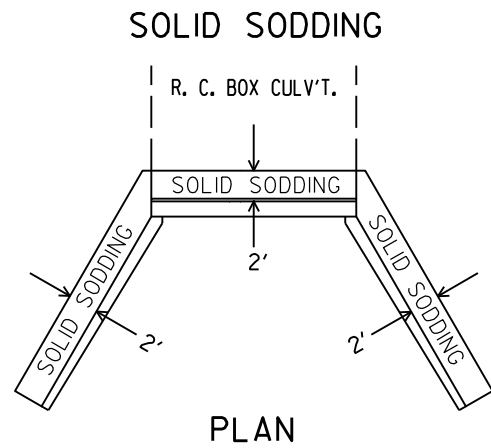
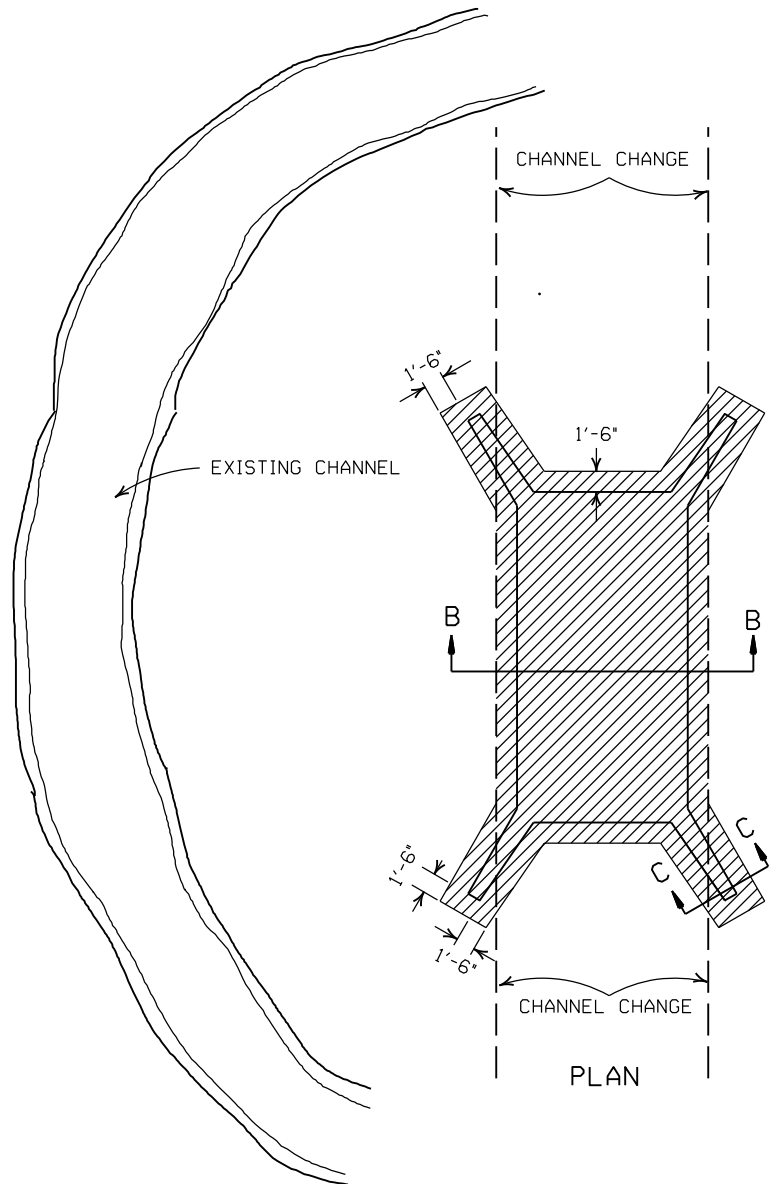
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

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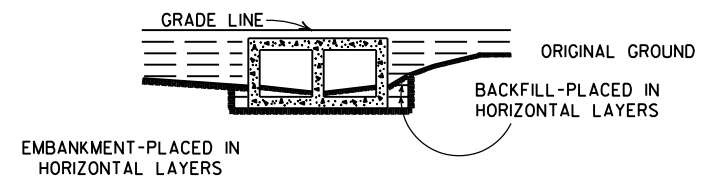
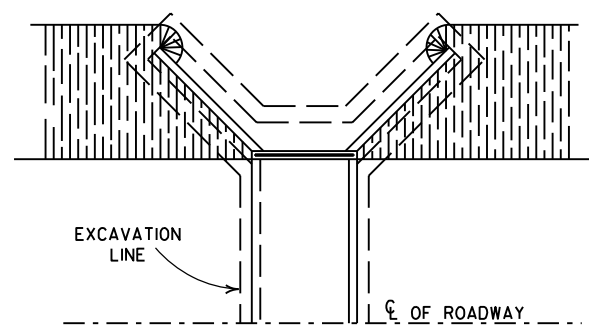
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1

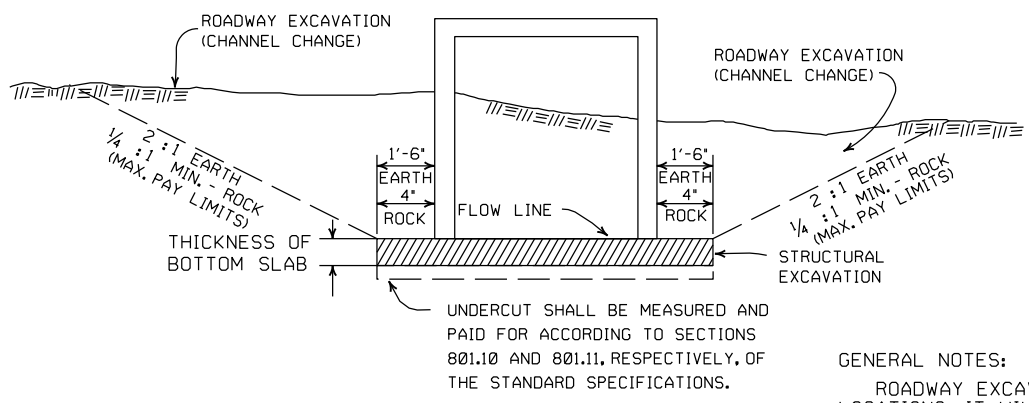
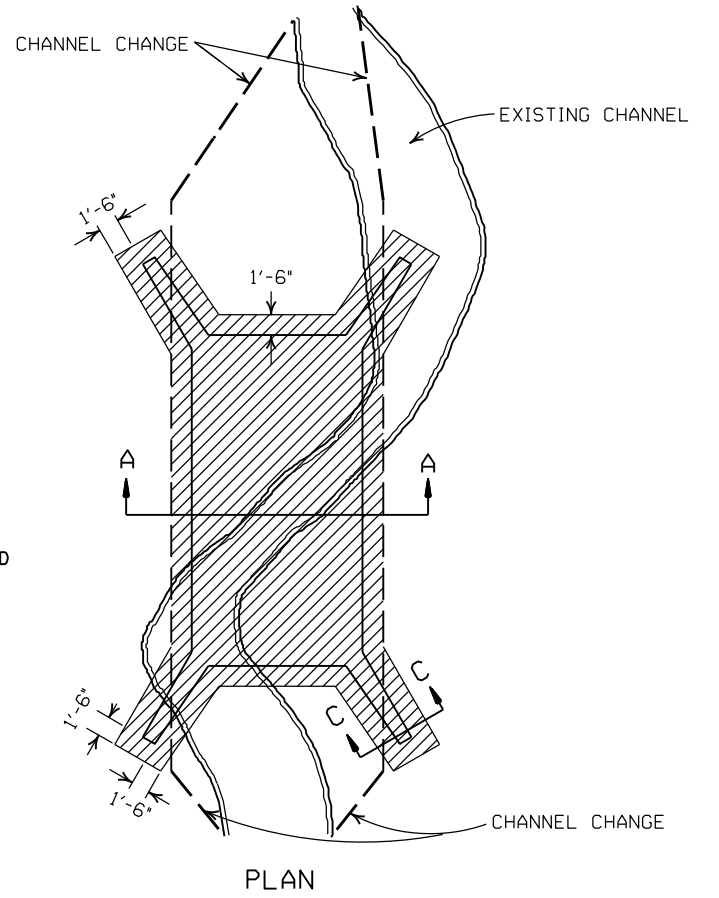


SOLID SODDING
PLAN
 PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

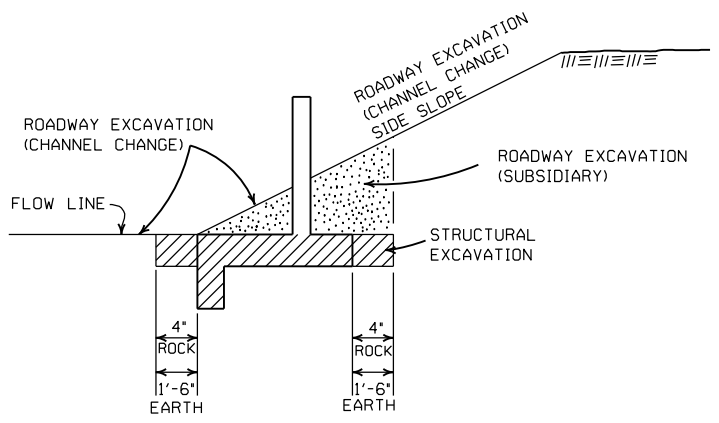


LONGITUDINAL SECTION
BACKFILL DETAILS FOR BOX CULVERT



SECTION B-B
DETAILS FOR NEW CHANNELS

UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS 801.10 AND 801.11, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.



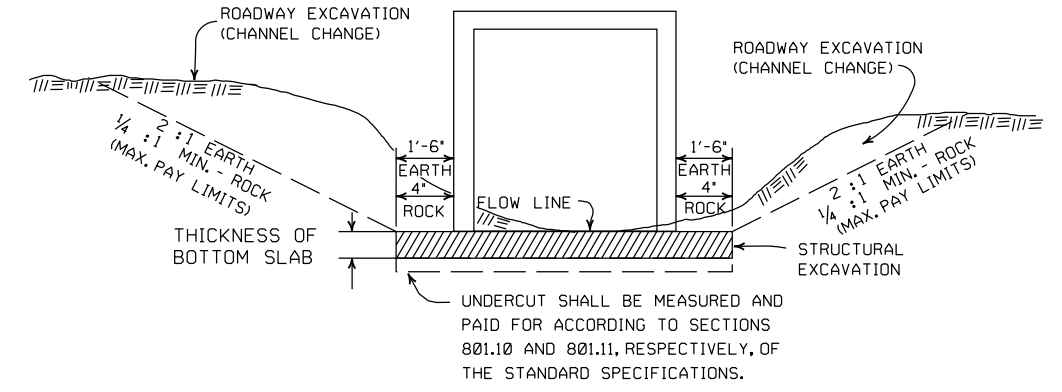
SECTION C-C

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.



SECTION A-A
DETAILS THROUGH EXISTING CHANNELS


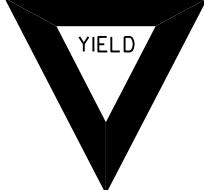

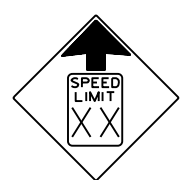





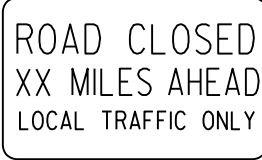


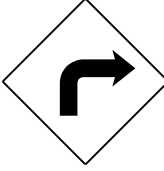
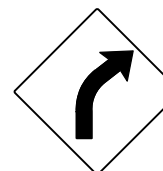



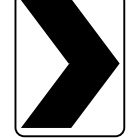
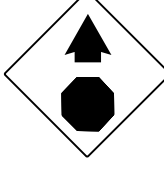
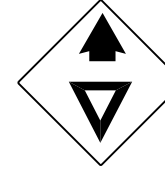
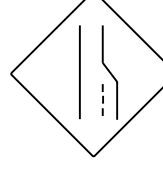



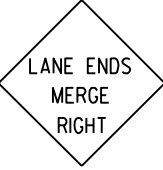


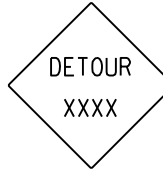






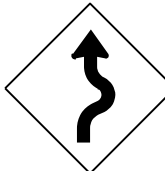



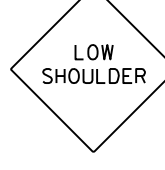

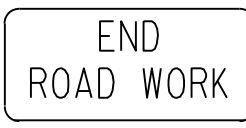
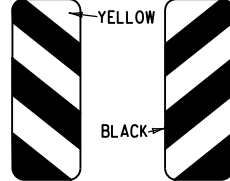
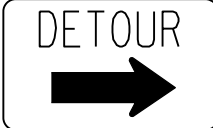

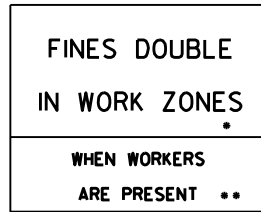
UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS 801.10 AND 801.11, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.

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
DATE	REVISION	FILMED

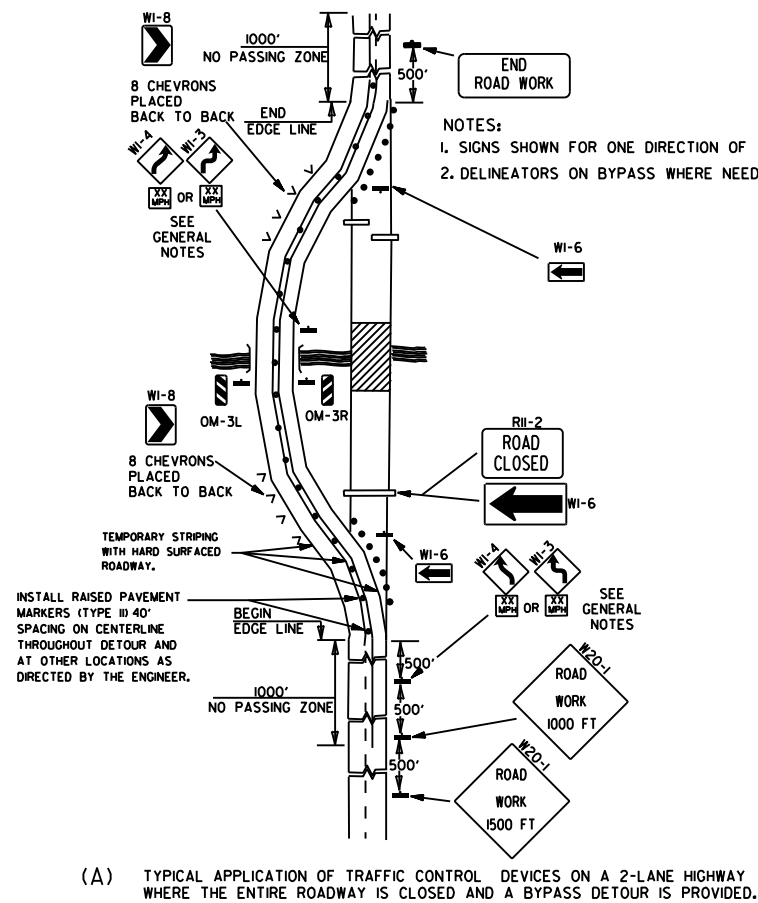
ARKANSAS STATE HIGHWAY COMMISSION

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

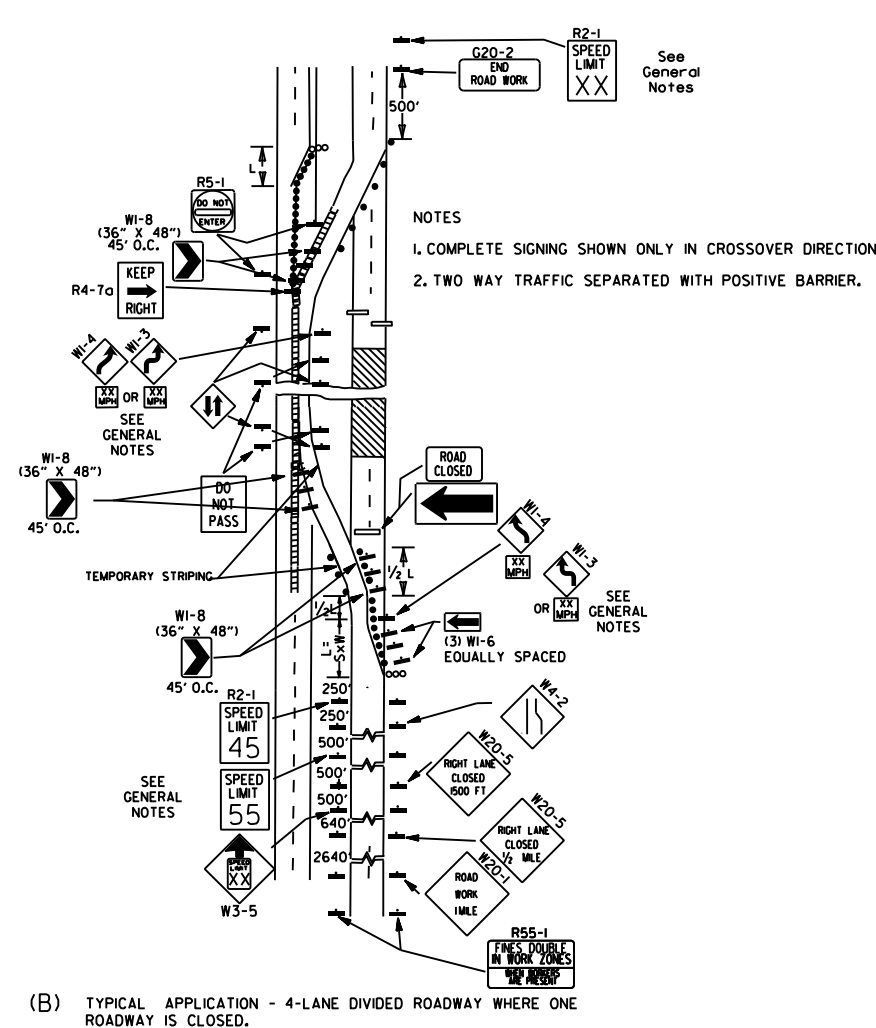
STANDARD DRAWING RCB-2

							ADVANCE DISTANCES (XXXX)
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</p> <p>GENERAL NOTES:</p> <ol style="list-style-type: none"> ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SO. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN. <p>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.</p>
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>W1-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>

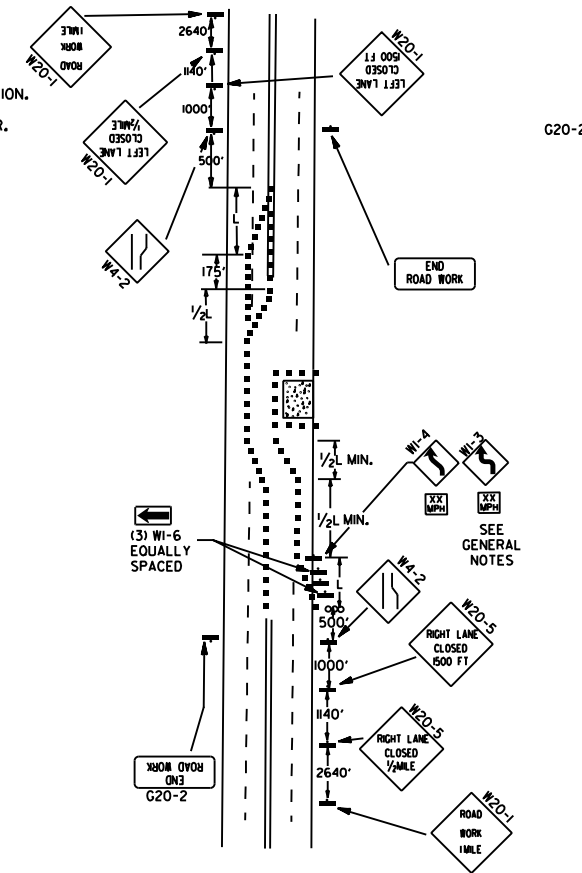
DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN 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	



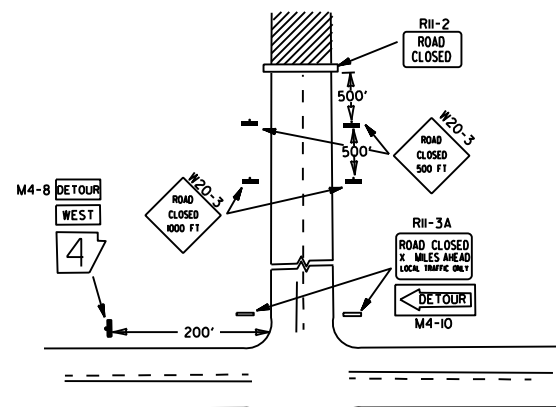
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



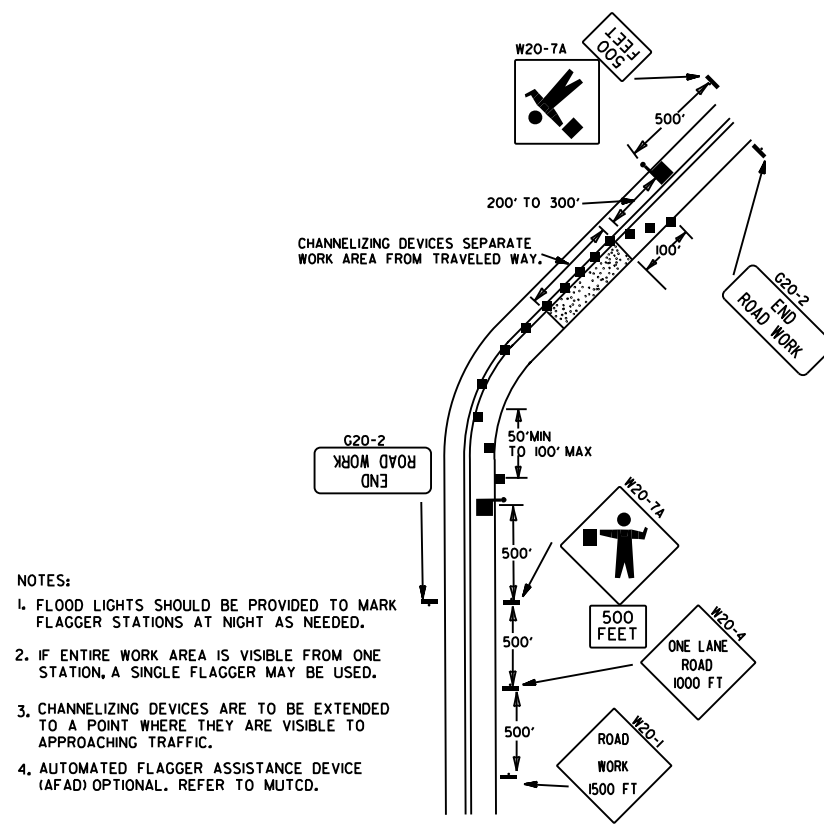
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



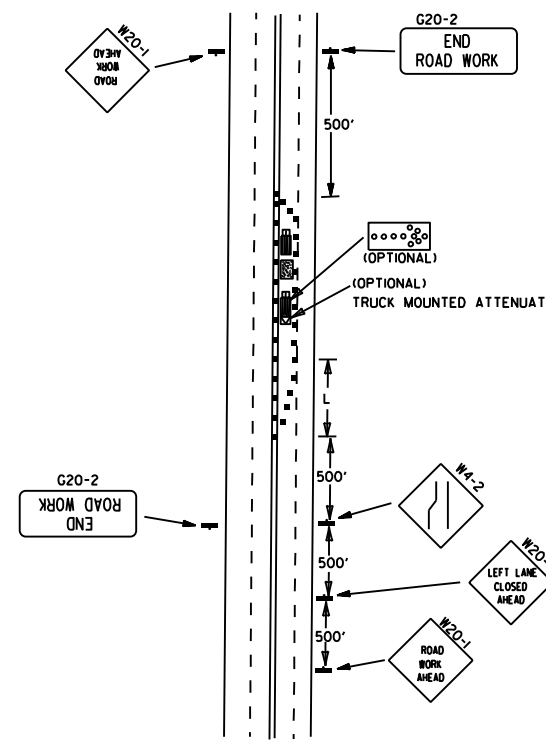
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



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

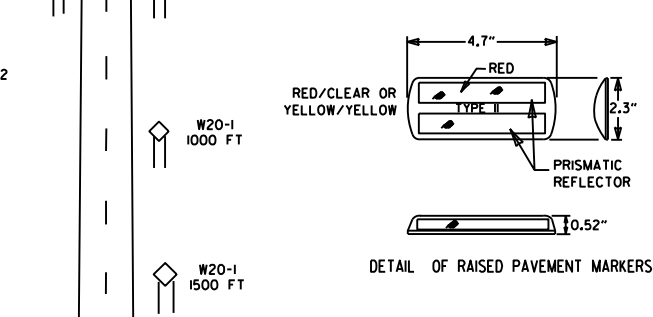


(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



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

- KEY:
- FLAGGER
 - POSITIVE BARRIER
 - ARROW PANEL (IF REQUIRED)
 - TYPE III BARRICADE
 - CHANNELIZING DEVICE
 - TRAFFIC DRUM
 - RAISED PAVEMENT MARKER



TYPICAL ADVANCE WARNING SIGN PLACEMENT

GENERAL NOTES:
 1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
 2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/4 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/4 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
 5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 7. 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 ADOT 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).

DATE	REVISION	FILMED
05-20-21	REVISED NOTE 7	
11-07-19	REVISED NOTE 4, 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	

TRAFFIC CONTROL DEVICES

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

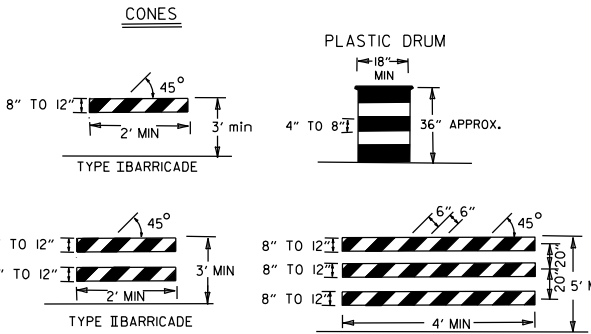
INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 3"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 6"	EDGE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

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

- GENERAL NOTES:
- 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 SHOULD BE USED.
 - WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS.
 - 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.
 - W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.
 - TIME LIMITATIONS MUST CONFORM TO SECTION 603 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).

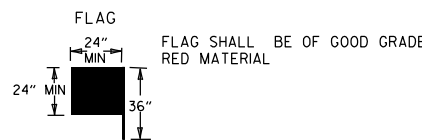
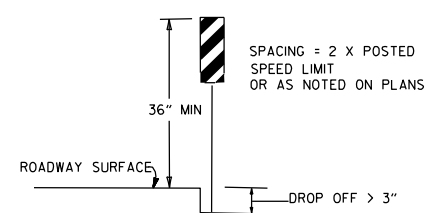
CHANNELIZING DEVICES

* 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.



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

VERTICAL PANEL PLACEMENT

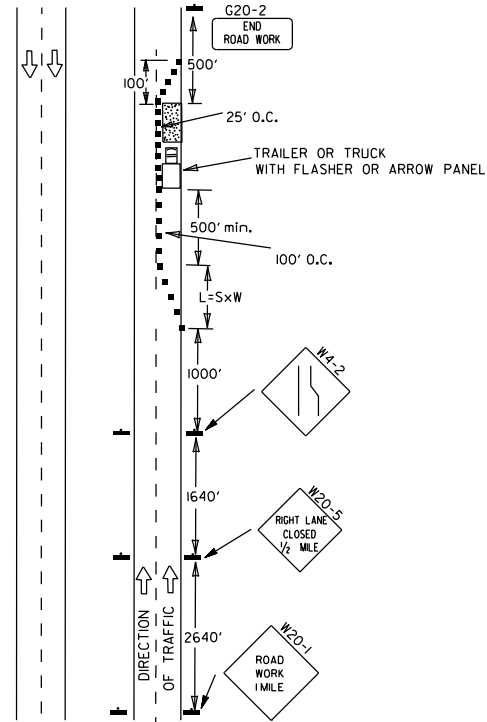


KEY:

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

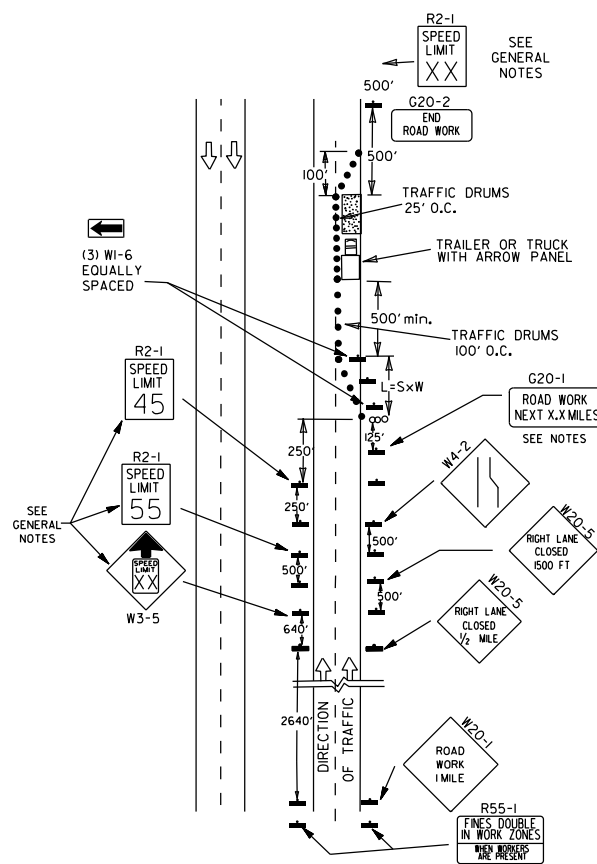
GENERAL NOTES:

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

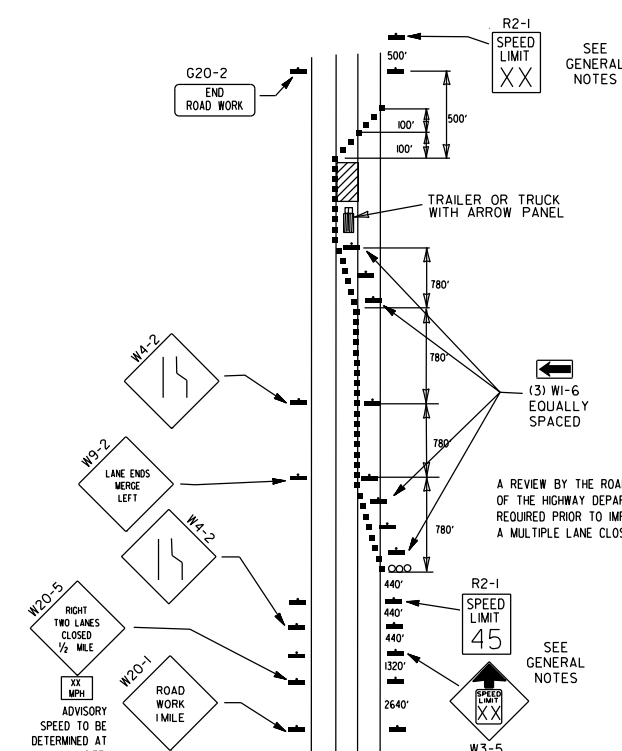


(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

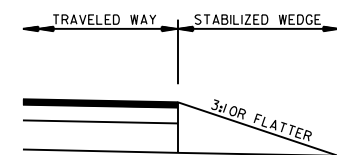
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.



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



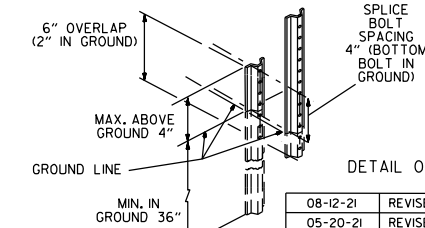
(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.



STABILIZED WEDGE

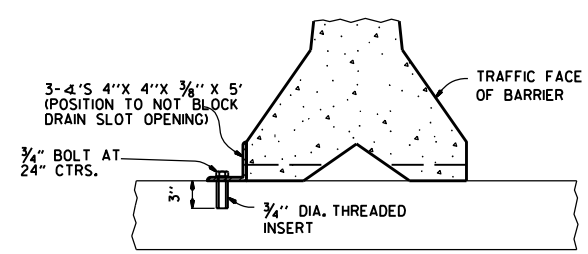
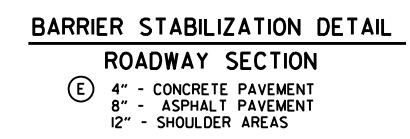
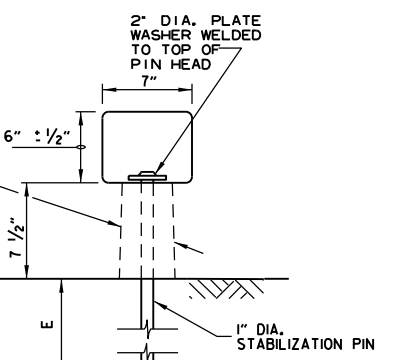
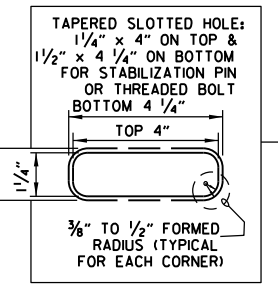
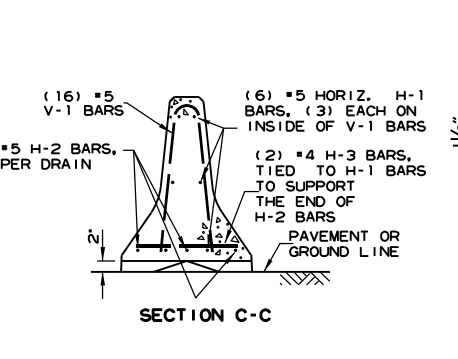
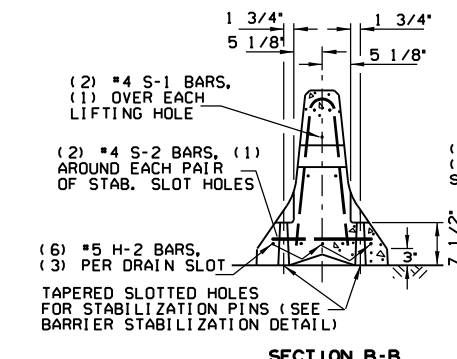
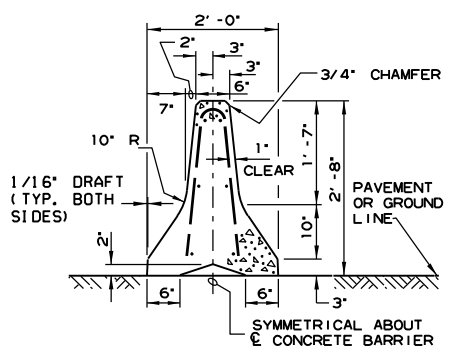
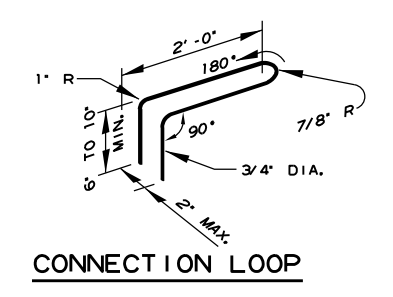
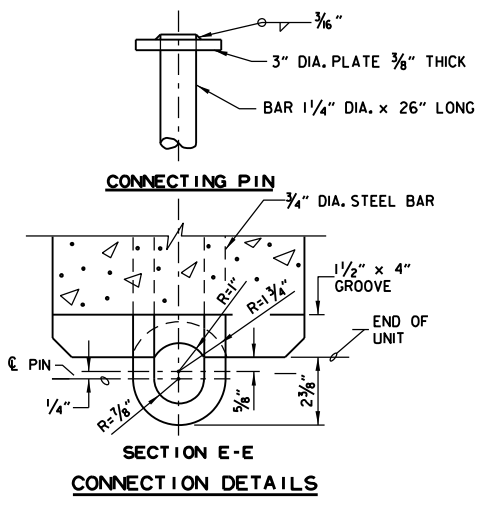
NOTE: MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2) NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS. SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DATE	REVISION	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 II		
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		

REINFORCING BAR TABLE PER BARRIER UNIT				
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)	
V-1	VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	

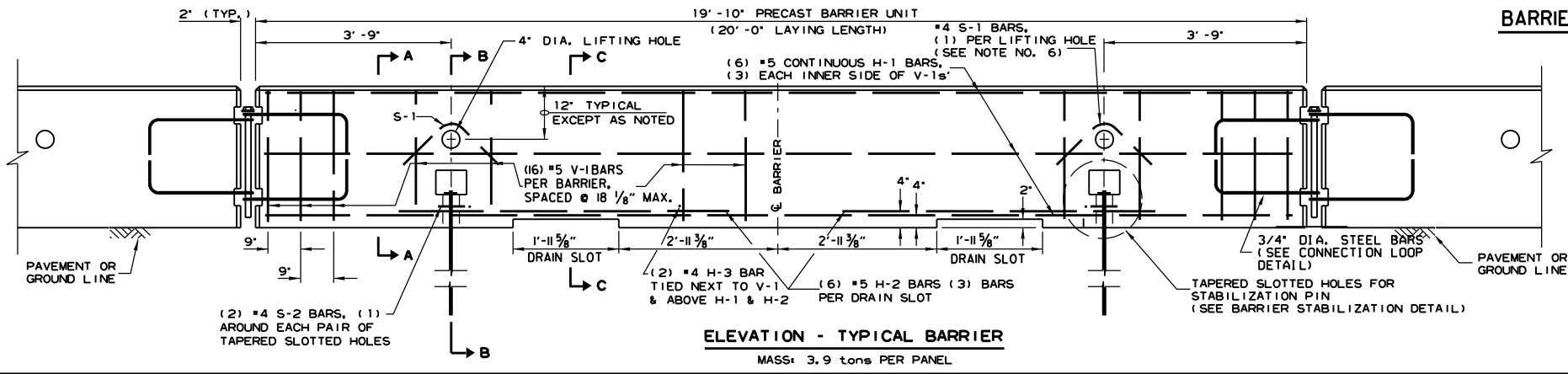
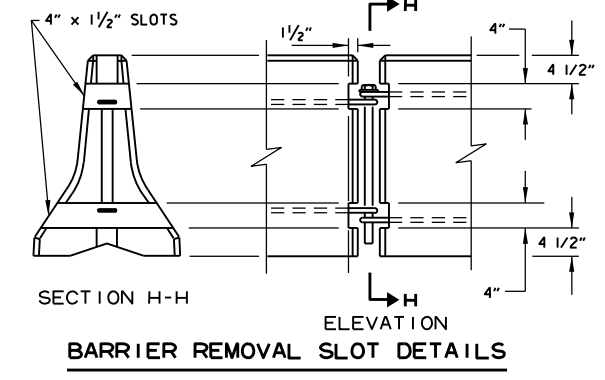
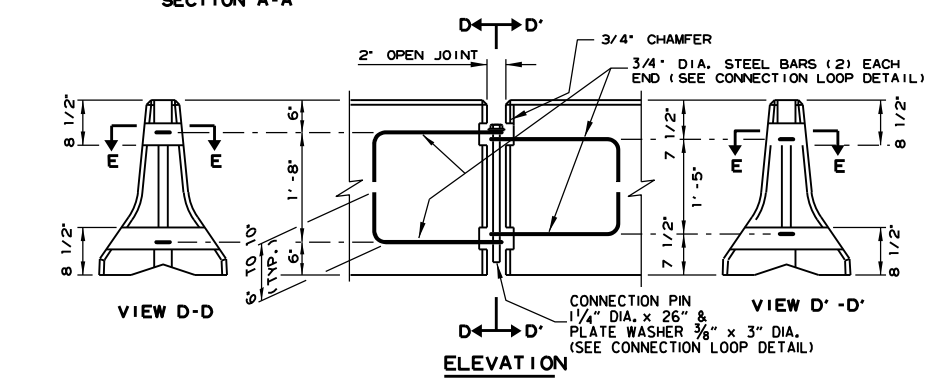


NOTE: " THREADED INSERTS SHALL BE CAST IN PLACE FOR ALL NEW BRIDGE DECKS AND DRILLED AND GROUTED FOR EXISTING BRIDGE DECKS. INSERTS SHALL HAVE A MINIMUM ULTIMATE LOAD CAPACITY OF 8000 LBS. IN TENSION, AFTER REMOVAL OF BARRIER, BOLTS, AND ANGLES, THE INSERTS SHALL BE FILLED WITH APPROVED NON-SHRINK EPOXY.



- GENERAL NOTES**
- THE CONTRACTOR SHALL FURNISH THE PRECAST CONCRETE BARRIER UNITS AND SHALL BE RESPONSIBLE FOR THE MANUFACTURE, SHIPMENT, STORAGE, PLACEMENT AND REMOVAL. AT THE COMPLETION OF THE PROJECT, THE PRECAST UNITS WILL REMAIN THE PROPERTY OF THE CONTRACTOR.
 - MATERIALS SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
CONCRETE: 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
REINFORCING STEEL: AASHTO M 31 OR M 53, GRADE 60
STRUCTURAL STEEL: AASHTO-M270 GRADE 36 SHALL BE USED FOR THE CONNECTION PIN, CONNECTION LOOPS, AND STABILIZATION PINS. A ONE PIECE PIN WITH A 3" ROUNDED TOP MAY BE USED IN PLACE OF THE DETAILED CONNECTION PIN. DELINEATORS: DELINEATORS SHALL BE MOUNTED AT 10' SPACING ON TOP OF PRECAST BARRIER.

IN APPLICATIONS WHERE BARRIER WALL IS WITHIN 6 FEET OF A TRAFFIC LANE, ADDITIONAL DELINEATORS SHALL BE PLACED ON THE BARRIER AT 10' SPACING APPROXIMATELY ONE (1) FOOT FROM THE TOP OF THE BARRIER. DELINEATORS SHALL BE ON THE ADOT QUALIFIED PRODUCTS LIST FOR CONSTRUCTION CONCRETE BARRIER MARKERS. DELINEATOR COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN. FT. FOR "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER". THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT THE MATERIAL AND THE DESIGN USED IN THE PRECAST BARRIER UNITS MEETS THE REQUIREMENTS AS SHOWN ON THIS STANDARD DRAWING.
 - OTHER PRECAST CONCRETE BARRIERS THAT HAVE BEEN CRASH TESTED AND APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION TO MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) WILL BE ACCEPTED IN LIEU OF THE BARRIER SHOWN. DRAIN SLOTS SHALL BE PROVIDED AS NEEDED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH A CERTIFICATION OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) COMPLIANCE FOR ANY OTHER TYPES OF PRECAST BARRIER TO BE USED. THE CERTIFICATION SHALL STATE THAT THE PRECAST CONCRETE BARRIER MEETS THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). MIXING OF SHAPES WILL NOT BE ALLOWED IN A CONTINUOUS LINE OF UNITS.
 - DOWEL HOLES IN PAVEMENT OR BRIDGE SLABS THAT ARE TO REMAIN IN PLACE SHALL BE FILLED. HOLES IN CONCRETE PAVEMENT AND BRIDGE SLABS SHALL BE FILLED WITH AN APPROVED NON-SHRINK EPOXY GROUT. HOLES IN ASPHALT PAVEMENT SHALL BE FILLED WITH AN APPROVED ASPHALT JOINT FILLER. PAYMENT FOR DRILLING AND FILLING HOLES TO BE INCLUDED IN THE PRICE FOR VARIOUS BARRIER ITEMS.
 - ATTACH UNITS TO ROADWAY SURFACE WITH STABILIZATION PINS AND TO DECK SLABS USING BOLTS WHEN REQUIRED.
 - A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE AND IF USED THE SLEEVE IS TO BE LEFT IN PLACE.



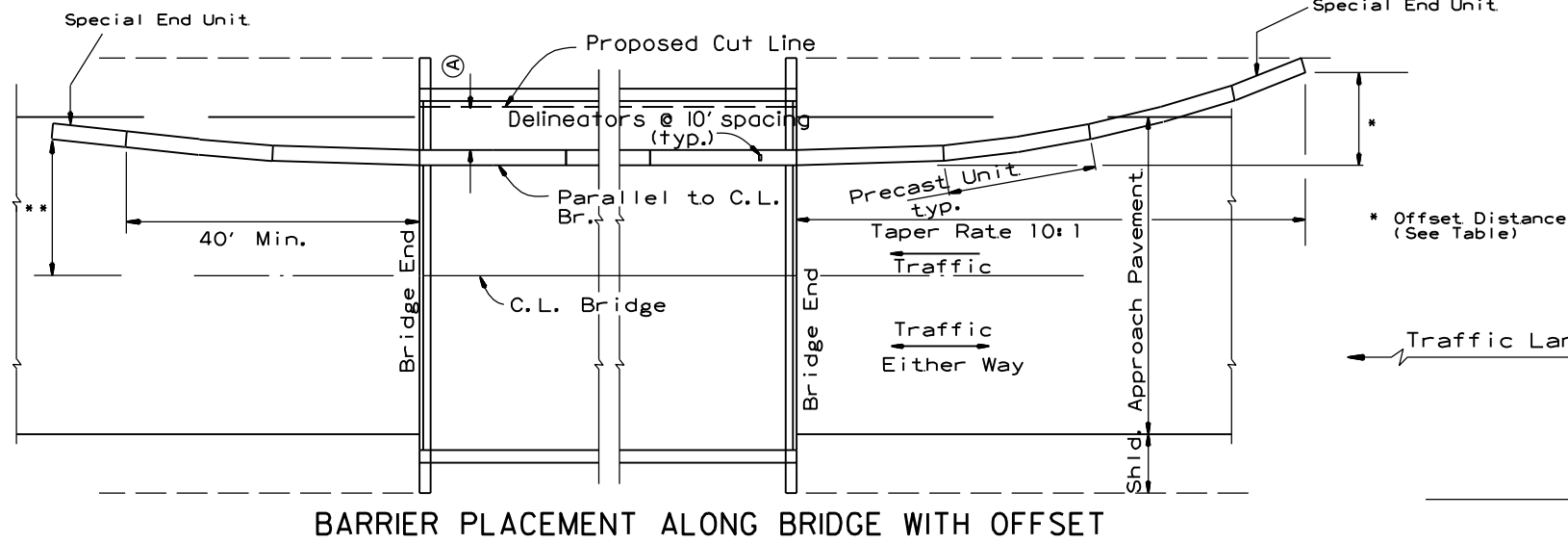
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

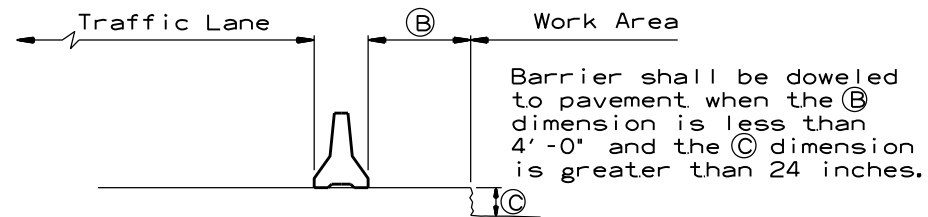
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

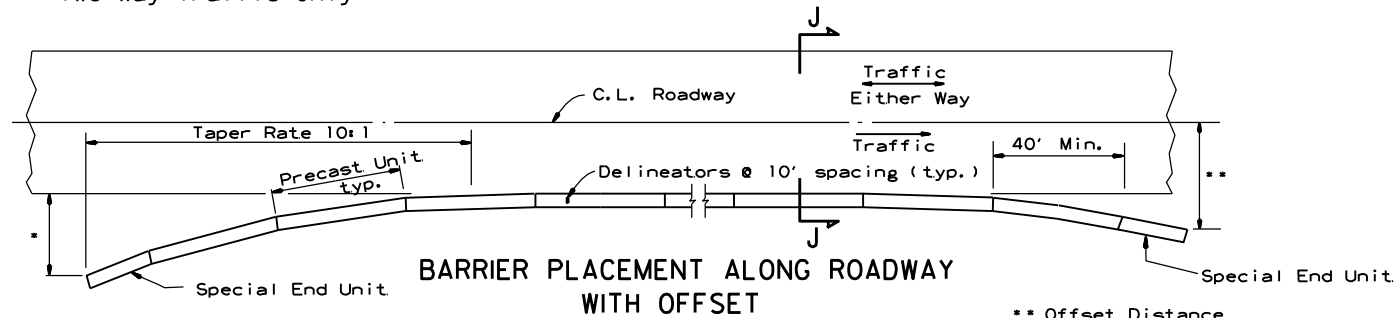
No Scale

** Offset Distance for Two Way Traffic Only



SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

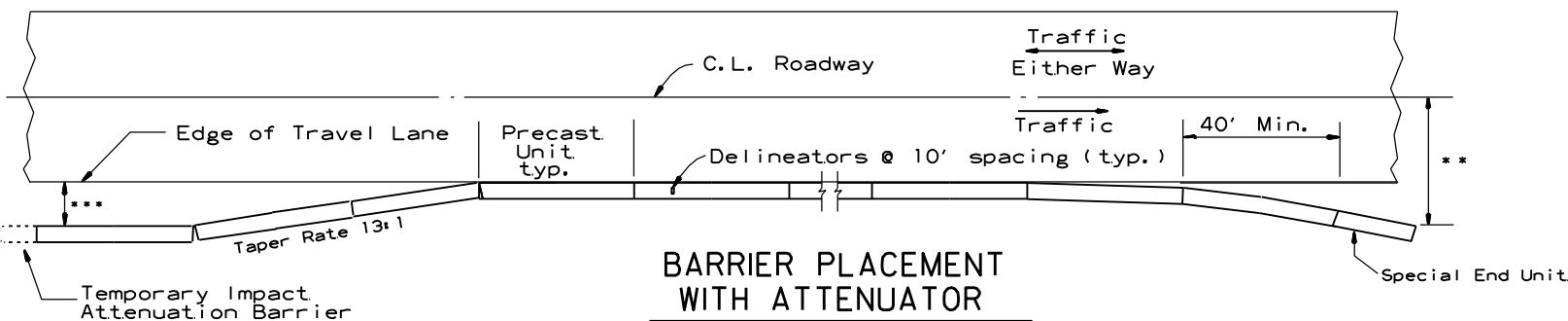
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

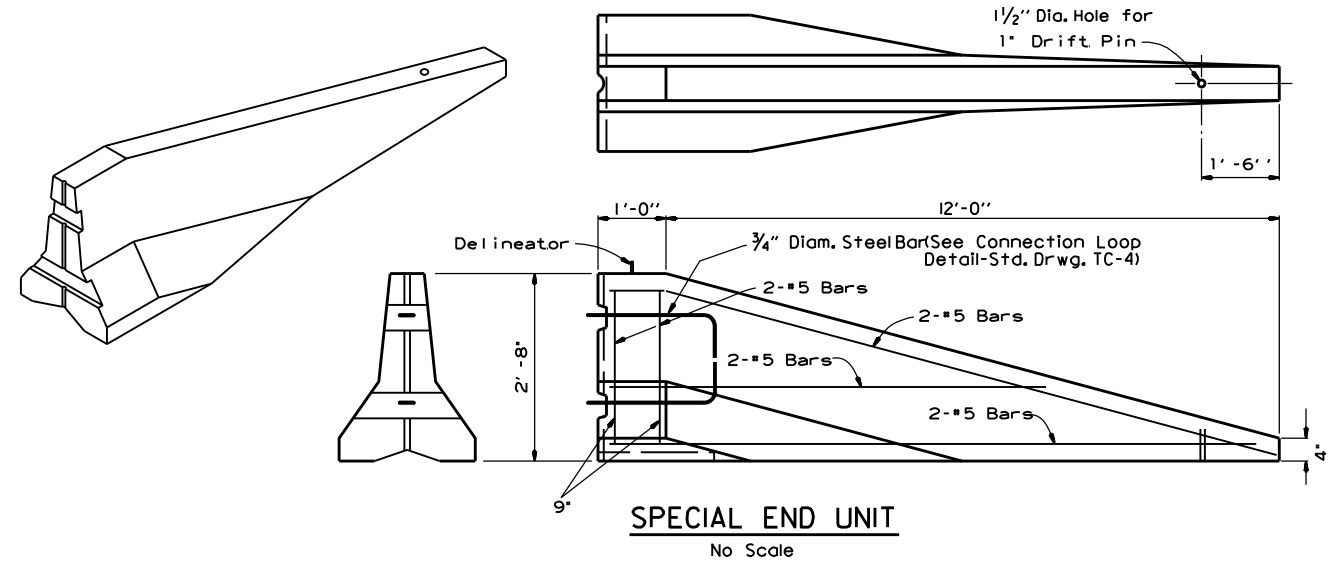


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



SPECIAL END UNIT

No Scale

General Notes

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

DATE	REVISION	FILMED
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

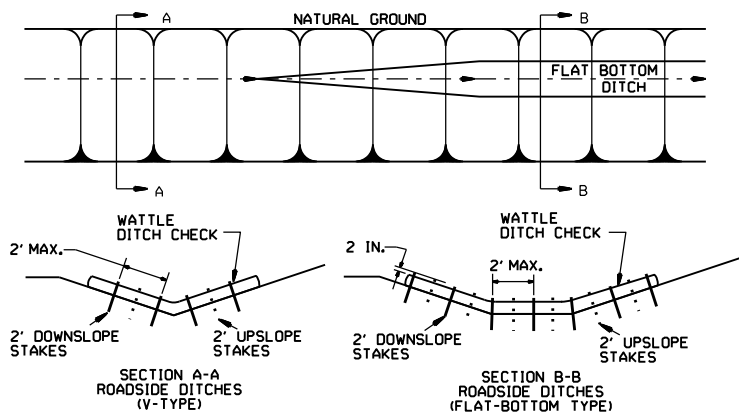
ARKANSAS STATE HIGHWAY COMMISSION

**STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION -
TEMPORARY PRECAST BARRIER**

STANDARD DRAWING TC-5

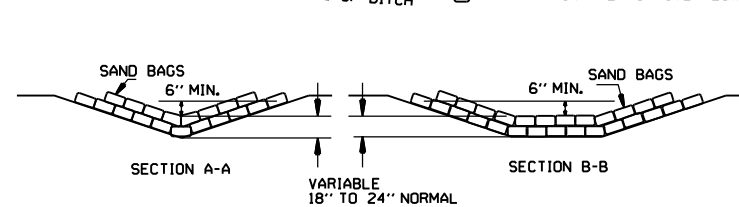
GENERAL NOTES

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

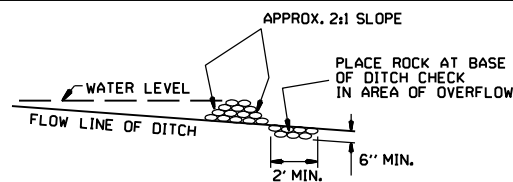


WATTLE DITCH CHECK (E-1)

NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS. PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.

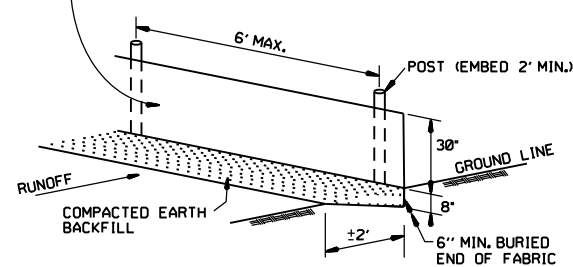


SAND BAG DITCH CHECK (E-5)

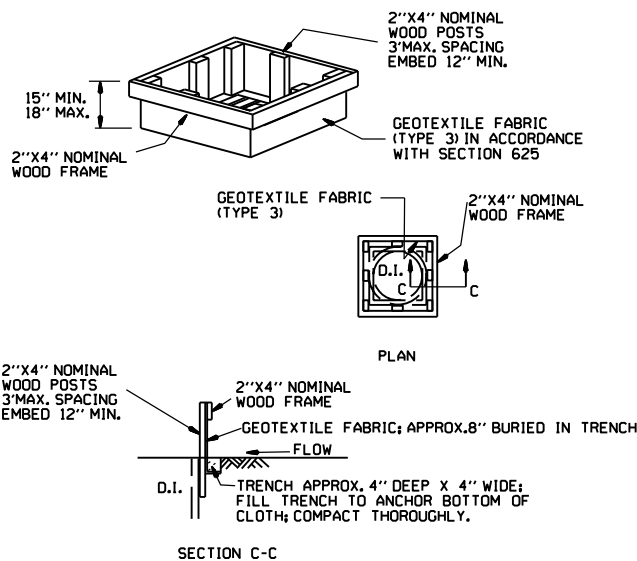


ROCK DITCH CHECK (E-6)

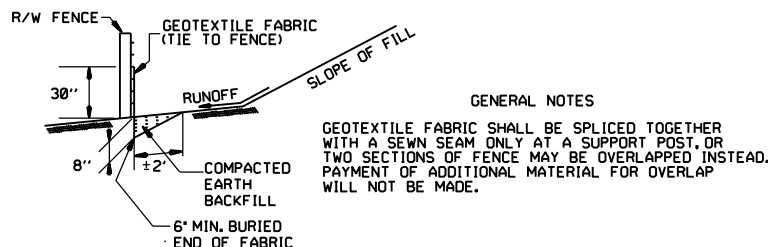
GENERAL NOTES
 GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625
 GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)

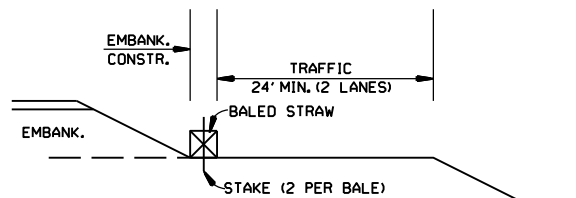


DROP INLET SILTS FENCE (E-7)

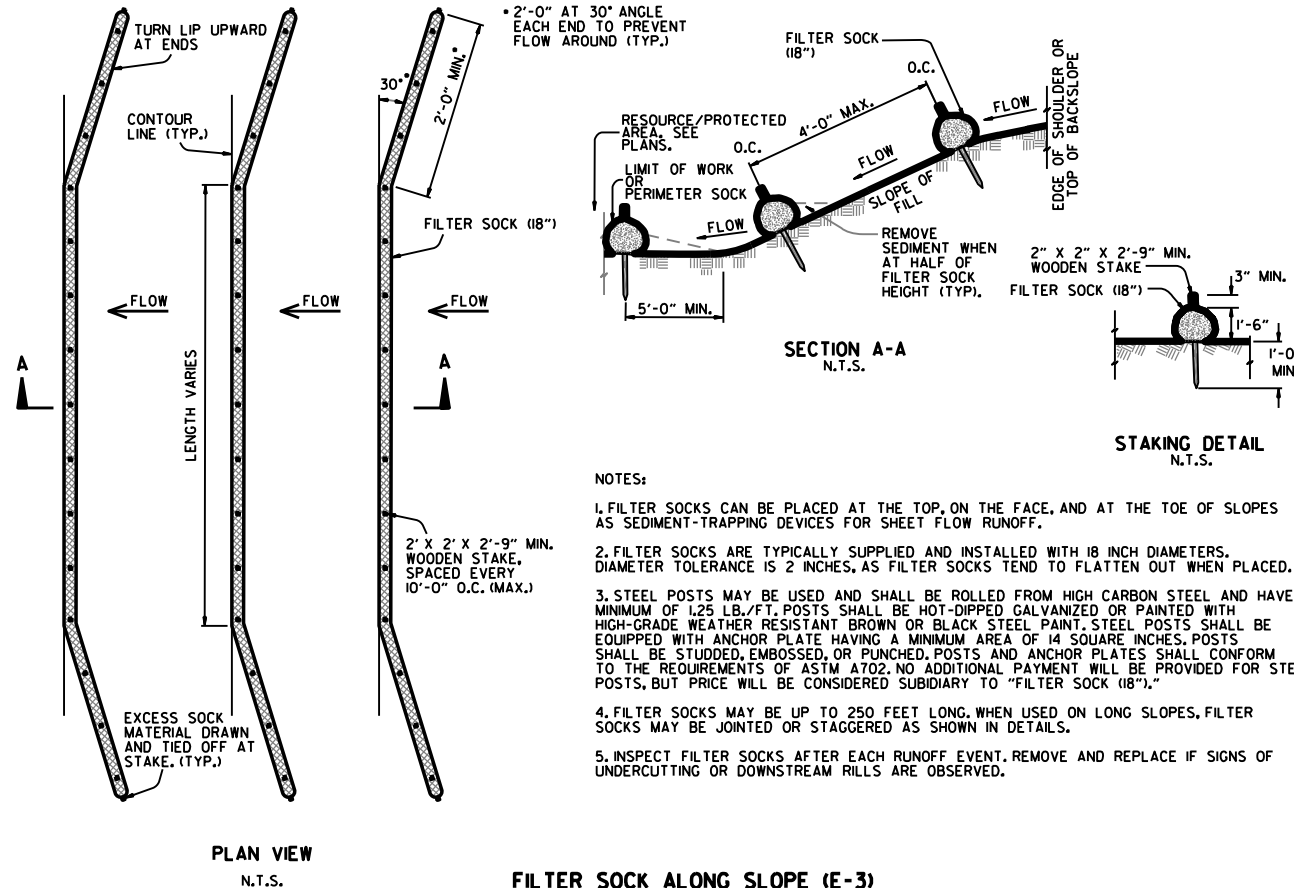


SILT FENCE ON R/W FENCE (E-4)

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.

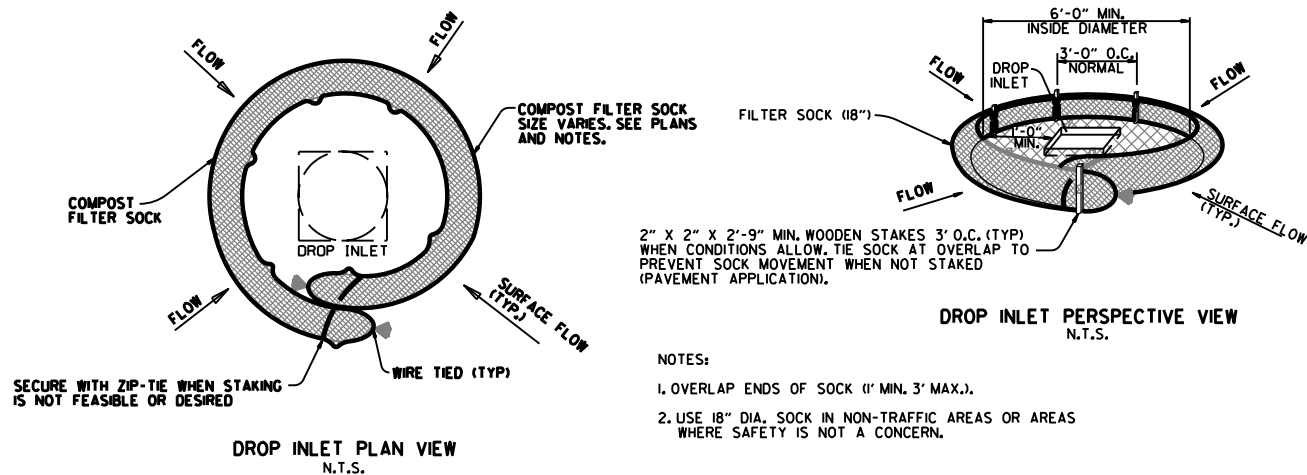


BALED STRAW FILTER BARRIER (E-2)



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 125 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 SUBDIARY TO "FILTER SOCK (18\"/>

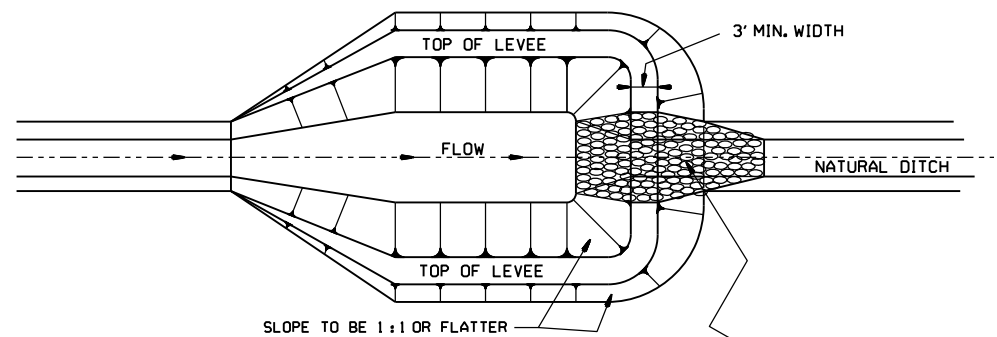


COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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.

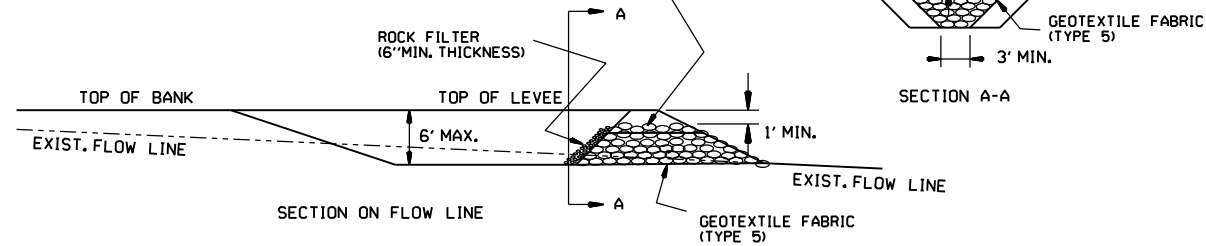
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED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

ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION CONTROL DEVICES
 STANDARD DRAWING TEC-1

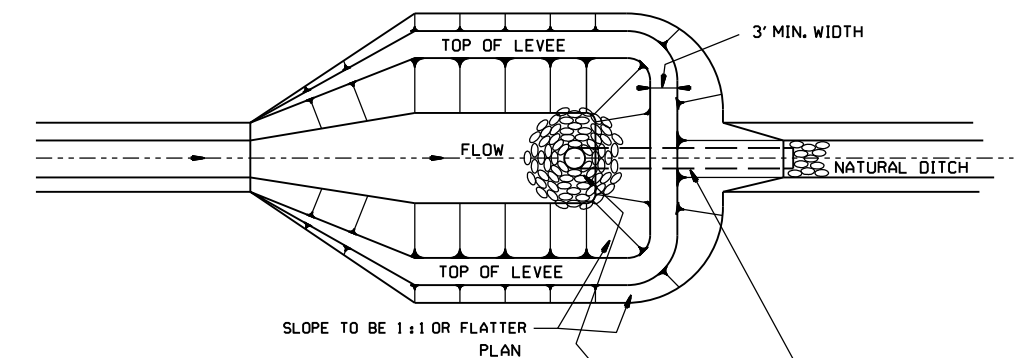


NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.

PLAN

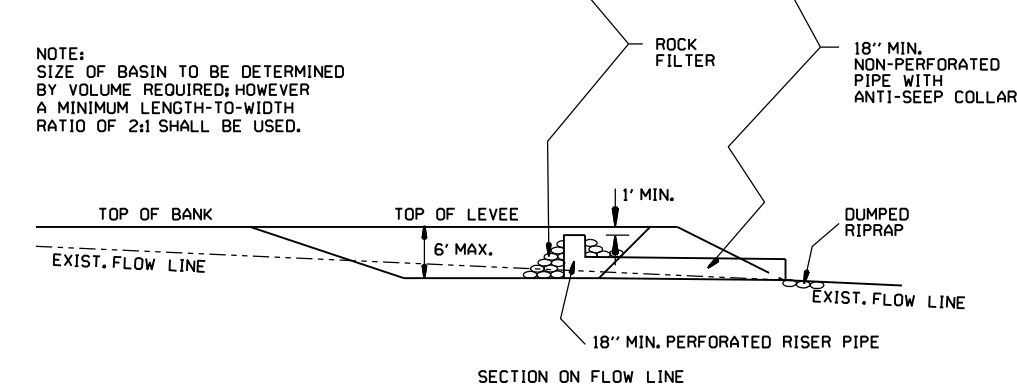


SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)

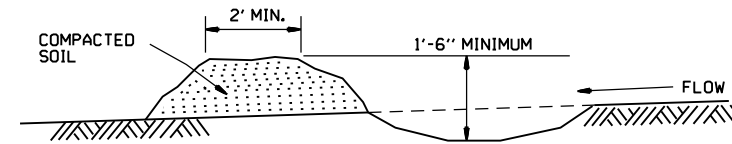


NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.

PLAN

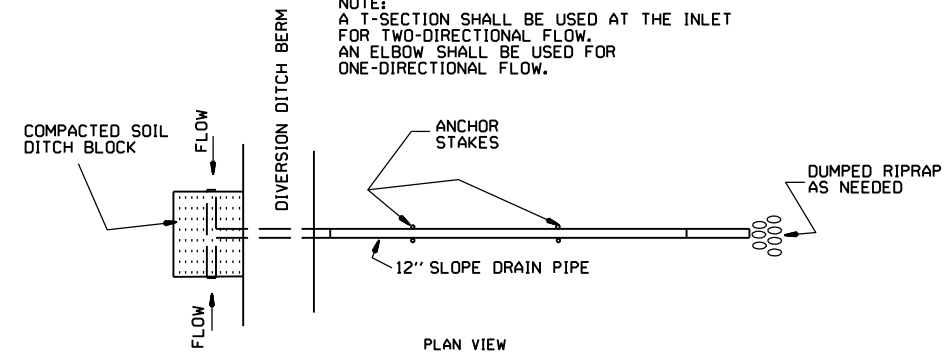


SEDIMENT BASIN WITH PIPE OUTLET (E-10)

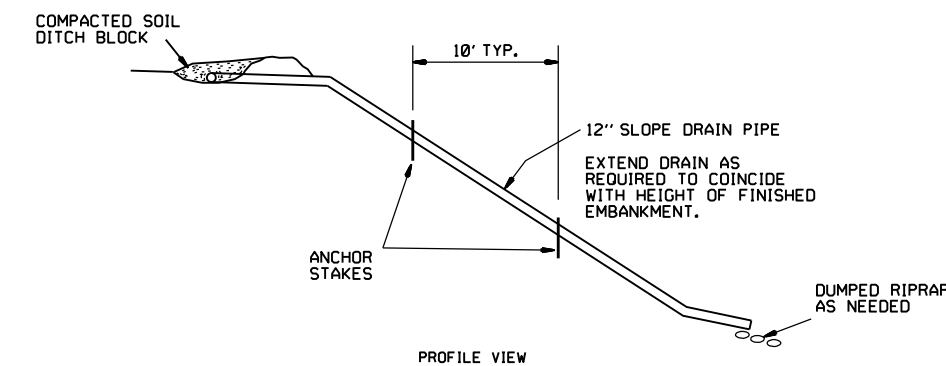


DIVERSION DITCH (E-8)

NOTE:
A T-SECTION SHALL BE USED AT THE INLET
FOR TWO-DIRECTIONAL FLOW.
AN ELBOW SHALL BE USED FOR
ONE-DIRECTIONAL FLOW.

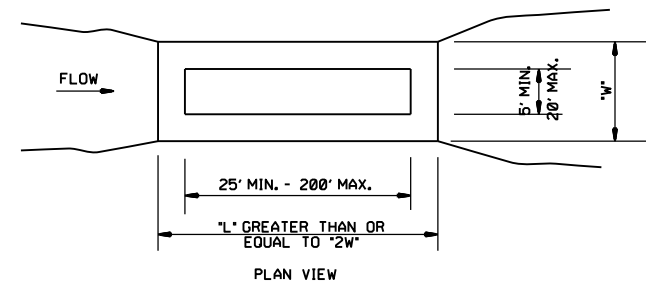


PLAN VIEW

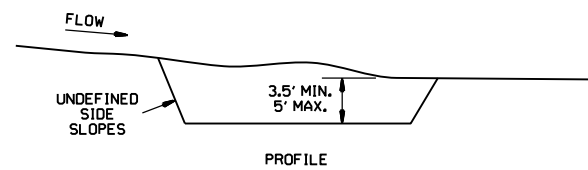


PROFILE VIEW

SLOPE DRAIN (E-12)



PLAN VIEW



PROFILE

SEDIMENT BASIN (E-14)

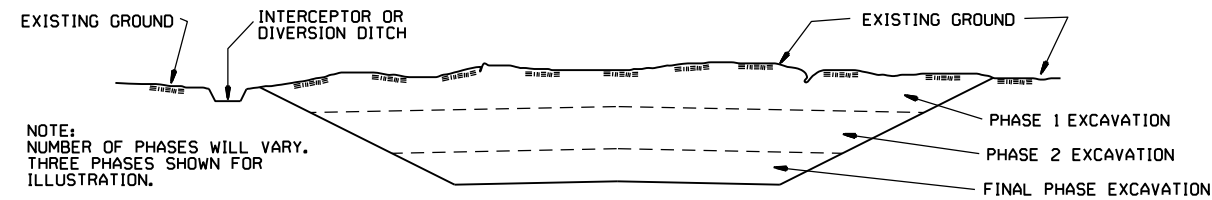
		ARKANSAS STATE HIGHWAY COMMISSION	
		TEMPORARY EROSION CONTROL DEVICES	
		STANDARD DRAWING TEC-2	
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



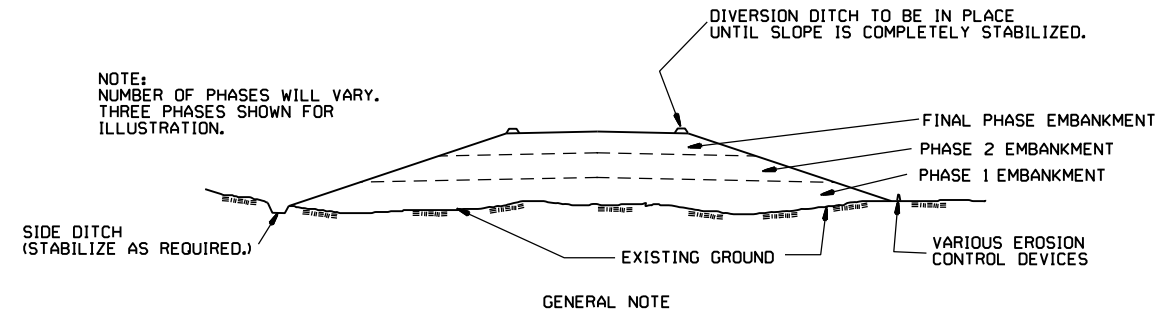
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



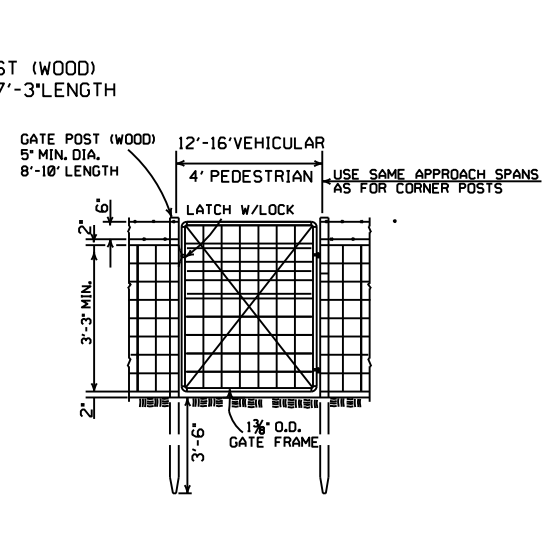
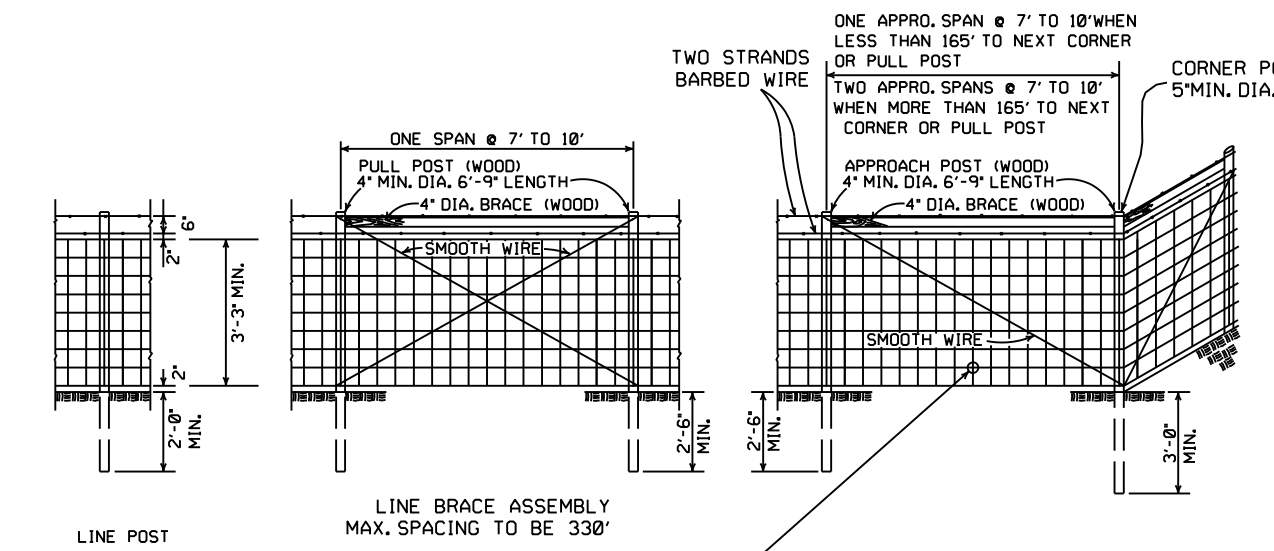
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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



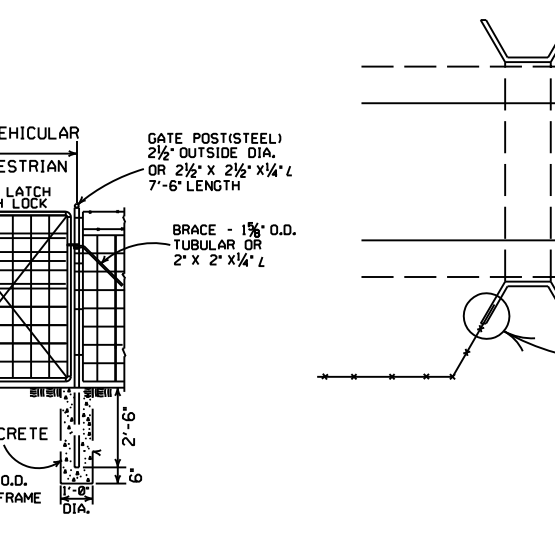
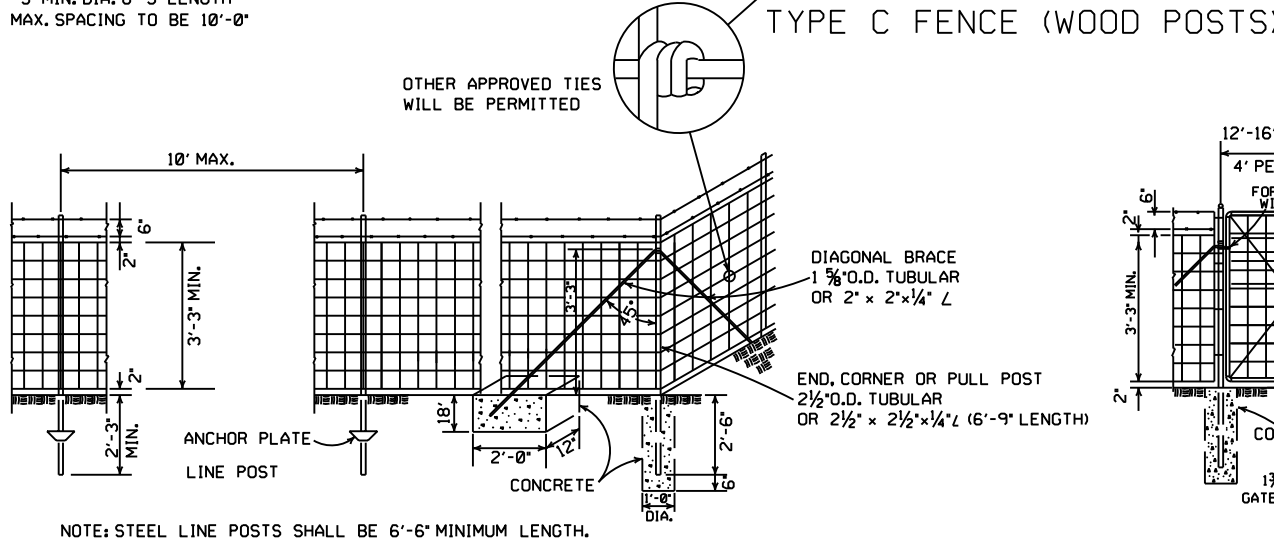
GENERAL NOTES:

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.

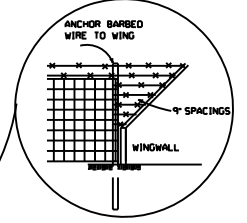
THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

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.



NOTE: USE 3/8" x 1 1/2" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.



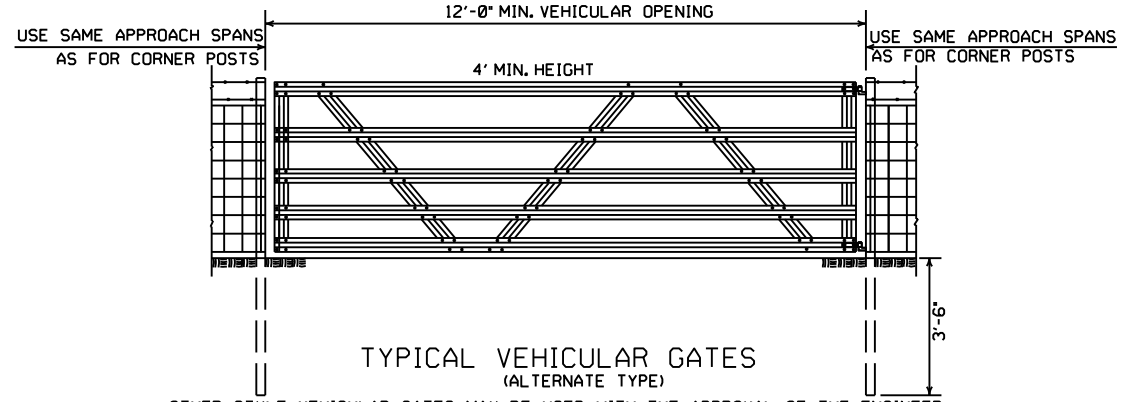
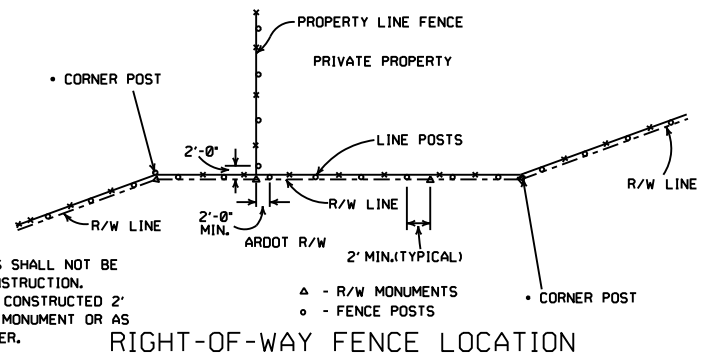
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

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.

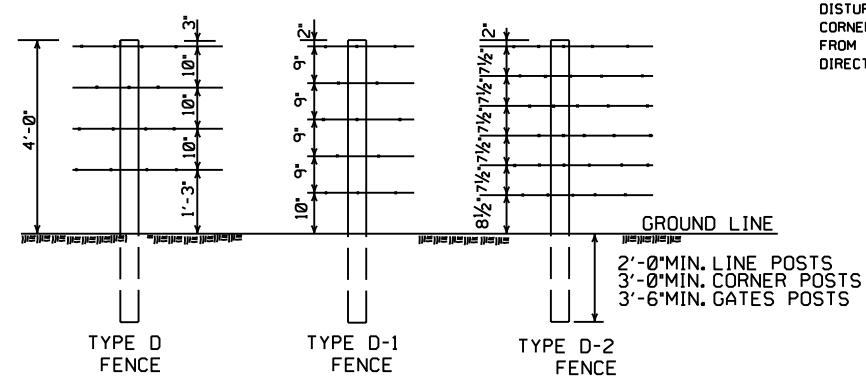
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE 'WESTERN UNION METHOD' AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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

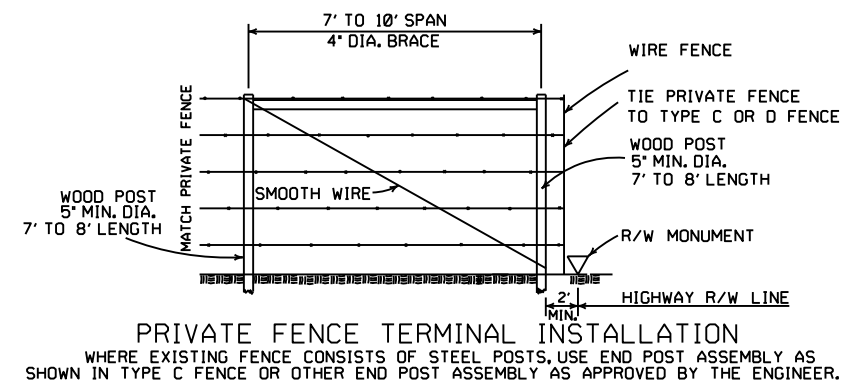
TYPE C FENCE (STEEL POSTS)



- 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.



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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE

TYPE C AND D

STANDARD DRAWING WF-4