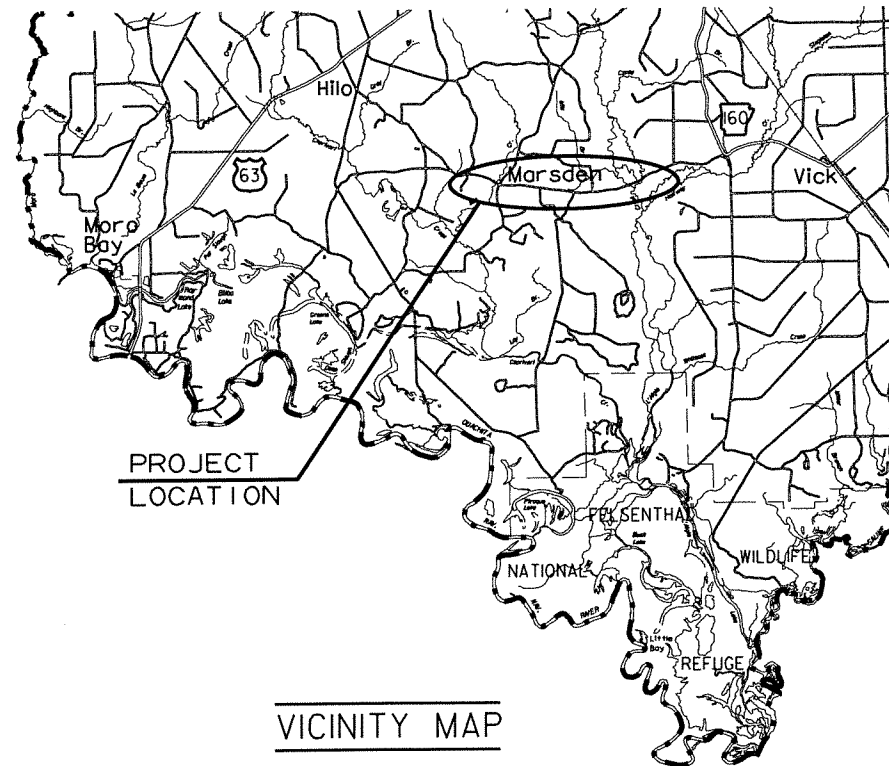


ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR PROPOSED COUNTY ROAD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	1	51
				④ CO. RD. 4 - CO. RD. 134 (RECONSTRUCTION) (S)				

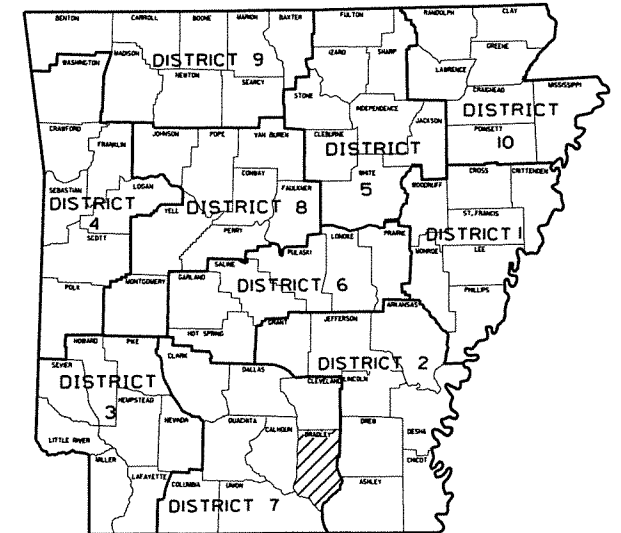


**CO. RD. 4 - CO. RD. 134
(RECONSTRUCTION) (S)**

COUNTY ROAD 2

BRADLEY COUNTY

**FED. AID PROJ. STPR-0006(35)
JOB FA0624**

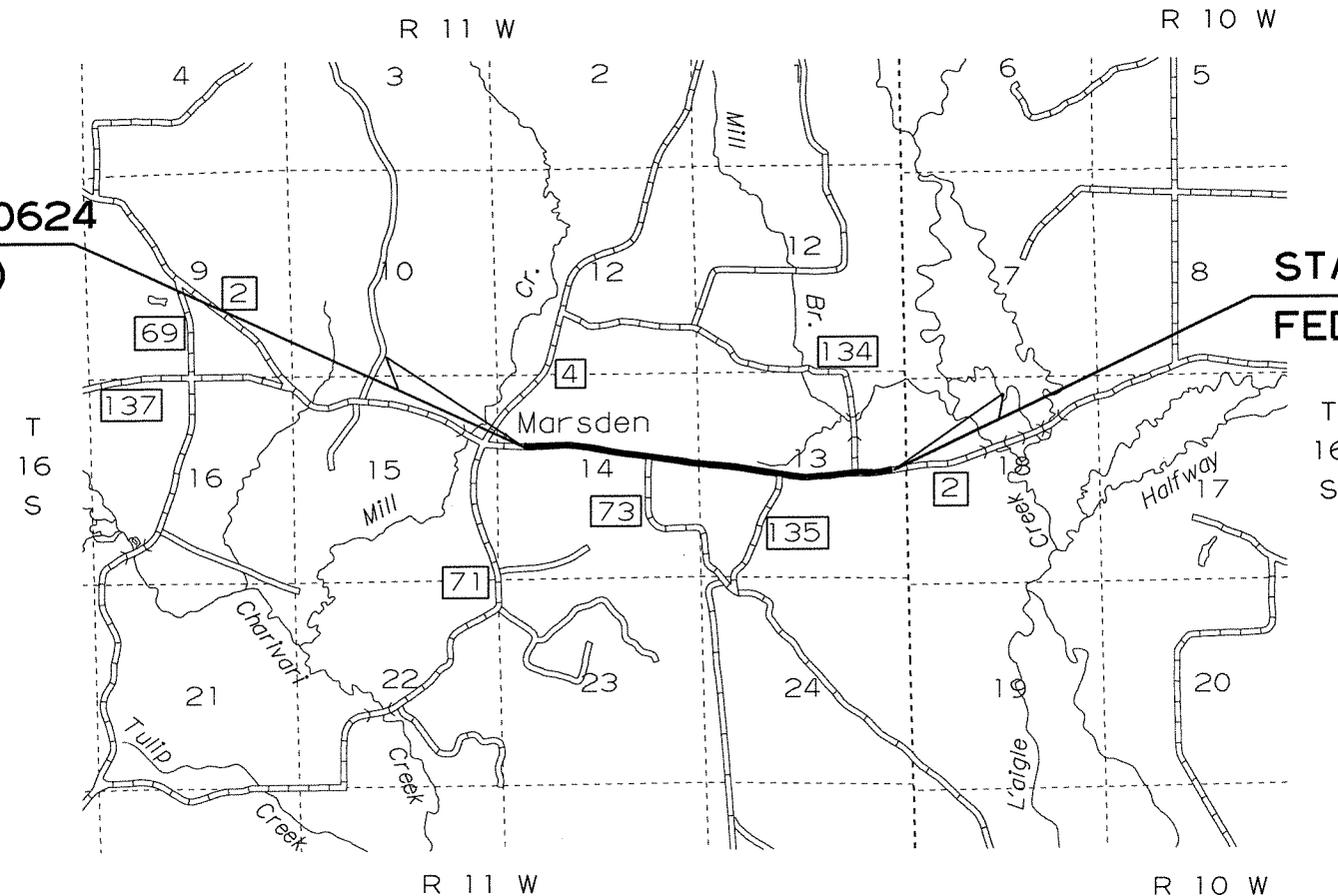


DESIGN TRAFFIC DATA

DESIGN YEAR	2013
2013 ADT	330
2033 ADT	600
2033 DHV	90
DIRECTIONAL DISTRIBUTION	0.60 %
TRUCKS	22 %
DESIGN SPEED	40 MPH

STA. 201+00.00 - BEGIN JOB FA0624
FED. AID PROJECT STPR-0006(35)

STA. 294+76.00 - END JOB FA0624
FED. AID PROJ. STPR-0006(35)



MID-POINT OF PROJECT

	BEGIN	MID-POINT	END
LAT.	N 33°19' 33.0"	N 33°19' 27.2"	N 33°19' 23.2"
LONG.	W 92°12' 58.9"	W 92°12' 4.3"	W 92°11' 13.3"

GROSS LENGTH OF PROJECT	9376.00	FEET OR	1,776	MILES
NET " " ROADWAY	9376.00	" "	1,776	"
NET " " BRIDGES	0.00	" "	0.000	"
NET " " PROJECT	9376.00	" "	1,776	"

PE JOB FA0622

APPROVED



9/13/13
DEPUTY DIRECTOR
AND CHIEF ENGINEER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	FA0624	2
								51
④ INDEX OF SHEETS, GOV. SPECS., & GEN. NOTES								

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG. NO.	DATE
1	TITLE SHEET			
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS AND GENERAL NOTES			
3	TYPICAL SECTIONS OF IMPROVEMENT			
4	SPECIAL DETAILS			
5-6	QUANTITY SHEETS			
7	SUMMARY OF QUANTITIES AND REVISIONS			
8-10	SURVEY CONTROL DETAILS			
11-17	PLAN AND PROFILE SHEETS			
18	FLARED END SECTION.....		FES-1.....	10-18-96
19	FLARED END SECTION.....		FES-2.....	10-18-96
20	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING.....		PCC-1.....	12-15-11
21	METAL PIPE CULVERT FILL HEIGHTS & BEDDING.....		PCM-1.....	12-15-11
22	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE).....		PCP-1.....	12-15-11
23	PLASTIC PIPE CULVERT (PVC F949).....		PCP-2.....	12-15-11
24	DETAILS OF PIPE UNDERDRAIN.....		PU-1.....	4-10-03
25	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC.....		SE-2.....	10-18-96
26	STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES.....		SHS-1.....	9-12-13
27	U-CHANNEL POST ASSEMBLIES.....		SHS-2.....	9-12-13
28	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION.....		TC-1.....	12-15-11
29	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION.....		TC-2.....	9-12-13
30	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION.....		TC-3.....	10-15-09
31	TEMPORARY EROSION CONTROL DEVICES.....		TEC-1.....	12-15-11
32	TEMPORARY EROSION CONTROL DEVICES.....		TEC-2.....	6-02-94
33	TEMPORARY EROSION CONTROL DEVICES.....		TEC-3.....	11-03-94
34	WIRE FENCE TYPE C AND D.....		WF-4.....	8-22-02
35-51	CROSS SECTIONS			

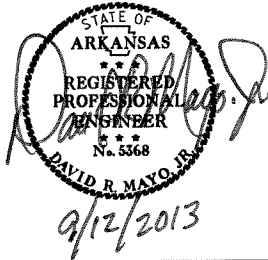
GOVERNING SPECIFICATIONS

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

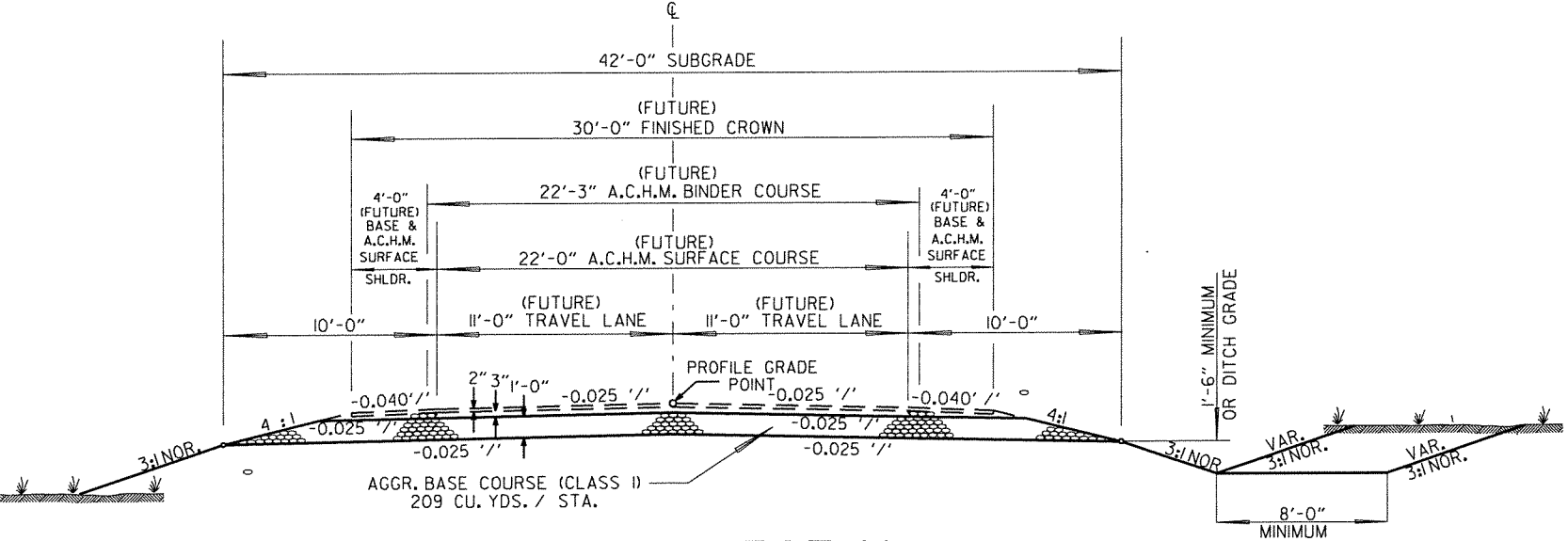
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
102-1	BIDDING REQUIREMENTS AND CONDITIONS
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
105-3	CONTROL OF WORK
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-2	INSPECTION OF TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
723-1	GENERAL REQUIREMENTS FOR SIGNS
JOB FA0624 ...	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB FA0624 ...	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB FA0624 ...	INTERNET BIDDING
JOB FA0624 ...	PLASTIC PIPE
JOB FA0624 ...	SOIL STABILIZATION
JOB FA0624 ...	STORM WATER POLLUTION PREVENTION PLAN
JOB FA0624 ...	UTILITY ADJUSTMENTS

GENERAL NOTES

- GRADE LINE DENOTES FUTURE FINISHED GRADE WHERE SHOWN ON PLANS.
- UTILITIES INTERFERING WITH CONSTRUCTION SHALL BE MOVED BY THE OWNERS.
- 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 INSURE 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.
- A SECTION 404 PERMIT IS NOT REQUIRED FOR THIS PROJECT.
- ALL SALVAGEABLE PIPE CULVERTS SHALL BE STORED ON THE RIGHT-OF-WAY AND REMAIN THE PROPERTY OF BRADLEY COUNTY.
- THE ROAD WILL REMAIN OPEN TO LOCAL TRAFFIC DURING CONSTRUCTION.
- SUPERELEVATION SHALL BE COMPUTED IN ACCORDANCE WITH STANDARD DRAWING SE-2 USING 40 MPH DESIGN VALUES AND REVOLVE ABOUT THE INNER PAVEMENT EDGE POINT UNLESS OTHERWISE SHOWN.

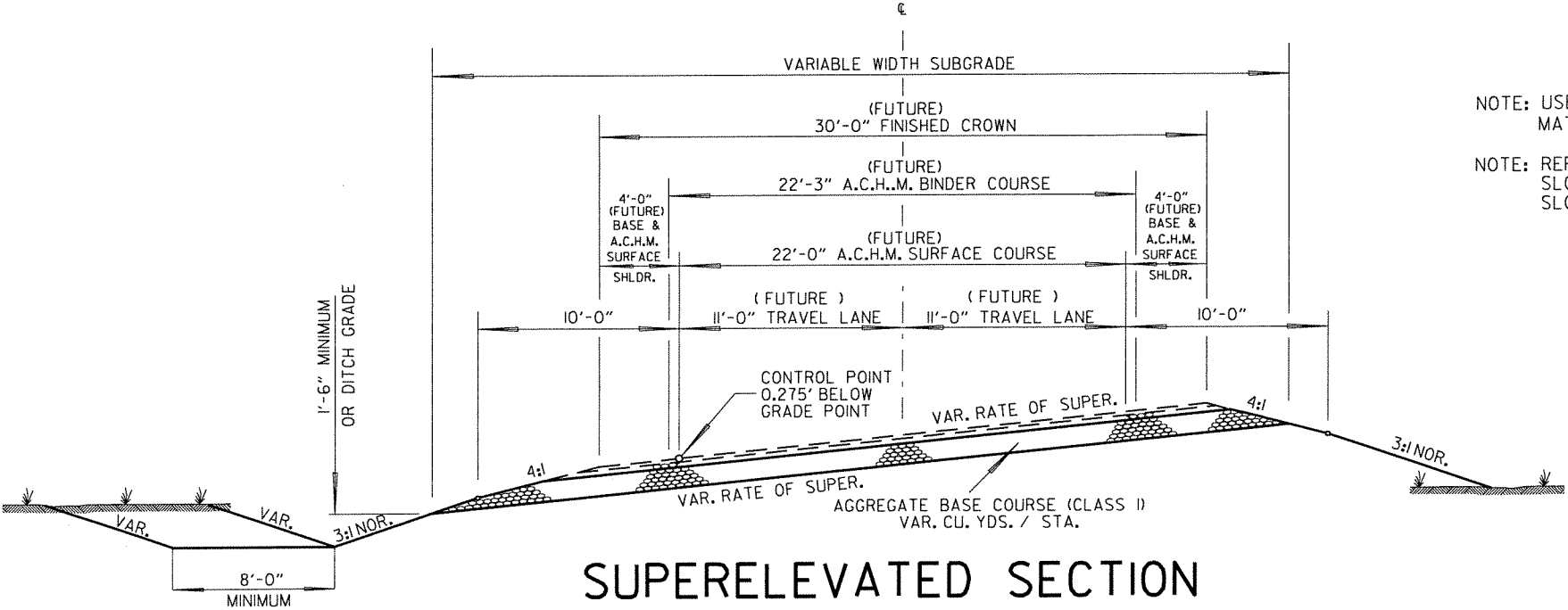


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						FA0624	3	51
				TYPICAL SECTION OF IMPROVEMENT				



TANGENT SECTION

NOTE: THE AGGREGATE BASE COURSE IS TO BE PLACED AND SPREAD TO CONFORM TO THE TYPICAL SECTION. THE MATERIAL IN THE BASE COURSE SHALL BE UNIFORMLY COMPACTED, STABLE AND FREE OF SEGREGATED AREAS. DENSITY REQUIREMENTS ARE NOT A PART OF THIS CONTRACT.



NOTE: USE FLAT BOTTOM DITCHES TO OBTAIN ADDITIONAL MATERIAL AND/OR WATERWAY WHERE NECESSARY.

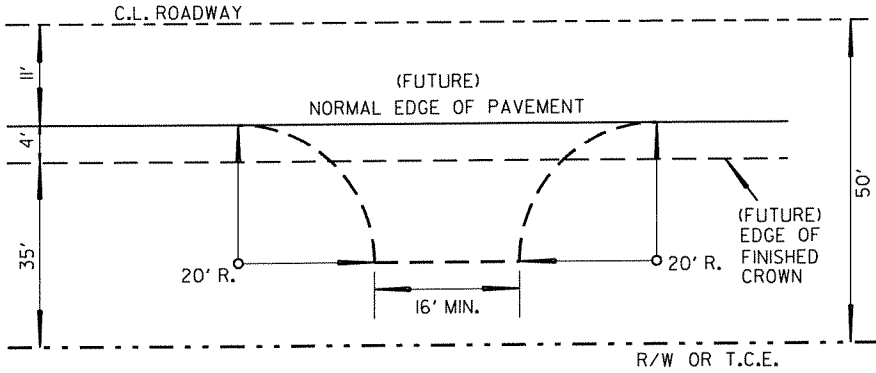
NOTE: REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

SUPERELEVATED SECTION

TYPICAL SECTION OF IMPROVEMENT

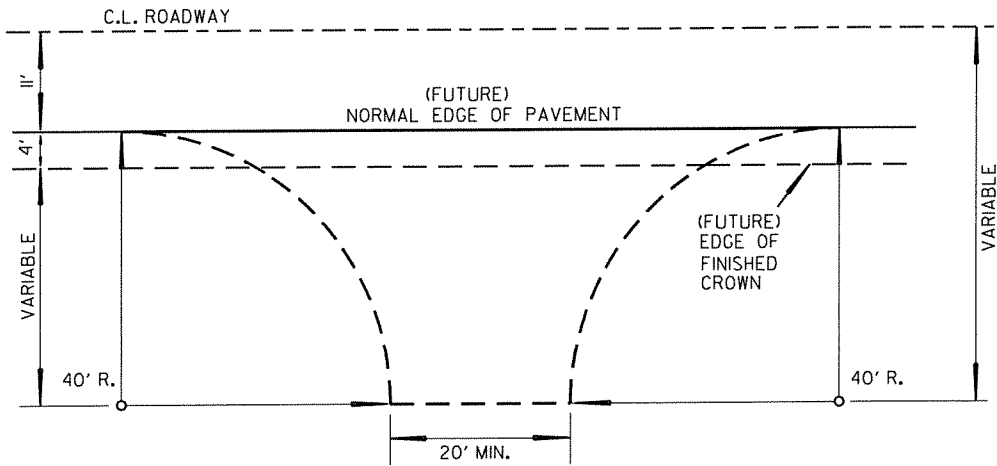


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. FA0624	4	51
4 SPECIAL DETAILS								



DETAIL OF PRIVATE ENTRANCES

ADDITIONAL BASE COURSE AREA W/ 50' R/W & 7" DEPTH = 28.5 SQ. YDS.



DETAIL OF COUNTY ROAD TURNOUTS

ADDITIONAL BASE COURSE AREA W/ FULL RADIUS & 7" DEPTH = 113.4 SQ. YDS.

NOTE: THE ABOVE DETAILS MAY BE MODIFIED TO MEET
LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

SPECIAL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	5	51
				④ QUANTITIES				

AGGERGATE BASE COURSE

STATION	STATION	LOCATION / DESCRIPTION	LENGTH	AGG. BASE COURSE (CLASS 1)
			FEET	CU. YDS.
201+00	294+76	MAIN LANES	9376	19595.8
		3 - CO. RD. TURNOUT		223.7
		3 - PRIVATE ENTRANCES		132.2
TOTAL:				19951.7
USE:				19952

BASIS OF ESTIMATE:
AGGREGATE BASE COURSE (CLASS 1)..... 209 CU. YDS. / STA.

NOTE: RATES MAY BE MODIFIED IF AND WHERE DIRECTED BY THE ENGINEER.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

CLEARING AND GRUBBING

STATION	STATION	SIDE	CLEARING	GRUBBING
			STATION	
201+00	294+76	LT. & RT.	94	94
TOTALS:			94	94

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL			
			SEEDING	LIME	MULCH COVER	WATER
			ACRES	TONS	ACRES	M.GALS.
201+00	294+75	MAIN LANES	12.52	25.04	12.52	1277.04
TOTALS:			12.52	25.04	12.52	1277.04
USE:			12.52	25	12.52	1277.0

BASIS OF ESTIMATE:
LIME 2 TONS / ACRE OF SEEDING
WATER 102.0 M.G. / ACRE OF SEEDING, PERMANENT SEEDING

TEMPORARY EROSION CONTROL

STATION	STATION	LOCATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHKS. (E-5)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRES	ACRES	M. GALS.	BAGS	LIN. FT.	CU. YDS.
201+00	294+75	MAIN LANES	12.52	12.52	255.41	672	1470	71
		ENTIRE PROJECT AS DIRECTED BY THE ENGINEER.				144	500	22
TOTALS:			12.52	12.52	255.41	816	1970	93
USE:			12.52	12.52	255.4	816	1970	93

BASIS OF ESTIMATE:
WATER 20.4 M.G. / ACRE OF SEEDING, TEMPORARY SEEDING.
SAND BAG DITCH CHECKS 20 BAGS / LOCATION

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

EARTHWORK

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION			COMPACTED EMBANKMENT		
			NORMAL	ADD'L.	TOTAL	NORMAL	APPRS.	TOTAL
			CUBIC YARDS					
201+00	294+76	MAIN LANES	5950		5950	11285		11285
		CULVERT INLETS AND OUTLETS		60	60			
		CO. RD. TURNOUTS AND DRIVES					210	210
TOTALS:			5950	60	6010	11285	210	11495

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

FENCING

STATION	STATION	SIDE	FENCE	
			(TYPE C)	(TYPE D-2)
			LIN. FT.	
202+67	206+26	RT.	360	
207+38	209+88	RT.	250	
290+29	294+75	LT.		457
TOTALS:			610	457

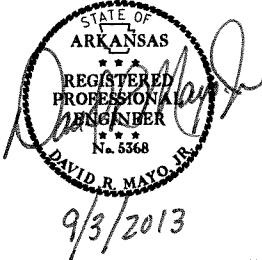
REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	DESCRIPTION	FENCE	PIPE CULVERT
			LIN. FT.	EACH
202+67	206+26	FENCE ON RT.	360	
207+38	209+88	FENCE ON RT.	250	
207+15		18"x 30' RT. SIDE DRAIN		1
216+88		18"x 20' RT. SIDE DRAIN		1
218+23		24"x 48' C.M. PIPE CULVERT		1
228+50		14"x 22' LT. SIDE DRAIN		1
236+08		18"x 29' RT. SIDE DRAIN		1
242+76		24"x 38' C.M. PIPE CULVERT		1
270+12		DBL. 18"x 32' R.C. PIPE CULVERTS		2
270+36		15"x 27' RT. SIDE DRAIN		1
290+07		18"x 28' LT. SIDE DRAIN		1
290+29	294+75	FENCE ON LT.	457	
TOTALS:			1067	10

SOIL STABILIZATION

LOCATION	SOIL STABILIZATION
	TON
ENTIRE PROJECT	200
TOTAL:	200

NOTE: QUANTITIES ARE ESTIMATED. TO BE
USED IF AND WHERE DIRECTED BY THE ENGINEER.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.



④

STRUCTURES

STATION	DESCRIPTION	SIDE DRAINS		CROSS DRAINS						FLARED END SECTIONS						SEL. PIPE BEDDING	SEL. PIPE BACKFILL	SOLID SODDING	WATER	STD. DWG. NOS.
				CONCRETE			METAL			CONCRETE			METAL							
		18"	24"	29"x 18"	51"x31"	59"x36"	24"	30"	36"	29"x 18"	51"x31"	59"x36"	24"	30"	36"					
		LINEAR FEET														CU. YDS.		SQ.YDS.	M.GALS.	
207+15	INSTALL RT. SIDE DRAIN	28																	PCM-1, PCC-1, PCP-1 & PCP-2	
216+88	INSTALL RT. SIDE DRAIN	28																	PCM-1, PCC-1, PCP-1 & PCP-2	
218+23	CONSTRUCT PIPE CULVERT W/FES				42				100		2			4		5	11	28	0.4	PCM-1, PCC-1, FES-1 & FES-2
228+50	INSTALL LT. SIDE DRAIN	28																	PCM-1, PCC-1, PCP-1 & PCP-2	
236+08	INSTALL RT. SIDE DRAIN	46																	PCM-1, PCC-1, PCP-1 & PCP-2	
242+76	CONSTRUCT PIPE CULVERT W/FES			38			44			2		2			3	7	16	0.2	PCM-1, PCC-1, FES-1 & FES-2	
270+12	CONSTRUCT PIPE CULVERT W/FES					40			100				2		4	6	12	36	0.5	PCM-1, PCC-1, FES-1 & FES-2
270+36	INSTALL RT. SIDE DRAIN	42																	PCM-1, PCC-1, PCP-1 & PCP-2	
290+07	INSTALL LT. SIDE DRAIN		42																PCM-1, PCC-1, PCP-1 & PCP-2	
TOTALS :		172	42	38	42	40	44	100	100	2	2	2	2	4	4	14	30	80	1.1	

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

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

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

NOTE: QUANTITIES ARE ESTIMATED.

4" PIPE UNDERDRAIN

LOCATIONS	4"PIPE UNDER- DRAINS	OUTLET PROTECTOR
	LI.N.F.T.	EACH
ENTIRE PROJECT	300	6
TOTALS:	300	6

NOTE: QUANTITIES ARE ESTIMATED AND SHALL BE PLACED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF STANDARD SPECIFICATIONS.

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

STATION	SIDE	STANDARD SIGN NUMBER					SUPPORT ASSEMBLIES		STD. DWG. NO.
		OM-3L	OM-3R	W1-2L	W1-2R	W1-4L	TYPE A	TYPE C	
		SQ. FT.							
202+18	RT.					6.25	1		SHS - 1 & 2
218+23	LT.	3.00	3.00					2	SHS - 1 & 2
218+23	RT.	3.00	3.00					2	SHS - 1 & 2
220+23	LT.					6.25	1		SHS - 1 & 2
242+76	LT.	3.00	3.00					1	SHS - 1 & 2
242+76	RT.	3.00	3.00					1	SHS - 1 & 2
270+12	LT.	3.00	3.00					2	SHS - 1 & 2
270+12	RT.	3.00	3.00					2	SHS - 1 & 2
272+02	RT.			6.25			1		SHS - 1 & 2
280+49	LT.				6.25		1		SHS - 1 & 2
TOTALS:		18.00	18.00	6.25	6.25	12.50	4	10	

NOTE: ALL STANDARD SIGN BLANKS TO BE 0.080" THICK. REFER TO STANDARD DRAWING SHS-2 FOR CHANNEL POST SPLICING DETAILS.

* NOTE: TWO OM-3 SIGN PLACED BACK TO BACK ON EACH SIDE OF SINGLE TYPE C SUPPORT ASSEMBLY.

TRAFFIC CONTROL DEVICES

DESCRIPTION	W20-1										G20-1		G20-2A		* TRAFFIC DRUMS	STD. DWG. NO.
	XX MILES		1500		1000		500		AHEAD							
	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.		
HWY. 63 & CO. RD. 2	1	16.00														TC-1,2&3
HWY. 160 & CO. RD. 2	1	16.00														TC-1,2&3
BEGINNING OF JOB			1	16.00	1	16.00	1	16.00			1	10.00	1	8.00		TC-1,2&3
ENTIRE JOB									3	48.00					24.00	TC-1,2&3
END OF JOB			1	16.00	1	16.00	1	16.00			1	10.00	1	8.00		TC-1,2&3
TOTALS:	2	32.00	2	32.00	2	32.00	2	32.00	3	48.00	2	20.00	2	16.00	24.00	

THE EXACT LOCATION OF THE TRAFFIC CONTROL DEVICES TO BE PLACED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

* QUANTITIES ARE ESTIMATED. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SECTION 104.03 OF THE STANDARD SPECIFICATIONS.



SUMMARY OF QUANTITIES

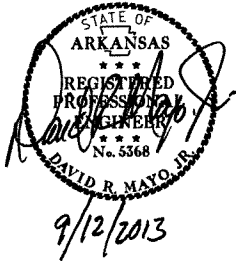
ITEM NUMBER	ITEM	QUANTITY TOTALS	UNIT
201	CLEARING	94	STATION
201	GRUBBING	94	STATION
202	REMOVAL AND DISPOSAL OF FENCE	1067	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	10	EACH
210	UNCLASSIFIED EXCAVATION	6010	CU. YD.
210	COMPACTED EMBANKMENT	11495	CU. YD.
SP& 210	SOIL STABILIZATION	200	TON
SS& 303	AGGREGATE BASE COURSE (CLASS 1)	19952	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP& 602	FURNISHING FIELD OFFICE	1	EACH
SS& 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS& 604	SIGNS	212	SQ. FT.
SS& 604	TRAFFIC DRUMS	24	EACH
* SS& 606	29"x 18" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV) (ALTERNATE NO. 1)	38	LIN. FT.
* 606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 2)	44	LIN. FT.
* 606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 3)	44	LIN. FT.
* 606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 4)	44	LIN. FT.
* SS& 606	51"x31" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV) (ALTERNATE NO. 1)	42	LIN. FT.
* 606	30" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 2)	100	LIN. FT.
* 606	30" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 3)	100	LIN. FT.
* 606	30" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE) (ALTERNATE NO. 4)	100	LIN. FT.
* SS& 606	59"x36" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV) (ALTERNATE NO. 1)	40	LIN. FT.
* 606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE) (ALTERNATE NO. 2)	100	LIN. FT.
* 606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE) (ALTERNATE NO. 3)	100	LIN. FT.
* 606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE) (ALTERNATE NO. 4)	100	LIN. FT.
* 606	29"x 18" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS (ALTERNATE NO. 1)	2	EACH
* 606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS (ALTERNATE NO. 2)	2	EACH
* 606	51"x31" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS (ALTERNATE NO. 1)	2	EACH
* 606	30" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS (ALTERNATE NO. 2)	4	EACH
* 606	59"x36" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS (ALTERNATE NO. 1)	2	EACH
* 606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS (ALTERNATE NO. 2)	4	EACH
SP,SS& 606	18" SIDE DRAIN	172	LIN. FT.
SP,SS& 606	24" SIDE DRAIN	42	LIN. FT.
606	SELECTED PIPE BEDDING	14	CU. YD.
606	SELECTED PIPE BACKFILL	30	CU. YD.
611	4" PIPE UNDERDRAINS	300	LIN. FT.
611	UNDERDRAIN OUTLET PROTECTORS	6	EACH
619	WIRE FENCE (TYPE C)	610	LIN. FT.
619	WIRE FENCE (TYPE D-2)	457	LIN. FT.
620	LIME	25	TON
620	SEEDING	12.52	ACRE
620	MULCH COVER	25.04	ACRE
SS& 620	WATER	1533.5	M. G.
621	TEMPORARY SEEDING	12.52	ACRE
621	SILT FENCE	1970	LIN. FT.
621	SAND BAG DITCH CHECKS	816	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	93	CU. YD.
624	SOLID SODDING	80	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMPSUM
SS& 726	STANDARD SIGN	61.00	SQ. FT.
729	CHANNEL POST SIGN SUPPORT (TYPE A)	4	EACH
729	CHANNEL POST SIGN SUPPORT (TYPE C)	10	EACH

* ALTERNATE BID ITEM

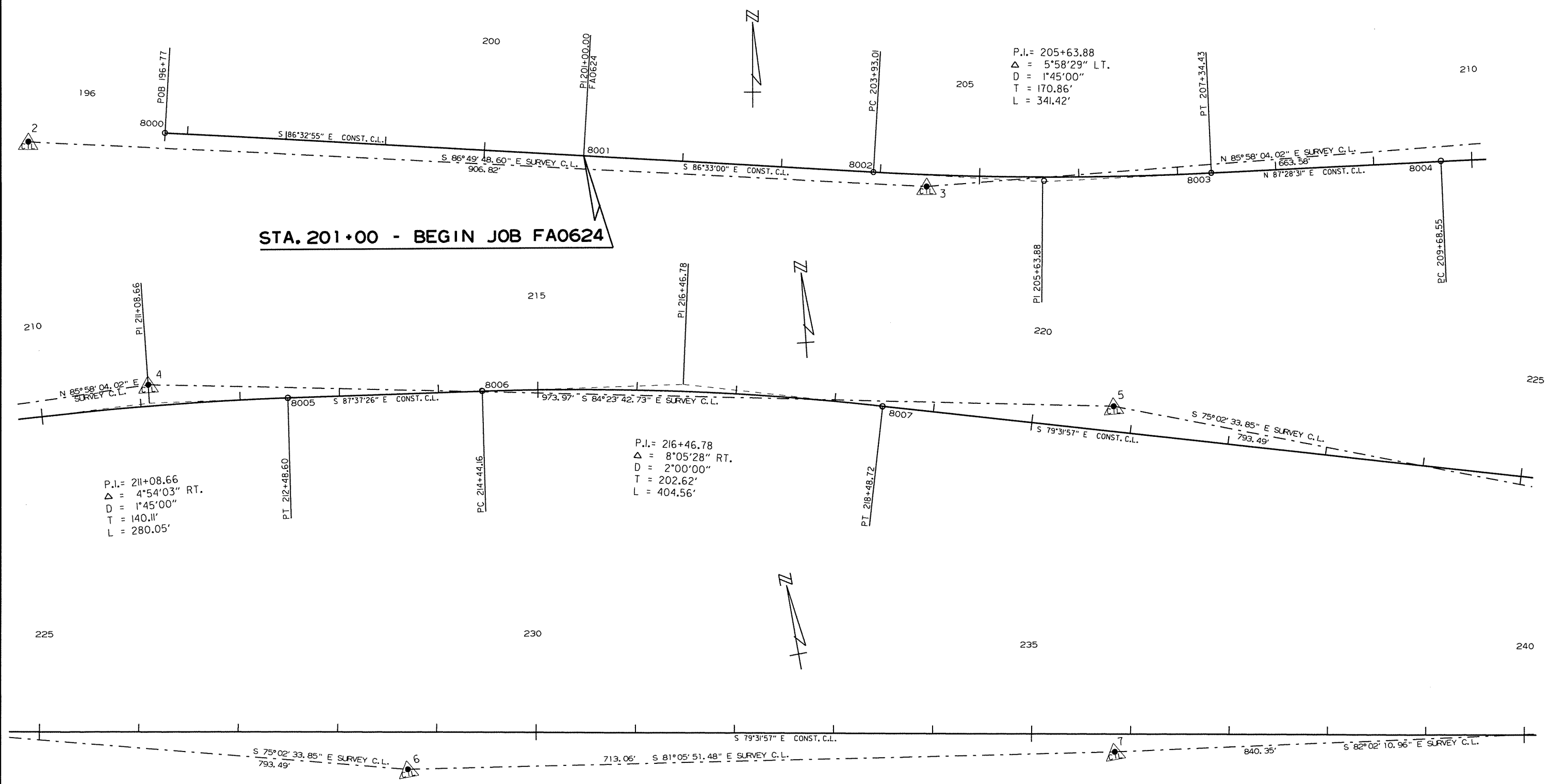
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	7	51
				④ SUMMARY OF QUANTITIES & REVISIONS				

REVISIONS

DATE	REVISIONS	SHEET NUMBER



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624		8	51
SURVEY CONTROL DETAILS								

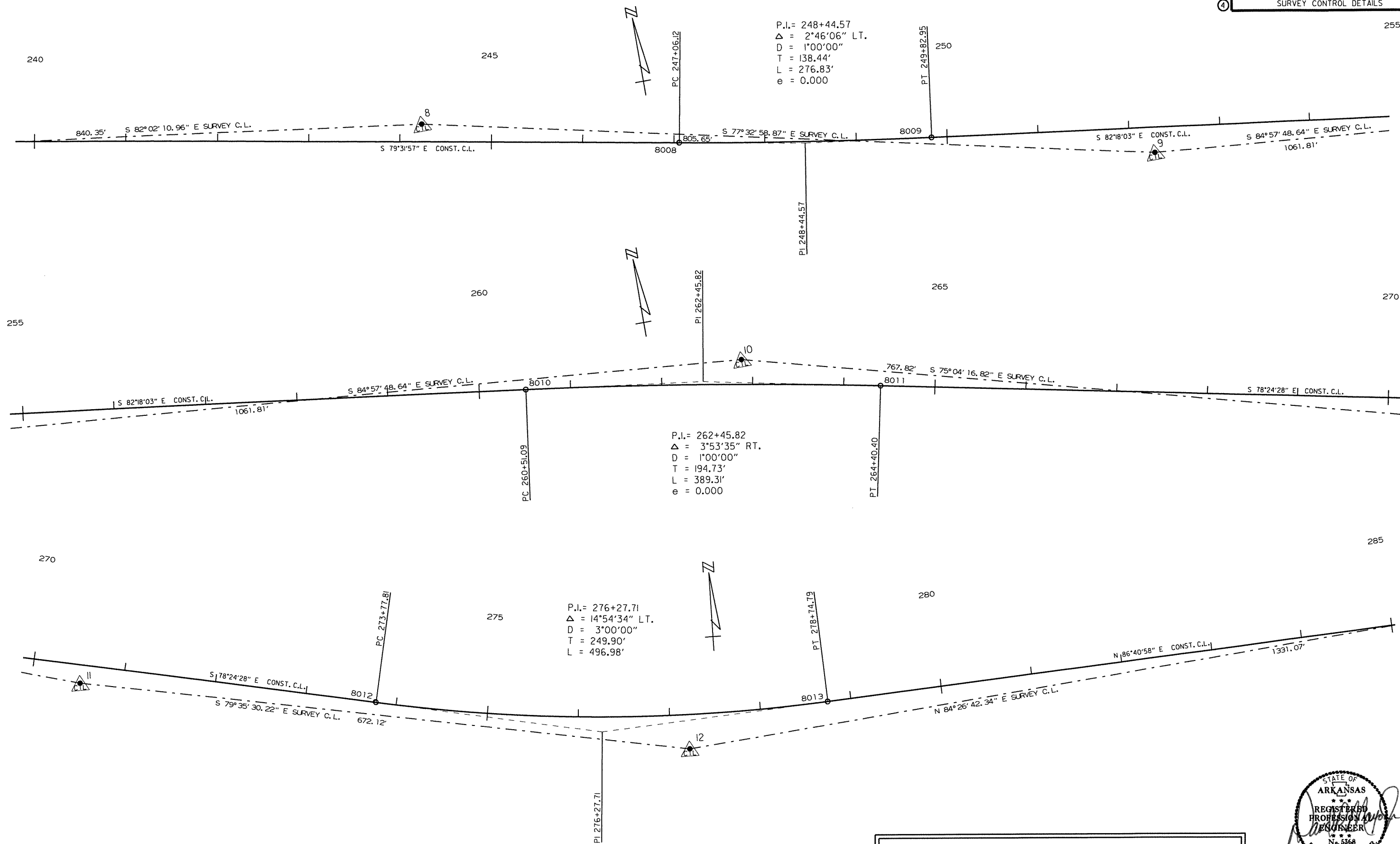


STA. 201+00 - BEGIN JOB FA0624

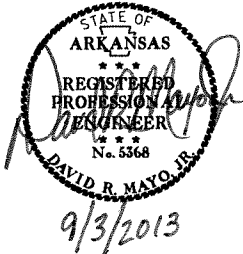
SURVEY CONTROL DETAILS

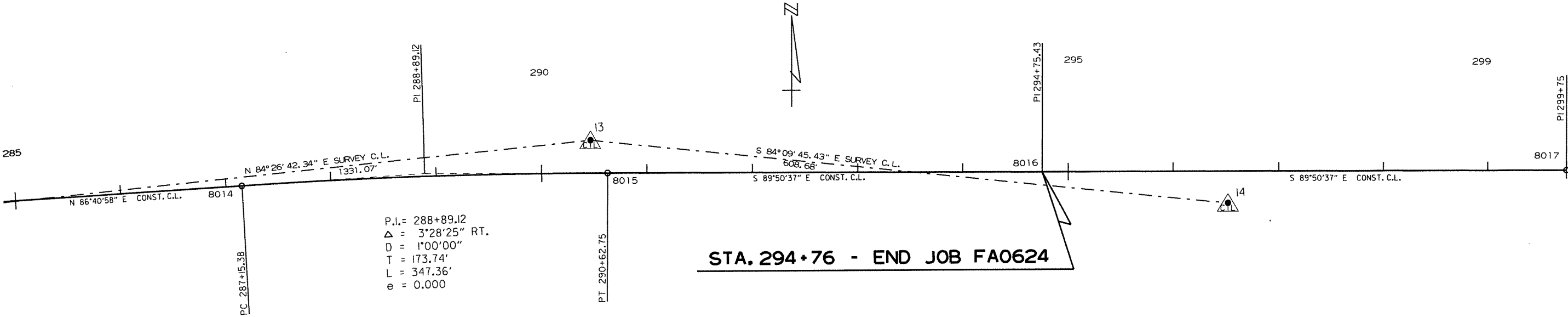
STATE OF
ARKANSAS
REGISTERED
PROFESSIONAL
ENGINEER
No. 5368
DAVID R. MAYO JR.
9/3/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624		9	51
SURVEY CONTROL DETAILS								



SURVEY CONTROL DETAILS





CONSTRUCTION CENTERLINE				
TYPE	NUMBER	STATION	NORTHING	EASTING
POB	8000	196+77	1552309.64307	1245839.91020
PI	8001	201+00	1552284.19832	1246261.79648
PC	8002	203+93	1552266.56520	1246554.27595
PT	8003	207+34	1552263.80930	1246895.52636
PC	8004	209+69	1552274.12216	1247129.41696
PT	8005	212+49	1552274.48488	1247409.38368
PC	8006	214+44	1552266.37670	1247604.77648
PT	8007	218+49	1552221.16504	1248006.46522
PC	8008	247+06	1551702.04091	1250816.31575
PT	8009	249+83	1551658.34208	1251089.64659
PC	8010	260+51	1551515.24227	1252148.15210
PT	8011	264+40	1551450.02354	1252531.88594
PC	8012	273+78	1551261.65525	1253450.17307
PT	8013	278+75	1551225.89870	1253944.46516
PC	8014	287+15	1551274.53941	1254783.64846
PT	8015	290+63	1551284.11840	1255130.82764
PI	8016	294+75	1551282.99205	1255543.50735
POE	8017	299+75	1551281.62737	1256043.50549

SURVEY CONTROL POINTS			
Point Name	Northing	Easting	Elev
1	1553094.4268	1244164.4192	125.768
2	1552302.1658	1245702.2156	122.033
3	1552252.0223	1246607.6509	137.041
4	1552298.6838	1247269.5924	137.327
5	1552203.5597	1248238.9074	134.923
6	1551998.7624	1249005.5081	139.217
7	1551888.4152	1249709.9801	141.631
8	1551771.9898	1250542.2235	141.524
9	1551598.2969	1251328.9294	143.005
10	1551505.0808	1252386.6354	127.841
11	1551307.2776	1253128.5408	121.922
12	1551185.8522	1253789.5983	131.482
13	1551314.6997	1255114.4224	96.408
14	1551252.7939	1255719.9442	94.928
15	1551406.5507	1256594.9891	95.838
900	1552594.6032	1245133.1172	107.042
901	1552238.9221	1247241.6371	140.959
902	1552019.1556	1248902.3569	140.656
903	1551756.4707	1250349.4303	142.981
904	1551336.4049	1253190.2995	122.117
905	1551316.0047	1254804.6698	102.497
906	1551246.9559	1255843.9716	95.850
907	1551821.5944	1258521.2690	95.857
908	1552399.6010	1245519.1216	113.398
941	1552350.6004	1245692.1235	120.053
945	1551544.4463	1251267.1047	144.183
947	1551221.5876	1255053.2297	96.913
948	1551402.5896	1256745.2489	91.862
949	1551804.5942	1258533.2691	95.815
1542	1552996.1817	1244054.0126	125.343
1543	1553059.2277	1244048.1279	127.438
1544	1553069.1242	1244021.2911	126.941
1545	1553017.3185	1243992.6420	125.352
1546	1552234.7351	1246879.3780	140.020
1547	1552230.1810	1246767.9027	141.344
1548	1552229.5820	1246705.8670	141.773

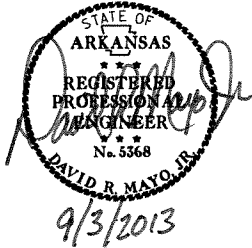
Project Name: sFA0622
Date: 1/4/2013
Coordinate System: ARKANSAS STATE PLANE - NORTH/SOUTH ZONE BASED ON GPS CONTROL, NGS PT. TT 2 LS AT VICK PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999886621 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: sFA0622gi.cti
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS -0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS:GPS BASED ON STATIC OBSERVATIONS
CONVERGENCE ANGLE: 00 06 53.15 LEFT AT LT:33-19-29.1 LG:092-12-18.2
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

SURVEY CONTROL DETAILS



CLEARING & GRUBBING
STA. 201+00 TO STA. 210+00 - LT & RT - 9 STAS.

WIRE FENCE (TYPE C)
STA. 202+67 TO STA. 206+26 ON RT. = 360 LIN. FT.
STA. 207+38 TO STA. 209+88 ON RT. = 250 LIN. FT.

TEMPORARY EROSION CONTROL
SAND BAG DITCH CHECKS (E-5)
STA. 201+00 - LT. & RT. = 24 BAGS
STA. 203+00 - LT. & RT. = 24 BAGS
STA. 207+50 - LT. & RT. = 24 BAGS
ENTIRE PROJECT = 132 BAGS
SEDIMENT REMOVAL AND DISPOSAL
2 CU. YDS.
2 CU. YDS.
2 CU. YDS.
11 CU. YDS.

SILT FENCE (E-11)
ENTIRE PROJECT = 500 LIN. FT.
SEDIMENT REMOVAL AND DISPOSAL
10 CU. YDS.
ESTIMATED QUANTITY, TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

P.I. = 205+63.88
 $\Delta = 5^\circ 58' 29''$ LT.
D = 1'45'00"
L = 170.86'
e = 0.025
Ls = 175'
Begin Super 202+61.76
Begin Max. 204+36.76
End Max. 206+90.68
End Super 208+65.68

REMOVAL AND DISPOSAL OF FENCE
STA. 202+67 TO STA. 206+26 ON RT. = 360 LIN. FT.
STA. 207+38 TO STA. 209+88 ON RT. = 250 LIN. FT.

CARTER-JONES LUMBER COMPANY

SCOTT W. & KAREN J. RICHARDSON, H/W

TEMPORARY EROSION CONTROL REVISIONS

DATE	REVISION

EARTHWORK
STA. 201+00 TO STA. 294+76
UNCLASSIFIED EXCAVATION (NORMAL).....5950 CU. YDS.
UNCLASSIFIED EXCAVATION (CULVERT INLETS & OUTLETS)....60 CU. YDS.
COMPACTED EMBANKMENT (NORMAL).....11285 CU. YDS.
COMPACTED EMBANKMENT (DRIVES).....210 CU. YDS.

NOTE: CULVERT INLET & OUTLET EXCAVATION, IF DEEMED SUITABLE BY THE ENGINEER, TO BE USED AS ROADWAY EMBANKMENT. EXCAVATION DEEMED UNSUITABLE SHALL BE DISPOSED OF AS APPROVED BY THE ENGINEER.

STA. 207+15 IN PLACE
18" x 28" C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" x 28" PIPE CULVERT
CONSTRUCT APPROACH
= 20 CU. YDS. (FILL)

NOTE: EARTHWORK TO BE PAID FOR AS PLAN QUANTITY.

LEGEND

- POWER POLE
- COMBINATION POLE
- POLE W/GUY
- TELEPHONE RISER
- TELEPHONE POLE
- FIRE HYDRANT
- UNDERGROUND CABLE MKR.
- GAS METER
- GAS VALVE
- WATER METER
- WATER VALVE
- WELL

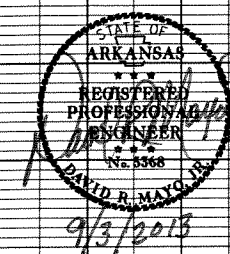
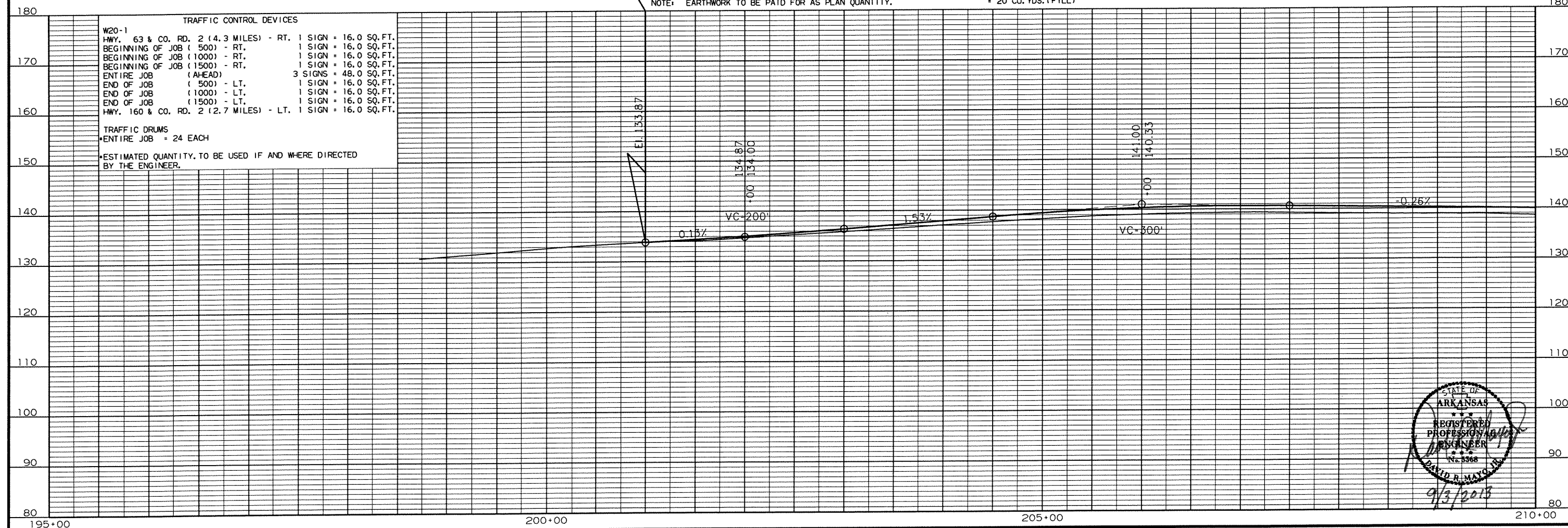
STA. 201+00 - BEGIN JOB FA0624
F.A.P. NO. STPR-0006(35)

TRAFFIC CONTROL DEVICES

W20-1
HWY. 63 & CO. RD. 2 (4.3 MILES) - RT. 1 SIGN = 16.0 SQ. FT.
BEGINNING OF JOB (500) - RT. 1 SIGN = 16.0 SQ. FT.
BEGINNING OF JOB (1000) - RT. 1 SIGN = 16.0 SQ. FT.
BEGINNING OF JOB (1500) - RT. 1 SIGN = 16.0 SQ. FT.
ENTIRE JOB (AHEAD) 3 SIGNS = 48.0 SQ. FT.
END OF JOB (500) - LT. 1 SIGN = 16.0 SQ. FT.
END OF JOB (1000) - LT. 1 SIGN = 16.0 SQ. FT.
END OF JOB (1500) - LT. 1 SIGN = 16.0 SQ. FT.
HWY. 160 & CO. RD. 2 (2.7 MILES) - LT. 1 SIGN = 16.0 SQ. FT.

TRAFFIC DRUMS
ENTIRE JOB = 24 EACH

ESTIMATED QUANTITY, TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



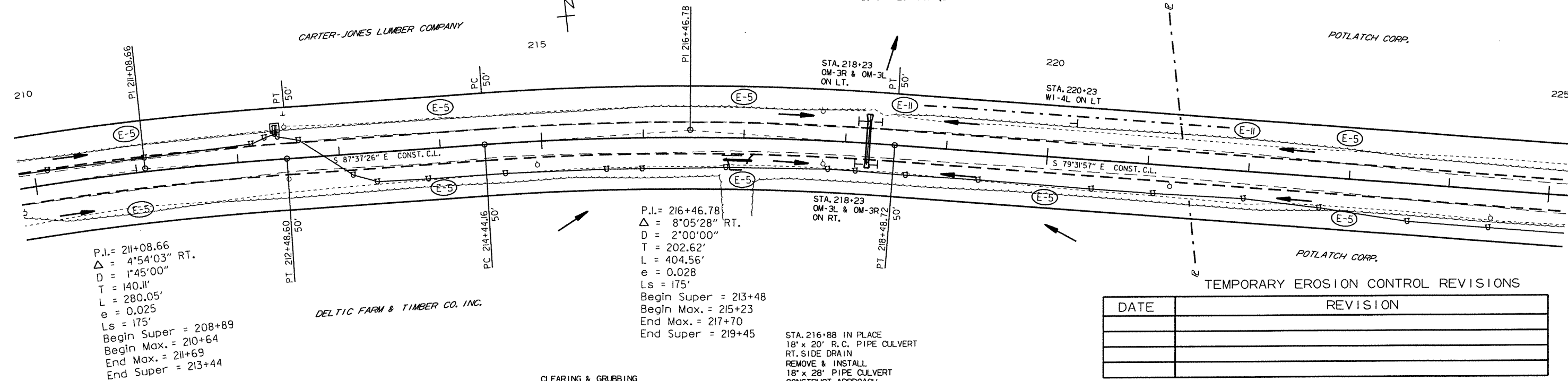
TEMPORARY EROSION CONTROL
SAND BAG DITCH CHECKS (E-5) SEDIMENT REMOVAL AND DISPOSAL
STA. 211+00 - LT. & RT. = 24 BAGS 2 CU. YDS.
STA. 214+00 - LT. & RT. = 24 BAGS 2 CU. YDS.
STA. 217+00 - LT. & RT. = 24 BAGS 2 CU. YDS.
STA. 220+00 - RT. = 12 BAGS 1 CU. YDS.
STA. 223+00 - LT. & RT. = 24 BAGS 2 CU. YDS.

SILT FENCE (E-11) SEDIMENT REMOVAL AND DISPOSAL
STA. 218+50 - STA. 222+00 ON LT. = 350 LIN. FT. 4 CU. YDS.

STA. 218+23 IN PLACE
24" x 48" C.M. PIPE CULVERT
REMOVE & CONSTRUCT
51" x 31" x 42" R.C. ARCH PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING) WITH
51" x 31" R.C. ARCH FES = 2 EACH
OR
DBL. 30" x 50" C.M. PIPE CULVERT
(TYPE 2 BEDDING) WITH
30" C.M. FES = 4 EACH
CONSTRUCT INLET & OUTLET
= 20 CU. YDS.
D.A. = 28 A.C. Q25 = 41 CFS

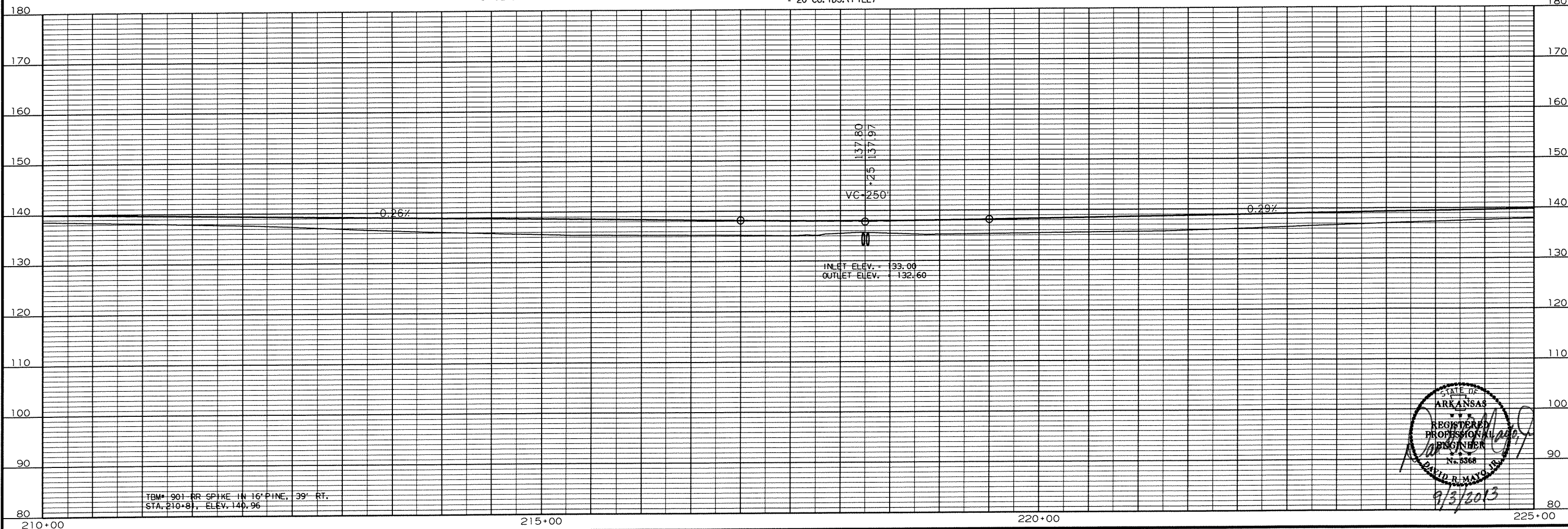
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. FA0624	12	51

PLAN & PROFILE 210+00 TO 225+00



TEMPORARY EROSION CONTROL REVISIONS

DATE	REVISION



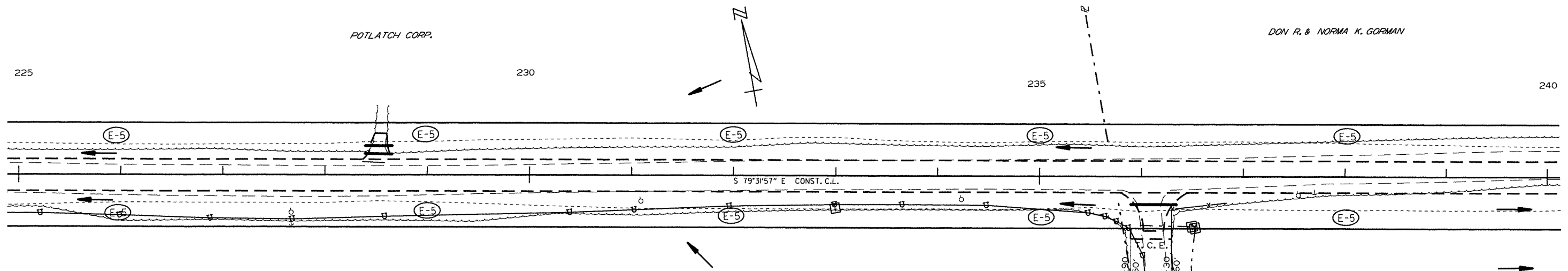
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
DAVID R. MAYO JR.
No. 5368
9/3/2013

TEMPORARY EROSION CONTROL
SAND BAG DITCH CHECKS (E-5)
STA. 226+00 - LT. & RT. = 24 BAGS
STA. 229+00 - LT. & RT. = 24 BAGS
STA. 232+00 - LT. & RT. = 24 BAGS
STA. 235+00 - LT. & RT. = 24 BAGS
STA. 238+00 - LT. & RT. = 24 BAGS

SEDIMENT REMOVAL AND DISPOSAL
2 CU. YDS.
2 CU. YDS.
2 CU. YDS.
2 CU. YDS.
2 CU. YDS.

STA. 228+50 IN PLACE
14" X 22" R.C. PIPE CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18" X 28" PIPE CULVERT
CONSTRUCT APPROACH
±20 CU. YDS. (FILL)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624	13	51	
				PLAN & PROFILE 225+00 TO 240+00				

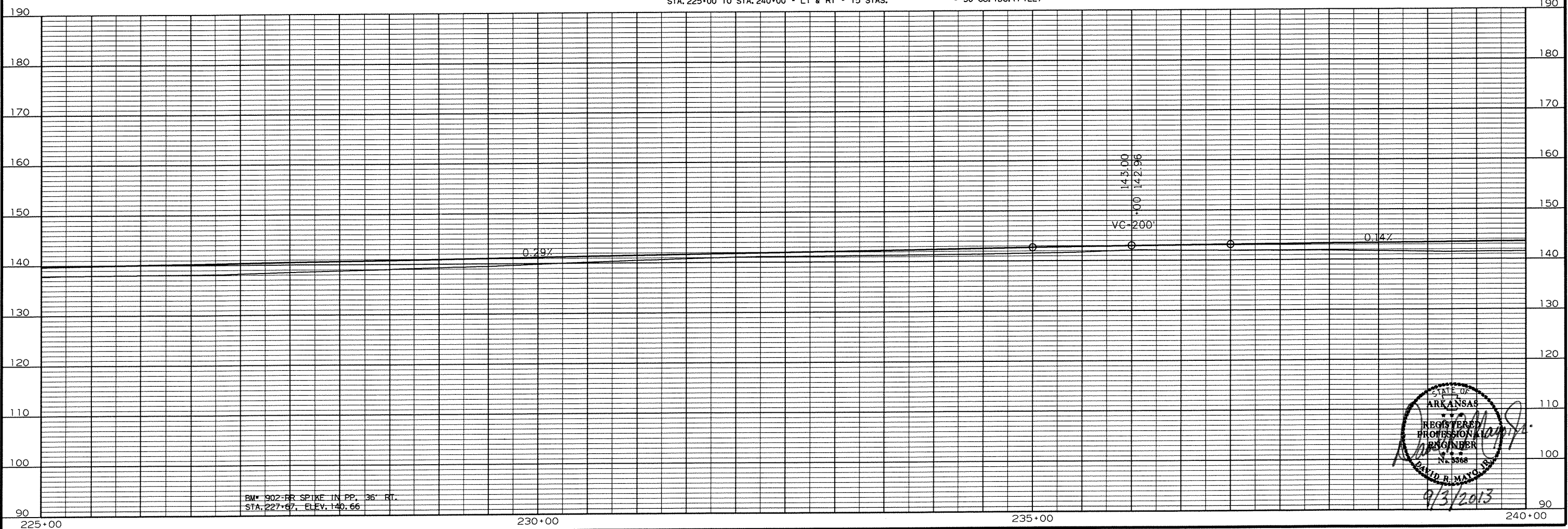


TEMPORARY EROSION CONTROL REVISIONS

DATE	REVISION

CLEARING & GRUBBING
STA. 225+00 TO STA. 240+00 - LT & RT - 15 STAS.

STA. 236+08 IN PLACE
18" X 29" C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" X 46" PIPE CULVERT
CONSTRUCT APPROACH
± 50 CU. YDS. (FILL)



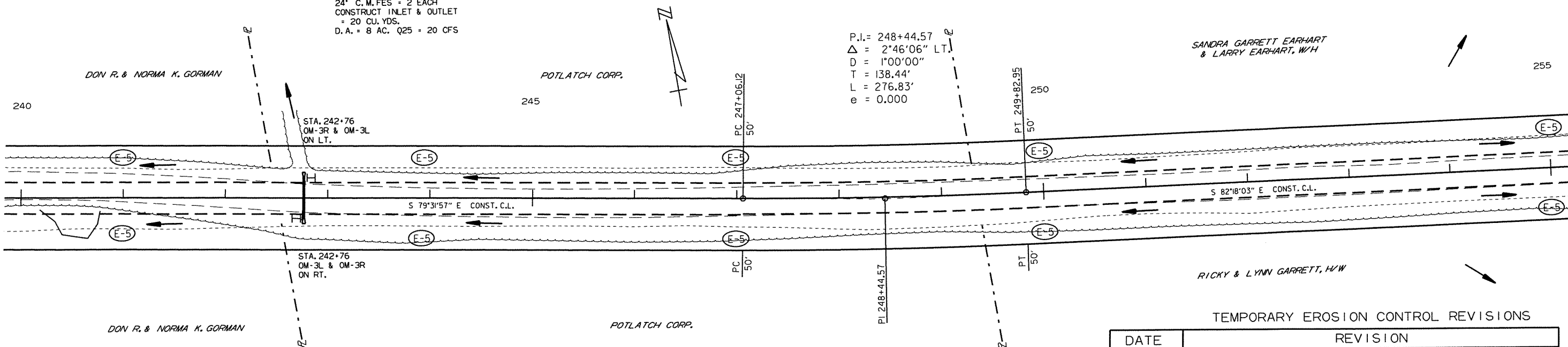
STATE OF
ARKANSAS
REGISTERED
PROFESSIONAL
ENGINEER
No. 5568
DAVID R. MAYO
9/3/2013

STA. 242+76 IN PLACE
 24" x 38" C.M. PIPE CULVERT
 REMOVE & CONSTRUCT
 29" x 18" x 38" R.C. ARCH PIPE CULVERT
 (CLASS 1V) (TYPE 3 BEDDING) WITH
 29" x 18" R.C. ARCH FES = 2 EACH
 OR
 24" x 44" C.M. PIPE CULVERT
 (TYPE 2 BEDDING) WITH
 24" C.M. FES = 2 EACH
 CONSTRUCT INLET & OUTLET
 = 20 CU. YDS.
 D.A. = 8 AC. Q25 = 20 CFS

TEMPORARY EROSION CONTROL
 SAND BAG DITCH CHECKS (E-5)
 STA. 241+00 - LT. & RT. = 24 BAGS
 STA. 244+00 - LT. & RT. = 24 BAGS
 STA. 247+00 - LT. & RT. = 24 BAGS
 STA. 250+00 - LT. & RT. = 24 BAGS
 SEDIMENT REMOVAL AND DISPOSAL
 2 CU. YDS.
 2 CU. YDS.
 2 CU. YDS.
 2 CU. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624		14	51

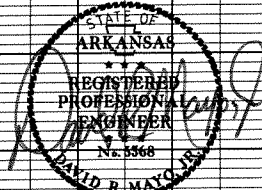
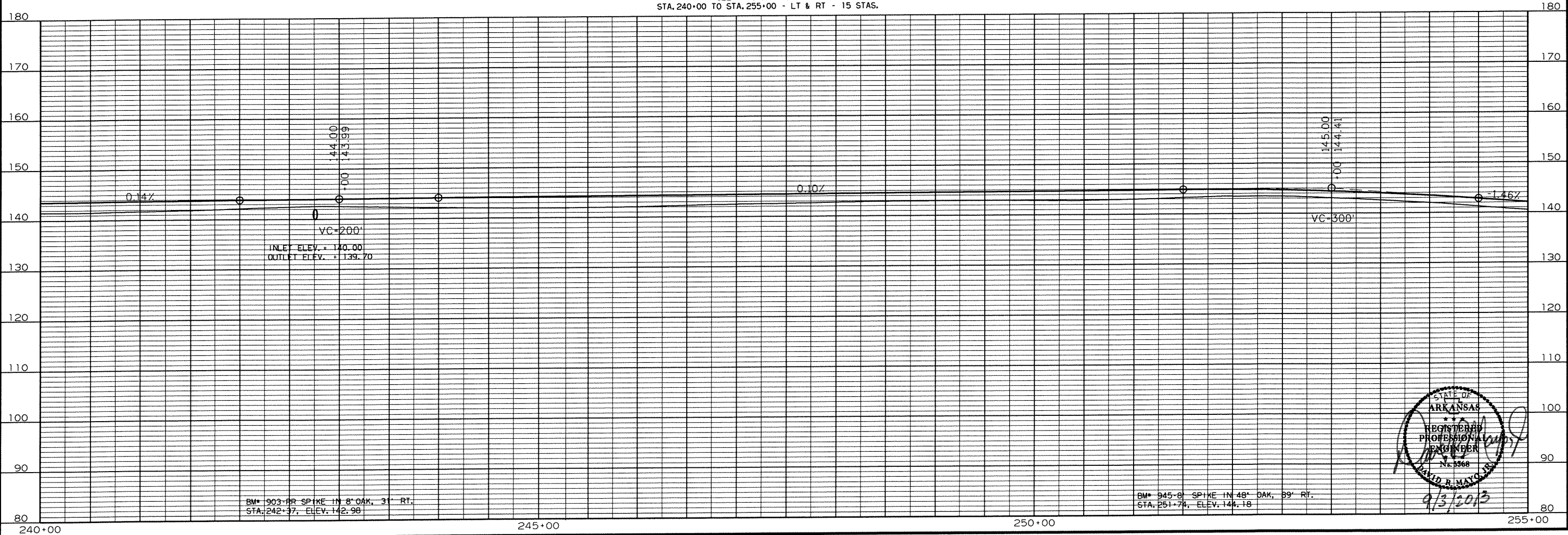
PLAN & PROFILE 240+00 TO 255+00



TEMPORARY EROSION CONTROL REVISIONS

DATE	REVISION

CLEARING & GRUBBING
 STA. 240+00 TO STA. 255+00 - LT & RT - 15 STAS.



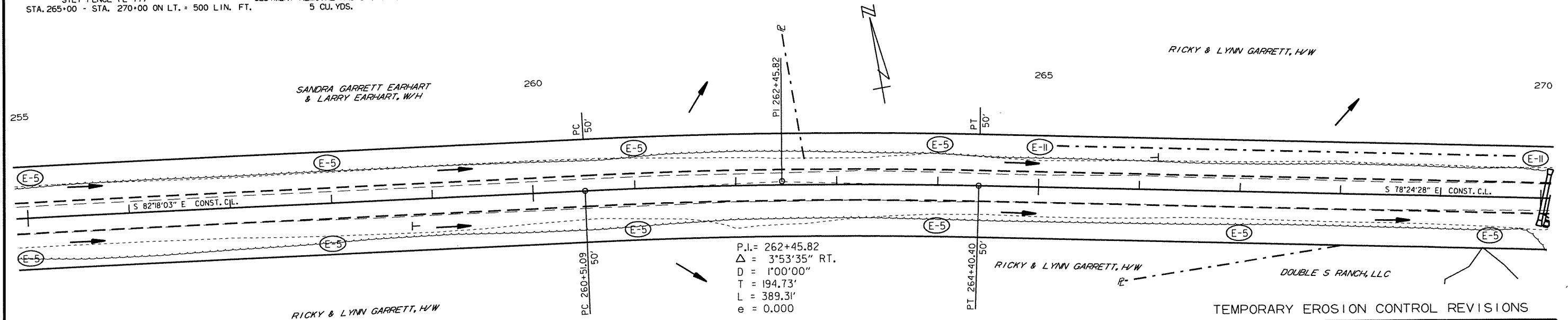
9/3/2013

TEMPORARY EROSION CONTROL
SAND BAG DITCH CHECKS (E-5) SEDIMENT REMOVAL AND DISPOSAL
STA. 255+00 - LT. & RT. = 24 BAGS 2 CU. YDS.
STA. 258+00 - LT. & RT. = 24 BAGS 2 CU. YDS.
STA. 261+00 - LT. & RT. = 24 BAGS 2 CU. YDS.
STA. 264+00 - LT. & RT. = 24 BAGS 2 CU. YDS.
STA. 267+00 - RT. = 12 BAGS 1 CU. YDS.
STA. 269+50 - RT. = 12 BAGS 1 CU. YDS.

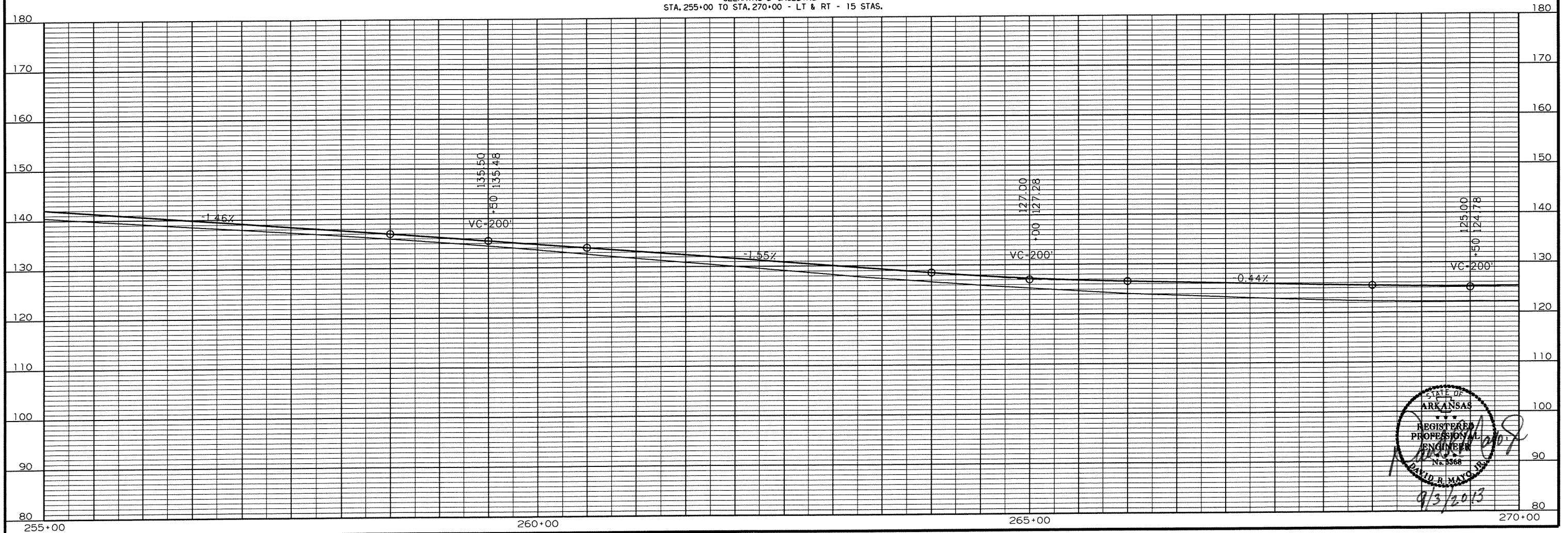
SILT FENCE (E-11) SEDIMENT REMOVAL AND DISPOSAL
STA. 265+00 - STA. 270+00 ON LT. = 500 LIN. FT. 5 CU. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624	15	51	

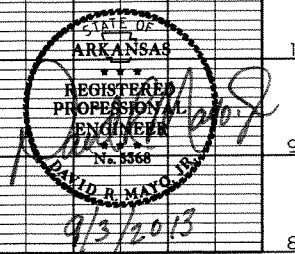
PLAN & PROFILE 255+00 TO 270+00



CLEARING & GRUBBING
STA. 255+00 TO STA. 270+00 - LT & RT - 15 STAS.

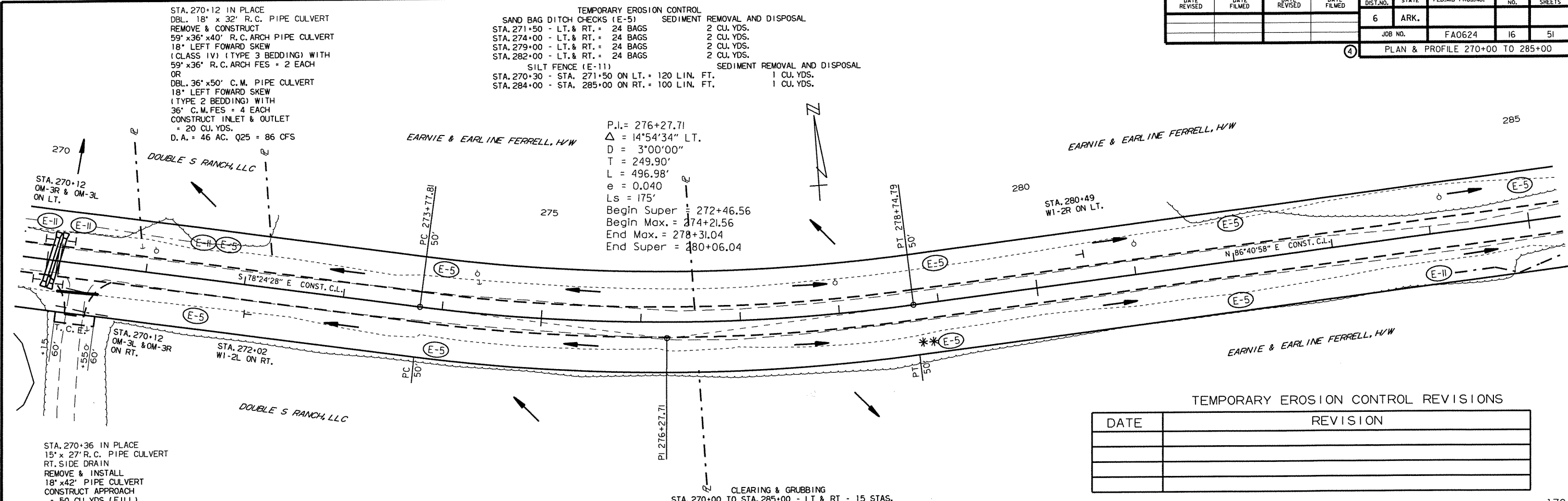


TEMPORARY EROSION CONTROL REVISIONS	
DATE	REVISION



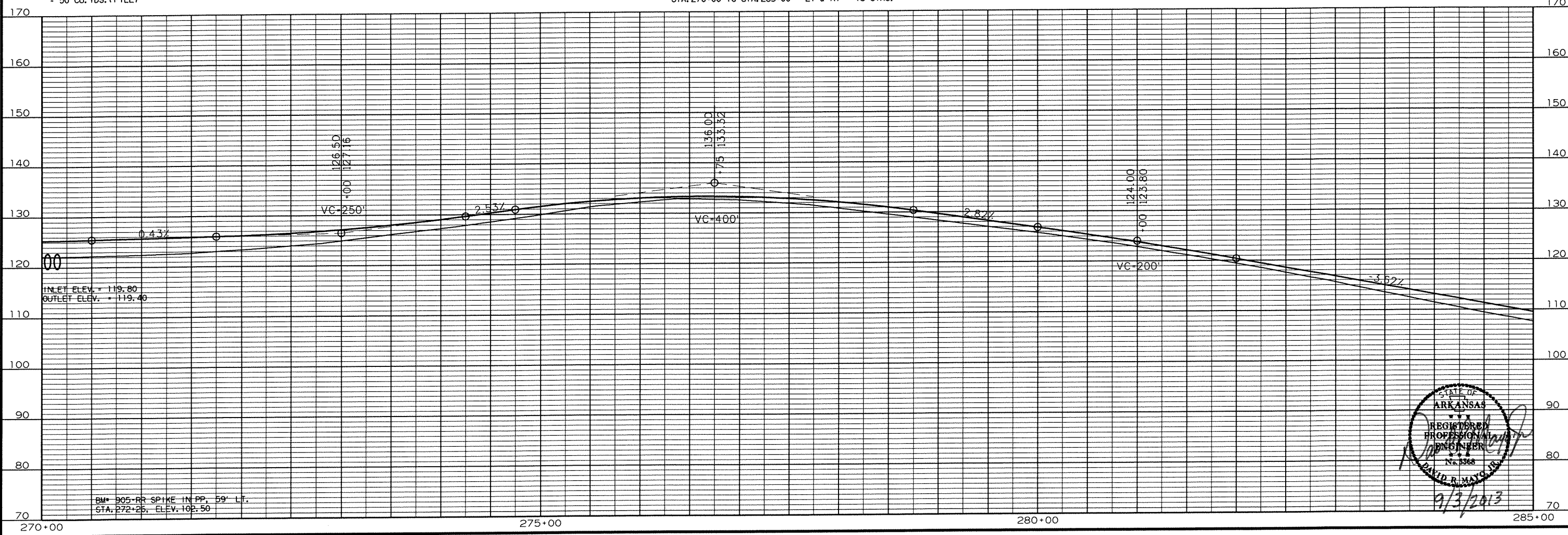
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. FA0624	16	51

PLAN & PROFILE 270+00 TO 285+00



TEMPORARY EROSION CONTROL REVISIONS

DATE	REVISION



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 3368
DAVID R. MAYO, JR.
9/3/2013

TEMPORARY EROSION CONTROL
 SAND BAG DITCH CHECKS (E-5) SEDIMENT REMOVAL AND DISPOSAL
 STA. 285+00 - LT. = 12 BAGS 1 CU. YDS.
 STA. 288+00 - LT. = 12 BAGS 1 CU. YDS.
 STA. 291+00 - LT. & RT. = 24 BAGS 2 CU. YDS.
 STA. 294+00 - LT. & RT. = 24 BAGS 2 CU. YDS.

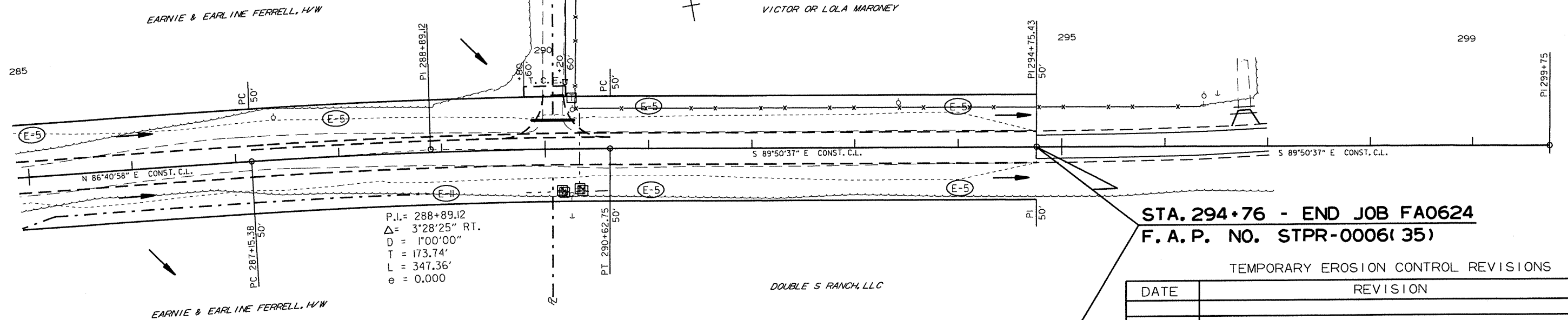
SILT FENCE (E-11) SEDIMENT REMOVAL AND DISPOSAL
 STA. 285+00 - STA. 289+00 = 400 LIN. FT. 4 CU. YDS.

STA. 290+07 IN PLACE
 18" x 28' C.M. PIPE CULVERT
 LT. SIDE DRAIN
 REMOVE & INSTALL
 24" x 42' PIPE CULVERT
 CONSTRUCT APPROACH
 = 50 CU. YDS. (FILL)

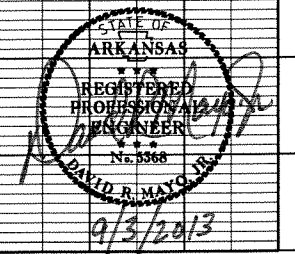
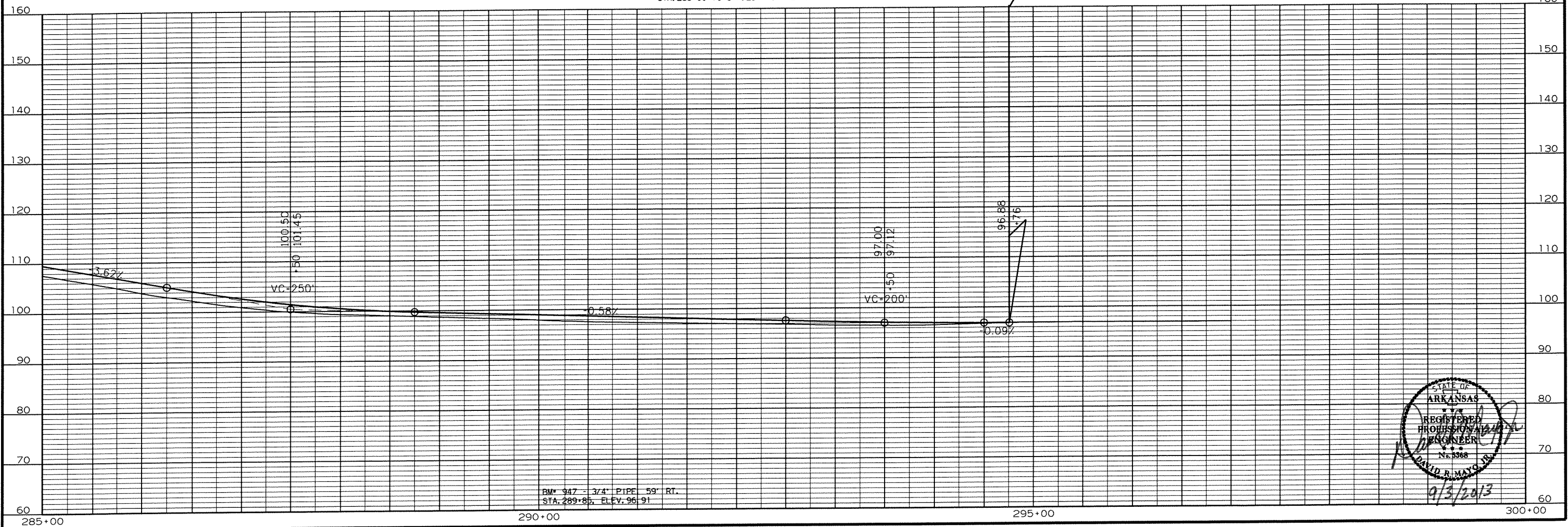
WIRE FENCE (TYPE D-2)
 STA. 290+29 TO STA. 294+75 ON LT. = 457 LIN. FT.

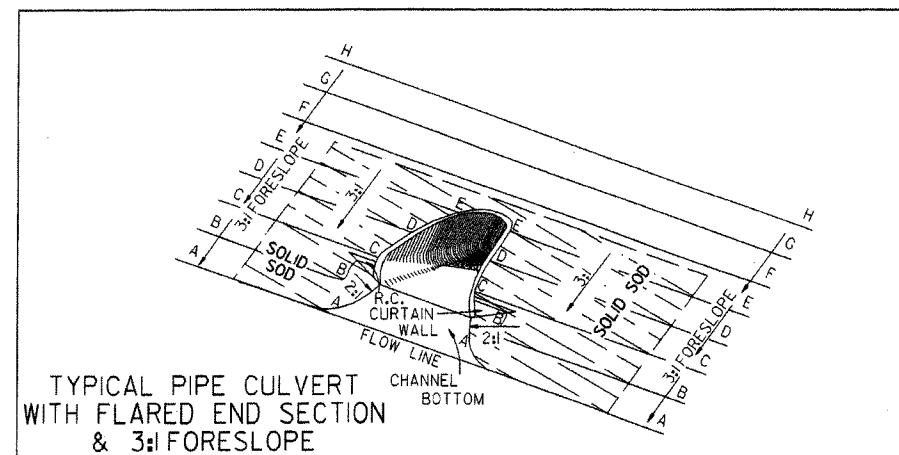
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. FA0624	17	51

PLAN & PROFILE 285+00 TO 299+75

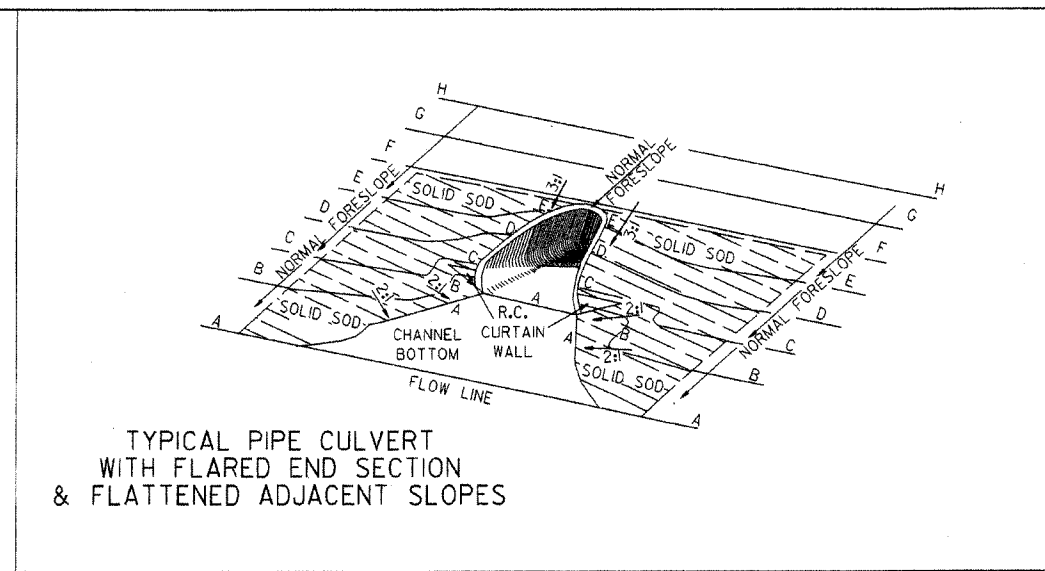


CLEARING & GRUBBING
 STA. 285+00 TO STA. 294+75 - LT & RT - 10 STAS.

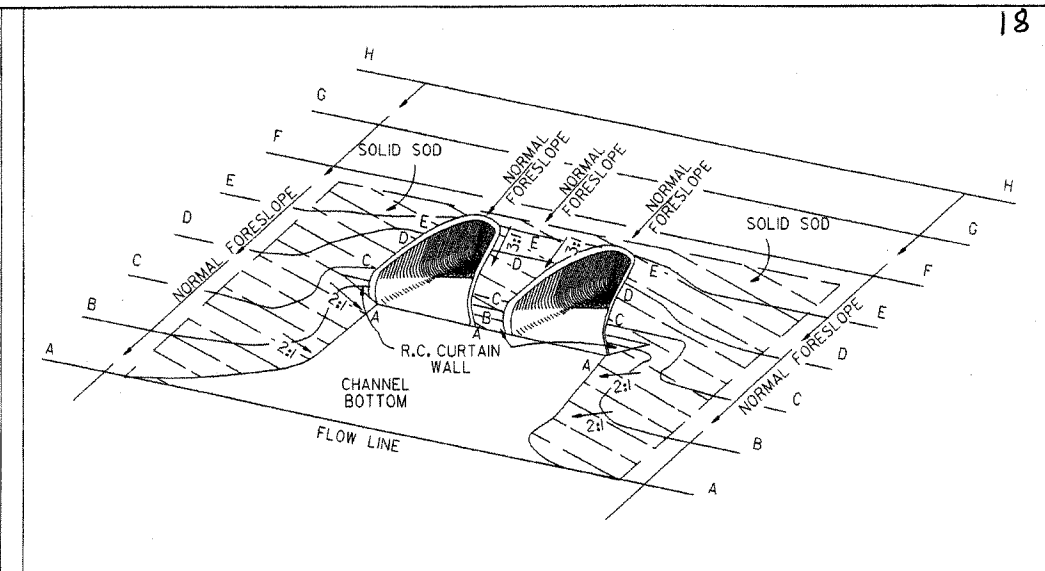




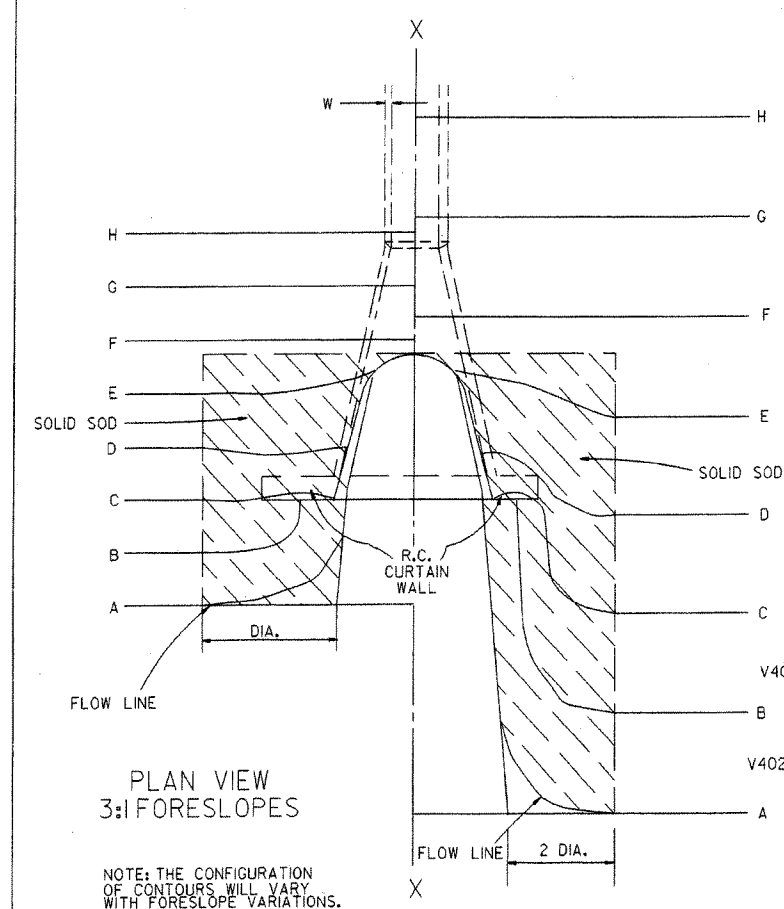
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

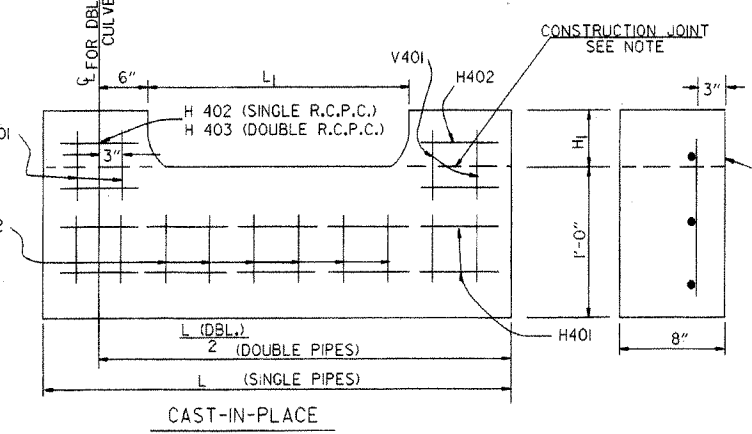
NOTE: THE CONFIGURATION
OF CONTOURS WILL VARY
WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

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

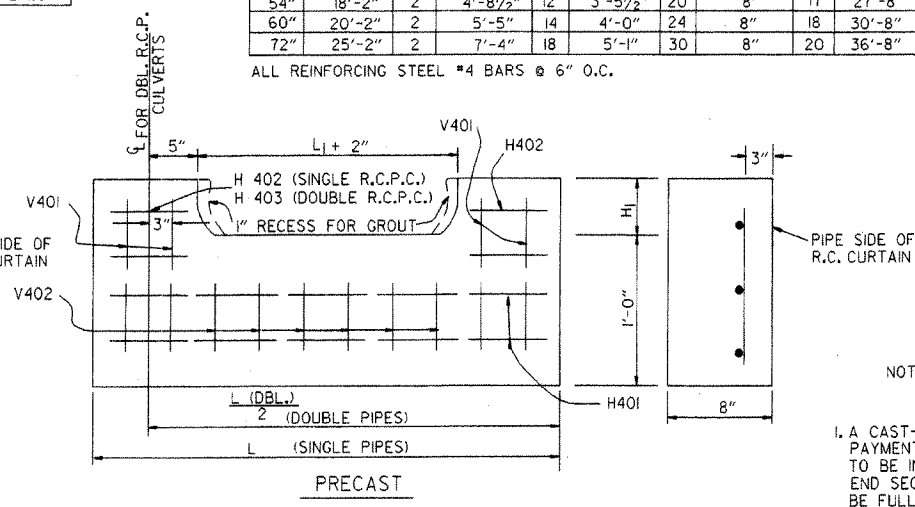
NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

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

R.C. CURTAIN WALL DETAILS



PRECAST

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

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

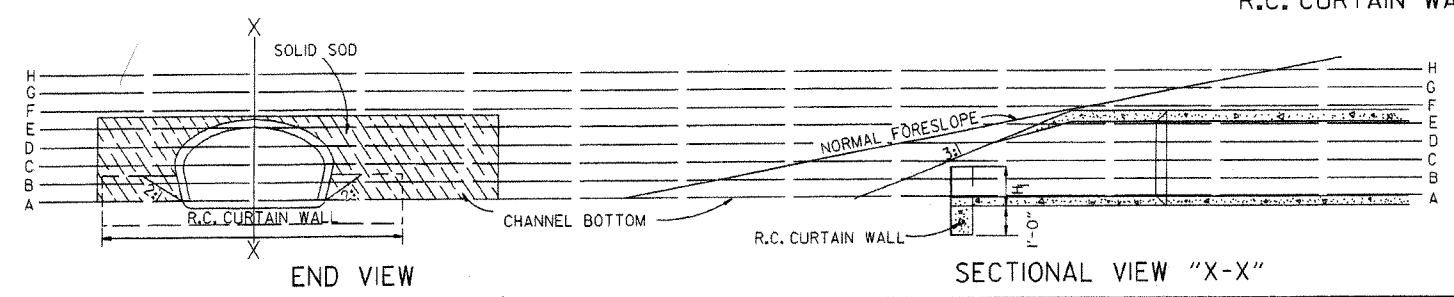
ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

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

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

- GENERAL NOTES
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL; AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
 2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
 3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
 4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96	ARKANSAS STATE HIGHWAY COMMISSION
10-12-95	CORRECTED SPELLING		
11- 3-94	ADDED GENERAL NOTE NO. 4		
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.		
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES		
5-15-80	ADDED PRECAST WALL & GENERAL NOTES		
10-2-72	REVISED AND REDRAWN		
DATE	REVISION	FILMED	STANDARD DRAWING FES-1

FLARED END SECTION

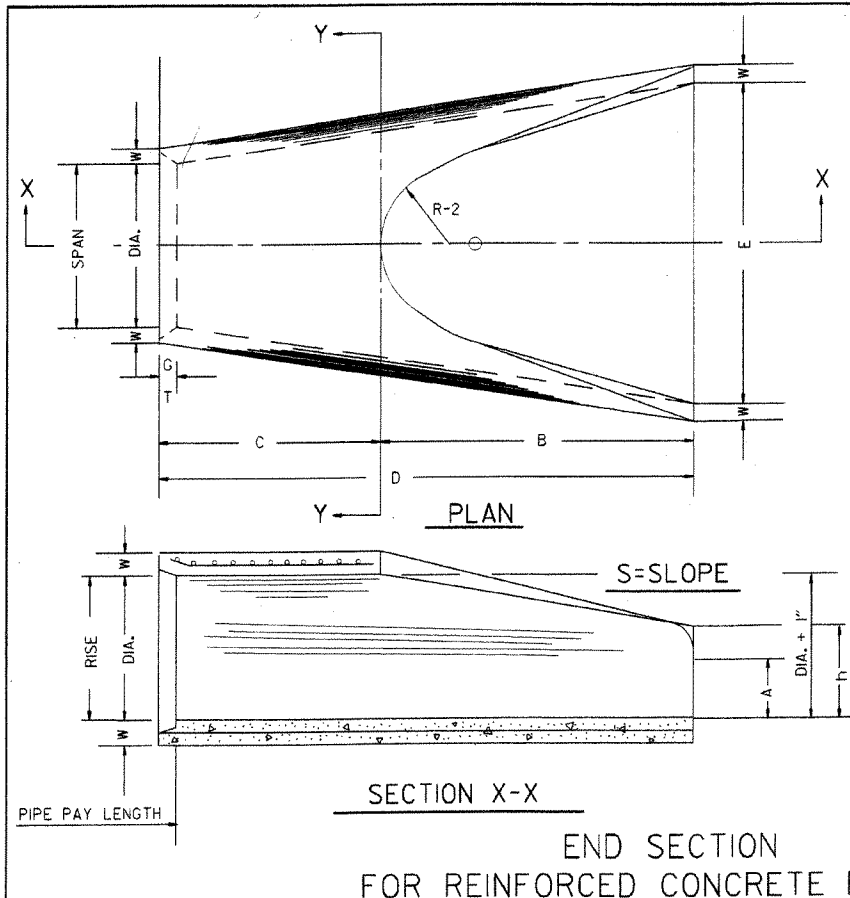
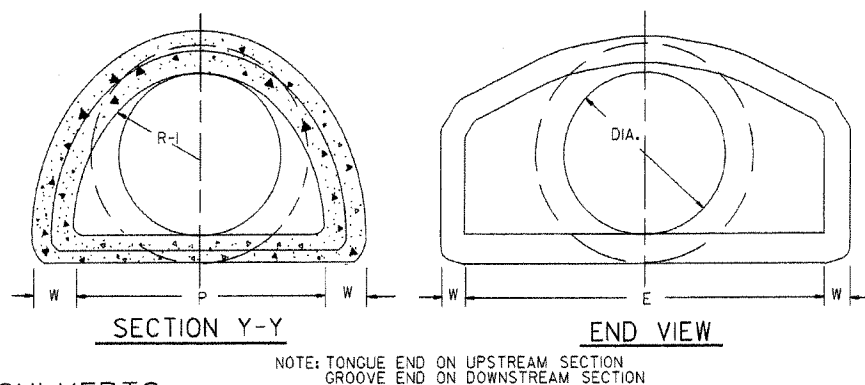
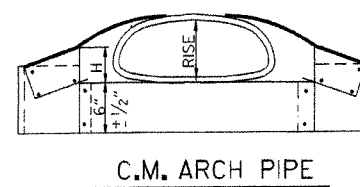
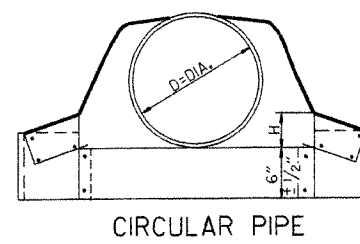
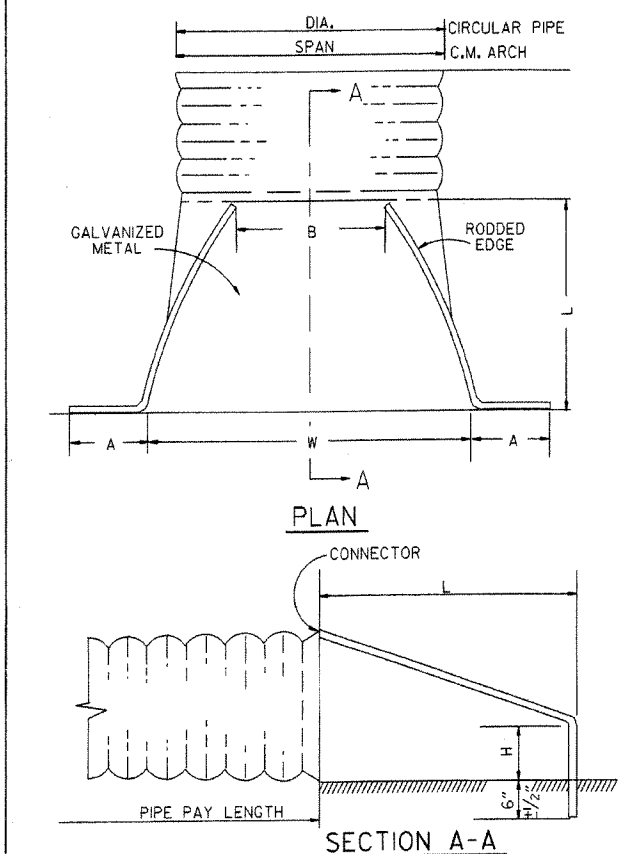
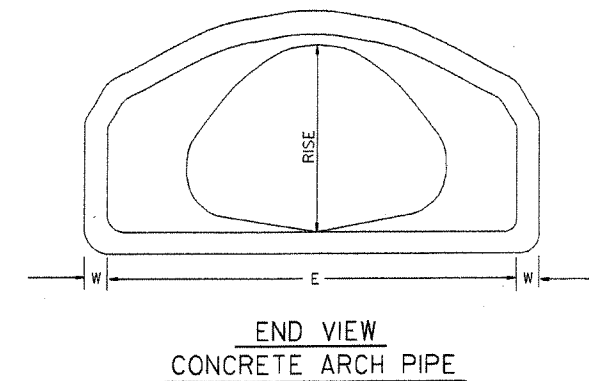


TABLE OF DIMENSIONS													
DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/8"	16 3/8"	14"	2 1/2"	1600
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"	3 1/4"	1940
36"	4"	1'-3"	5'-3"	2'-10 1/4"	8'-1 1/4"	6'-0"	3:1	37"	47 1/8"	24 1/8"	20"	3 1/2"	4100
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 1/8"	27 1/2"	22"	3 1/2"	5380
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 1/8"	24"	4"	8750
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72 1/2"	36 1/8"	24"	4"	9270
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 3/8"	38 3/8"	24"	5"	13250



ARCH PIPE														
EQUIV. DIA.	• SPAN		• RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½"
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅞"	13"	2½"	2½"
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅞"	14"	2½"	2½"
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅞"	15"	2½"	2½"
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅞"	20"	3"	2½"
36	43¾	44	26⅞	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅞"	22"	3½"	2½"
42	51⅞	51	31⅞	31	4½"	11½"	4'-7"	1'-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½"
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅞"	24"	4¼"	2½"
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅞"	24"	4¾"	2½"
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-6"	77⅞"	24"	5"	2½"

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

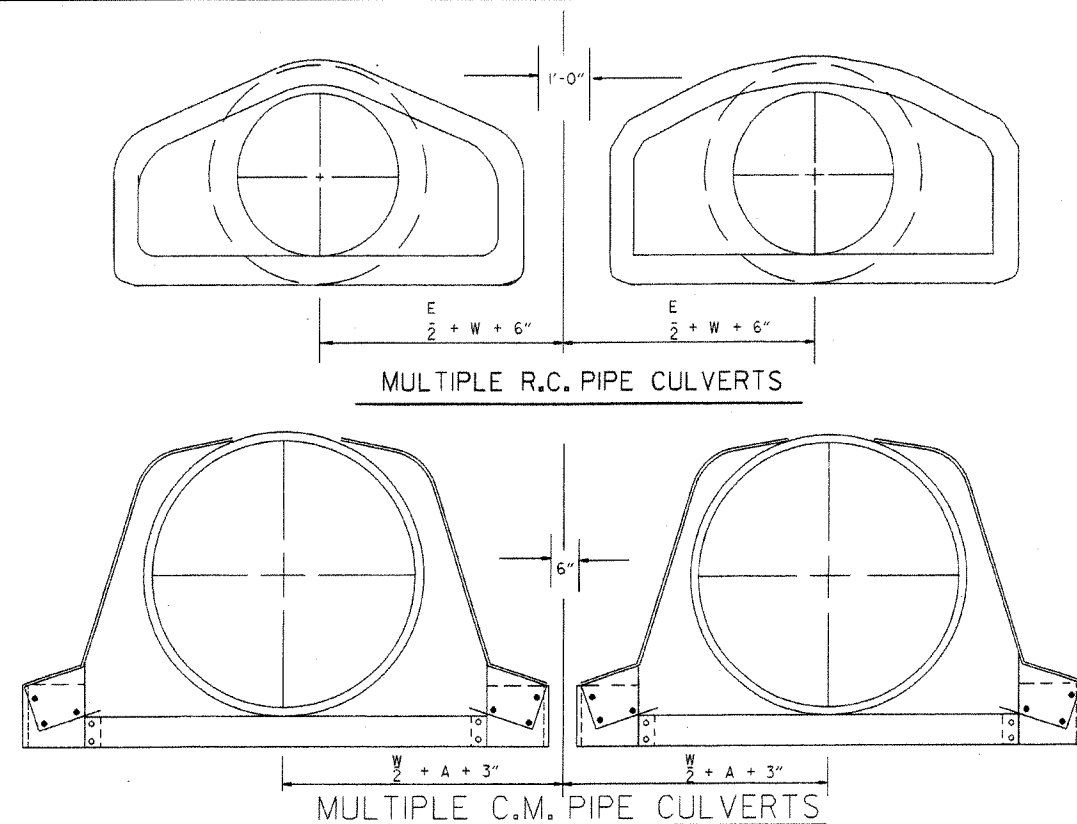


CIRCULAR PIPE													
D. DIA.	GAUGE	A	B. MAX.	H	L	W	S	INCHES					
12	16	6	6	6	21	24	2 1/2:1	1"	1 1/2"	2"	2"	2"	2"
15	16	7	8	6	26	30	2 1/2:1	1"	1 1/2"	2"	2"	2"	2"
18	16	8	10	6	31	36	2 1/2:1	1"	1 1/2"	2"	2"	2"	2"
21	16	9	12	6	36	42	2 1/2:1	1"	1 1/2"	2"	2"	2"	2"
24	16	10	13	6	41	48	2 1/2:1	1"	1 1/2"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

C.M. ARCH PIPE													
EQUIV. DIA.	SPAN	RISE	A	B. MAX.	H	L	W	S	INCHES				
15"	17	13	7	9	6	19	30	2 1/2:1	1"	1 1/2"	2"	2"	16
18"	21	15	7	10	6	23	36	2 1/2:1	1"	1 1/2"	2"	2"	16
21"	24	18	8	12	6	28	42	2 1/2:1	1"	1 1/2"	2"	2"	16
24"	28	20	9	14	6	32	48	2 1/2:1	1"	1 1/2"	2"	2"	16
30"	35	24	10	16	6	39	60	2 1/2:1	1"	1 1/2"	2"	2"	14
36"	42	29	12	18	8	46	75	2 1/2:1	1"	1 1/2"	2"	2"	14
42"	49	33	13	21	9	53	85	2 1/2:1	1"	1 1/2"	2"	2"	12
48"	57	38	18	26	12	63	90	2 1/2:1	1"	1 1/2"	2"	2"	12
54"	64	43	18	30	12	70	102	2 1/2:1	1"	1 1/2"	2"	2"	12
60"	71	47	18	33	12	77	114	2 1/4:1	1"	1 1/2"	2"	2"	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



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

FLARED END SECTION

STANDARD DRAWING FES-2

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51¼	51	31¾	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87¾	87
120	154	154	96¾	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

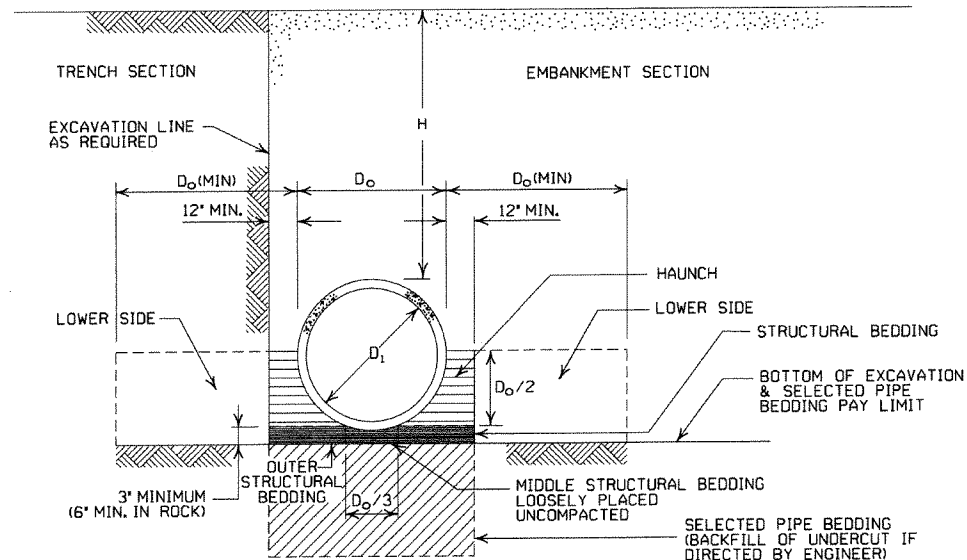
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS, UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

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

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

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

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
TYPE 2 OR TYPE 3	FEET	
	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 CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
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.

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2 3/4" 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	73
42	2		43	67	70	
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① 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 3/4" INCH BY 1/2" INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM						
12	1	45	45	52		
18	2	30	30	39	41	34
24	2	22	22	31	32	
30	2.5		18	26	27	28
36	2		15	43	43	44
42	2			40	41	43
48	2			35	37	38
54	2				33	34
60	2					31
66	2					29
72	2					

CORRUGATED METAL PIPE ARCHES

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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

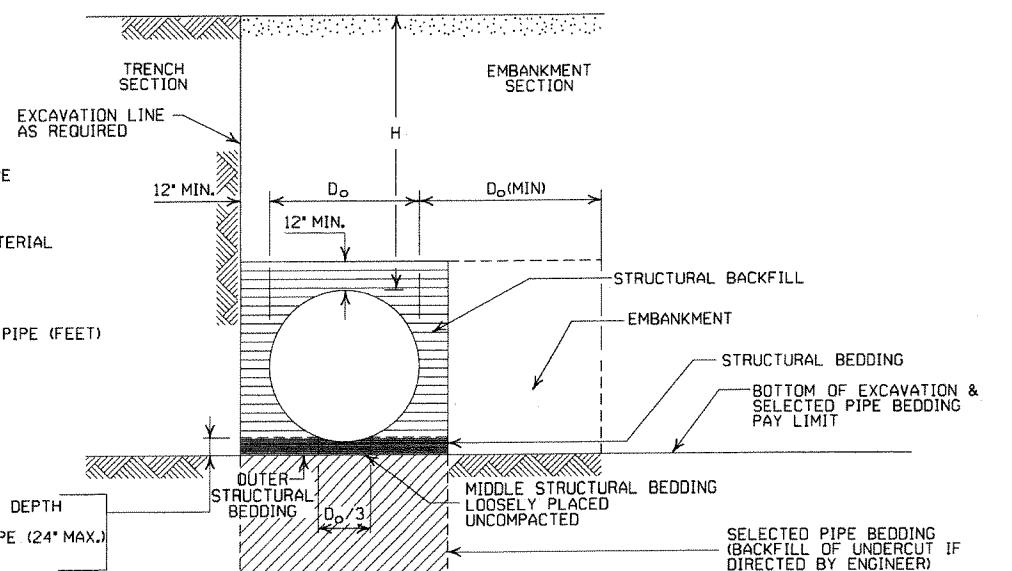
EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

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

IN SOIL-MIN. EQUALS TWICE CORRUGATION DEPTH
IN ROCK-MIN. EQUALS GREATER OF:
1/2" PER FOOT OF FILL OVER PIPE (24" MAX.)
TWICE CORRUGATION DEPTH



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 3/4" X 1/2" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

- 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.

ARKANSAS STATE HIGHWAY COMMISSION		
METAL PIPE CULVERT FILL HEIGHTS & BEDDING		
STANDARD DRAWING PCM-1		
12-15-II	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	
DATE	REVISION	DATE FILMED

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 HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)
MINIMUM COVER VALUES, "H"
SHALL INCLUDE A MINIMUM 12"
OF PAVEMENT AND/OR BASE.

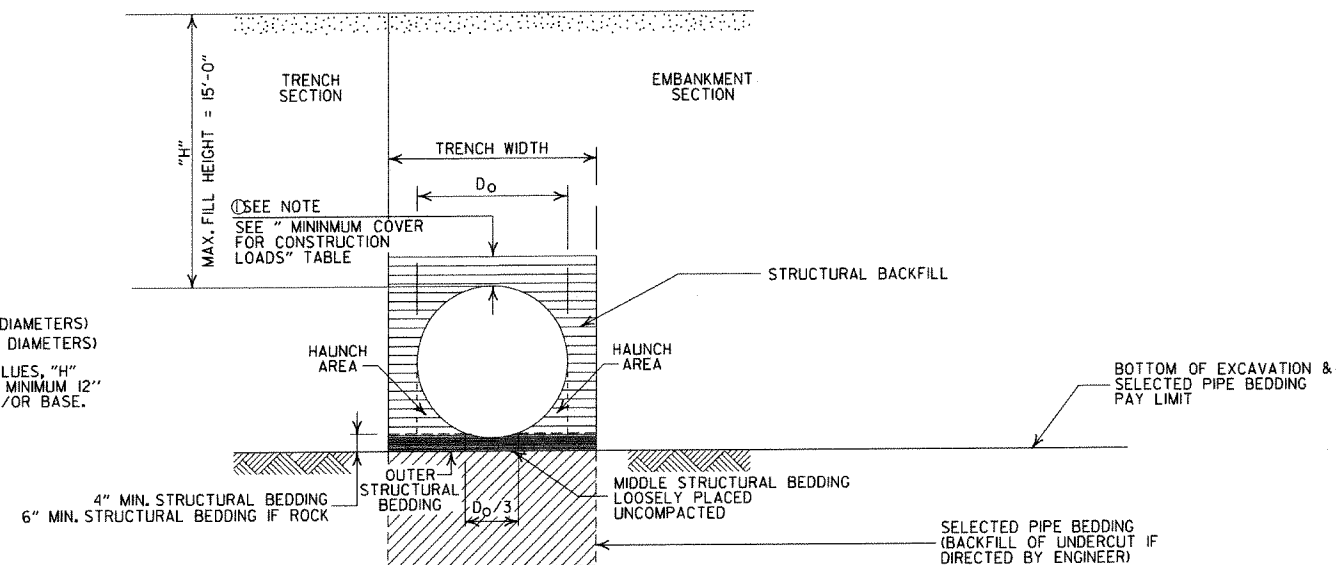
MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

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

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

ARKANSAS STATE HIGHWAY COMMISSION		
PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)		
STANDARD DRAWING PCP-1		
12-15-11 11-17-10	REVISED GENERAL NOTES & MINIMUM COVER NOTE ISSUED	
DATE	REVISION	DATE FILMED

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" ≥ 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

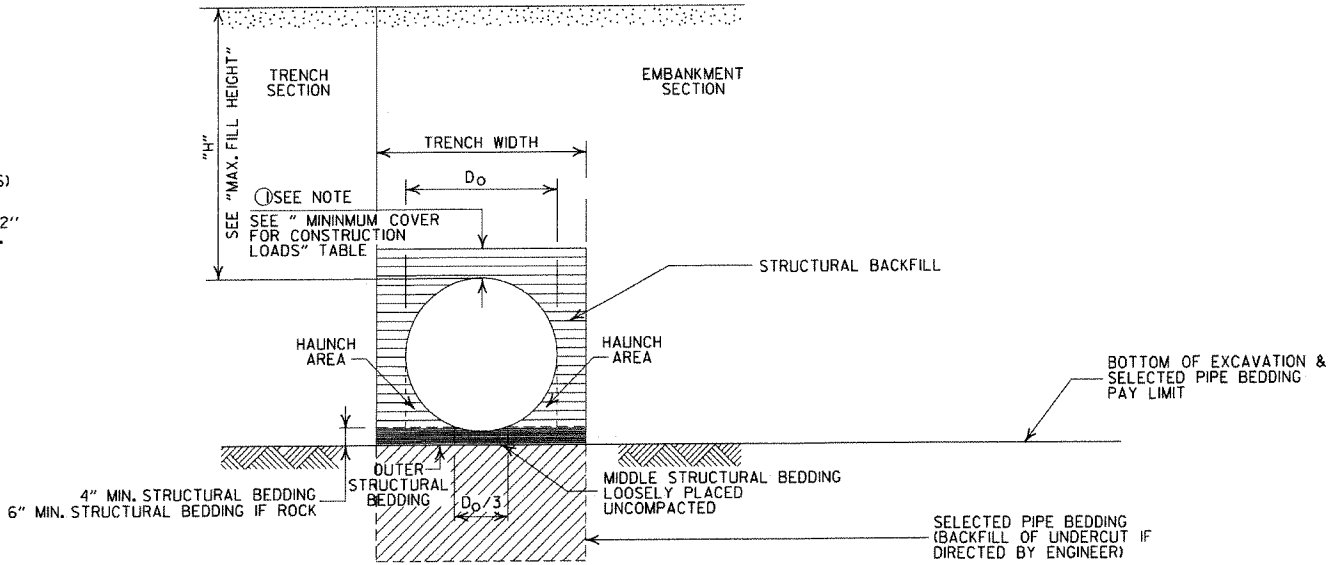
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR
CONSTRUCTION LOADS

PIPE DIAMETER	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"

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

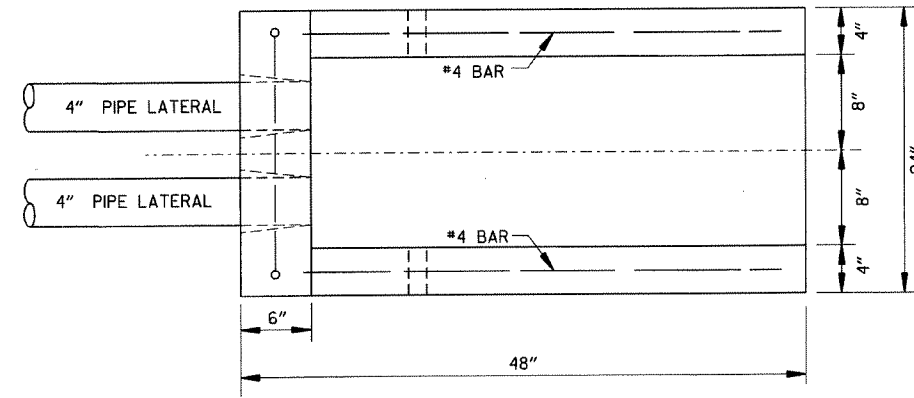
H = FILL HEIGHT (FT.)
D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

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

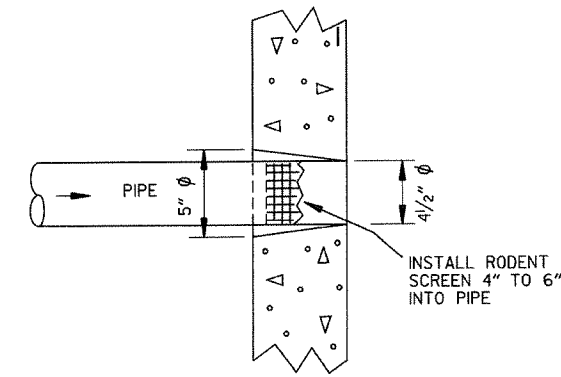
1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

ARKANSAS STATE HIGHWAY COMMISSION		
PLASTIC PIPE CULVERT (PVC F949)		
STANDARD DRAWING PCP-2		
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	
DATE	REVISION	DATE FILMED

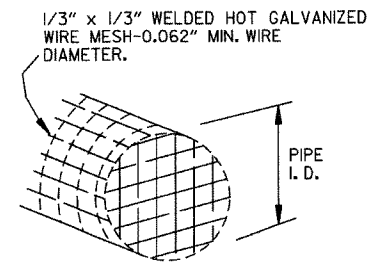
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF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



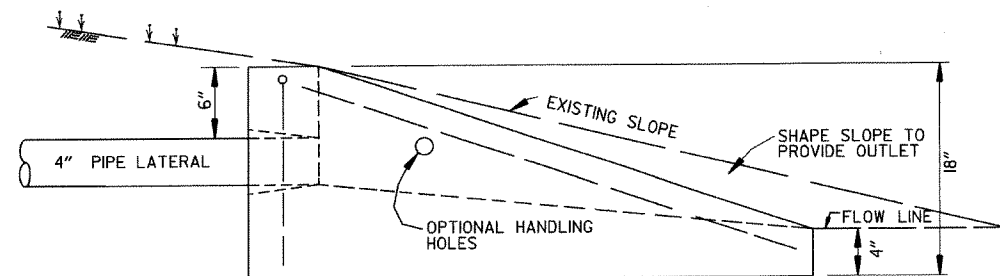
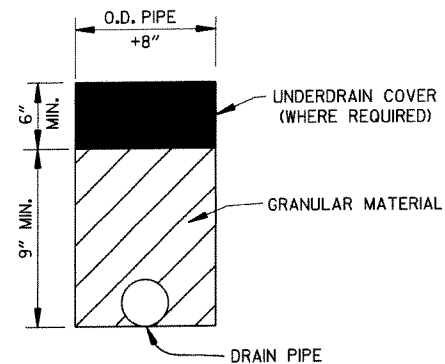
PLAN VIEW



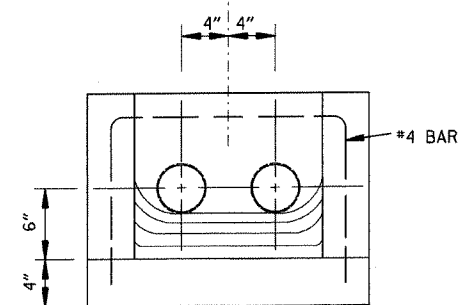
DETAIL OF HOLE FOR 4" PIPE



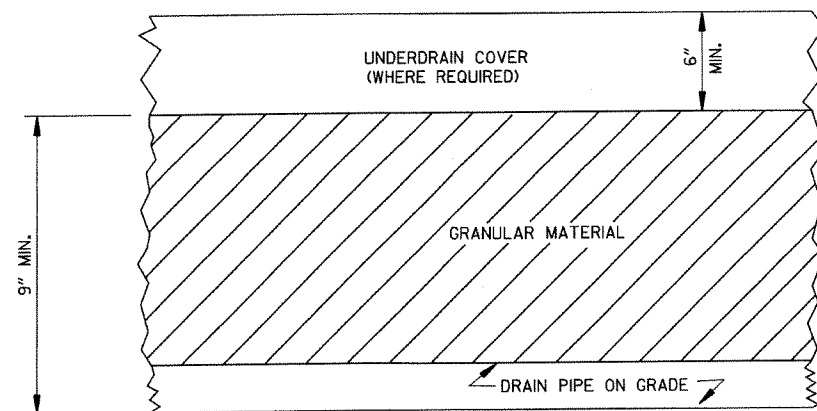
DETAIL OF RODENT SCREEN



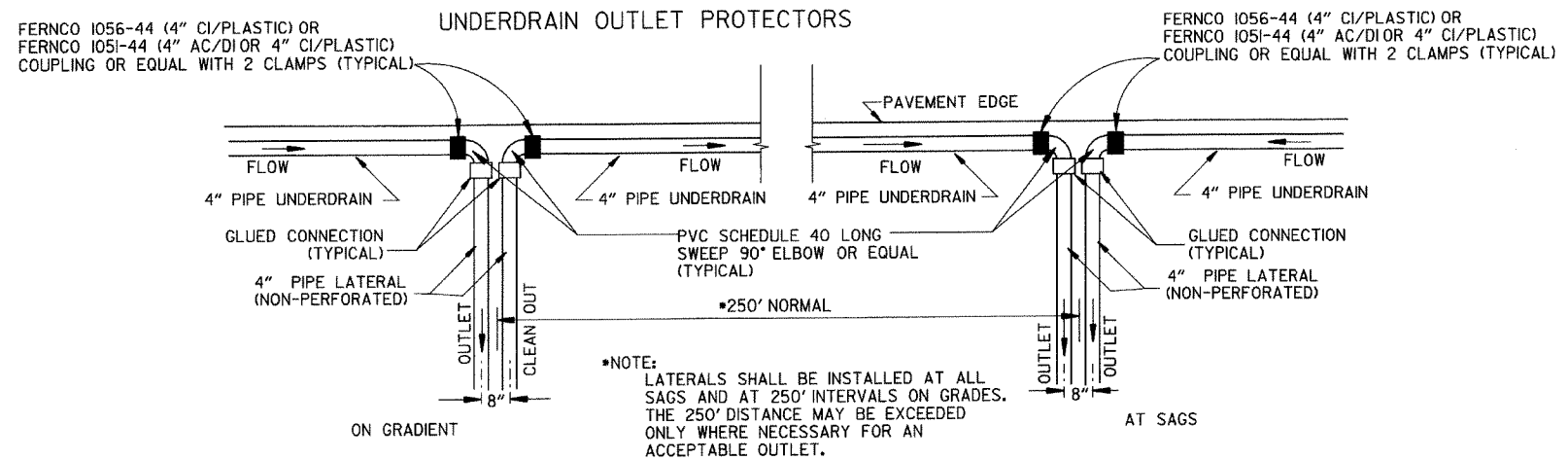
SIDE VIEW



FRONT VIEW



DETAILS OF PIPE UNDERDRAIN



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

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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			40 MPH			50 MPH			55 MPH			60 MPH			70 MPH		
	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e
	MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE	
0° 15'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
1° 00'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
1° 15'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
1° 30'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
1° 45'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
2° 00'	R.C.			R.C.			R.C.			R.C.			R.C.			R.C.		
2° 15'	R.C.			R.C.			R.C.			R.C.			R.C.			R.C.		
2° 30'	0.021			0.031			0.041			0.051			0.061			0.071		
2° 45'	0.023			0.034			0.045			0.056			0.067			0.078		
3° 00'	0.025			0.037			0.049			0.061			0.072			0.083		
3° 15'	0.027			0.040			0.053			0.065			0.077			0.088		
3° 30'	0.029			0.043			0.057			0.070			0.082			0.094		
3° 45'	0.031			0.046			0.061			0.074			0.086			0.098		
4° 00'	0.033			0.049			0.065			0.078			0.090			0.102		
4° 30'	0.037			0.056			0.074			0.088			0.100			0.112		
5° 00'	0.040			0.061			0.083			0.099			0.115			0.131		
5° 30'	0.043			0.066			0.088			0.104			0.120			0.136		
6° 00'	0.046			0.070			0.092			0.108			0.124			0.140		
6° 30'	0.050			0.074			0.095			0.111			0.127			0.143		
7° 00'	0.053			0.078			0.099			0.115			0.131			0.147		
7° 30'	0.056			0.081			0.101			0.117			0.133			0.149		
8° 00'	0.058			0.084			0.104			0.120			0.136			0.152		
8° 30'	0.061			0.087			0.107			0.123			0.139			0.155		
9° 00'	0.063			0.089			0.109			0.125			0.141			0.157		
10° 00'	0.068			0.094			0.114			0.130			0.146			0.162		
11° 00'	0.072			0.097			0.117			0.133			0.149			0.165		
12° 00'	0.076			0.100			0.120			0.136			0.152			0.169		
13° 00'	0.080			0.103			0.123			0.139			0.155			0.172		
14° 00'	0.083			0.106			0.126			0.142			0.158			0.175		
15° 00'	0.086			0.109			0.129			0.145			0.161			0.178		
16° 00'	0.089			0.112			0.132			0.148			0.164			0.181		
17° 00'	0.091			0.115			0.135			0.151			0.167			0.184		
18° 00'	0.093			0.118			0.138			0.154			0.170			0.187		
19° 00'	0.095			0.121			0.141			0.157			0.173			0.190		
20° 00'	0.097			0.124			0.144			0.160			0.176			0.193		
21° 00'	0.098			0.126			0.146			0.162			0.178			0.195		
22° 00'	0.099			0.128			0.148			0.164			0.180			0.197		
23° 00'	0.099			0.130			0.150			0.166			0.182			0.199		
24° 00'	0.100			0.132			0.152			0.168			0.184			0.200		

D MAX = 24' 45"

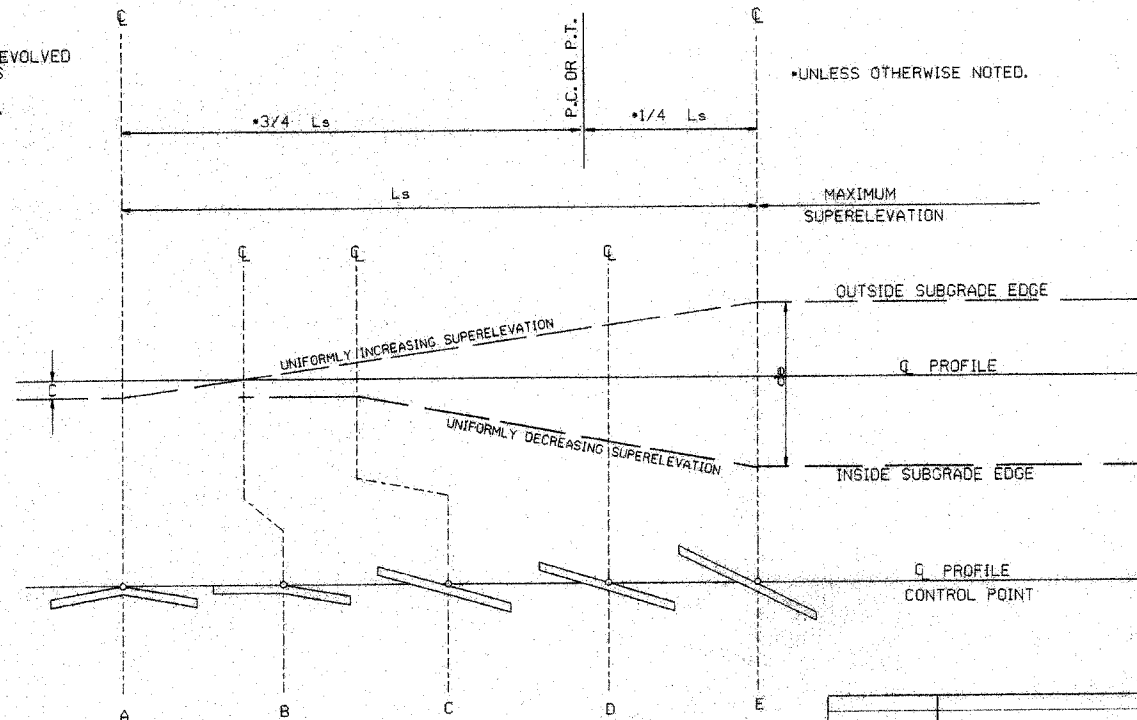
ABBREVIATIONS

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

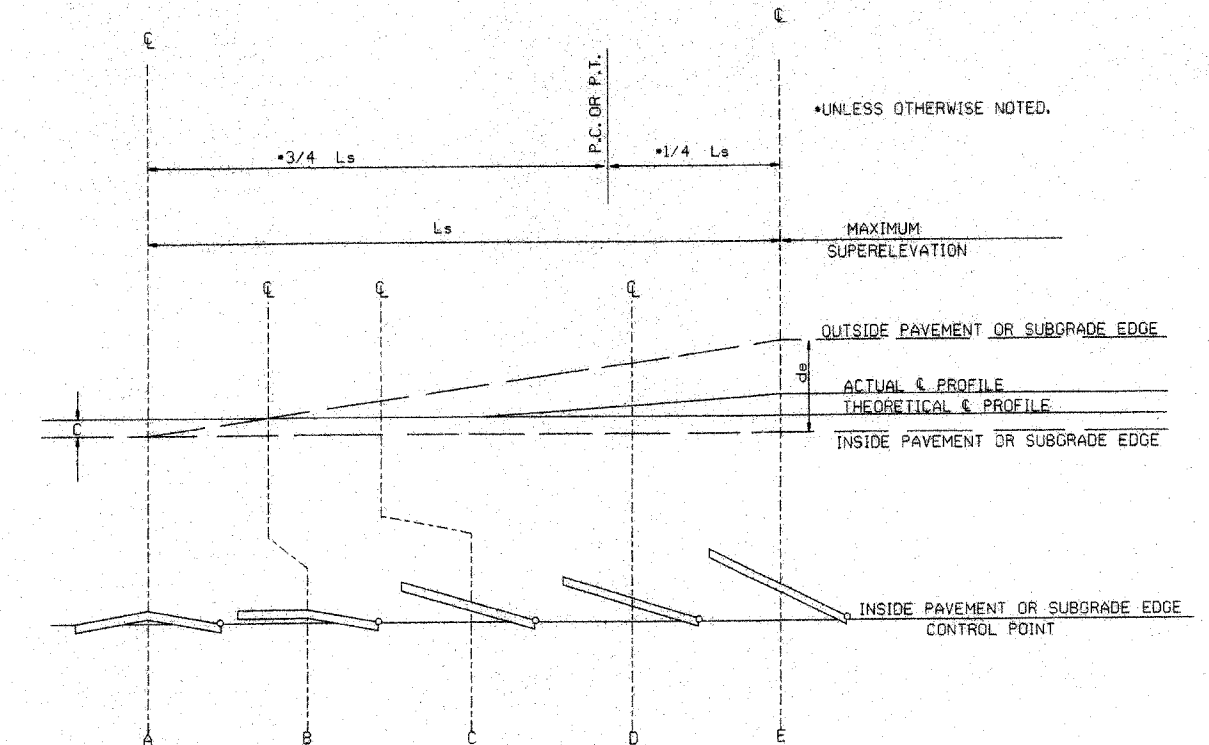
GENERAL NOTES

- ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
- SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
- LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
- PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:
 - 3 LANE UNDIVIDED - - - - - +20%
 - 4 LANE UNDIVIDED - - - - - +50%
 - 5 LANE UNDIVIDED - - - - - +80%
 - 6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

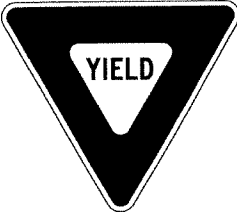
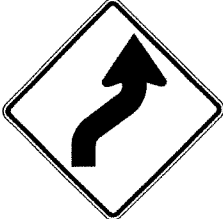
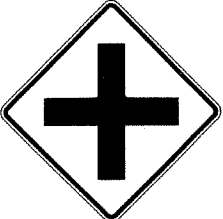
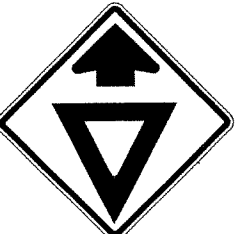
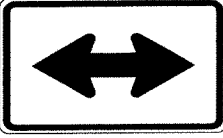
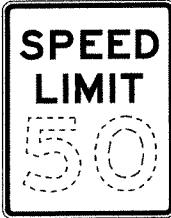
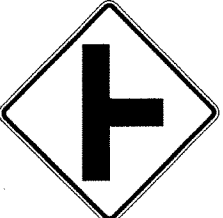
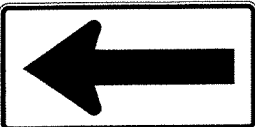
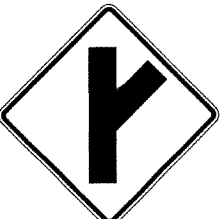
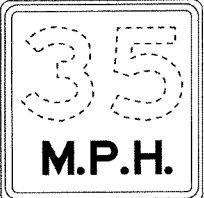
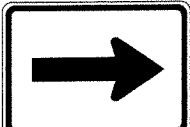
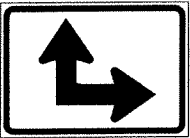
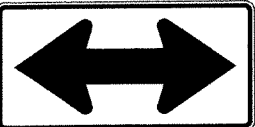
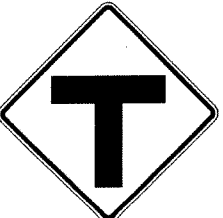
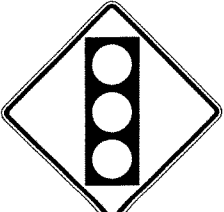
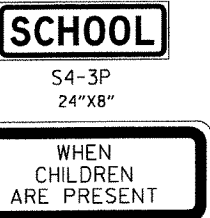
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

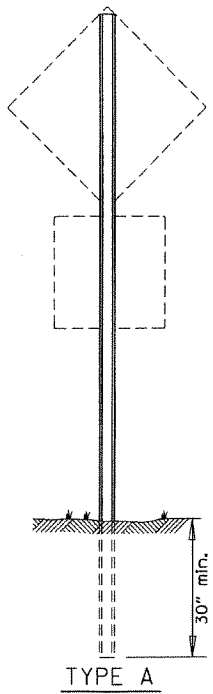
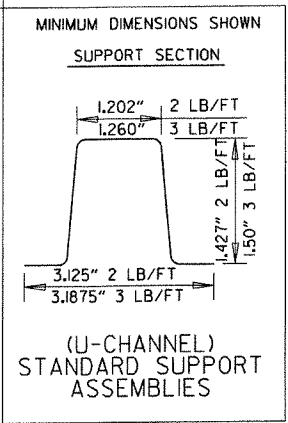
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

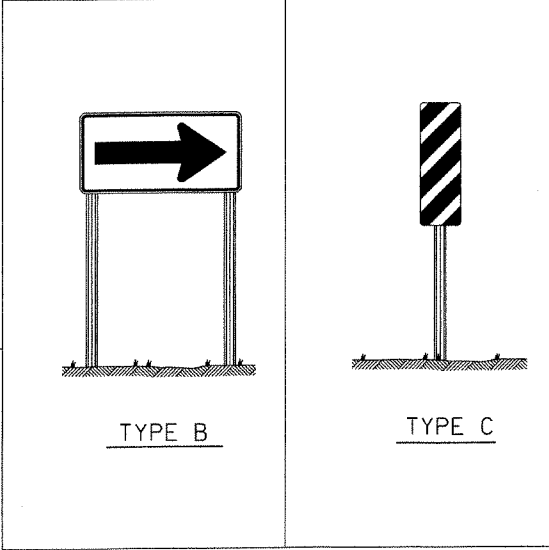
STANDARD DRAWING SE-2

10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87
DATE	REVISION	DATE FILMED

 RI-1 30"x30"	 WI-3 30"x30" (LT. or RT.)	 WI-8 18"x24"	 W2-5 30"x30"	 W3-1 36"x36"	 W5-1 36"x36"	 M6-3 21"x15"
 RI-2 36"x36"x36"	 WI-4 30"x30" (LT. or RT.)	 W2-1 30"x30"	 SI-1 36"x36"	 W3-2 36"x36"	 County Route Marker MI-6 24"x24" NOTE: REFLECTORIZED YELLOW LEGEND (COUNTY NAME, ROUTE LETTER & NUMBER) & BORDER ON A BLUE BACKGROUND.	 M6-4 21"x15"
 R2-1 24"x30"	 WI-5 30"x30" (LT. or RT.)	 W2-2 30"x30"	 W5-2 36"x36"	 W8-3 36"x36"	 RI-3P 18"x6"	 M6-5 21"x15"
 WI-1 30"x30" (LT. or RT.)	 WI-6 48"x24"	 W2-3 30"x30" (LT. or RT.)	 W5-3 36"x36"	 W13-1P 18"x18"	 M6-1 21"x15" NOTE: ALL M6 SIGNS TO BE MADE WITH REFLECTORIZED YELLOW ARROW & BORDER WITH BLUE BACKGROUND.	 M6-6 21"x15"
 WI-2 30"x30" (LT. or RT.)	 WI-7 48"x24"	 W2-4 30"x30"	 W10-1 36" DIAMETER	 W3-3 36"x36"	 M6-2 21"x15"	 S4-3P 24"x8" S4-2P 24"x10" WHEN CHILDREN ARE PRESENT



NOTE: LENGTH OF SIGN POSTS SHALL BE DETERMINED SO AS TO PROVIDE FOR MINIMUM VERTICAL CLEARANCES AS CALLED FOR IN THE SPECIFICATIONS PLUS A MINIMUM VERTICAL PENETRATION OF 30" IN THE SOIL.

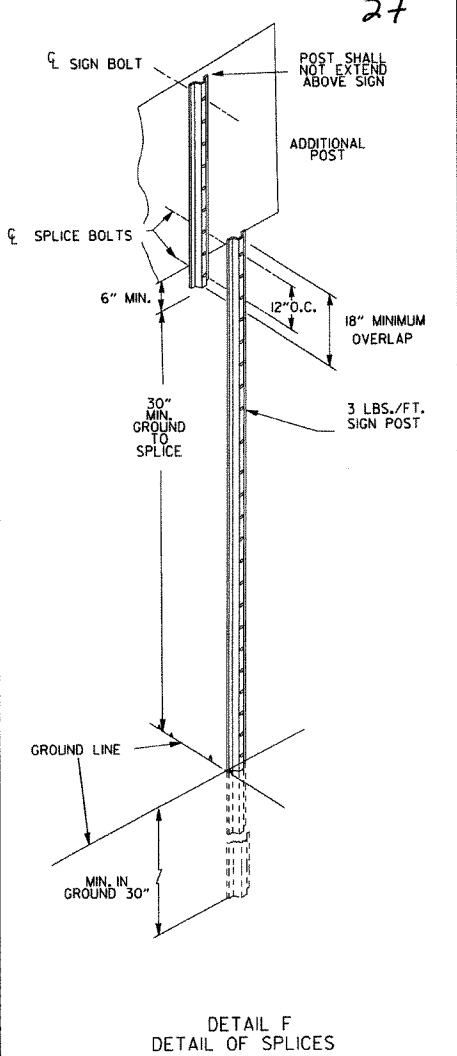
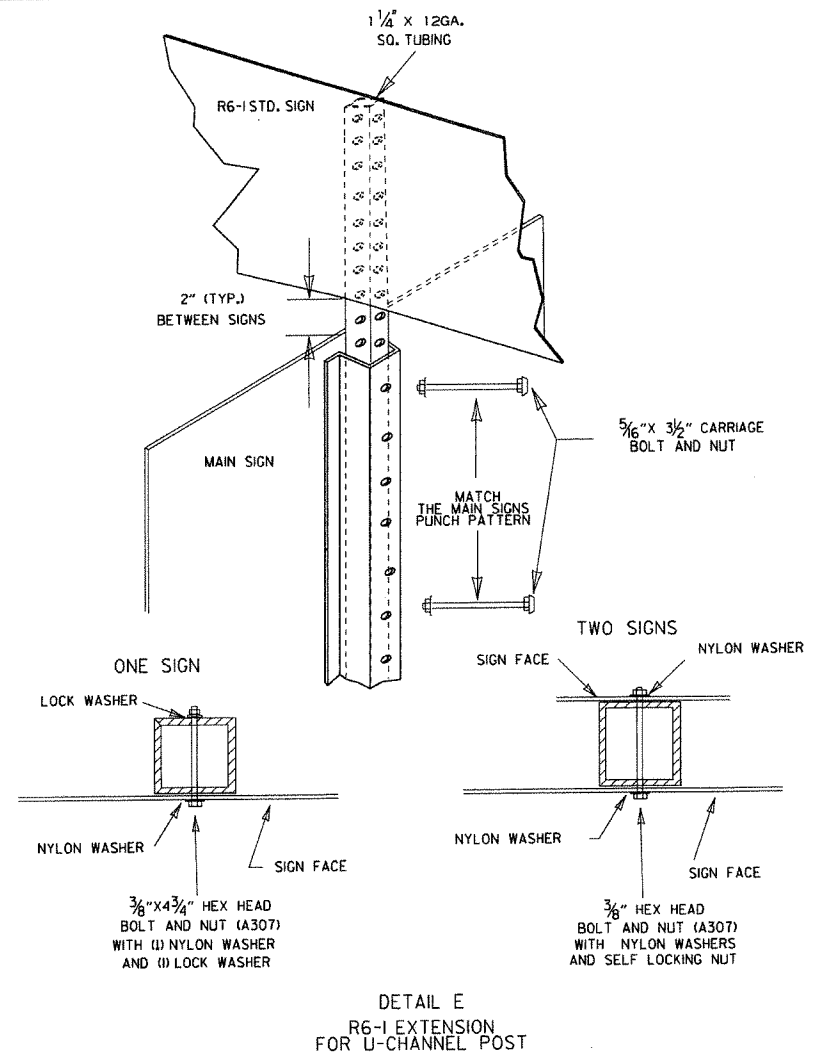
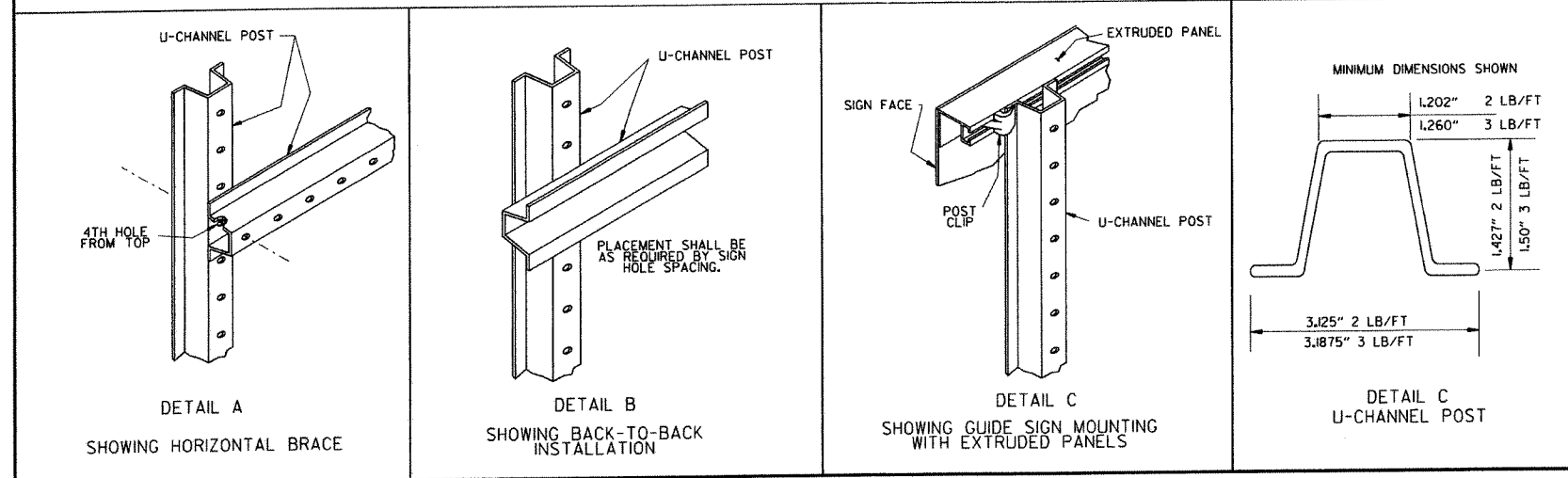
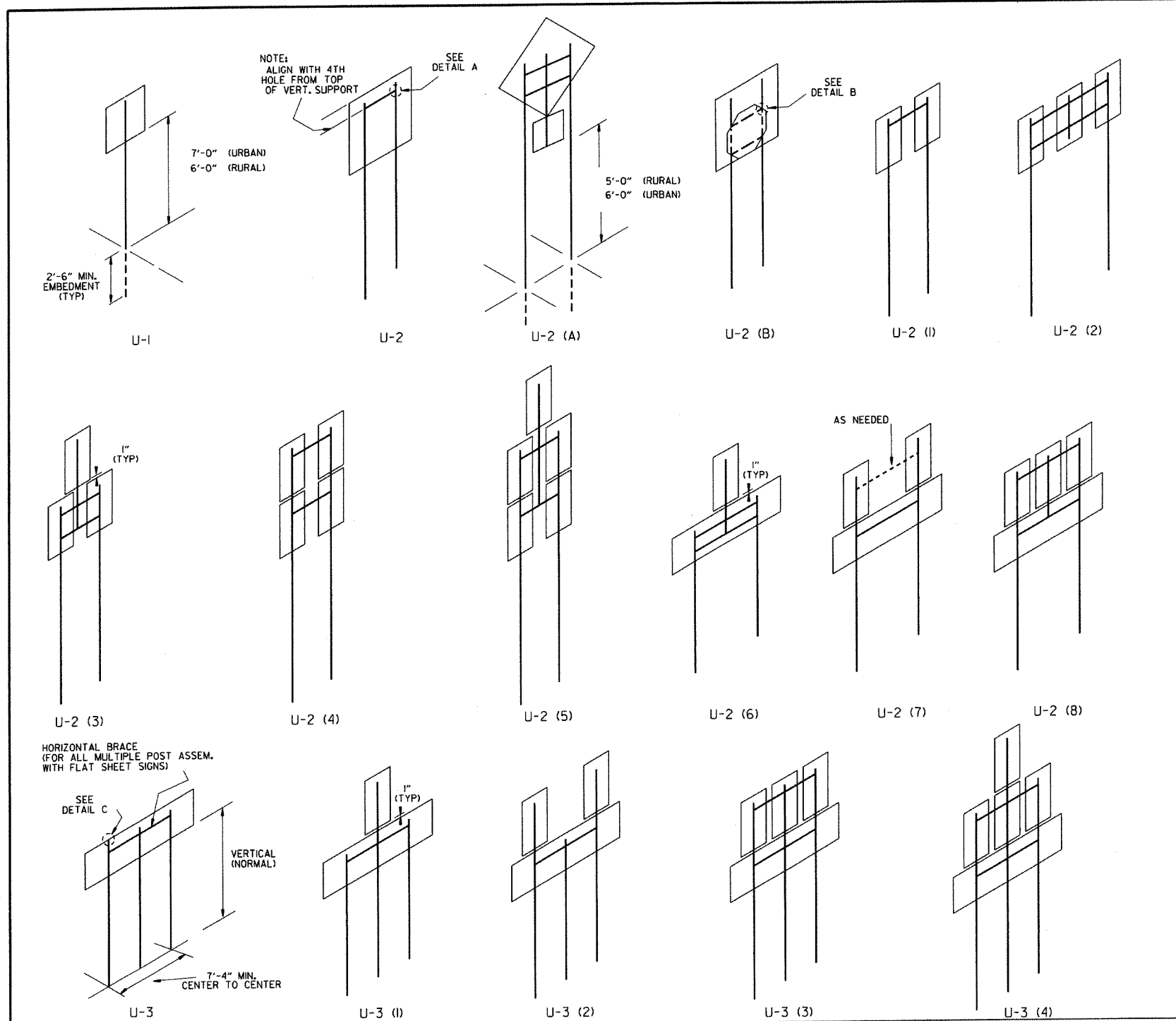


MINIMUM WEIGHT
TYPE A & B = 3 LBS./FT.
TYPE C = 2 LBS./FT.

SUPPORT ASSEMBLIES
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD HIGHWAY SIGNS
AND SUPPORT ASSEMBLIES
STANDARD DRAWING SHS-1

STANDARD HIGHWAY SIGNS

9-12-13	DELETED JOB NO. BLOCK; REVISED RI-3 TO RI-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1 & W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3; ADDED WI-8	
1-5-81	REDRAWN	960-1-15-81
9-15-78	ADDED W14-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2"-3"; ADDED S4-2 & S4-3	504-5-3-76
8-12-74	REV. HT. TYPE "C" ASSEMBLY	500-8-21-74
12-21-72	ADDED M6-2, 3, 4, 5, 6	500-12-21-72
12-1-72	ISSUED	562-12-1-72
DATE	REVISION	DATE FILMED



NOTES:

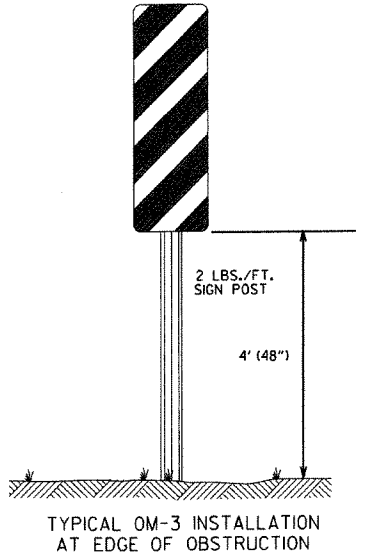
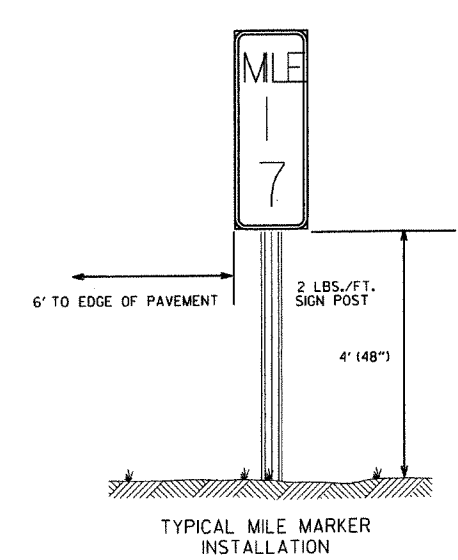
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (F).

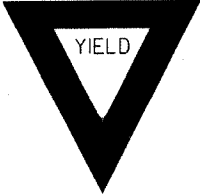
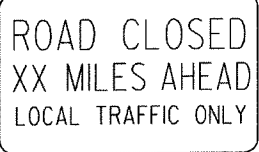
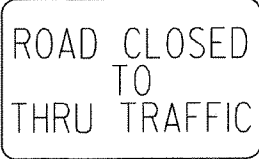
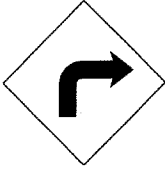
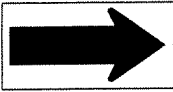
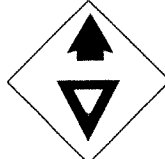
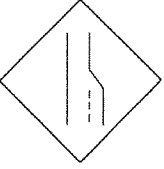
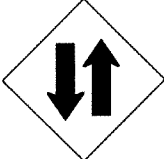
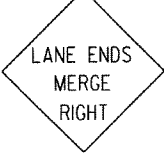
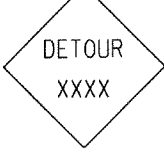
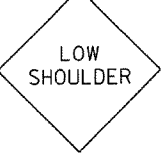
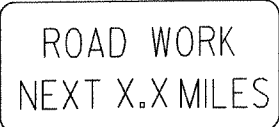
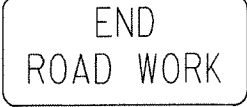
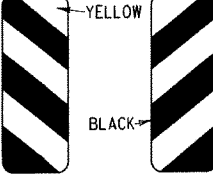
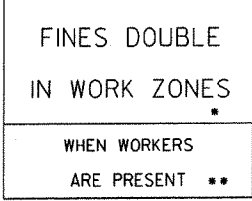
NORMAL INSTALLATIONS WILL REQUIRE 5/16" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

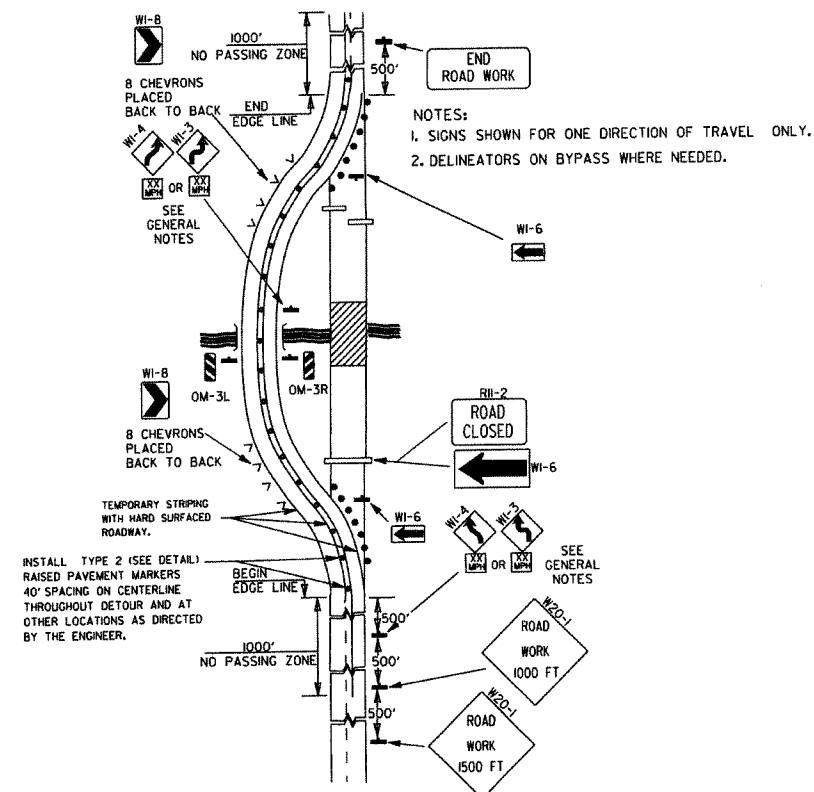
THE POST FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.



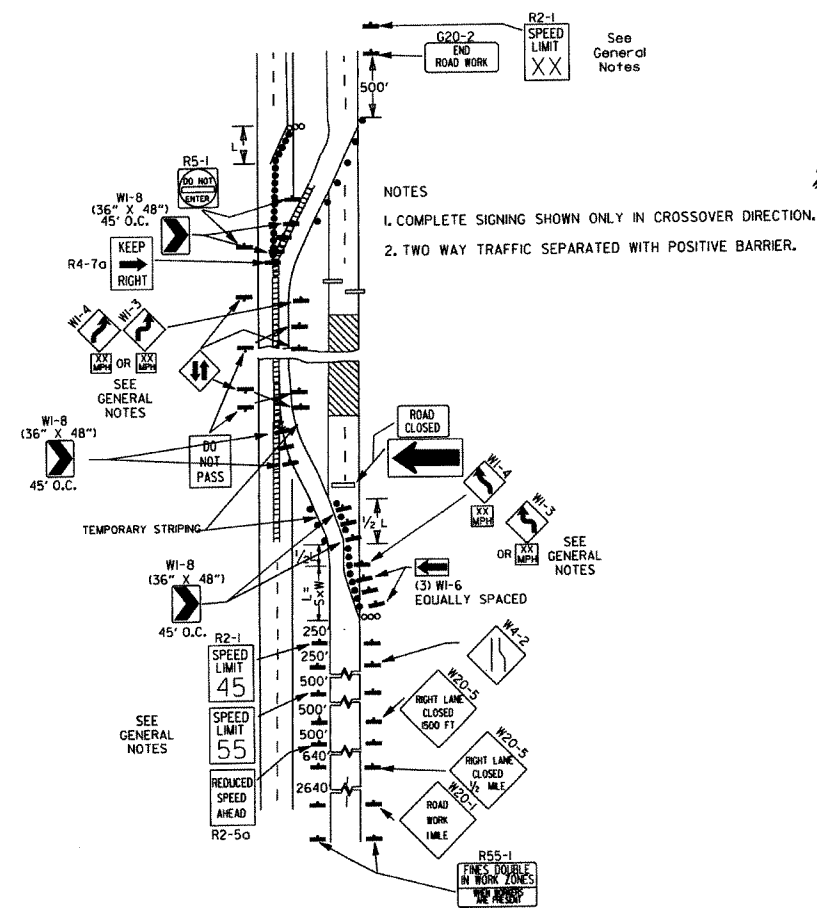
ARKANSAS STATE HIGHWAY COMMISSION		
U-CHANNEL POST ASSEMBLIES		
9-12-13	REVISED U-2(3), U-2(6), U-3(1), DETAIL D; ADDED DETAILS E & F; ADDED TYPICAL MARKERS	
10-9-03	REMOVED ROUND POST & REVISED SPACING	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL	6-8-95
2-2-95	REDRAWN	2-2-95
DATE	REVISION	FILMED

ADVANCE DISTANCES (XXXX) 500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD							28
RI-1  STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"	RI-2  STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"	R2-1  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R2-5A  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R2-5C  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R4-1  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R4-2  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	GENERAL NOTES: 1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. 2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. 3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. 6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. 7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. 8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. 10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN. * NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.
R5-1  STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"	R11-2  48"x30"	R11-3A  60"x30"	R11-4  60"x30"	RSP-1  48"x30"	W1-1  STD. 36"x36" FWY. 48"x48"	W1-2  STD. 36"x36" FWY. 48"x48"	
W1-3  STD. 48"x48"	W1-4  STD. 48"x48"	W1-6  STD. 48"x24" SPECIAL 60"x30"	W1-8  STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"	W3-1  STD. 36"x36" SPECIAL 48"x48"	W3-2  STD. 36"x36" SPECIAL 48"x48"	W4-2  STD. 36"x36" FWY. 48"x48"	
W5-1  STD. 36"x36" SPECIAL 48"x48"	W6-3  EXPWY. 36"x36" SPECIAL 48"x48"	W8-7  EXPWY. 36"x36" FWY. 48"x48"	W9-2  STD. 36"x36" FWY. 48"x48"	W13-1  STD. 24"x24"	W20-1  STD. 48"x48"	W20-2  STD. 48"x48"	W20-3  STD. 48"x48"
W20-4  STD. 48"x48"	W20-5  STD. 48"x48"	W20-7a  500 FEET 24" W16-2 STD. 36"x36" FWY. 48"x48"	W21-2  STD. 30"x30" SPECIAL 36"x36"	W21-5  STD. 30"x30" SPECIAL 36"x36"	W24-1  STD. 36"x36"	W1-4b  STD. 48"x48"	R56-1  STD. 18"x18"
W8-11  STD. 36"x36" FWY. 48"x48"	W8-9  STD. 36"x36" FWY. 48"x48"	G20-1  60"x24"	G20-2  48"x24"	OM-3L OM-3R  12"x36"	M4-9  STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"	M4-10  48"x18"	R55-1  36"x60" * USE 6" C LETTERS ** USE 4" D LETTERS

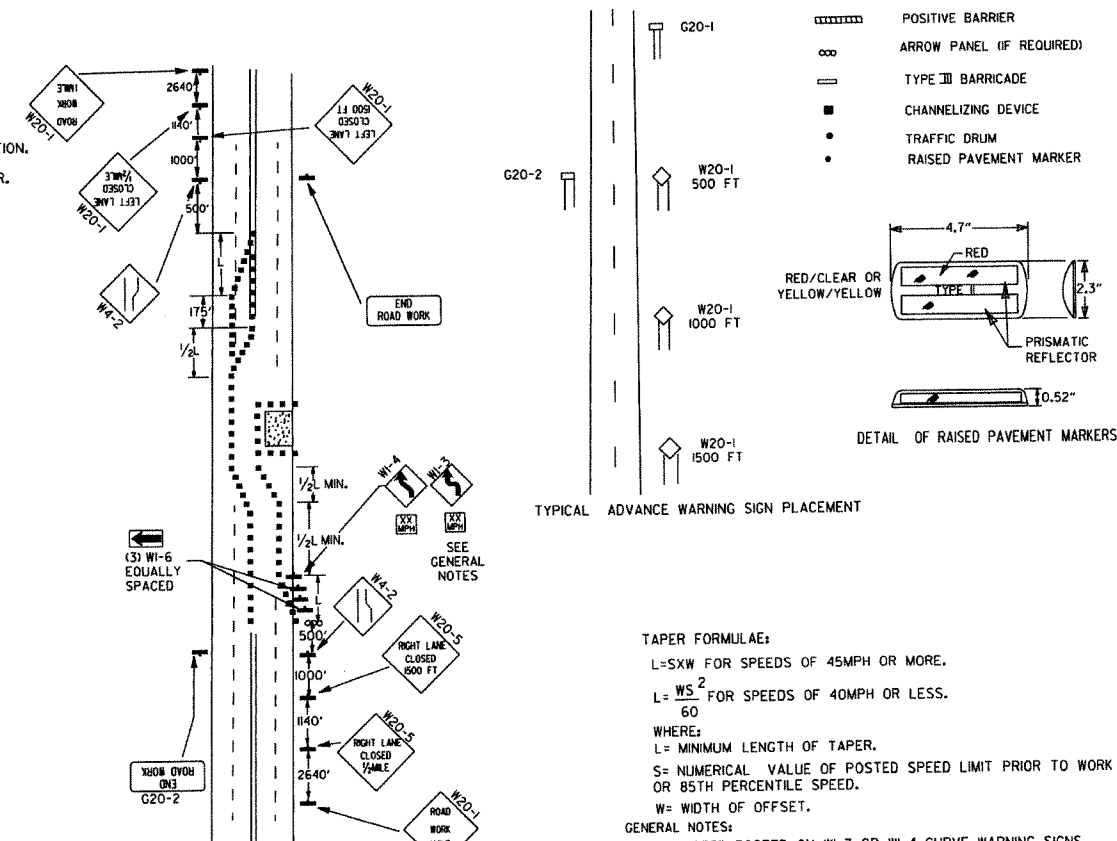
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED



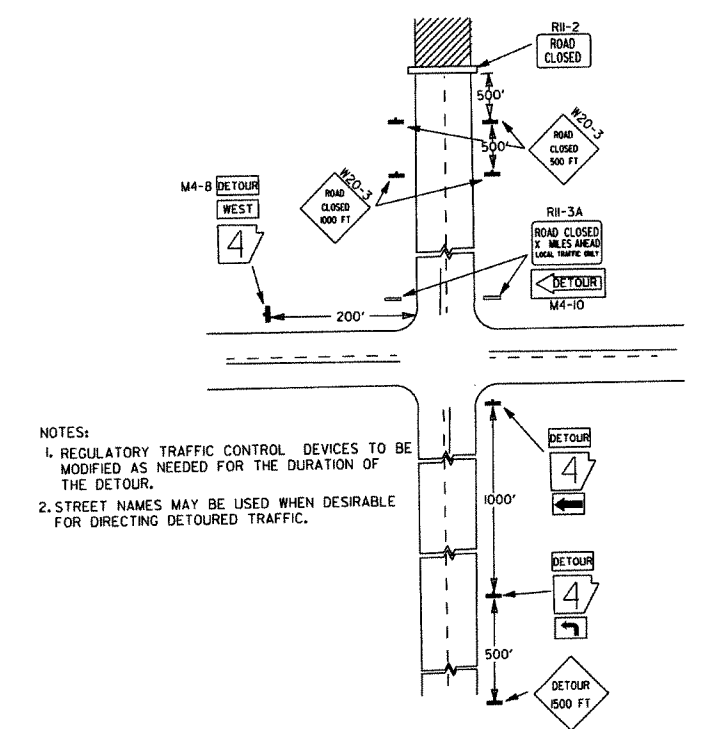
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



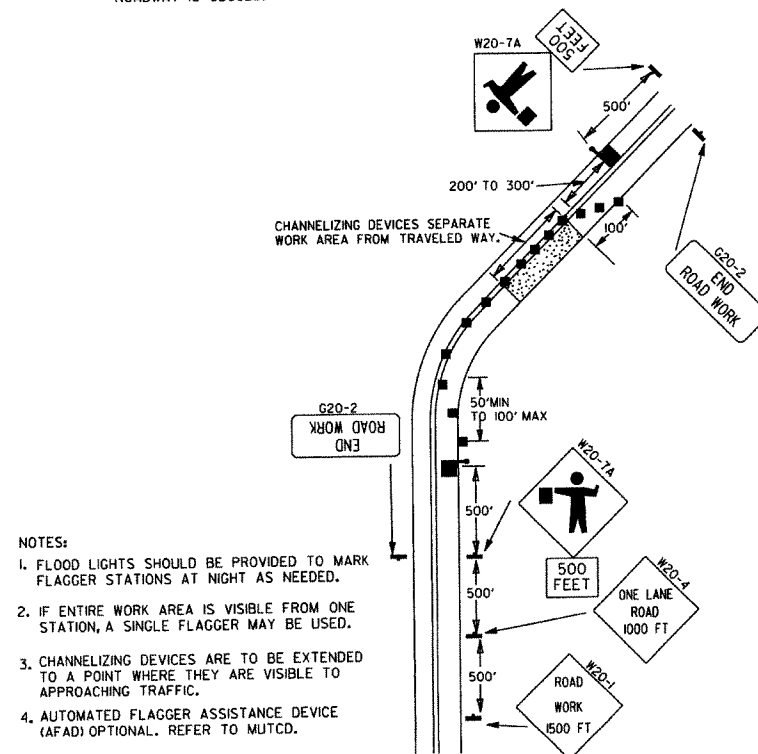
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



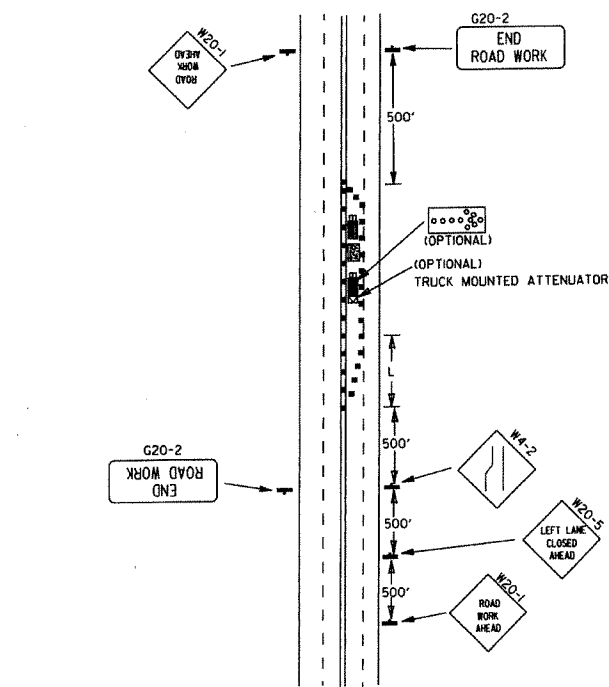
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(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

Diagram of a Type II Red Laser Tube. The tube is 4.7 inches long and has a diameter of 2.3 inches. It contains two red laser tubes labeled "RED" and "TYPE II". A prismatic reflector is attached to the end of the tube.

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=5XW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:

L = MINIMUM LENGTH OF TAPER.

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

W= WIDTH OF OFFSET.

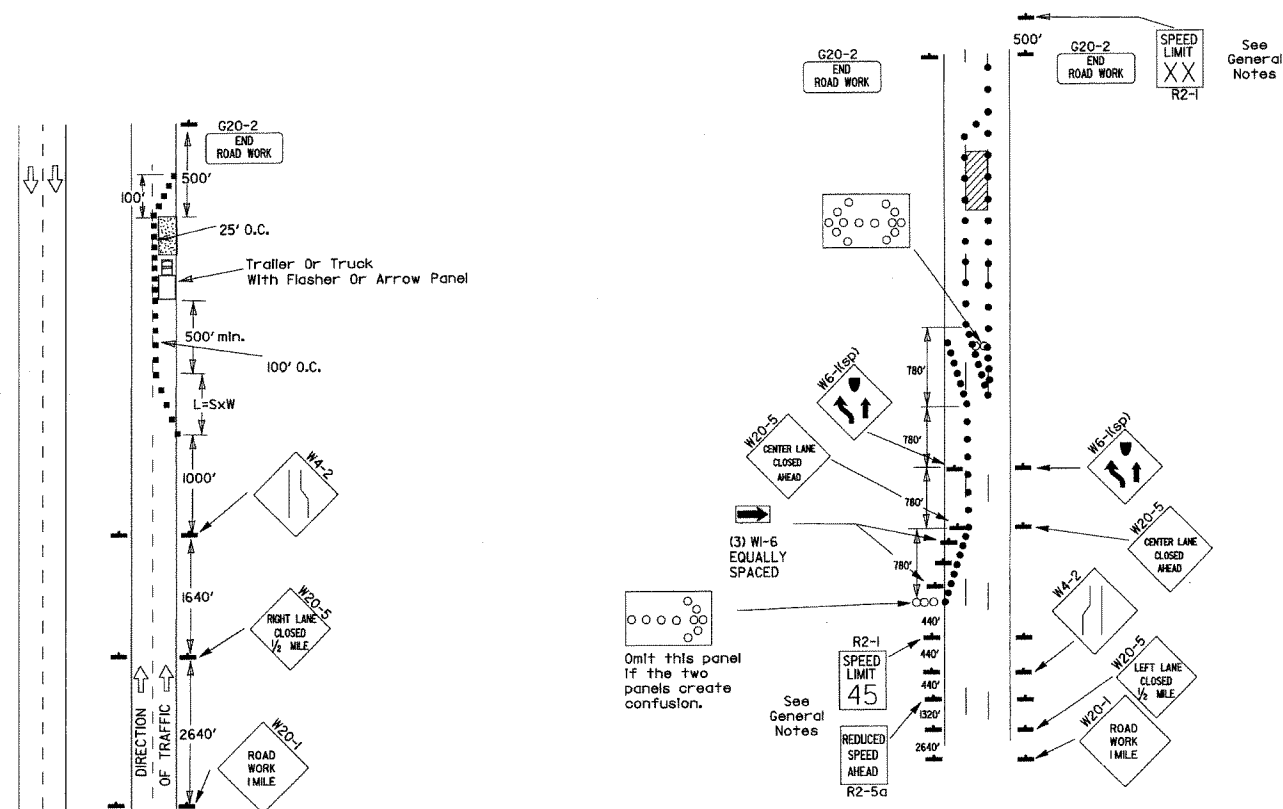
GENERAL NOTES:

1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-(K55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(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-(K45) SHALL BE OMITTED. ADDITIONAL R2-55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(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 CONSPICUOUSLY MATERIAL 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.

9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-10-10	ADDED (AFAID)	
11-20-08	REVISED SIGN DESCRIPTIONS	
11-18-04	REVISED GENERAL NOTE	
10-18-96	ADDED RS5-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON WI-44	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILED

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-2

Channelizing devices



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

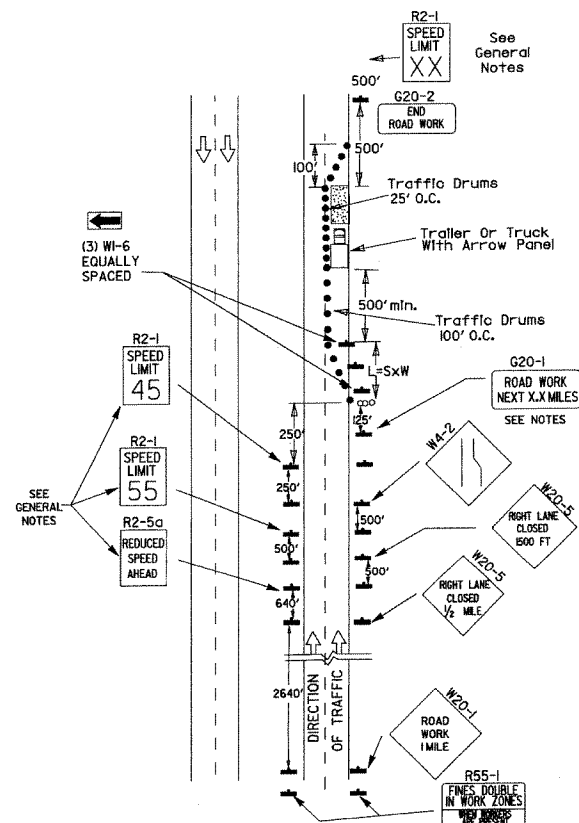
(B) Typical application - 3-lane oneway roadway where center lane is closed.

KEY:

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

GENERAL NOTES:

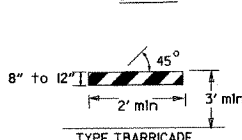
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1(45) speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1(55) speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1(1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.



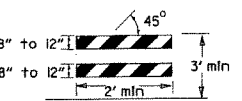
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

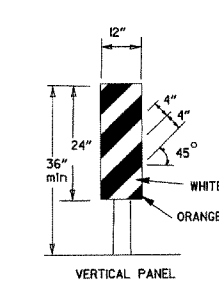
CONES



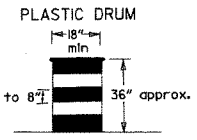
TYPE I BARRICADE



TYPE II BARRICADE



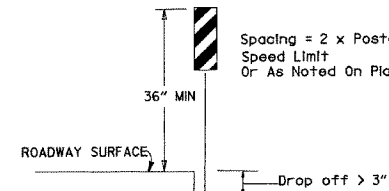
VERTICAL PANEL VP-1R



TYPE III BARRICADE

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

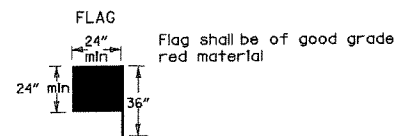
VERTICAL PANEL PLACEMENT



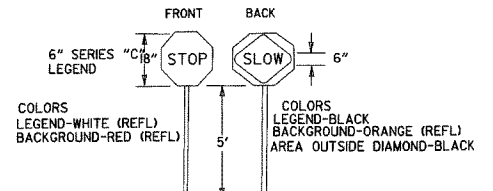
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

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

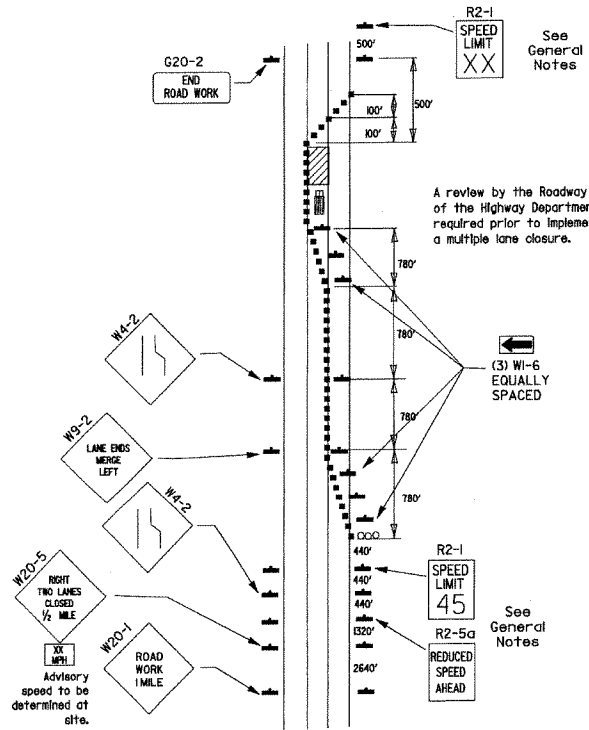
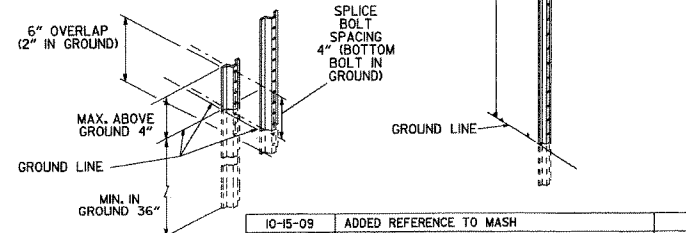


STOP SLOW PADDLE



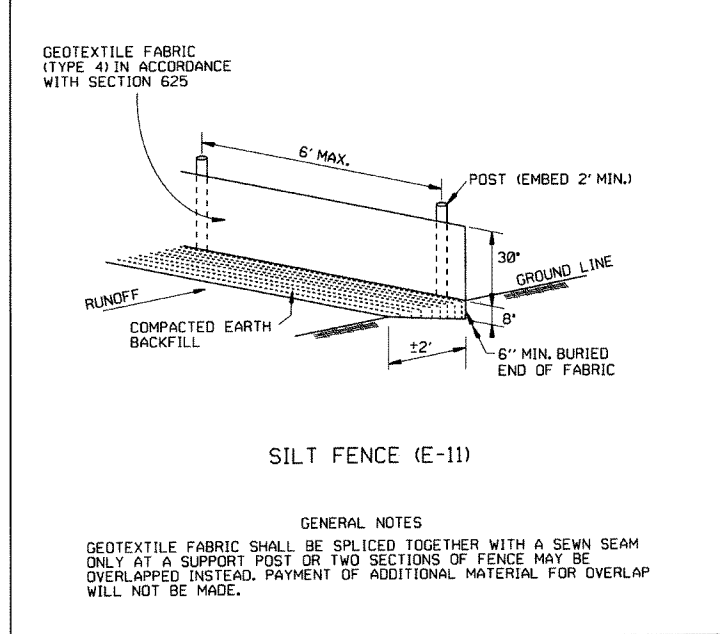
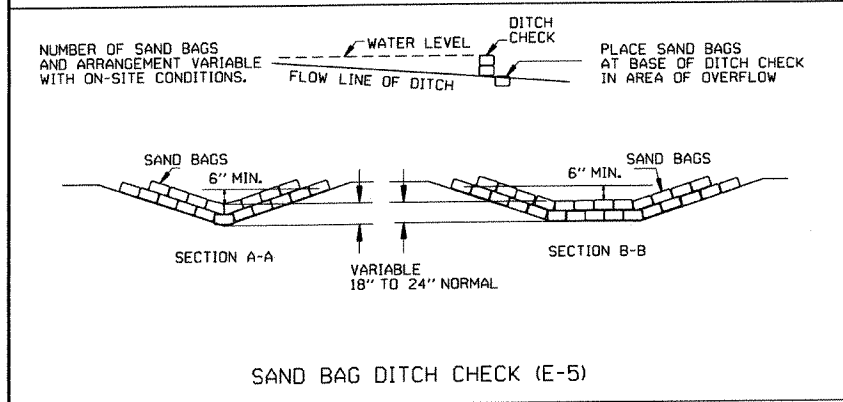
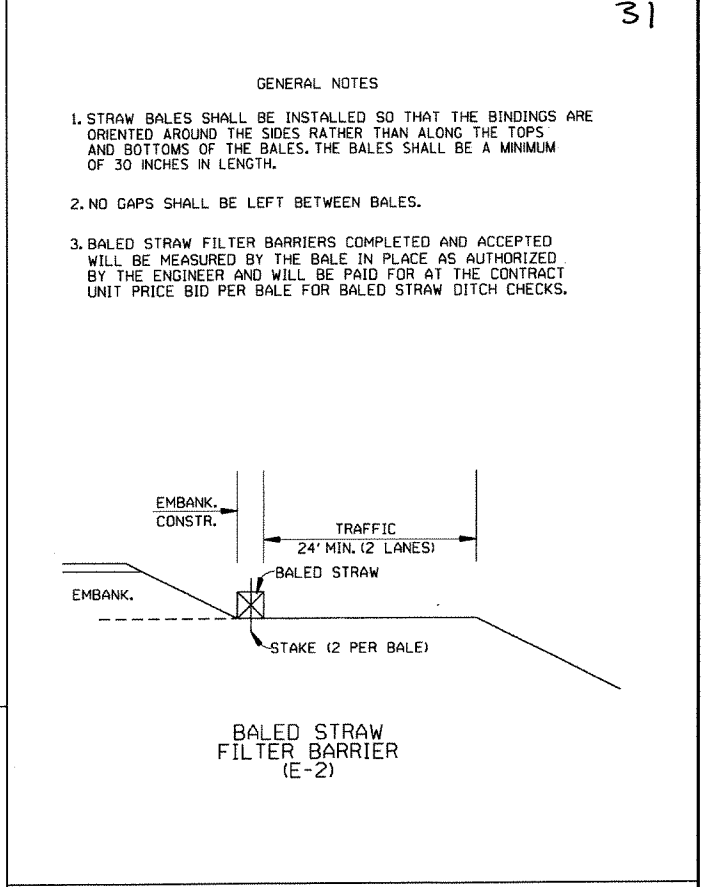
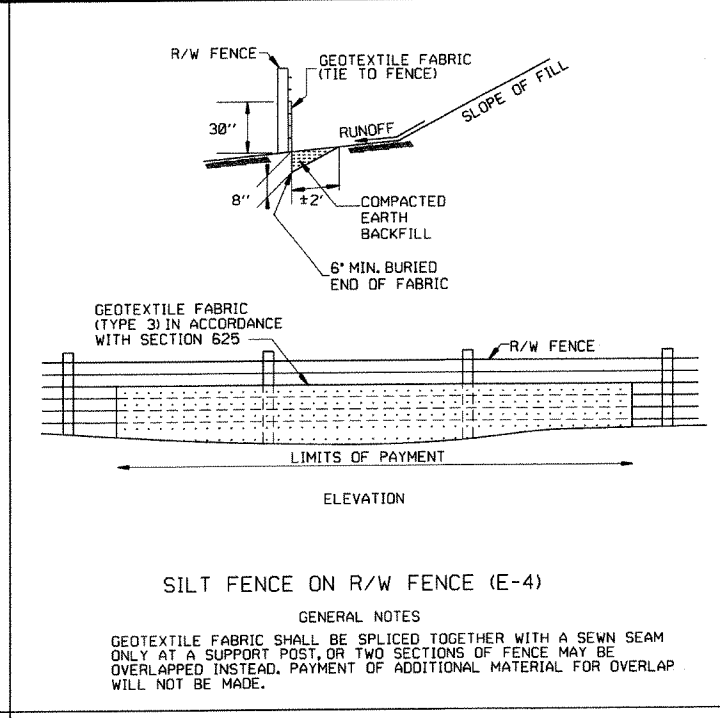
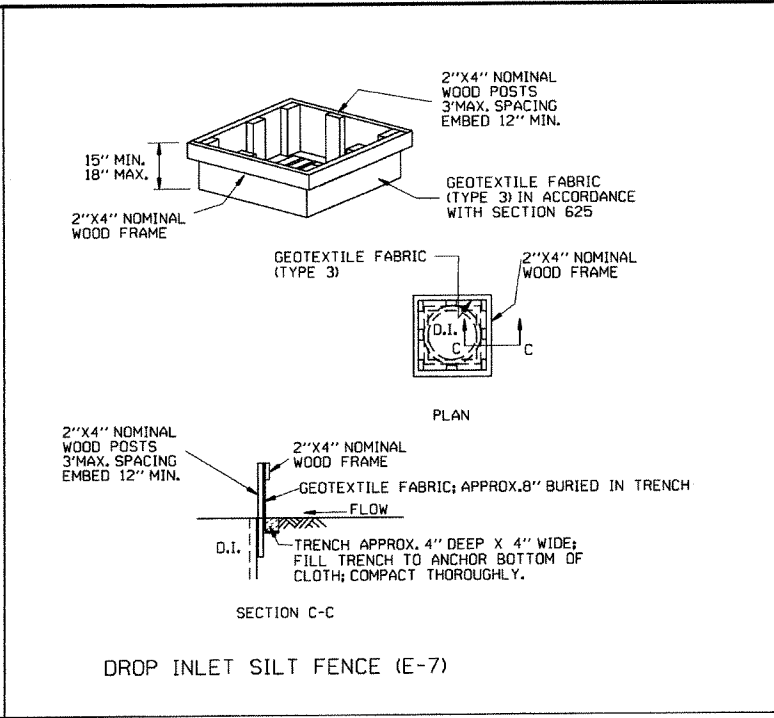
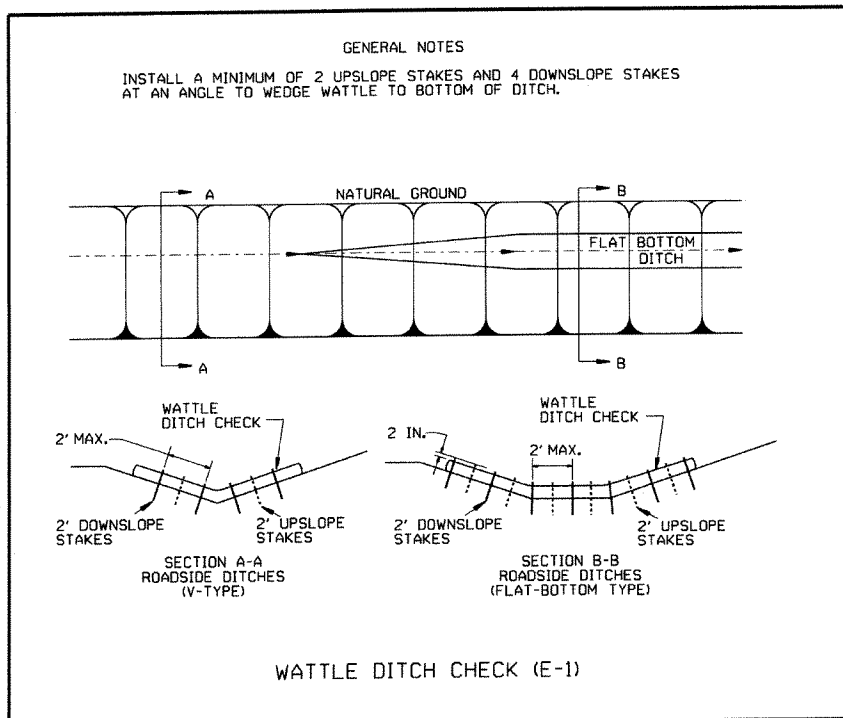
DETAIL OF SPLICES

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

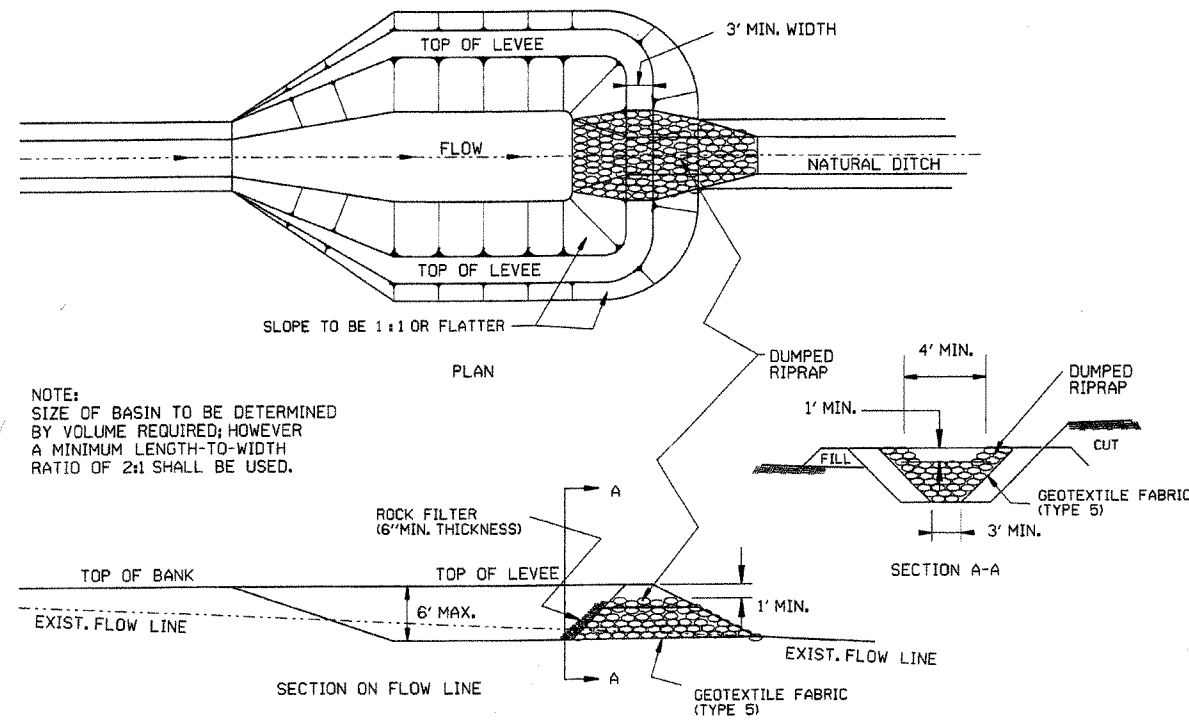


(D) Typical application - closing multiple lanes of a multi-lane highway.

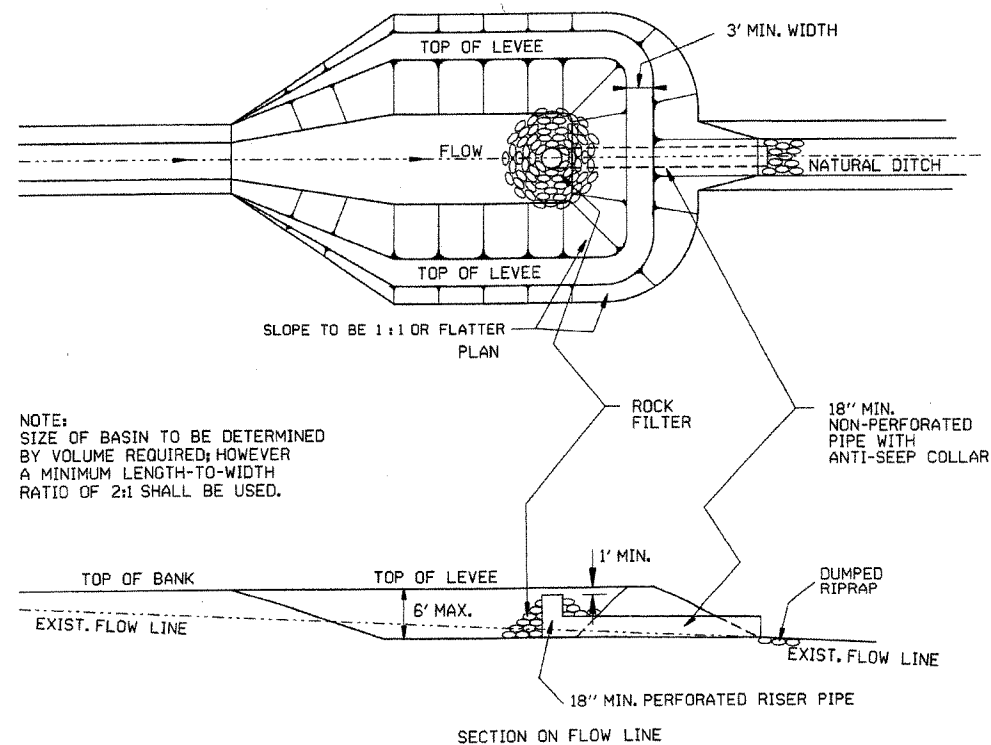
DATE	REVISION	FILED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
	ARKANSAS STATE HIGHWAY COMMISSION	
	STANDARD TRAFFIC CONTROLS	
	FOR HIGHWAY CONSTRUCTION	
	STANDARD DRAWING	TC-3



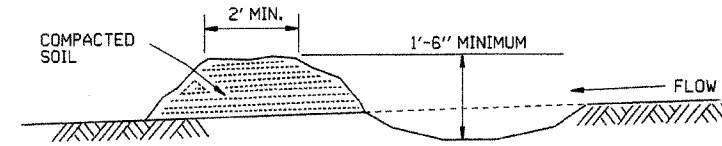
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		ARKANSAS STATE HIGHWAY COMMISSION
11-18-98	ADDED NOTES		
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC		
6-2-94	REVISED E-1, 4, 7 & 11; DELETED E-2 & 3	6-2-94	
4-1-93	REDRAWN		
10-1-92	REDRAWN		
8-2-76	ISSUED R.D.M.	298-7-28-76	
DATE	REVISION	FILMED	STANDARD DRAWING TEC-1



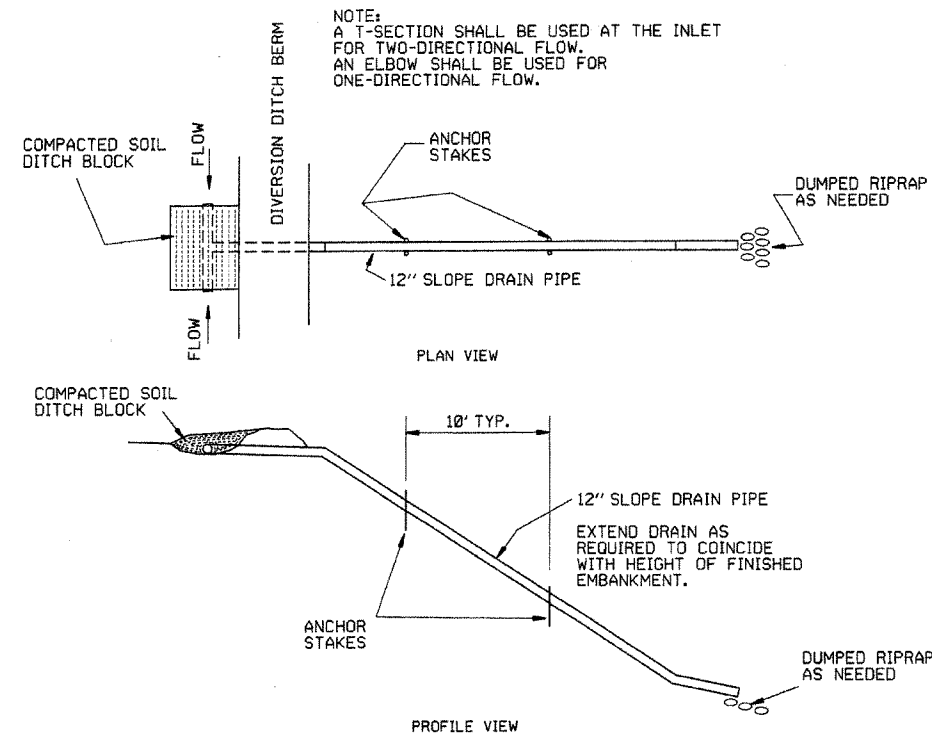
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



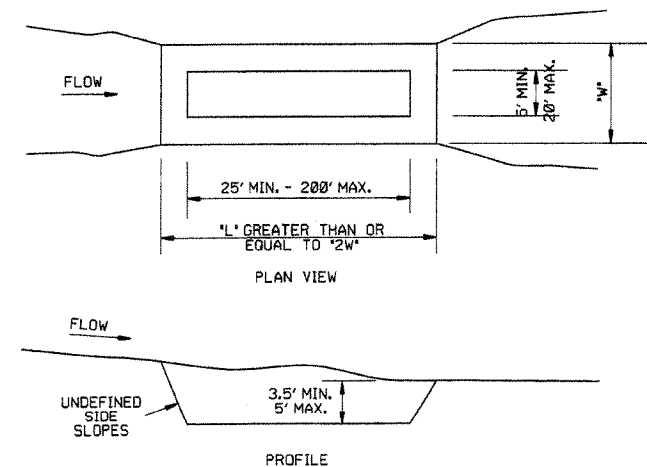
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

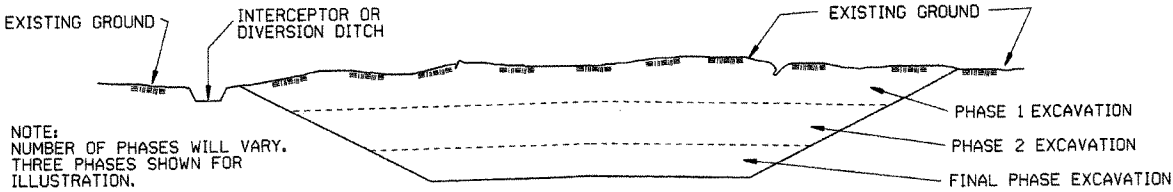
			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
			STANDARD DRAWING TEC-2
6-2-94	Revised E-8 & E-12, Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

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



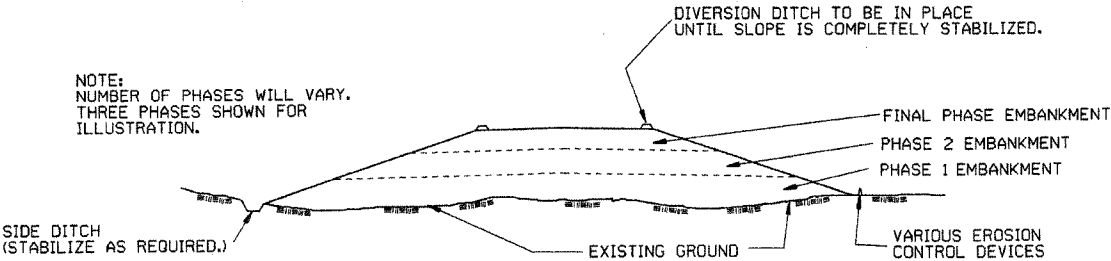
GENERAL NOTE

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

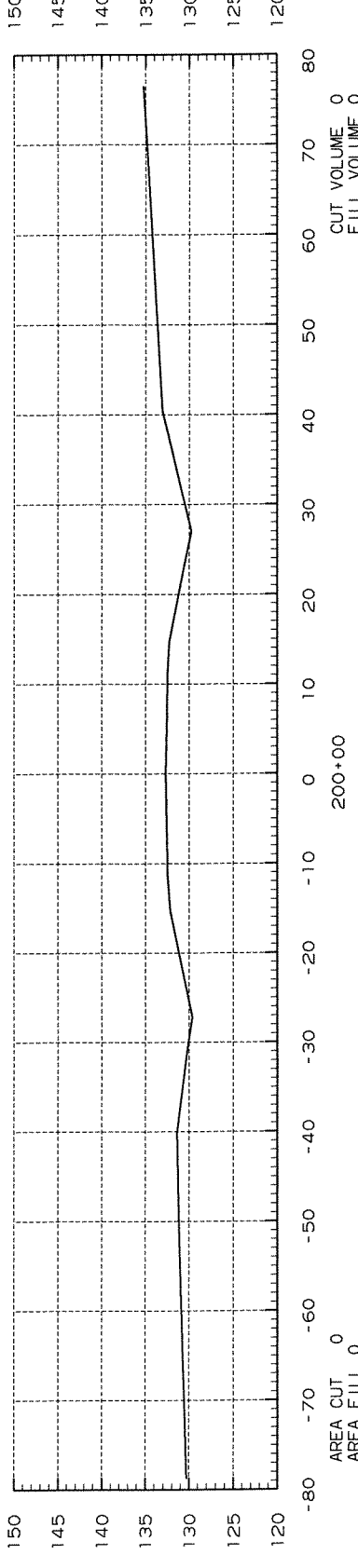
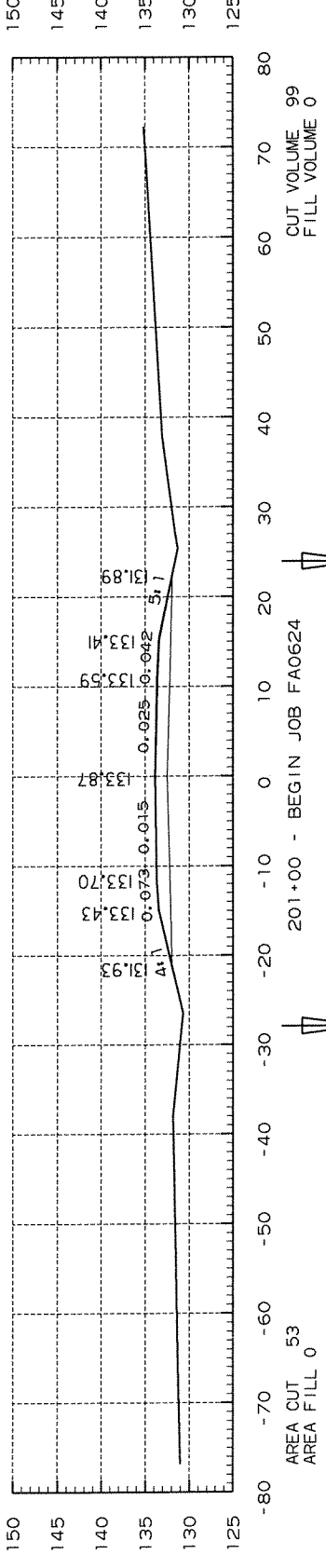
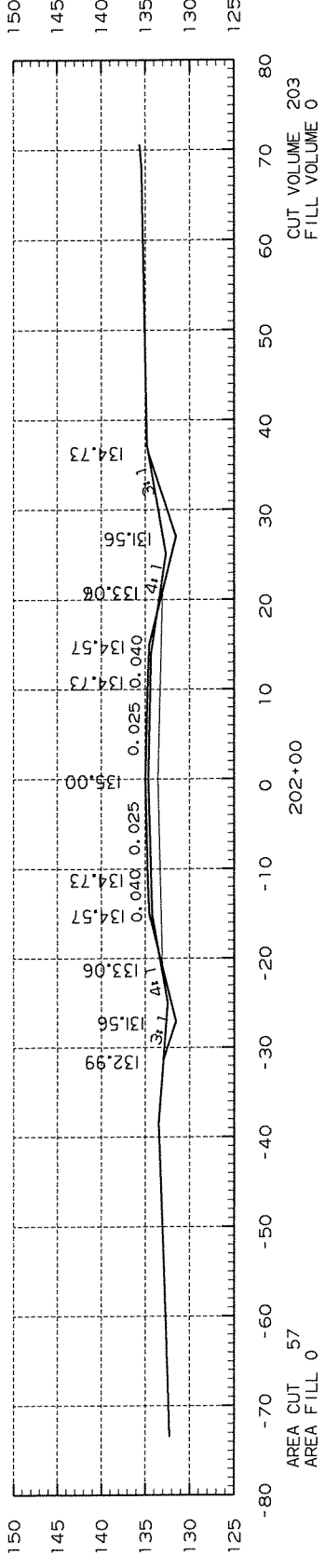
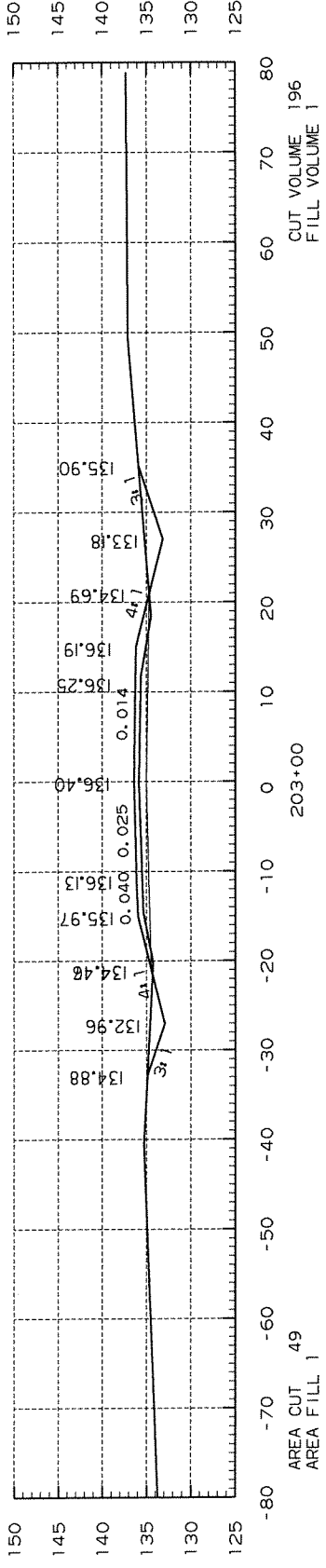
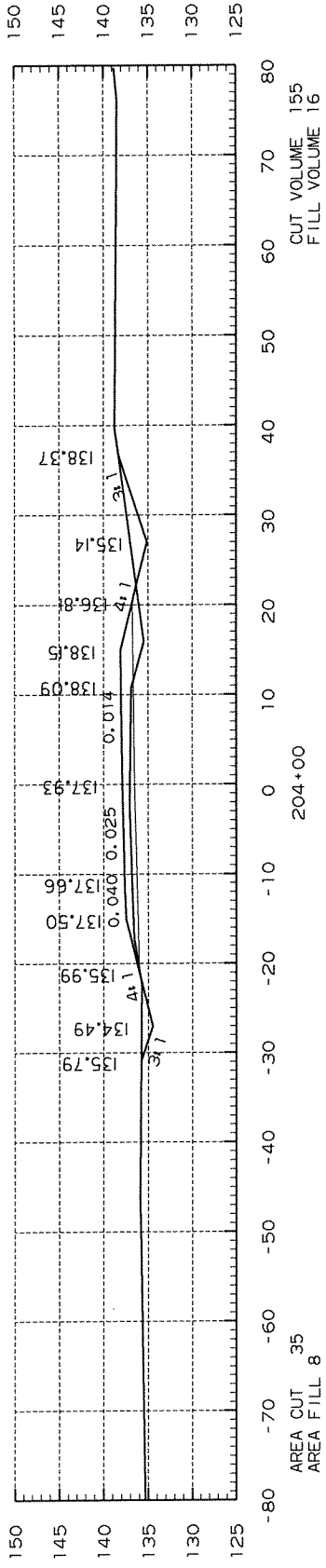
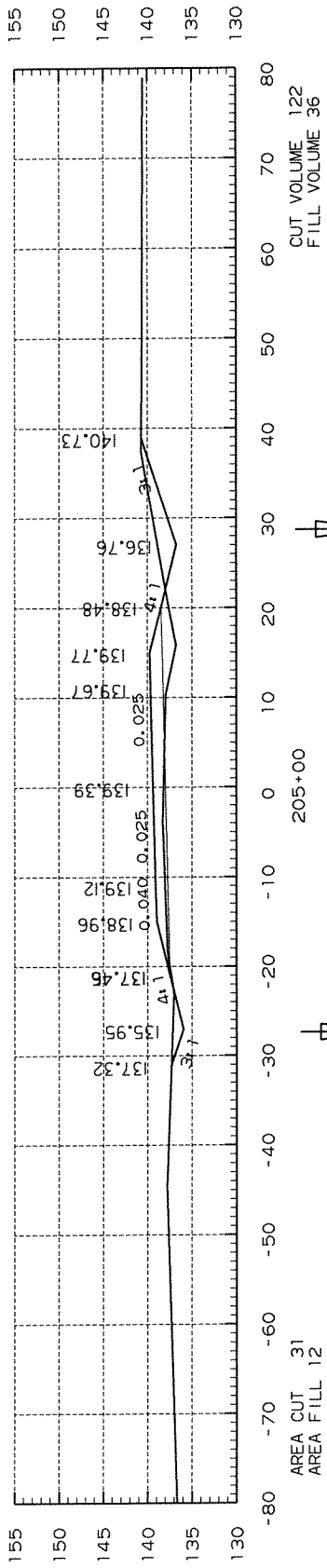
ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

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.

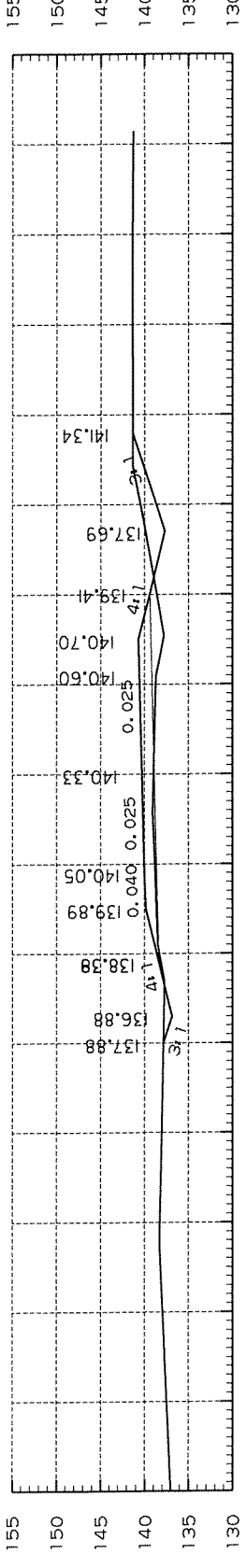
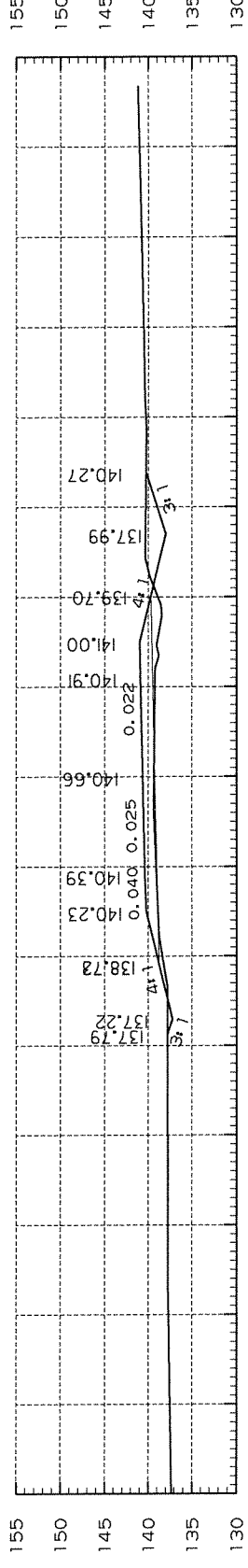
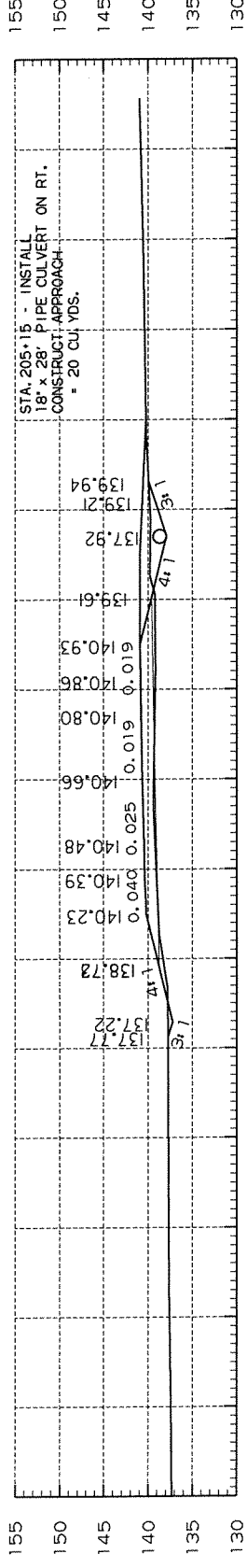
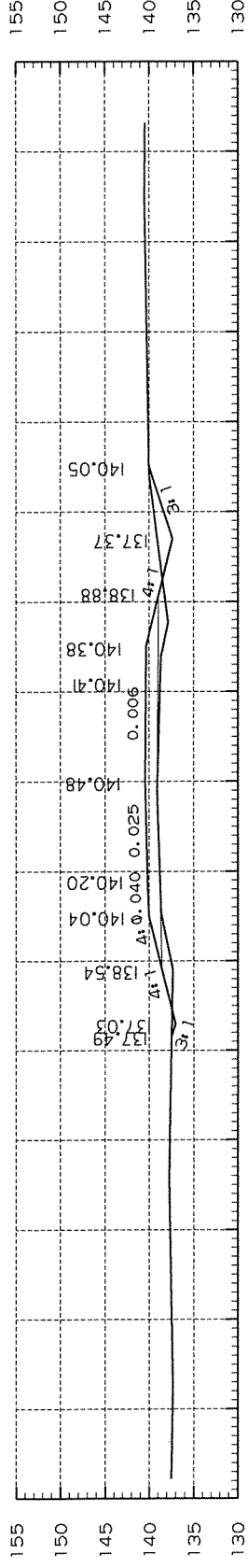
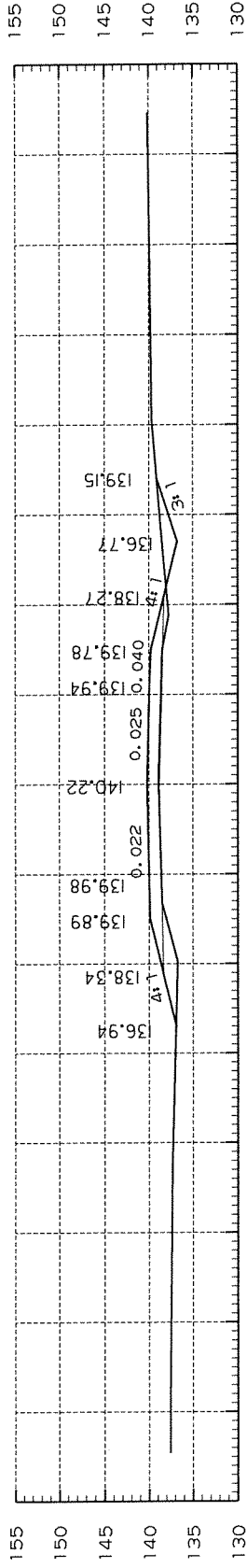
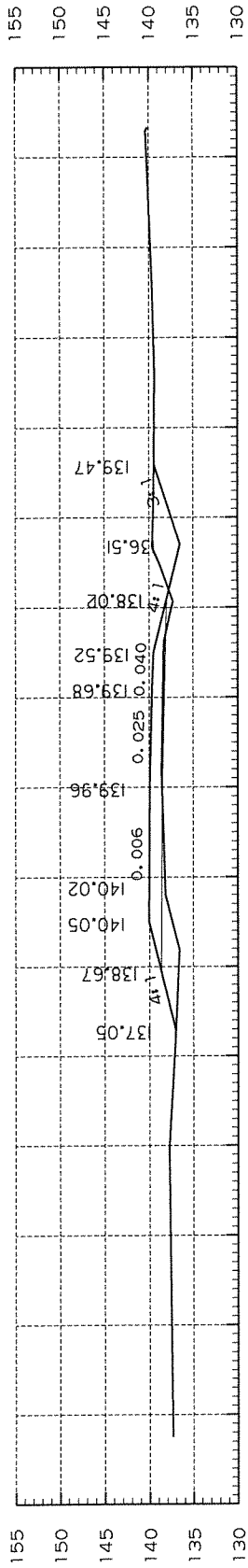
ARKANSAS STATE HIGHWAY COMMISSION		
TEMPORARY EROSION CONTROL DEVICES		
STANDARD DRAWING TEC-3		
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624	35	51	
④ STA. 200+00 - STA. 205+00								

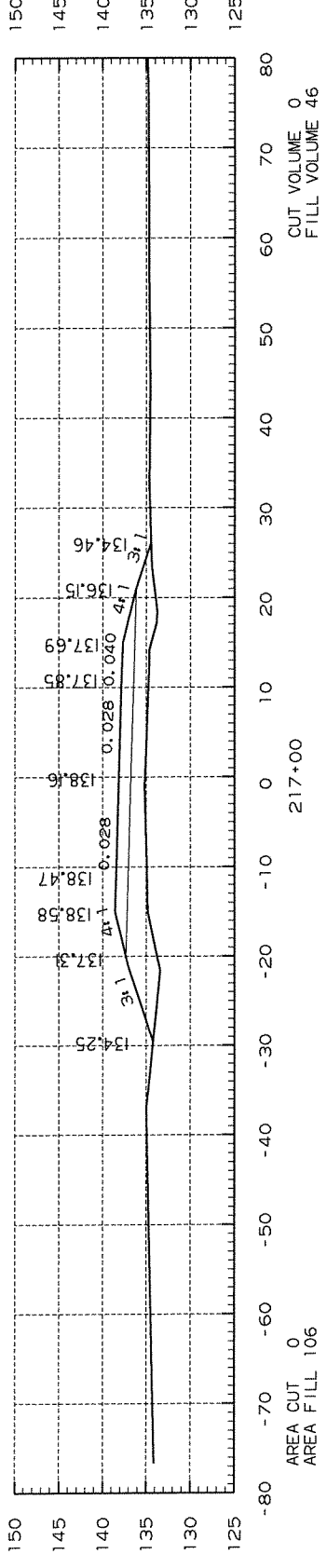
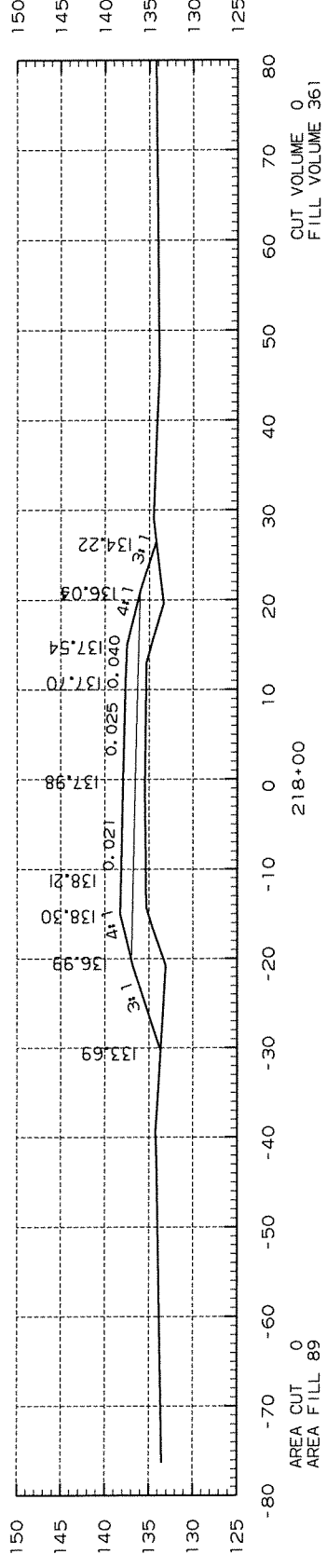
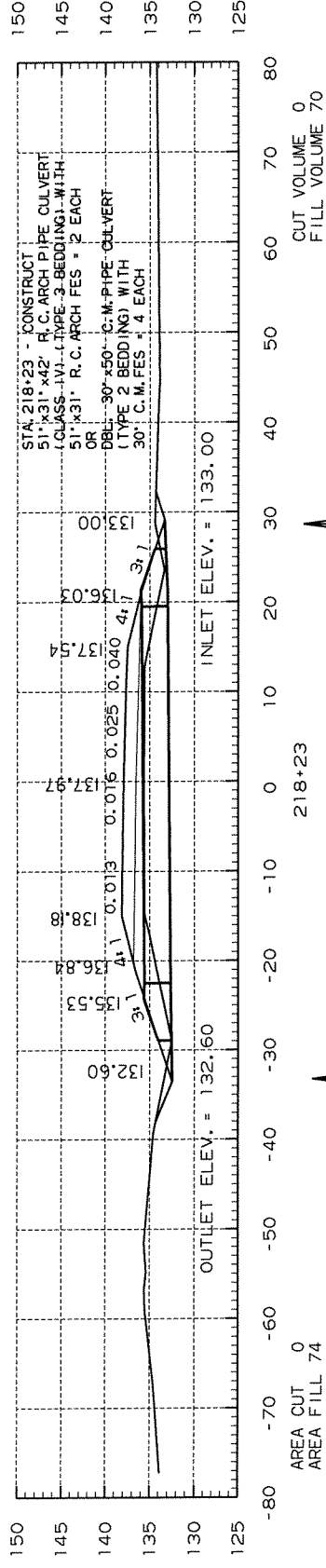
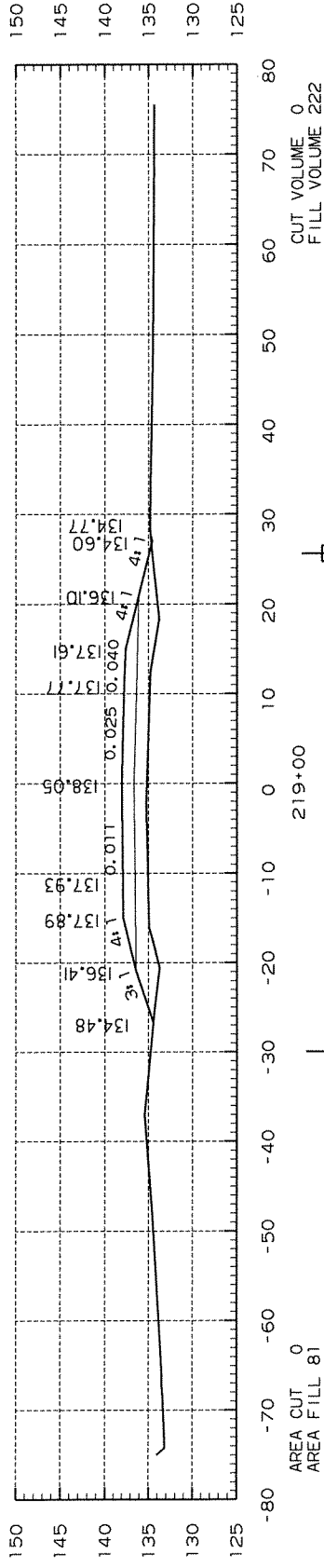
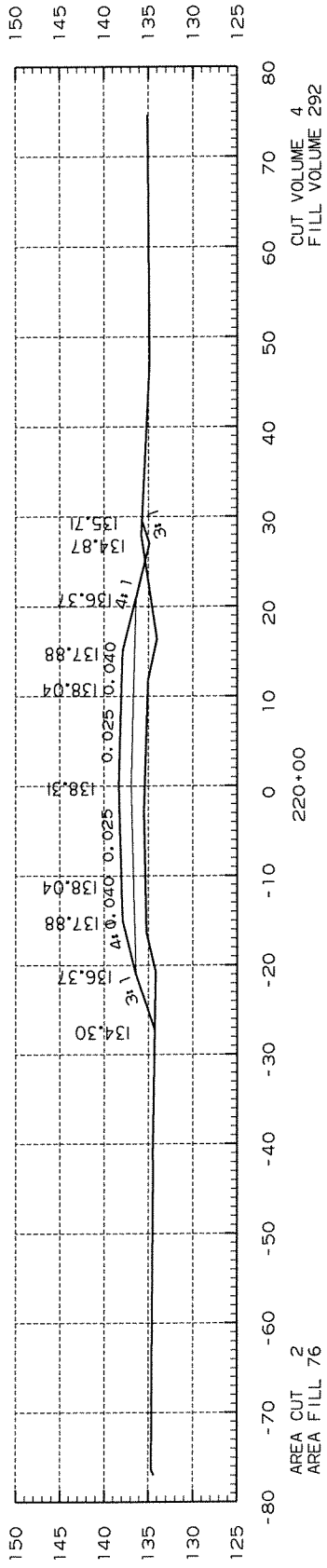
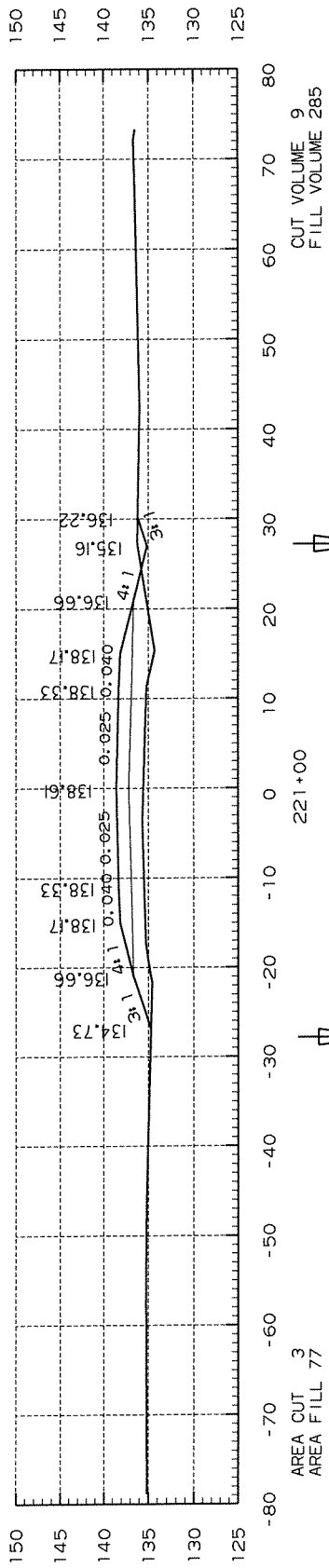


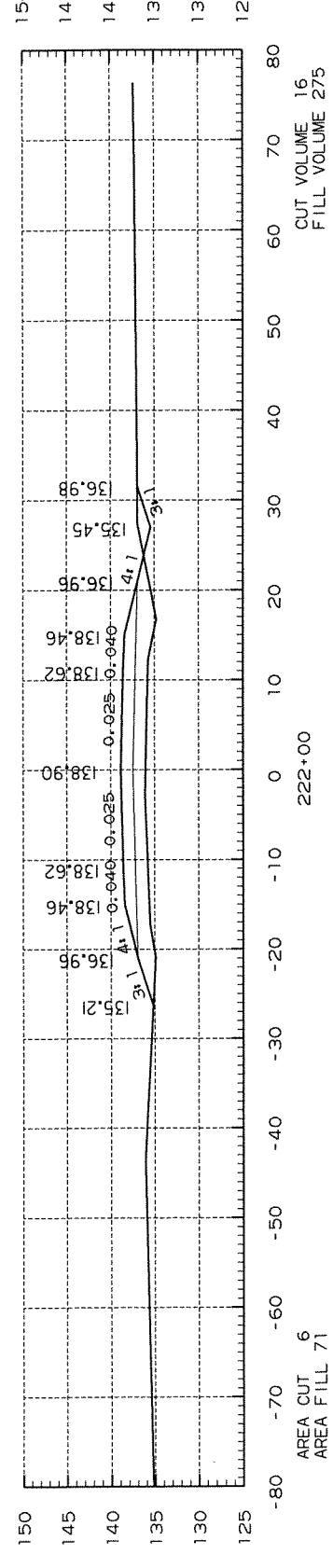
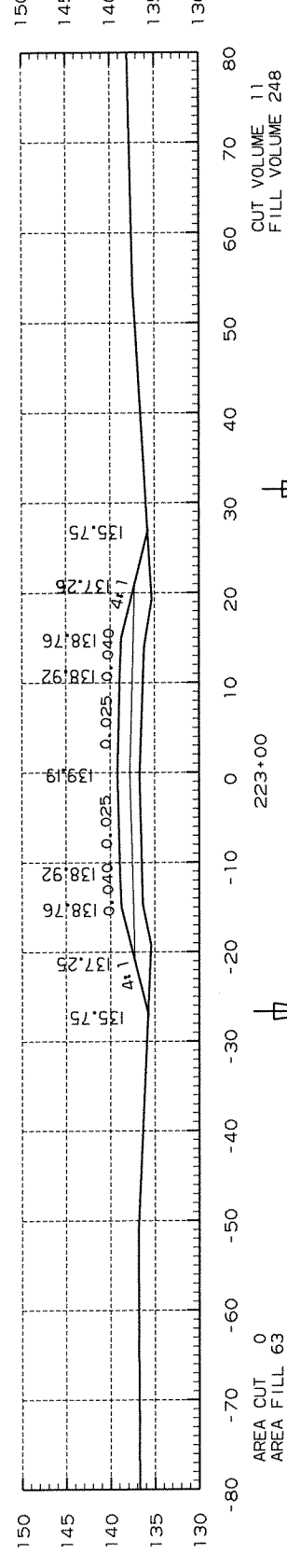
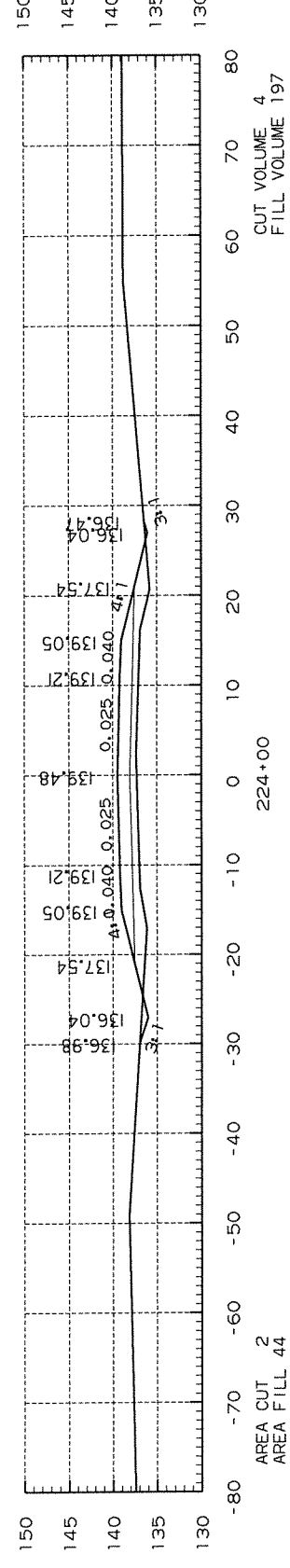
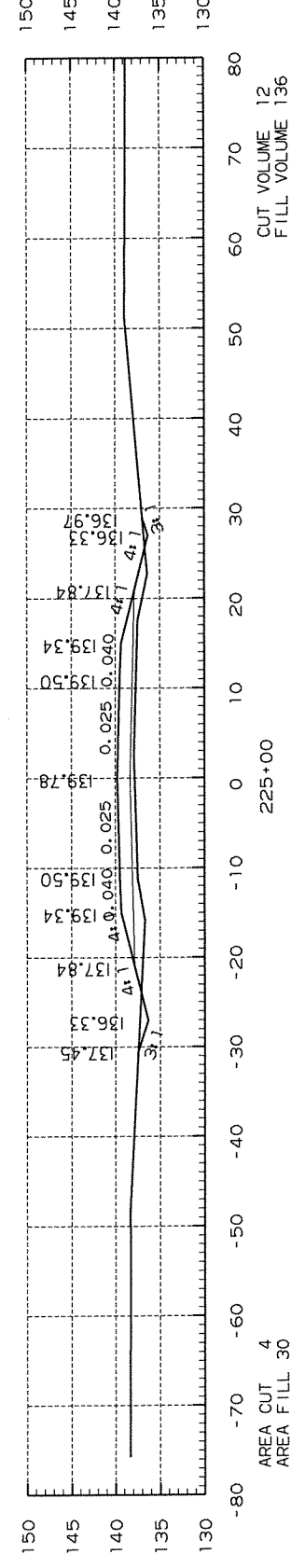
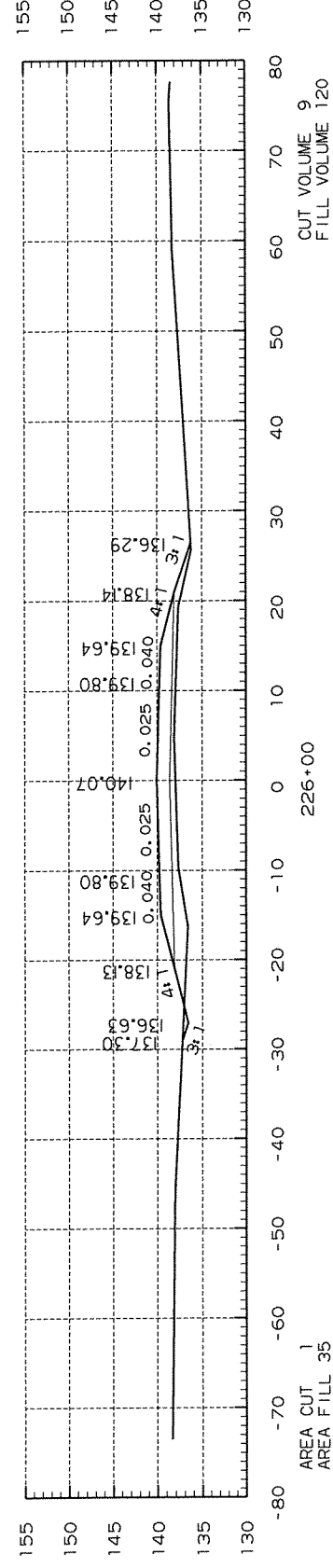
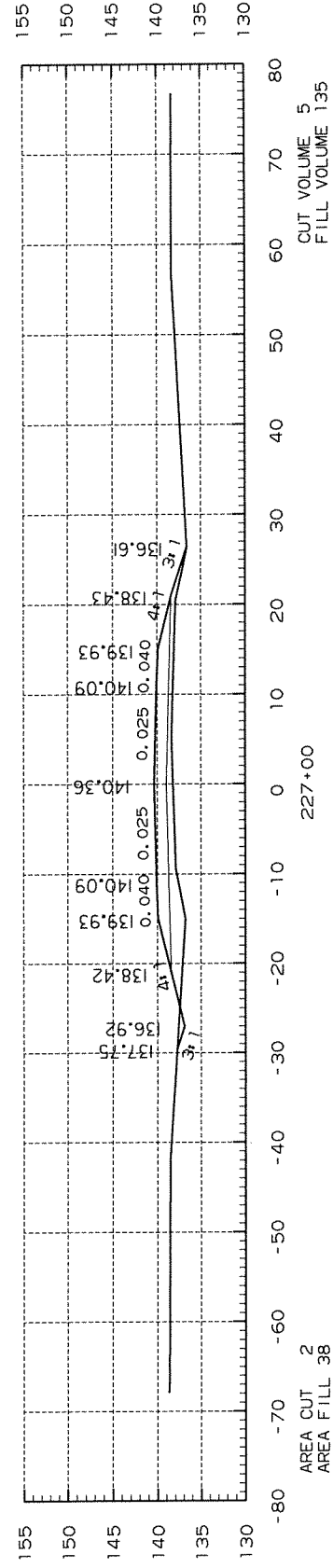
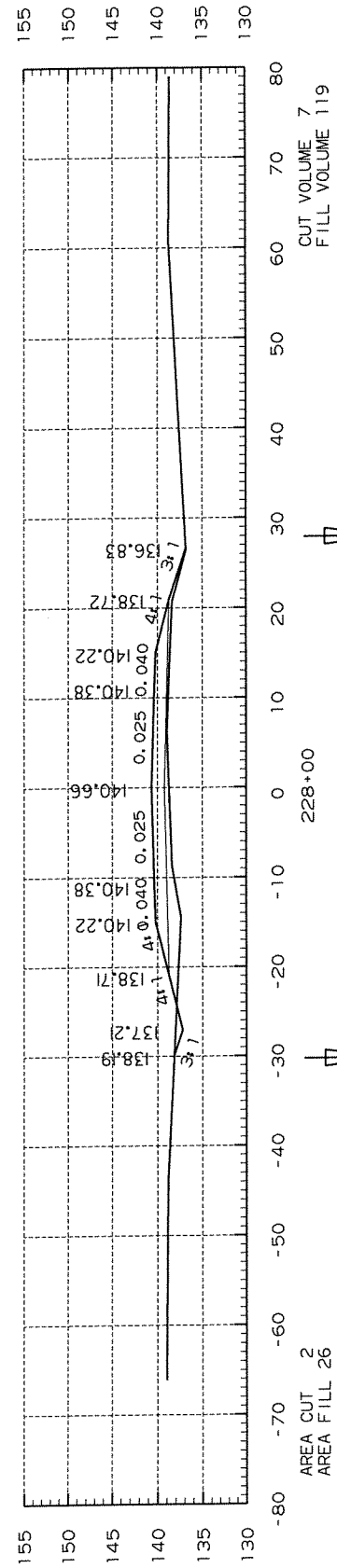
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	36	51

④ STA. 206+00 - STA. 210+00



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	38	51
				④ STA. 217+00 - STA. 221+00				

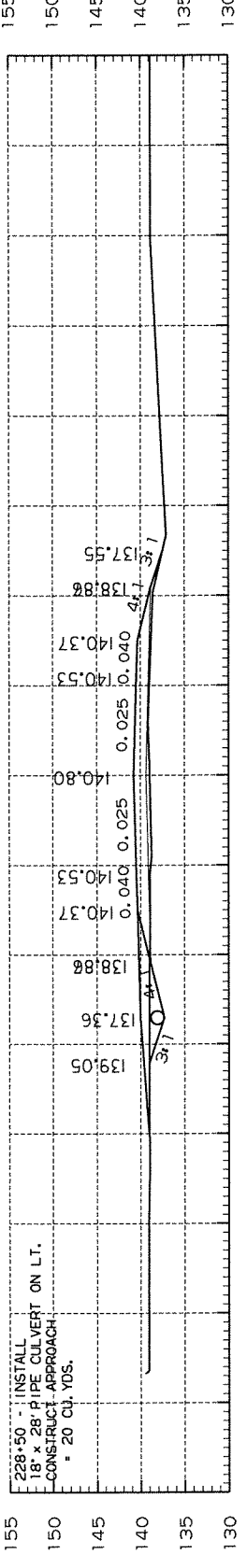
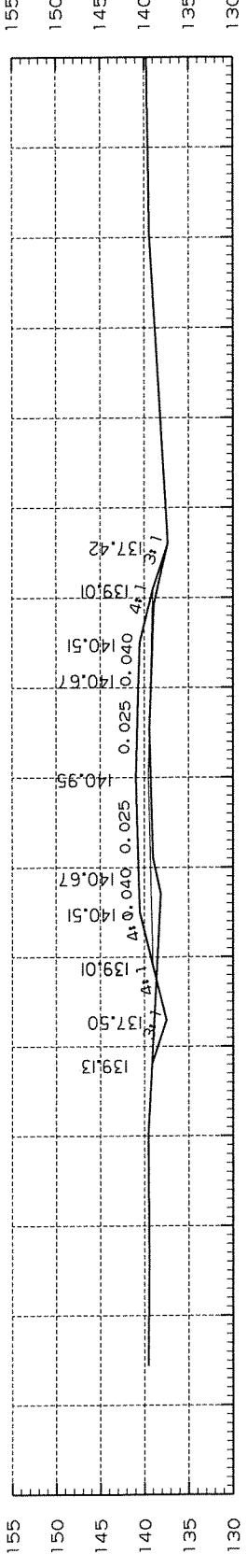
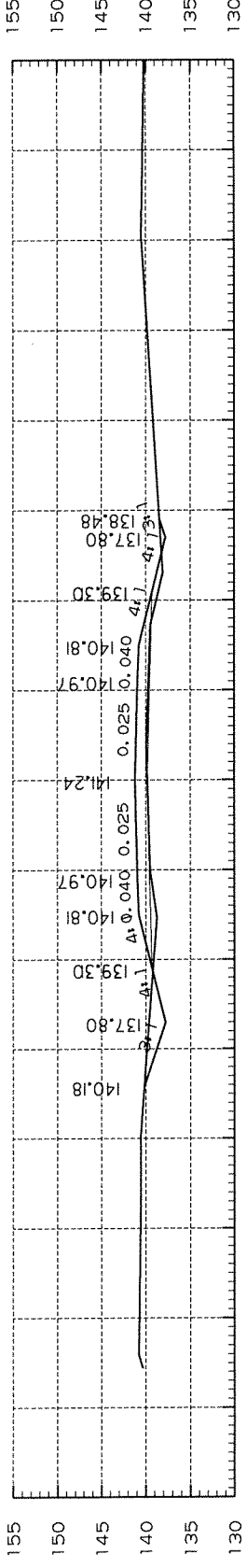
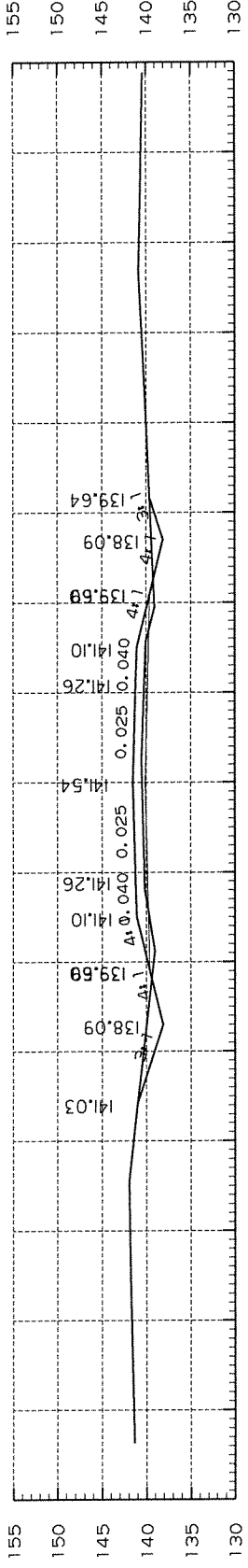
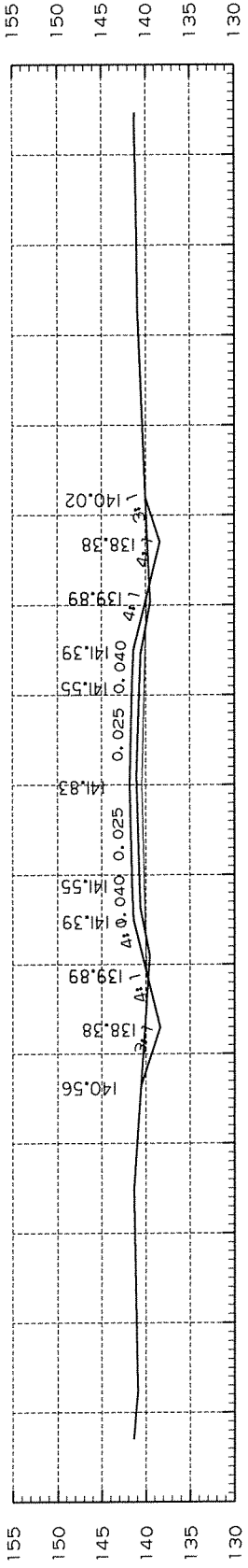
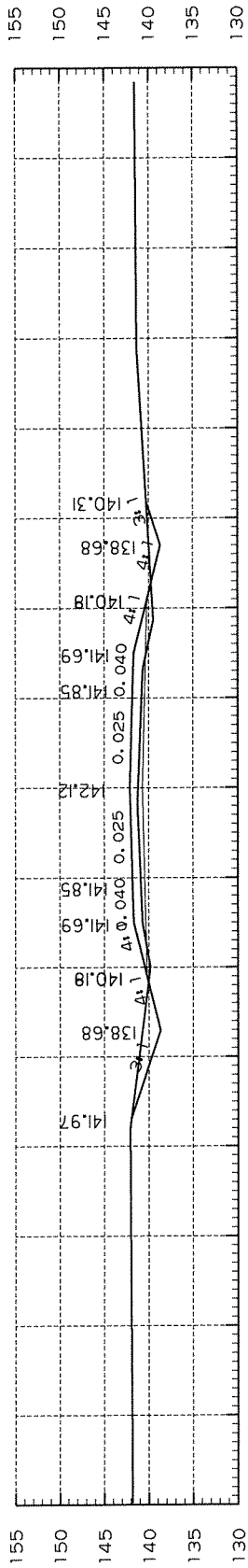




DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	39	51
				STA. 222+00 - STA. 228+00				

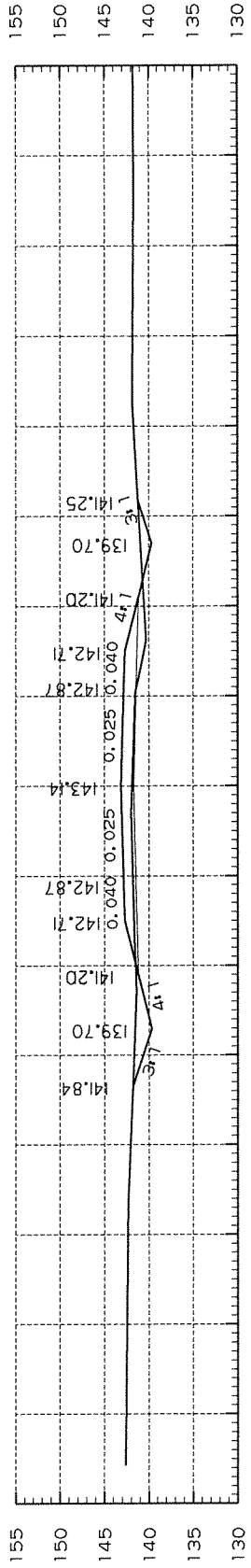
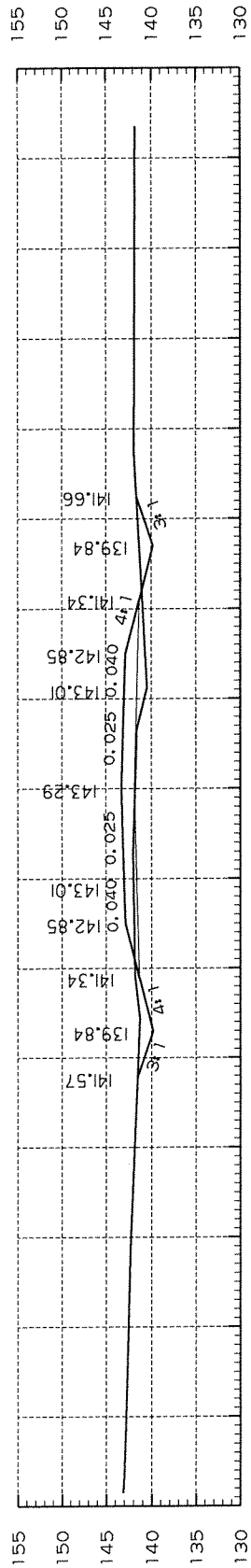
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	40	51

④ STA. 228+50 - STA. 233+00

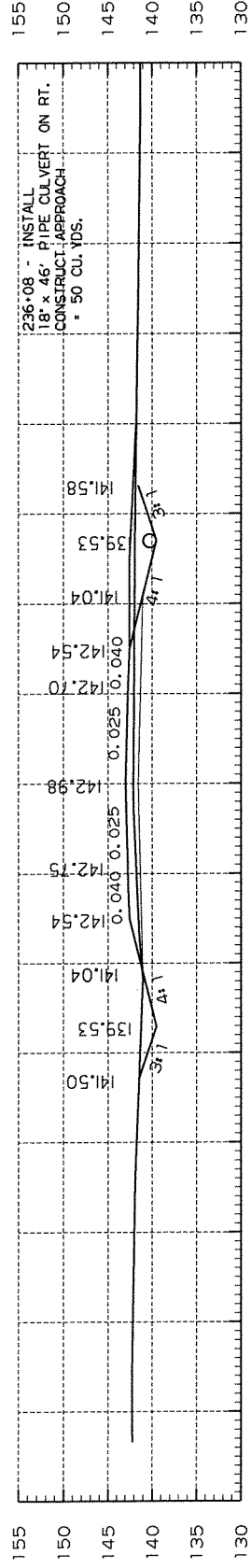


STA. 228+50 - STA. 233+00

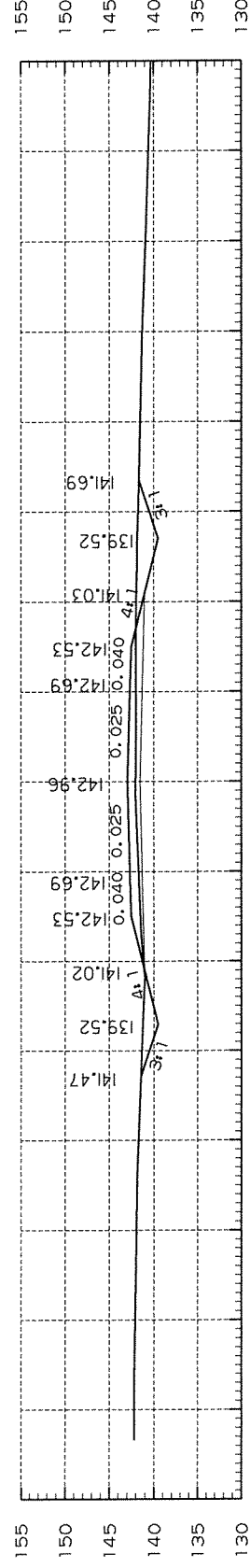
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624		41	51
④ STA. 234+00 - STA. 238+00								



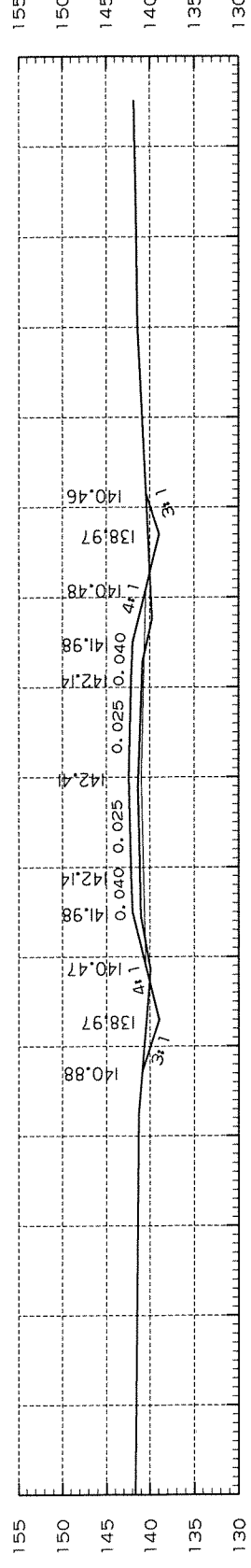
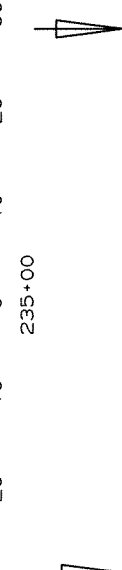
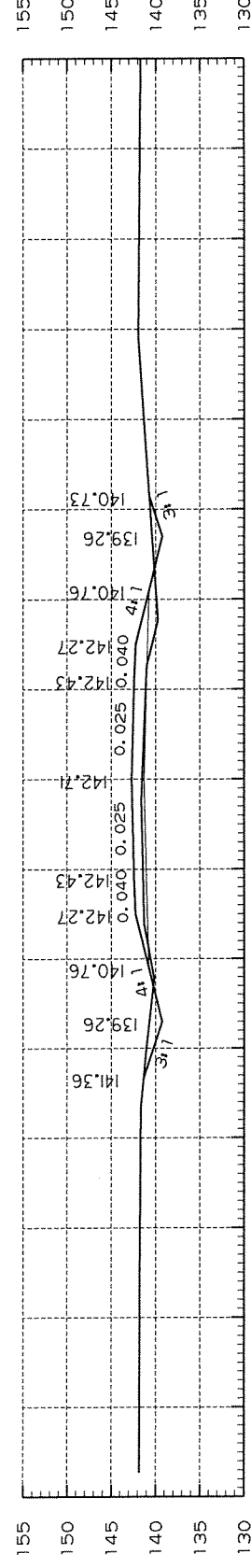
AREA CUT 27
AREA FILL 7



AREA CUT 53
AREA FILL 0

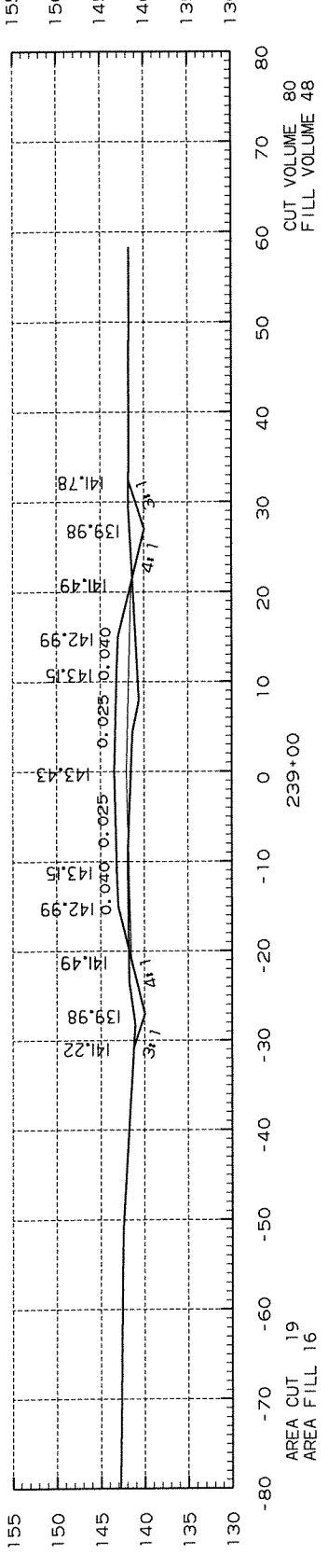
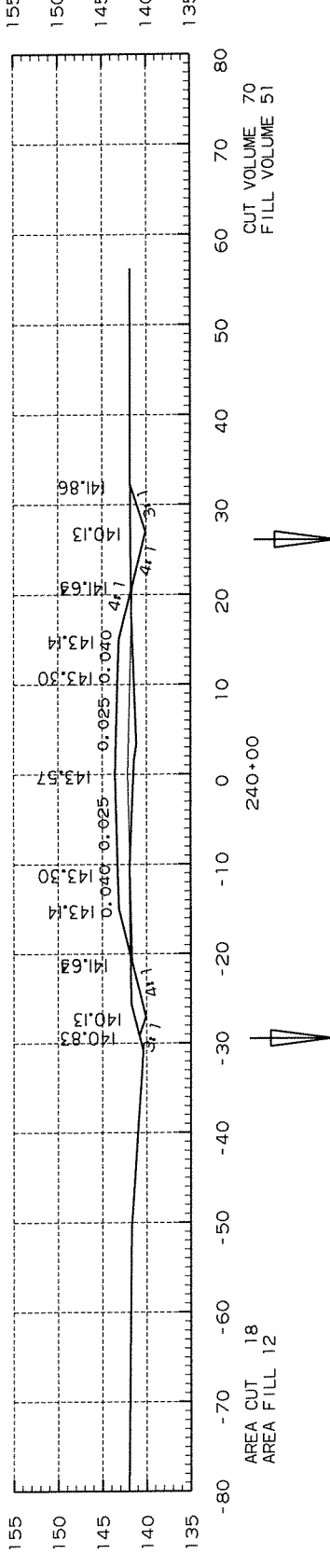
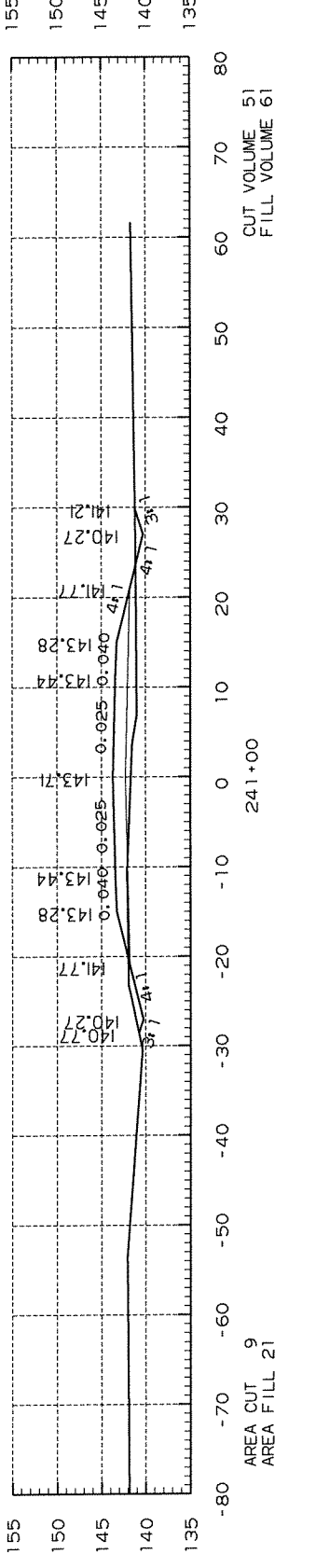
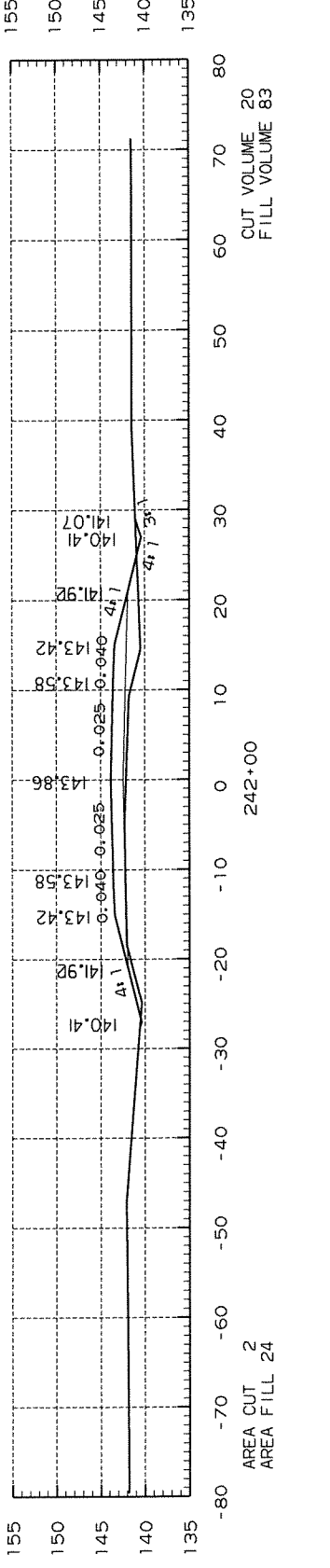
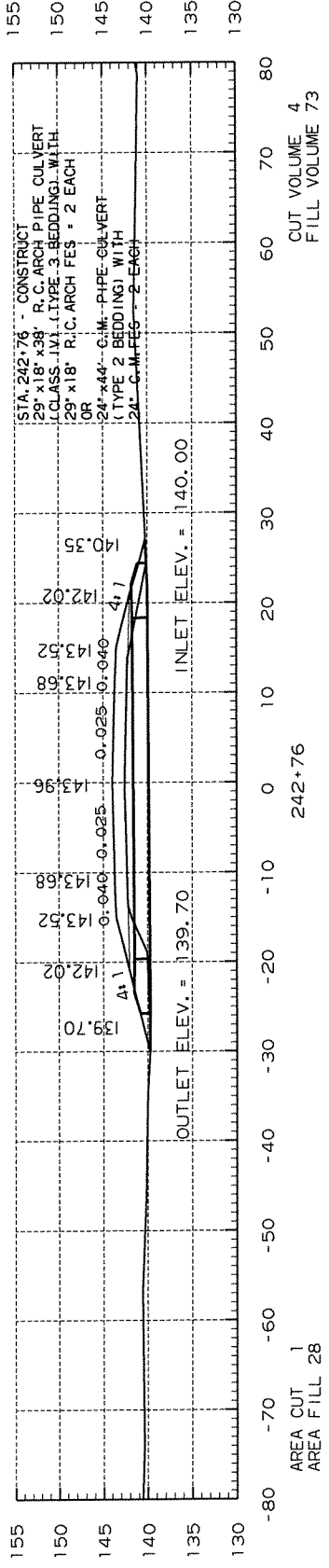
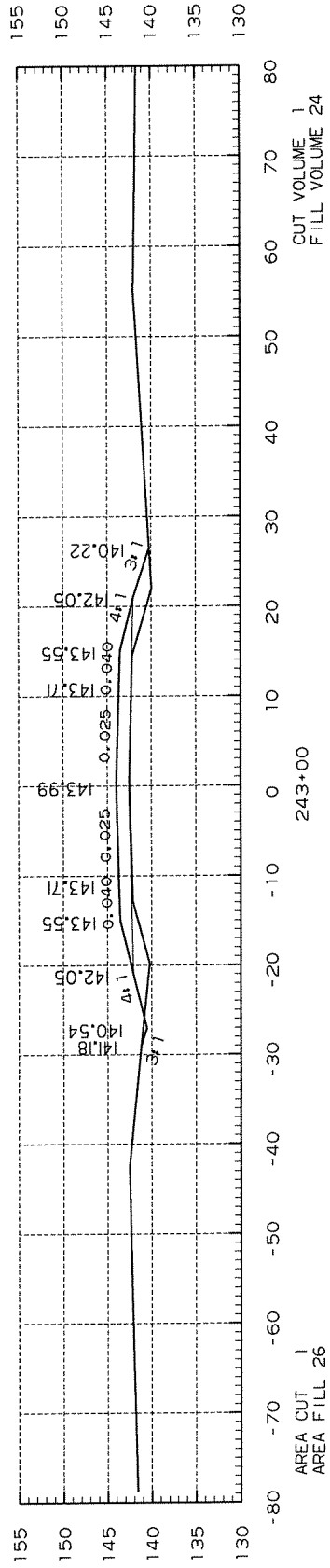
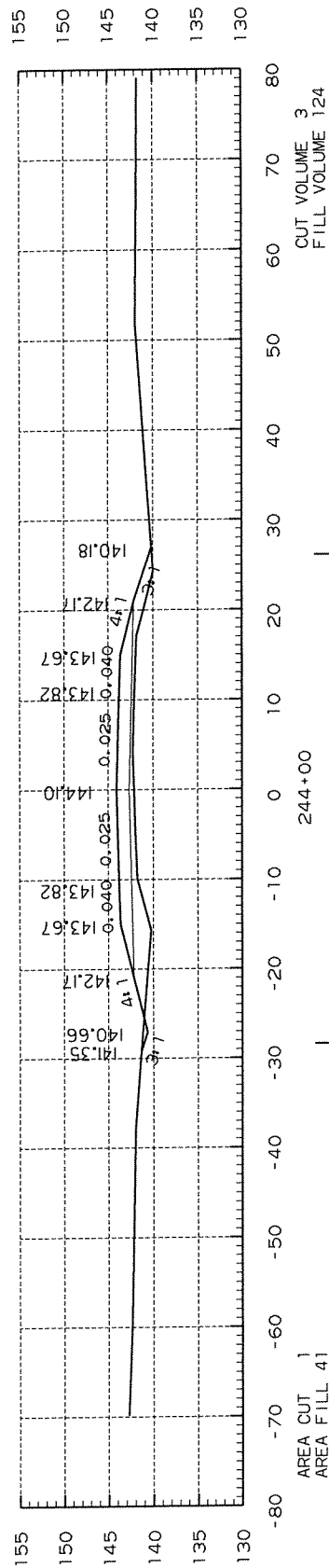


AREA CUT 52
AREA FILL 0



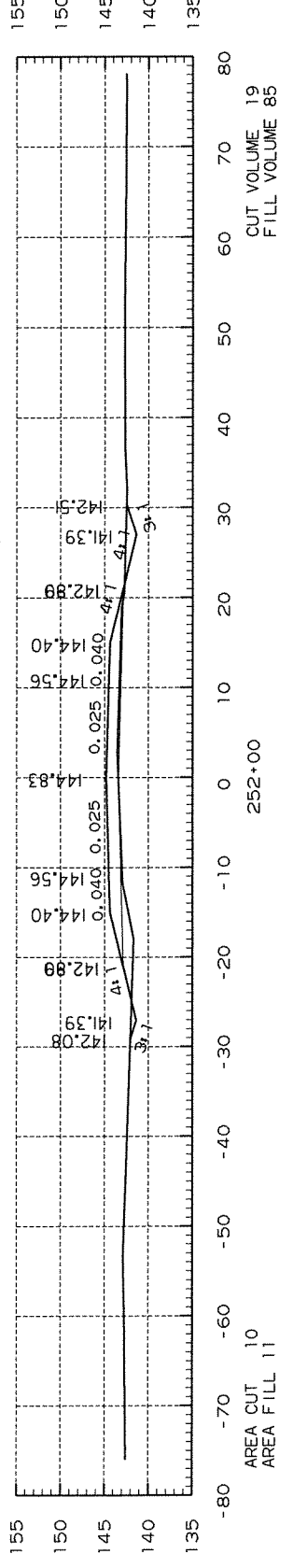
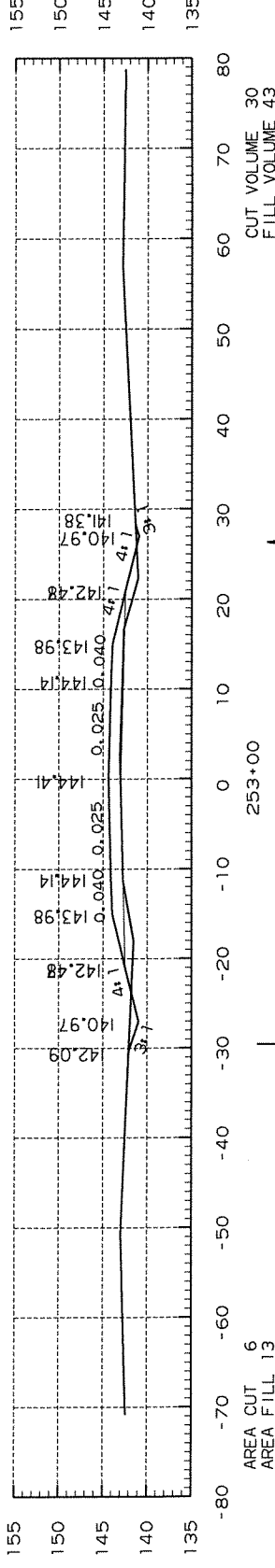
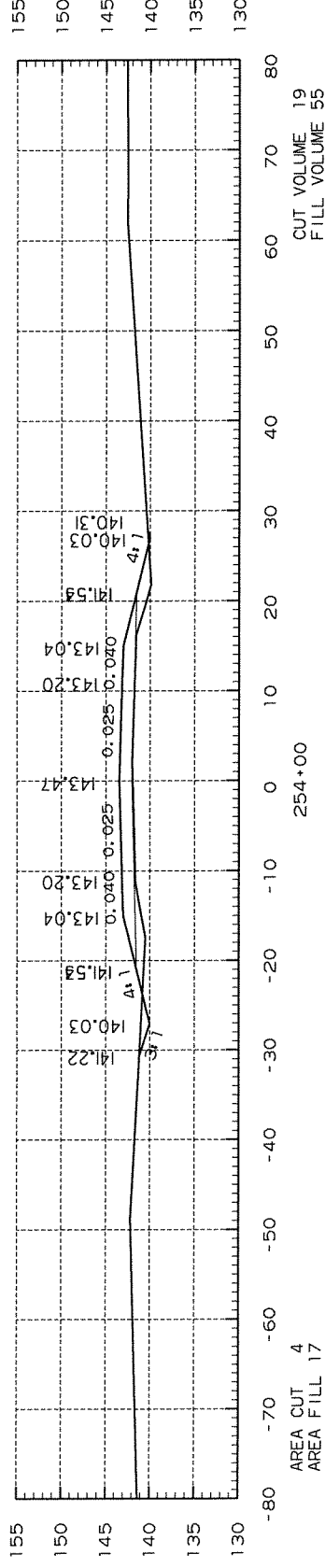
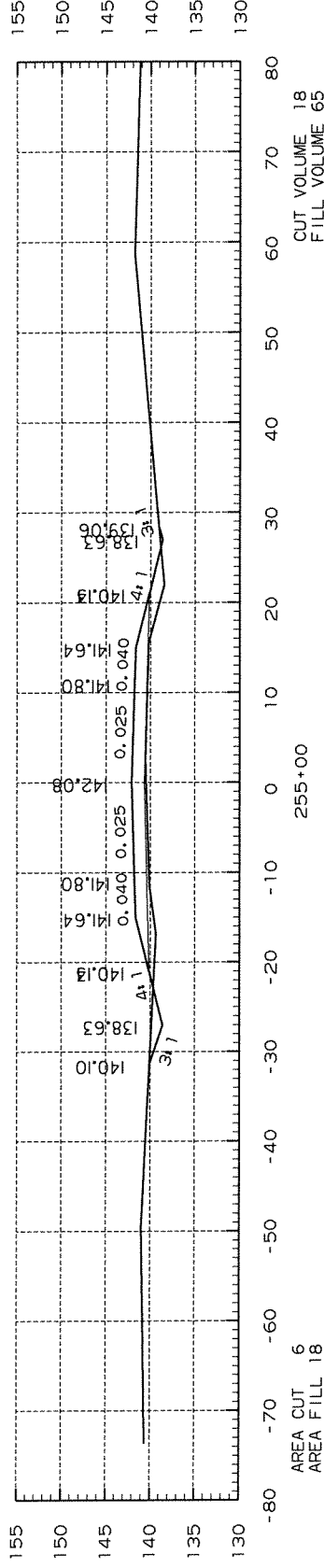
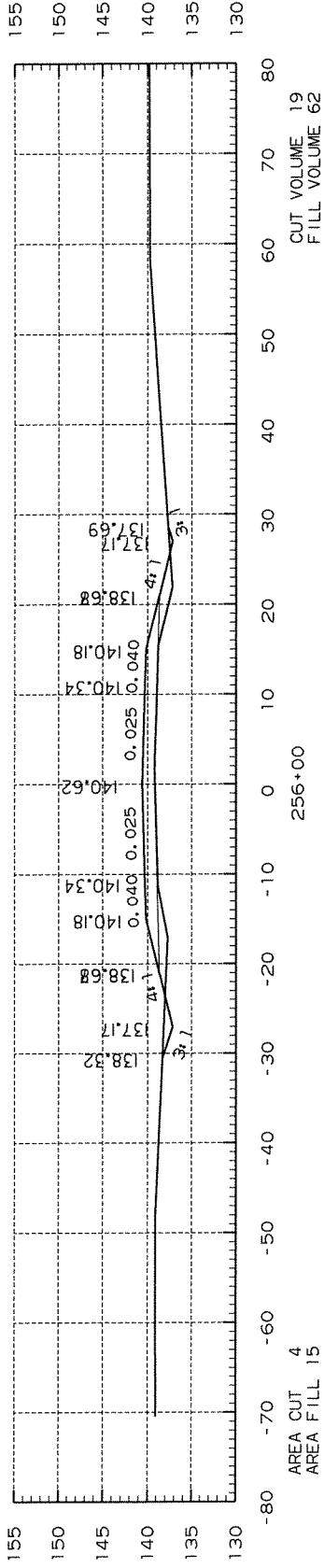
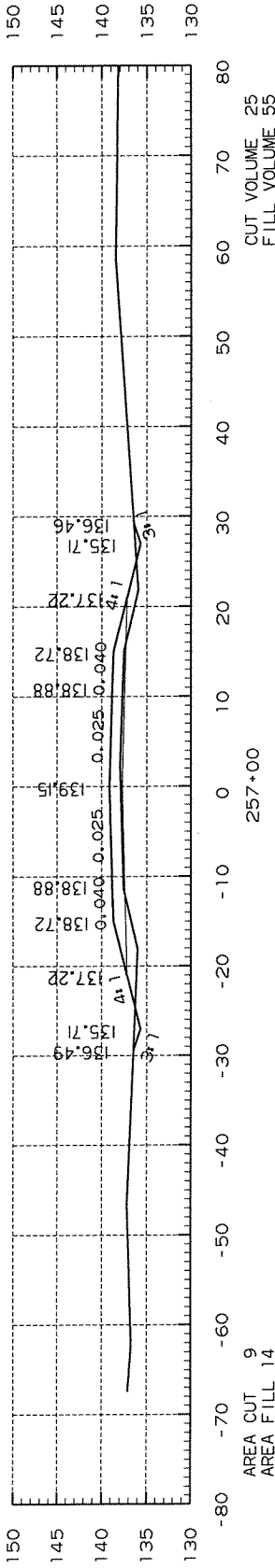
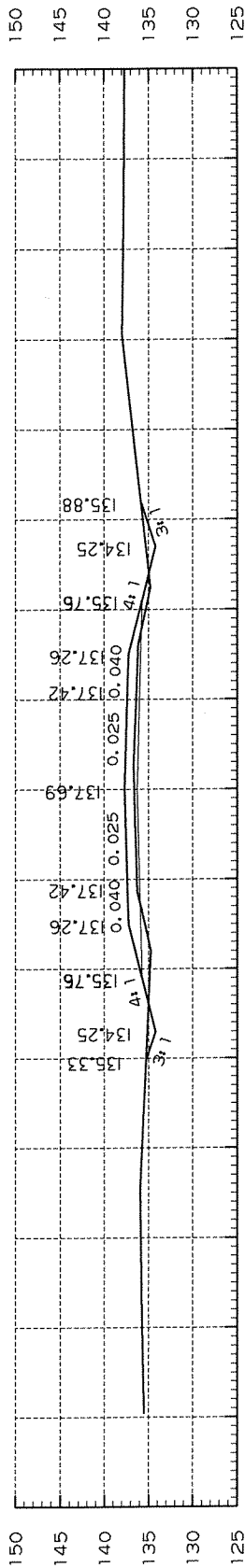
AREA CUT 24
AREA FILL 5

STA. 234+00 - STA. 238+00



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	44	51

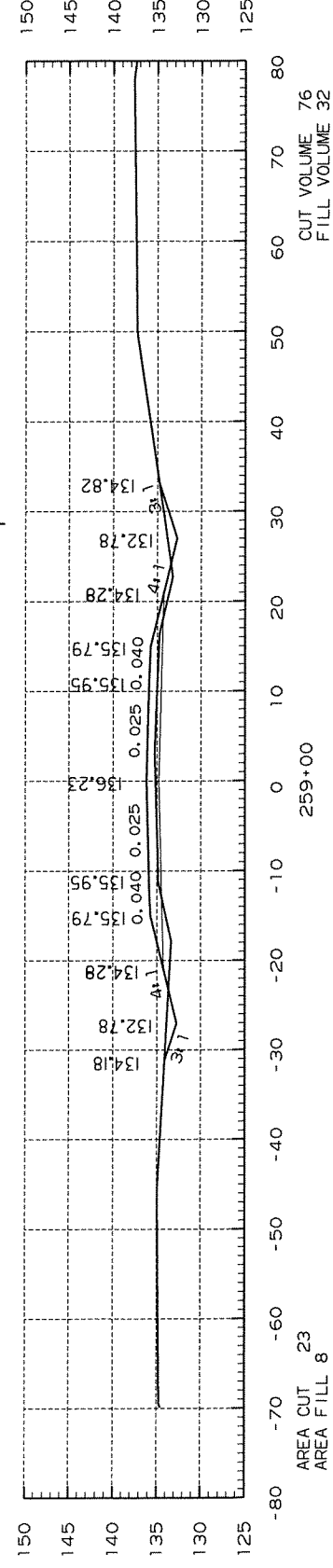
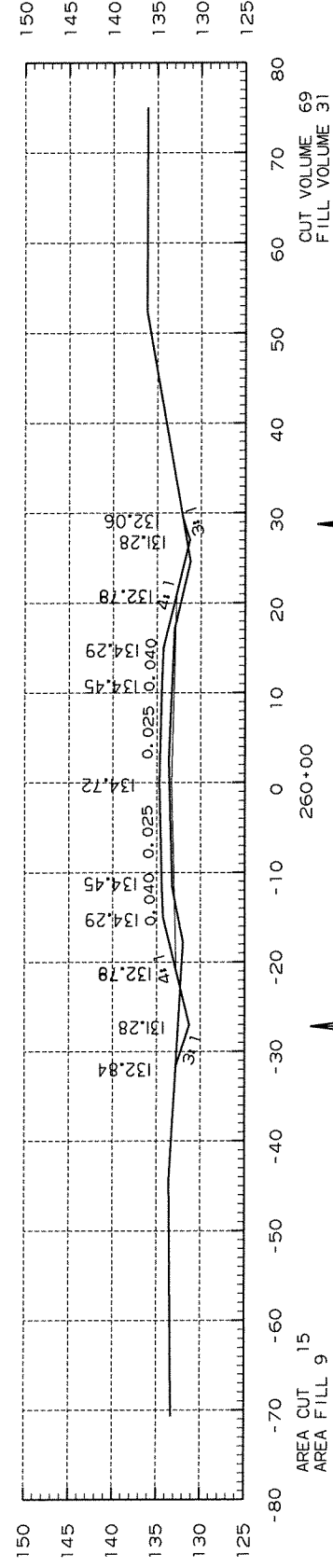
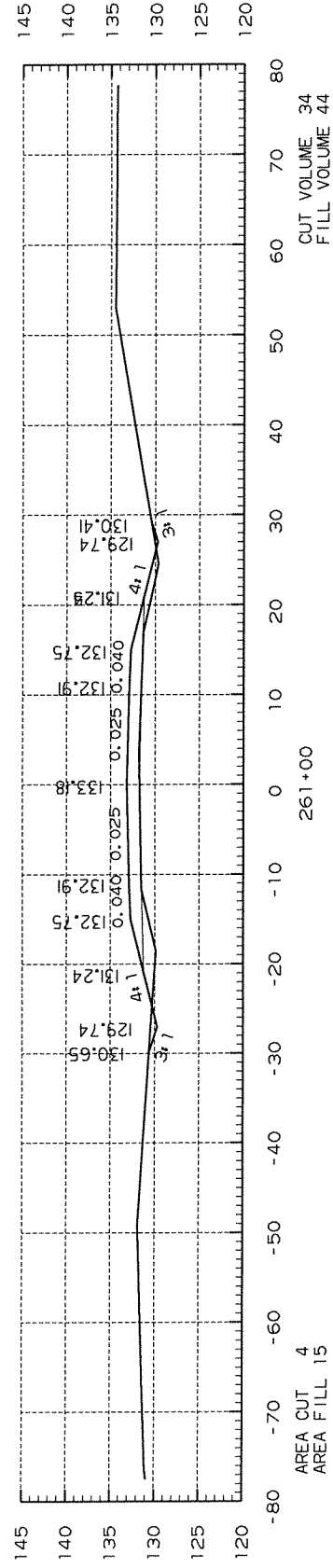
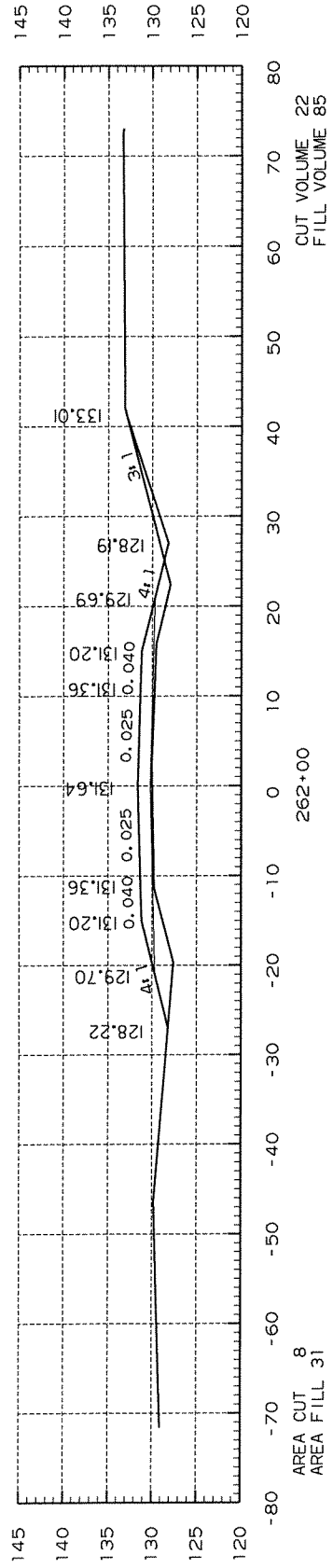
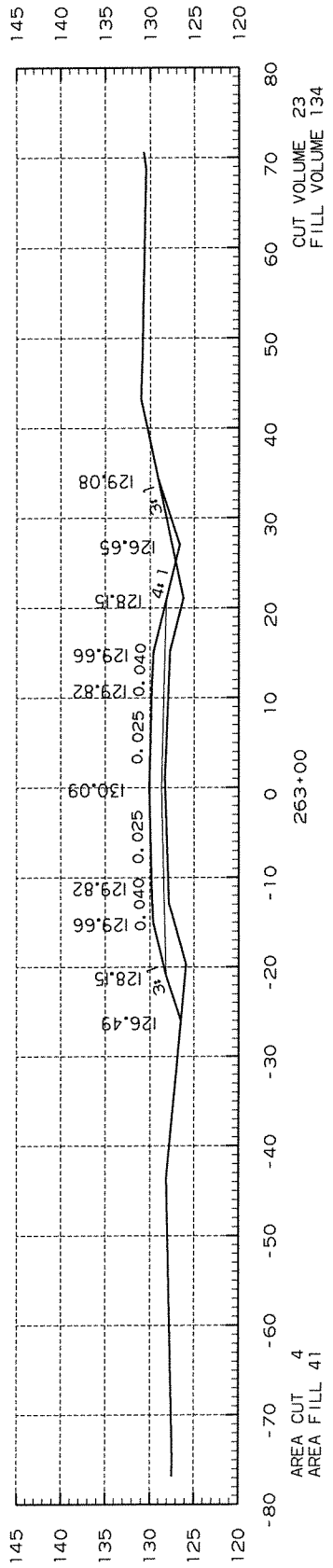
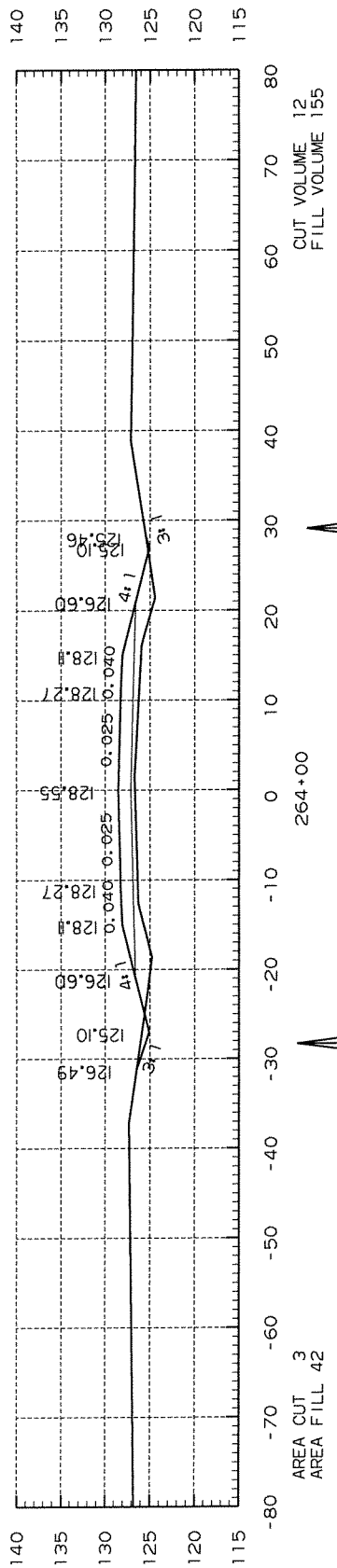
④ STA. 252+00 - STA. 258+00



STA. 252+00 - STA. 258+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	45	51

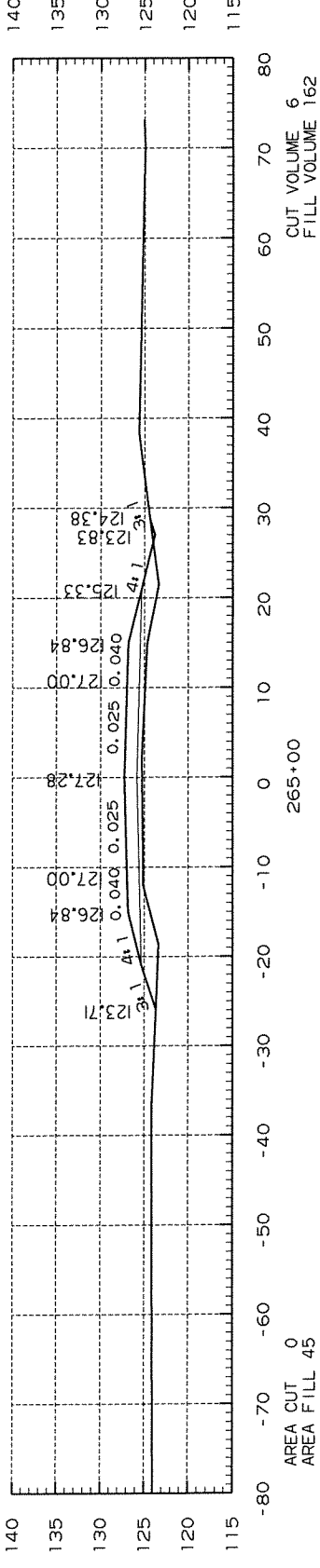
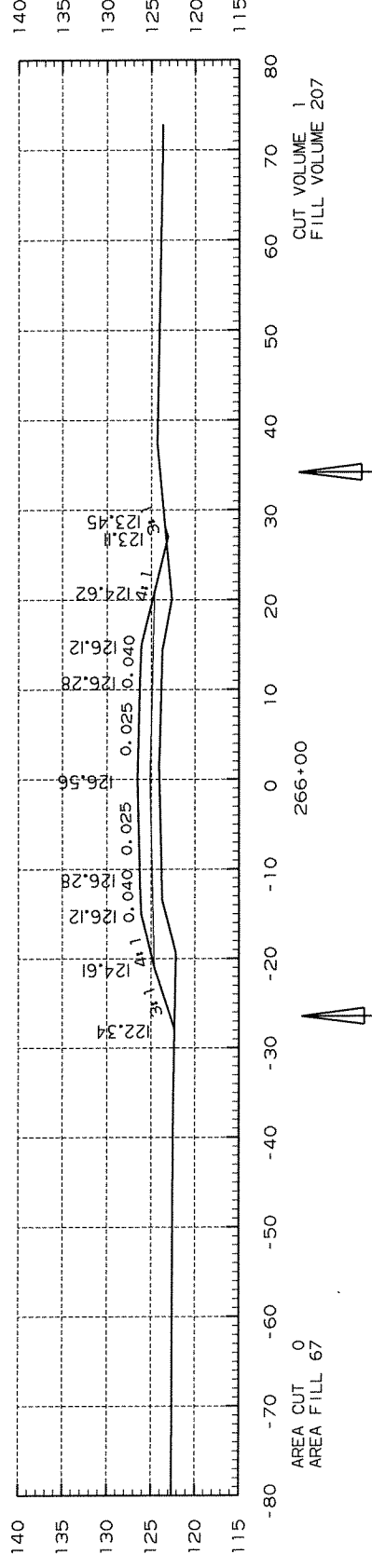
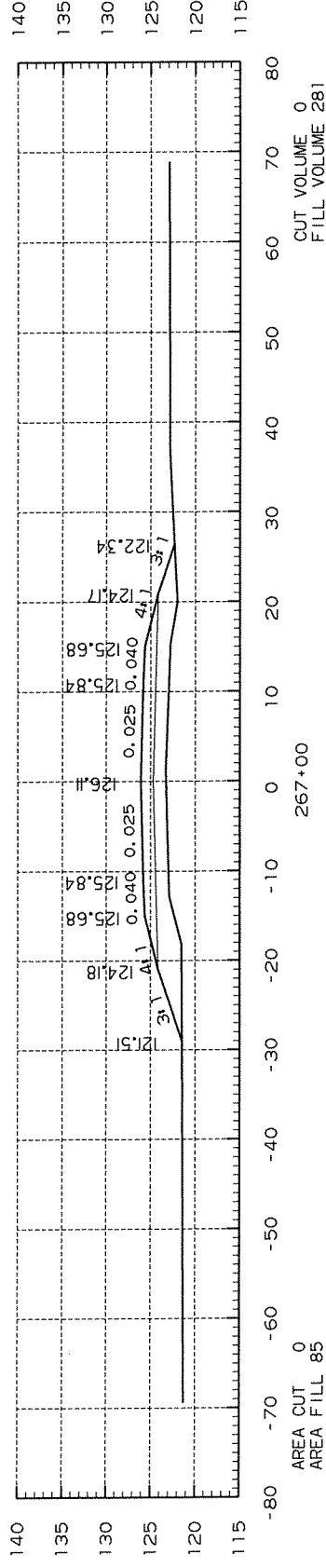
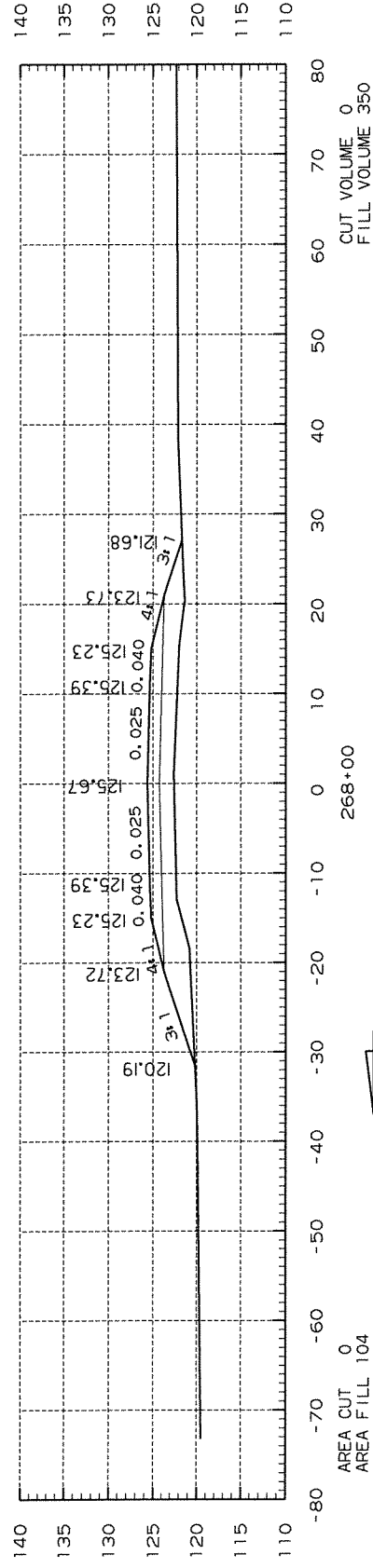
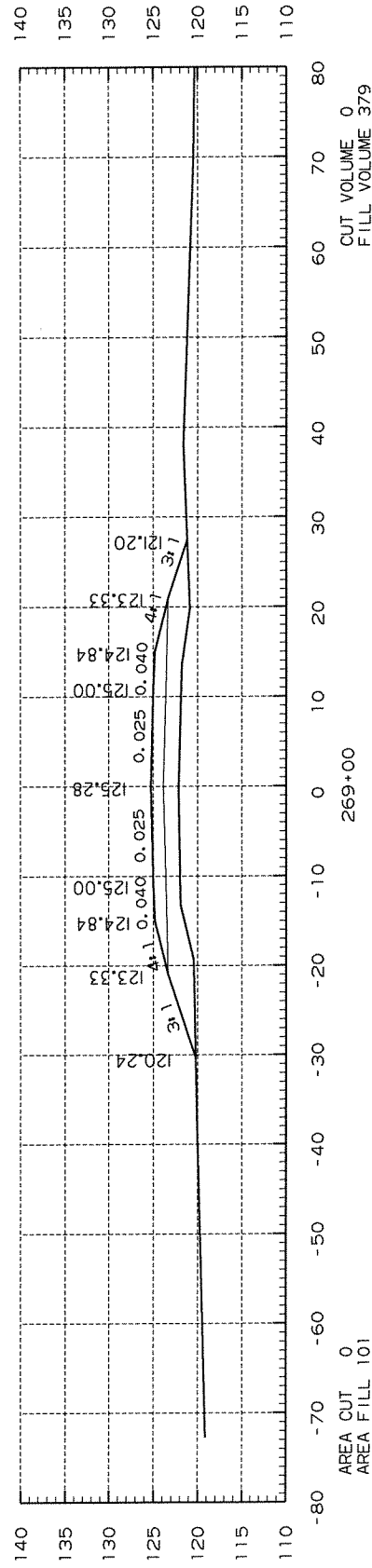
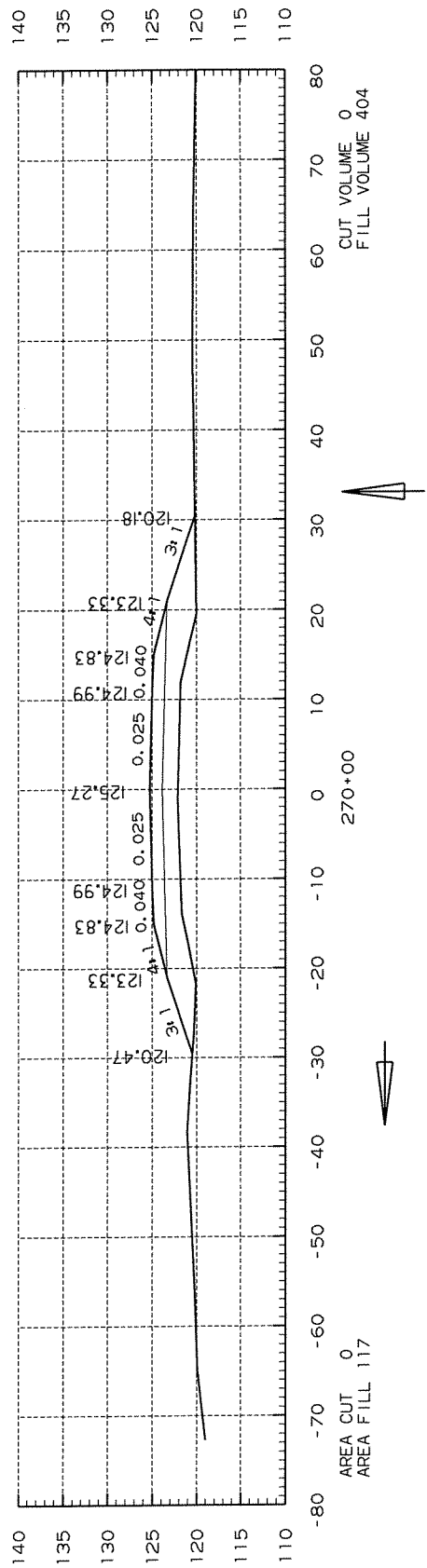
4 STA. 259+00 - STA. 264+00



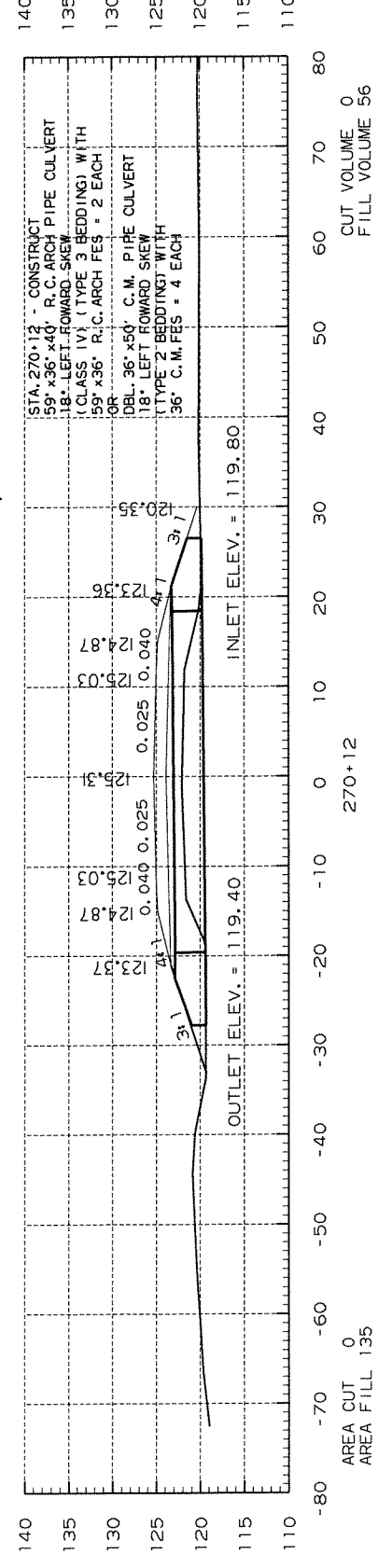
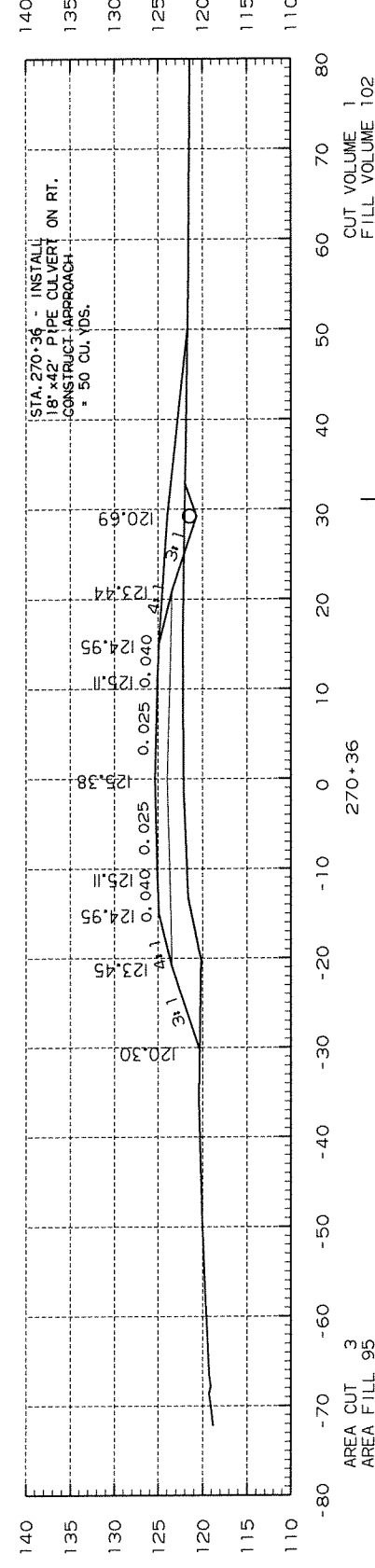
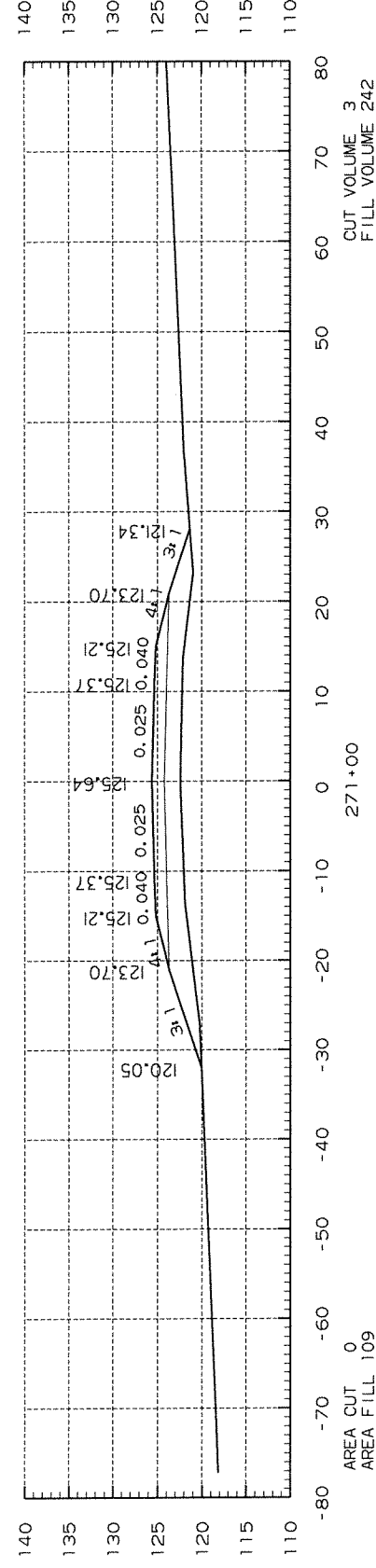
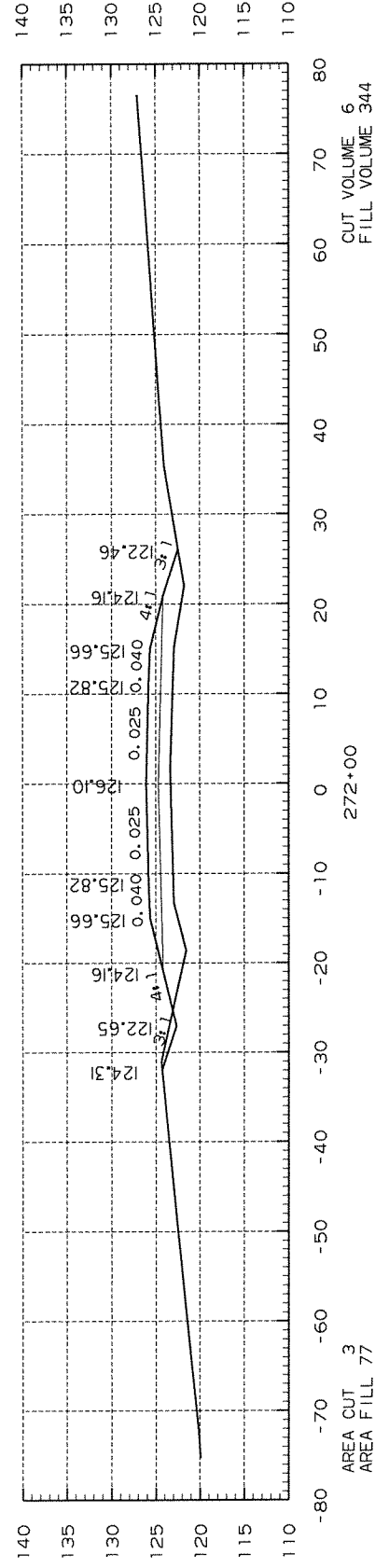
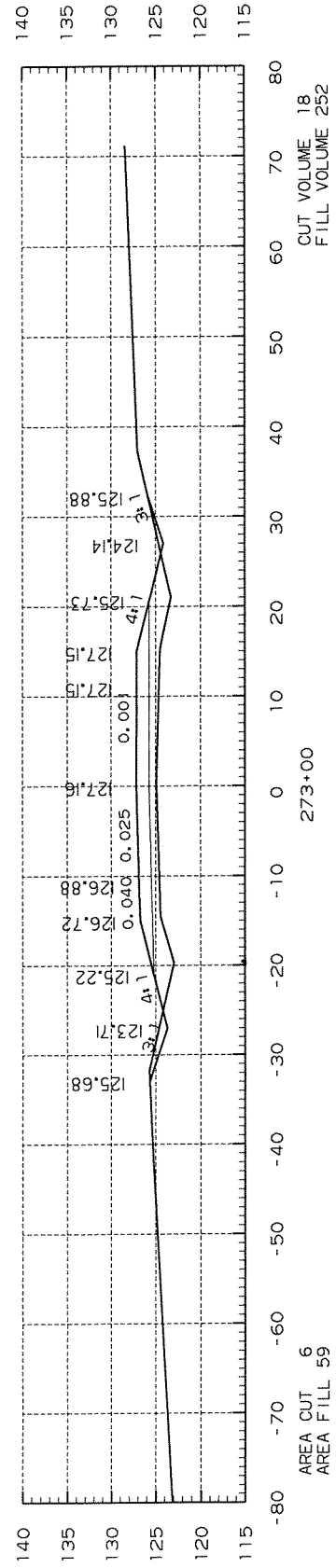
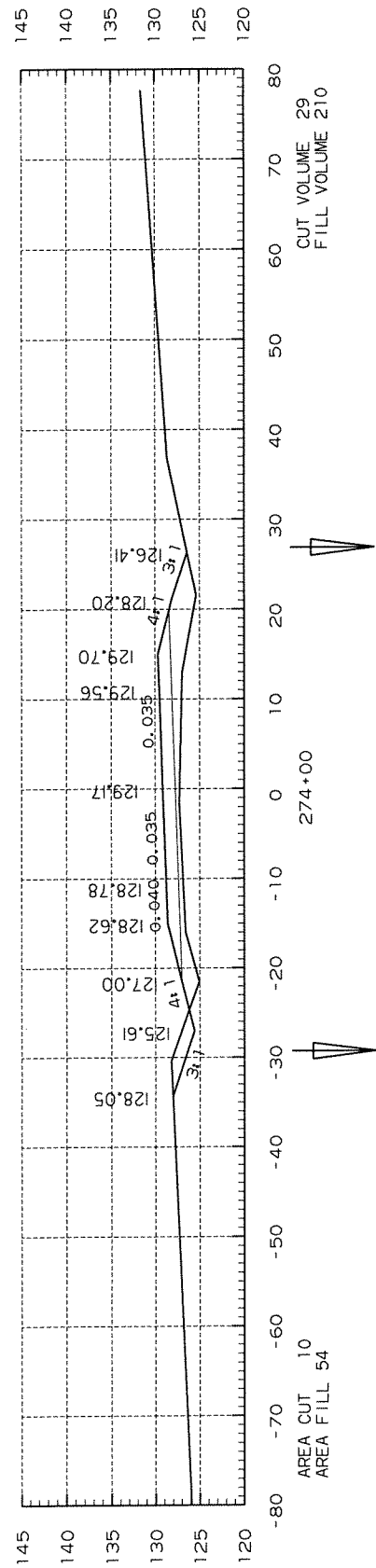
STA. 259+00 - STA. 264+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624		46	51

④ STA. 265+00 - STA. 270+00



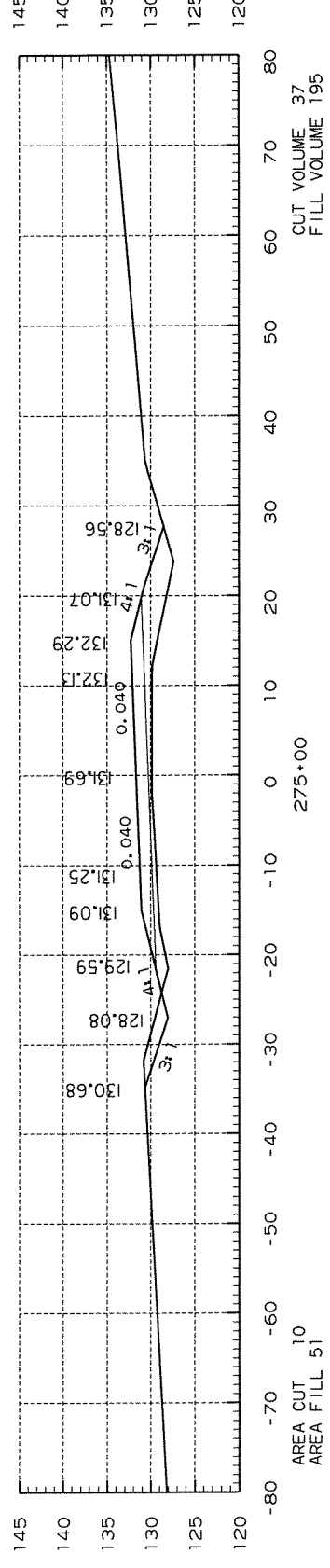
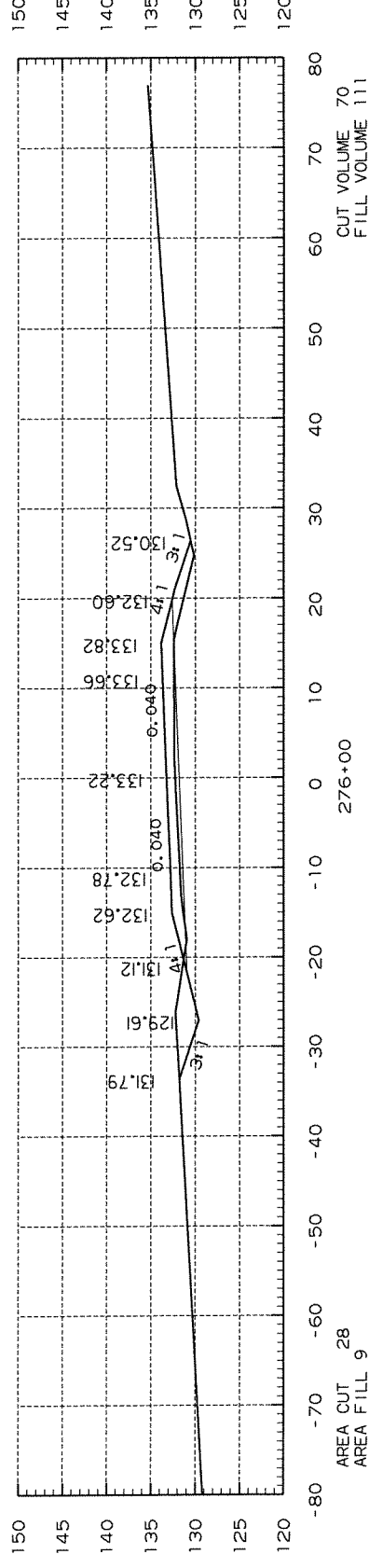
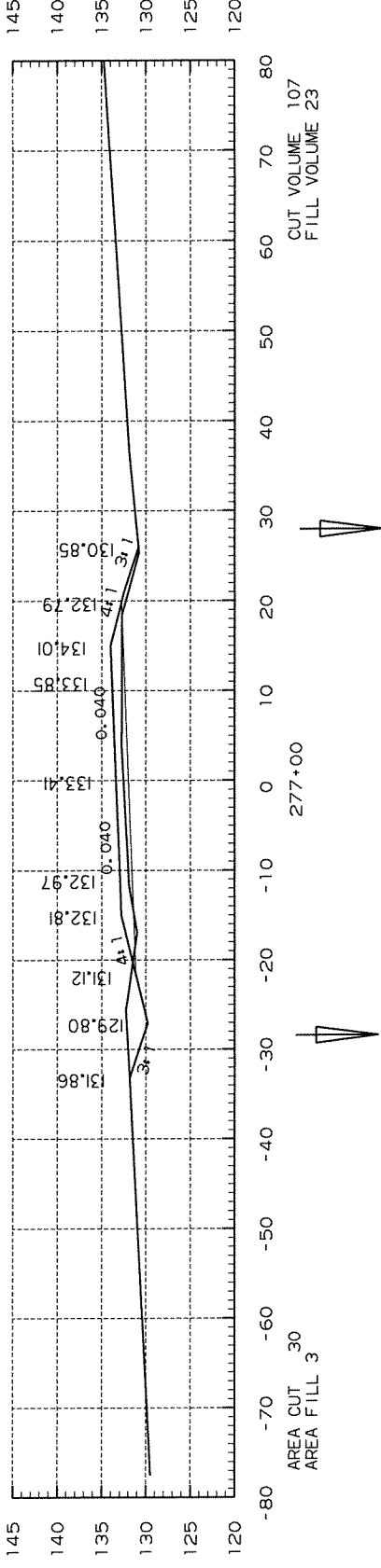
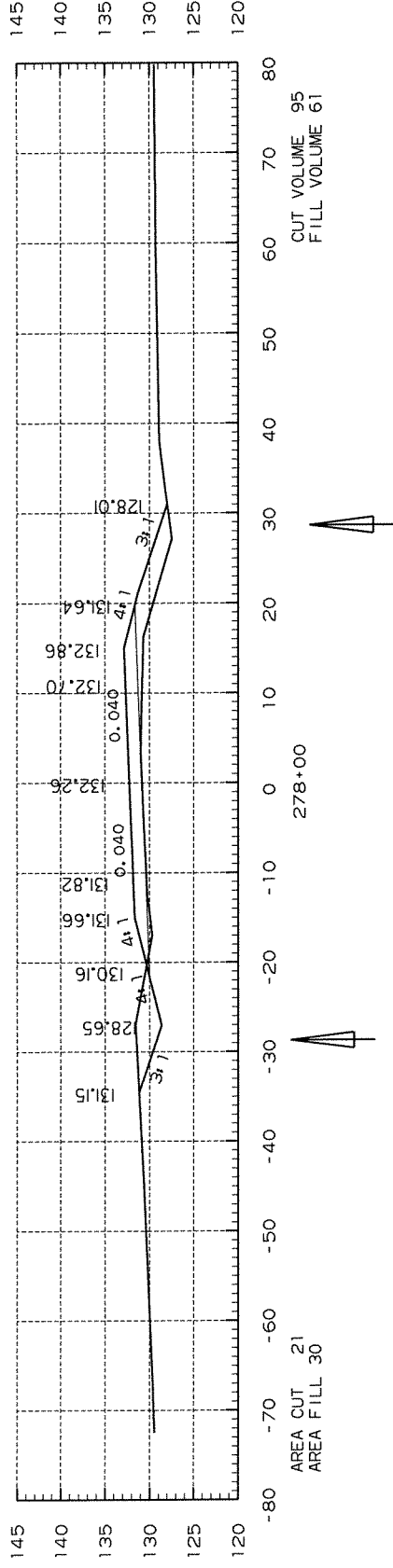
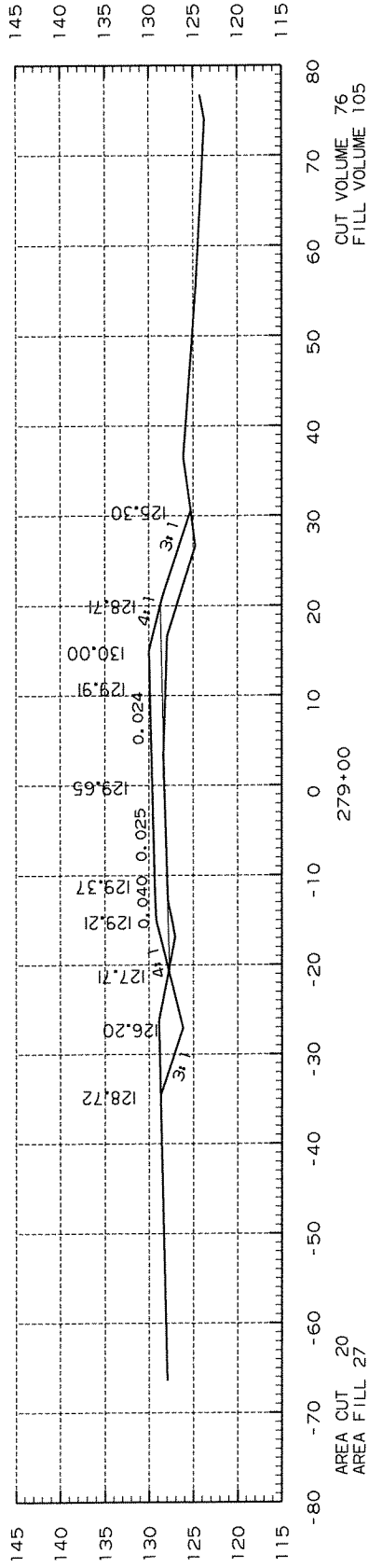
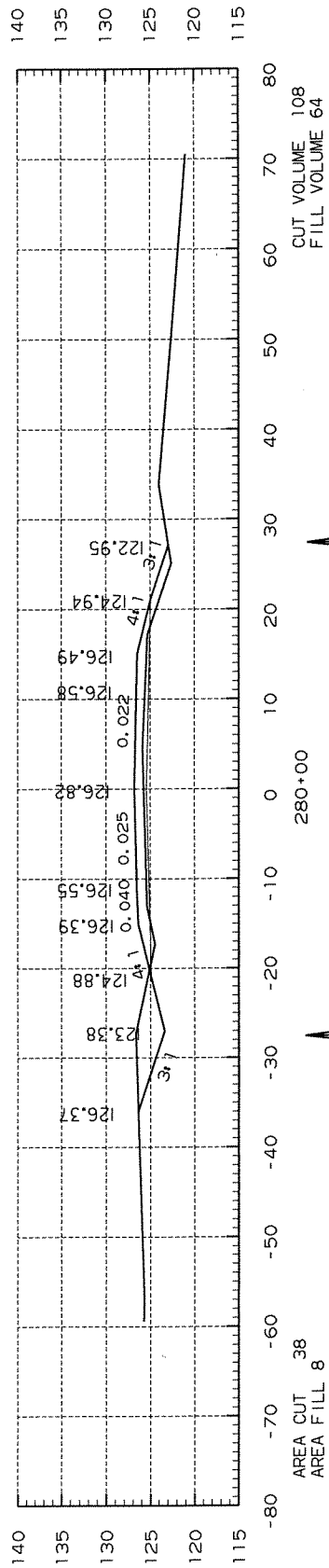
STA. 265+00 - STA. 270+00



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	47	51

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	48	51

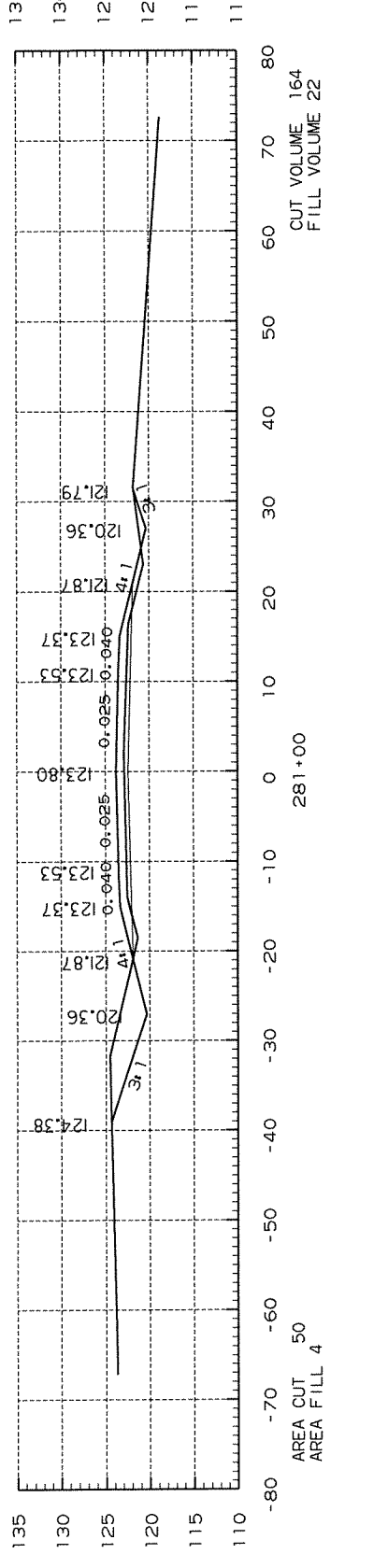
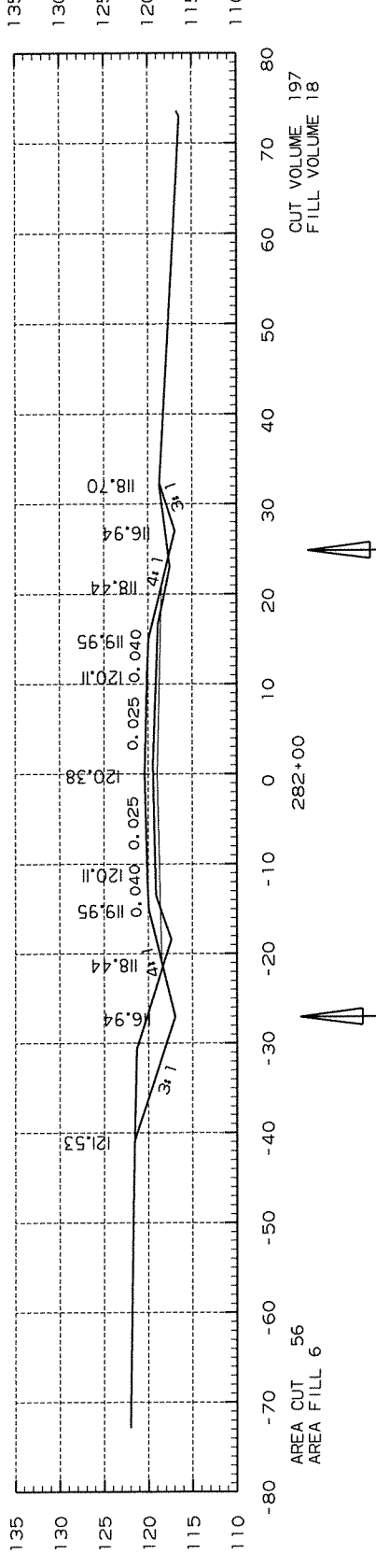
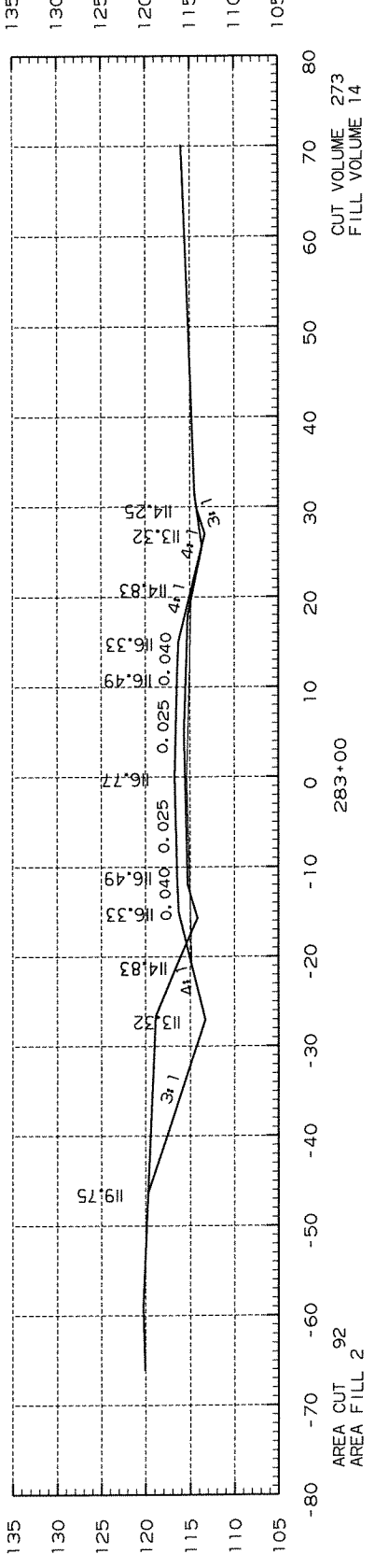
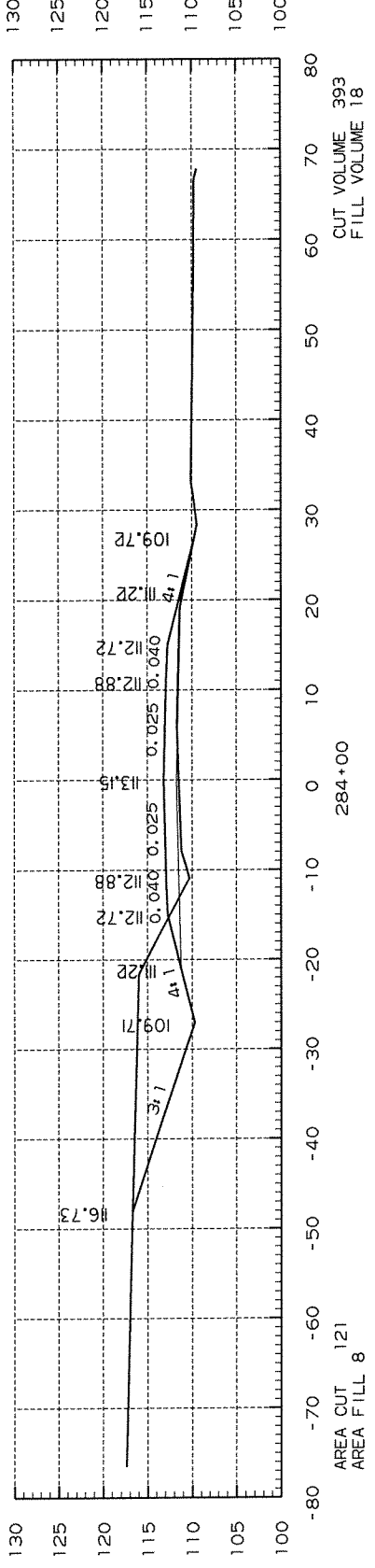
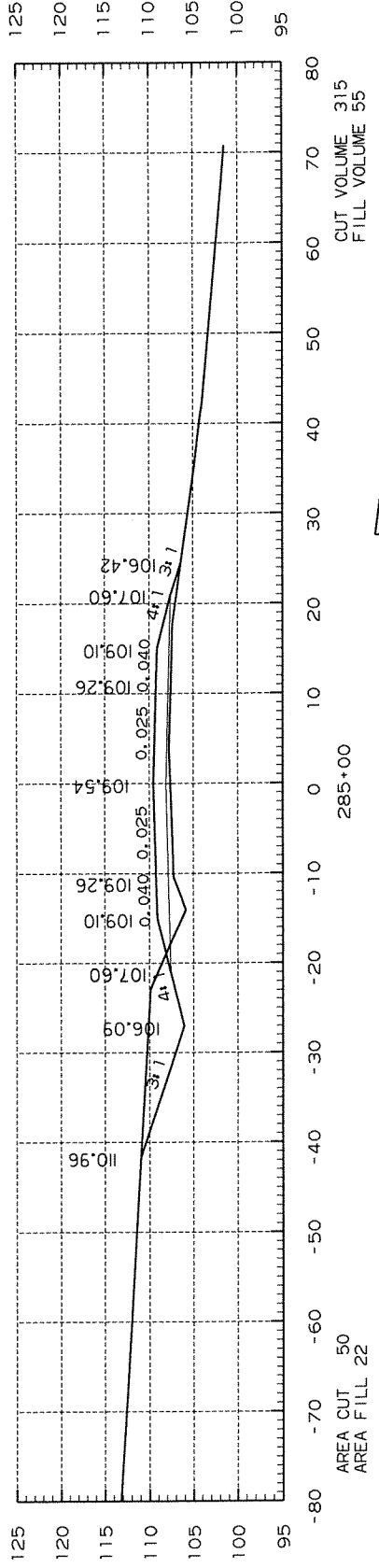
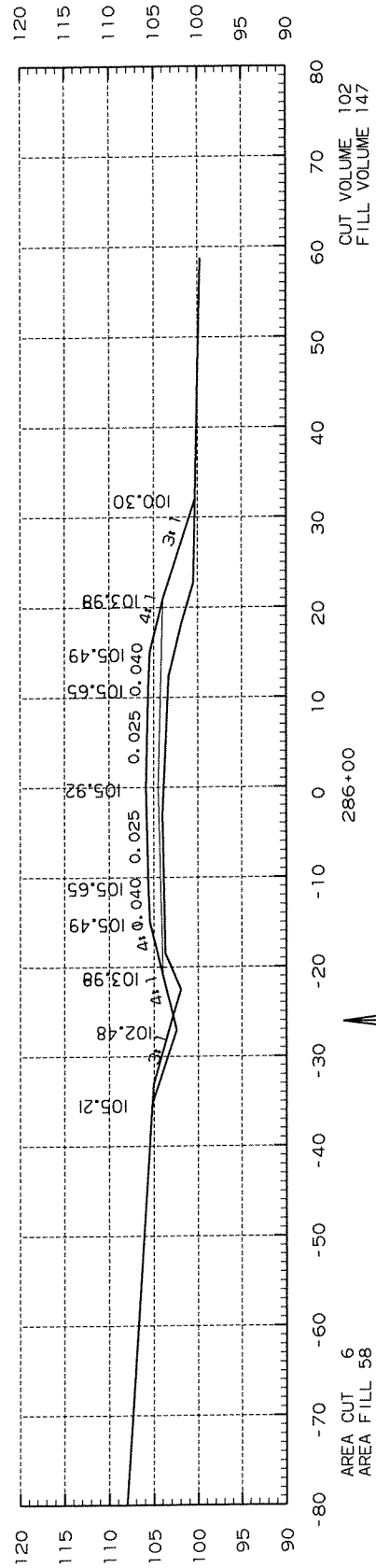
④ STA. 275+00 - STA. 280+00



STA. 275+00 - STA. 280+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA0624	49	51

4 STA. 281+00 - STA. 286+00



STA. 281+00 - STA. 286+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	FA0624	50	51	
④ STA. 287+00 - STA. 292+00								

