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.		BR4906	1	85
				(4)	MAZARN CREEK STR. & APPRS. (S)			

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

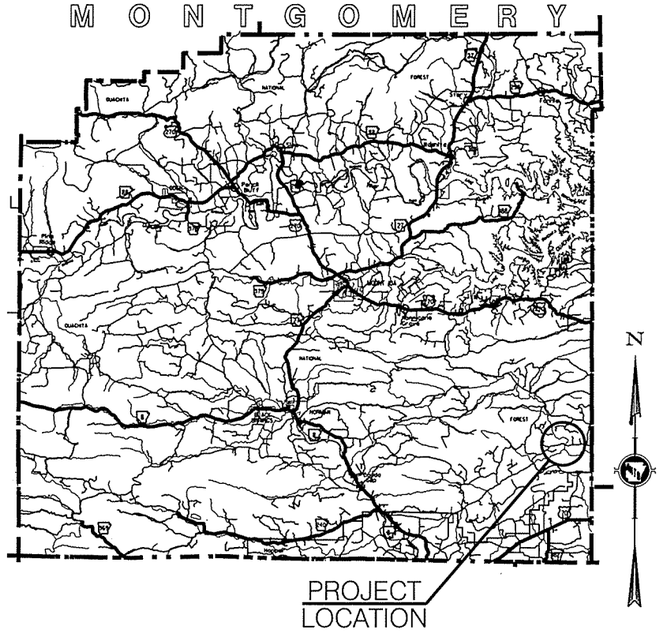
MAZARN CREEK STR. & APPRS. (S)

CO. RD. 34

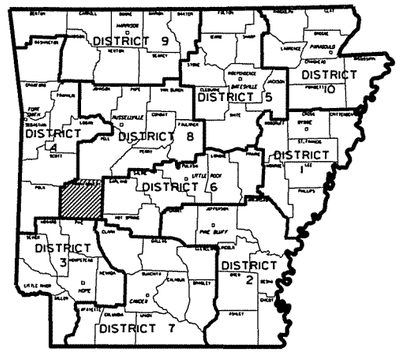
MONTGOMERY COUNTY

FED. AID PROJ. STPB-NBIL(16)

JOB BR4906

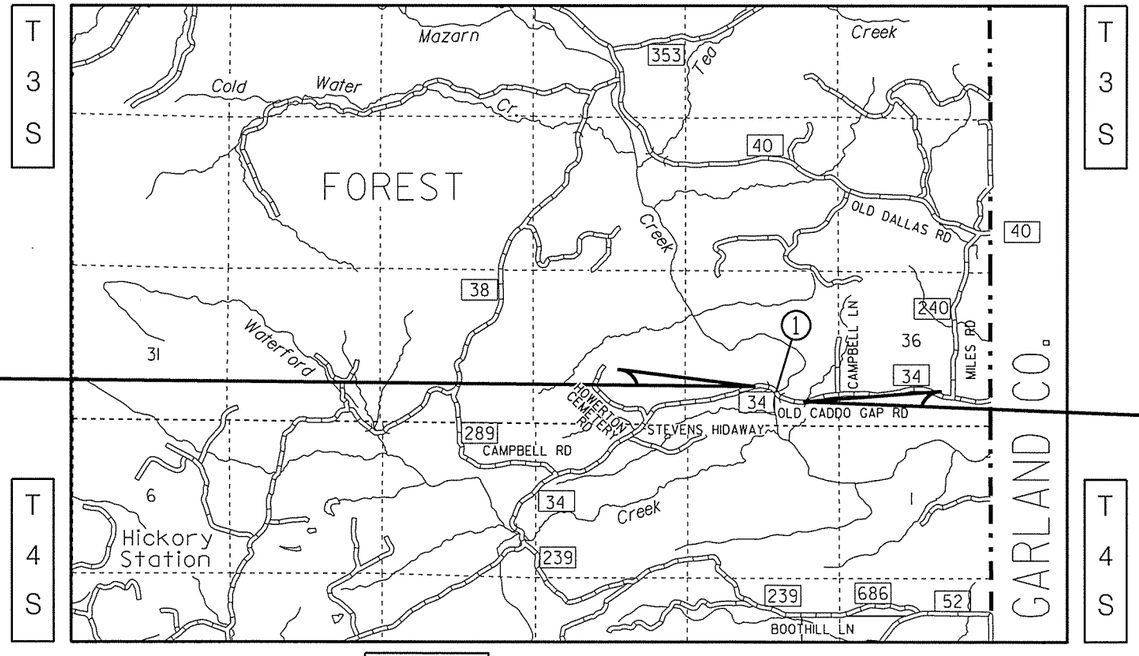


VICINITY MAP



ARKANSAS HIGHWAY DISTRICT 8

R23W



R23W

STRUCTURES OVER 20'-0" SPAN

(1) STA. 108+61.92 BRIDGE END
BRIDGE NO. 04930
CONT. COMP. W-BEAM UNIT
24' - 0" CLEAR ROADWAY
BRIDGE LENGTH = 194' - 2"
STA. 110+56.08 BRIDGE END

STA. 97+00.00 - BEGIN JOB BR4906
FED. AID PROJ. STPB-NBIL(16)

STA. 119+00.00 - END JOB BR4906
FED. AID PROJ. STPB-NBIL(16)

DESIGN TRAFFIC DATA

DESIGN YEAR	2035
2015 ADT	60
2035 ADT	80
2035 DHV	12
DIRECTIONAL DISTRIBUTON	0.60
TRUCKS	3%
DESIGN SPEED	40 MPH

PROJECT COORDINATES:

	BEGIN	MID-POINT	END
LAT.	N 34° 25' 51.1"	N 34° 25' 48.1"	N 34° 25' 45.4"
LONG.	W 93° 26' 1.7"	W 93° 25' 52.4"	W 93° 25' 41.2"

GROSS LENGTH OF			PROJECT	2200.00	FEET	OR	0.417	MILES
NET	"	"	ROADWAY	2005.84	"	"	0.380	"
NET	"	"	BRIDGE	194.16	"	"	0.037	"
NET	"	"	PROJECT	2200.00	"	"	0.417	"

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7836
M. E. BANKS

6-4-15

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
10/1/15				6	ARK.			
				JOB NO.		BR4906	2	85

(4) INDEX OF SHEETS, GOV. SPECS. AND 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.	GUARDRAIL WIDENING DETAILS			
5.	DRIVEWAY DETAILS			
6 - 7.	TEMPORARY EROSION CONTROL DETAILS			
8 - 11.	QUANTITIES			
12.	SCHEDULE OF BRIDGE QUANTITIES	04930	56451	
13.	SUMMARY OF QUANTITIES AND REVISIONS			
14 - 15.	SURVEY CONTROL DETAILS			
16 - 22.	PLAN AND PROFILE SHEETS			
23.	LAYOUT OF BRIDGE OVER MAZARN CREEK (SHEET 1 OF 2)	04930	56452	
24.	LAYOUT OF BRIDGE OVER MAZARN CREEK (SHEET 2 OF 2)	04930	56453	
25.	DETAILS OF END BENTS	04930	56454	
26.	DETAILS OF INTERMEDIATE BENTS	04930	56455	
27.	DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 1 OF 5)	04930	56456	
28.	DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 2 OF 5)	04930	56457	
29.	DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 3 OF 5)	04930	56458	
30.	DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 4 OF 5)	04930	56459	
31.	DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SHEET 5 OF 5)	04930	56460	
32.	DETAILS OF JOINTS	04930	56461	
33.	DETAILS OF ELASTOMERIC BEARINGS	04930	56462	
34.	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		55000	02-27-14
35.	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES		55001	02-27-14
36.	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		55005	02-27-14
37.	STANDARD DETAILS FOR TYPE C BRIDGE NAME PLATES		55011	02-27-14
38.	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS		55020	02-27-14
39.	STANDARD DETAILS FOR TYPE A APPROACH GUTTERS		55030A	02-27-14
40.	GUARD RAIL DETAILS		GR-8	07-14-10
41.	GUARD RAIL DETAILS		GR-9	04-17-08
42.	GUARD RAIL DETAILS		GR-10	07-14-10
43.	GUARD RAIL DETAILS		GR-10A	07-14-10
44.	GUARD RAIL DETAILS		GRT-1	07-14-10
45.	MAILBOX DETAILS		MB-1	11-18-04
46.	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	02-27-14
47.	METAL PIPE CULVERT FILL HEIGHTS & BEDDING		PCM-1	02-27-14
48.	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)		PCP-1	02-27-14
49.	PLASTIC PIPE CULVERT (PVC F949)		PCP-2	02-27-14
50.	PAVEMENT MARKING DETAILS		PM-1	09-12-13
51.	DETAILS OF PIPE UNDERDRAIN		PU-1	04-10-03
52.	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC		SE-2	10-18-96
53.	STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES		SHS-1	09-12-13
54.	U-CHANNEL POST ASSEMBLIES		SHS-2	02-27-14
55.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	09-02-15
56.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	09-02-15
57.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	09-02-15
58.	TEMPORARY EROSION CONTROL DEVICES		TEC-1	12-15-11
59.	TEMPORARY EROSION CONTROL DEVICES		TEC-2	06-02-94
60.	TEMPORARY EROSION CONTROL DEVICES		TEC-3	11-03-94
61.	WIRE FENCE TYPE C AND D		WF-4	08-22-02
62 - 85.	CROSS SECTIONS			

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. UTILITIES INTERFERING WITH CONSTRUCTION SHALL BE MOVED BY THE OWNERS.
3. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
4. 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.
5. SUPERELEVATION SHALL BE COMPUTED IN ACCORDANCE WITH STD. DRWG. SE-2 USING 40 M.P.H. DESIGN VALUES AND REVOLVE ABOUT THE INNER EDGE OF TRAVEL LANE UNLESS OTHERWISE SHOWN.
6. ALL SALVAGEABLE PIPE CULVERTS SHALL BE STORED ON THE RIGHT-OF-WAY AND REMAIN THE PROPERTY OF MONTGOMERY COUNTY.
7. 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.
8. THE ROAD SHALL BE MAINTAINED AND REMAIN OPEN TO TRAFFIC THROUGHOUT THE PROJECT. THE BRIDGE SHALL BE OPENED TO TRAFFIC AS SOON AS PRACTICABLE.
9. THE CONTRACTOR WILL BE REQUIRED TO PROTECT THE BRIDGE DECK DURING PRIME AND SEAL OPERATIONS.
10. EXISTING BRIDGE NUMBER 20738 SHALL BE REMOVED IN ACCORDANCE WITH SECTION 205 OF THE STANDARD SPECIFICATIONS AFTER CONSTRUCTION OF THE NEW BRIDGE. ALL MATERIAL FROM THE EXISTING BRIDGE SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.

GOVERNING SPECIFICATIONS

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

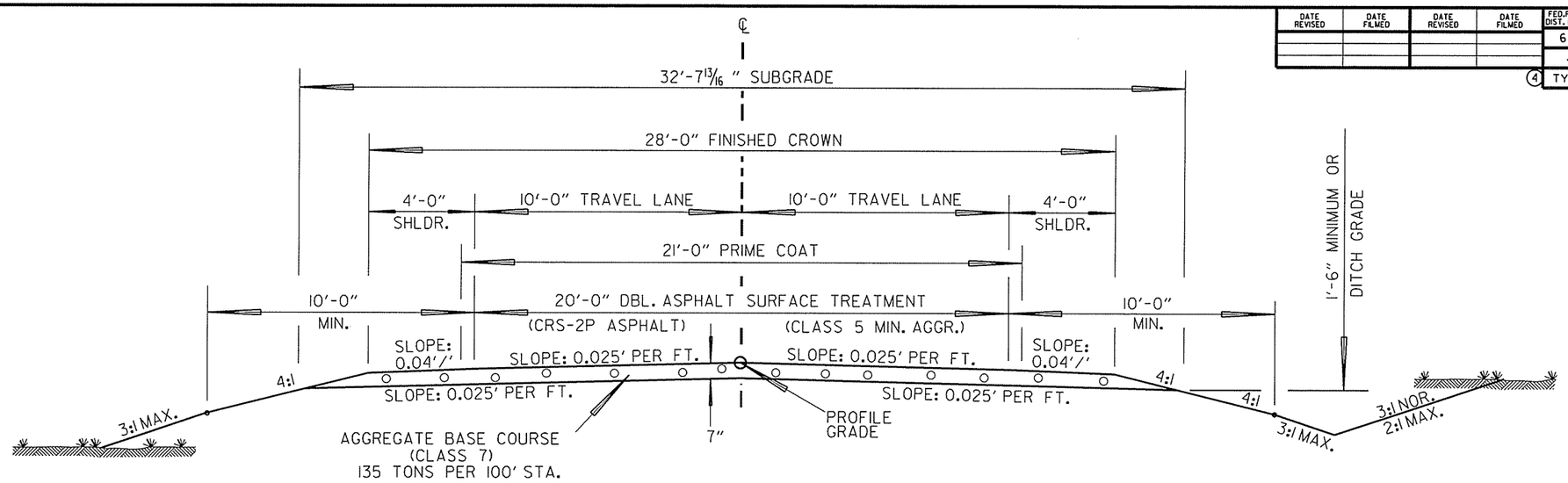
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - REVISIONS OF FHWA-1273 FOR OFF-SYSTEM PROJECTS
108-1	LIQUIDATED DAMAGES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB BR4906	BIDDING REQUIREMENTS AND CONDITIONS
JOB BR4906	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB BR4906	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB BR4906	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB BR4906	MANDATORY ELECTRONIC CONTRACT
JOB BR4906	PLASTIC PIPE
JOB BR4906	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB BR4906	SPECIAL CLEARING REQUIREMENTS
JOB BR4906	STORM WATER POLLUTION PREVENTION PLAN
JOB BR4906	UTILITY ADJUSTMENTS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.

10/1/2015

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.		BR4906	3	85

(4) TYPICAL SECTIONS OF IMPROVEMENT

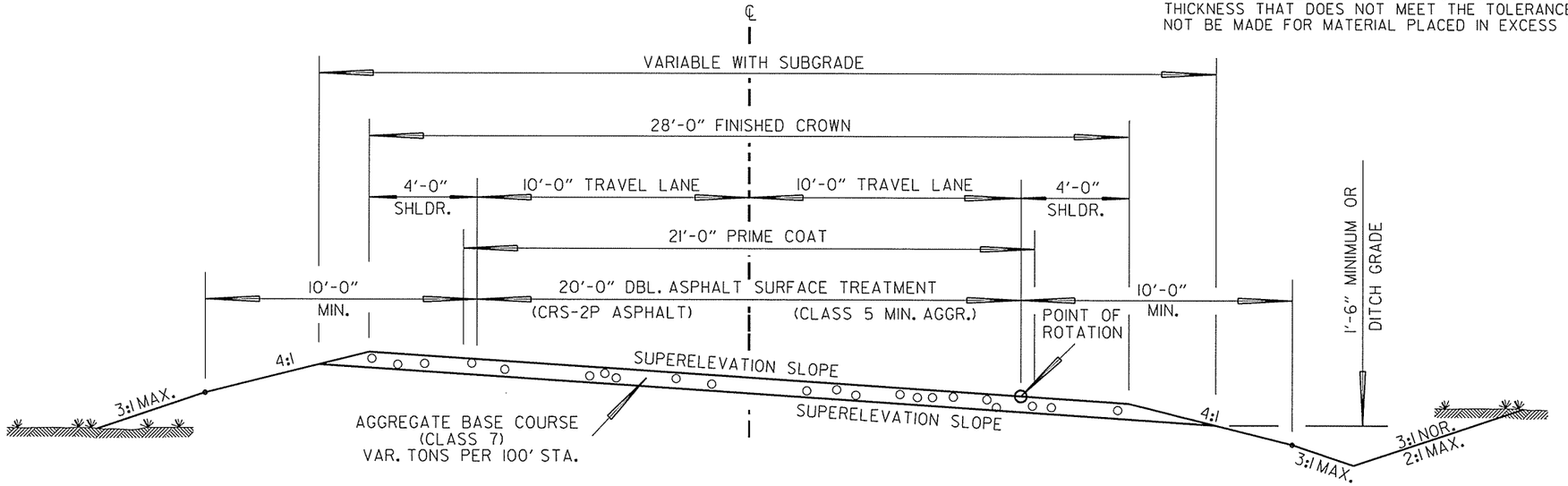


TYPICAL SECTION OF IMPROVEMENT

NOT TO SCALE

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

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



SUPERELEVATED SECTION OF IMPROVEMENT

NOT TO SCALE

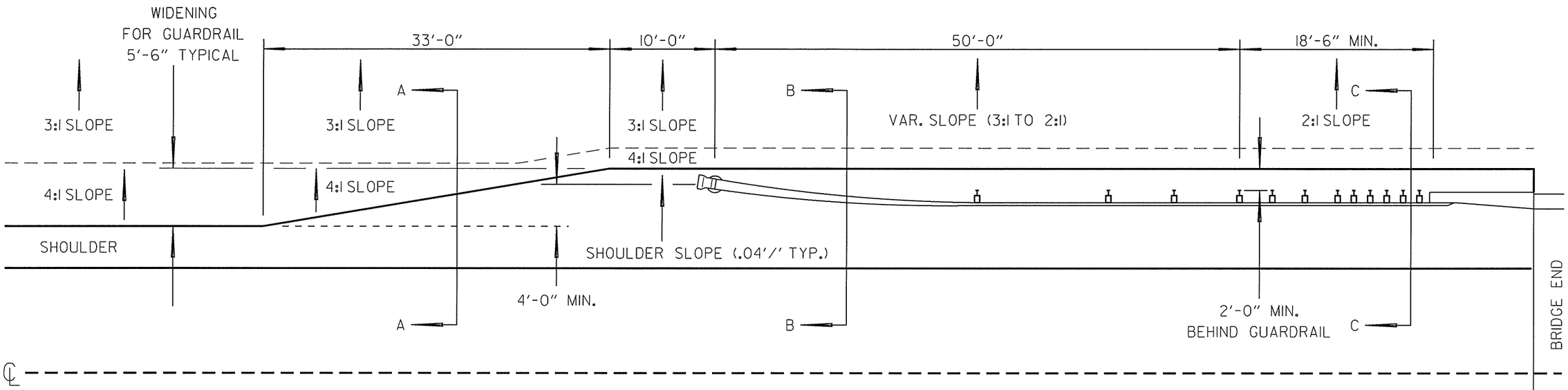
NOTE: THE ABOVE DETAILS MAY BE MODIFIED TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
5/29/2015

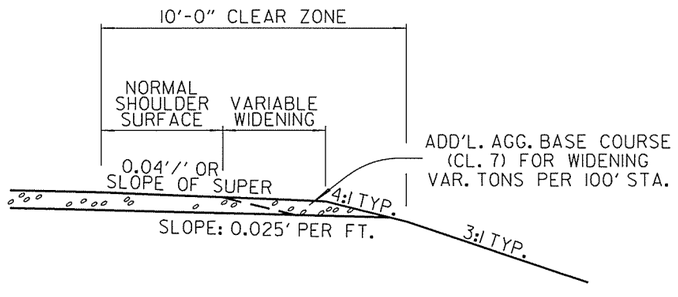
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	4	85

(4) GUARDRAIL WIDENING DETAILS

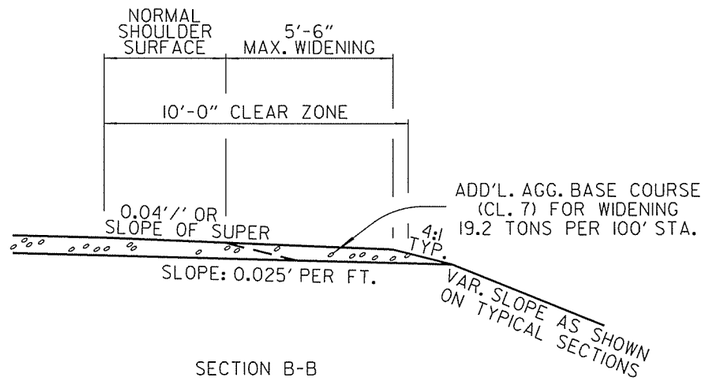


DETAILS OF ROADWAY WIDENING FOR GUARDRAIL

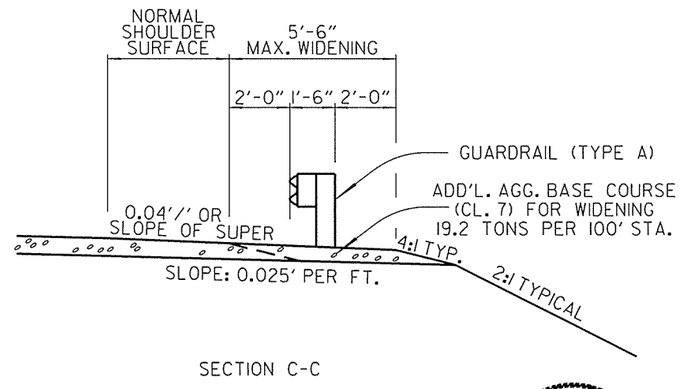
NOT TO SCALE



SECTION A-A



SECTION B-B



SECTION C-C

GUARDRAIL WIDENING SECTIONS

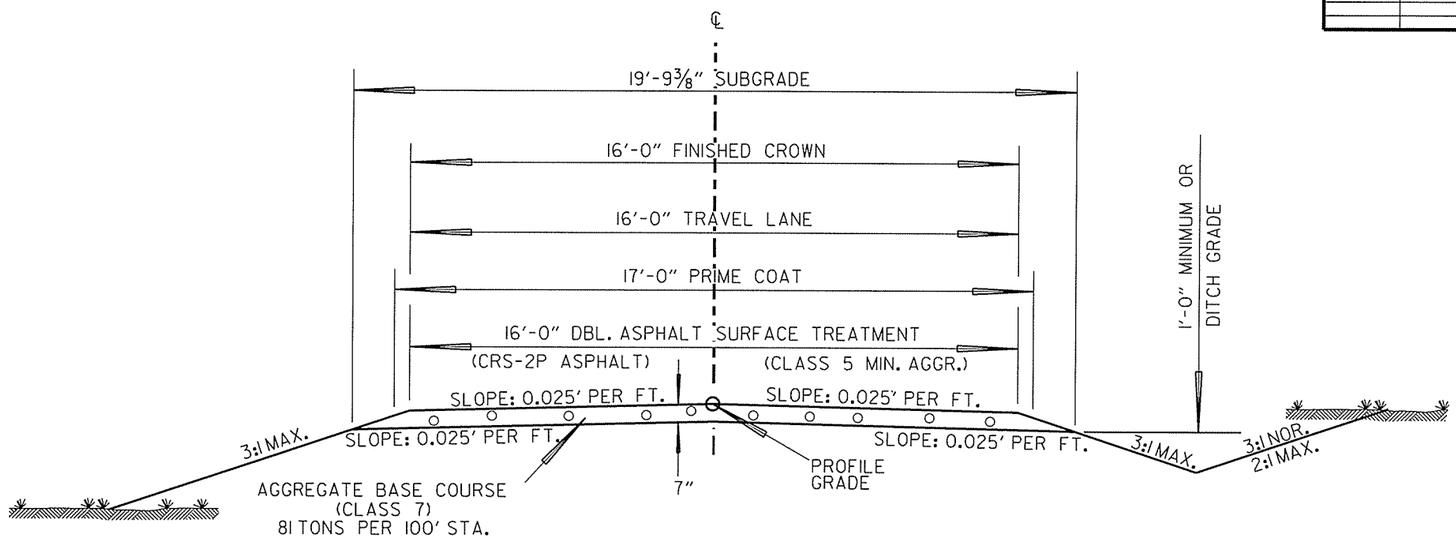
NOT TO SCALE

GUARDRAIL WIDENING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.

6/3/2015

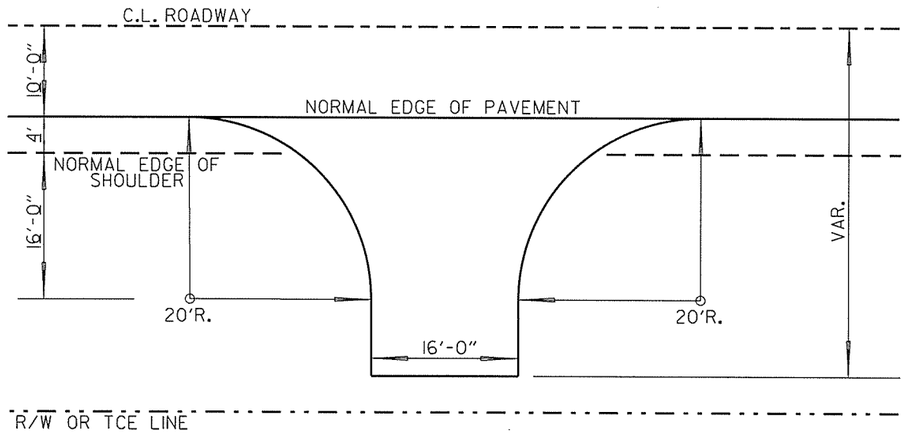
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	5	85
				(4)	DRIVEWAY DETAILS			



TYPICAL SECTION OF PRIVATE ENTRANCE

NOT TO SCALE

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.



DETAIL OF PRIVATE ENTRANCE

DRIVEWAY DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
5/29/2015

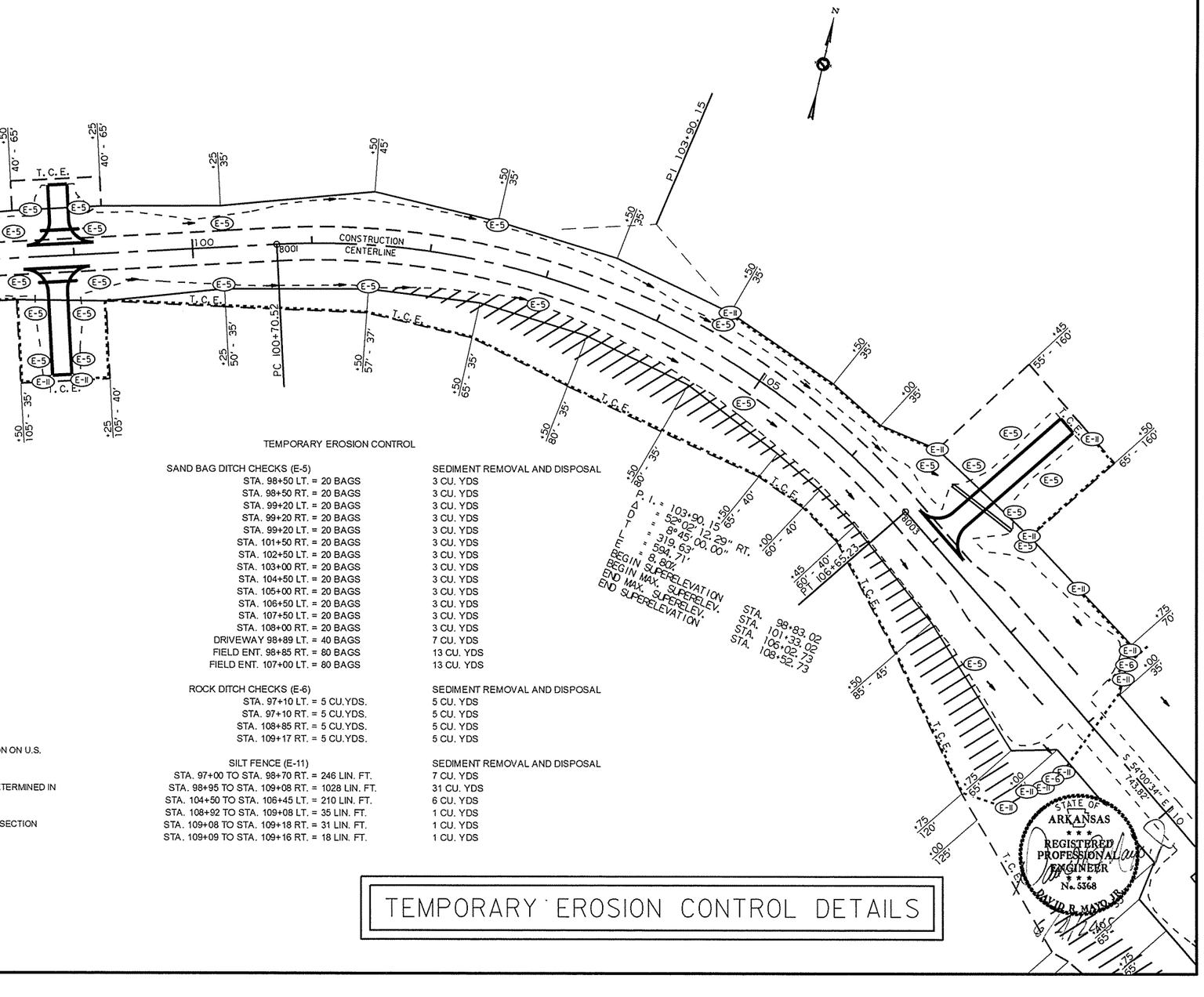
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	6	85

(4) TEMPORARY EROSION CONTROL DETAILS

	TEMPORARY SEEDING	MULCH COVER	WATER
STA. 97+00 TO STA. 109+41 MAIN LANES =	0.85 ACRES	0.85 ACRES	17.3 M. GALS
STA. 101+34 TO STA. 109+11 OBLITERATION =	0.36 ACRES	0.36 ACRES	7.3 M. GALS
FIELD ENT. 98+85 RT. =	0.03 ACRES	0.03 ACRES	0.6 M. GALS
DRIVEWAY 98+89 LT. =	0.01 ACRES	0.01 ACRES	0.3 M. GALS
FIELD ENT. 107+00 LT. =	0.06 ACRES	0.06 ACRES	1.3 M. GALS

STA. 97+00.00 - BEGIN JOB BR4906

FED. AID PROJ. STPB-NBIL(16)



REVISIONS

DATE	REVISION

TEMPORARY EROSION CONTROL

SAND BAG DITCH CHECKS (E-5)	SEDIMENT REMOVAL AND DISPOSAL
STA. 98+50 LT. = 20 BAGS	3 CU. YDS
STA. 98+50 RT. = 20 BAGS	3 CU. YDS
STA. 99+20 LT. = 20 BAGS	3 CU. YDS
STA. 99+20 RT. = 20 BAGS	3 CU. YDS
STA. 99+20 LT. = 20 BAGS	3 CU. YDS
STA. 101+50 RT. = 20 BAGS	3 CU. YDS
STA. 102+50 LT. = 20 BAGS	3 CU. YDS
STA. 103+00 RT. = 20 BAGS	3 CU. YDS
STA. 104+50 LT. = 20 BAGS	3 CU. YDS
STA. 105+00 RT. = 20 BAGS	3 CU. YDS
STA. 106+50 LT. = 20 BAGS	3 CU. YDS
STA. 107+50 LT. = 20 BAGS	3 CU. YDS
STA. 108+00 RT. = 20 BAGS	3 CU. YDS
DRIVEWAY 98+89 LT. = 40 BAGS	7 CU. YDS
FIELD ENT. 98+85 RT. = 80 BAGS	13 CU. YDS
FIELD ENT. 107+00 LT. = 80 BAGS	13 CU. YDS

ROCK DITCH CHECKS (E-6)	SEDIMENT REMOVAL AND DISPOSAL
STA. 97+10 LT. = 5 CU.YDS.	5 CU. YDS
STA. 97+10 RT. = 5 CU.YDS.	5 CU. YDS
STA. 108+85 RT. = 5 CU.YDS.	5 CU. YDS
STA. 109+17 RT. = 5 CU.YDS.	5 CU. YDS

SILT FENCE (E-11)	SEDIMENT REMOVAL AND DISPOSAL
STA. 97+00 TO STA. 98+70 RT. = 246 LIN. FT.	7 CU. YDS
STA. 98+95 TO STA. 109+08 RT. = 1028 LIN. FT.	31 CU. YDS
STA. 104+50 TO STA. 106+45 LT. = 210 LIN. FT.	6 CU. YDS
STA. 108+92 TO STA. 109+08 LT. = 35 LIN. FT.	1 CU. YDS
STA. 109+08 TO STA. 109+18 RT. = 31 LIN. FT.	1 CU. YDS
STA. 109+09 TO STA. 109+16 RT. = 18 LIN. FT.	1 CU. YDS

NOTE: TEMPORARY EROSION CONTROL DEVICES 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.

NOTE: EROSION CONTROL ITEMS ARE SUBJECT TO IMMEDIATE PLACEMENT AS DIRECTED BY THE ENGINEER. EXACT LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

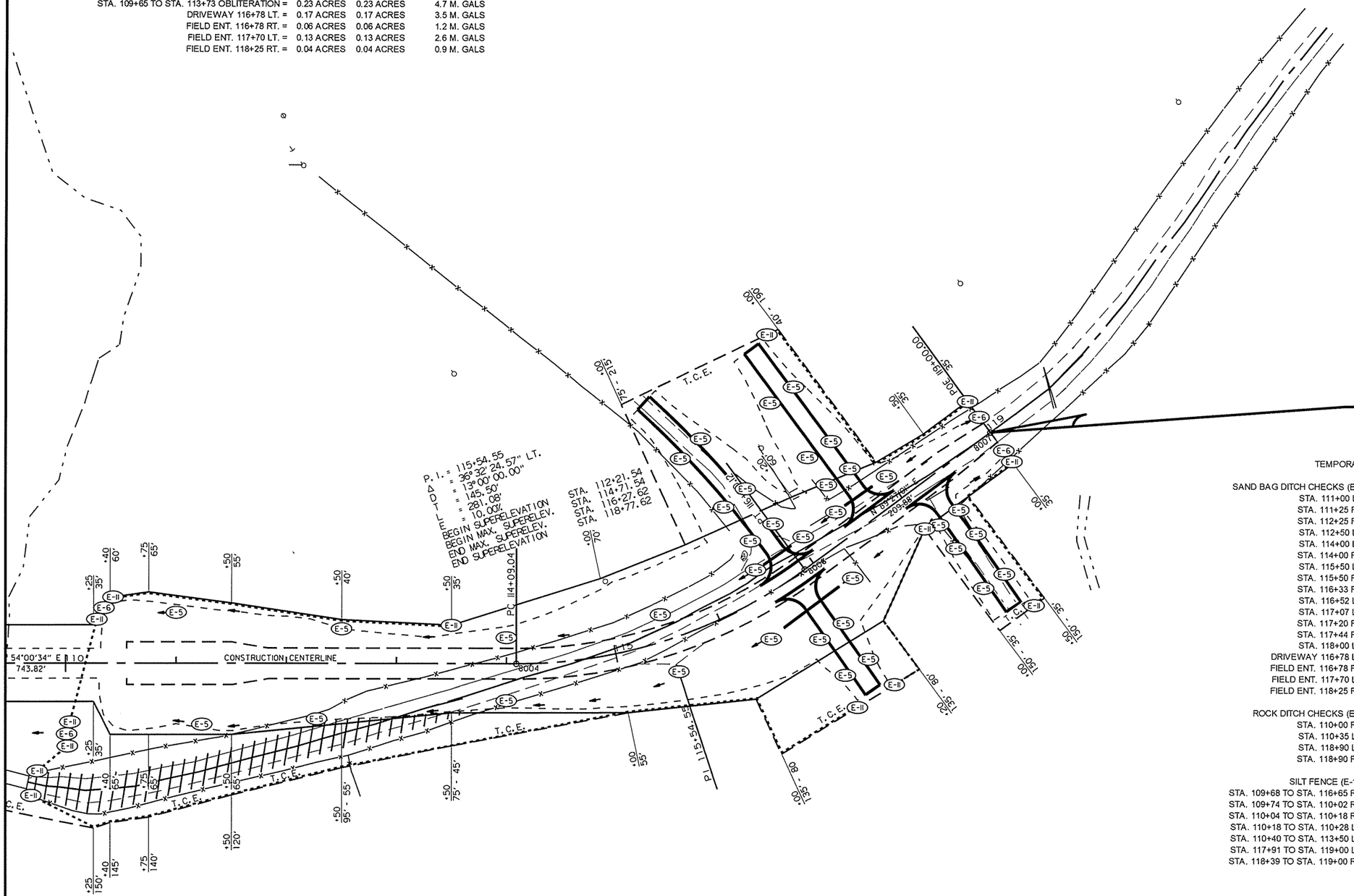
NOTE: ALL TEMPORARY EROSION CONTROL QUANTITIES ARE ESTIMATED. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

TEMPORARY EROSION CONTROL 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.		BR4906	7	85

(4) TEMPORARY EROSION CONTROL DETAILS

	TEMPORARY SEEDING	MULCH COVER	WATER
STA. 109+59 TO STA. 119+00 MAIN LANES =	1.31 ACRES	1.31 ACRES	26.7 M. GALS
STA. 109+65 TO STA. 113+73 OBLITERATION =	0.23 ACRES	0.23 ACRES	4.7 M. GALS
DRIVEWAY 116+78 LT. =	0.17 ACRES	0.17 ACRES	3.5 M. GALS
FIELD ENT. 116+78 RT. =	0.06 ACRES	0.06 ACRES	1.2 M. GALS
FIELD ENT. 117+70 LT. =	0.13 ACRES	0.13 ACRES	2.6 M. GALS
FIELD ENT. 118+25 RT. =	0.04 ACRES	0.04 ACRES	0.9 M. GALS



STA. 119+00.00 - END JOB BR4906

FED. AID PROJ. STPB-NBIL(16)

TEMPORARY EROSION CONTROL

SAND BAG DITCH CHECKS (E-5)	SEDIMENT REMOVAL AND DISPOSAL
STA. 111+00 LT. = 20 BAGS	3 CU. YDS
STA. 111+25 RT. = 20 BAGS	3 CU. YDS
STA. 112+25 RT. = 20 BAGS	3 CU. YDS
STA. 112+50 LT. = 20 BAGS	3 CU. YDS
STA. 114+00 LT. = 20 BAGS	3 CU. YDS
STA. 114+00 RT. = 20 BAGS	3 CU. YDS
STA. 115+50 LT. = 20 BAGS	3 CU. YDS
STA. 115+50 RT. = 20 BAGS	3 CU. YDS
STA. 116+33 RT. = 20 BAGS	3 CU. YDS
STA. 116+52 LT. = 20 BAGS	3 CU. YDS
STA. 117+07 LT. = 20 BAGS	3 CU. YDS
STA. 117+20 RT. = 20 BAGS	3 CU. YDS
STA. 117+44 RT. = 20 BAGS	3 CU. YDS
STA. 118+00 LT. = 20 BAGS	3 CU. YDS
DRIVEWAY 116+78 LT. = 120 BAGS	20 CU. YDS
FIELD ENT. 116+78 RT. = 80 BAGS	13 CU. YDS
FIELD ENT. 117+70 LT. = 120 BAGS	20 CU. YDS
FIELD ENT. 118+25 RT. = 120 BAGS	20 CU. YDS

ROCK DITCH CHECKS (E-6)	SEDIMENT REMOVAL AND DISPOSAL
STA. 110+00 RT. = 5 CU.YDS.	5 CU. YDS
STA. 110+35 LT. = 5 CU.YDS.	5 CU. YDS
STA. 118+90 LT. = 5 CU.YDS.	5 CU. YDS
STA. 118+90 RT. = 5 CU.YDS.	5 CU. YDS

SILT FENCE (E-11)	SEDIMENT REMOVAL AND DISPOSAL
STA. 109+68 TO STA. 116+65 RT. = 813 LIN. FT.	24 CU. YDS
STA. 109+74 TO STA. 110+02 RT. = 35 LIN. FT.	1 CU. YDS
STA. 110+04 TO STA. 110+18 RT. = 55 LIN. FT.	2 CU. YDS
STA. 110+18 TO STA. 110+28 LT. = 41 LIN. FT.	1 CU. YDS
STA. 110+40 TO STA. 113+50 LT. = 312 LIN. FT.	9 CU. YDS
STA. 117+91 TO STA. 119+00 LT. = 262 LIN. FT.	8 CU. YDS
STA. 118+39 TO STA. 119+00 RT. = 176 LIN. FT.	5 CU. YDS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 6368
DAVID R. MAYO JR.
5/29/2015

TEMPORARY EROSION CONTROL 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.		BR4906	8	85
				(4)	QUANTITIES			

BENCH MARK CAPS

LOCATION / DESCRIPTION	EACH
STA. 108+54 TRANSITION RAIL	1
TOTAL:	1

NOTE: BENCH MARK CAPS SHALL BE FURNISHED AND INSTALLED BY STATE FORCES.

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	STATION
97+00	119+00	22	22
TOTALS:		22	22

FENCING

STATION	STATION	SIDE	REMOVAL AND DISPOSAL OF FENCE	WIRE FENCE (TYPE D-1)	18'-0" GATES
			LIN. FT.	LIN. FT.	EACH
97+00	98+26	LT.	138	137	
97+00	98+76	RT.	179	177	
98+76	98+94	RT.			1
98+84	109+03	RT.	600	950	
99+46	106+91	LT.		785	
99+46	108+31	LT.	900		
106+91	107+09	LT.			1
107+09	108+63	LT.		205	
108+48	109+09	RT.	110		
109+67	118+16	RT.	966		
109+72	113+72	RT.	360		
110+55	116+00	LT.		686	
110+55	116+70	RT.		704	
113+72	116+41	LT.	259		
116+00	116+50	LT.	132		
116+00	116+66	LT.		56	
116+66	116+84	LT.			1
116+70	116+86	RT.			1
116+84	117+61	LT.		223	
116+86	118+16	RT.		44	
116+89	117+29	LT.	145		
117+44	119+00	LT.	180		
117+61	117+79	LT.			1
117+79	119+00	LT.		130	
118+16	118+34	RT.			1
118+32	119+00	RT.	115		
118+34	119+00	RT.		72	
TOTALS:			4084	4169	6

REMOVAL AND DISPOSAL OF PIPE CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
117+32	12" X 30' CMP LT. SIDE DRAIN	1
118+29	12" X 24' CMP RT. SIDE DRAIN	1
TOTAL:		2

NOTE: ALL SALVAGEABLE PIPE CULVERTS SHALL BECOME THE PROPERTY OF MONTGOMERY COUNTY.

REMOVAL AND DISPOSAL OF SIGNS

STATION	SIDE	DESCRIPTION	SIGNS
			EACH
105+58	RT.	ONE LANE BRIDGE	1
112+27	RT.	ONE LANE BRIDGE	1
TOTAL:			2

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION			COMPACTED EMBANKMENT		
			NORMAL	ADD'L	TOTAL	NORMAL	ADD'L	TOTAL
			CUBIC YARDS					
97+00	109+00	MAIN LANES	2695		2695	6289		6289
110+50	119+00	MAIN LANES	14017		14017	6928		6928
99+05	99+22	OBLITERATION OF EXISTING DRIVEWAY, LT.		2	2			
101+34	109+12	OBLITERATION OF EXISTING ROADWAY		159	159		400	400
109+65	113+52	OBLITERATION OF EXISTING ROADWAY		125	125		246	246
98+85		FIELD ENT, RT.		155	155		12	12
98+89		DRIVEWAY, LT.		41	41		23	23
107+00		FIELD ENT, LT.		24	24		402	402
116+78		DRIVEWAY, LT.		2269	2269		33	33
116+78		FIELD ENT, RT.		300	300		224	224
117+70		FIELD ENT, LT.		1418	1418		35	35
118+25		FIELD ENT, RT.		91	91		71	71
ENTIRE PROJECT		FILTER BLANKET / DUMPED RIPRAP		500	500			
TOTALS:			16712	5084	21796	13217	1446	14663

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/3/2015

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.		BR4906	9	85
				(4)	QUANTITIES			

BASE AND SURFACING

STARTING STATION	ENDING STATION	LOCATION / DESCRIPTION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)	PRIME COAT			DOUBLE ASPHALT SURFACE TREATMENT			
					TOTAL WIDTH	SQUARE YARDS	GALLONS	TOTAL WIDTH	SQUARE YARDS	MINERAL AGGREGATE (CLASS 5)	ASPHALT CEMENT (CRS-2P)
			FEET	TONS	FEET			FEET		TONS	GALLONS
97+00.	98+83.02	MAIN LANES	183.02	247.08	21.00	427.05	170.82	20.00	406.71	16.27	305.03
98+83.02	101+33.02	MAIN LANES	250.00	345.00	21.00	583.33	233.33	20.00	555.56	22.22	416.67
101+33.02	106+02.73	MAIN LANES	469.71	657.59	21.00	1095.99	438.40	20.00	1043.80	41.75	782.85
106+02.73	107+34.52	MAIN LANES	131.79	181.87	21.00	307.51	123.00	20.00	292.87	11.71	219.65
107+34.52	107+67.52	MAIN LANES	33.00	53.79	21.00	77.00	30.80	20.00	73.33	2.93	55.00
107+67.52	108+31.92	MAIN LANES	64.40	115.92	21.00	150.27	60.11	20.00	143.11	5.72	107.33
108+31.92	108+52.52	MAIN LANES	20.60	36.05	21.00	48.07	19.23	20.00	45.78	1.83	34.34
108+52.52	108+61.92	MAIN LANES	9.40	15.79	21.00	21.93	8.77	20.00	20.89	0.84	15.67
108+61.92	110+56.08	BRIDGE NO. 04930	194.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110+56.08	110+86.08	MAIN LANES	30.00	51.00	21.00	70.00	28.00	20.00	66.67	2.67	50.00
110+86.08	111+50.48	MAIN LANES	64.40	111.41	21.00	150.27	60.11	20.00	143.11	5.72	107.33
111+50.48	111+83.48	MAIN LANES	33.00	51.15	21.00	77.00	30.80	20.00	73.33	2.93	55.00
111+83.48	112+21.54	MAIN LANES	38.06	51.38	21.00	88.81	35.52	20.00	84.58	3.38	63.44
112+21.54	114+71.54	MAIN LANES	250.00	345.00	21.00	583.33	233.33	20.00	555.56	22.22	416.67
114+71.54	116+27.62	MAIN LANES	156.08	218.51	21.00	364.19	145.68	20.00	346.84	13.87	260.13
116+27.62	118+77.62	MAIN LANES	250.00	345.00	21.00	583.33	233.33	20.00	555.56	22.22	416.67
118+77.62	119+00.	MAIN LANES	22.38	28.42	21.00	52.22	20.89	20.00	49.73	1.99	37.30
98+85.		FIELD ENT. RT.	90.00	78.68	17.00	186.85	74.74	16.00	179.07	7.16	134.30
98+89.		DRIVEWAY LT.	50.00	46.47	17.00	111.30	44.52	16.00	107.96	4.32	80.97
107+00.		FIELD ENT. LT.	140.00	118.95	17.00	281.30	112.52	16.00	267.96	10.72	200.97
116+78.		DRIVEWAY LT.	199.69	167.02	17.00	394.04	157.62	16.00	374.08	14.96	280.56
116+78.		FIELD ENT. RT.	115.00	98.81	17.00	234.07	93.63	16.00	223.52	8.94	167.64
117+70.		FIELD ENT. LT.	180.00	151.16	17.00	356.85	142.74	16.00	339.07	13.56	254.30
118+25.		FIELD ENT. RT.	130.00	110.89	17.00	262.41	104.96	16.00	250.19	10.01	187.64
MAINTENANCE OF TRAFFIC		ENTIRE PROJECT		400.00							
TOTALS:				4026.94			2602.85			247.94	4649.46
USE:				4027			2603			248	4649

APPROACH GUTTERS

STATION	STATION	SIDE	APPROACH GUTTERS (TYPE A)	REINFORCING STEEL - ROADWAY (GRADE 60)
			CU. YDS.	LBS.
108+32	108+62	LT.	3.40	285
108+32	108+62	RT.	3.40	285
110+56	110+86	LT.	3.40	285
110+56	110+86	RT.	3.40	285
TOTALS:			13.60	1140

NOTE: W = 3' - 0"

BASIS OF ESTIMATE:

AGGREGATE BASE COURSE (VARIABLE) _____ 135 TONS / STA.(TYPICAL)

PRIME COAT _____ 0.40 GAL. / SQ. YD.

POLYMER MODIFIED CATIONIC EMULSIFIED ASPHALT (CRS-2P) (1ST APPLICATION) _____ 0.40 GALS. PER SQ. YD.

POLYMER MODIFIED CATIONIC EMULSIFIED ASPHALT (CRS-2P) (2ND APPLICATION) _____ 0.35 GALS. PER SQ. YD.

MINERAL AGGREGATE IN ASPHALT SURFACE TREATMENT (CLASS 5) (1ST APPLICATION) _____ 40 LBS. PER SQ. YD.

MINERAL AGGREGATE IN ASPHALT SURFACE TREATMENT (CLASS 5) (2ND APPLICATION) _____ 40 LBS. PER SQ. YD.

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/3/2015

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.		BR4906	10	85
				(4)	QUANTITIES			

TRAFFIC CONTROL DEVICES

DESCRIPTION	W20-1						G20-1 (ROAD WORK NEXT X.X MILES)		G20-2 (END ROAD WORK)		*BARRICADES (TYPE III)	*TRAFFIC DRUMS	*VERTICAL PANELS	STANDARD DRAWING NUMBER
	1500 FT.		1000 FT.		500 FT.									
	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	LIN. FT.	EACH	EACH	
STATION 82+00 RT.	1	16.00												TC-1, TC-2, TC-3
STATION 87+00 RT.			1	16.00										TC-1, TC-2, TC-3
STATION 92+00 RT.					1	16.00								TC-1, TC-2, TC-3
STATION 92+00 LT.									1	8.00				TC-1, TC-2, TC-3
STATION 97+00 RT.							1	10.00						TC-1, TC-2, TC-3
STATION 119+00 LT.							1	10.00						TC-1, TC-2, TC-3
STATION 124+00 RT.									1	8.00				TC-1, TC-2, TC-3
STATION 124+00 LT.					1	16.00								TC-1, TC-2, TC-3
STATION 129+00 LT.			1	16.00										TC-1, TC-2, TC-3
STATION 134+00 LT.	1	16.00												TC-1, TC-2, TC-3
*ENTIRE PROJECT											32*	10*	40*	TC-1, TC-2, TC-3
TOTALS:	2	32.00	2	32.00	2	32.00	2	20.00	2	16.00	32*	10*	40*	

NOTE: LOCATION OF THE TRAFFIC CONTROL DEVICES TO BE AS DIRECTED BY THE ENGINEER.

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

STRUCTURES

STATION	DESCRIPTION	SIDE DRAINS			STANDARD DRAWING NUMBERS
		18"	30"	21" X 15"	
		LINEAR FT.			
98+85.	INSTALL PIPE CULVERT RT. SIDE DRAIN			32	PCM-1, PCC-1
98+89.	INSTALL PIPE CULVERT LT. SIDE DRAIN			32	PCM-1, PCC-1
107+00.	INSTALL PIPE CULVERT LT. SIDE DRAIN		62		PCM-1, PCC-1, PCP-1, PCP-2
116+78.	INSTALL PIPE CULVERT LT. SIDE DRAIN			30	PCM-1, PCC-1
116+78.	INSTALL PIPE CULVERT RT. SIDE DRAIN	62			PCM-1, PCC-1
117+70.	INSTALL PIPE CULVERT LT. SIDE DRAIN			30	PCM-1, PCC-2
TOTALS:		62	62	124	

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

4" PIPE UNDERDRAIN

LOCATION	4' PIPE UNDERDRAIN	UNDERDRAIN OUTLET PROTECTORS
	LIN. FT.	EACH
ENTIRE PROJECT	200	5
TOTALS:	200	5

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

GUARDRAIL

STATION	STATION	SIDE	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POST (TYPE 1)	THRIE BEAM GUARDRAIL TERMINAL
			LIN. FT.	EACH	EACH
107+84	108+53	LT.	50	1	1
107+84	108+53	RT.	50	1	1
110+65	111+34	LT.	50	1	1
110+65	111+34	RT.	50	1	1
TOTALS:			200	4	4

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL			
			LIME	SEEDING	MULCH COVER	WATER
			TONS	ACRES	ACRES	M. GALS.
97+00	109+00	MAIN LANES	2	0.85	0.85	86.7
110+00	119+00	MAIN LANES	3	1.31	1.31	133.6
98+85		FIELD ENT, RT.	0	0.03	0.03	3.1
98+89		DRIVEWAY, LT.	0	0.01	0.01	1.0
107+00		FIELD ENT, LT.	0	0.06	0.06	6.1
116+78		DRIVEWAY, LT.	0	0.17	0.17	17.3
116+78		FIELD ENT, RT.	0	0.06	0.06	6.1
117+70		FIELD ENT, LT.	0	0.13	0.13	13.3
118+25		FIELD ENT, RT.	0	0.04	0.04	4.1
TOTALS:			5	2.66	2.66	271.3

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/3/2015

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.		BR4906	11	85
				(4)	QUANTITIES			

TEMPORARY EROSION CONTROL

STATION	STATION	LOCATION	TEMPORARY SEEDING	MULCH COVER	WATER	SILT FENCE (E-11)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SEDIMENT REMOVAL AND DISPOSAL
			ACRES	ACRES	M. GALS	LIN. FT.	BAGS	CU.YDS.	CU. YDS
97+00	109+41	MAIN LANES	0.85	0.85	17.3	1568	260	20	106
101+34	109+11	OBLITERATION	0.36	0.36	7.3				
109+59	119+00	MAIN LANES	1.31	1.31	26.7	1694	280	20	112
109+65	113+73	OBLITERATION	0.23	0.23	4.7				
FIELD ENT. 98+85		RT.	0.03	0.03	0.6		80		13
DRIVEWAY 98+89		LT.	0.01	0.01	0.3		40		7
FIELD ENT. 107+00		LT.	0.06	0.06	1.3		80		13
DRIVEWAY 116+78		LT.	0.17	0.17	3.5		120		20
FIELD ENT. 116+78		RT.	0.06	0.06	1.2		80		13
FIELD ENT. 117+70		LT.	0.13	0.13	2.6		120		
FIELD ENT. 118+25		RT.	0.04	0.04	0.9		120		
*ENTIRE PROJECT AS DIRECTED BY ENGINEER									
TOTALS:			3.25	3.25	66.4	3262	1180	40	284

BASIS OF ESTIMATE:
WATER..... 20.4 M.G. / ACRE OF SEEDING, TEMPORARY SEEDING

NOTE: TEMPORARY EROSION CONTROL DEVICES 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.

NOTE: EROSION CONTROL ITEMS ARE SUBJECT TO IMMEDIATE PLACEMENT AS DIRECTED BY THE ENGINEER. EXACT LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

MAILBOXES

LOCATION	SIDE	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
		EACH	EACH
98+59	LT.	1	1
116+50	LT.	1	1
TOTALS:		2	2

REFLECTORIZED PAINT PAVEMENT MARKING

STATION		REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4") CONTINUOUS
FROM	TO	LINEAR FEET
97+00	119+00	4400
TOTAL:		4400

NOTE: THIS IS A LOW VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014.

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

STATION	SIDE	STANDARD SIGN NUMBER						SUPPORT ASSEMBLIES		STANDARD DRAWING NUMBER
		W8-3		OM-3L		OM-3R		TYPE A	TYPE C	
		NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	EACH		
103+00	LT.	1	9.00					1		SHS 1&2
108+62	LT.			1	3.00				1	SHS 1&2
108+62	RT.					1	3.00		1	SHS 1&2
110+56	LT.					1	3.00		1	SHS 1&2
110+56	RT.			1	3.00				1	SHS 1&2
116+00	RT.	1	9.00					1		SHS 1&2
TOTALS:		2	18.00	2	6.00	2	6.00	2	4	

NOTE: ALL STANDARD SIGN BLANKS TO BE 0.08" THICK. REFER TO STANDARD DRAWING SHS - 2 FOR CHANNEL POST SPLICING DETAILS.

FILTER BLANKET AND DUMPED RIPRAP

STATION	STATION	SIDE	FILTER BLANKET	DUMPED RIPRAP
			SQ. YDS.	CU. YDS.
ENTIRE PROJECT			1000	500
TOTALS:			1000	500

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/3/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BR4906	12	85

① 04930 - QUANTITIES - 56451

SCHEDULE OF BRIDGE QUANTITIES - JOB. NO. BR4906

BRIDGE NO.	CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	804	805	807	808	809	812	816	816
				ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	STEEL PILING (HP 12X53)	STRUCTURAL STEEL IN BEAM SPANS (M270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE C)	FILTER BLANKET	DUMPED RIPRAP
				UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	SQ. YD.	CU. YD.
04930	X071	MAZARN CREEK	BENT NO. 1				20.10		0.2	2,371	76	460				431	232
			BENT NO. 2			85	37.70			5,297							
			BENT NO. 3			104	38.20			5,379							
			BENT NO. 4				20.10		0.2	2,371	80	460				321	177
			192'-0'' CONT. COMP. W-BEAM UNIT					162.80	13.2	38,432		121,330	4,386.0	54	1		
			EXIST. BR. NO. 20738 (SITE NO. 1)		1												
TOTALS FOR JOB NO. BR4906						① 189	116.10	162.80	13.6	53,850	② 156	122,250	4,386.0	54	1	752	409

① Includes approx. 86 cu. yds. of rock excavation.

② These steel piles are required to have driving points which will not be paid for directly, but will be considered subsidiary to the item ''Steel Piling (HP 12x53)''.

STEVEN PEYTON
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
11-17-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
MAZARN CREEK STR. & APPRS. (S)
MONTGOMERY COUNTY

COUNTY ROAD 34
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 10-13-14 FILENAME: bbr4906_ql.dgn
CHECKED BY: BDH DATE: 10/29/14 SCALE: NONE
DESIGNED BY: — DATE: —

BRIDGE NO. 04930 DRAWING NO. 56451

PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10/1/15				6	ARK.			
				JOB NO.		BR4906	13	85

(4) SUMMARY OF QUANTITIES AND REVISIONS

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
SP&201	CLEARING	22	STA
201	GRUBBING	22	STA
202	REMOVAL AND DISPOSAL OF FENCE	4084	LF
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	2	EACH
202	REMOVAL AND DISPOSAL OF SIGNS	2	EACH
210	UNCLASSIFIED EXCAVATION	21796	CUYD
210	COMPACTED EMBANKMENT	14663	CUYD
303	AGGREGATE BASE COURSE (CLASS 7)	4027	TON
401	PRIME COAT	2603	GAL
402	MINERAL AGGREGATE IN ASPHALT SURFACE TREATMENT (CLASS 5)	248	TON
402	POLYMER MODIFIED CATIONIC EMULSIFIED ASPHALT (CRS-2P)	4649	GAL
504	APPROACH GUTTERS	13.60	CUYD
601	MOBILIZATION	1.00	L.S.
SP&602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	L.S.
SS&604	SIGNS	132	SQFT
SS&604	BARRICADES	32	LF
SS&604	TRAFFIC DRUMS	10	EACH
SS&604	VERTICAL PANELS	40	EACH
SPSS606	18" SIDE DRAIN	62	LF
SPSS606	30" SIDE DRAIN	62	LF
SS&606	21" X 15" SIDE DRAIN	124	LF
611	UNDERDRAIN OUTLET PROTECTORS	5	EACH
611	4" PIPE UNDERDRAINS	200	LF
617	GUARDRAIL (TYPE A)	200	LF
617	TERMINAL ANCHOR POSTS (TYPE 1)	4	EACH
617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
619	WIRE FENCE (TYPE D-1)	4169	LF
* 619	18' STEEL GATES (ALTERNATE NO. 1)	6	EACH
* 619	18' ALUMINUM GATES (ALTERNATE NO. 2)	6	EACH
620	LIME	5	TON
620	SEEDING	2.66	ACRE
SS&620	MULCH COVER	5.91	ACRE
620	WATER	337.7	MGAL
621	TEMPORARY SEEDING	3.25	ACRE
621	SILT FENCE	3262	LF
621	SAND BAG DITCH CHECKS	1180	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	284	CUYD
621	ROCK DITCH CHECKS	40	CUYD
635	ROADWAY CONSTRUCTION CONTROL	1.00	L.S.
637	MAILBOXES	2	EACH
637	MAILBOX SUPPORTS (SINGLE)	2	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")	4400	LF
726	STANDARD SIGN	30.00	SQFT
729	CHANNEL POST SIGN SUPPORT (TYPE A)	2	EACH
729	CHANNEL POST SIGN SUPPORT (TYPE C)	4	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)	1140	LB
816	FILTER BLANKET	1000	SQYD
816	DUMPED RIPRAP	500	CUYD
	STRUCTURES OVER 20'-0" SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	L.S.
636	BRIDGE CONSTRUCTION CONTROL	1.00	L.S.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	189	CUYD
802	CLASS S CONCRETE-BRIDGE	116.10	CUYD
802	CLASS S(AE) CONCRETE-BRIDGE	162.80	CUYD
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	13.6	GAL
804	REINFORCING STEEL-BRIDGE (GRADE 60)	53850	LB
805	STEEL PILING (HP 12X53)	156	LF
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	122250	LB
808	ELASTOMERIC BEARINGS	4386.0	CUIN
809	SILICONE JOINT SEALANT	54	LF
812	BRIDGE NAME PLATE (TYPE C)	1	EACH
816	FILTER BLANKET	752	SQYD
816	DUMPED RIPRAP	409	CUYD

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
10/1/2015	ADDED SPECIAL PROVISION: SPECIAL CLEARING REQUIREMENTS	2, 13

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.

10/2/2015

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.		BR4906	14	85

(4) SURVEY CONTROL DETAILS

MIDPOINT:
LT: 34-25-47
LG: 93-25-52

SURVEY CONTROL COORDINATES

Project Name: sbr4906
Date: 5/7/2013
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON FAST STATIC.
OBSERVATIONS AT POINTS 2 AND 4 PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1957238.8514	879283.2011	633.054	CTL	*5/8" Rebar with 2" Aluminum Cap stamped pnt 1
2	1957491.4536	879968.2798	631.810	CTL	*5/8" Rebar with 2" Aluminum Cap stamped pnt 2
3	1957515.9887	880356.3269	613.831	CTL	*5/8" Rebar with 2" Aluminum Cap stamped pnt 3
4	1957393.3600	880724.9997	610.556	CTL	*5/8" Rebar with 2" Aluminum Cap stamped pnt 4
5	1957106.7918	880897.4770	599.070	CTL	*5/8" Rebar with 2" Aluminum Cap stamped pnt 5
6	1956913.5809	881484.0974	636.484	CTL	*5/8" Rebar with 2" Aluminum Cap stamped pnt 6
7	1956898.4176	881851.0597	624.064	CTL	*5/8" Rebar with 2" Aluminum Cap stamped pnt 7
8	1957066.4943	882308.2444	649.100	CTL	*5/8" Rebar with 2" Aluminum Cap stamped pnt 8
900	-99999.0000	-99999.0000	631.981	TBM	*RR SPIKE IN PP IN FE LINE CR 34 20.0' S OF C/L CR 34
901	1957157.7033	880862.5907	599.832	TBM	*CHIS SQ CUT NE CRNR BR CR 34
902	-99999.0000	-99999.0000	650.332	TBM	*RR SPIKE IN PP CR 34 BONNERDALE 9' S OF FE 15.5' N OF C/L CR 34
1500	1957075.0861	882339.2119	650.859	CTL	*RESECT REFERENCE 8" SPIKE NL
1501	1957035.9697	882348.2236	649.919	CTL	*RESECT REFERENCE 8" SPIKE NL
1502	1957024.8567	882295.6660	648.253	CTL	*RESECT REFERENCE 8" SPIKE NL
1503	1957066.6434	882289.8085	649.454	CTL	*RESECT REFERENCE 8" SPIKE NL
1504	1956900.0718	881888.8104	623.871	CTL	*RESECT REFERENCE 8" SPIKE
1505	1956936.2600	881876.5933	623.850	CTL	*RESECT REFERENCE 8" SPIKE
1506	1956925.2470	881808.1253	623.511	CTL	*RESECT REFERENCE 8" SPIKE
1507	1956886.5376	881789.9137	622.035	CTL	*RESECT REFERENCE 8" SPIKE
1508	1956952.7164	881554.9831	637.352	CTL	*RESECT REFERENCE 8" SPIKE
1509	1956910.2687	881510.4202	636.654	CTL	*RESECT REFERENCE 8" SPIKE
1510	1956902.6160	881469.2346	636.845	CTL	*RESECT REFERENCE 8" SPIKE
1511	1956949.5691	881506.5238	640.501	CTL	*RESECT REFERENCE 8" SPIKE
1512	1957123.2694	880953.5784	601.114	CTL	*RESECT REFERENCE 8" SPIKE
1513	1957076.6993	880960.5680	601.434	CTL	*RESECT REFERENCE 8" SPIKE
1514	1957121.4802	880883.7092	599.151	CTL	*RESECT REFERENCE 8" SPIKE
1515	1957143.6101	880908.0454	599.526	CTL	*RESECT REFERENCE 8" SPIKE
1516	1957373.8993	880745.2841	609.016	CTL	*RESECT REFERENCE 8" SPIKE
1517	1957290.6100	880737.8374	604.430	CTL	*RESECT REFERENCE 8" SPIKE
1518	1957413.7558	880617.8179	614.952	CTL	*RESECT REFERENCE 8" SPIKE
1519	1957409.5535	880707.2008	611.641	CTL	*RESECT REFERENCE 8" SPIKE
1520	1957512.7395	880382.7443	614.337	CTL	*RESECT REFERENCE 8" SPIKE
1521	1957486.0782	880376.7298	613.896	CTL	*RESECT REFERENCE 8" SPIKE
1522	1957498.8363	880309.0228	614.281	CTL	*RESECT REFERENCE 8" SPIKE
1523	1957527.3618	880305.9826	615.084	CTL	*RESECT REFERENCE 8" SPIKE
1524	1957489.2664	879993.9532	628.776	CTL	*RESECT REFERENCE 8" SPIKE
1525	1957456.6806	879976.3497	632.314	CTL	*RESECT REFERENCE 8" SPIKE
1526	1957447.2948	879944.8379	632.188	CTL	*RESECT REFERENCE 8" SPIKE
1527	1957487.1893	879949.0733	632.182	CTL	*RESECT REFERENCE 8" SPIKE
1528	1957280.0301	879348.1616	632.830	CTL	*RESECT REFERENCE 8" SPIKE
1529	1957247.1002	879341.9651	632.621	CTL	*RESECT REFERENCE 8" SPIKE
1530	1957220.6329	879221.8195	636.099	CTL	*RESECT REFERENCE 8" SPIKE
1531	1957258.8952	879238.4620	635.271	CTL	*RESECT REFERENCE 8" SPIKE

Note - Rebar and Cap - Standard -" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999123196 HAS BEEN USED TO COMPUTE THE ABOVE LISTED GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE * GROUND DISTANCE X CAF.
GROUND COORDINATES ARE PROJECTED FROM AR. STATE PLANE GRID COORDINATES BY SCALING ALL X,Y
COORDINATE VALUES WITH THE INVERSE (1/X) OF THE COMBINED AJUSTMENT FACTOR (CAF) ABOUT X=0, Y=0.

GRID COORDINATES ARE STORED UNDER FILE NAME. sbr4906gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 ELEVATIONS FOR POINTS 1-8, AND 900-902 WERE ESTABLISHED BY fast static observations.

POSITIONAL ACCURACY:

HORIZONTAL-GPS(POINTS): 1.0 CM 10 PPM, PRIMARY CONTROL(POINTS 1-8): 2.0 CM 20 PPM

VERTICAL-POSITIONAL ACCURACY IS THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: FAST STATIC PN 2 AND 4
CONVERGENCE ANGLE: 00 48 03.40 LEFT AT PN: 5
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

LT: 34-25-47.3 LG: 093-25-51.8

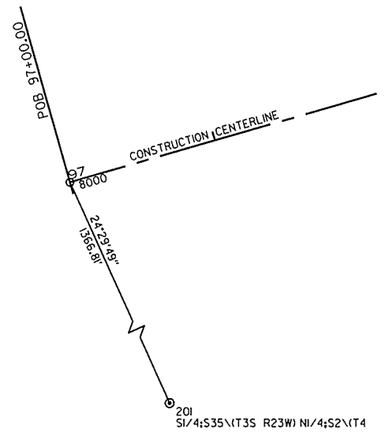
GRID NORTHING: 1956935.1920 GRID EASTING: 880820.2396

GROUND NORTHING: 1957106.7918 GROUND EASTING: 880897.4770

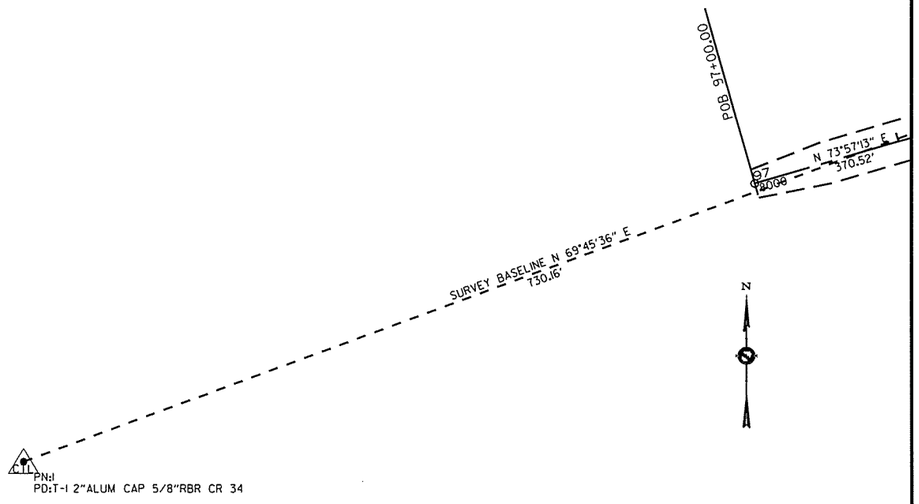
CONSTRUCTION CENTERLINE COORDINATES

Project Name: BR4906
Date: 10/29/2014
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE
Units: U.S. SURVEY FOOT

Point	Description	Station	Northing	Easting
8000	POB	97+00.00	1957422.5900	879765.9896
8001	PC	100+70.52	1957525.0068	880122.0741
8002	CC		1956895.7101	880303.0721
8003	PT	106+65.23	1957425.5256	880687.8711
8004	PC	114+09.04	1956988.4218	881289.7032
8005	CC		1957345.0283	881548.7025
8006	PT	116+90.12	1956904.3119	881552.9308
8007	POE	119+00.00	1956906.3254	881762.8023



LAND TIE



100 50 0 100 200

SCALE : 1" = 100'

SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/3/2015

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.		BR4906	15	85

(4) SURVEY CONTROL DETAILS

P.I. 103+90.15

CONSTRUCTION CENTERLINE

8001

100

105

SURVEY BASELINE N 86°22'56" E
388.82'

PN:2
PD:T-2 2"ALUM CAP 5/8"RBR CR 34

PN:3
PD:T-3 2"ALUM CAP 5/8"RBR CR 34

POB 97+00.00

97

8000

N 73°57'13" E
370.52'

PC 100+70.52

SURVEY BASELINE N 69°45'36" E
730.16'

SURVEY BASELINE S 71°36'06" E
388.53'

P. I. = 103+90.15
Δ = 52°02'12.29" RT.
D = 8°45'00.00"
T = 319.63'
L = 594.71'
E = 8.80'
BEGIN SUPERELEVATION STA. 98+83.02
BEGIN MAX. SUPERELEV. STA. 101+33.02
END MAX. SUPERELEV. STA. 106+02.73
END SUPERELEVATION STA. 108+52.73

PT 106+65.23

8003

PN:4
PD:T-4 2"ALUM CAP 5/8"RBR CR 34

SURVEY BASELINE S 31°02'23" E
334.47'

S 54°00'34" E
143.82'

STA. 97+00.00 - BEGIN JOB BR4906
FED. AID PROJ. STPB-NBIL(16)

S 54°00'34" E 110
143.82'

PN:5
PD:T-5 2"ALUM CAP 5/8"RBR CR 34

SURVEY BASELINE S 71°46'12" E
617.62'

P. I. = 115+54.55
Δ = 36°32'24.57" LT.
D = 13°00'00.00"
T = 145.50'
E = 281.08'
10.00'
BEGIN SUPERELEVATION STA. 112+21.54
BEGIN MAX. SUPERELEV. STA. 114+71.54
END MAX. SUPERELEV. STA. 116+27.62
END SUPERELEVATION STA. 118+77.62

PC 114+09.04

8004

T5

PT 116+90.12

POE 119+00.00

8006

N 89°27'01" E
209.88'

8007

T9

SURVEY BASELINE
S 87°38'02" E
367.28'

PN:6
PD:T-6 2"ALUM CAP 5/8"RBR CR 34

PN:7
PD:T-7 2"ALUM CAP 5/8"RBR CR 34

P.I. 115+54.55

STA. 119+00.00 - END JOB BR4906
FED. AID PROJ. STPB-NBIL(16)

SURVEY BASELINE N 69°48'53" E
487.10'

PN:8
PD:T-8 2"ALUM CAP 5/8"RBR

100 50 0 100 200

SCALE : 1" = 100'

SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/3/2015

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.		BR4906	16	85

4 PLAN AND PROFILE

LEGEND

- POWER POLE
- COMBINATION POLE
- POLE W/GUY
- TELEPHONE RISER
- SIGN
- UNDERGROUND CABLE
- MAILBOX

STA. 97+00.00 - BEGIN JOB BR4906
FED. AID PROJ. STPB-NBIL(16)

EARTHWORK
STA.97+00 TO STA.119+00

UNCLASSIFIED EXCAVATION (NORMAL)	=	16712 CU.YDS.
UNCLASSIFIED EXCAVATION (DRIVEWAYS / FIELD ENTRANCES)	=	4300 CU.YDS.
UNCLASSIFIED EXCAVATION (OBLITERATION OF EXISTING ROADWAY)	=	284 CU.YDS.
COMPACTED EMBANKMENT (NORMAL)	=	13217 CU.YDS.
COMPACTED EMBANKMENT (DRIVEWAYS / FIELD ENTRANCES)	=	800 CU.YDS.
COMPACTED EMBANKMENT (OBLITERATION OF EXISTING ROADWAY)	=	646 CU.YDS.

NOTE: EARTHWORK SHALL BE PAID AS PLAN QUANTITY.

TRAFFIC CONTROL DEVICES

W20-1

STATION 82+00 RT. (1500 FT.)	1 SIGN = 16 SQ. FT.
STATION 87+00 RT. (1000 FT.)	1 SIGN = 16 SQ. FT.
STATION 92+00 RT. (500 FT.)	1 SIGN = 16 SQ. FT.
STATION 124+00 LT. (500 FT.)	1 SIGN = 16 SQ. FT.
STATION 129+00 LT. (1000 FT.)	1 SIGN = 16 SQ. FT.
STATION 134+00 LT. (1500 FT.)	1 SIGN = 16 SQ. FT.

G20-1 (ROAD WORK NEXT X X MILES)

STATION 97+00 RT.	1 SIGN = 10 SQ. FT.
STATION 119+00 LT.	1 SIGN = 10 SQ. FT.

G20-2 (END ROAD WORK)

STATION 92+00 LT.	1 SIGN = 8 SQ. FT.
STATION 124+00 RT.	1 SIGN = 8 SQ. FT.

BARRICADES (TYPE III)
ENTIRE PROJECT AS DIRECTED 32 LIN. FT.

TRAFFIC DRUMS
ENTIRE PROJECT AS DIRECTED 10 EACH

VERTICAL PANELS
ENTIRE PROJECT AS DIRECTED 40 EACH

REMOVAL AND DISPOSAL OF FENCE

STA. 97+00 TO STA. 98+26 ON LT.	=	138 LIN. FT.
STA. 97+00 TO STA. 98+76 ON RT.	=	179 LIN. FT.
STA. 98+84 TO STA. 109+03 ON RT.	=	600 LIN. FT.
STA. 99+46 TO STA. 108+31 ON LT.	=	900 LIN. FT.

WIRE FENCE (TYPE D-1)

STA. 97+00 TO STA. 98+26 ON LT.	=	137 LIN. FT.
STA. 97+00 TO STA. 98+76 ON RT.	=	177 LIN. FT.
STA. 98+84 TO STA. 109+03 ON RT.	=	950 LIN. FT.
STA. 99+46 TO STA. 106+91 ON LT.	=	785 LIN. FT.

OBLITERATION OF EXISTING DRIVEWAY, LT.
STA. 99+05 TO STA. 99+22 = 2 CU.YDS.

STA. 98+89
INSTALL SIDE DRAIN ON LT.
21" X 15" X 32' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 23 CU. YDS. COMP. EMBANKMENT
= 41 CU. YDS. UNCL. EXCAVATION
= 46.5 TONS AGGR. BASE COURSE

CLEARING AND GRUBBING
STA. 97+00 TO STA. 119+00 = 22 STA.

NOTE: REMOVE AND DISPOSE OF THE EXISTING BASE FROM THE ABANDONED ROADWAY. THE DITCHES SHALL BE LEVELED AND THE SUBGRADE SCARIFIED BEFORE THE SEEDING OPERATION BEGINS.

MAILBOXES
STA. 98+59 LT. = 1 EACH

STA. 98+85
INSTALL SIDE DRAIN ON RT.
21" X 15" X 32' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 12 CU. YDS. COMP. EMBANKMENT
= 155 CU. YDS. UNCL. EXCAVATION
= 78.7 TONS AGGR. BASE COURSE

18'-0" GATE
STA. 98+76 TO STA. 98+94 ON RT. = 1 EACH

Vernon E.& Lillian L. Adams

FIBER OPTIC CABLE

POB 97+00.00

N 73°57'13" E
3170.52' CONSTRUCTION CENTERLINE

PC 100+70.52

PI 103+90.15

T.C.E.

50' TRANSITION

VC=250'
e=-1.56'

97+00.00 627.46
1.89%
LT. DITCH GRADE
RT. DITCH GRADE 0.19%
97+00.00 626.70
626.54
98+43.75 626.81
98+75.00 630.76
98+88.88 626.60
99+50.00 626.43
-0.08%
-0.28%
-3.09%

VC=275'
e=1.48'

105+50.00 610.88
LT. DITCH GRADE -1.50%
105+75.00 609.10
RT. DITCH GRADE -1.50%
105+87.00 606.98

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, P.E.

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

650 640 630 620 610 600 590 580 570 560 550

91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+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.		BR4906	17	85

PLAN AND PROFILE

Vernon E.& Lillian L. Adams

Vernon E.& Lillian L. Adams

Vernon E.& Lillian L. Adams

REMOVAL AND DISPOSAL OF FENCE

STA. 108+48 TO STA. 109+09 ON RT.	=	110 LIN. FT.
STA. 109+67 TO STA. 118+16 ON RT.	=	966 LIN. FT.
STA. 109+72 TO STA. 113+72 ON RT.	=	360 LIN. FT.

WIRE FENCE (TYPE D-1)

STA. 107+09 TO STA. 108+63 ON RT.	=	205 LIN. FT.
STA. 110+55 TO STA. 116+00 ON LT.	=	686 LIN. FT.
STA. 110+55 TO STA. 116+70 ON RT.	=	704 LIN. FT.

NOTE: REMOVE AND DISPOSE OF THE EXISTING BASE FROM THE ABANDONED ROADWAY. THE DITCHES SHALL BE LEVELED AND THE SUBGRADE SCARIFIED BEFORE THE SEEDING OPERATION BEGINS.

18'-0" GATE
STA. 106+91 TO STA. 107+09 ON LT. = 1 EACH

OBLITERATION OF EXISTING ROADWAY

	UNCL. EXC.	COMPACT. EMB.
STA. 101+34 TO STA. 109+12	= 159 CU.YDS.	400 CU.YDS.
STA. 109+65 TO STA. 113+52	= 125 CU.YDS.	246 CU.YDS.

STA. 107+00
INSTALL SIDE DRAIN ON LT.
30" X 62' PIPE CULVERT
CONSTRUCT APPROACH
= 402 CU. YDS. COMP. EMBANKMENT
= 24 CU. YDS. UNCL. EXCAVATION
= 118.9 TONS AGGR. BASE COURSE

STA. 108+62 CONSTRUCT
STD. HWY. SIGNS
OM-3L ON LT.
TYPE C SUPPORT ASSEMBLY

STA. 109+38 IN PLACE 12' X 57' BRIDGE
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1)
= 1 LUMP SUM.
THE EXISTING BRIDGE SHALL BE REMOVED ACCORDING TO SECTION 205 OF THE STANDARD SPECIFICATIONS. REMOVAL OF EXISTING BRIDGE IS THE RESPONSIBILITY OF THE CONTRACTOR.

STA. 110+56 CONSTRUCT
STD. HWY. SIGNS
OM-3R ON LT.
TYPE C SUPPORT ASSEMBLY

STA. 103+00 CONSTRUCT
STD. HWY. SIGNS
W8-3 ON LT.
TYPE A SUPPORT ASSEMBLY

Sta. 105+58 RT.
SIGN
REMOVE

Sta. 112+27 RT.
SIGN
REMOVE

STA. 116+00 CONSTRUCT
STD. HWY. SIGNS
W8-3 ON RT.
TYPE A SUPPORT ASSEMBLY

P.I. = 103+90.15
= 52° 02' 12.29" RT.
= 8° 45' 00.00"
= 319.63'
= 594.71'
= 8.80%
BEGIN SUPERELEVATION
BEGIN MAX. SUPERELEV.
END MAX. SUPERELEV.
END SUPERELEVATION

P.I. = 115+54.55
= 36° 32' 24.57" LT.
= 13° 00' 00.00"
= 145.50'
= 281.08'
= 10.00%
BEGIN SUPERELEVATION
BEGIN MAX. SUPERELEV.
END MAX. SUPERELEV.
END SUPERELEVATION

STA. 98+83.02
STA. 101+33.02
STA. 106+02.73
STA. 108+52.73

P.C. 114+09.04

STA. 112+21.54
STA. 114+71.54
STA. 116+27.62
STA. 118+77.62

FIBER OPTIC CABLE

MAZARN CREEK

CONSTRUCTION CENTERLINE

S 54°00'34" E 110
743.82'

T.C.E.

APPROACH GUTTERS (TYPE A)	CLASS S CONCRETE	REINFORCING STEEL
STA. 108+31.92 TO 108+61.92 LT.	3.4 CU. YDS.	285 LBS.
STA. 108+31.92 TO 108+61.92 RT.	3.4 CU. YDS.	285 LBS.
STA. 110+56.08 TO 110+86.08 LT.	3.4 CU. YDS.	285 LBS.
STA. 110+56.08 TO 110+86.08 RT.	3.4 CU. YDS.	285 LBS.

GUARDRAIL			TERMINAL ANCHOR POST (TYPE 1)	THRIE BEAM GUARDRAIL TERMINAL
STA. 107+84 TO STA. 108+53 LT.	= 50 LIN. FT.		1 EACH	1 EACH
STA. 107+84 TO STA. 108+53 RT.	= 50 LIN. FT.		1 EACH	1 EACH
STA. 110+65 TO STA. 111+34 LT.	= 50 LIN. FT.		1 EACH	1 EACH
STA. 110+65 TO STA. 111+34 RT.	= 50 LIN. FT.		1 EACH	1 EACH

650 640 630 620 610 600 590 580 570 560 550

VC=275'
e=1.48'
-3.09%
LT. DITCH GRADE -1.50%
RT. DITCH GRADE -1.50%
105+50.00 610.88
105+75.00 609.10
105+87.00 606.98
106+50.00 609.38
108+25.00 603.41
108+61.92 BEGIN BRIDGE
110+56.08 END BRIDGE
110+56.08 600.50
112+50.00 605.50
113+31.00 614.98
114+00.00 613.00
1.20%
RT. DITCH GRADE 2.58%
RT. DITCH GRADE 5.00%
LT. DITCH GRADE 1.07%
RT. DITCH GRADE 1.93%

STA. 108+61.92 BRIDGE END
BRIDGE NO. 04930
CONT. COMP. W-BEAM UNIT
24' - 0" CLEAR ROADWAY
BRIDGE LENGTH = 194' - 2"
STA. 110+56.08 BRIDGE END

FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 601 FEET MSL BETWEEN STATIONS 108+25 AND 110+40. REFER TO SECTION 110.06(c) OF THE 2014 STANDARD SPECIFICATIONS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
5/29/2015

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

102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+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.		BR4906	18	85

4 PLAN AND PROFILE

P.I. = 115+54.55
Δ = 36°32'24.57" LT.
D = 13°00'00.00"
T = 145.50'
L = 281.08'
E = 10.00%
BEGIN SUPERELEVATION STA. 112+21.54
BEGIN MAX. SUPERELEV. STA. 114+71.54
END MAX. SUPERELEV. STA. 116+27.62
END SUPERELEVATION STA. 118+77.62

STA. 117+32 IN PLACE
12" X 30' CMP
LT. SIDE DRAIN
REMOVE

STA. 116+78
INSTALL SIDE DRAIN ON LT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 33 CU. YDS. COMP. EMBANKMENT
= 2269 CU. YDS. UNCL. EXCAVATION
= 167.0 TONS AGGR. BASE COURSE

STA. 117+70
INSTALL SIDE DRAIN ON LT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 35 CU. YDS. COMP. EMBANKMENT
= 1418 CU. YDS. UNCL. EXCAVATION
= 151.2 TONS AGGR. BASE COURSE

REMOVAL AND DISPOSAL OF FENCE

STA. 113+72 TO STA. 116+41 ON LT.	=	259	LIN. FT.
STA. 116+00 TO STA. 116+50 ON LT.	=	132	LIN. FT.
STA. 116+89 TO STA. 117+29 ON LT.	=	145	LIN. FT.
STA. 117+44 TO STA. 119+00 ON LT.	=	180	LIN. FT.
STA. 118+32 TO STA. 119+00 ON RT.	=	115	LIN. FT.

WIRE FENCE (TYPE D-1)

STA. 116+00 TO STA. 116+66 ON LT.	=	56	LIN. FT.
STA. 116+84 TO STA. 117+61 ON LT.	=	223	LIN. FT.
STA. 116+86 TO STA. 118+16 ON RT.	=	44	LIN. FT.
STA. 117+79 TO STA. 119+00 ON LT.	=	130	LIN. FT.
STA. 118+34 TO STA. 119+00 ON RT.	=	72	LIN. FT.

FIBER OPTIC CABLE

Roy C. Nixon &
Roy Timothy Nixon

MAILBOXES
STA. 116+50 LT. = 1 EACH

FIBER OPTIC CABLE

Vernon E. &
Lillian L. Adams

18'-0" GATE

STA. 116+66 TO STA. 116+84 ON LT.	=	1	EACH
STA. 116+70 TO STA. 116+86 ON RT.	=	1	EACH
STA. 117+61 TO STA. 117+79 ON LT.	=	1	EACH
STA. 118+16 TO STA. 118+34 ON RT.	=	1	EACH

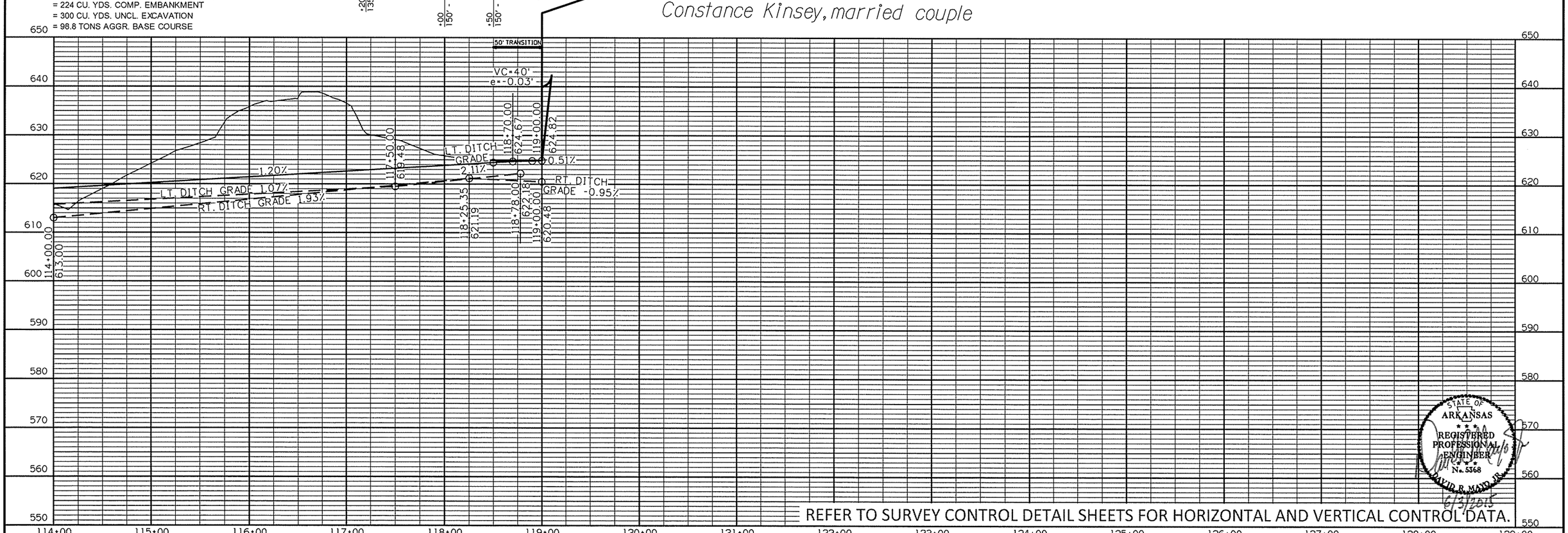
STA. 119+00.00 - END JOB BR4906
FED. AID PROJ. STPB-NBIL(16)

STA. 118+29 IN PLACE
12" X 24' CMP
RT. SIDE DRAIN
REMOVE

STA. 118+25 CONSTRUCT
DRY RAMP ON RT.
= 91 CU.YDS. UNCL. EXC.
= 71 CU.YDS. COMP. EMB.
= 110.9 TONS AGGR. BASE COURSE

STA. 116+78
INSTALL SIDE DRAIN ON RT.
18" X 62' PIPE CULVERT
CONSTRUCT APPROACH
= 224 CU. YDS. COMP. EMBANKMENT
= 300 CU. YDS. UNCL. EXCAVATION
= 98.8 TONS AGGR. BASE COURSE

Jesse Lee Kinsey &
Constance Kinsey, married couple



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/3/2015

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

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.		BR4906	19	85

4 PLAN AND PROFILE

POB 97+00.

P1 0+60.00 POE 0+60.00

N 16°02'47" W 60.00'

97 8000 N 73°57'13" E 370.52' P1 0+00.00 POB 0+00.00

P1 0+00.00 POB 0+00.00

S 16°02'47" E 100.00'

P1 1+00.00 POE 1+00.00

100 8001 CONSTRUCTION CENTERLINE

PC 100+70.52

P1 103

650 650 650 650

640 640

630 630

620 620

610 610

600 600

0+00 1+00 2+00 3+00 0+00 1+00 2+00 3+00

STA. 98+85.06 CL BR4906 = STA. 0+00 CL FIELD ENTRANCE

0+10.00 628.88

0+88.89 631.65

1+00.00 631.05

3.50%

-5.36%

VC=22'
e=-0.24'

STA. 98+85
INSTALL SIDE DRAIN ON RT.
21" X 15" X 32' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 12 CU. YDS. COMP. EMBANKMENT
= 155 CU. YDS. UNCL. EXCAVATION
= 78.7 TONS AGGR. BASE COURSE

FIELD ENTRANCE
STA. 98+85 RT.

STA. 98+89.06 CL BR4906 = STA. 0+00 CL DRIVE

VC=25'
e=0.35'

0+10.00 628.85

0+49.62 632.95

1.26%

2.79%

-1.00%

0+22.92 629.21

0+60.00 633.71

VC=20'
e=-0.17'

STA. 98+89
INSTALL SIDE DRAIN ON LT.
21" X 15" X 32' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 23 CU. YDS. COMP. EMBANKMENT
= 41 CU. YDS. UNCL. EXCAVATION
= 46.5 TONS AGGR. BASE COURSE

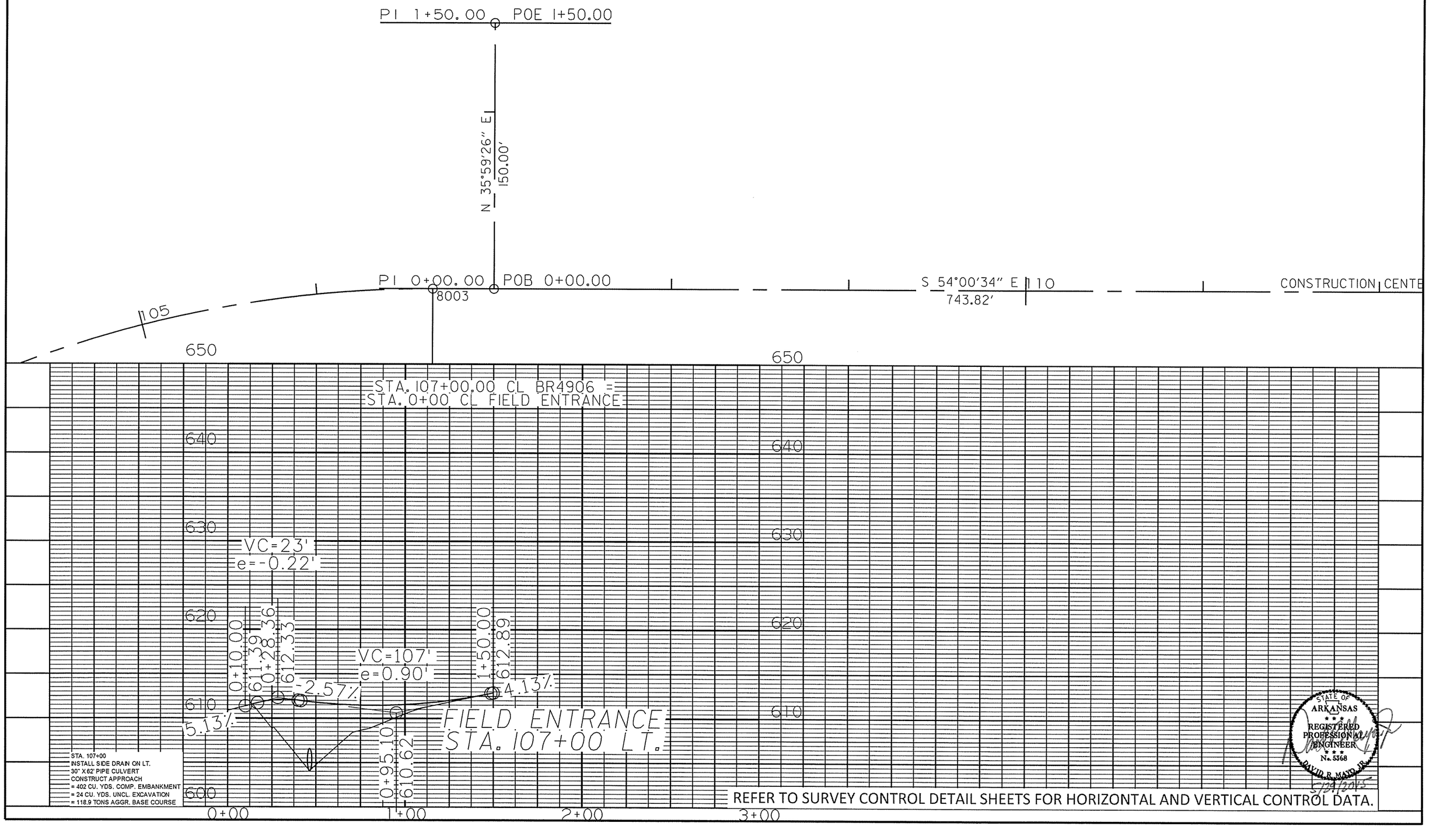
PRIVATE DRIVE
STA. 98+89 LT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5568
DAVID R. MAYO, JR.
01/16/15

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

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.		BR4906	20	85

4 PLAN AND PROFILE



STA. 107+00
INSTALL SIDE DRAIN ON LT.
30" X 62' PIPE CULVERT
CONSTRUCT APPROACH
= 402 CU. YDS. COMP. EMBANKMENT
= 24 CU. YDS. UNCL. EXCAVATION
= 118.9 TONS AGGR. BASE COURSE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
5/24/2015

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

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.		BR4906	21	85
				4	PLAN AND PROFILE			

POE 2+09.69
PT 1+92.03
P1 1+90.00
POE 1+90.00
N 11°17'17" W
17.67'
N 0°32'59" W
190.00'
P1 1+06.38
N 1°01'38" E
20.07'
PC 0+20.07
POB 0+00.00
POB 0+00.00

STA. 116+77.99 CL BR4906 =
STA. 0+00 CL DRIVE

STA. 117+70.00 CL BR4906 =
STA. 0+00 CL FIELD ENTRANCE

1+87.15 641.02
2+09.69 641.23
0.95%
VC=52'
e=1.41'
13.99%
VC=45'
e=-0.73'
17.85%
0+10.00 622.11
0+36.91 620.00

1+66.94 634.78
1+90.00 635.70
3.99%
VC=110'
e=2.47'
14.00%
VC=39'
e=-0.48'
-4.00%
0+10.00 623.22
0+67.81 620.91

PRIVATE DRIVE
STA. 116+78 LT.

STA. 116+78
INSTALL SIDE DRAIN ON LT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 33 CU. YDS. COMP. EMBANKMENT
= 2269 CU. YDS. UNCL. EXCAVATION
= 187.0 TONS AGGR. BASE COURSE

FIELD ENTRANCE
STA. 117+70 LT.

STA. 117+70
INSTALL SIDE DRAIN ON LT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 35 CU. YDS. COMP. EMBANKMENT
= 1418 CU. YDS. UNCL. EXCAVATION
= 151.2 TONS AGGR. BASE COURSE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/3/2015

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

650 640 630 620 610 600
0+00 1+00 2+00 3+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.		BR4906	22	85
				4	PLAN AND PROFILE			

P1 115+54.55

P1 0+00.00 POB 0+00.00

POB 0+00.00 209.88' 8007

S 1°01'38" W 125.00'

S 0°32'59" E 39.77'

PC 0+39.77

P1 0+75.31

PT 1+10.84

S 1°34'57" W 29.16'

P1 1+25.00 POE 1+25.00

S POE 1+40.00

650 650 650 650

640 640

630 630

620 620

610 610

600 600

0+00 1+00 2+00 3+00 0+00 1+00 2+00 3+00

STA. 116+77.99 CL BR4906 =
STA. 0+00 CL FIELD ENTRANCE

0+10.00 623.68

1+08.58 637.48

1+25.00 637.49

14.00'

0.03%

VC=32'
e=-0.56'

STA. 116+78
INSTALL SIDE DRAIN ON RT.
18" X 62' PIPE CULVERT
CONSTRUCT APPROACH
= 224 CU. YDS. COMP. EMBANKMENT
= 300 CU. YDS. UNCL. EXCAVATION
= 98.8 TONS AGGR. BASE COURSE

FIELD ENTRANCE
STA. 116+78 RT.

STA. 118+25.35 CL BR4906 =
STA. 0+00 CL FIELD ENTRANCE

VC=50'
e=-0.41'

0+10.00 624.22

0+40.00 624.49

0.89%

VC=50'
e=0.28'

0+90.00 621.64

1+40.00 621.04

-1.20%

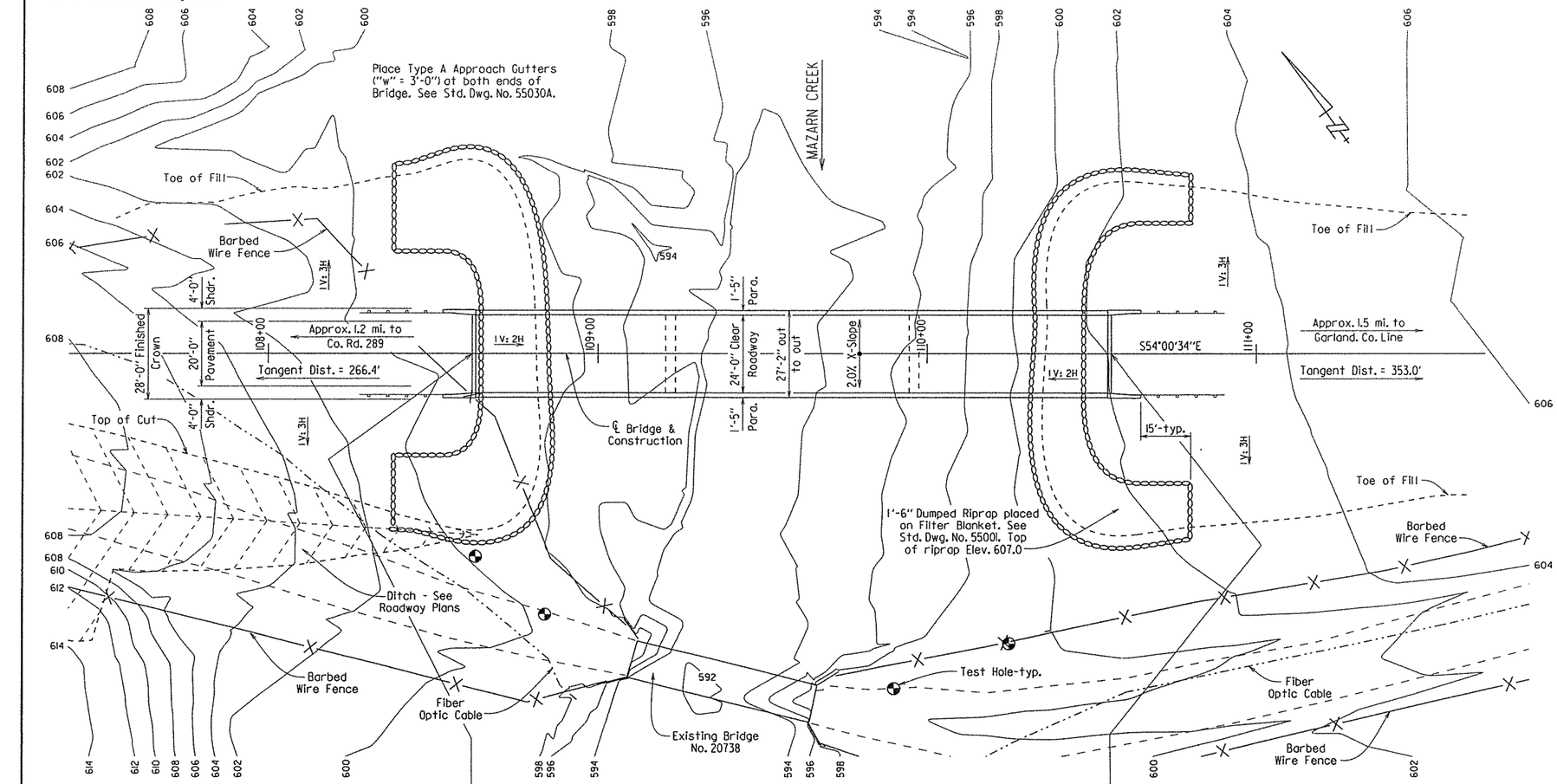
STA. 118+25 CONSTRUCT
DRY RAMP ON RT.
= 91 CU.YDS. UNCL. EXC.
= 71 CU.YDS. COMP. EMB.
= 110.9 TONS AGGR. BASE COURSE

FIELD ENTRANCE
STA. 118+25 RT.

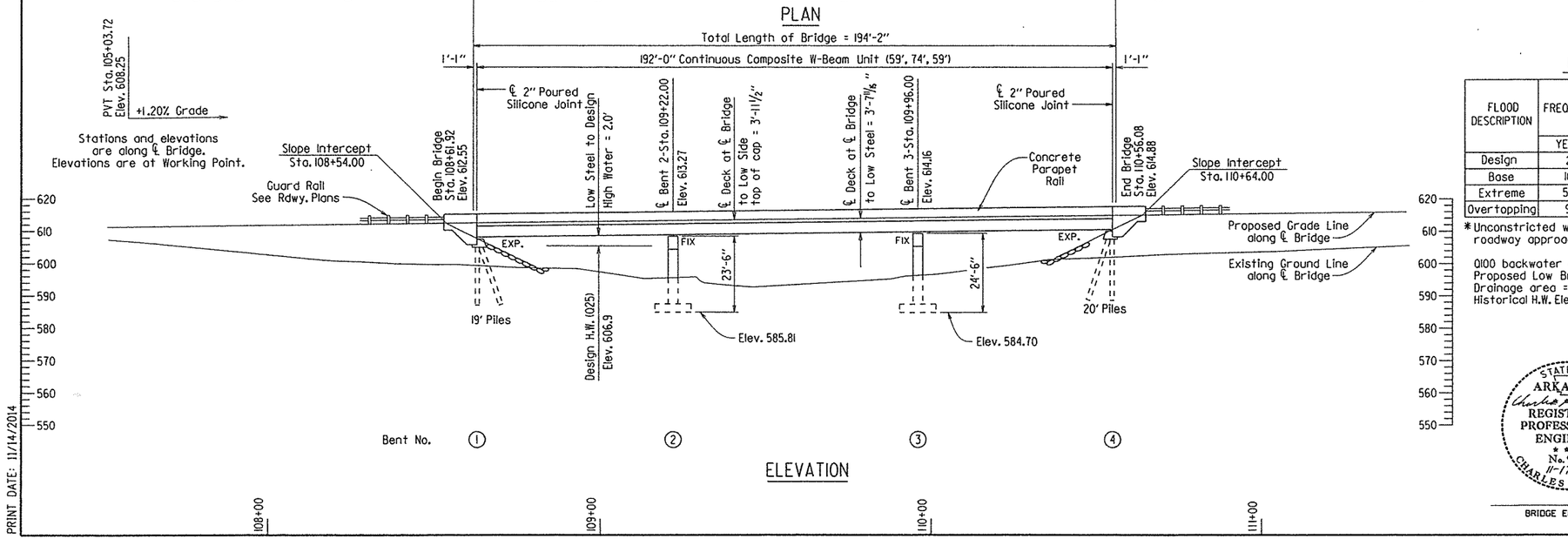
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/3/2016

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

For R/W Data, see Rdwy. Plans



PLAN



ELEVATION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	23	85
				① 04930 -		LAYOUT		- 56452

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown in the Survey Control Data Sheets.

CONSTRUCTION SPECIFICATION: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted, Section and Subsection numbers in the plans refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (6th Edition, 2012) with Interim Specifications.

LIVE LOADING: HL93 SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60, AASHTO M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling in Bents 1 & 4 shall be HP 12x53 and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 60 tons per pile, and into material designated as Hard Shale on the boring legend. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. On all piles the Contractor shall use approved steel H-Pile driving points. Actual pile lengths to be determined in the field. Piling shall be driven after embankment to bottom of cap is in place.

FOOTINGS: Intermediate bent footings shall be set a minimum of 2'-6" into material designated on the boring legend as Hard Shale. The top of the footings shall be set at or below the channel bottom. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of the rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock. Excavations shall be backfilled and compacted to the level of surrounding ground in accordance with Subsection 801.08.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NOS.
End Bents	56454
Intermediate Bents	56455
192' Continuous Composite W-Beam Unit	56456-56461
Elastomeric Bearings	56462
Steel Piling	55020
Type A Approach Cutter	55030A

EXISTING BRIDGE: The existing bridge No. 20738 is 12' wide and 58' long and consists of 3 concrete spans approx. 19' long with embedded railroad rails supported by concrete piers on concrete footings.

REMOVAL AND SALVAGE: After the new bridge is opened to traffic, the existing bridge No. 20738 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the contractor. The existing bridge is located approx. 100' downstream from the new bridge.

MAINTENANCE OF TRAFFIC: For maintenance of traffic, see Roadway Plans.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	11600	606.3	606.9
Base	100	16400	607.9	608.9
Extreme	500	22600	609.8	611.5
Overtopping	90	16220	607.9	608.8

*Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 608.1 ft.
Proposed Low Bridge Chord elevation = 608.92 ft.
Drainage area = 30.5 square miles.
Historical H.W. Elev. = 607.0 ft.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
11-17-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER MAZARN CREEK
MAZARN CREEK STR. & APPRS. (S)
MONTGOMERY COUNTY

COUNTY ROAD 34

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

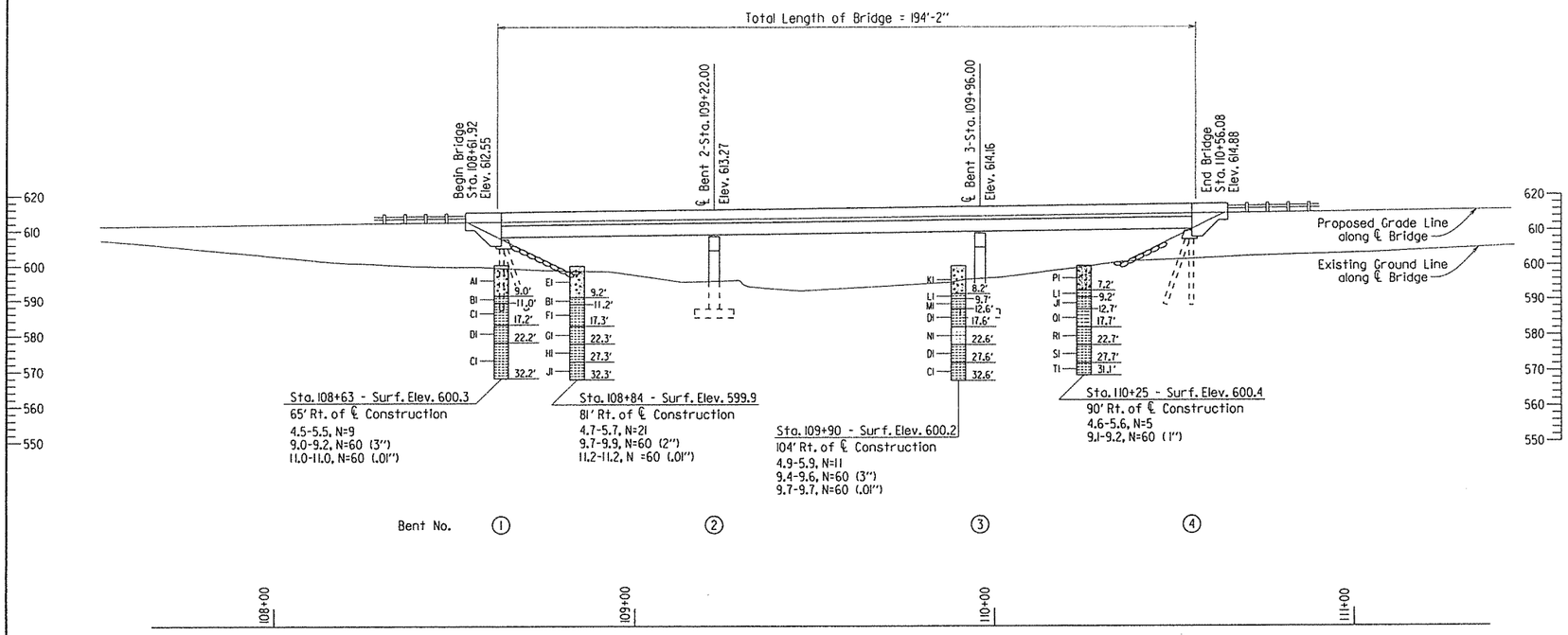
DRAWN BY: KDH DATE: 3-17-14 FILENAME: bbr4906_11.dgn
CHECKED BY: ADM DATE: 10-20-14 SCALE: 1" = 20'
DESIGNED BY: CSE DATE: 4/14

BRIDGE NO. 04930 DRAWING NO. 56452

PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BR4906	24	85
(1) 04930 -		LAYOUT		- 56453



ELEVATION

BORING LEGEND

AI-Moist, Loose, Brown Sand with Gravel(Sandstone Fragments)
BI-SHALE - Dark Gray, Weathered, Medium Hard
CI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite Partings, Fractured Layers and Slickensides
DI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite Partings, and Slickensides
EI-Moist, Medium Dense, Brown Sand with Gravel(Sandstone and Quartz Fragments)
FI-SHALE WITH OCCASIONAL WEATHERED SHALE AND SANDSTONE LAYERS - Dark Gray, Laminated, Hard, with Steep Dip, Fractured Layers and Slickensides
GI-SHALE WITH OCCASIONAL SANDSTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite Partings, Fractured Layers and Slickensides
HI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite Seams, and Slickensides
JI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite Seams, Fractured Layers and Slickensides
KI-Moist, Medium Dense, Brown Sand with Gravel(Sandstone Fragments)
LI-SHALE - Gray, Weathered, Medium Hard
MI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Fractured Layers, and Slickensides
NI-SANDSTONE WITH FREQUENT SHALE LAYERS AND SEAMS - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite and Quartz Seams, Fractured Layers and Slickensides
PI-Moist, Loose, Brown Sand with Clay and Gravel(Sandstone Fragments)
QI-SHALE WITH A SANDSTONE LAYER - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite and Quartz Seams and Layers, Fractured Layers, Trace of Pyrite and Slickensides
RI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite and Quartz Layers, Fractured Layers, Trace of Pyrite and Slickensides
SI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite Seams, Fractured Layers, Trace of Pyrite and Slickensides
TI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Steep Dip, Calcite Partings, Fractured Layers, Trace of Pyrite and Slickensides

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
11-17-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER
MAZARN CREEK
MAZARN CREEK STR. & APPRS. (S)
MONTGOMERY COUNTY

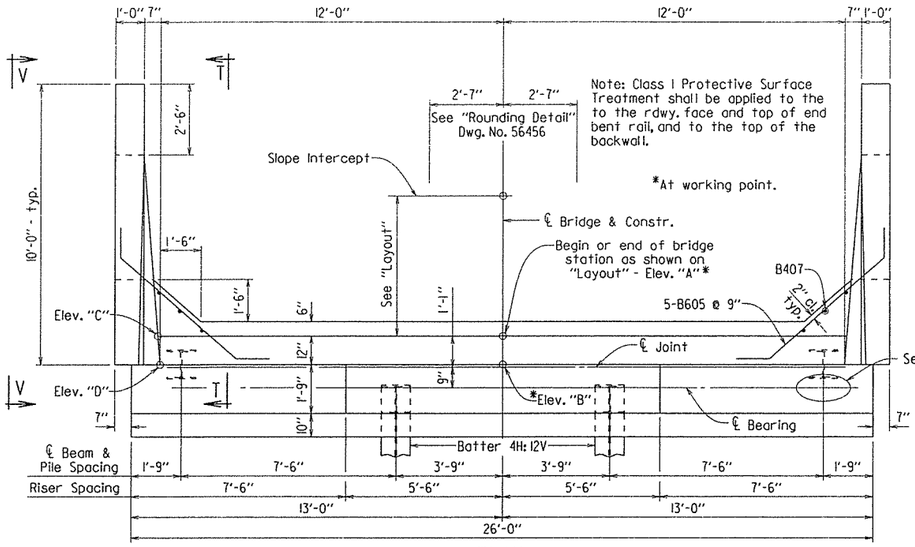
COUNTY ROAD 34
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-17-14 FILENAME: bbr4906_ll.dgn
CHECKED BY: ADM DATE: 10-22-14 SCALE: 1" = 20'
DESIGNED BY: CSR DATE: 4/14

BRIDGE NO. 04930 DRAWING NO. 56453

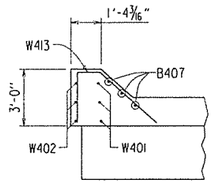
PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	25	85
				(1) 04930 -		END BENTS	- 56454	



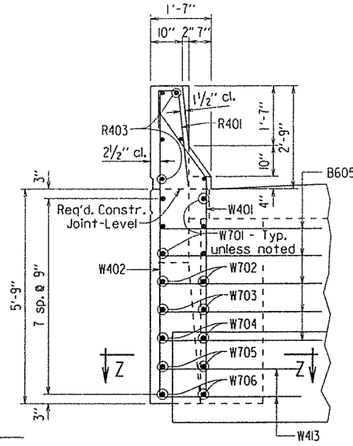
PLAN

Scale: 3/8" = 1'-0"



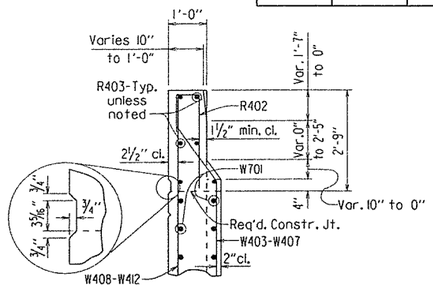
SECTION Z-Z

Scale: 1/4" = 1'-0"



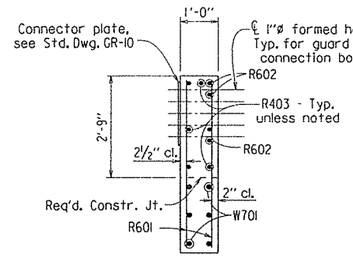
VIEW W-W

Scale: 1/2" = 1'-0"



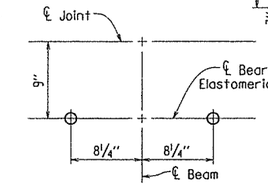
SECTION X-X

Scale: 1/2" = 1'-0"



SECTION Y-Y

Scale: 1/2" = 1'-0"



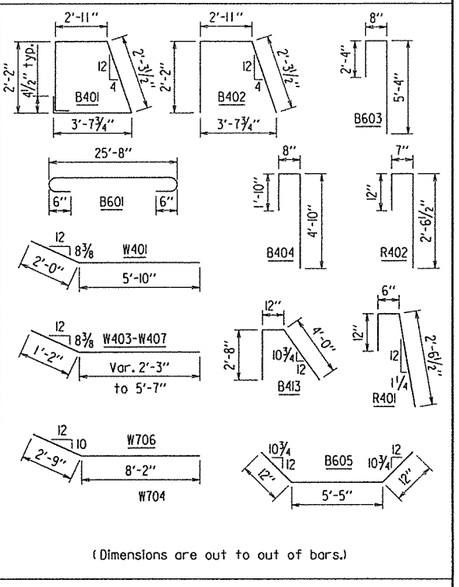
TYP. ANCHOR BOLT LAYOUT

No Scale

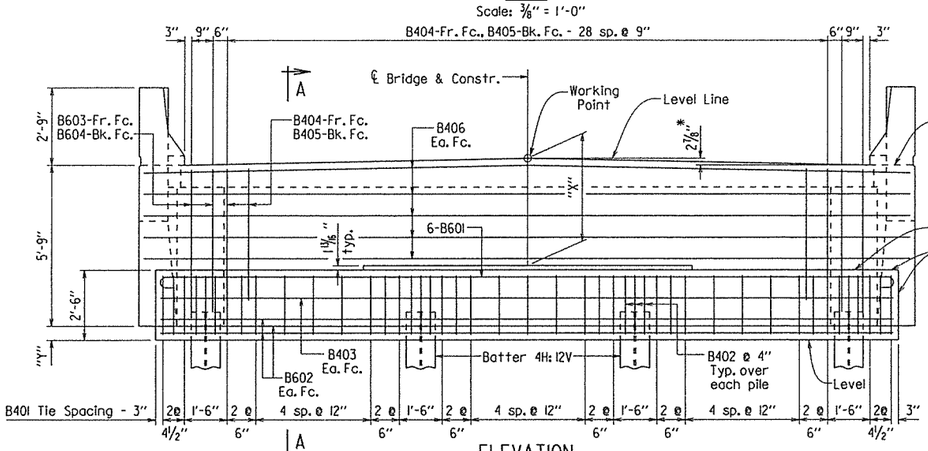
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	33	11'-5"	2"
B402	12	7'-3"	2"
B403	2	25'-8"	Str.
B404	29	7'-2"	2"
B405	29	4'-1"	Str.
B406	10	26'-10"	Str.
B407	6	4'-7"	Str.
B601	6	27'-0"	4½"
B602	6	25'-8"	Str.
B603	4	8'-0"	4½"
B604	4	4'-7"	Str.
B605	10	7'-4"	4½"
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W401	6	7'-10"	2"
W402	6	8'-2"	Str.
W403-W407	2 each	Var. 3'-5" to 6'-9"	2"
W408-W412	2 each	Var. 4'-6" to 7'-10"	Str.
W413	4	7'-6"	2"
W701	12	9'-8"	Str.
W702	4	6'-5"	Str.
W703	4	5'-6"	Str.
W704	4	4'-8"	Str.
W705	4	3'-9"	Str.
W706	4	10'-11"	5¼"

BENDING DIAGRAMS

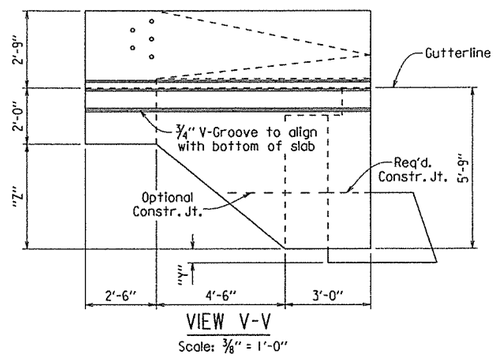


(Dimensions are out to out of bars.)



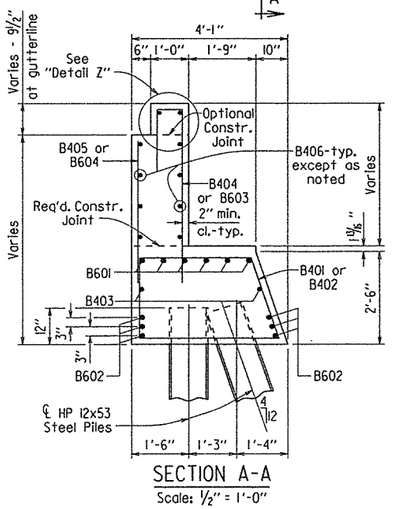
ELEVATION

Bent 1 - Looking Back
Bent 4 - Looking Ahead
Scale: 3/8" = 1'-0"



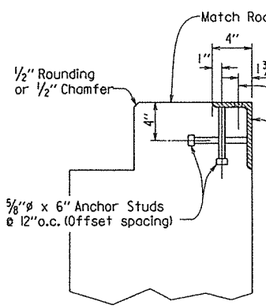
VIEW V-V

Scale: 3/8" = 1'-0"



SECTION A-A

Scale: 1/2" = 1'-0"



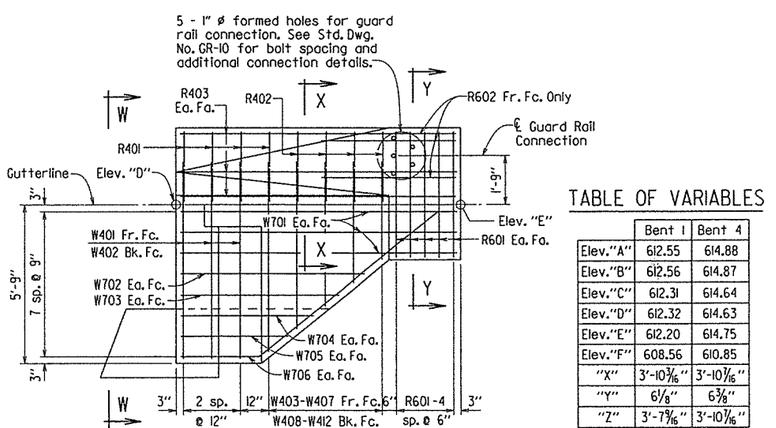
Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 56461.

DETAIL Z

No Scale



SECTION T-T

Scale: 3/8" = 1'-0"

TABLE OF VARIABLES

	Bent 1	Bent 4
Elev."A"	612.55	614.88
Elev."B"	612.56	614.87
Elev."C"	612.31	614.64
Elev."D"	612.32	614.63
Elev."E"	612.20	614.75
Elev."F"	608.56	610.85
"X"	3'-10 3/16"	3'-10 3/16"
"Y"	6 1/8"	6 3/8"
"Z"	3'-7 9/16"	3'-10 3/16"

GENERAL NOTES

All concrete shall be Class S and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56461.

For additional information, See layout.

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DETAILS OF END BENTS
MAZARN CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

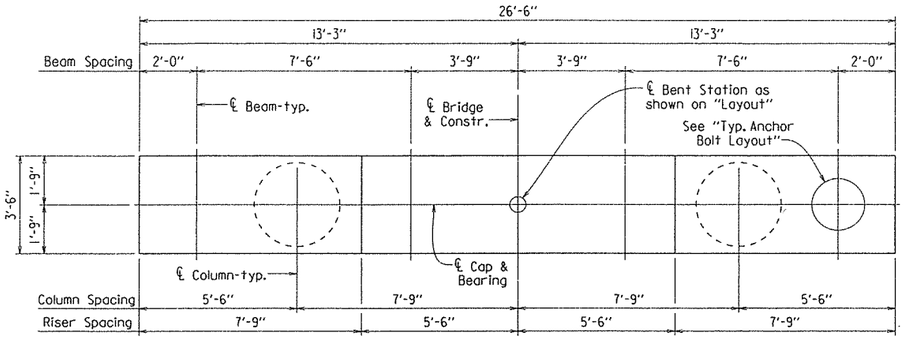
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-8-14 FILENAME: bbr4906_bl.dgn
CHECKED BY: CSR DATE: 11/14/14 SCALE: AS NOTED
DESIGNED BY: RDH DATE: 7-14

BRIDGE NO. 04930 DRAWING NO. 56454

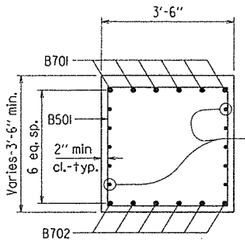
PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	26	85
				(1) 04930 -		INT. BENTS	- 56455	



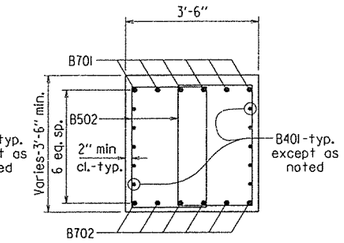
PLAN

Scale: 3/8" = 1'-0"



SECTION A-A

Scale: 1/2" = 1'-0"



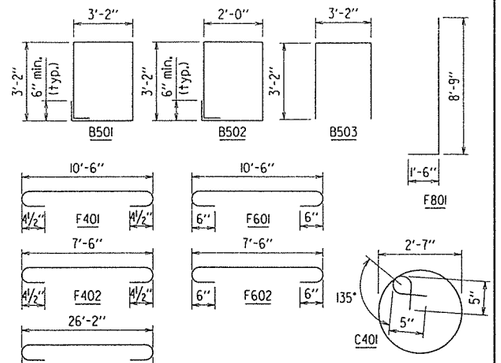
SECTION B-B

Scale: 1/2" = 1'-0"

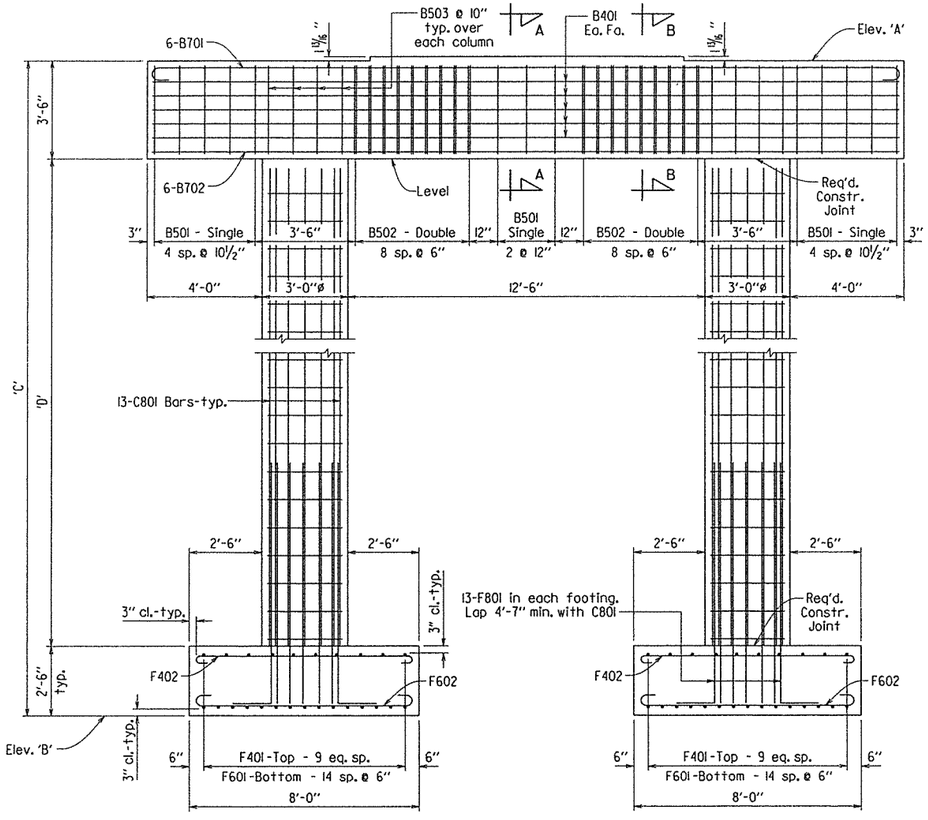
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	10	26'-2"	Str.
C401	'F'	9'-3"	3"
F401	20	11'-6"	3"
F402	30	8'-6"	3"
B501	13	13'-2"	2½"
B502	36	10'-10"	2½"
B503	8	9'-4"	2½"
F601	30	11'-10"	4½"
F602	42	8'-10"	4½"
B701	6	27'-10"	5¼"
B702	6	26'-2"	Str.
C801	26	'G'	Str.
F801	26	10'-1"	6"

BENDING DIAGRAMS

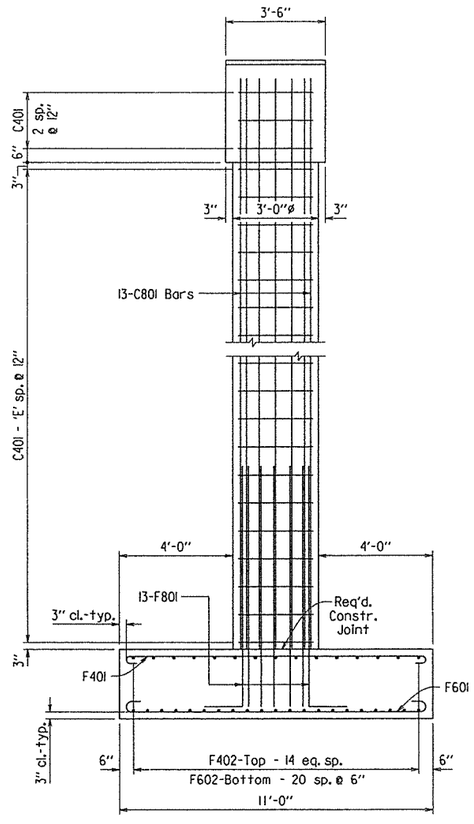


Dimensions are out to out of bars.



ELEVATION

Scale: 3/8" = 1'-0"

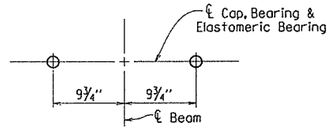


END VIEW

Scale: 3/8" = 1'-0"

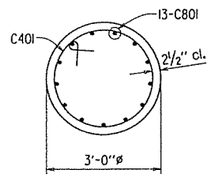
TABLE OF VARIABLES

BENT	Elev. 'A'	Elev. 'B'	'C'	'D'	'E'	'F'	'G'
2	609.31	585.81	23'-6"	17'-6"	17	42	20'-6"
3	609.20	584.70	24'-6"	18'-6"	18	44	21'-6"



TYP. ANCHOR BOLT LAYOUT

No Scale



TYP. SECTION THRU COLUMN

Scale: 1/2" = 1'-0"

GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength of f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

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

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
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DETAILS OF INTERMEDIATE BENTS MAZARN CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-9-14 FILENAME: bbr4906_b2.dgn

CHECKED BY: CSR DATE: 11/17/14 SCALE: AS NOTED

DESIGNED BY: ADH DATE: 7-14

BRIDGE NO. 04930 DRAWING NO. 56455

PRINT DATE: 11/17/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	27	85
				(1) 04930 -		W-BEAM UNIT	- 56456	

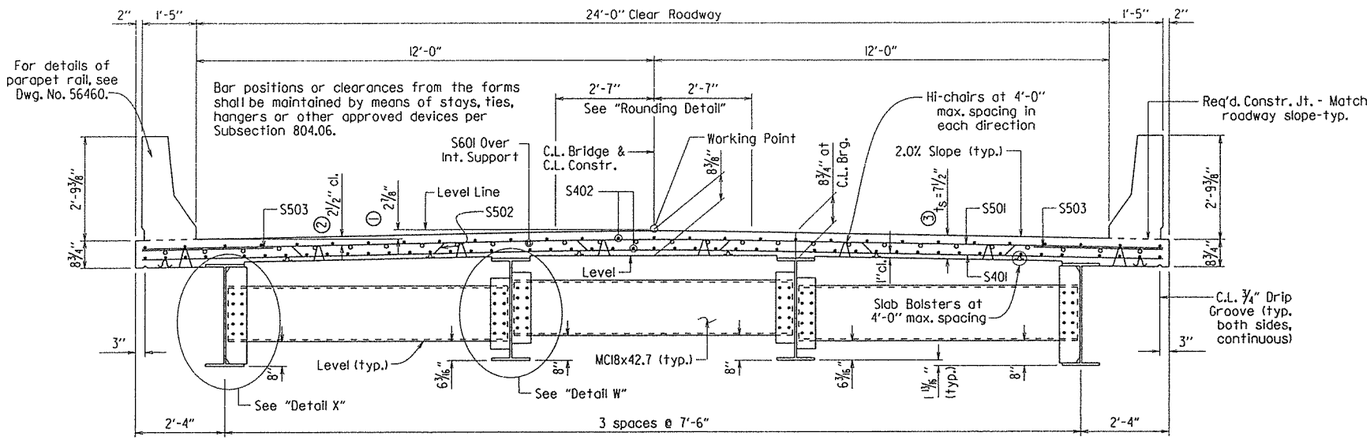
SLAB REINFORCING

Transverse: S501-Top; S401-Bottom @ 12" o.c. —┐ Alternate
S502 @ 12" o.c. bent up over beams —┘
S503 bundled with #5 bars in top at both gutterlines

Longitudinal: S402 as shown
S601 as shown centered over int. supports

Note: Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

NOTE: At the Contractor's option, two straight #5 bars may be substituted for bar S502. Payment for reinforcing will be based on the weight of bar S502.

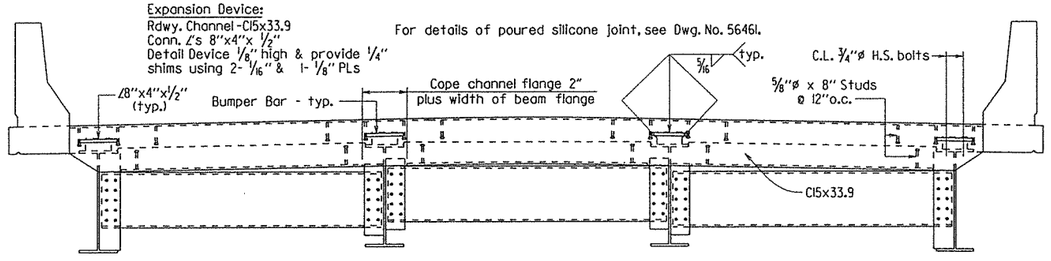


TYPICAL ROADWAY SECTION

Scale: ½" = 1'-0"

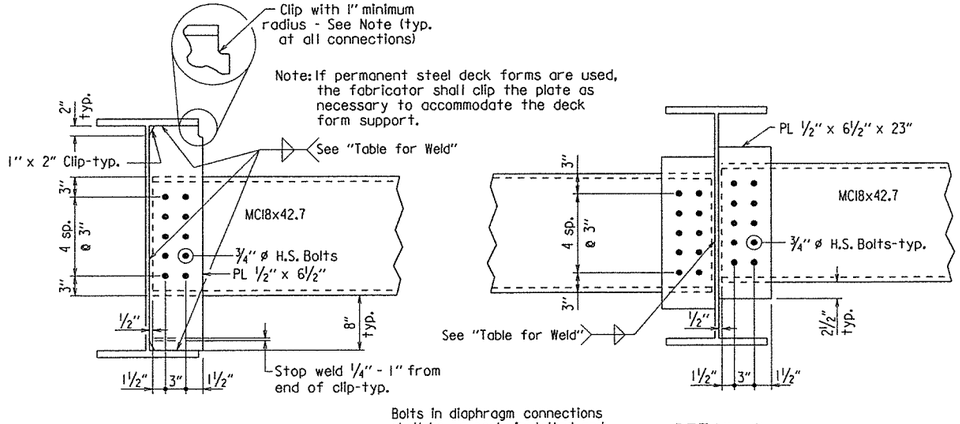
Expansion Device:
Rdwy. Channel-C15x33.9
Conn. ∠'s 8"x4"x ½"
Detail Device ⅛" high & provide ¼" shims using 2- 1/16" & 1- ⅛" PLs

For details of poured silicone joint, see Dwg. No. 56461.



TYPICAL SECTION THRU JOINT

Scale: ½" = 1'-0"



Bolts in diaphragm connections shall be properly installed and tightened in accordance with Subsection 807.71.

DETAIL X

No Scale

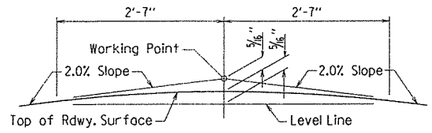
DETAIL W

No Scale

① Working point to gutterline.

② Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

③ See "Adjustment for Slab Thickness Tolerance".

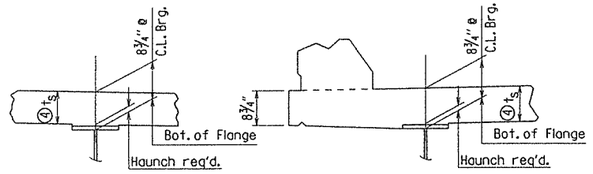


NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

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



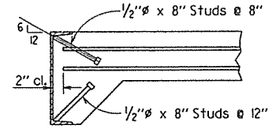
④ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.



Note: As an alternate to ⅝"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of ⅝"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

No Scale

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

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SHEET 1 OF 5
DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
MAZARN CREEK

ROUTE SEC.

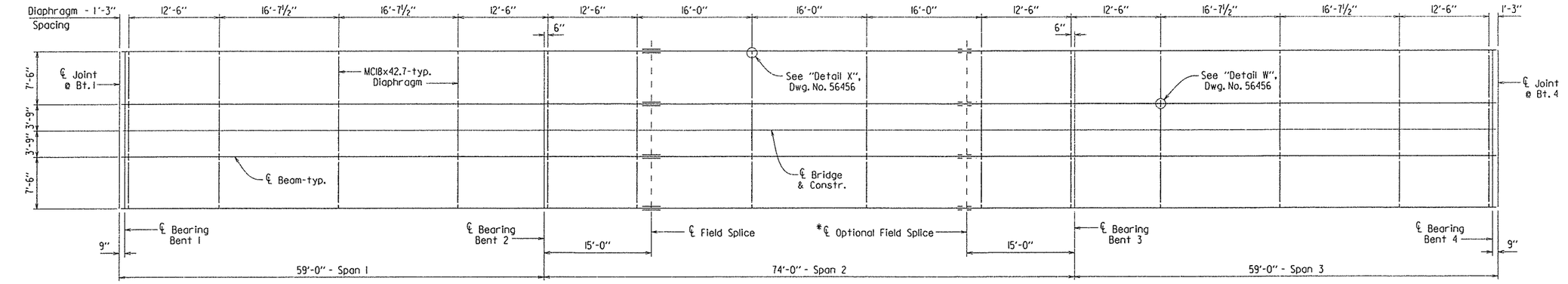
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-8-14 FILENAME: bbr4906_si.dgn
CHECKED BY: CRE DATE: 11/14/14 SCALE: AS NOTED
DESIGNED BY: KDH DATE: 7-14

BRIDGE NO. 04930 DRAWING NO. 56456

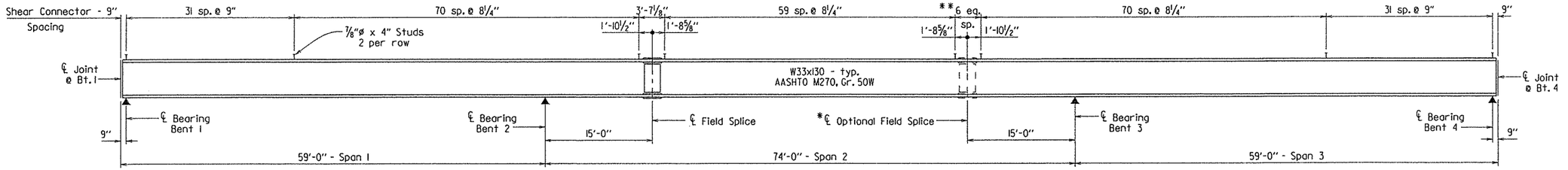
PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	28	85
				(1) 04930 - W-BEAM UNIT			- 56457	



FRAMING PLAN

Scale: 1/8" = 1'-0"



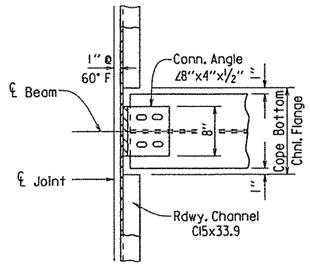
TYPICAL BEAM ELEVATION

No Scale

Note: Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

*At the Contractor's option, a field splice may be provided at this location. No additional payment will be made for the optional field splice.

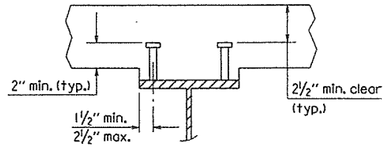
**If the optional field splice is used eliminate the shear connectors at this location.



CHANNEL CONNECTION DETAIL

No Scale

Stud Shear Connectors shown shall be 7/8"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. Maximum stud spacing = 24".



SHEAR CONNECTOR DETAIL

No Scale

STATE OF ARKANSAS
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No. 9235
11-17-14
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BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
MAZARN CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-10-14
CHECKED BY: CSR DATE: 11/14/14
DESIGNED BY: ADN DATE: 7-14
FILENAME: bbr4906_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 04930 DRAWING NO. 56457

PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	29	85
				(1)	04930 -	W-BEAM UNIT	- 56458	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATION: AASHTO LRFD Bridge Design Specifications (6th Edition, 2012) with Interim Specifications.

MATERIAL AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Grade 60, AASHTO M31 or M322, Type A)	fy =	60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy =	36,000 psi

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28-day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used. Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)".

STRUCTURAL STEEL:
All Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36 or Gr. 50 unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with the webs horizontal in groups as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

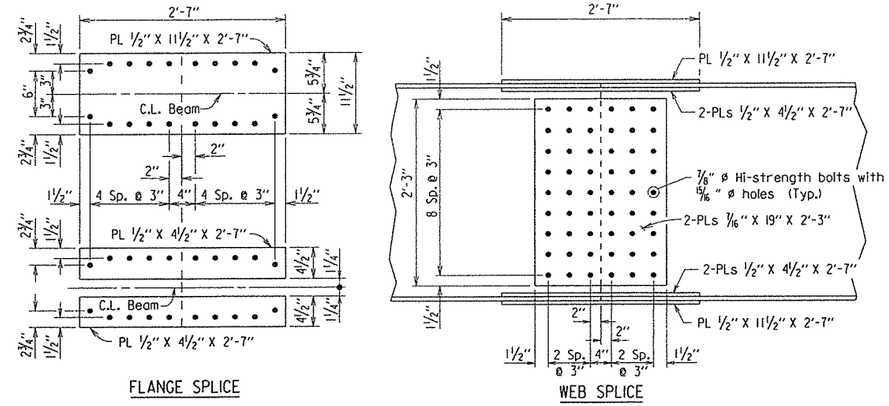
Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching false work support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

Field connections shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Open Holes shall be 15/16 " ø unless otherwise noted. Holes for ¾" ø high-strength bolts may be 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges.

Unless otherwise noted, steel diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.



FLANGE SPLICE

WEB SPLICE

All Field Splice plates to be AASHTO M270, Gr. 50W steel.

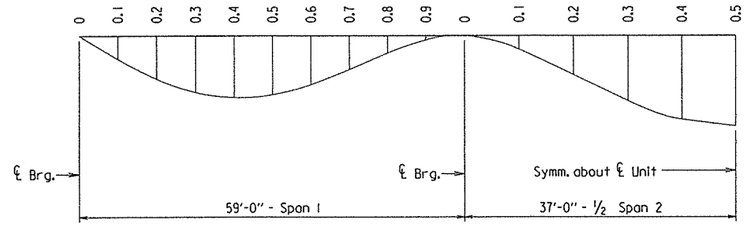
DETAILS OF FIELD SPLICE

No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
Span 1	0	0	0	0	0	0	0
	0.1	0.031	0.028	0.174	0.147	0.193	0.167
	0.2	0.057	0.052	0.320	0.271	0.355	0.308
	0.3	0.074	0.068	0.417	0.354	0.463	0.403
	0.4	0.081	0.075	0.456	0.388	0.506	0.441
	0.5	0.077	0.071	0.435	0.370	0.483	0.420
	0.6	0.064	0.059	0.361	0.307	0.401	0.349
	0.7	0.045	0.041	0.252	0.213	0.280	0.242
	0.8	0.023	0.021	0.130	0.110	0.144	0.125
	0.9	0.006	0.005	0.032	0.027	0.035	0.031
½ Span 2	0	0	0	0	0	0	0
	0.1	0.018	0.016	0.101	0.085	0.112	0.097
	0.2	0.051	0.047	0.288	0.245	0.320	0.279
	0.3	0.085	0.079	0.481	0.409	0.534	0.465
	0.4	0.110	0.101	0.620	0.526	0.688	0.598
	0.5	0.119	0.110	0.671	0.569	0.744	0.647

← Table is symm. about ℄ Unit



DEAD LOAD DEFLECTIONS DIAGRAM

Note:
Camber for Dead Load Deflection plus Vertical curve ± ¼" tolerance.
Deflections shown are from a chord from ℄ Bearing to ℄ Bearing.
Vertical curve corrections not included. Negative sign (-) indicates point above chord.

STATE OF ARKANSAS
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11-17-14
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SHEET 3 OF 5
DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
MAZARN CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-10-14 FILENAME: bbr4906_sl.dgn
CHECKED BY: CJK DATE: 11/14/14 SCALE: AS NOTED
DESIGNED BY: ADH DATE: 7-1-14

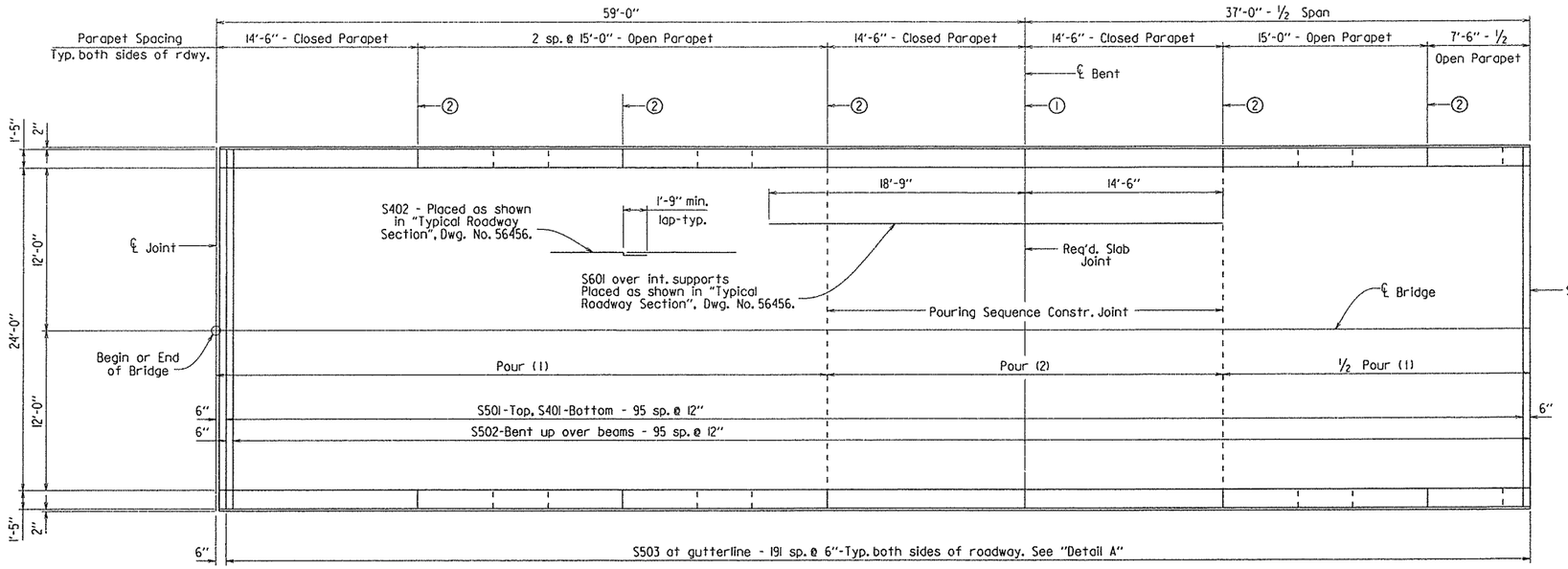
BRIDGE NO. 04930 DRAWING NO. 56458

PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	30	85
				(1) 04930 -		W-BEAM UNIT	- 56459	

① ℄ Full-Depth Parapet Joint (¼" to 1" max.) Stop 4" from top of slab.

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) Stop 1'-2" from top of slab.

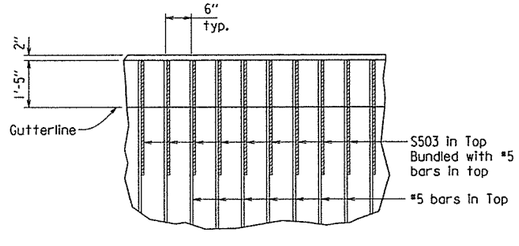


HALF-REINFORCING PLAN

Scale: 3/16" = 1'-0"

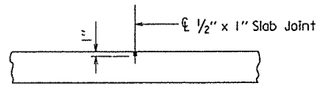
Notes:
Required slab joints and pouring sequence construction joints shall align with parapet joints at the gutterline.

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence shown.



DETAIL A

No Scale



SLAB JOINT DETAIL

No Scale

Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab, gutterline to gutterline for joints that align with parapet joints.

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SHEET 4 OF 5
DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
MAZARN CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-10-14 FILENAME: bbr4906_sl.dgn
CHECKED BY: CSE DATE: 11/14/14 SCALE: AS NOTED
DESIGNED BY: A-DN DATE: 7/14

BRIDGE NO. 04930 DRAWING NO. 56459

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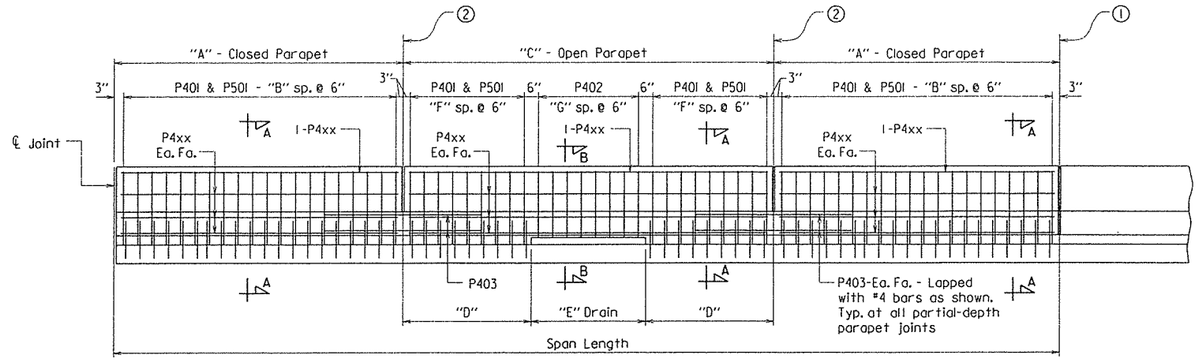
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	31	85
				① 04930 - W-BEAM UNIT - 56460				

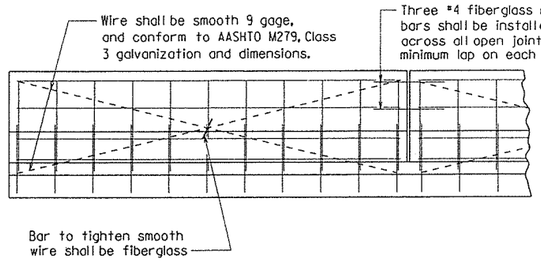


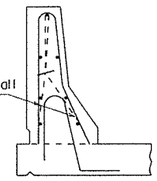
① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Half-Reinforcing Plan", Dwg. No. 56459. Stop 4" from top of slab.

DETAILS OF PARAPET RAIL

Scale: ⅜" = 1'-0"

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Half-Reinforcing Plan", Dwg. No. 56459. Stop 1'-2" from top of slab.





All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
14'-6"	28	P404

"C" Open Parapet	"D"	"E"	"F"	"G"	P4xx Bar
15'-0"	5'-6"	4'-0"	10	7	P405

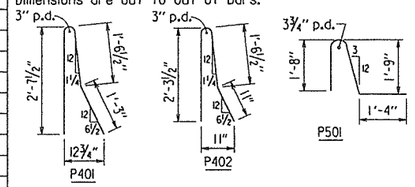
Note: For location of Open and Closed Parapet panels, see "Half-Reinforcing Plan", Dwg. No. 56459.

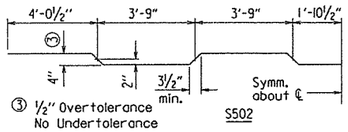
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401	192	26'-10"	Str.
S402	380	39'-9"	Str.
P401	656	5'-6"	3"
P402	112	4'-10"	3"
P403	80	3'-10"	Str.
P404	84	14'-2"	Str.
P405	98	14'-8"	Str.
S501	192	26'-10"	Str.
S502	191	27'-3"	3"
S503	766	4'-1"	Str.
P501	656	4'-10"	3¾"
S601	56	33'-3"	Str.

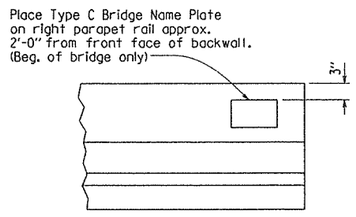
BENDING DIAGRAMS

Dimensions are out to out of bars.



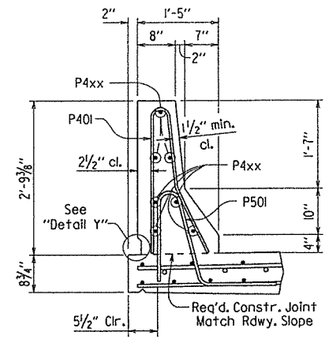


③ ½" Overtolerance
No Undertolerance



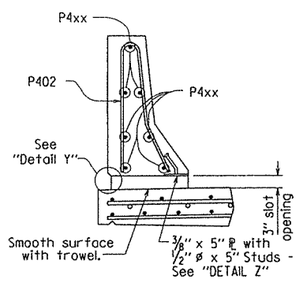
NAME PLATE DETAIL

No Scale



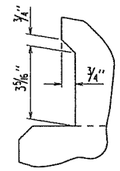
SECTION A-A

Scale: ¾" = 1'-0"



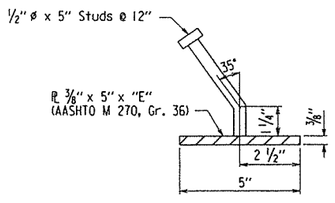
SECTION B-B

Scale: ¾" = 1'-0"



DETAIL Y

No Scale



DETAIL Z

No Scale

Note:
The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)."

Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)."

STATE OF ARKANSAS
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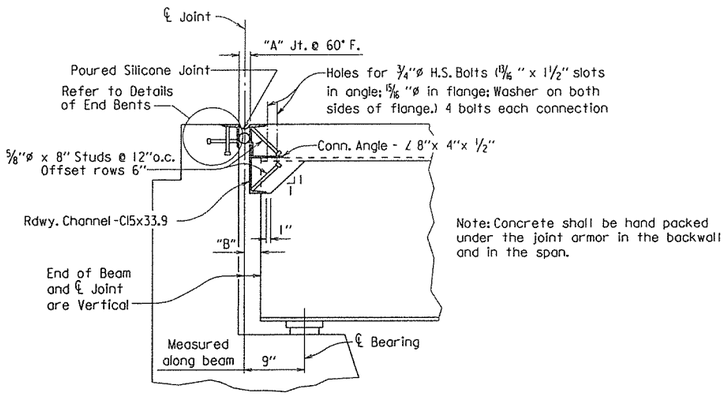
SHEET 5 OF 5
DETAILS OF 192'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
MAZARN CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-11-14
CHECKED BY: CJR DATE: 11/14/14
DESIGNED BY: RDN DATE: 7-14
FILENAME: bbr4906_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 04930 DRAWING NO. 56460

PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	32	85
				①	04930 -	JOINTS	-	56461



SECTION THRU JOINT AT BENTS 1 & 4

No Scale

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Bar Size	"D"
	40°F	60°F	80°F			
1 & 4	2⅛"	2"	1⅞"	2¼" ±	1" x 1"	5"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

Notes: The temperature limitations recommended by the sealant manufacturer shall be observed.

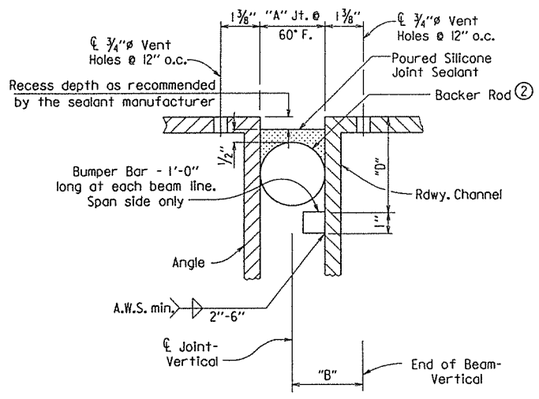
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

② BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

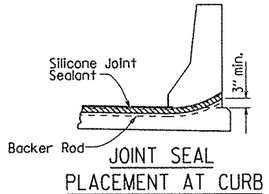
Except as noted, do not install more backer rod that can be sealed in the same day.

The contractor shall verify separation of the backer rod from the joint material after the joint material has set.



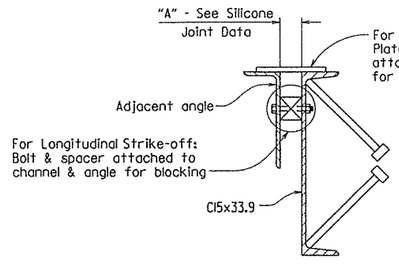
DETAIL OF POURED SILICONE JOINT SEAL

No Scale



JOINT SEAL PLACEMENT AT CURB

No Scale



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown @ 60°F, and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

The Contractor may elect to install the expansion device for the end bents using one of the following two alternatives:

1) The concrete span pour adjacent to the joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.

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DETAILS OF JOINTS MAZARN CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-11-14 FILENAME: bbr4906_jtl.dgn

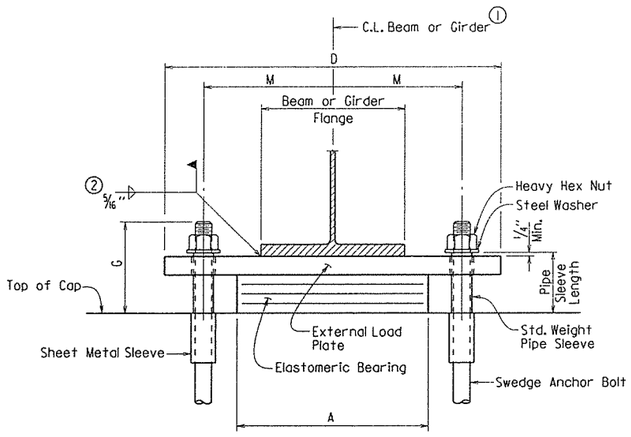
CHECKED BY: C.S.R. DATE: 11/14/14 SCALE: AS NOTED

DESIGNED BY: ADN DATE: 7-14

BRIDGE NO. 04930 DRAWING NO. 56461

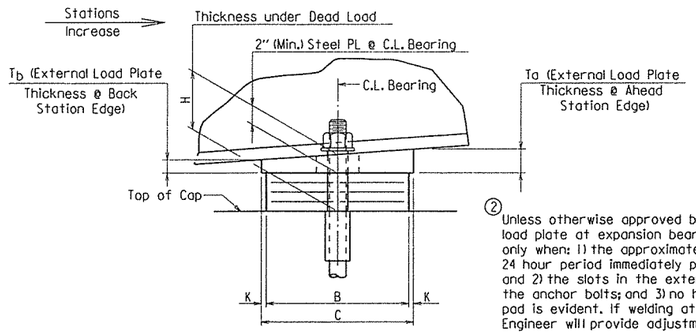
PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR4906	33	85
				①	04930 - ELASTO. BEARINGS - 56462			



FRONT VIEW

① C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.

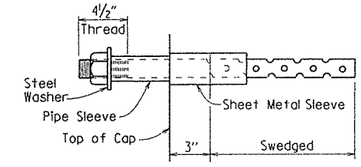


SIDE VIEW

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

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

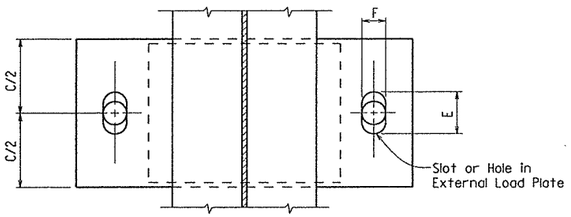
Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.



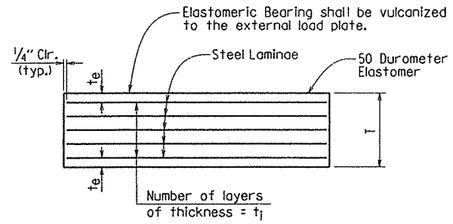
ANCHOR BOLT DETAIL

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a DPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)"



PLAN VIEW



t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

TABLE OF FABRICATOR VARIABLES

*Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD: G	ELASTOMERIC PAD: H	ELASTOMERIC PAD: A	ELASTOMERIC PAD: B	ELASTOMERIC PAD: N	ELASTOMERIC PAD: t_i	ELASTOMERIC PAD: t_e	ELASTOMERIC PAD: NO. & THICKNESS OF STEEL LAMINAE	ELASTOMERIC PAD: T	EXTERNAL LOAD PLATE: C	EXTERNAL LOAD PLATE: D	EXTERNAL LOAD PLATE: E	EXTERNAL LOAD PLATE: F	EXTERNAL LOAD PLATE: K	EXTERNAL LOAD PLATE: M	EXTERNAL LOAD PLATE: T_a	EXTERNAL LOAD PLATE: T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	ANCHOR BOLT: GRADE	ANCHOR BOLT: PIPE SLEEVE SIZE (ø x L)	ANCHOR BOLT: SHEET METAL SLEEVE SIZE (ø x L)	ANCHOR BOLT: STEEL WASHER SIZE (O.D.)
04930	1 & 4	All	Exp.	4	89	7"	4 3/8"	12 1/2"	8"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	9"	21 1/2"	3 5/8"	2"	1/2"	8 1/4"	2.05"	1.95"	1 1/4" x 21"	55	1 1/4" x 4 3/4"	3" x 6"	2 1/2"
	2 & 3	All	Fix	4	193	7 1/4"	3 11/16"	14"	12"	2	1/2"	1/4"	3 @ 12 Ga.	1 11/16"	13"	26"	3 1/8"	3 1/8"	1/2"	9 3/4"	2.08"	1.92"	2" x 29"	55	2 1/2" x 4 1/4"	4" x 6"	3 3/4"

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates shall conform to AASHTO M270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
11-17-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS MAZARN CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-11-14 FILENAME: bbr4906_el.dgn

CHECKED BY: CSR DATE: 11/14/14 SCALE: NONE

DESIGNED BY: ADW DATE: 7-14

BRIDGE NO. 04930 DRAWING NO. 56462

PRINT DATE: 11/14/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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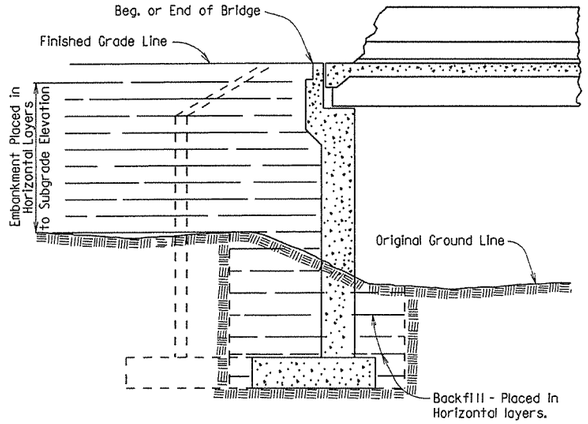
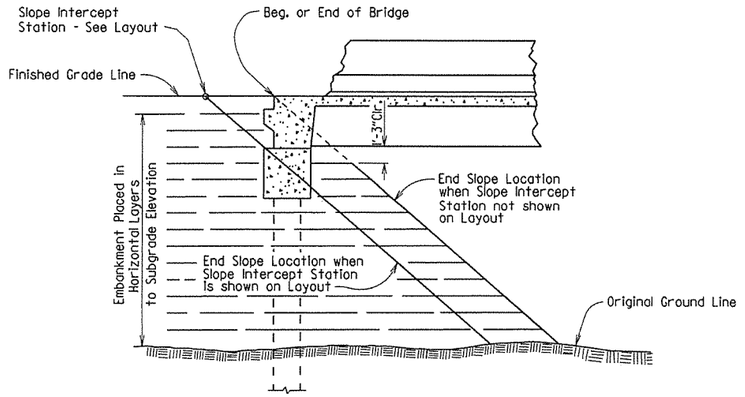
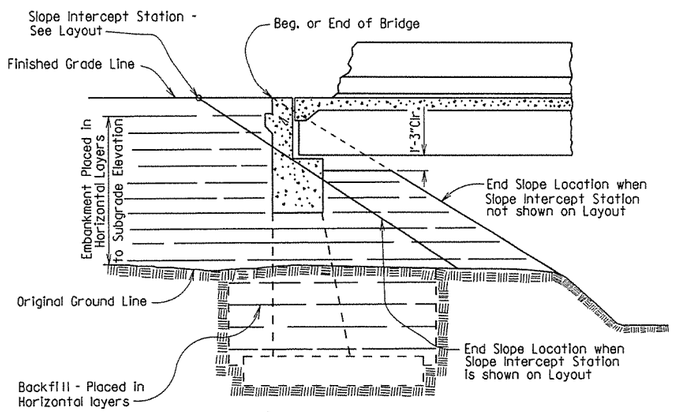
				JOB NO.				
				① EMBANKMENT & BACKFILL 55000				



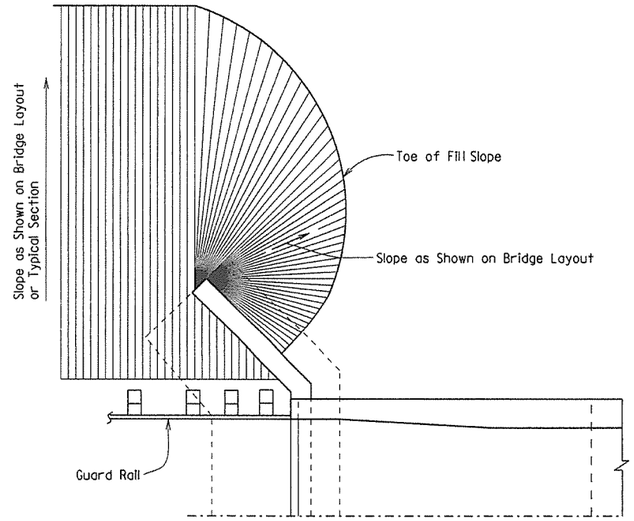
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



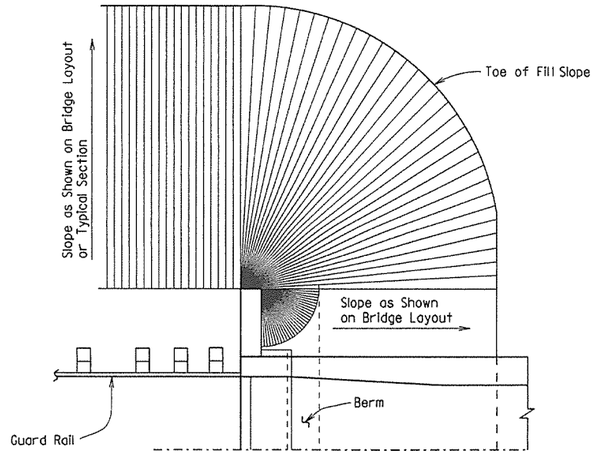
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



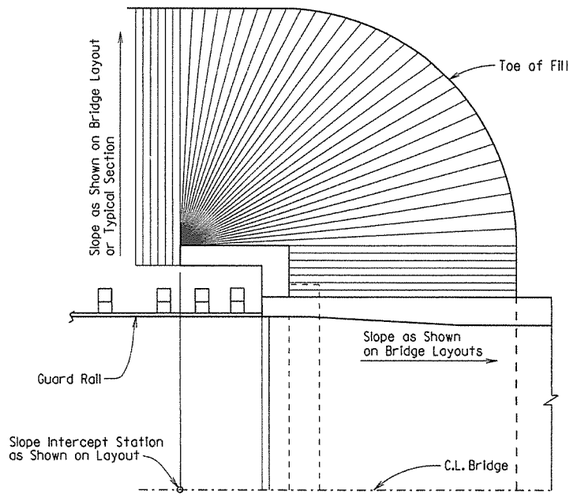
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



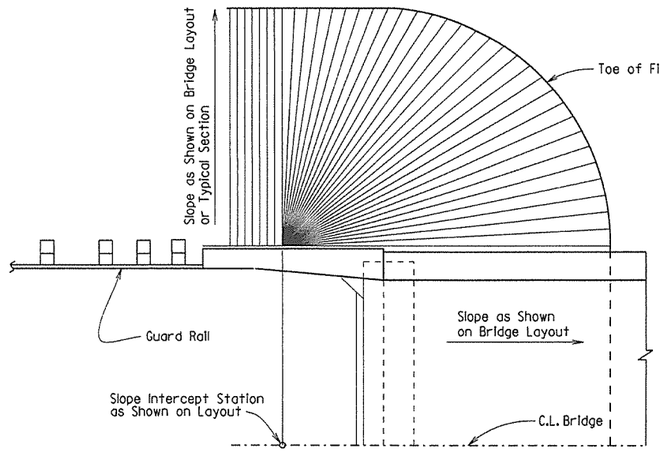
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

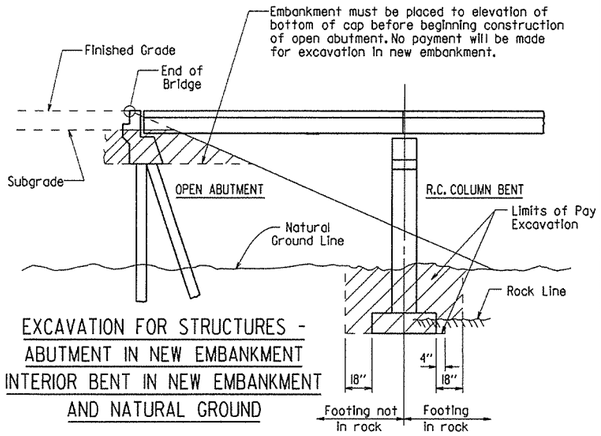
STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

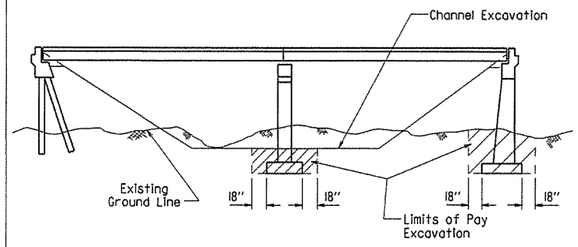
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

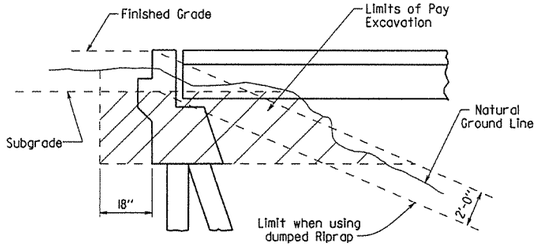
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		35	
				JOB NO.				
				① RIPRAP & EXCAV. 55001				



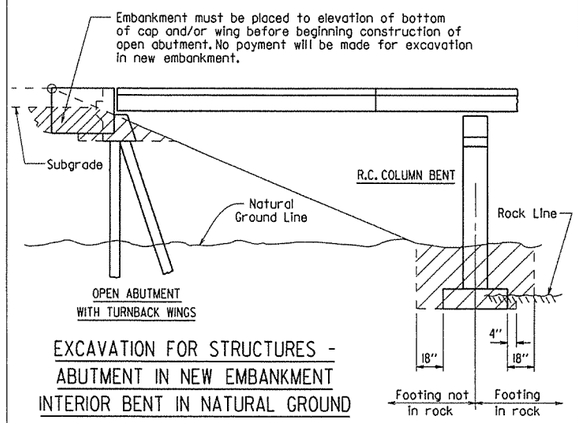
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



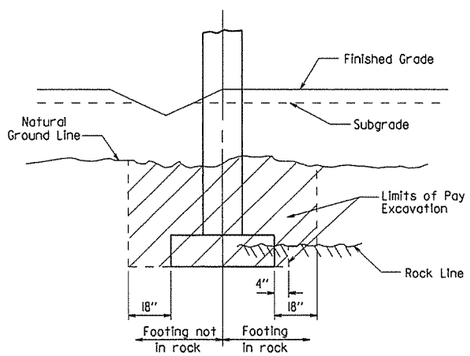
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



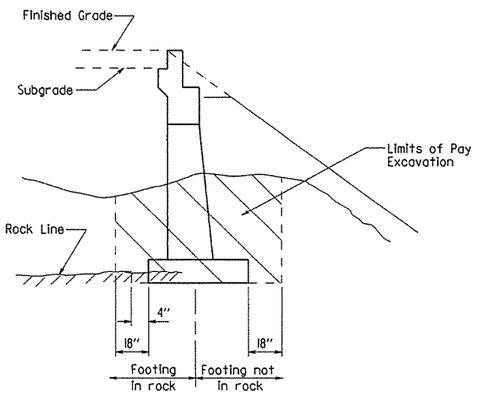
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



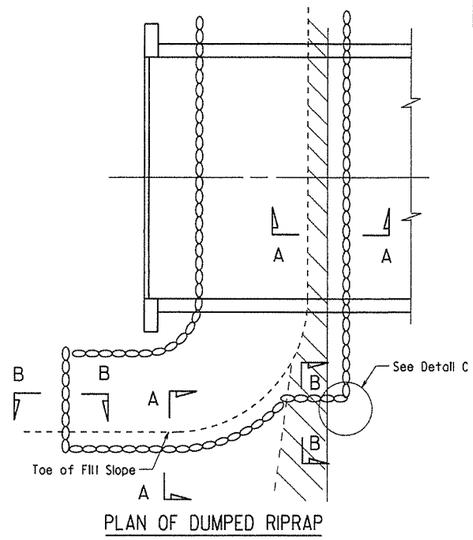
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



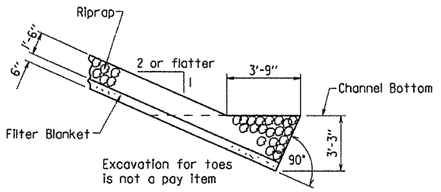
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

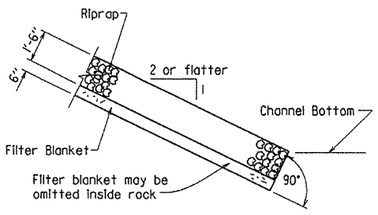


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



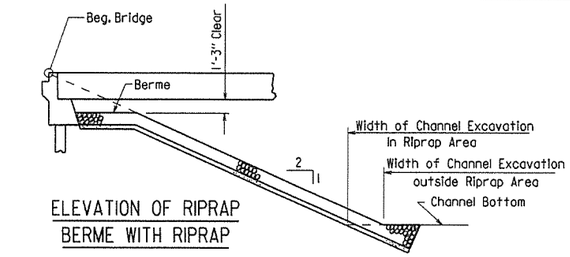
SECTION A-A

(Toe Excavation in Rock)

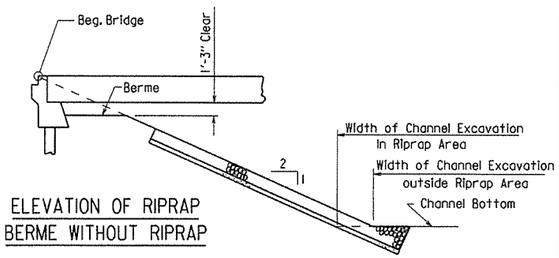
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

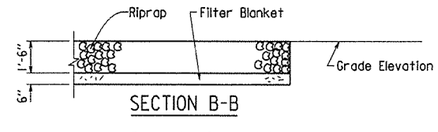
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



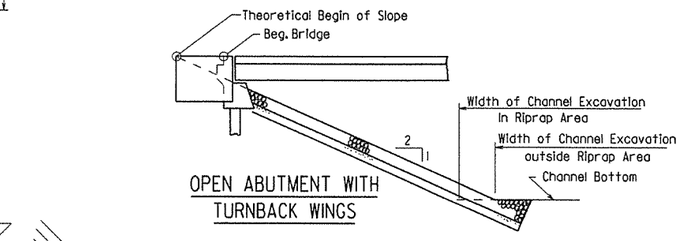
ELEVATION OF RIPRAP BERME WITH RIPRAP



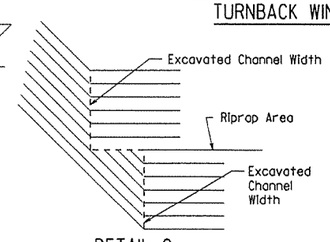
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

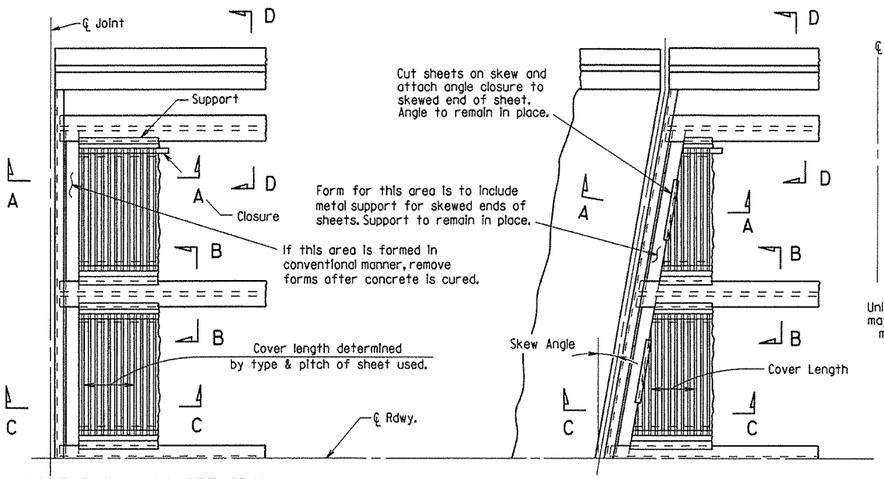
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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

① BRIDGE DECK FORMS 55005

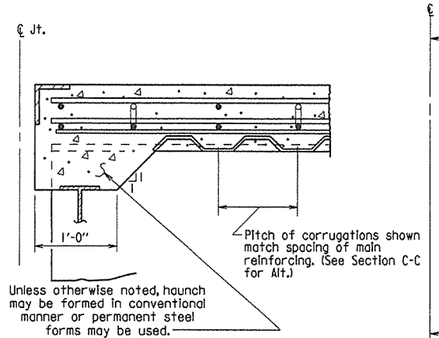


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

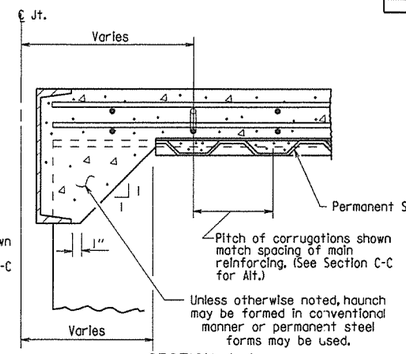
3/8" = 1'-0"



SECTION A-A

N.T.S.

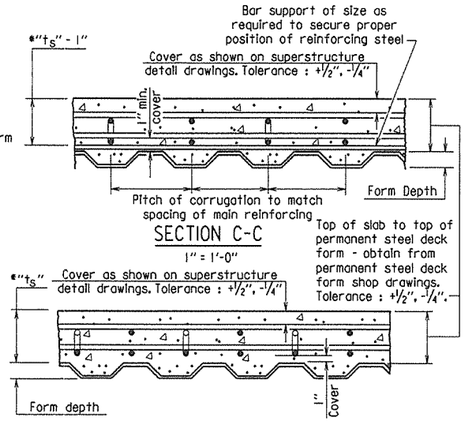
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



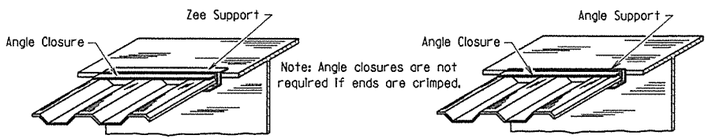
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

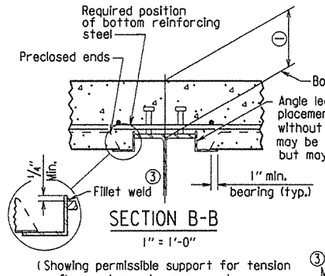
(Applicable when corrugations do not match spacing of main reinforcement)



Note: Angle closures are not required if ends are crimped.

SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

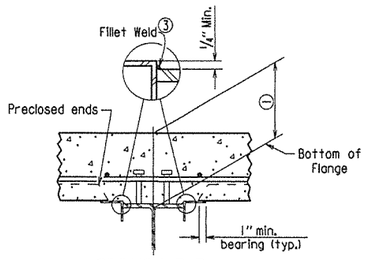


SECTION B-B

1" = 1'-0"

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

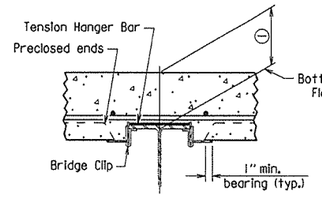
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

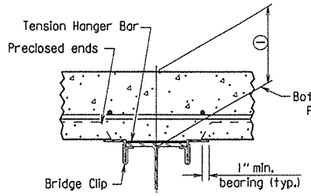
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

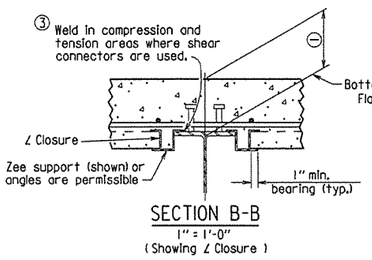
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

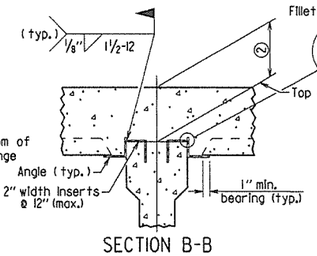
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

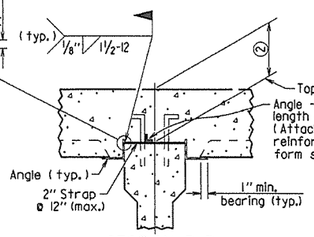
(Showing ∠ Closure)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"

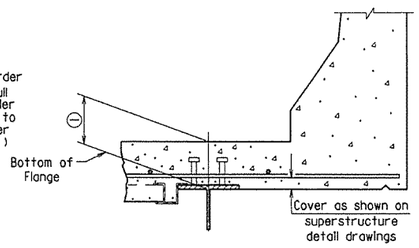
(Showing support by insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_S + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

*t_S = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

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

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

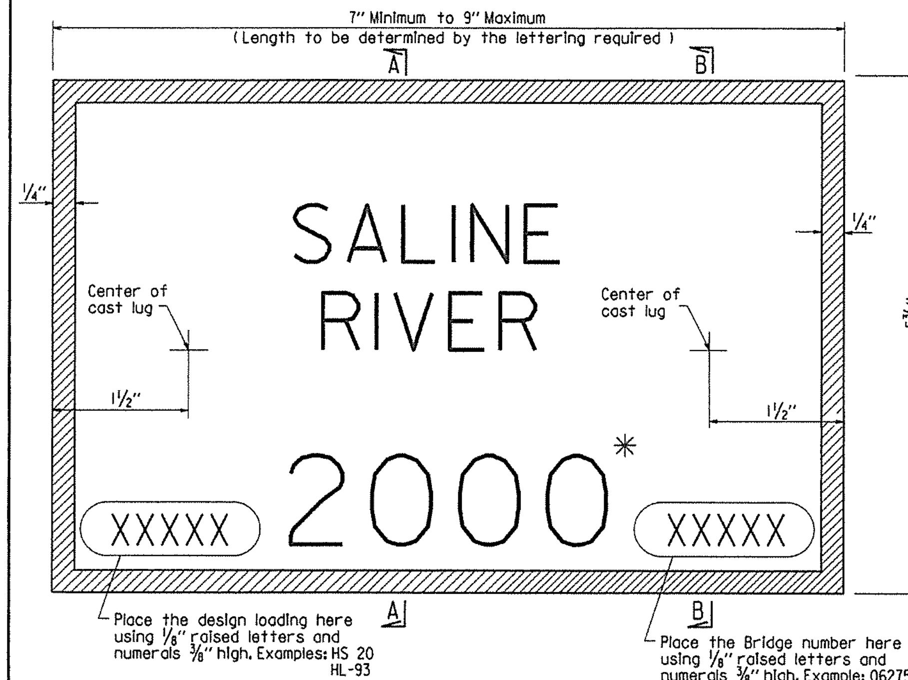
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

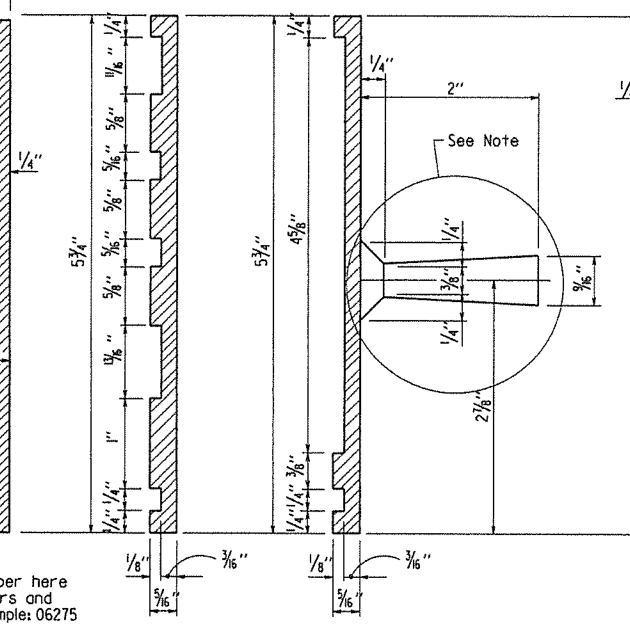
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		37	
				JOB NO.				

① TYPE C NAME PLATE 55011



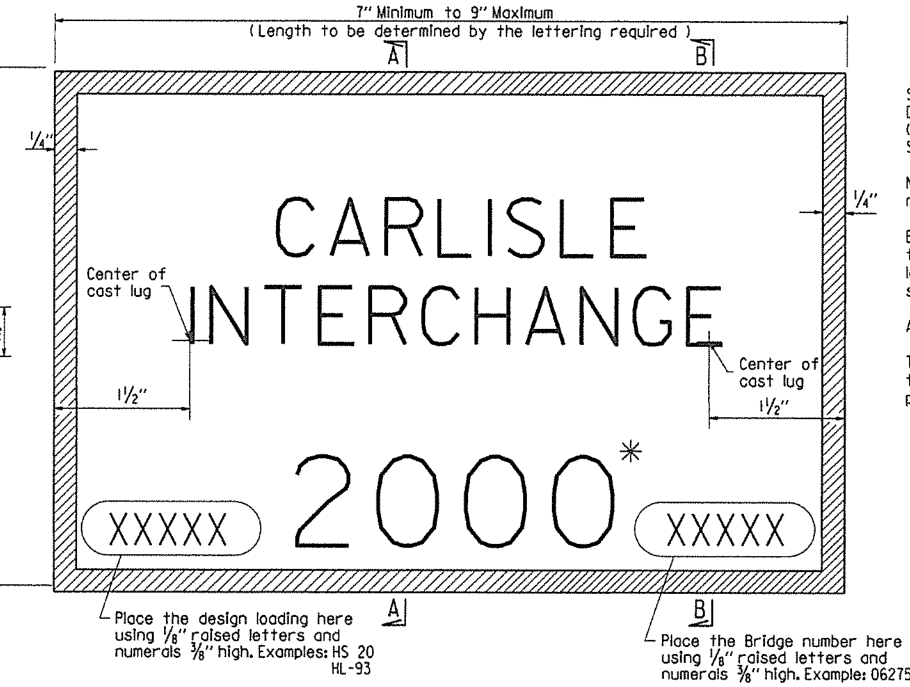
TYPICAL BRIDGE NAME PLATE-STYLE 1 - FULL SIZE
STREAM CROSSINGS



SECTION A-A

SECTION B-B

Note: Alternate attachments may be used provided such attachments are submitted and approval secured before fabrication is begun.



TYPICAL BRIDGE NAME PLATE-STYLE 3 - FULL SIZE
GRADE SEPARATION STRUCTURES

GENERAL NOTES

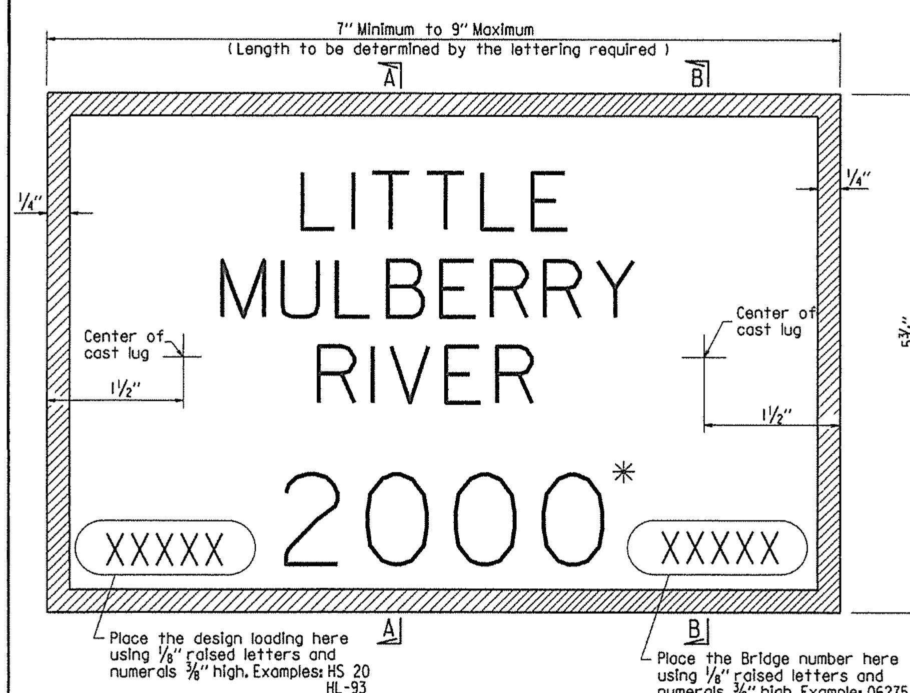
Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

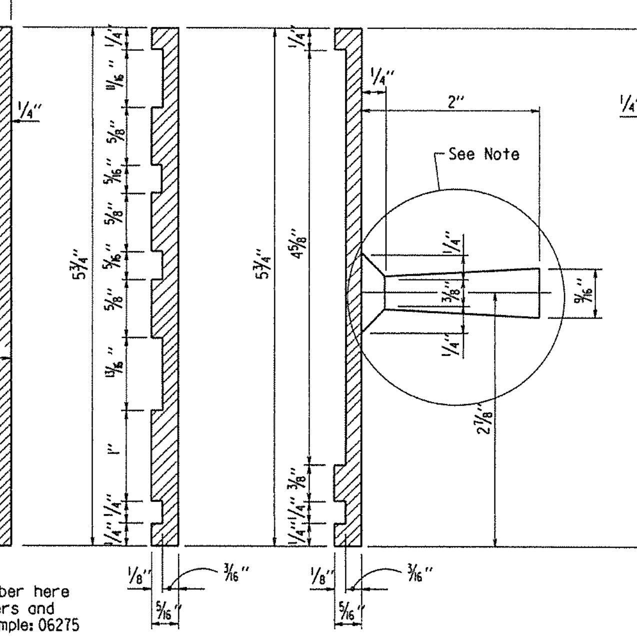
Body of plate shall be 3/16" thick and shall include two tapering cone lugs 3/8" to 9/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

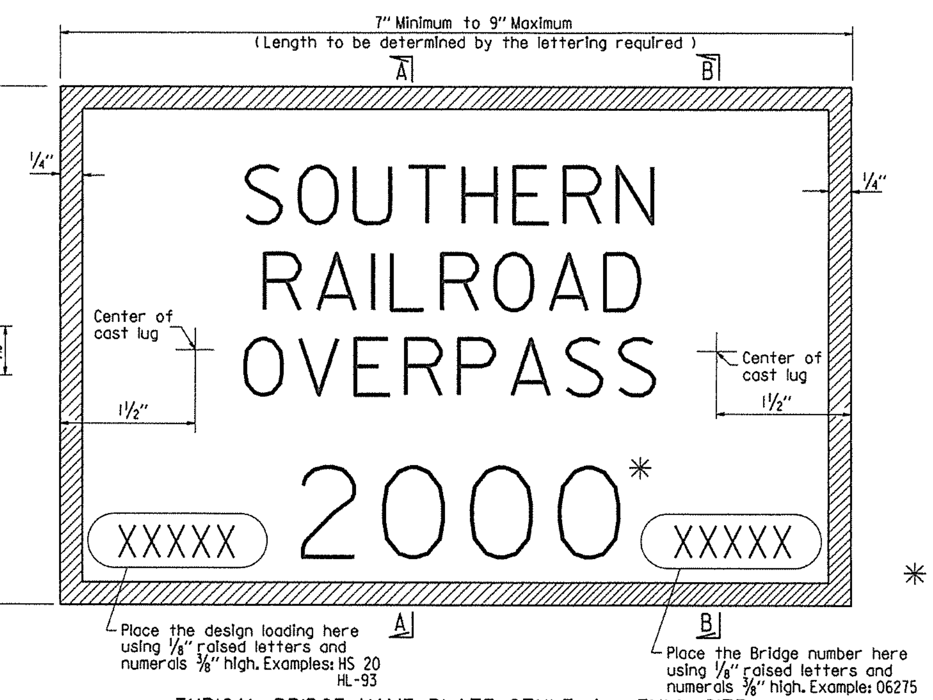


TYPICAL BRIDGE NAME PLATE-STYLE 2 - FULL SIZE
STREAM CROSSINGS



SECTION A-A

SECTION B-B



TYPICAL BRIDGE NAME PLATE-STYLE 4 - FULL SIZE
GRADE SEPARATION STRUCTURES

* Year in which contract is awarded.

STANDARD DETAILS FOR
TYPE C BRIDGE NAME PLATES

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55011.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		38	
				JOB NO.				
				①	STEEL H-PILES			55020

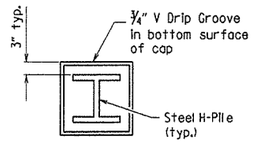
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

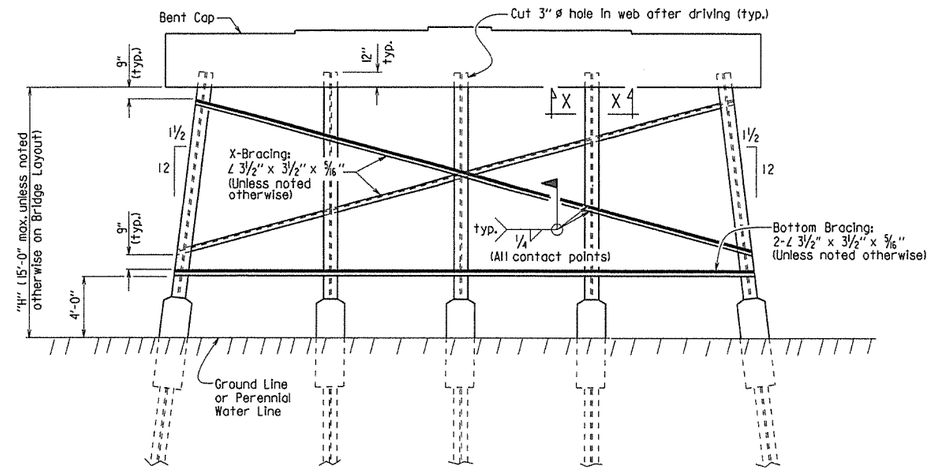
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

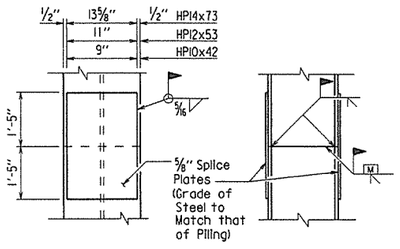
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)

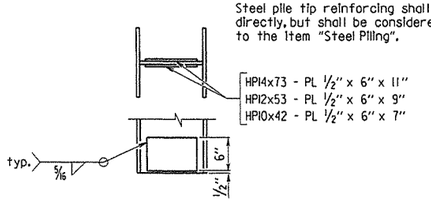


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

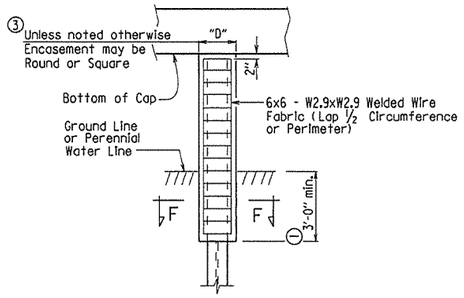
See Bridge Layout for additional notes and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

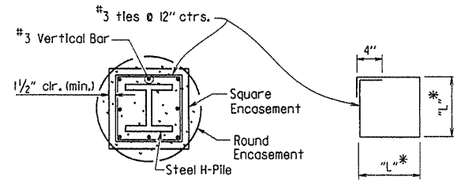
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

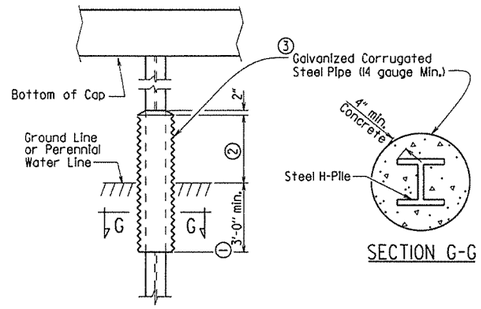


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

⑤ ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

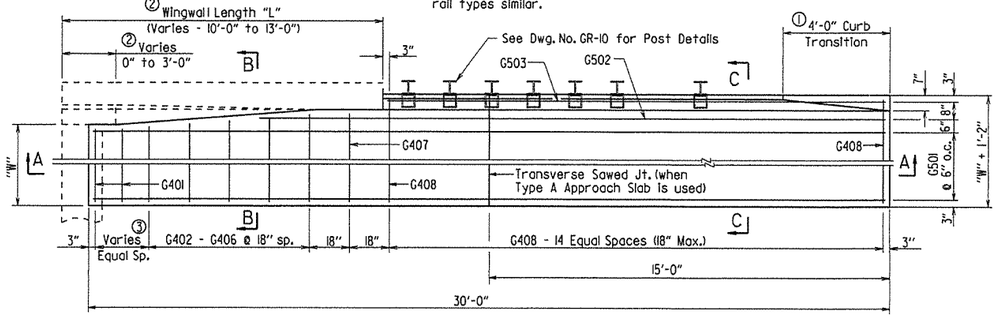
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

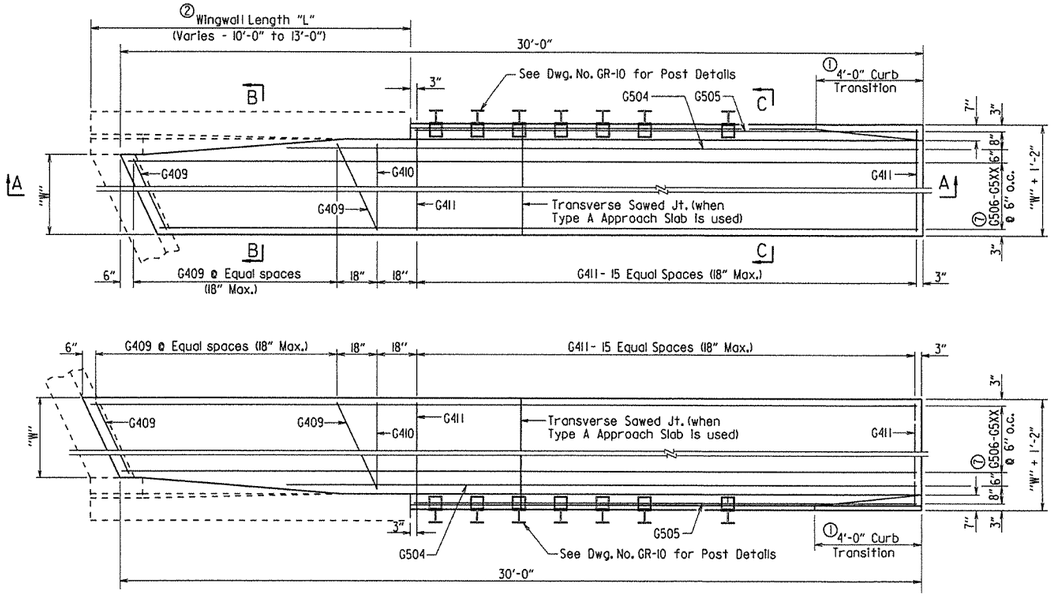
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		39	
				JOB NO.				

① TYPE A GUTTERS 55030A

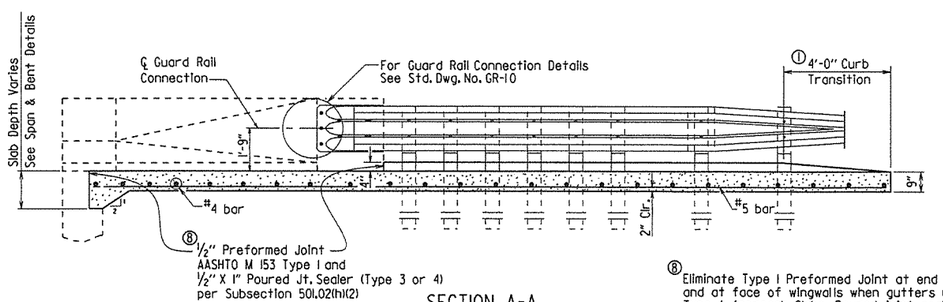


③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE



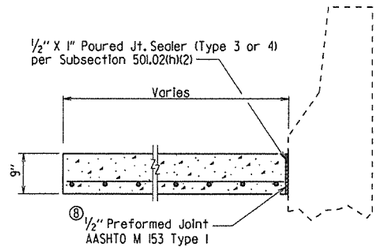
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



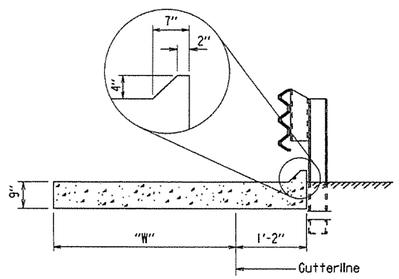
SECTION A-A

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑧ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE A GUTTER

	Mark	No. Req'd, for Width "W" 3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	15	15	15	15	"W"+ 10"
	G501	6	8	12	16	29'-8"
	G502	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	"W"+3"
	G411	16	16	16	16	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	1 each	1 each	1 each	⑤

④ 0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'

⑦ G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ No. Req'd. varies with Skew and Wingwall length.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
3	285	3.40
4	360	4.25
6	515	5.90
8	665	7.55

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

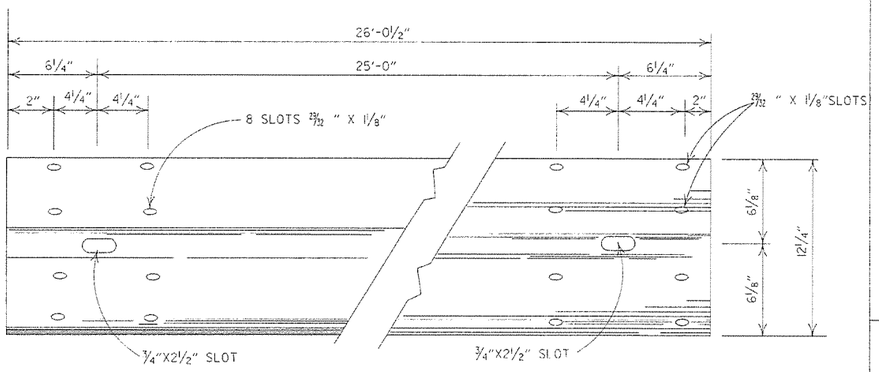
STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

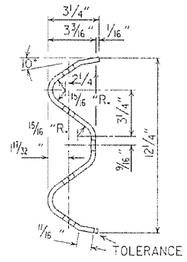
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030A

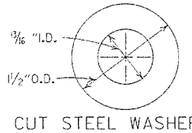




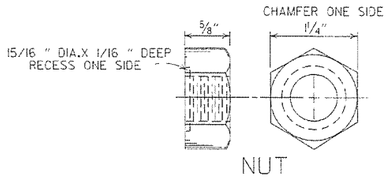
DETAILS OF
W-BEAM GUARD RAIL

RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.

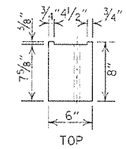
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH

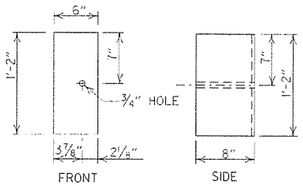


CUT STEEL WASHER

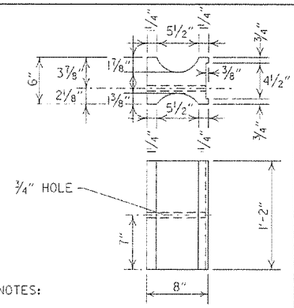


NUT





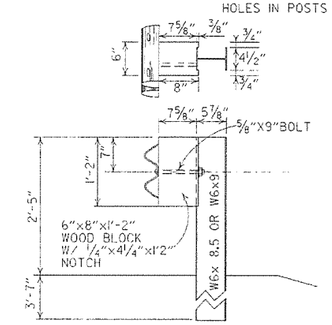
WOOD BLOCKOUT
(W-BEAM)



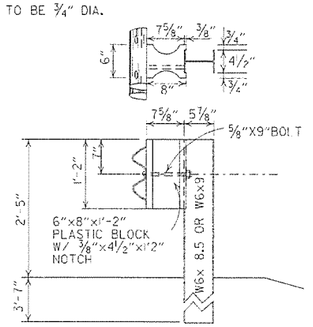
NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT
(W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.

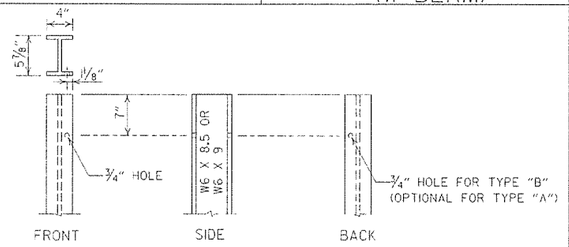


WOOD BLOCKOUT CONNECTIONS

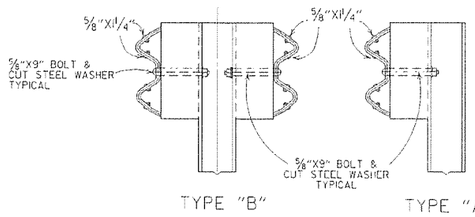


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)



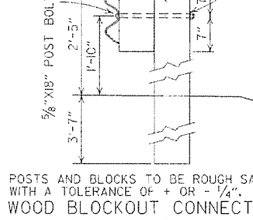
STEEL POST



TYPE "B" TYPE "A"

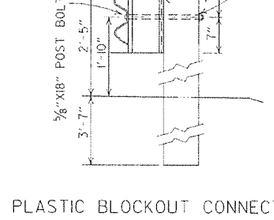
DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - 1/4".

WOOD BLOCKOUT CONNECTIONS



PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS
(W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

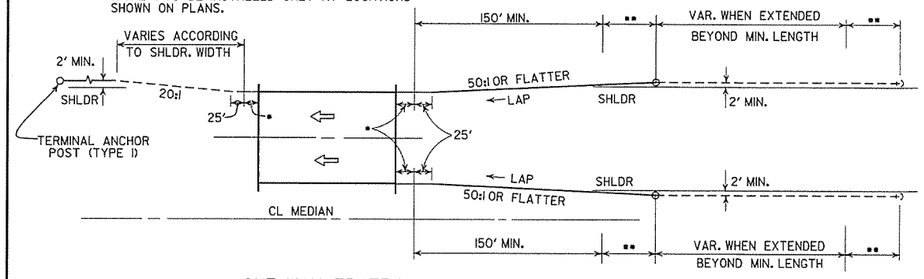
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
9-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

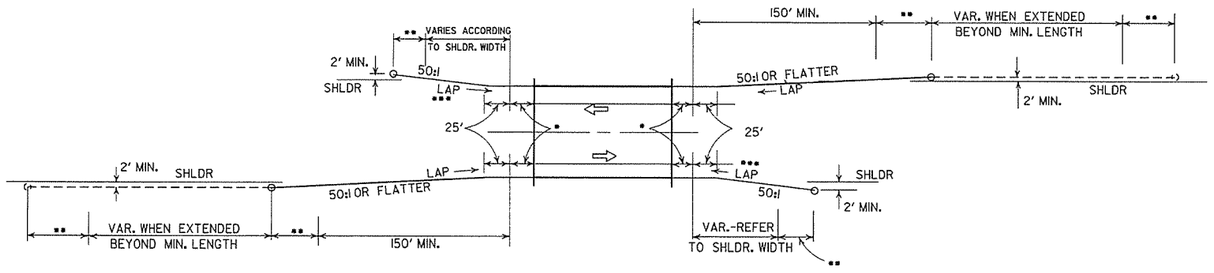
STANDARD DRAWING GR-8

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

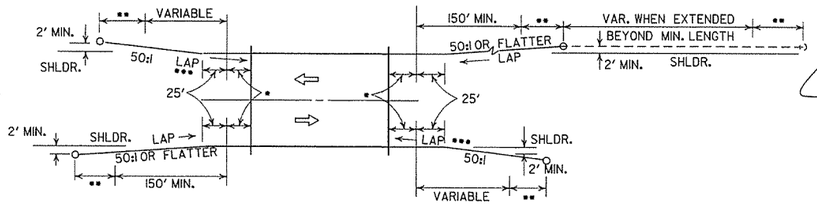
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

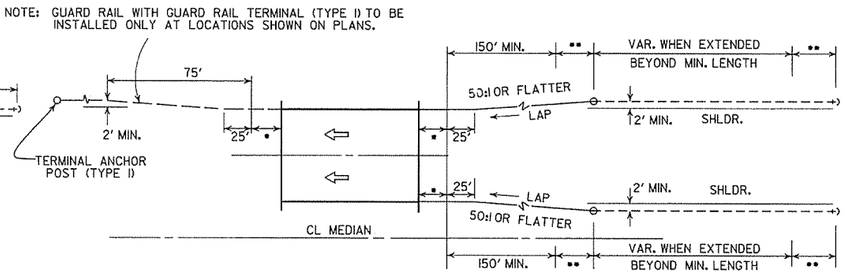
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

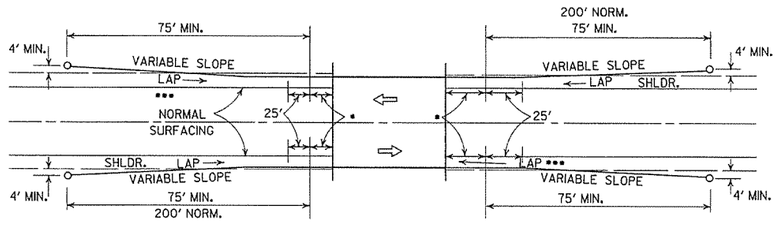
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

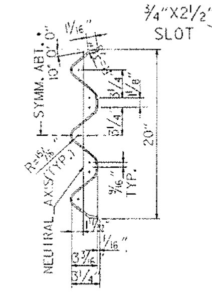
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

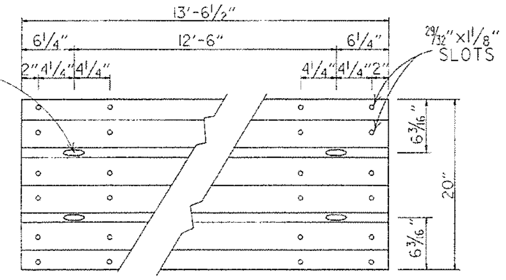
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

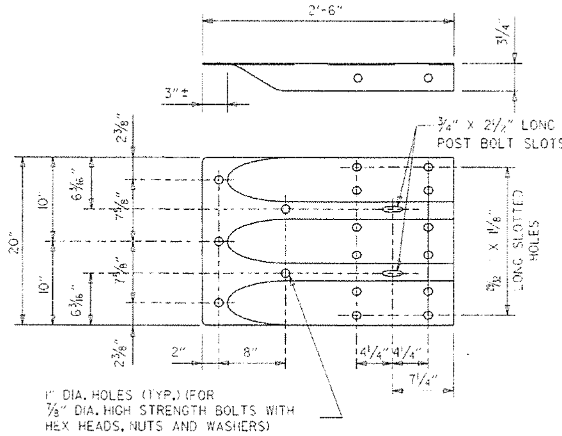
STANDARD DRAWING GR-9



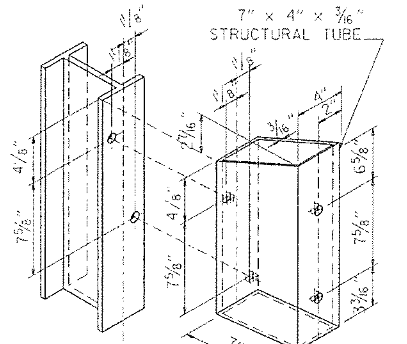
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL

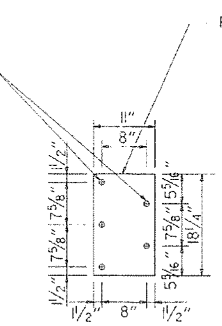


SPECIAL END SHOE



STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

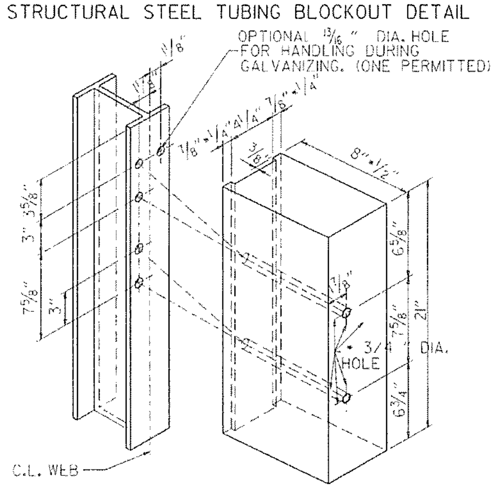
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.



CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.

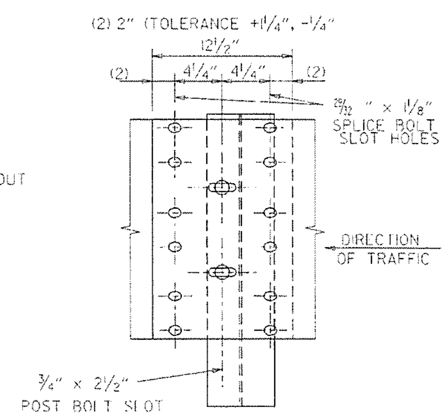
NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



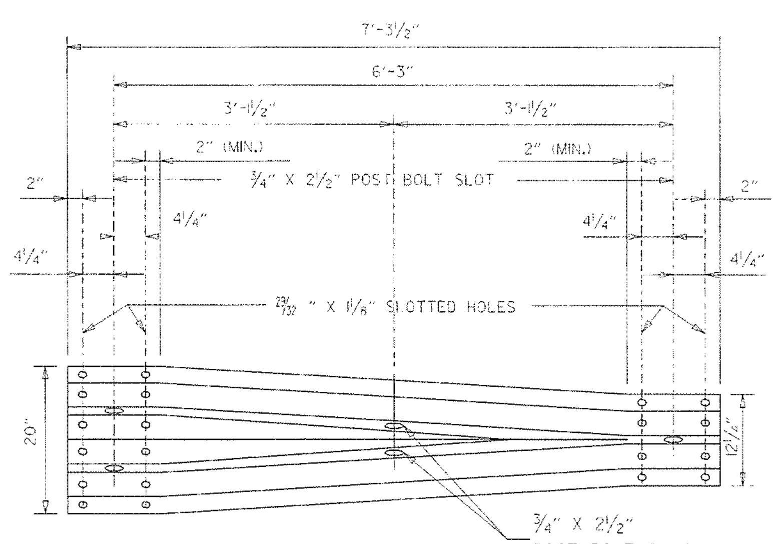
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

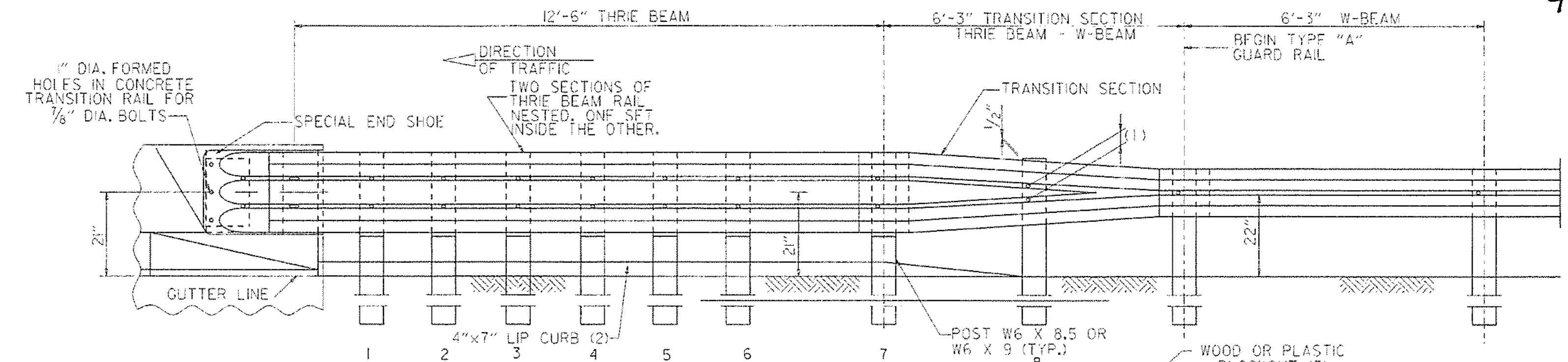
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



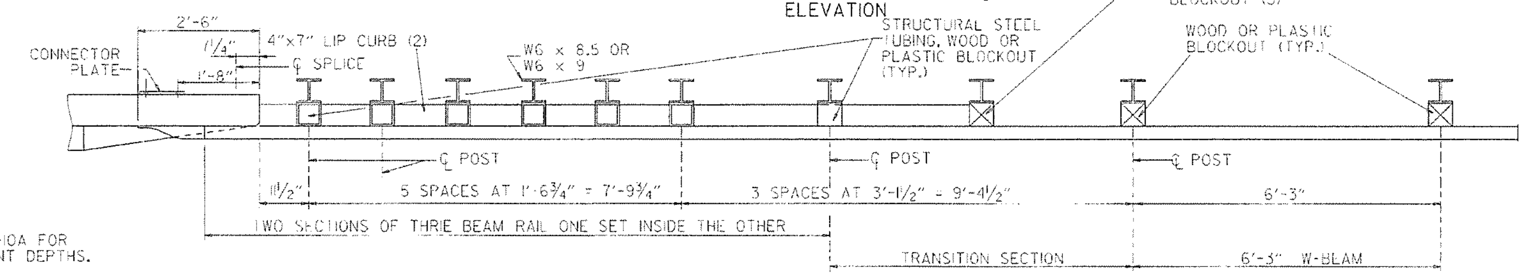
THRIE BEAM RAIL
SPLICE AT POST



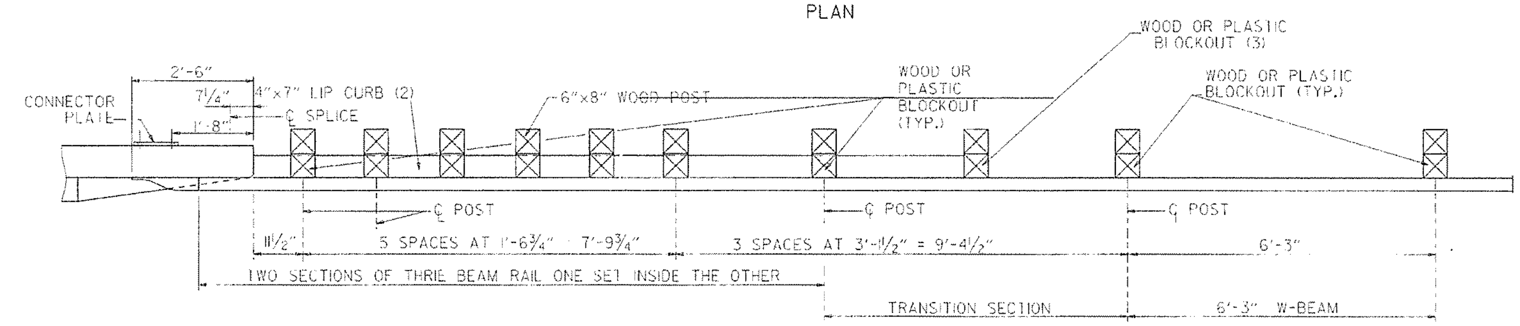
TRANSITION SECTION



ELEVATION



PLAN



PLAN

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7‡ (1400 ‡) OR NO. 1 1350 ‡ SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

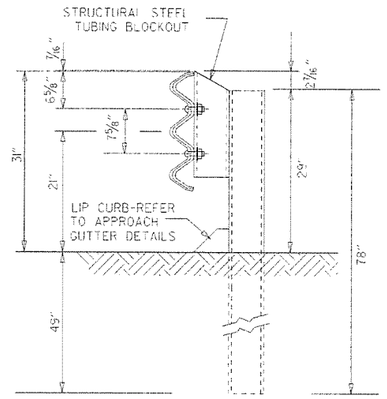
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

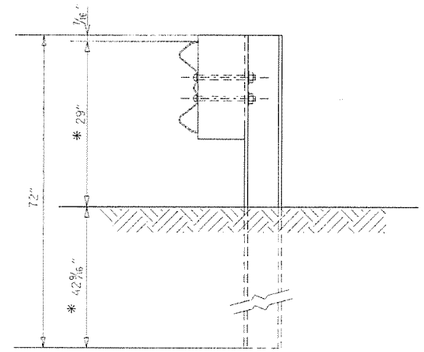
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

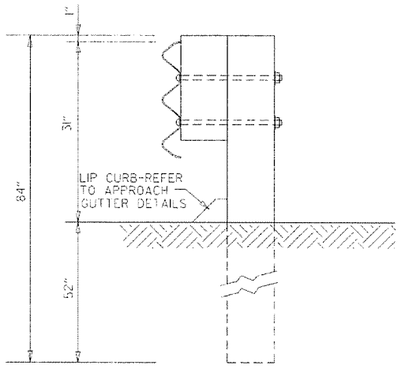


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

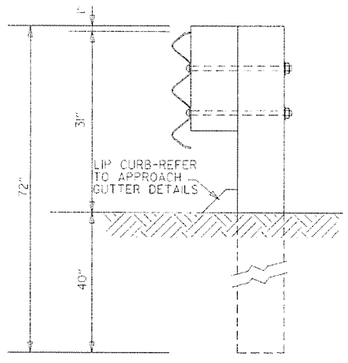


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

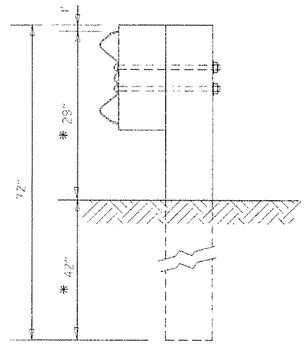
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

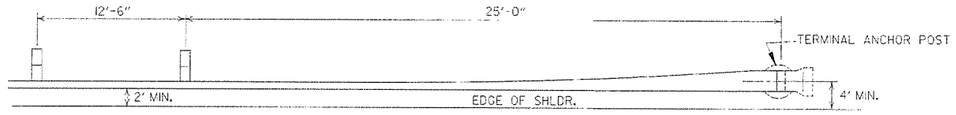
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

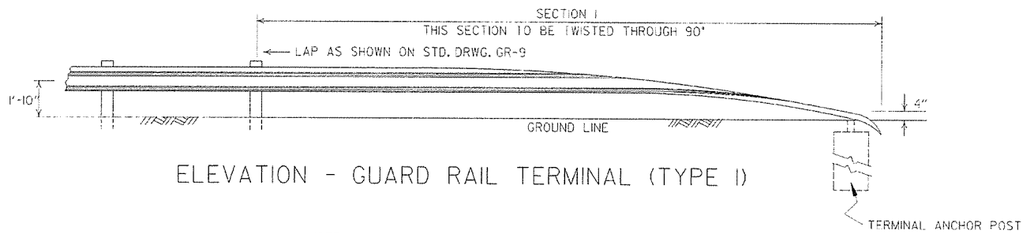
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

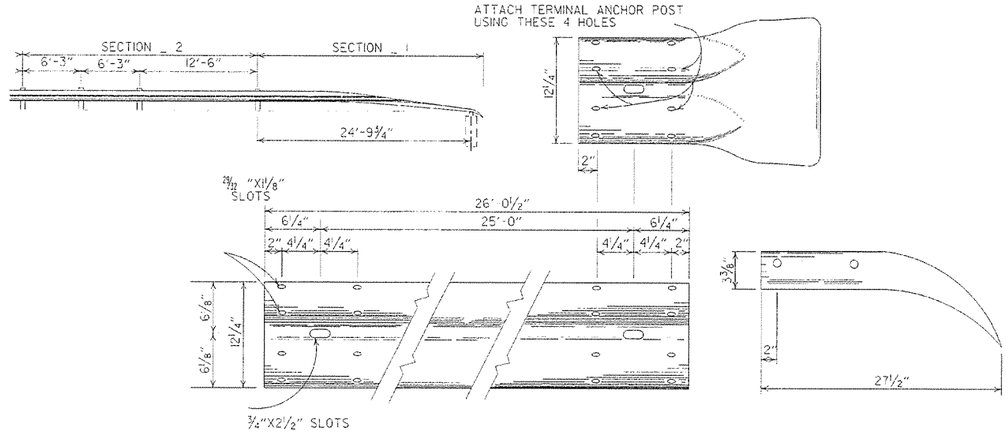


PLAN - GUARD RAIL TERMINAL (TYPE I)



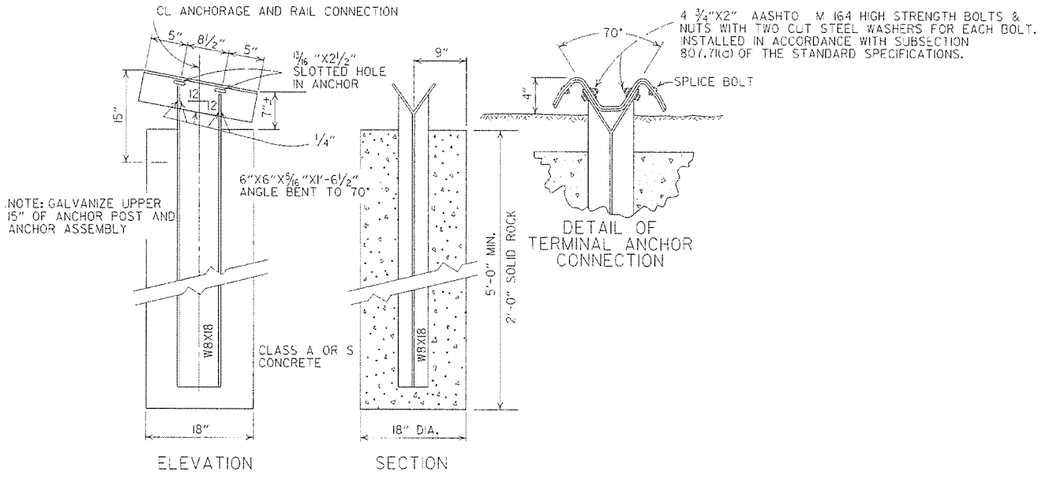
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

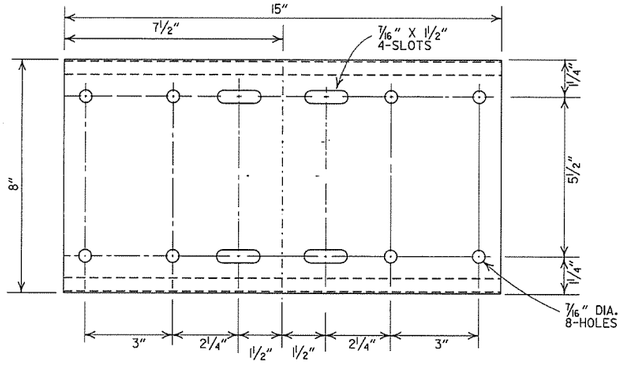
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
6-26-97	REVISED LAP NOTE	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-3-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92

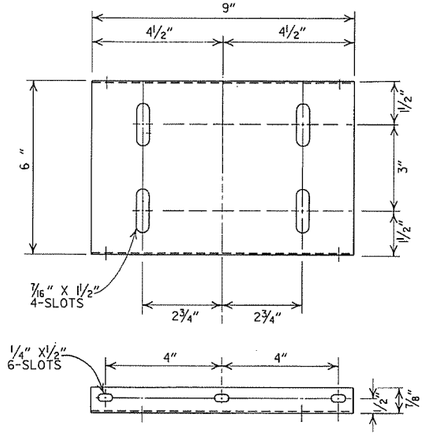
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

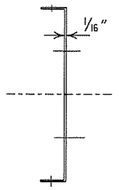
STANDARD DRAWING GRT-1

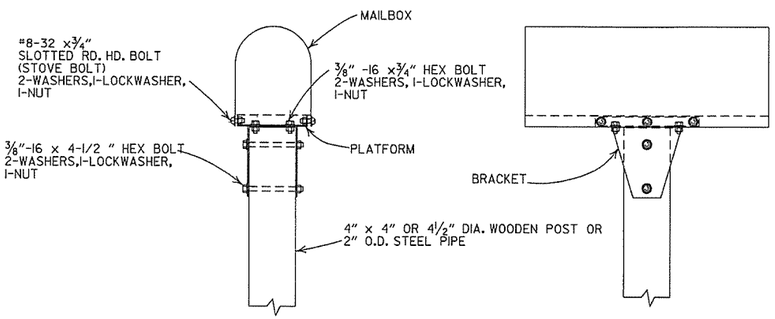


SHELF

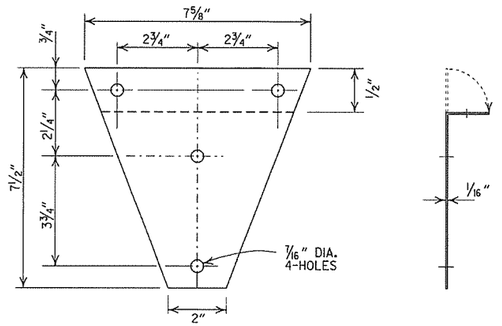


PLATFORM





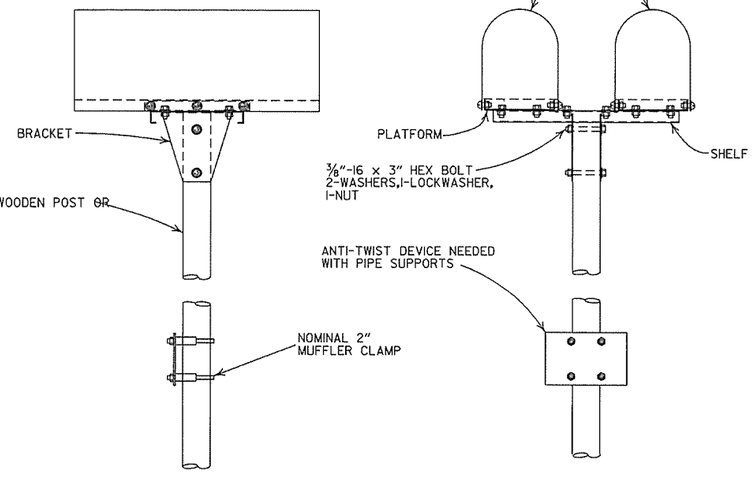
SINGLE INSTALLATION



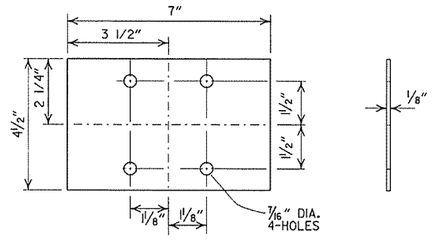
BRACKET

GENERAL NOTES

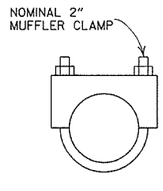
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



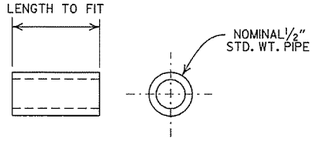
DOUBLE INSTALLATION



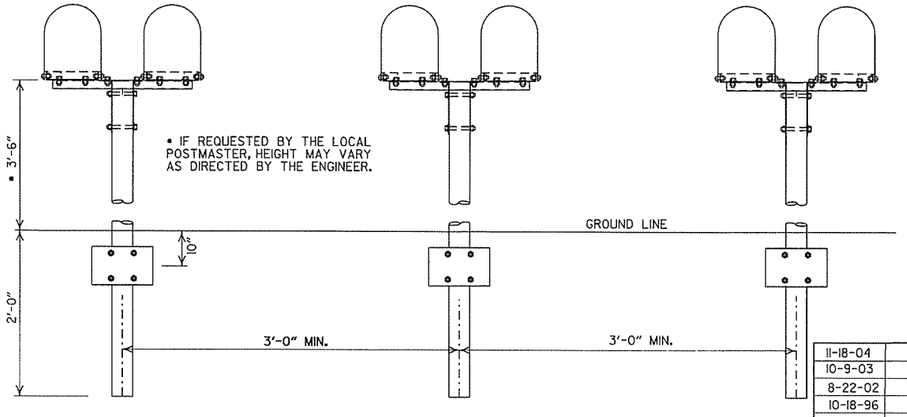
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

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	43⅜	44	26⅝	27
42	51⅛	51	31 5/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

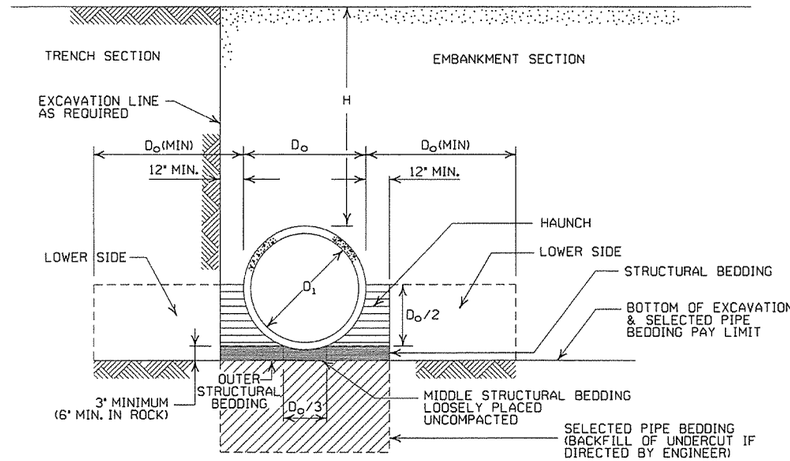
- LEGEND -

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

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

*SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL					ALUMINUM				
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	
				INSTALLATION		INSTALLATION			INSTALLATION		INSTALLATION	
				TYPE 1		TYPE 1			TYPE 1		TYPE 1	
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
15	17x13	3	0.064	2		15		0.060	2		15	
18	21x15	3	0.064	2		15		0.060	2		15	
21	24x18	3	0.064	2.25		15		0.060	2.25		15	
24	28x20	3	0.064	2.5		15		0.075	2.5		15	
30	35x24	3	0.079	3		12		0.075	3		12	
36	42x29	3½	0.079	3		12		0.105	3		12	
42	49x33	4	0.079	3		12		0.105	3		12	
48	57x38	5	0.109	3		13		0.135	3		13	
54	64x43	6	0.109	3		14		0.135	3		14	
60	71x47	7	0.138	3		15		0.164	3		15	
66	77x52	8	0.168	3		15						
72	83x57	9	0.168	3		15						
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM									
				INSTALLATION		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

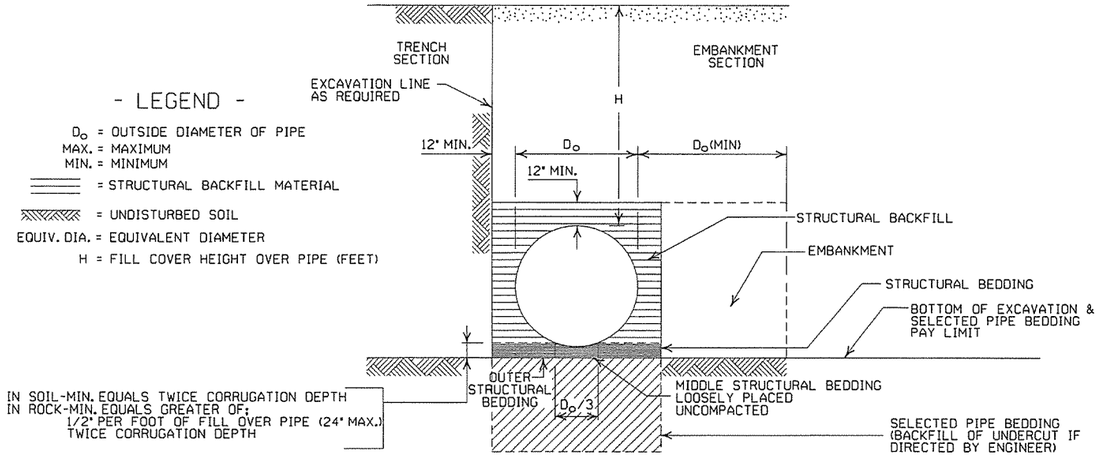
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

- 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)



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

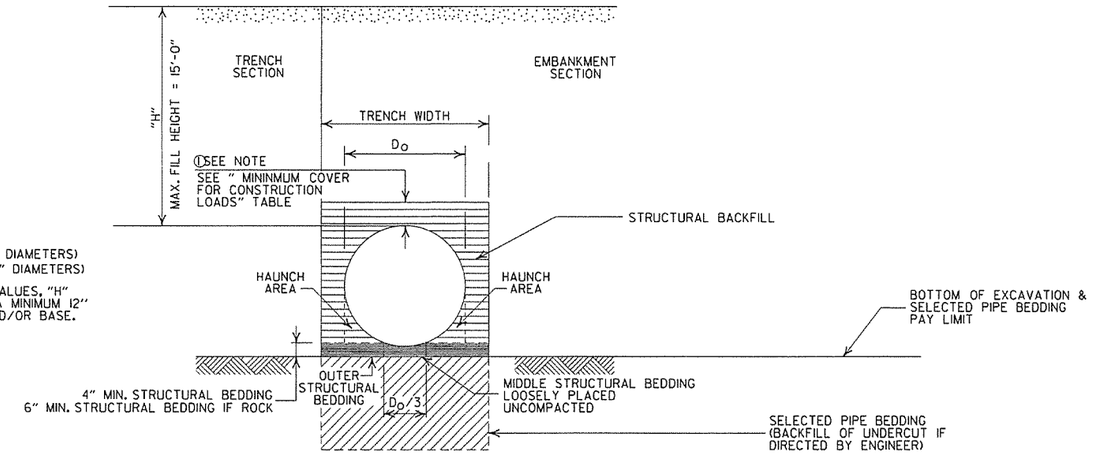
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

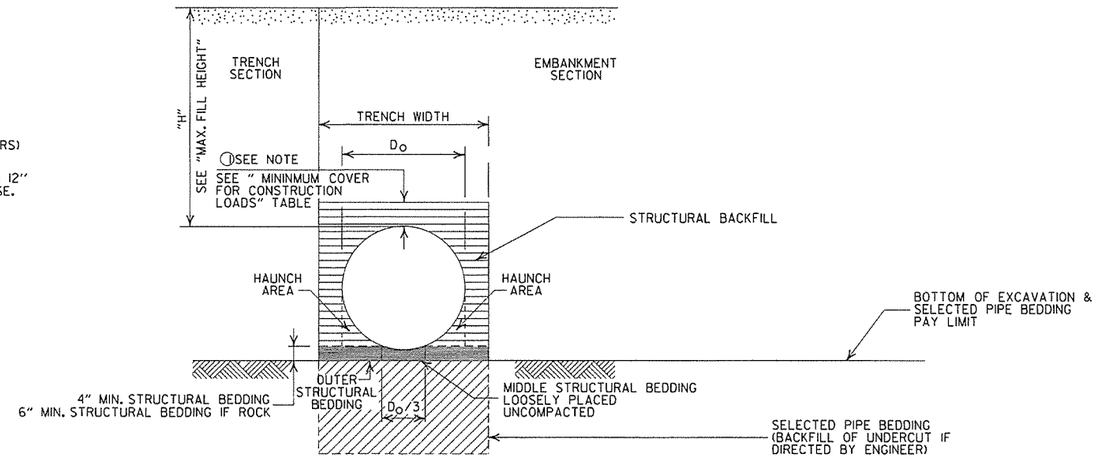
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

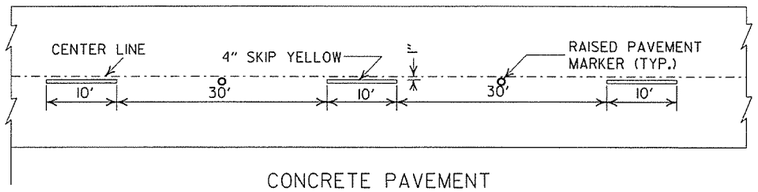
= UNDISTURBED SOIL

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

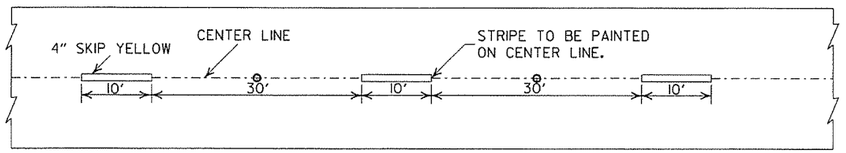
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

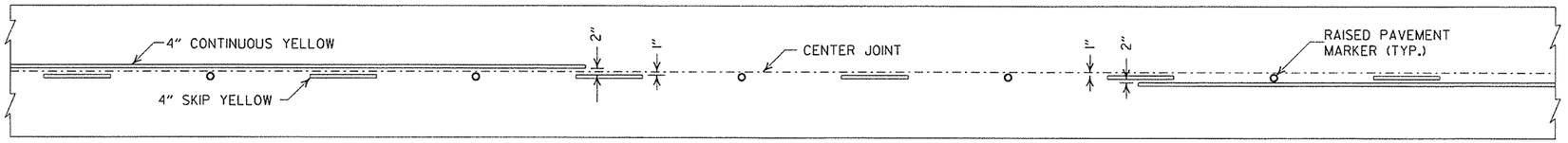


CONCRETE PAVEMENT

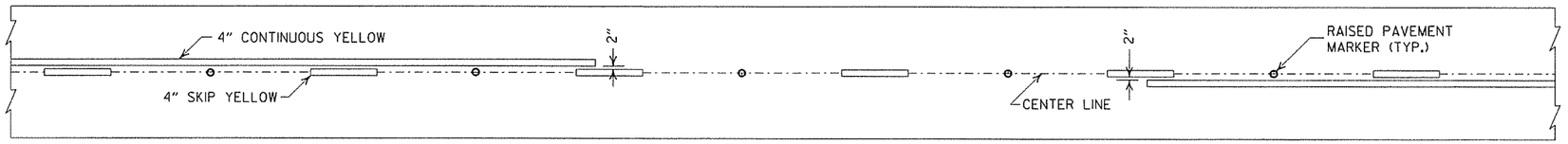


ASPHALT PAVEMENT

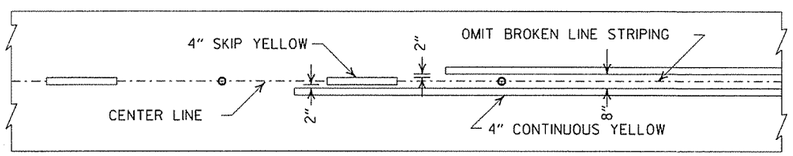
BROKEN LINE STRIPING



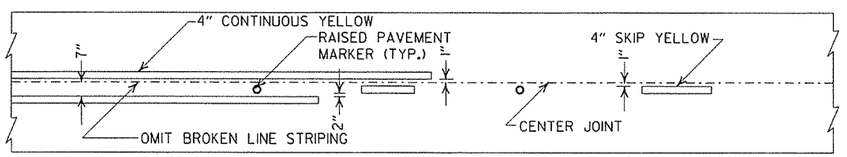
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



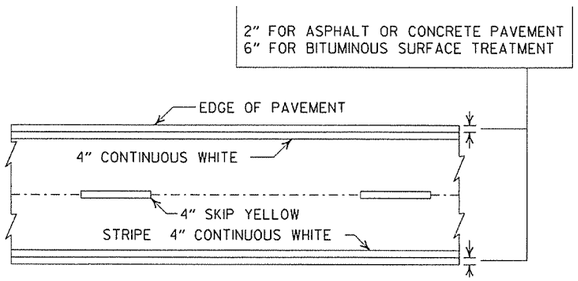
ASPHALT PAVEMENT



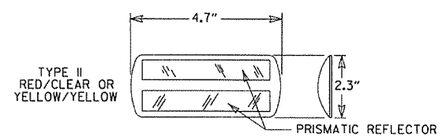
CONCRETE PAVEMENT

NOTES:

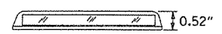
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED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



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

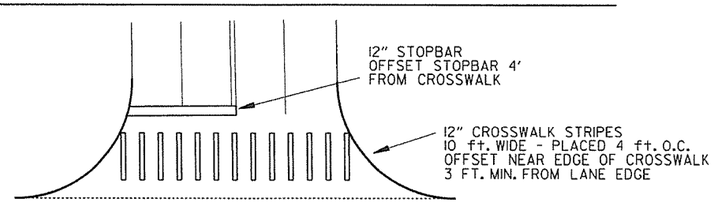
GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

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

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

STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS

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

ARKANSAS STATE HIGHWAY COMMISSION

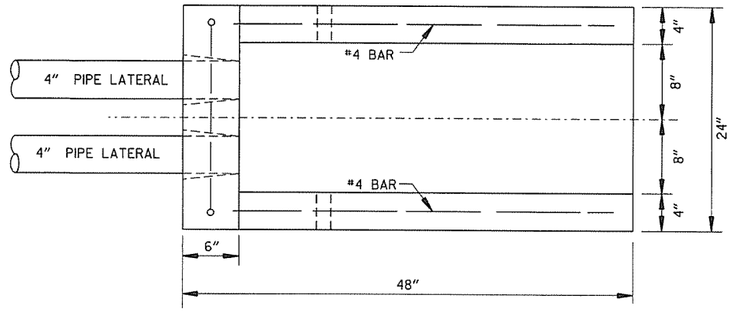
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

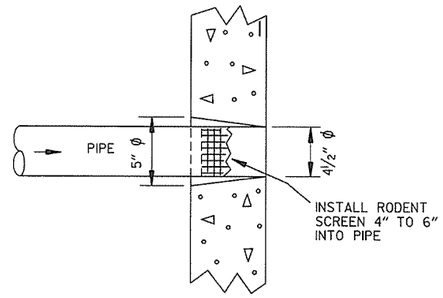
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

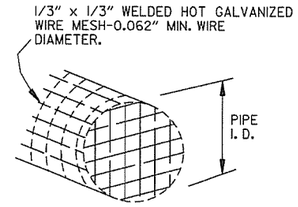
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



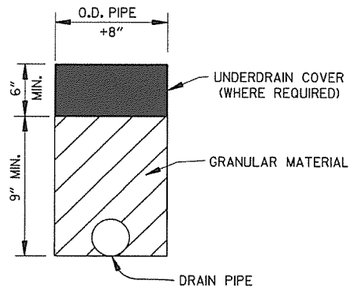
PLAN VIEW

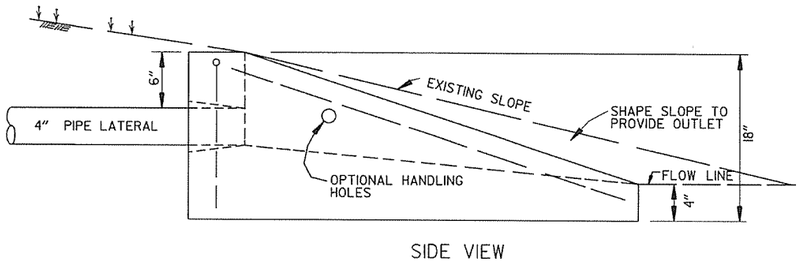


DETAIL OF HOLE FOR 4" PIPE

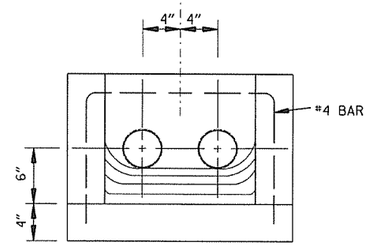


DETAIL OF RODENT SCREEN

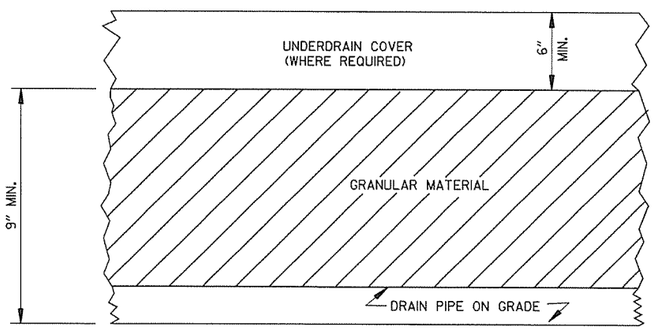




SIDE VIEW

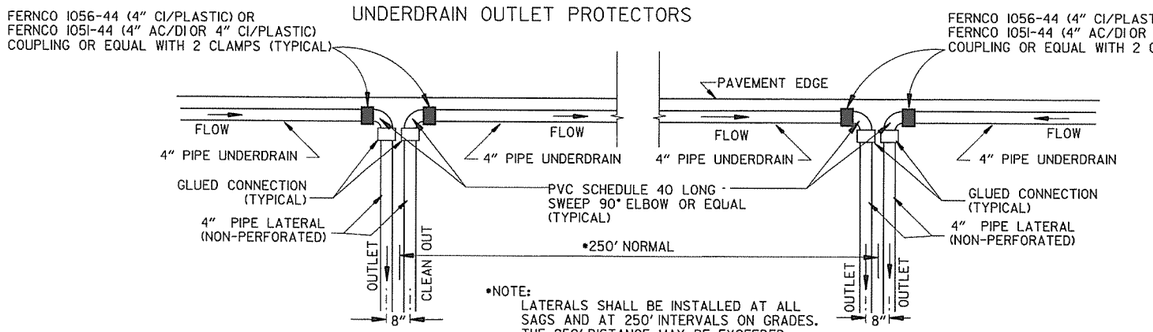


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



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.

DATE	REVISION	DATE FILMED
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; 5½" 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 POLYEDTHYLENE 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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

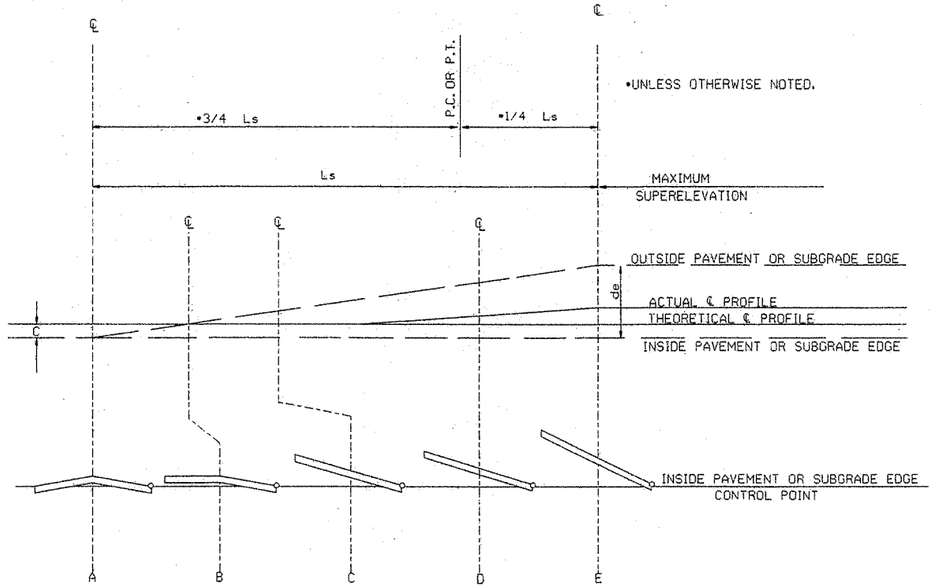
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) 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.			R. C.			0.022			0.023			0.028		
1° 00′	N. C.			N. C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N. C.			R. C.			0.026			0.032			0.037			0.046		
1° 30′	N. C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45′	N. C.			0.025	175		0.036			0.043		300	0.049		300	0.062		
2° 00′	R. C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R. C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025	150		0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295				
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305	350			
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295		0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300	350						
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220	250	0.100	290										
8° 30′	0.061			0.087	225													
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

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



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

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

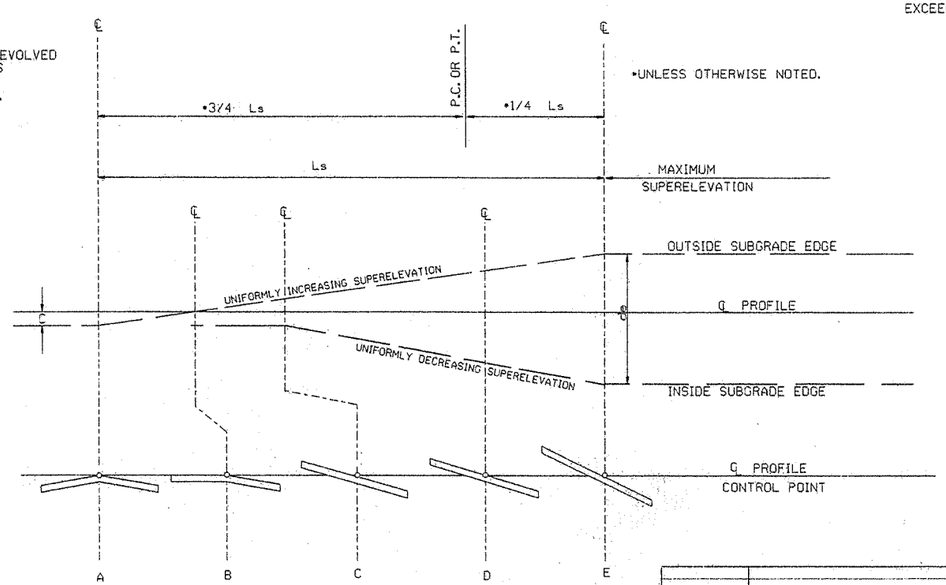
GENERAL NOTES

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

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

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

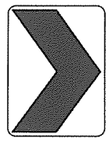
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

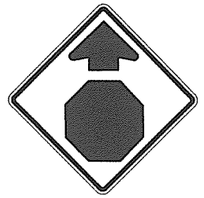
R1-1
30"X30"

W1-3
30"X30"
(LT. OR RT.)



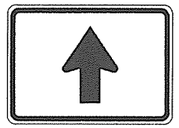
W1-8
18"X24"

W2-5
30"X30"

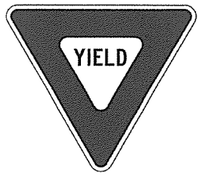


W3-1
36"X36"

W5-1
36"X36"



M6-3
21"X15"

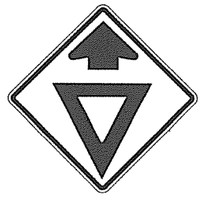


R1-2
36"X36"X36"

W1-4
30"X30"
(LT. or RT.)

W2-1
30"X30"

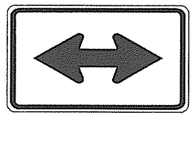
S1-1
36"X36"



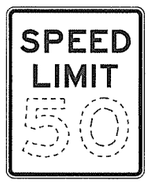
W3-2
36"X36"

County
Route Marker
M1-6
24"X24"

NOTE: REFLECTORIZED YELLOW LEGEND (COUNTY NAME, ROUTE LETTER & NUMBER) & BORDER ON A BLUE BACKGROUND.

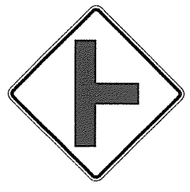


M6-4
21"X15"



R2-1
24"X30"

W1-5
30"X30"
(LT. or RT.)

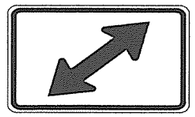


W2-2
30"X30"

W5-2
36"X36"

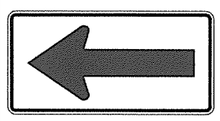
W8-3
36"X36"

R1-3P
18"X6"

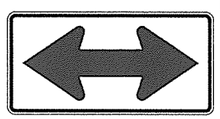


M6-5
21"X15"

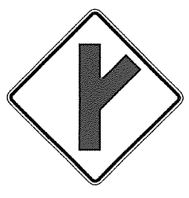
W1-1
30"X30"
(LT. or RT.)



W1-6
48"X24"

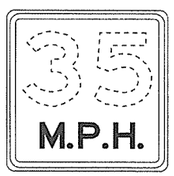


W1-7
48"X24"

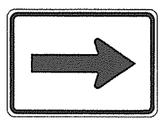


W2-3
30"X30"
(LT. or RT.)

W5-3
36"X36"

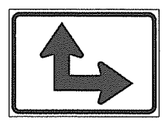


W13-1P
18"X18"

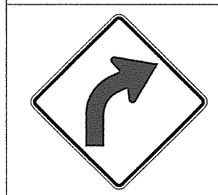


M6-1
21"X15"

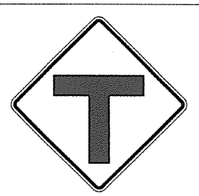
NOTE: ALL M6 SIGNS TO BE MADE WITH REFLECTORIZED YELLOW ARROW & BORDER WITH BLUE BACKGROUND.



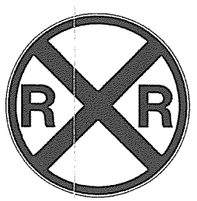
M6-6
21"X15"



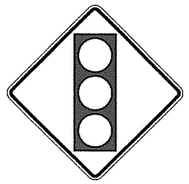
W1-2
30"X30"
(LT. or RT.)



W2-4
30"X30"

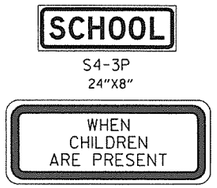


W10-1
36" DIAMETER



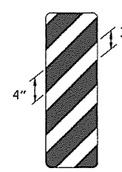
W3-3
36"X36"

M6-2
21"X15"



S4-3P
24"X8"

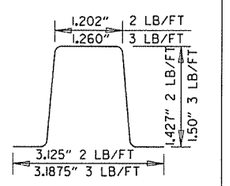
S4-2P
24"X10"



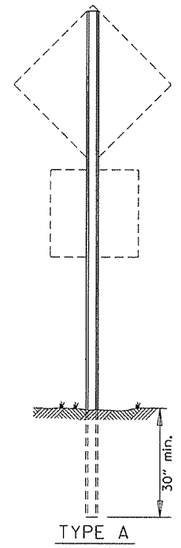
OM-3
12"X36"
(LT. or RT.)

MINIMUM DIMENSIONS SHOWN

SUPPORT SECTION

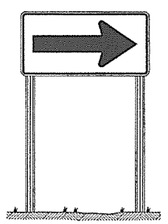


(U-CHANNEL)
STANDARD SUPPORT
ASSEMBLIES



TYPE A

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.



TYPE B

TYPE C

MINIMUM WEIGHT

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

STANDARD HIGHWAY SIGNS

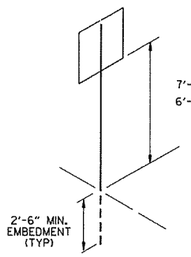
SUPPORT ASSEMBLIES

DATE	REVISION	DATE FILMED
9-12-13	DELETED JOB NO. BLOCK; REVISED R1-3 TO R1-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1& W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3; ADDED W1-8	
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. MT. 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

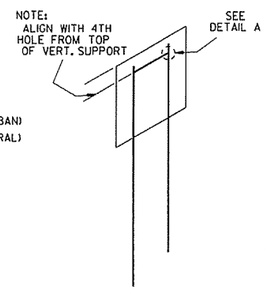
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD HIGHWAY SIGNS
AND SUPPORT ASSEMBLIES

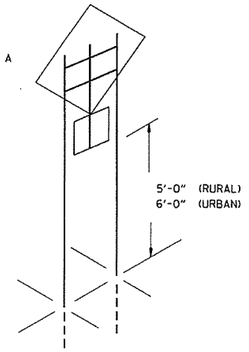
STANDARD DRAWING SHS-1



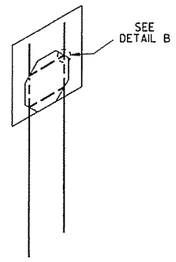
U-1



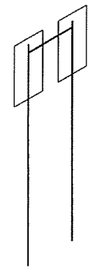
U-2



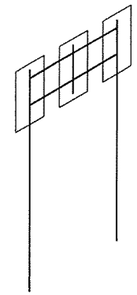
U-2 (A)



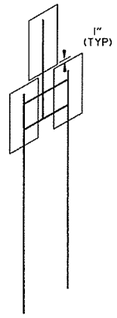
U-2 (B)



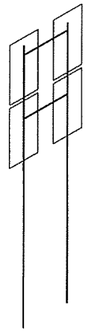
U-2 (1)



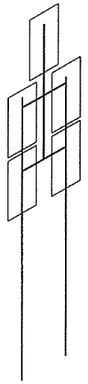
U-2 (2)



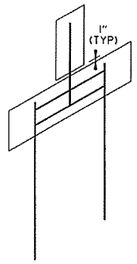
U-2 (3)



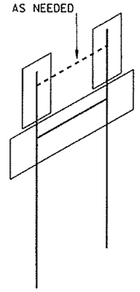
U-2 (4)



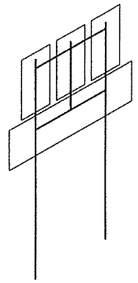
U-2 (5)



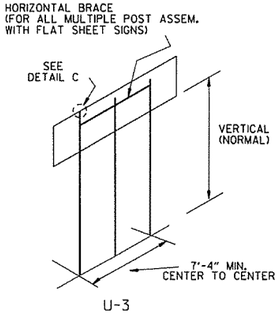
U-2 (6)



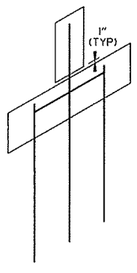
U-2 (7)



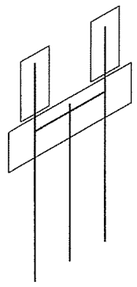
U-2 (8)



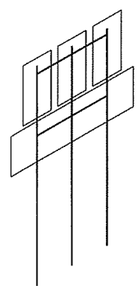
U-3



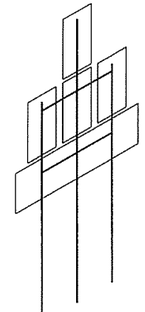
U-3 (1)



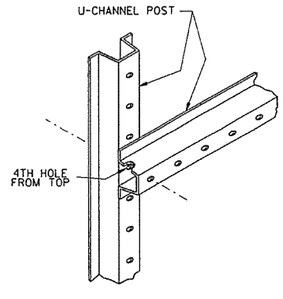
U-3 (2)



U-3 (3)

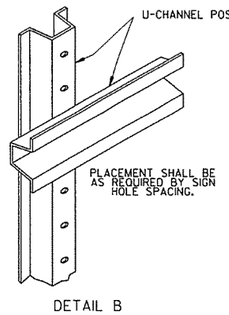


U-3 (4)



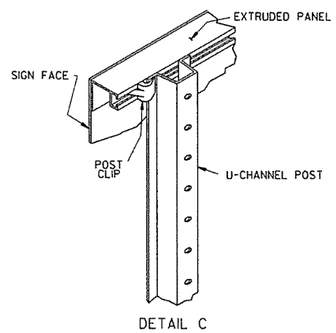
DETAIL A

SHOWING HORIZONTAL BRACE



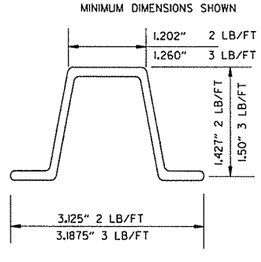
DETAIL B

SHOWING BACK-TO-BACK INSTALLATION



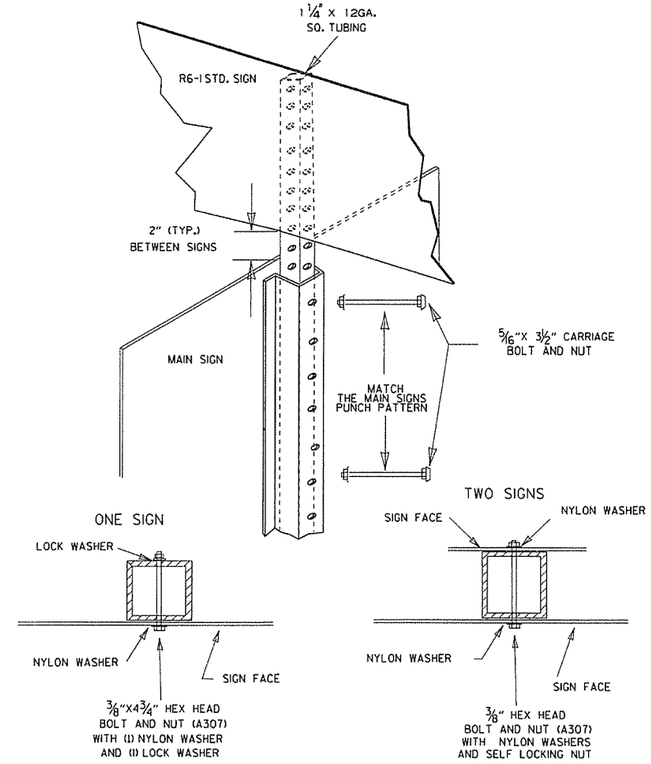
DETAIL C

SHOWING GUIDE SIGN MOUNTING WITH EXTRUDED PANELS



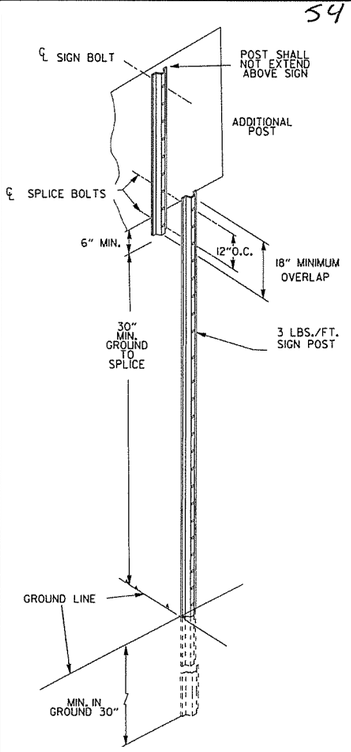
DETAIL C

U-CHANNEL POST



DETAIL E

R6-1 EXTENSION FOR U-CHANNEL POST



DETAIL F

DETAIL OF SPLICES

NOTES:

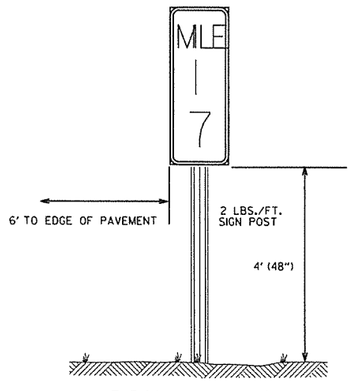
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

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

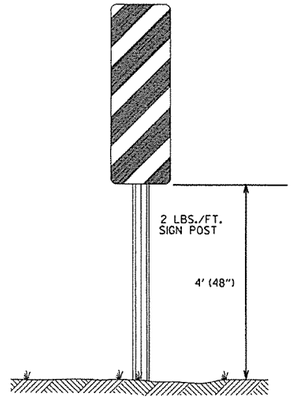
NORMAL INSTALLATIONS WILL REQUIRE $\frac{5}{16}$ " DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

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



TYPICAL MILE MARKER INSTALLATION



TYPICAL OM-3 INSTALLATION AT EDGE OF OBSTRUCTION

DATE	REVISION	FILMED
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

ARKANSAS STATE HIGHWAY COMMISSION

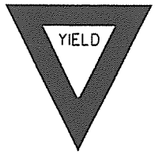
U-CHANNEL POST ASSEMBLIES

STANDARD DRAWING SHS-2

RI-1

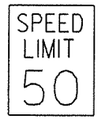
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

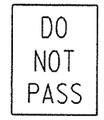
W3-5

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

W3-5a

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

R4-1



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

R4-2

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

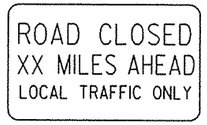
R5-1

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

RII-2

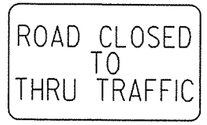
48"X30"

RII-3A



60"X30"

RII-4

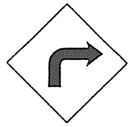


60"X30"

RSP-1

48"X30"

WI-1



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

WI-2

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

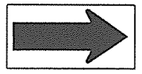
WI-3

STD. 48"X48"

WI-4

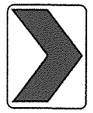
STD. 48"X48"

WI-6



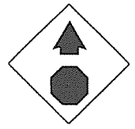
STD. 48"X24"
SPECIAL 60"X30"

WI-8



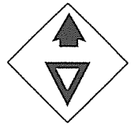
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



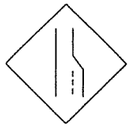
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

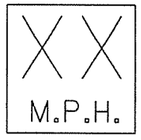
W8-7

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

W9-2

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

WI3-1



STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

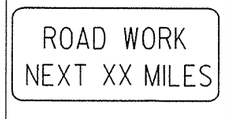
W8-11

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

W8-9

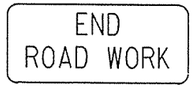
STD. 36"X36"
FWY. 48"X48"

G20-1



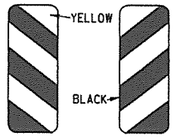
60"X24"

G20-2



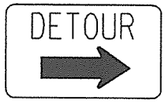
48"X24"

OM-3L OM-3R



12"X36"

M4-9

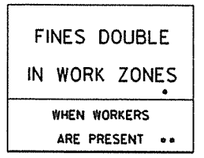


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

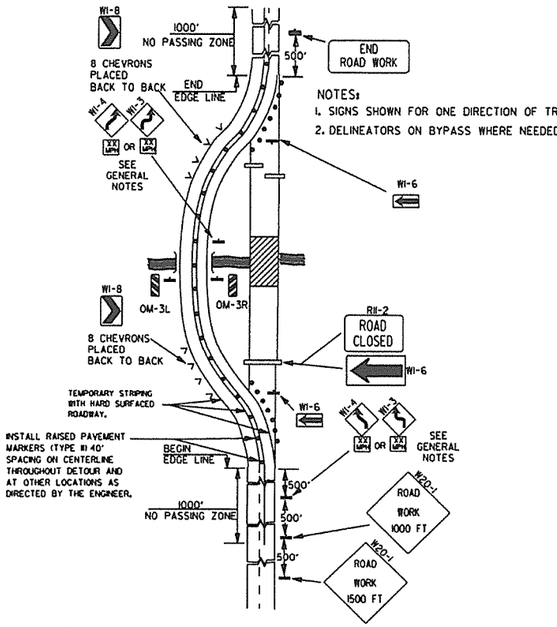
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

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

ARKANSAS STATE HIGHWAY COMMISSION

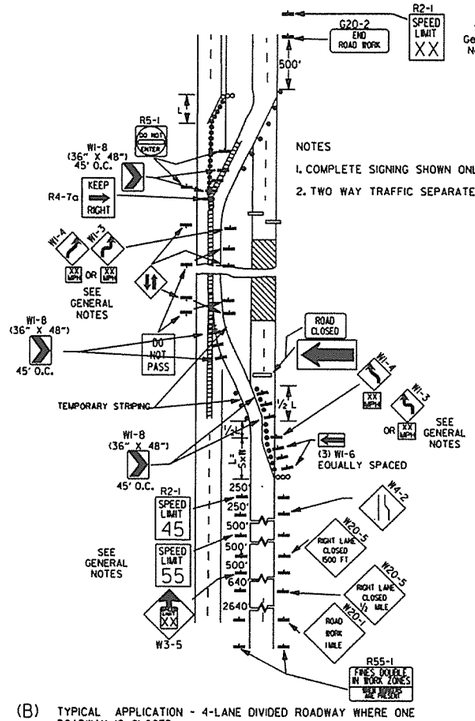
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



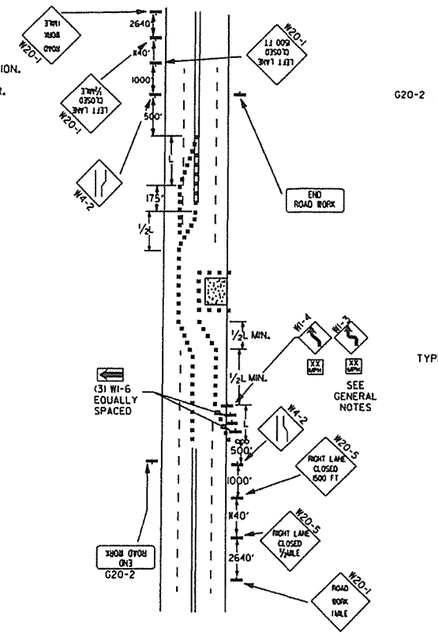
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

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

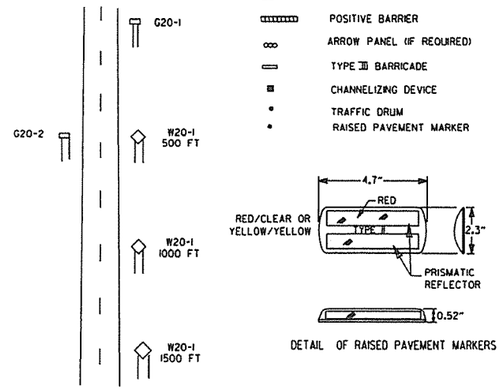


(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

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



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



TYPICAL ADVANCE WARNING SIGN PLACEMENT

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

DETAIL OF RAISED PAVEMENT MARKERS

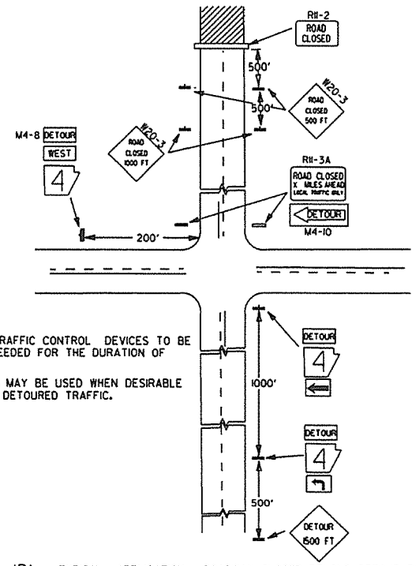
TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

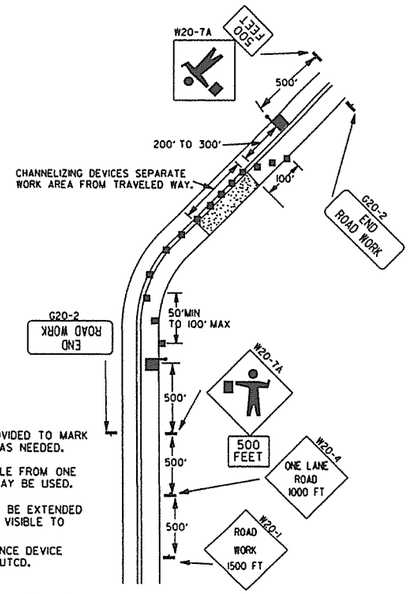
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SIGNS SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. 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.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



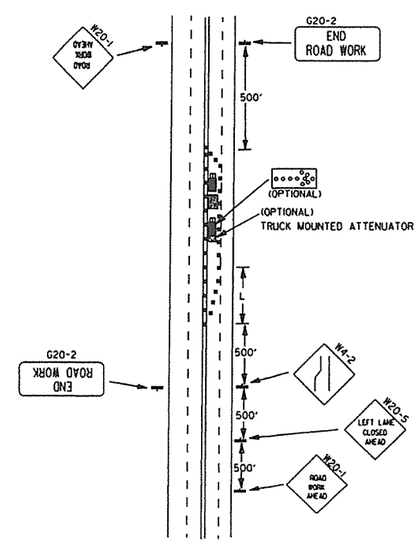
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.

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



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

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



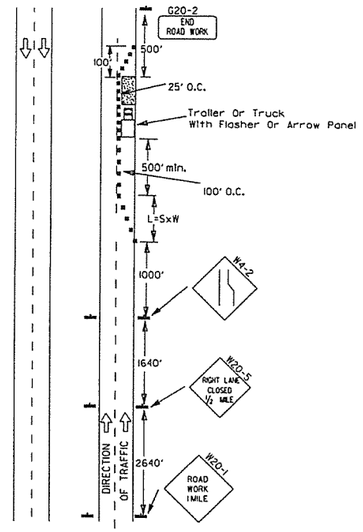
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (G) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

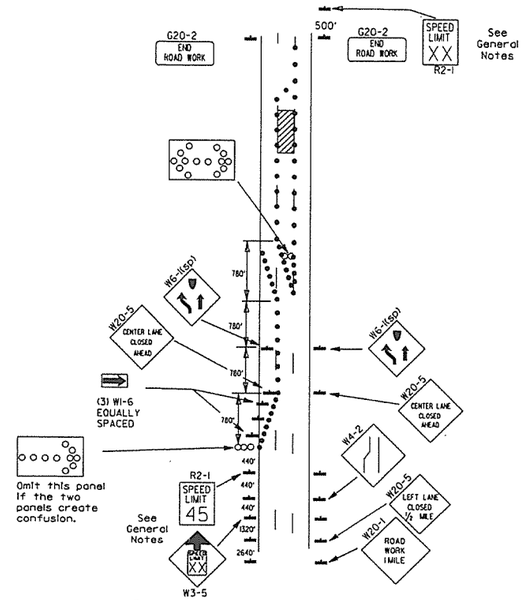
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

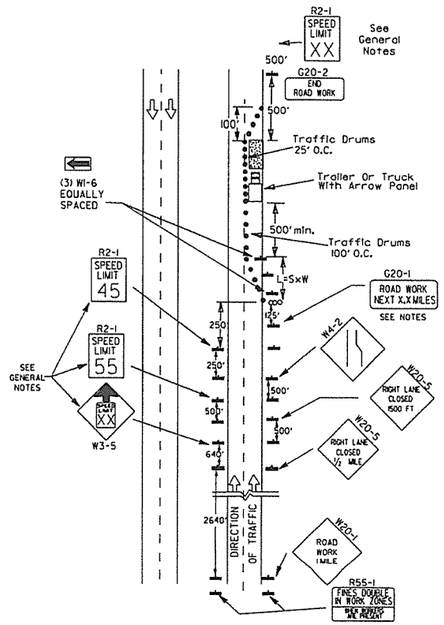
STANDARD DRAWING TC-2



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



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



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

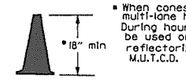
KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ◉ Traffic drum

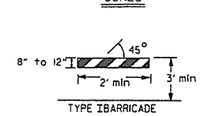
GENERAL NOTES:

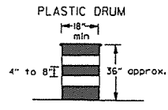
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 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 55mph 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.

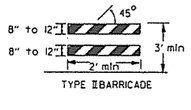
Channelizing devices

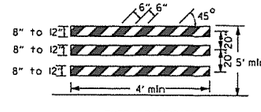


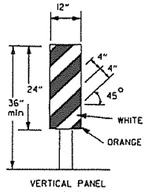
▪ When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.











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

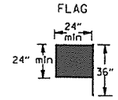
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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.

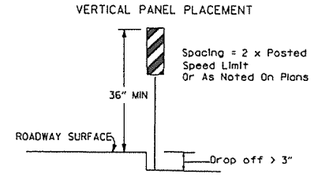
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

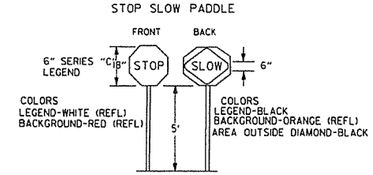


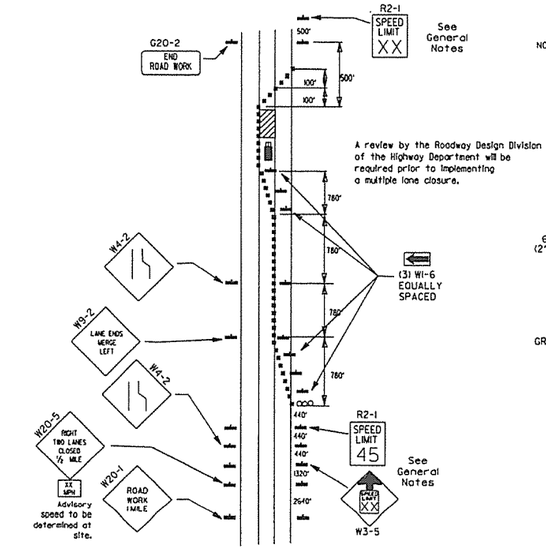
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



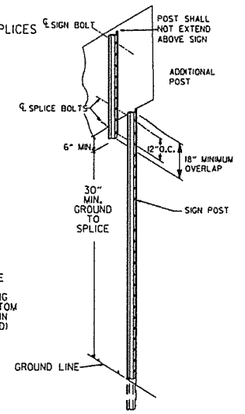
STOP SLOW PADDLE





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

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.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

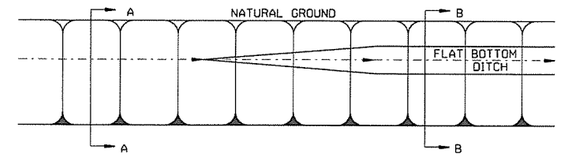
ARKANSAS STATE HIGHWAY COMMISSION

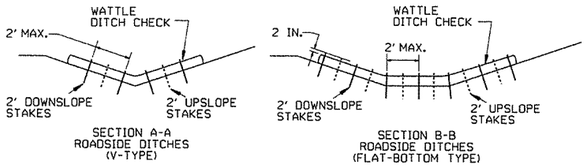
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

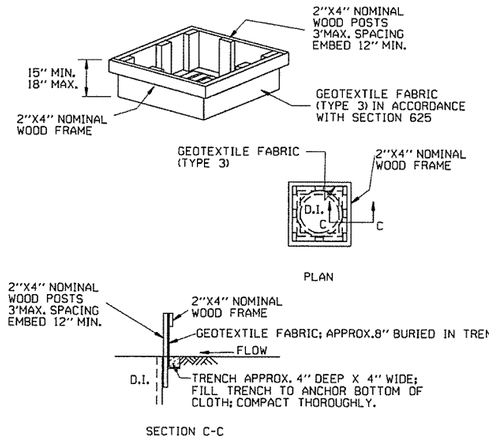
GENERAL NOTES

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

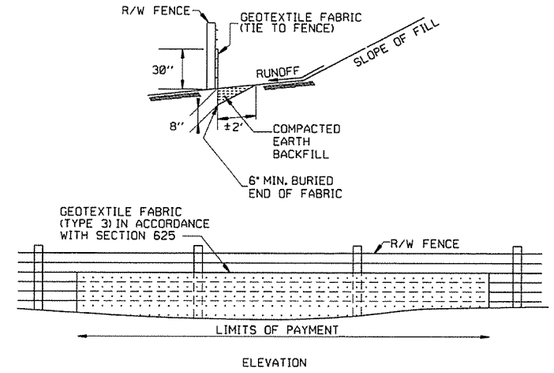




WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

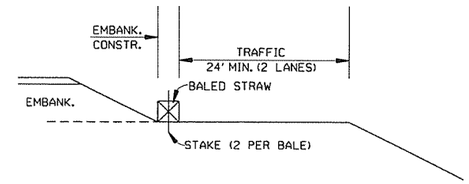
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

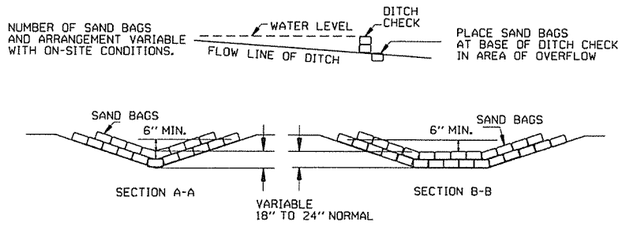
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

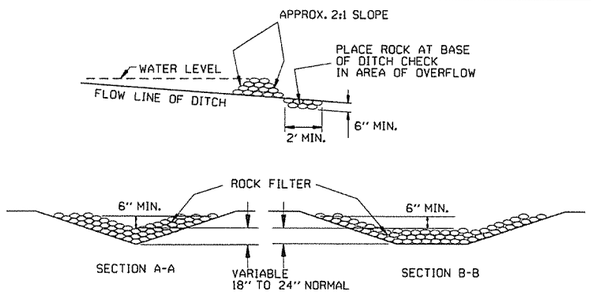
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



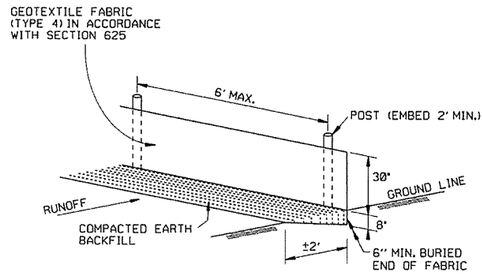
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

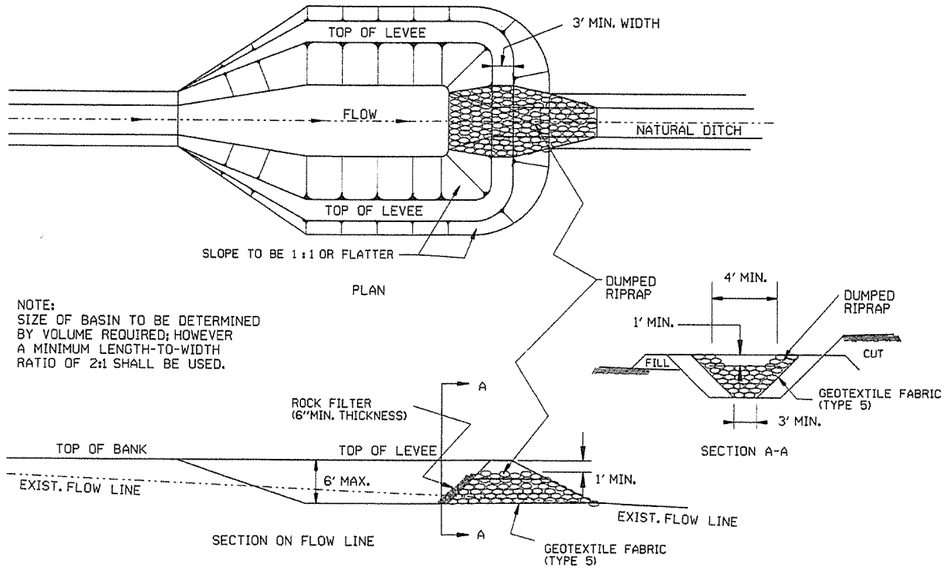
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
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

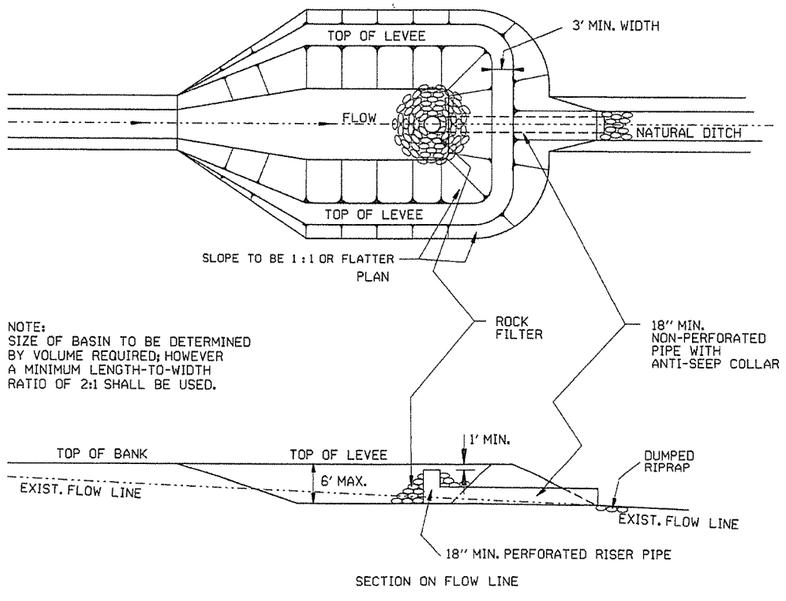
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

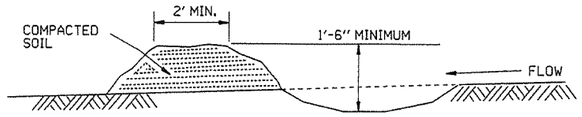
STANDARD DRAWING TEC-1



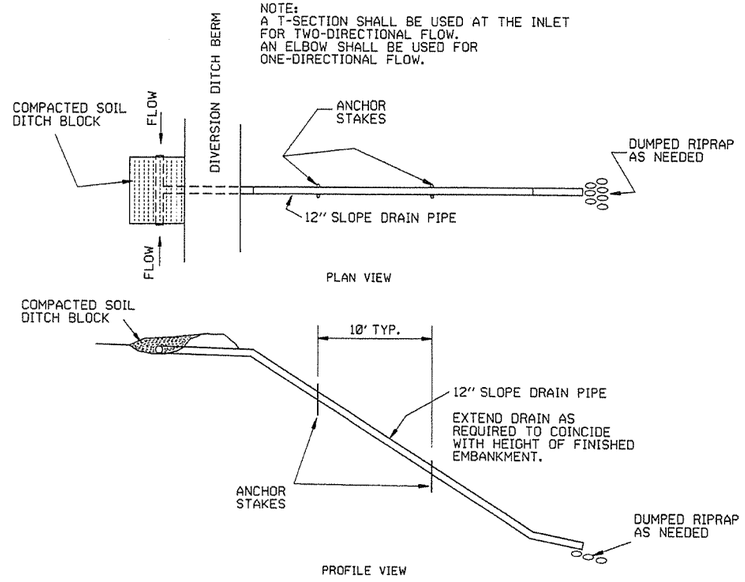
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



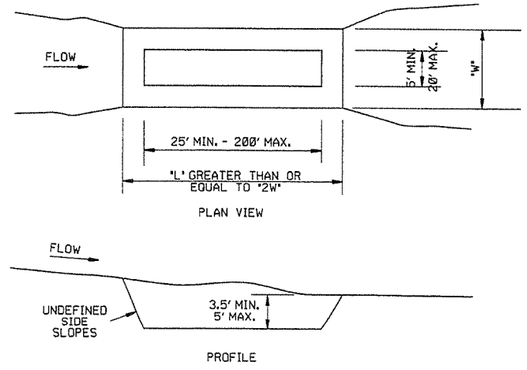
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

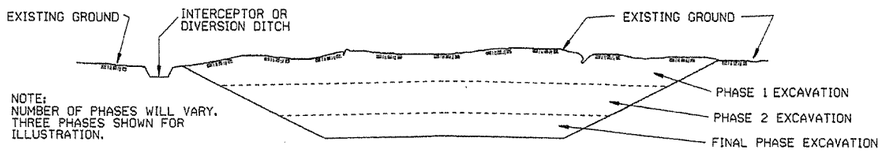
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



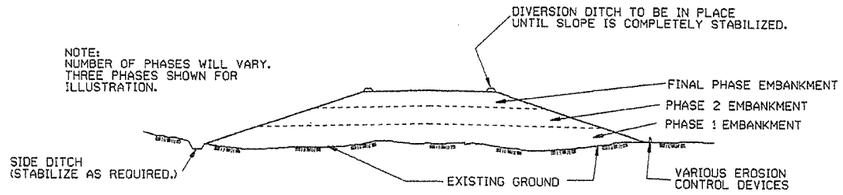
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

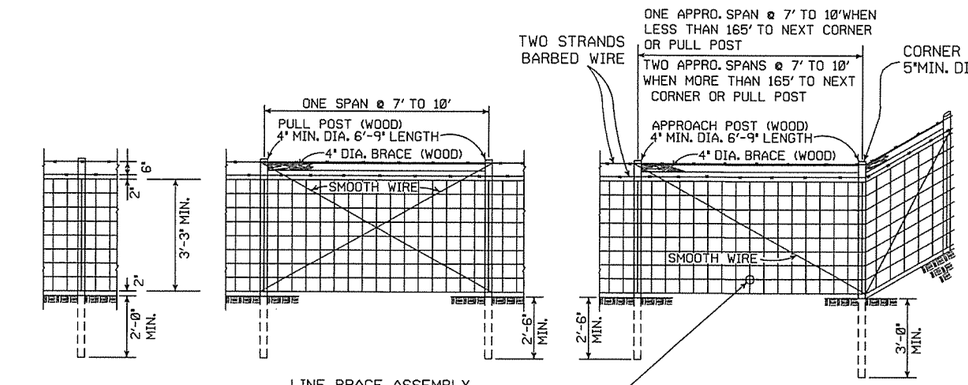
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

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

ARKANSAS STATE HIGHWAY COMMISSION

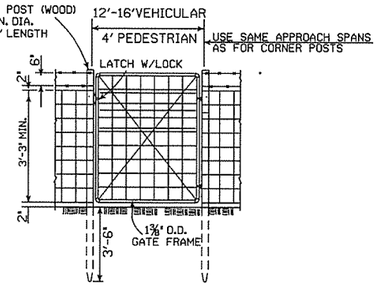
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



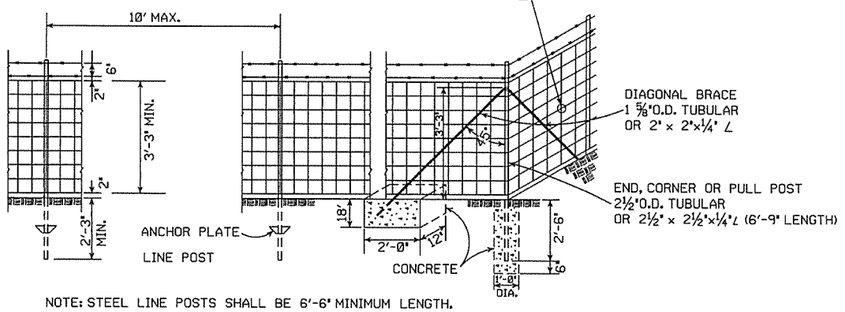
LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

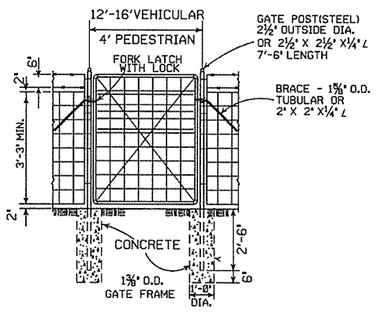
LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'



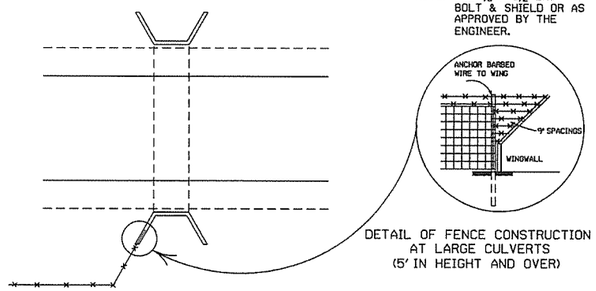
TYPE C FENCE (WOOD POSTS)

OTHER APPROVED TIES WILL BE PERMITTED





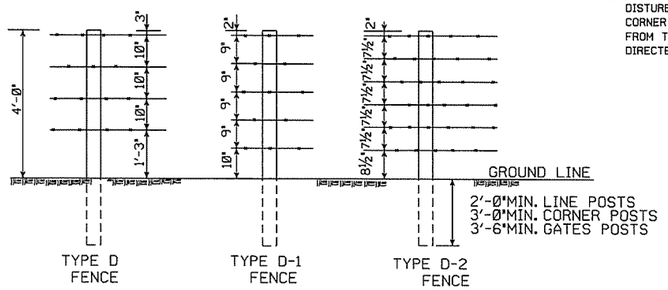
NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.



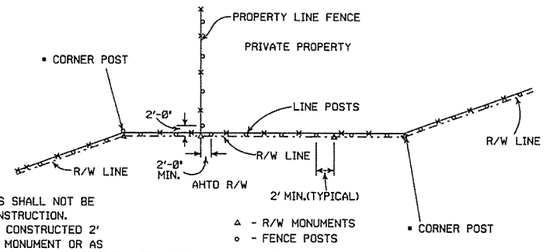
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

TYPE C FENCE (STEEL POSTS)

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

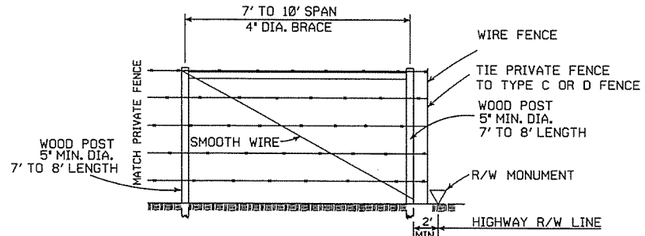


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



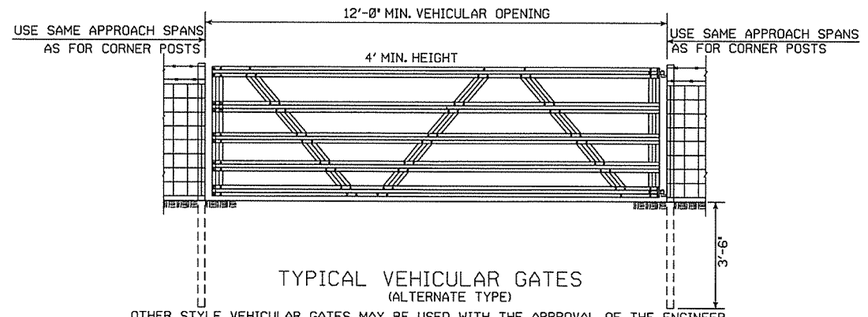
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

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



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

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

GENERAL NOTES:

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

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

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

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

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

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

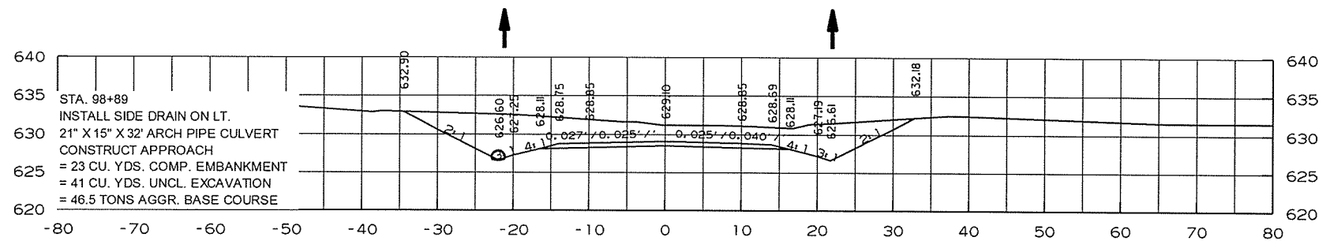
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

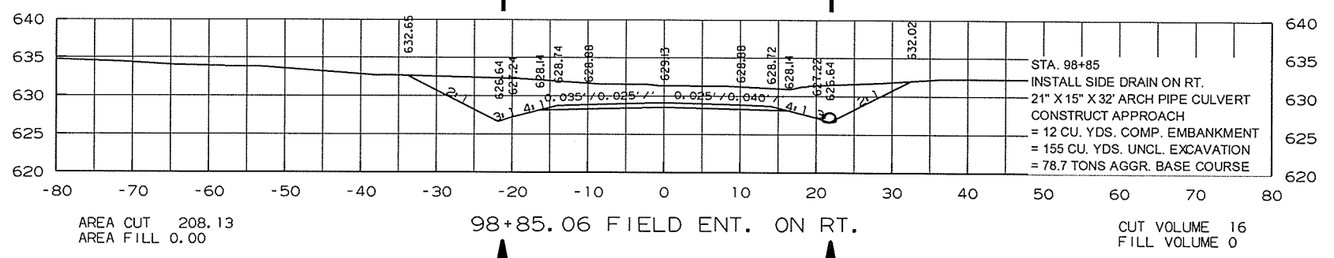
STANDARD DRAWING WF-4



AREA CUT 215.93
AREA FILL 0.00

98+88.88 DRIVEWAY ON LT.

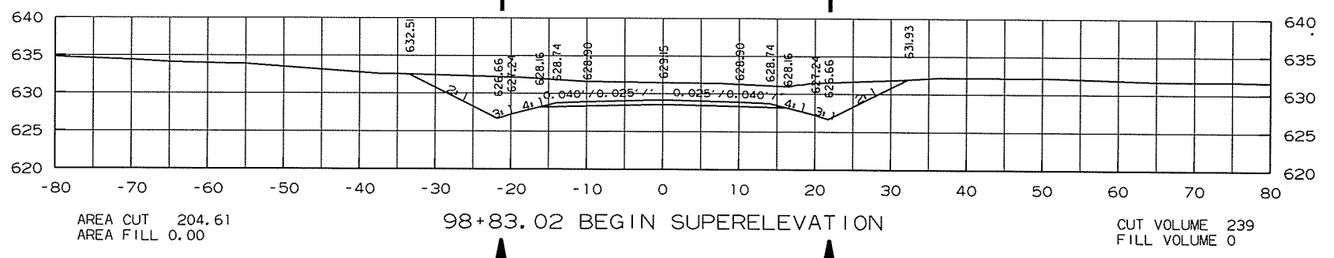
CUT VOLUME 30
FILL VOLUME 0



AREA CUT 208.13
AREA FILL 0.00

98+85.06 FIELD ENT. ON RT.

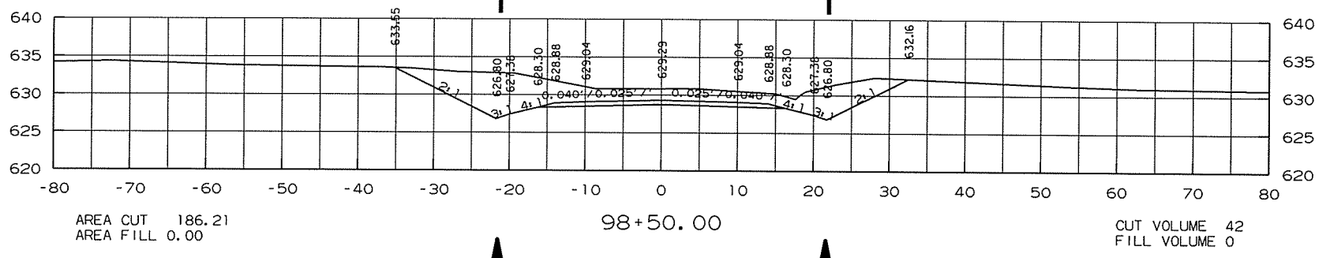
CUT VOLUME 16
FILL VOLUME 0



AREA CUT 204.61
AREA FILL 0.00

98+83.02 BEGIN SUPERELEVATION

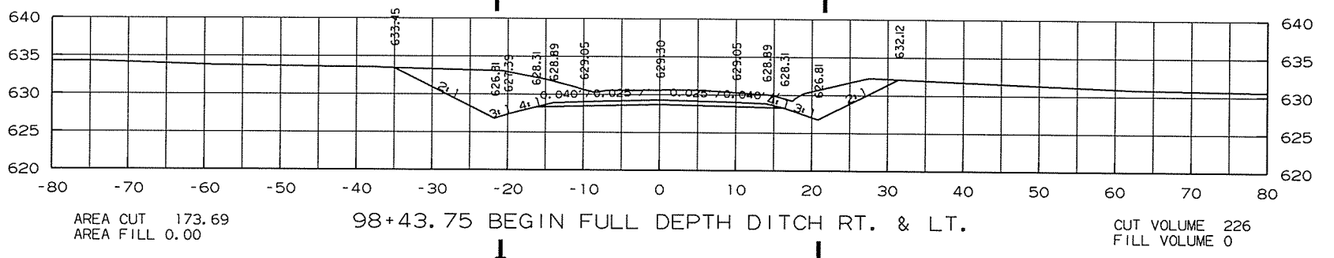
CUT VOLUME 239
FILL VOLUME 0



AREA CUT 186.21
AREA FILL 0.00

98+50.00

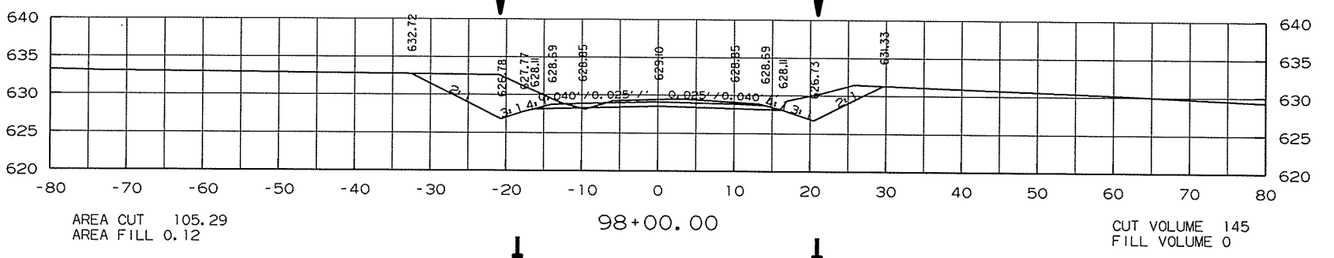
CUT VOLUME 42
FILL VOLUME 0



AREA CUT 173.69
AREA FILL 0.00

98+43.75 BEGIN FULL DEPTH DITCH RT. & LT.

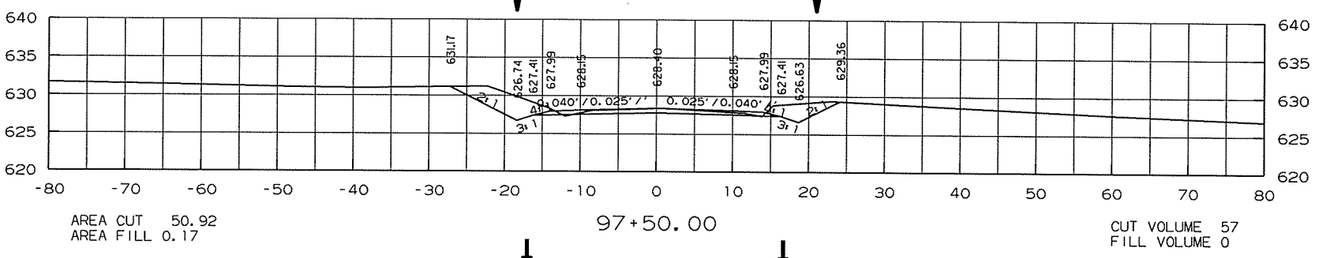
CUT VOLUME 226
FILL VOLUME 0



AREA CUT 105.29
AREA FILL 0.12

98+00.00

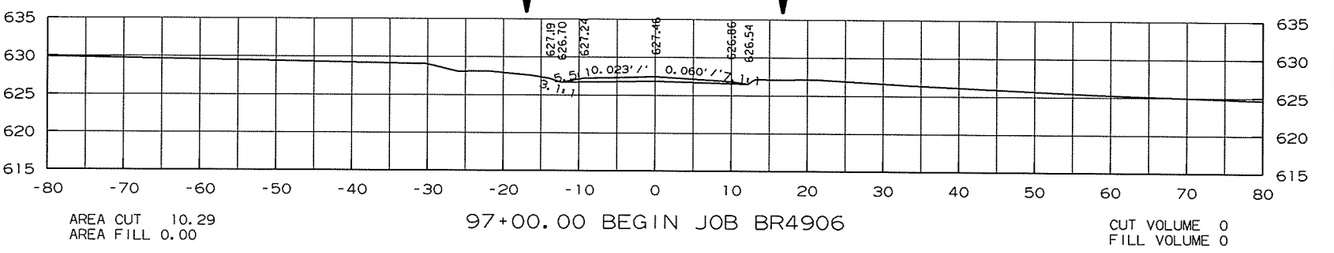
CUT VOLUME 145
FILL VOLUME 0



AREA CUT 50.92
AREA FILL 0.17

97+50.00

CUT VOLUME 57
FILL VOLUME 0



AREA CUT 10.29
AREA FILL 0.00

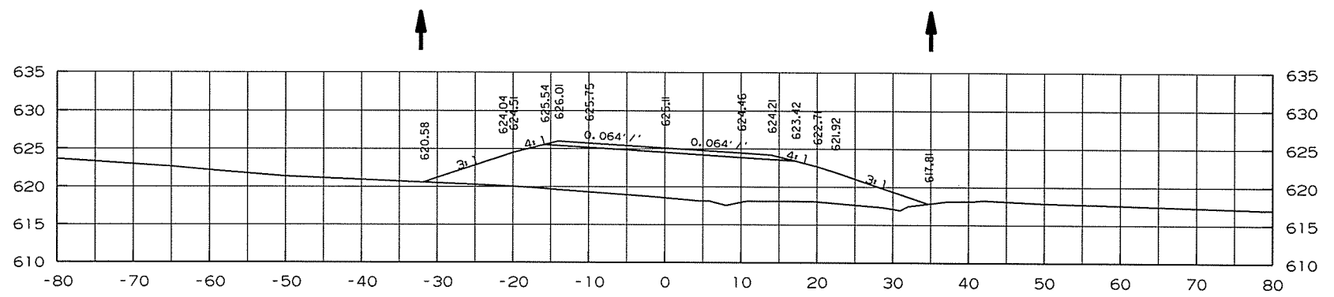
97+00.00 BEGIN JOB BR4906

CUT VOLUME 0
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR4906	62	85

4 CROSS SECTIONS STA. 97+00.00 TO 98+88.88

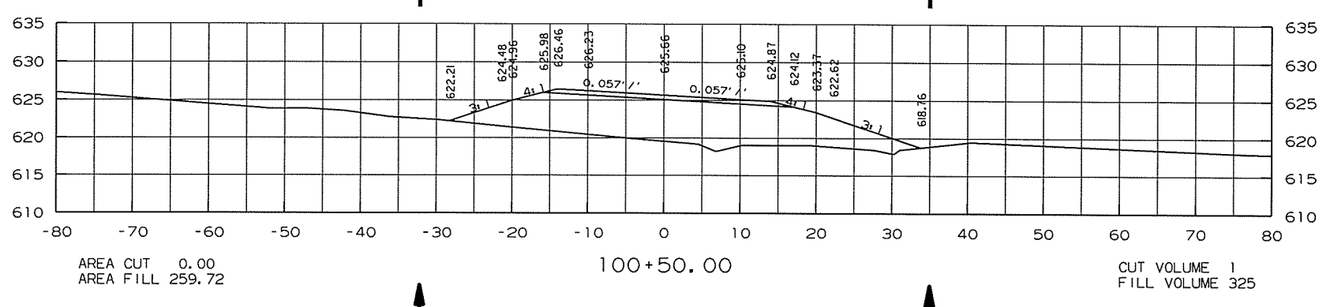
JOB NO.



AREA CUT 0.00
AREA FILL 294.94

100+70.52 P.C.

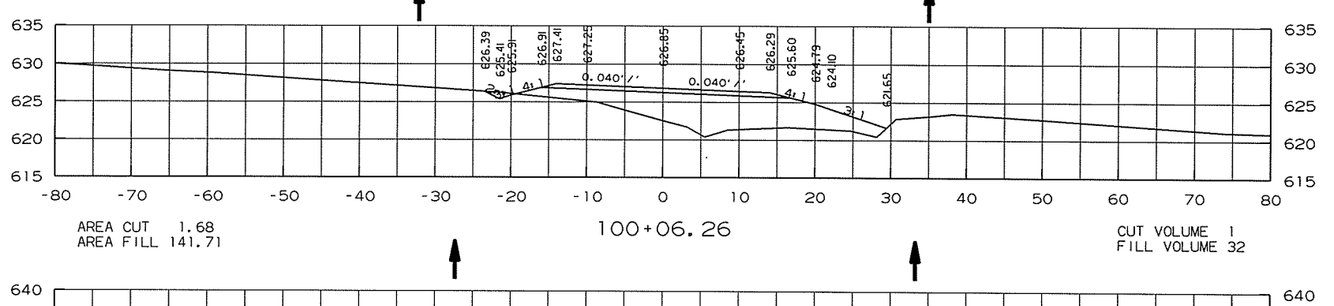
CUT VOLUME 0
FILL VOLUME 211



AREA CUT 0.00
AREA FILL 259.72

100+50.00

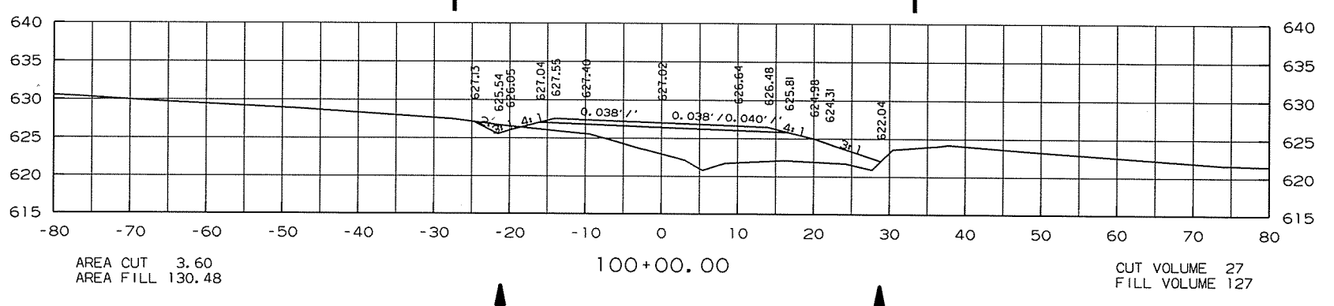
CUT VOLUME 1
FILL VOLUME 325



AREA CUT 1.68
AREA FILL 141.71

100+06.26

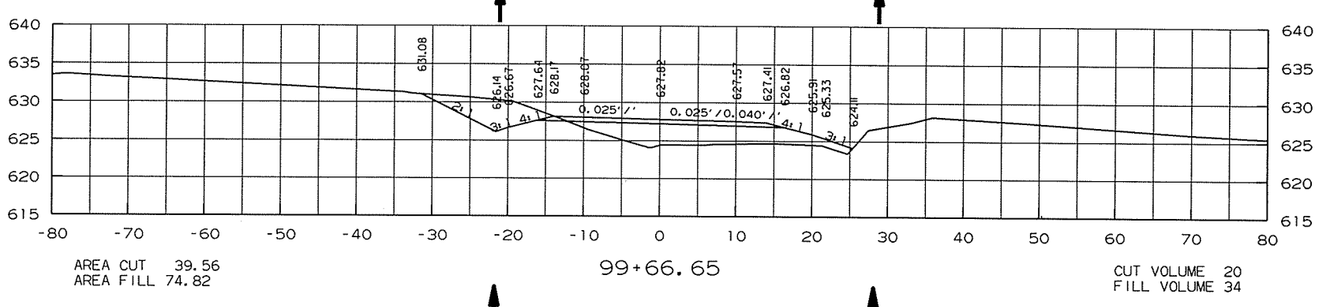
CUT VOLUME 1
FILL VOLUME 32



AREA CUT 3.60
AREA FILL 130.48

100+00.00

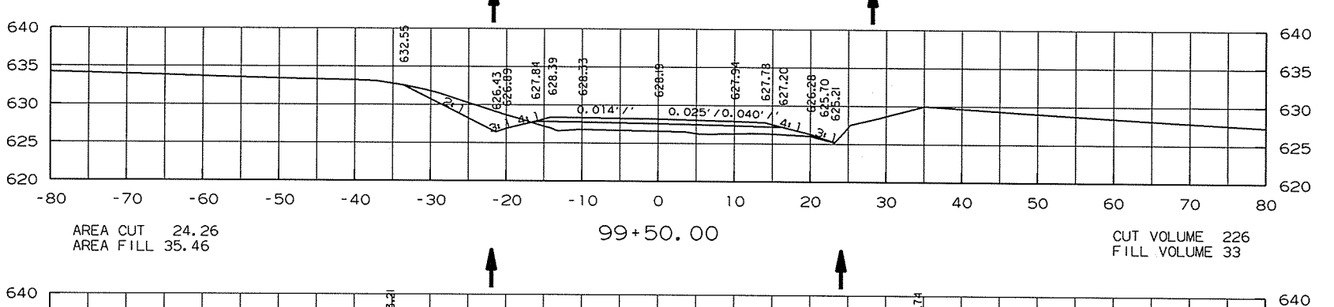
CUT VOLUME 27
FILL VOLUME 127



AREA CUT 39.56
AREA FILL 74.82

99+66.65

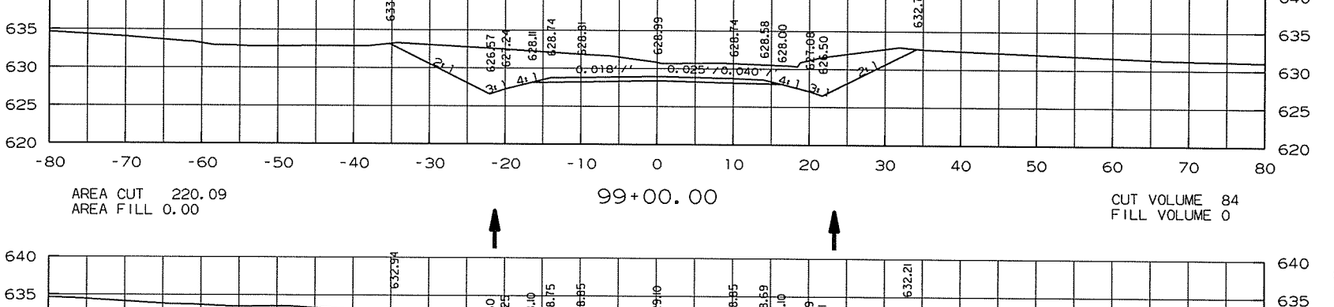
CUT VOLUME 20
FILL VOLUME 34



AREA CUT 24.26
AREA FILL 35.46

99+50.00

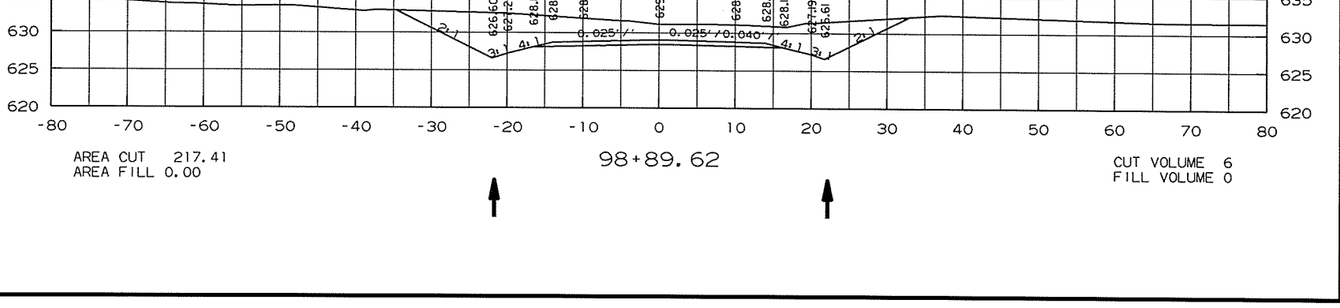
CUT VOLUME 226
FILL VOLUME 33



AREA CUT 220.09
AREA FILL 0.00

99+00.00

CUT VOLUME 84
FILL VOLUME 0



AREA CUT 217.41
AREA FILL 0.00

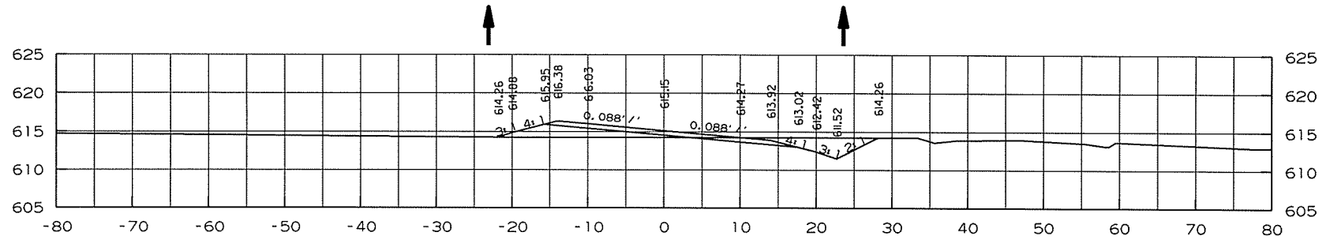
98+89.62

CUT VOLUME 6
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR4906	63	85

JOB NO.

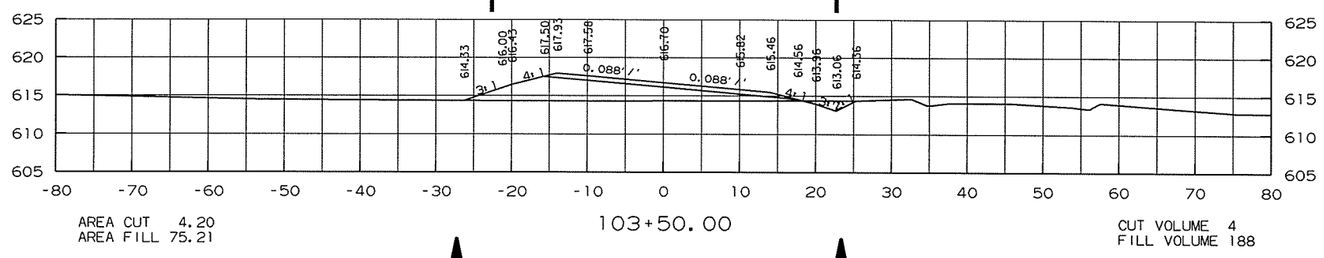
4 CROSS SECTIONS STA. 98+89.62 TO 100+70.52



AREA CUT 26.25
AREA FILL 22.06

104+00.00

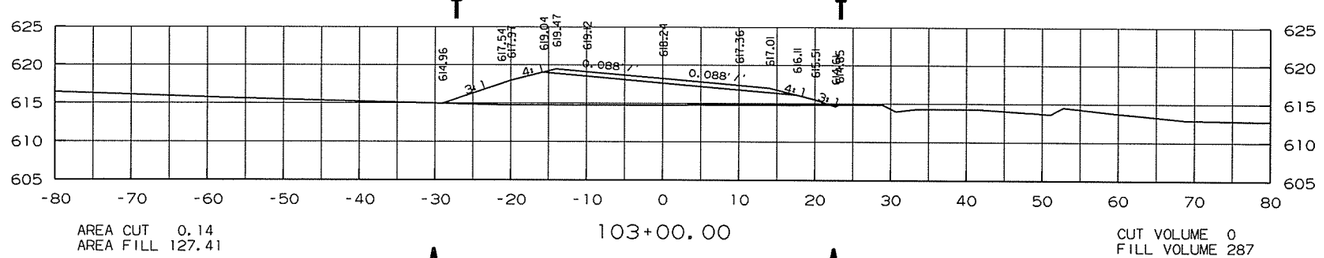
CUT VOLUME 28
FILL VOLUME 90



AREA CUT 4.20
AREA FILL 75.21

103+50.00

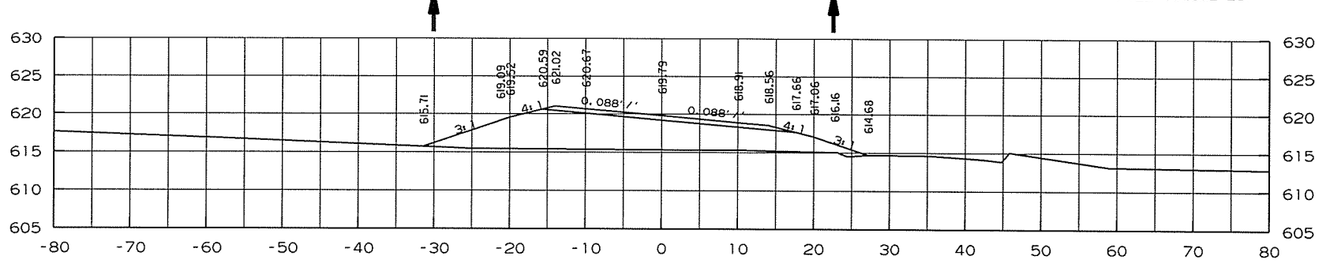
CUT VOLUME 4
FILL VOLUME 188



AREA CUT 0.14
AREA FILL 127.41

103+00.00

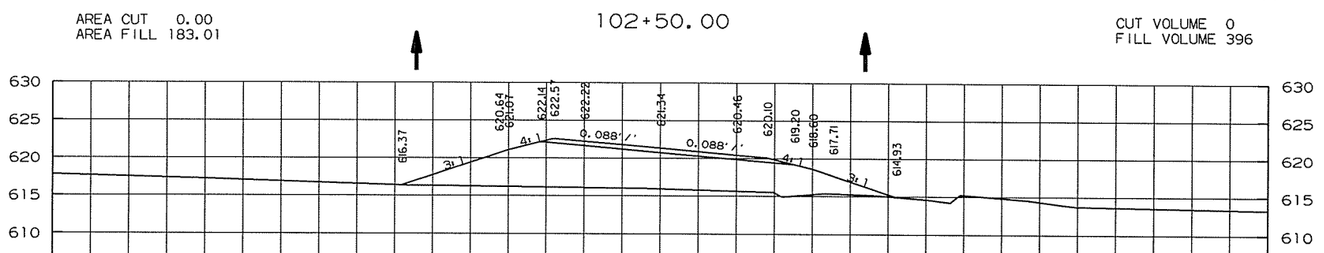
CUT VOLUME 0
FILL VOLUME 287



AREA CUT 0.00
AREA FILL 183.01

102+50.00

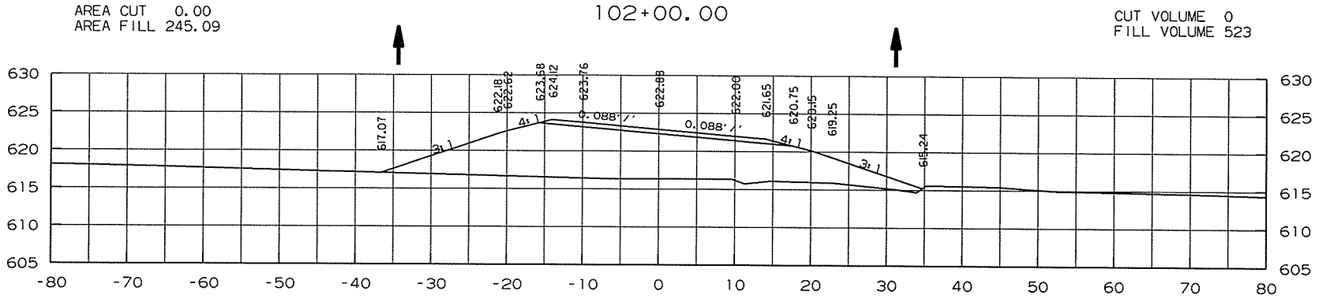
CUT VOLUME 0
FILL VOLUME 396



AREA CUT 0.00
AREA FILL 245.09

102+00.00

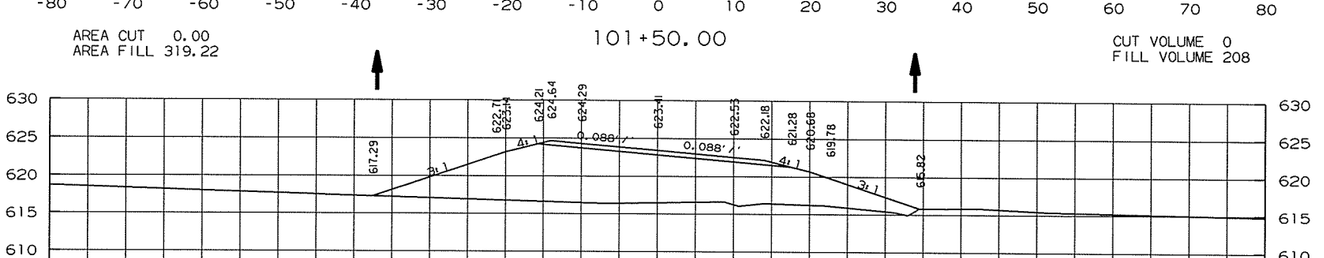
CUT VOLUME 0
FILL VOLUME 523



AREA CUT 0.00
AREA FILL 319.22

101+50.00

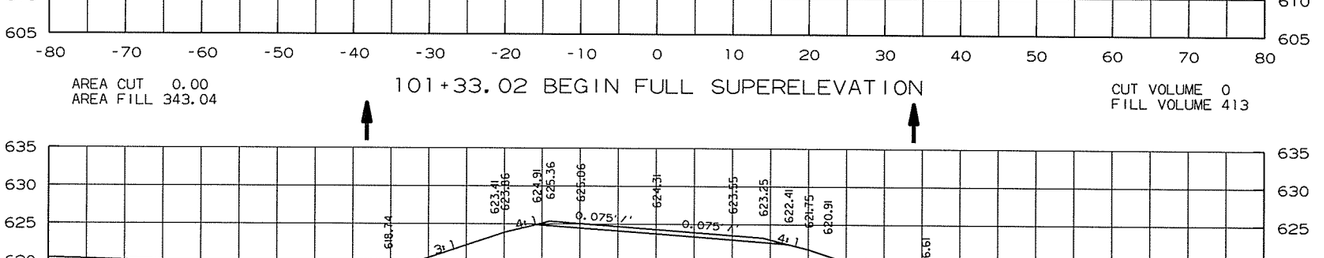
CUT VOLUME 0
FILL VOLUME 208



AREA CUT 0.00
AREA FILL 343.04

101+33.02 BEGIN FULL SUPERELEVATION

CUT VOLUME 0
FILL VOLUME 413



AREA CUT 0.00
AREA FILL 332.13

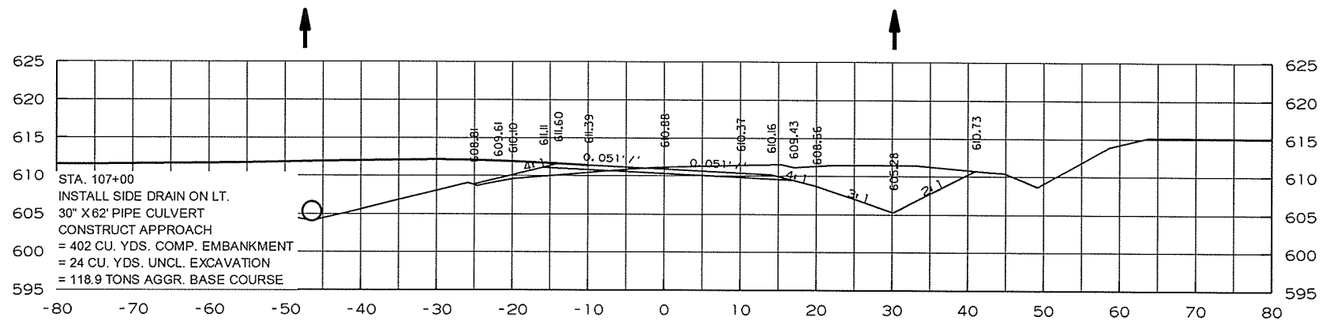
101+00.00

CUT VOLUME 0
FILL VOLUME 342

	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	

4 CROSS SECTIONS STA. 101+00.00 TO 104+00.00

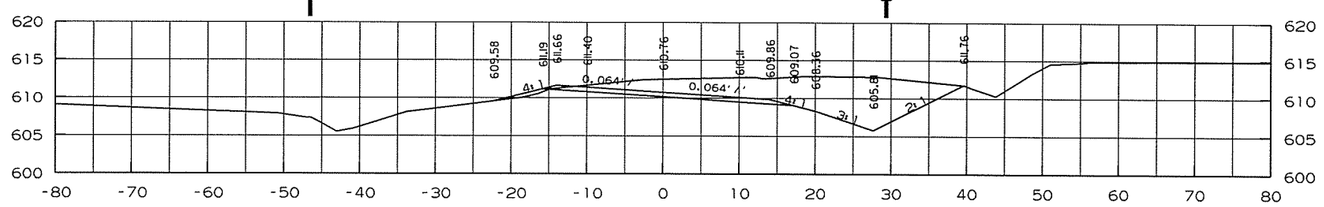
JOB NO.	6	STATE	ARK.	FED.RD. DIST.NO.	
	BR4906			FED.AID PROJ.NO.	
	64			SHEET NO.	
	85			TOTAL SHEETS	



AREA CUT 114.51
AREA FILL 10.76

107+00.00 FIELD ENTRANCE ON LT.

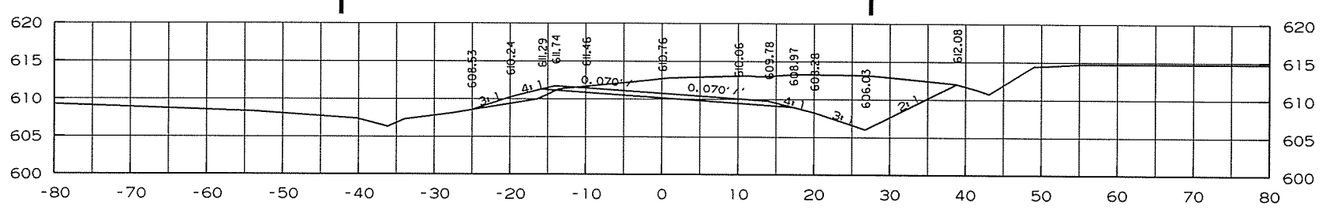
CUT VOLUME 182
FILL VOLUME 9



AREA CUT 167.75
AREA FILL 2.45

106+65.23

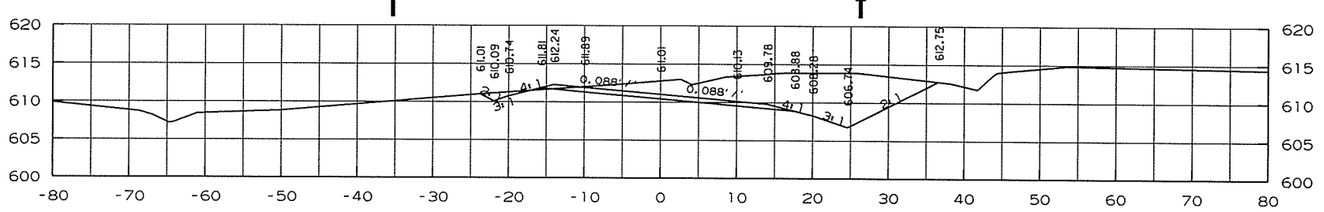
CUT VOLUME 97
FILL VOLUME 3



AREA CUT 174.43
AREA FILL 7.48

106+50.00

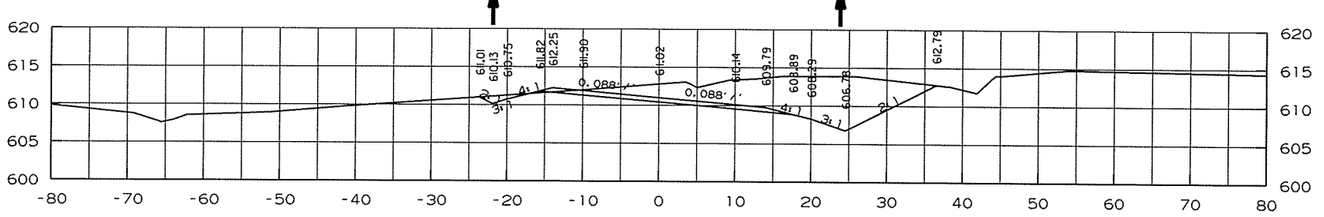
CUT VOLUME 300
FILL VOLUME 7



AREA CUT 168.15
AREA FILL 0.29

106+02.73 END FULL SUPERELEVATION

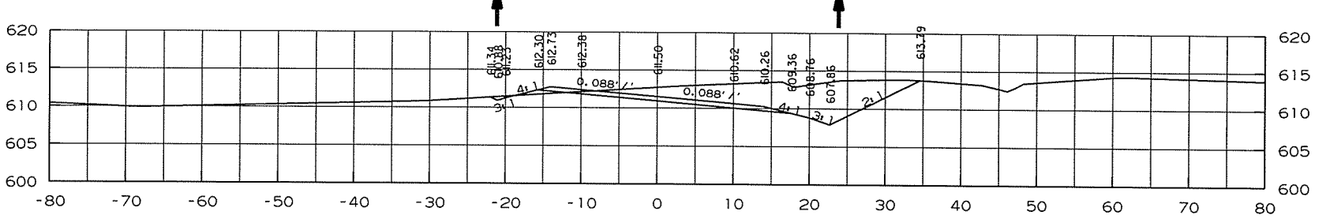
CUT VOLUME 17
FILL VOLUME 0



AREA CUT 166.71
AREA FILL 0.39

106+00.00

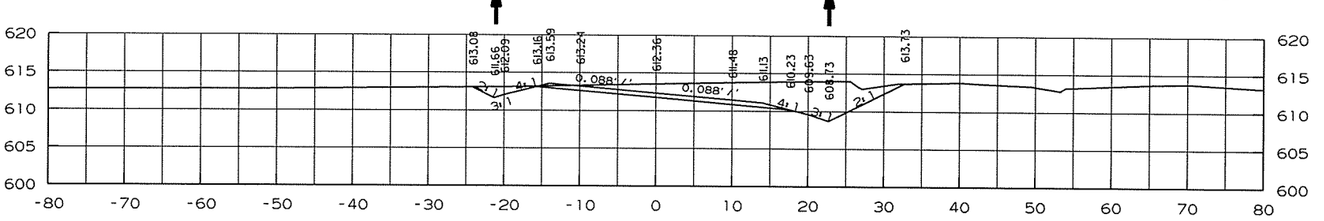
CUT VOLUME 268
FILL VOLUME 2



AREA CUT 123.23
AREA FILL 1.86

105+50.00

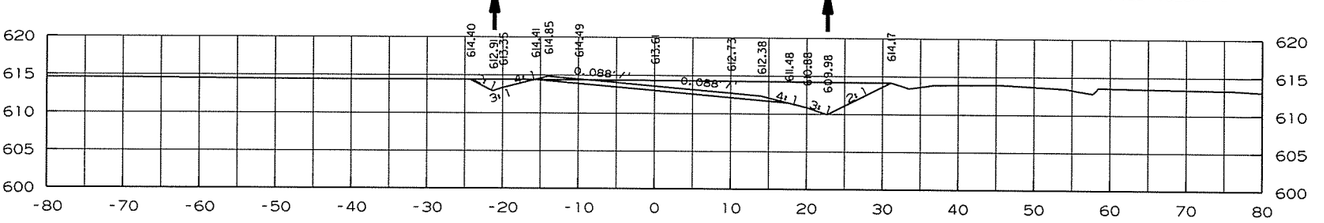
CUT VOLUME 221
FILL VOLUME 2



AREA CUT 115.01
AREA FILL 0.00

105+00.00

CUT VOLUME 187
FILL VOLUME 0



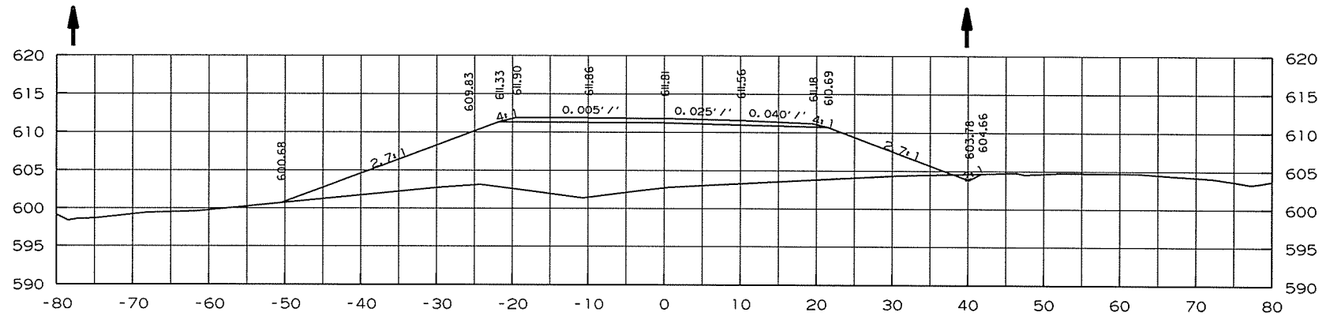
AREA CUT 87.21
AREA FILL 0.00

104+50.00

CUT VOLUME 105
FILL VOLUME 20

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR4906	65	85

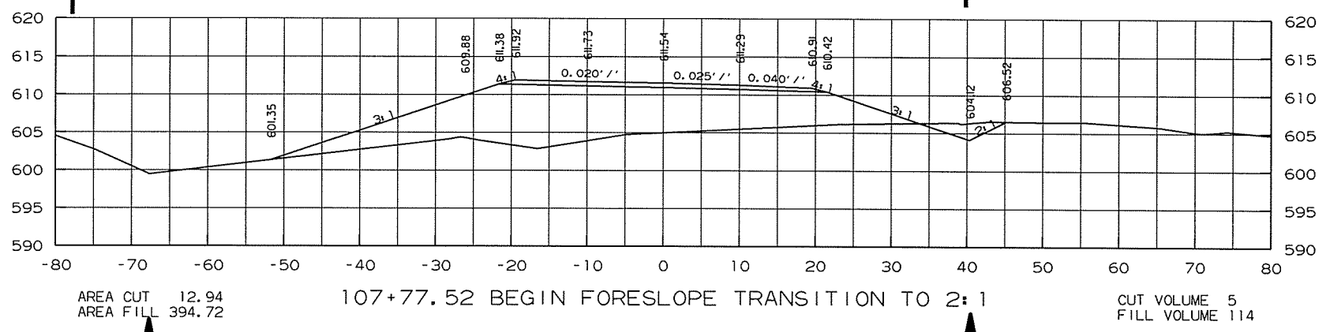
4 CROSS SECTIONS STA. 104+50.00 TO 107+00.00



AREA CUT 1.61
AREA FILL 533.36

108+00.00

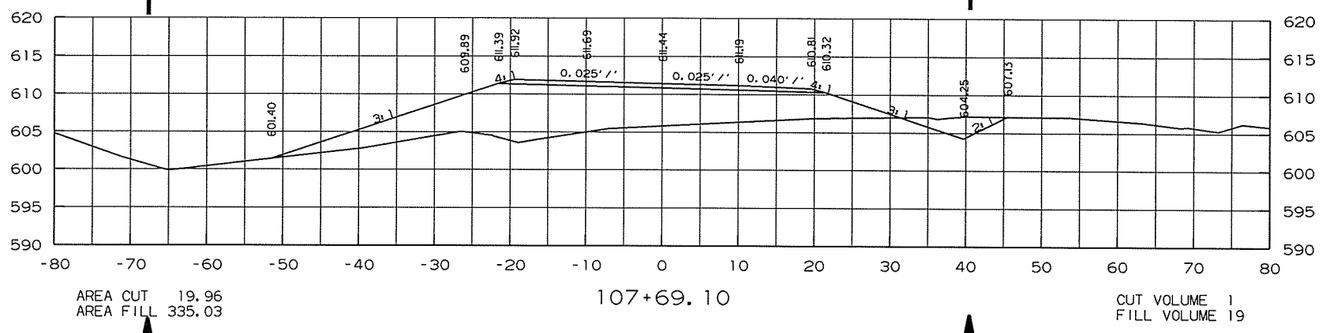
CUT VOLUME 6
FILL VOLUME 386



AREA CUT 12.94
AREA FILL 394.72

107+77.52 BEGIN FORESLOPE TRANSITION TO 2:1

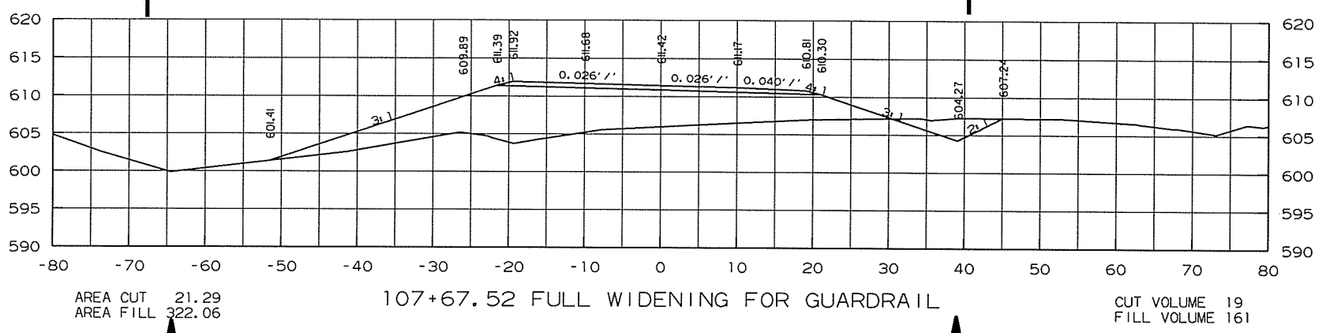
CUT VOLUME 5
FILL VOLUME 114



AREA CUT 19.96
AREA FILL 335.03

107+69.10

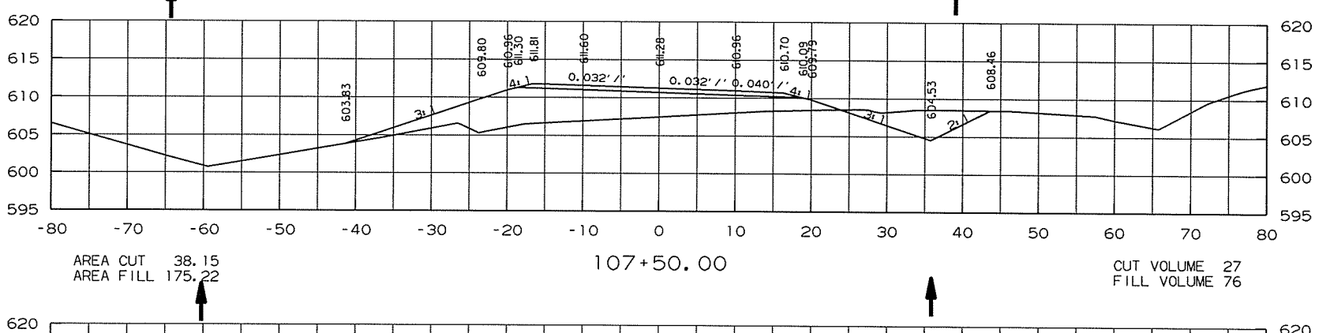
CUT VOLUME 1
FILL VOLUME 19



AREA CUT 21.29
AREA FILL 322.06

107+67.52 FULL WIDENING FOR GUARDRAIL

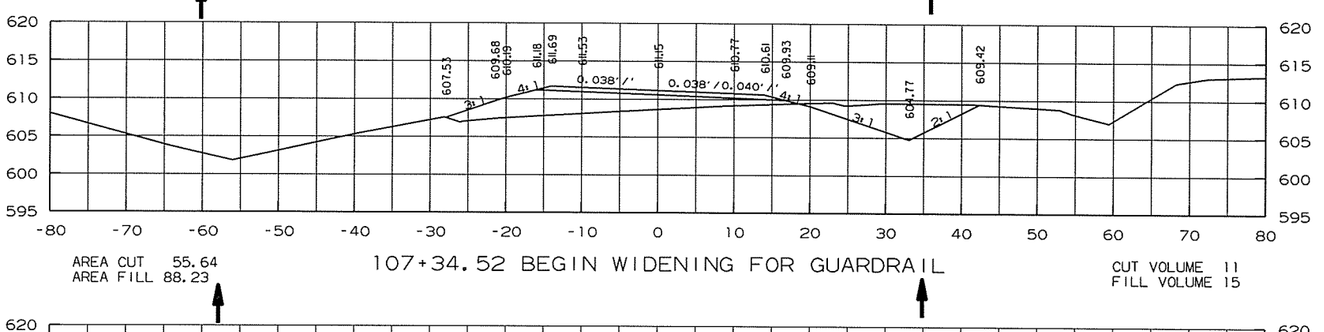
CUT VOLUME 19
FILL VOLUME 161



AREA CUT 38.15
AREA FILL 175.22

107+50.00

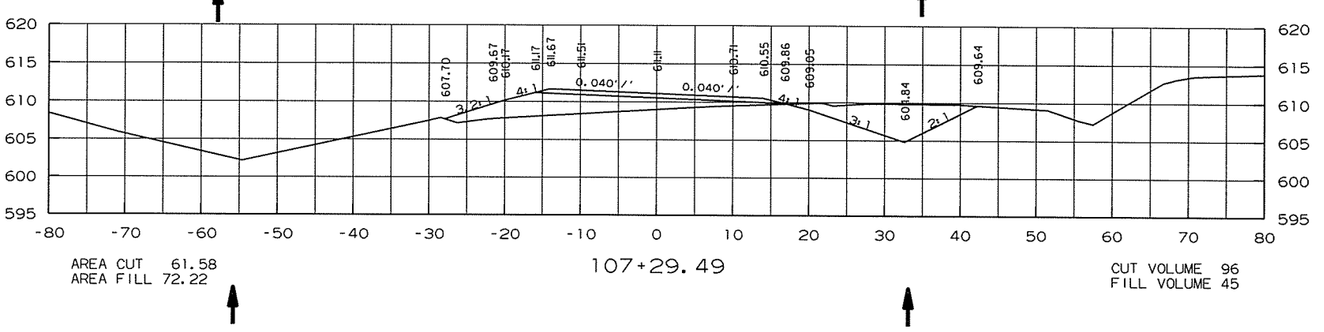
CUT VOLUME 27
FILL VOLUME 76



AREA CUT 55.64
AREA FILL 88.23

107+34.52 BEGIN WIDENING FOR GUARDRAIL

CUT VOLUME 11
FILL VOLUME 15



AREA CUT 61.58
AREA FILL 72.22

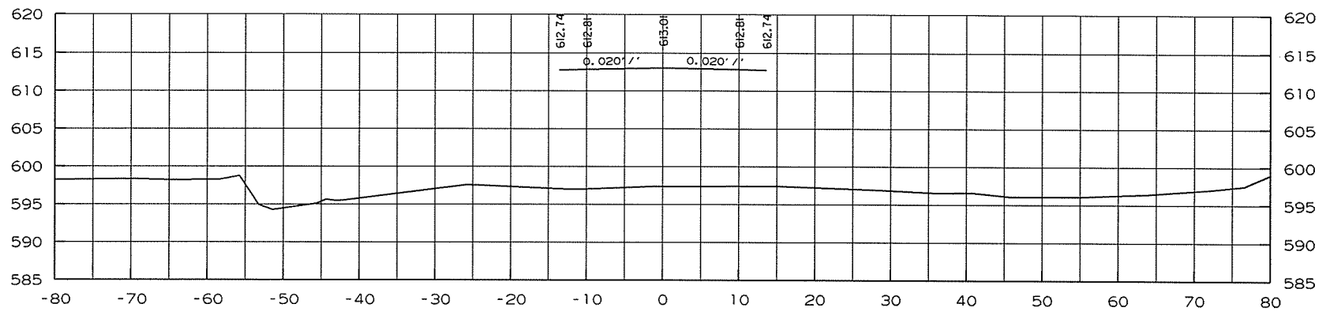
107+29.49

CUT VOLUME 96
FILL VOLUME 45

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		66	85

JOB NO. BR4906

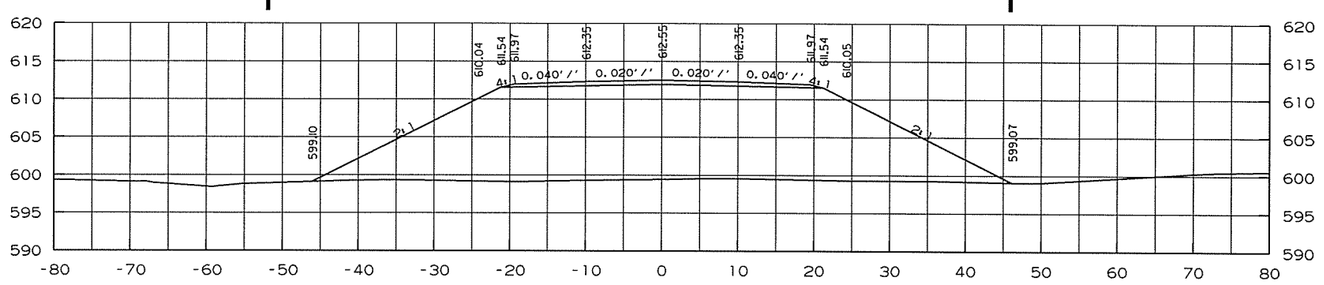
4 CROSS SECTIONS STA. 107+29.49 TO 108+00.00



AREA CUT 0.00
AREA FILL 0.00

109+00.00

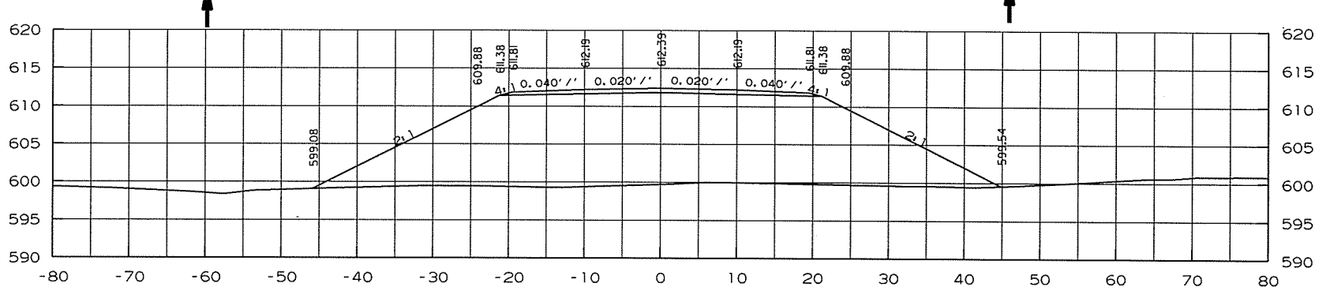
CUT VOLUME 0
FILL VOLUME 583



AREA CUT 0.00
AREA FILL 826.64

108+61.92 BEGIN BRIDGE NO. 04930

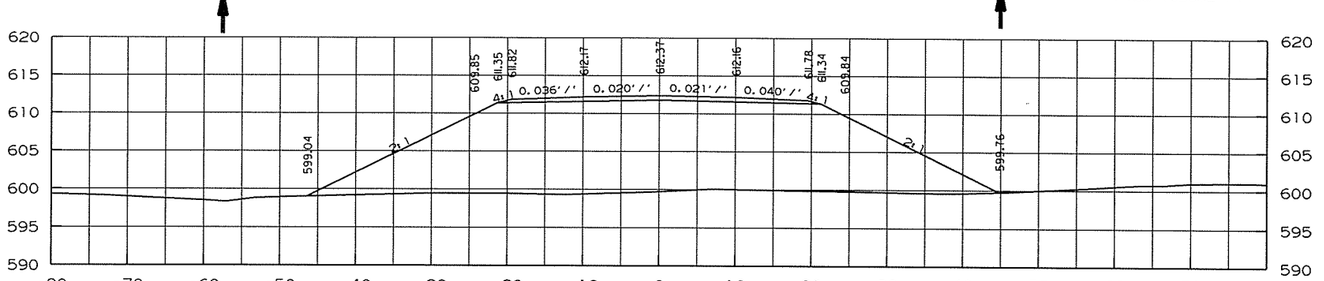
CUT VOLUME 0
FILL VOLUME 282



AREA CUT 0.00
AREA FILL 791.79

108+52.52 BEGIN 2:1 FORESLOPE

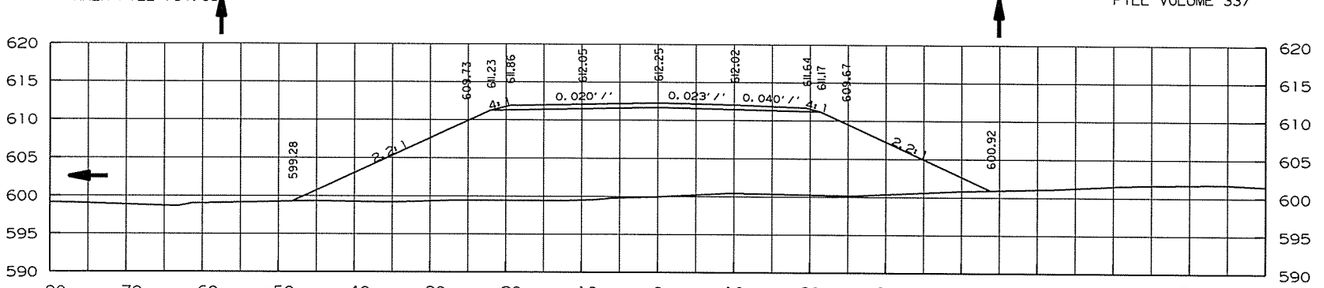
CUT VOLUME 0
FILL VOLUME 74



AREA CUT 0.00
AREA FILL 791.65

108+50.00

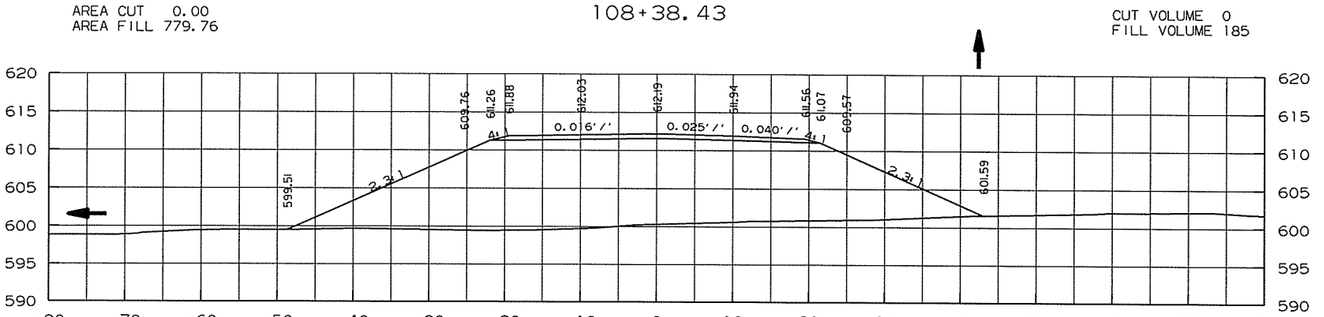
CUT VOLUME 0
FILL VOLUME 337



AREA CUT 0.00
AREA FILL 779.76

108+38.43

CUT VOLUME 0
FILL VOLUME 185



AREA CUT 0.00
AREA FILL 752.22

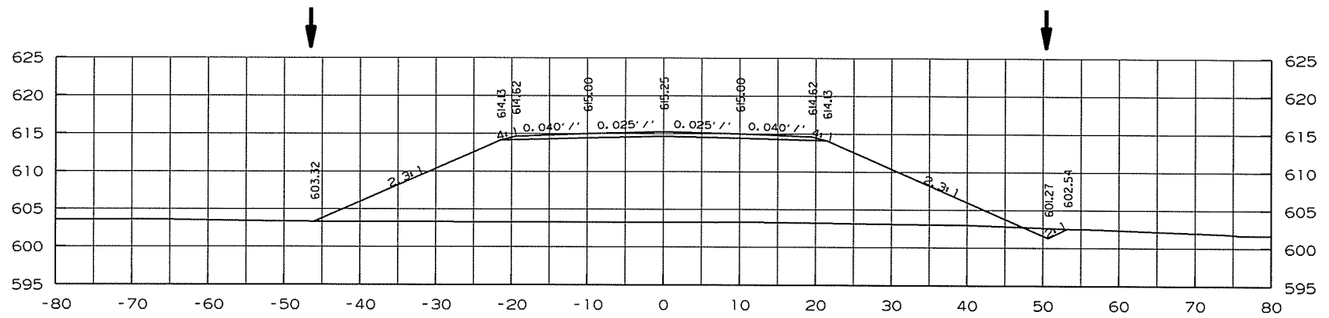
108+31.92 BEGIN TRANSITION TO 2% CROSS SLOPE

CUT VOLUME 1
FILL VOLUME 760

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		67	85

JOB NO. BR4906

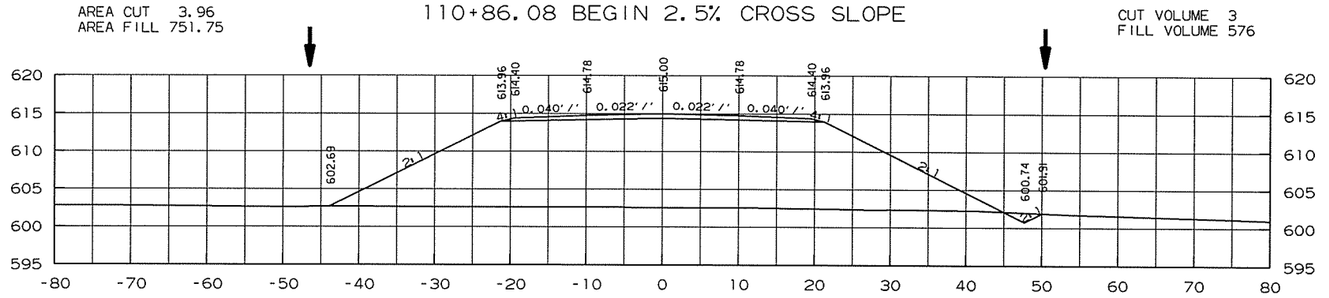
4 CROSS SECTIONS STA. 108+31.92 TO 109+00.00



AREA CUT 3.96
AREA FILL 751.75

110+86.08 BEGIN 2.5% CROSS SLOPE

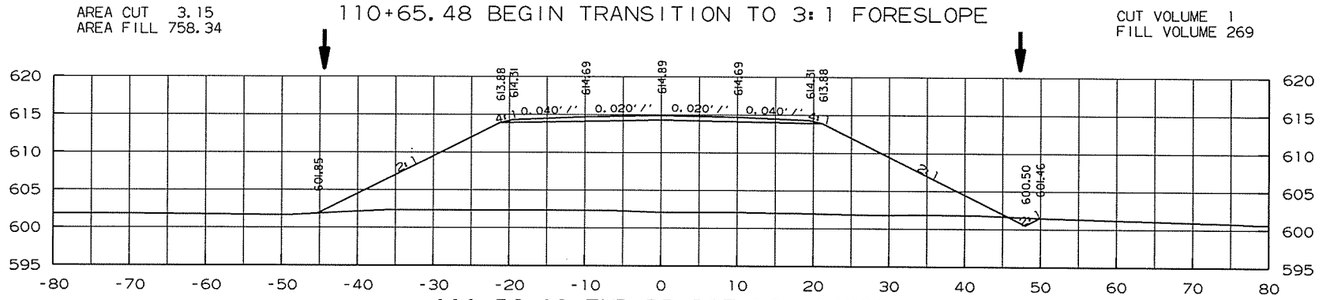
CUT VOLUME 3
FILL VOLUME 576



AREA CUT 3.15
AREA FILL 758.34

110+65.48 BEGIN TRANSITION TO 3:1 FORESLOPE

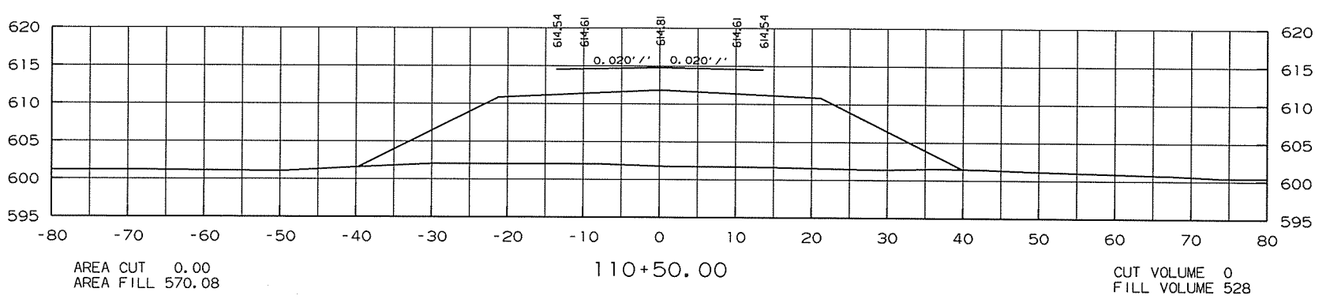
CUT VOLUME 1
FILL VOLUME 269



AREA CUT 2.16
AREA FILL 789.63

110+56.08 END BRIDGE NO. 04930
- BEGIN TRANSITION TO 2.5% CROSS SLOPE

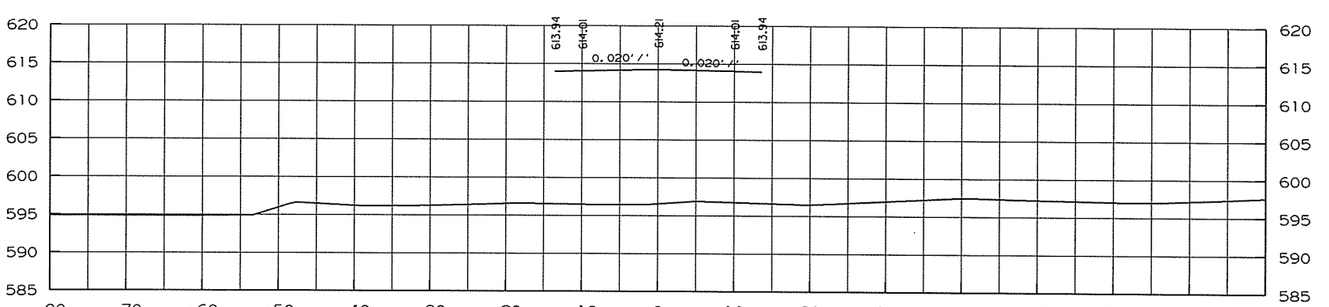
CUT VOLUME 0
FILL VOLUME 182



AREA CUT 0.00
AREA FILL 570.08

110+50.00

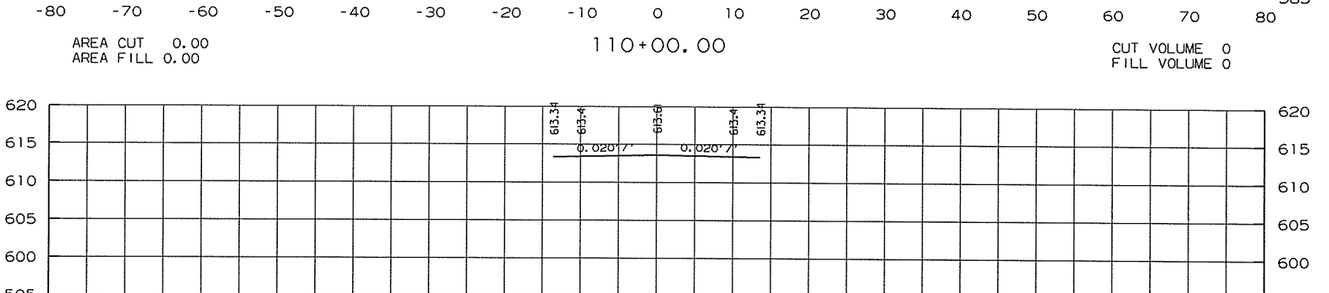
CUT VOLUME 0
FILL VOLUME 528



AREA CUT 0.00
AREA FILL 0.00

110+00.00

CUT VOLUME 0
FILL VOLUME 0



AREA CUT 0.00
AREA FILL 0.00

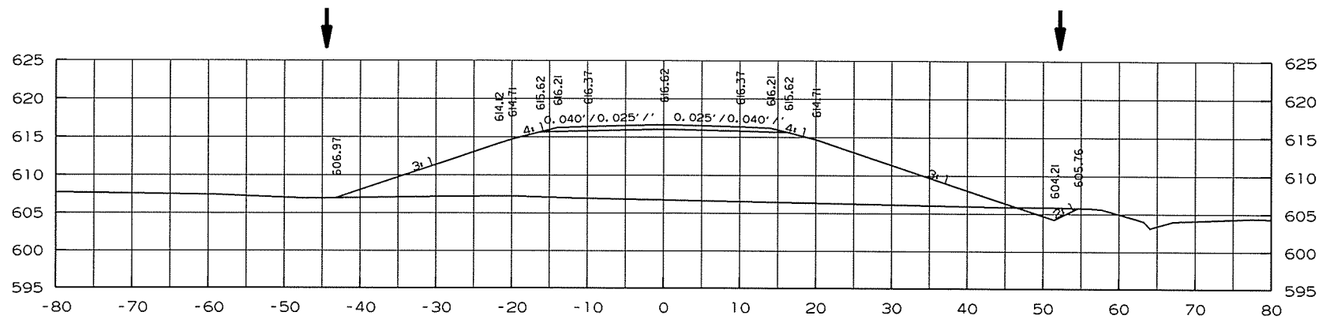
109+50.00

CUT VOLUME 0
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		68	85

JOB NO. BR24906

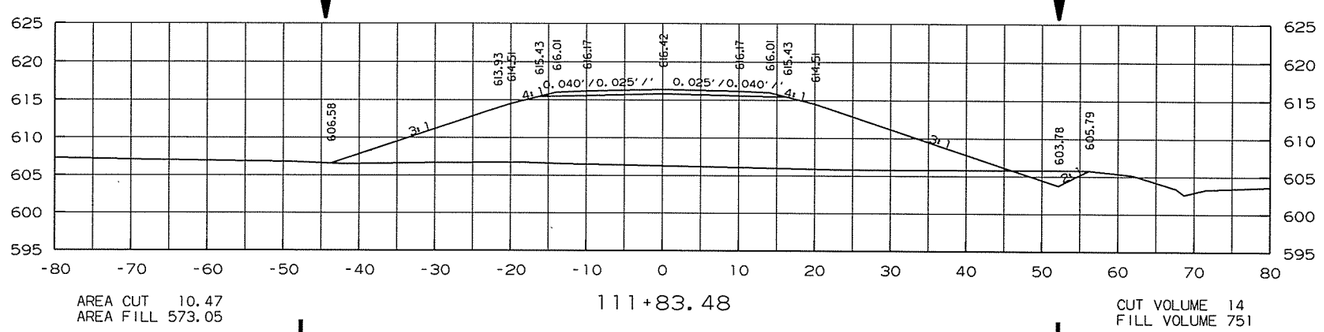
4 CROSS SECTIONS STA. 109+50.00 TO 110+86.08



AREA CUT 6.55
AREA FILL 554.62

112+00.00

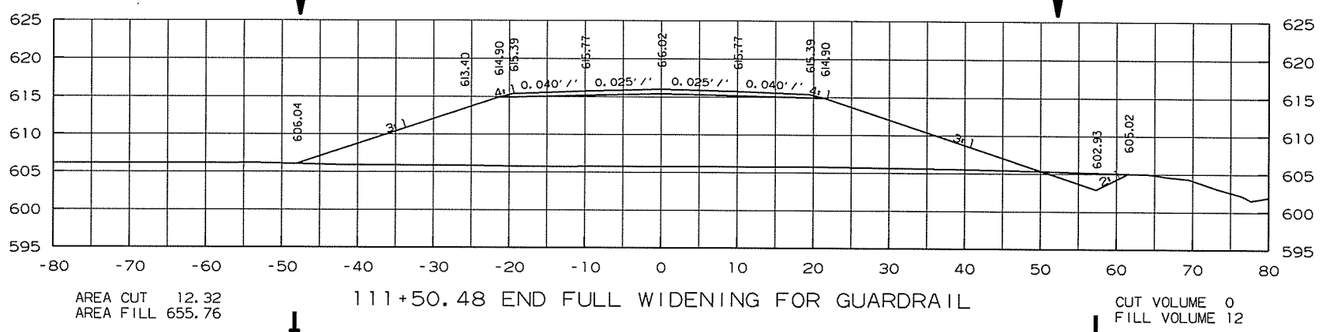
CUT VOLUME 5
FILL VOLUME 345



AREA CUT 10.47
AREA FILL 573.05

111+83.48

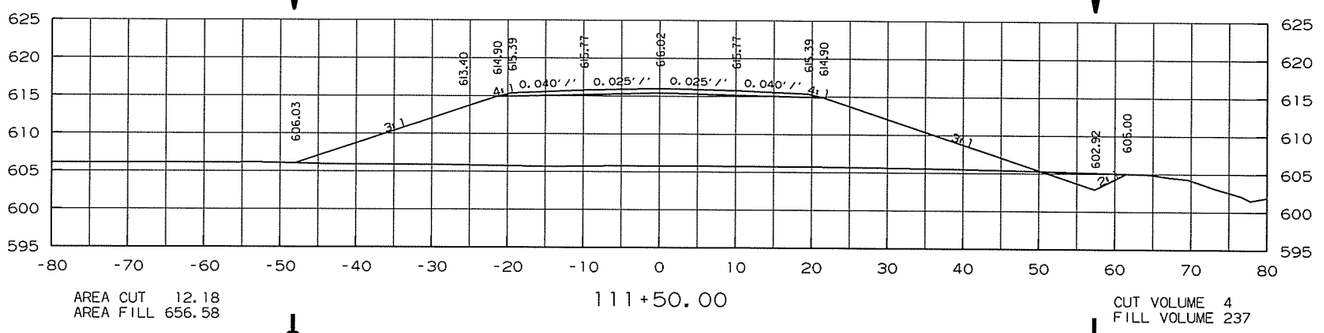
CUT VOLUME 14
FILL VOLUME 751



AREA CUT 12.32
AREA FILL 655.76

111+50.48 END FULL WIDENING FOR GUARDRAIL

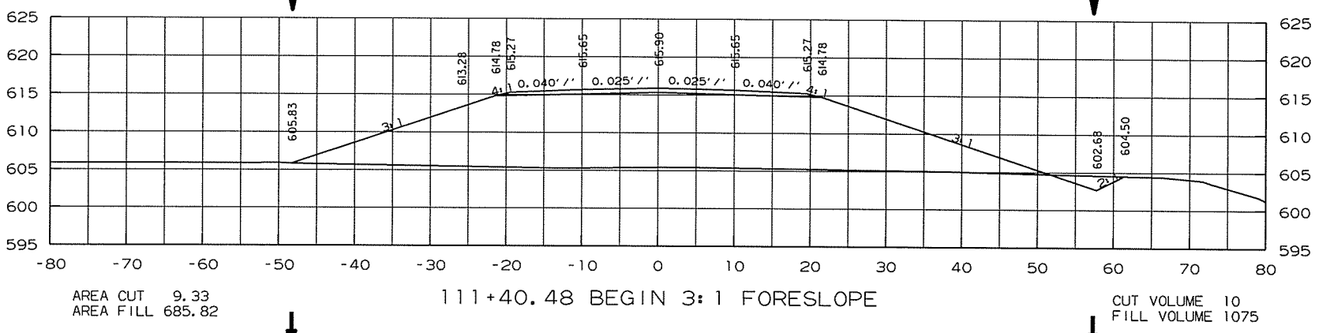
CUT VOLUME 0
FILL VOLUME 12



AREA CUT 12.18
AREA FILL 656.58

111+50.00

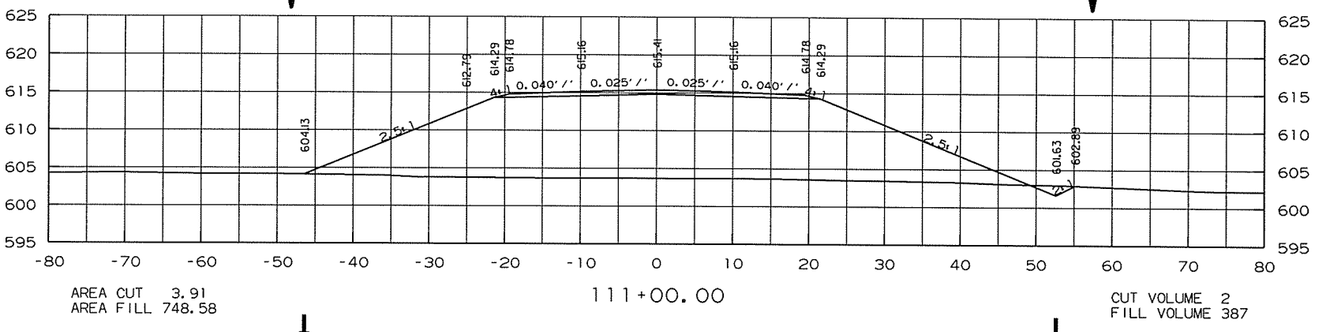
CUT VOLUME 4
FILL VOLUME 237



AREA CUT 9.33
AREA FILL 685.82

111+40.48 BEGIN 3:1 FORESLOPE

CUT VOLUME 10
FILL VOLUME 1075



AREA CUT 3.91
AREA FILL 748.58

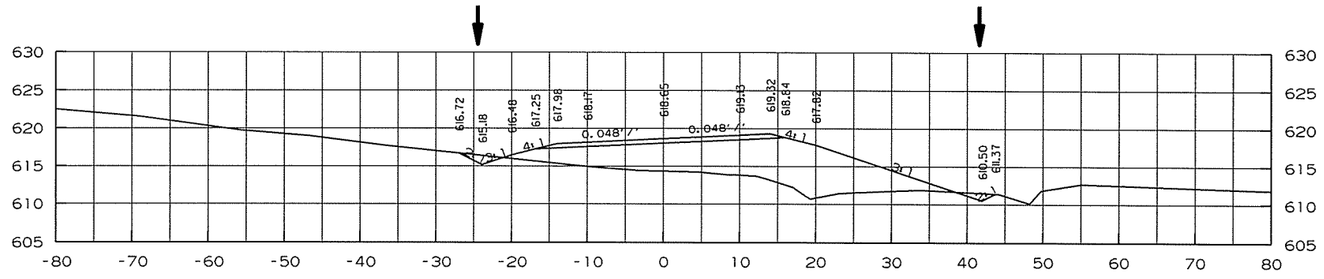
111+00.00

CUT VOLUME 2
FILL VOLUME 387

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR4906	69	85

4 CROSS SECTIONS STA. 111+00.00 TO 112+00.00

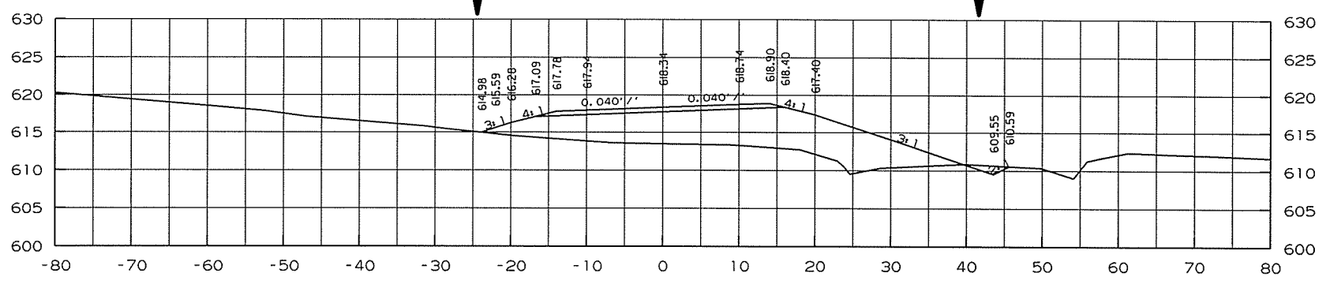
JOB NO.



AREA CUT 6.12
AREA FILL 209.18

113+50.00

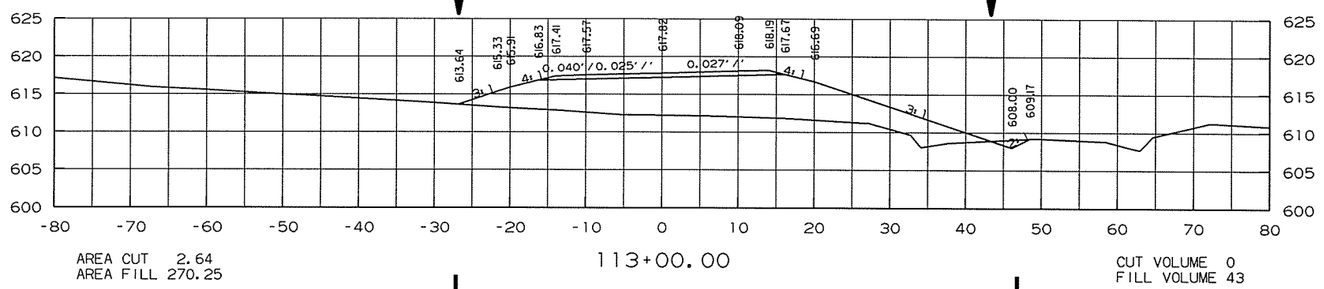
CUT VOLUME 3
FILL VOLUME 158



AREA CUT 3.46
AREA FILL 238.65

113+30.92

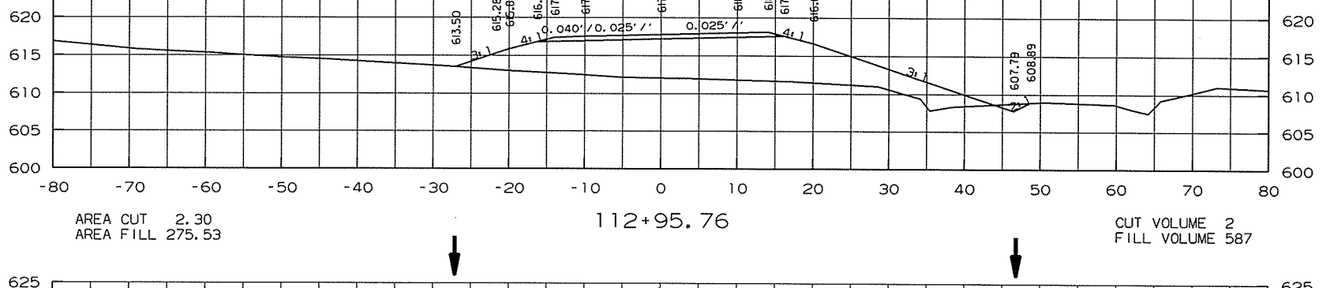
CUT VOLUME 3
FILL VOLUME 291



AREA CUT 2.64
AREA FILL 270.25

113+00.00

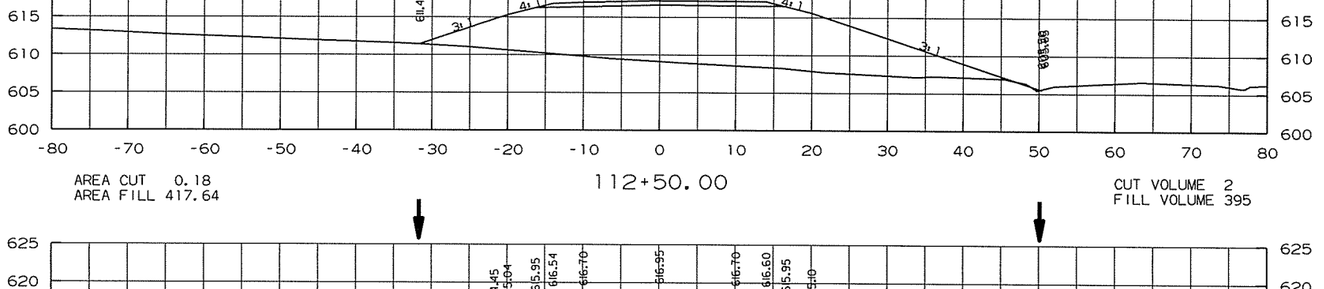
CUT VOLUME 0
FILL VOLUME 43



AREA CUT 2.30
AREA FILL 275.53

112+95.76

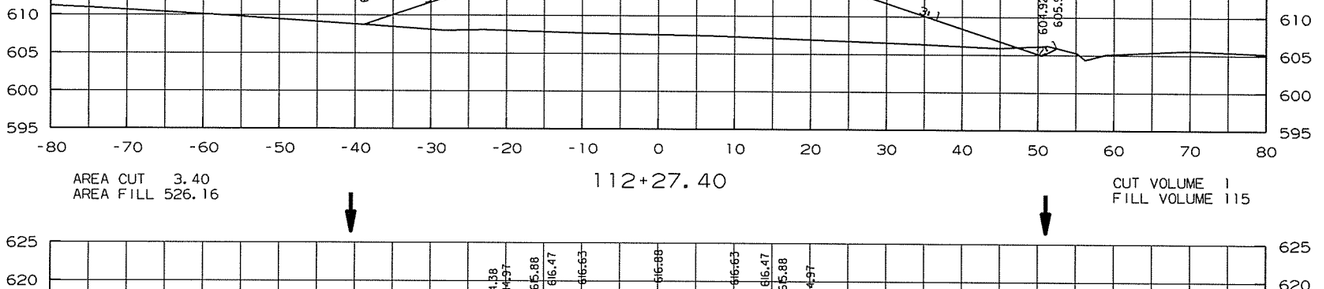
CUT VOLUME 2
FILL VOLUME 587



AREA CUT 0.18
AREA FILL 417.64

112+50.00

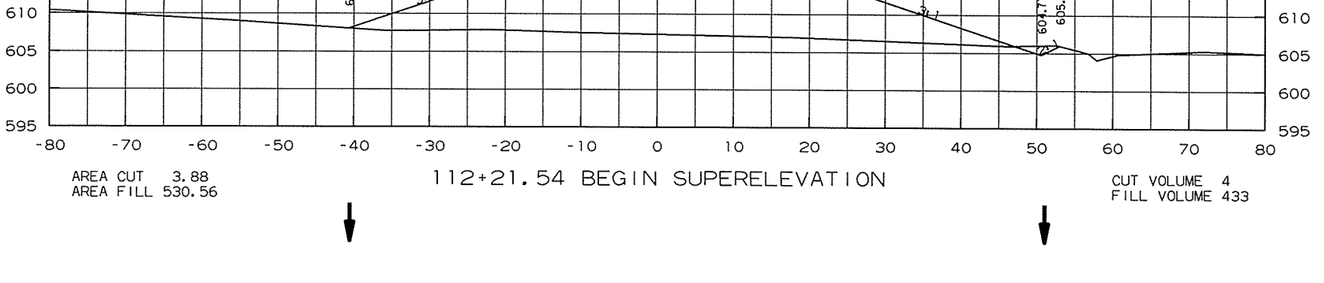
CUT VOLUME 2
FILL VOLUME 395



AREA CUT 3.40
AREA FILL 526.16

112+27.40

CUT VOLUME 1
FILL VOLUME 115

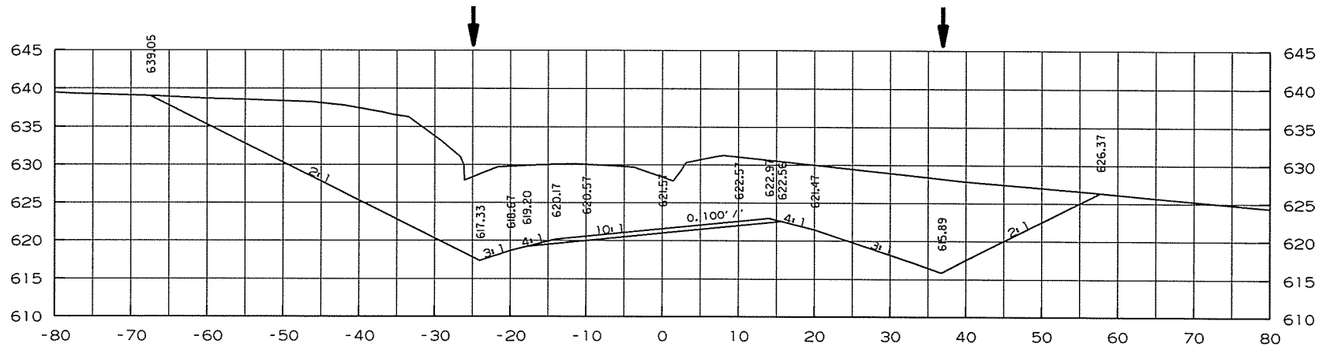


AREA CUT 3.88
AREA FILL 530.56

112+21.54 BEGIN SUPERELEVATION

CUT VOLUME 4
FILL VOLUME 433

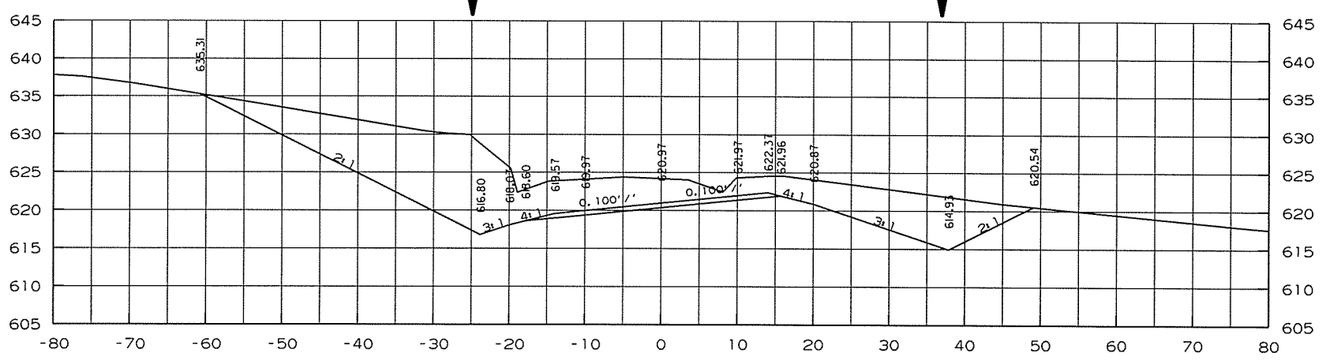
	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.		70	85
4	CROSS SECTIONS STA. 112+21.54 TO 113+50.00				JOB NO.		BR4906		



AREA CUT 1094.25
AREA FILL 0.00

115+50.00

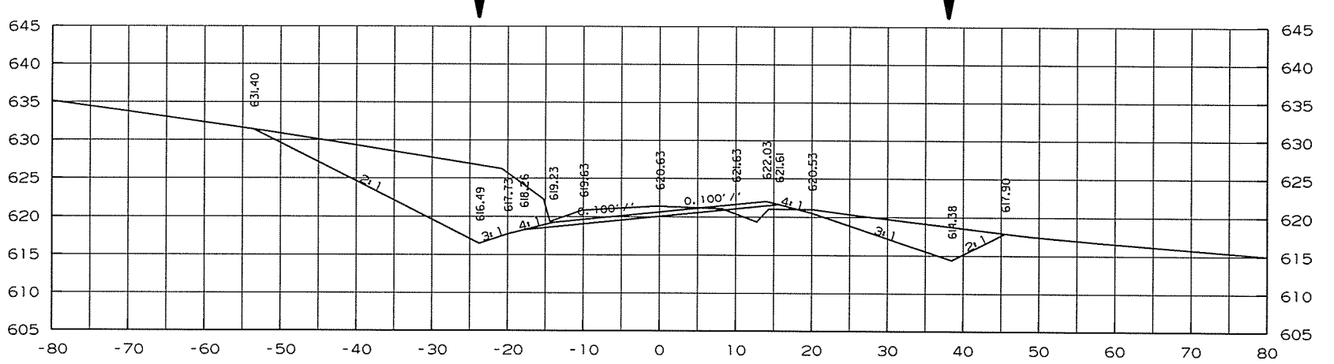
CUT VOLUME 1519
FILL VOLUME 0



AREA CUT 545.84
AREA FILL 0.00

115+00.00

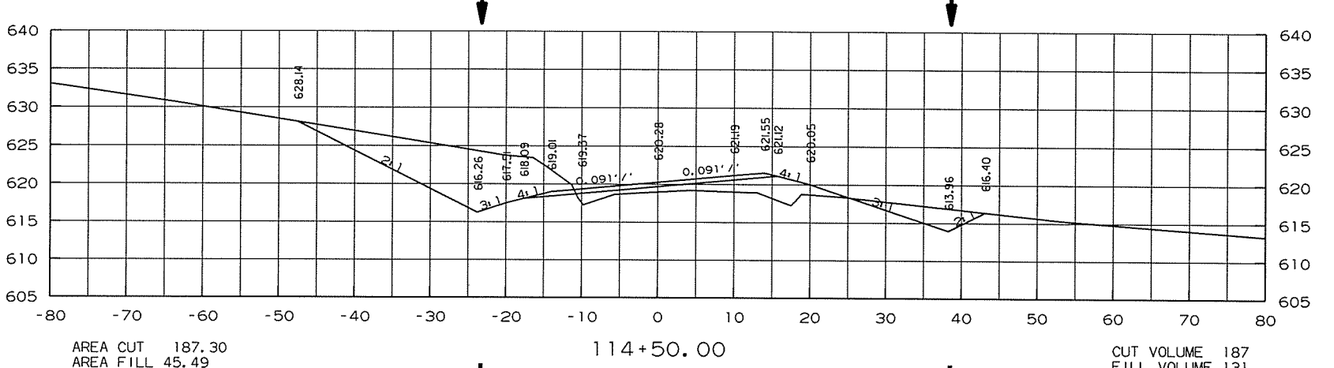
CUT VOLUME 448
FILL VOLUME 4



AREA CUT 304.23
AREA FILL 7.45

114+71.54 BEGIN FULL SUPERELEVATION

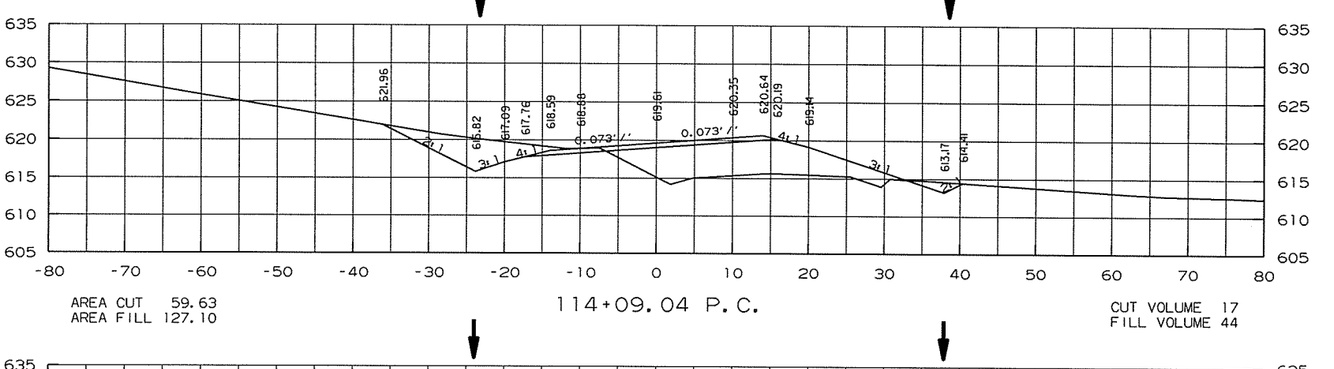
CUT VOLUME 196
FILL VOLUME 21



AREA CUT 187.30
AREA FILL 45.49

114+50.00

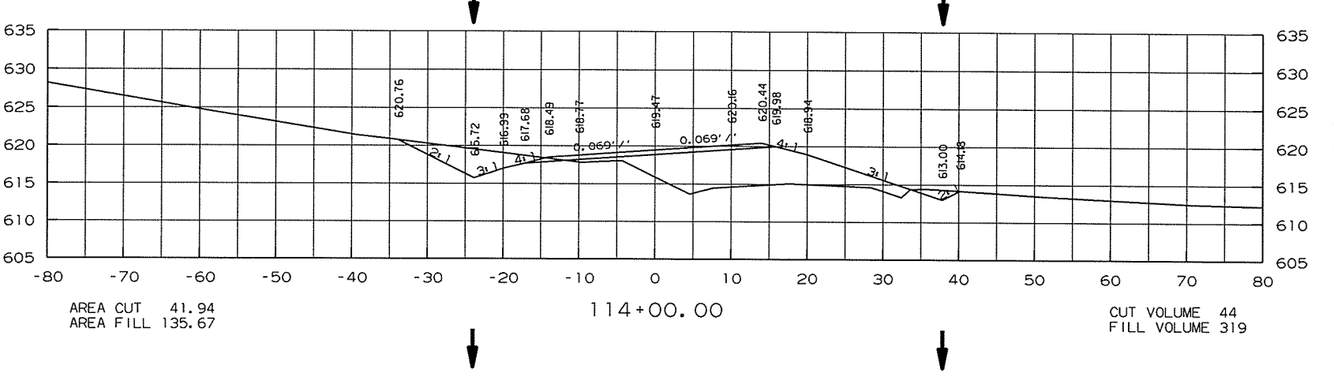
CUT VOLUME 187
FILL VOLUME 131



AREA CUT 59.63
AREA FILL 127.10

114+09.04 P.C.

CUT VOLUME 17
FILL VOLUME 44



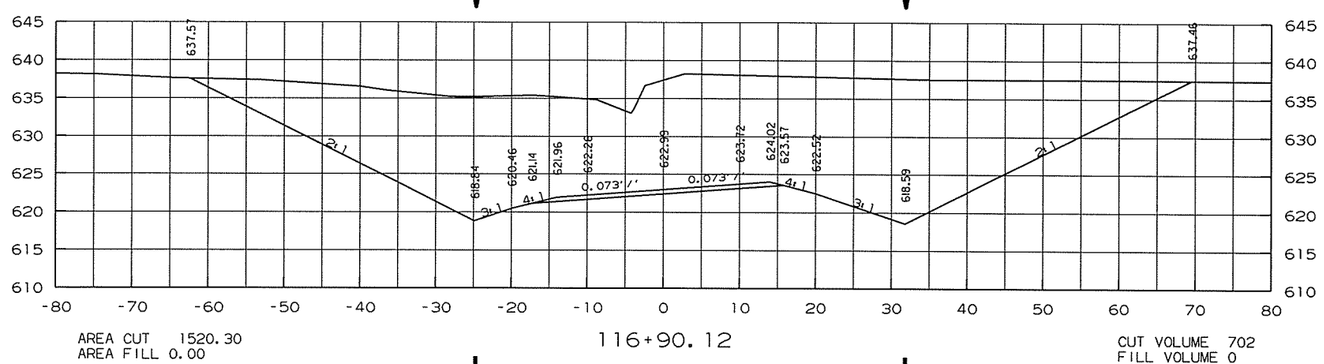
AREA CUT 41.94
AREA FILL 135.67

114+00.00

CUT VOLUME 44
FILL VOLUME 319

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR4906	71	85

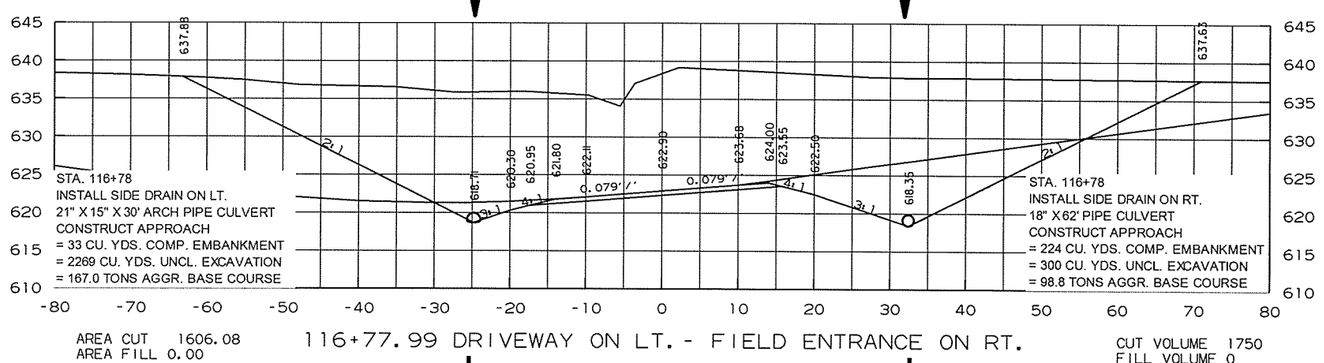
4 CROSS SECTIONS STA. 114+00.00 TO 115+50.00



AREA CUT 1520.30
AREA FILL 0.00

116+90.12

CUT VOLUME 702
FILL VOLUME 0



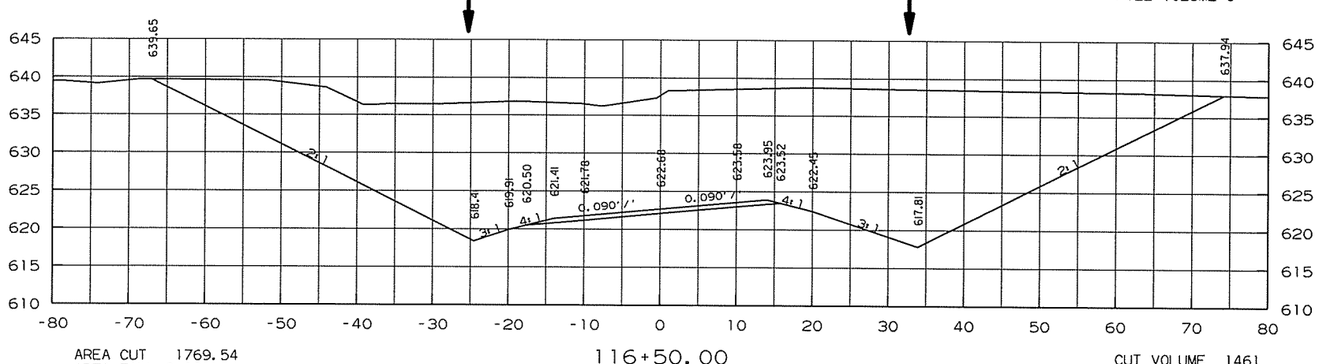
STA. 116+78
INSTALL SIDE DRAIN ON LT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 33 CU. YDS. COMP. EMBANKMENT
= 2269 CU. YDS. UNCL. EXCAVATION
= 167.0 TONS AGGR. BASE COURSE

STA. 116+78
INSTALL SIDE DRAIN ON RT.
18" X 62' PIPE CULVERT
CONSTRUCT APPROACH
= 224 CU. YDS. COMP. EMBANKMENT
= 300 CU. YDS. UNCL. EXCAVATION
= 98.8 TONS AGGR. BASE COURSE

AREA CUT 1606.08
AREA FILL 0.00

116+77.99 DRIVEWAY ON LT. - FIELD ENTRANCE ON RT.

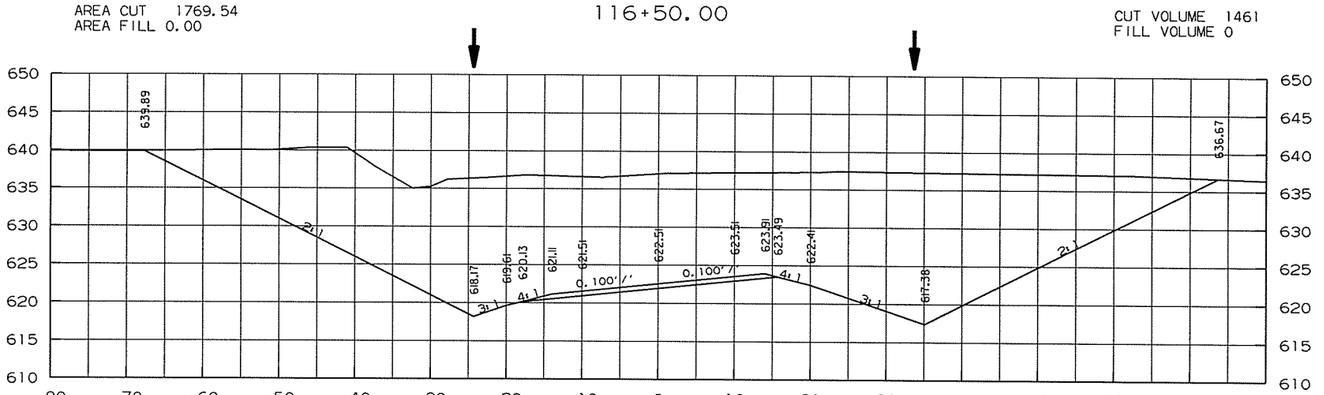
CUT VOLUME 1750
FILL VOLUME 0



AREA CUT 1769.54
AREA FILL 0.00

116+50.00

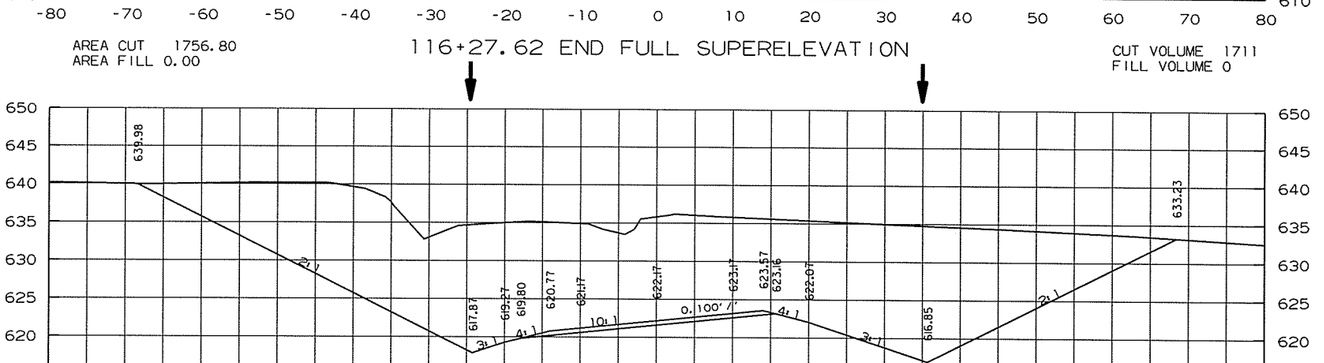
CUT VOLUME 1461
FILL VOLUME 0



AREA CUT 1756.80
AREA FILL 0.00

116+27.62 END FULL SUPERELEVATION

CUT VOLUME 1711
FILL VOLUME 0



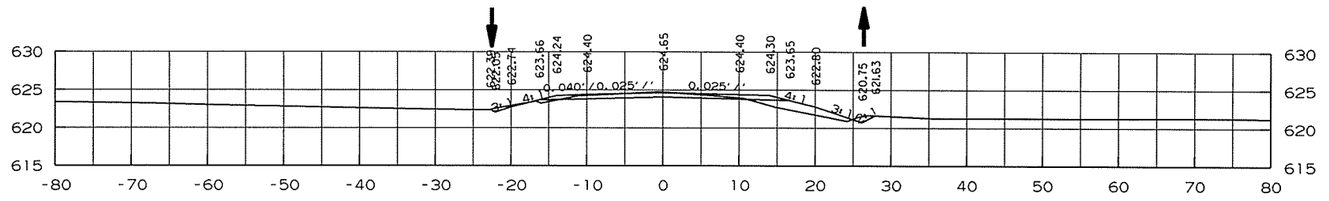
AREA CUT 1587.79
AREA FILL 0.00

116+00.00

CUT VOLUME 2483
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		72	85
				JOB NO.		BR4906		

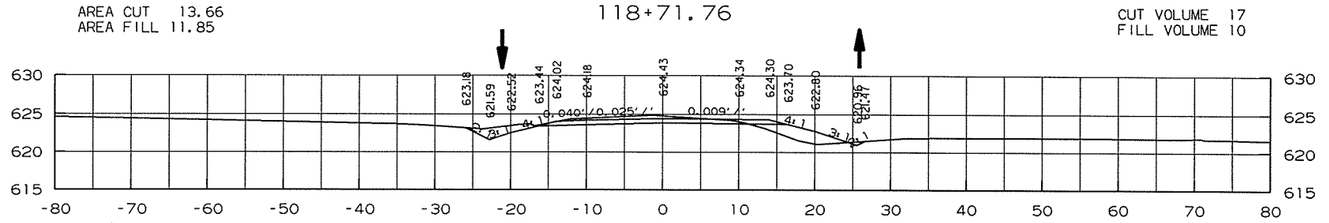
4 CROSS SECTIONS STA. 116+00.00 TO 116+90.12



AREA CUT 13.66
AREA FILL 11.85

118+71.76

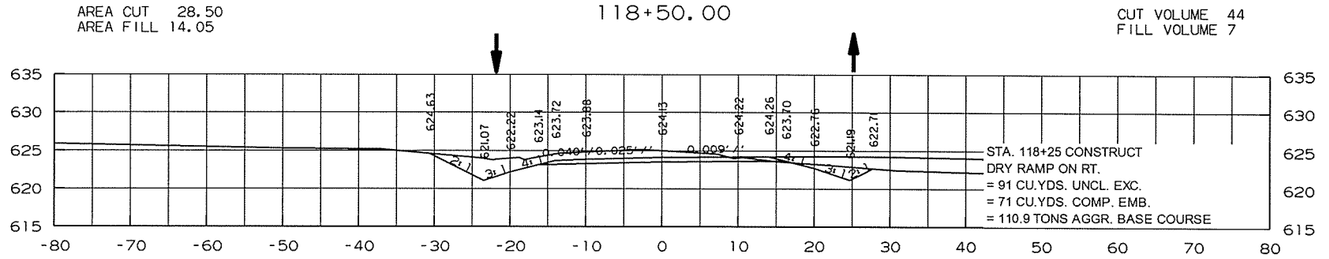
CUT VOLUME 17
FILL VOLUME 10



AREA CUT 28.50
AREA FILL 14.05

118+50.00

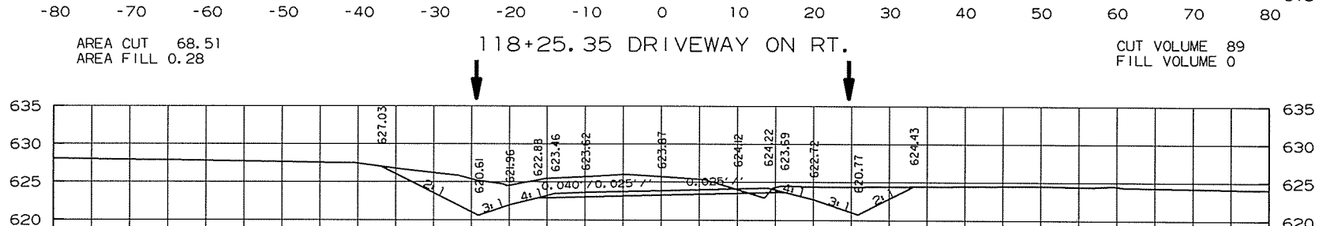
CUT VOLUME 44
FILL VOLUME 7



AREA CUT 68.51
AREA FILL 0.28

118+25.35 DRIVEWAY ON RT.

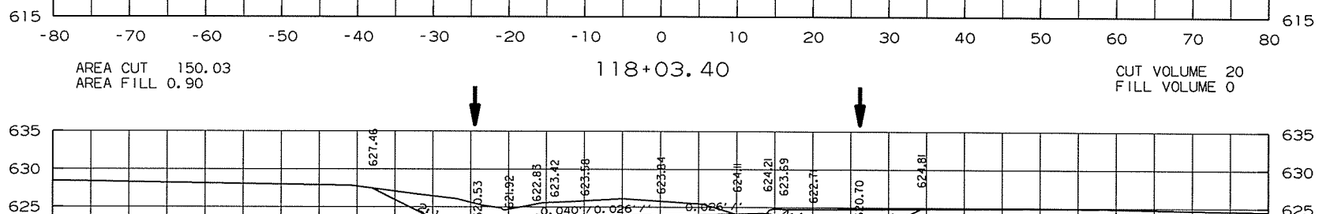
CUT VOLUME 89
FILL VOLUME 0



AREA CUT 150.03
AREA FILL 0.90

118+03.40

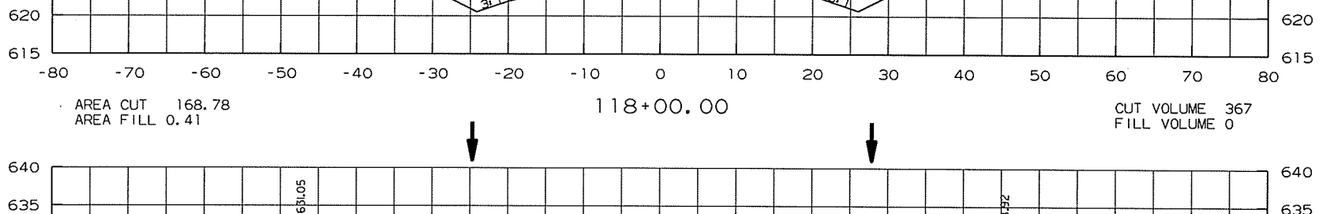
CUT VOLUME 20
FILL VOLUME 0



AREA CUT 168.78
AREA FILL 0.41

118+00.00

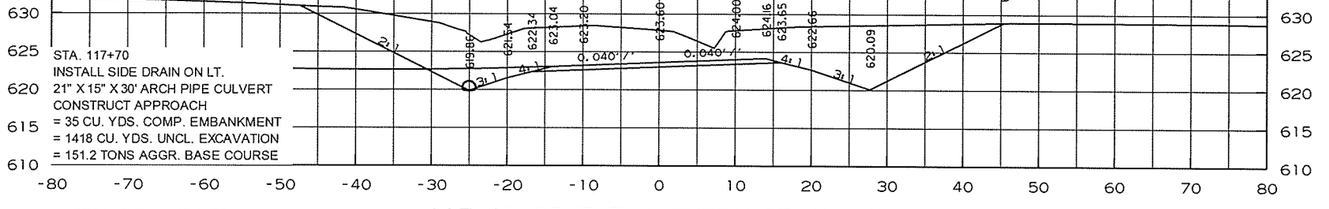
CUT VOLUME 367
FILL VOLUME 0



AREA CUT 454.72
AREA FILL 0.00

117+68.25 FIELD ENTRANCE ON LT.

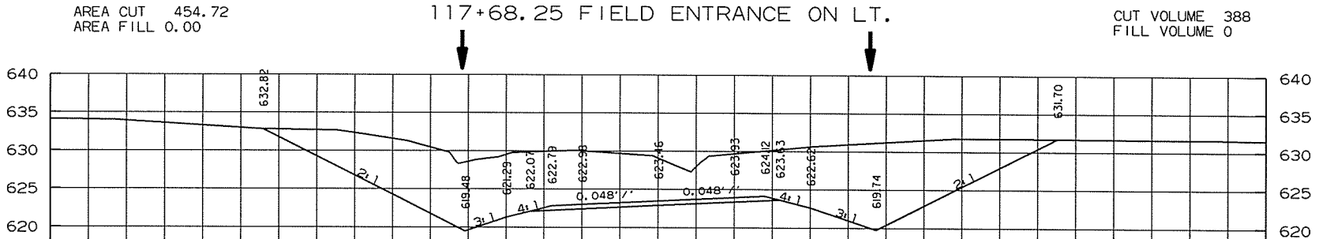
CUT VOLUME 388
FILL VOLUME 0



AREA CUT 692.32
AREA FILL 0.00

117+50.00

CUT VOLUME 1967
FILL VOLUME 0



AREA CUT 1431.54
AREA FILL 0.00

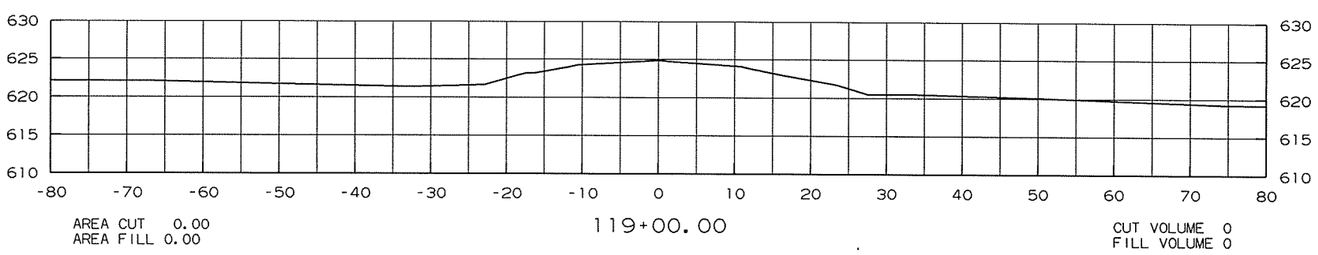
117+00.00

CUT VOLUME 540
FILL VOLUME 0

4 CROSS SECTIONS STA. 117+00.00 TO 118+71.76

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR4906	73	85

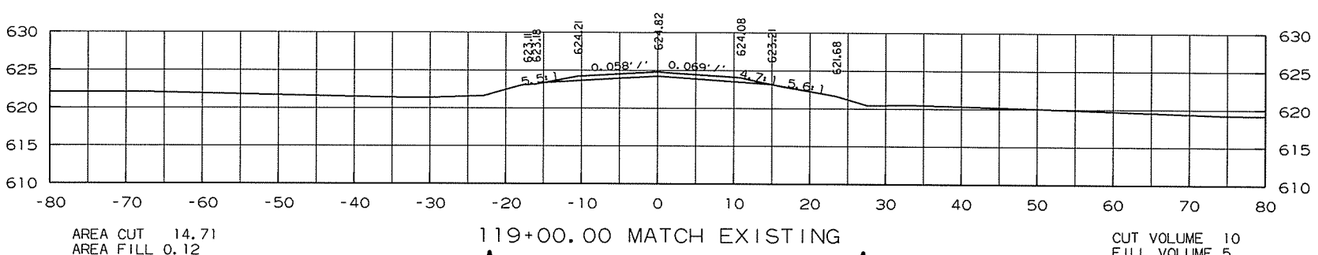
JOB NO.



AREA CUT 0.00
AREA FILL 0.00

119+00.00

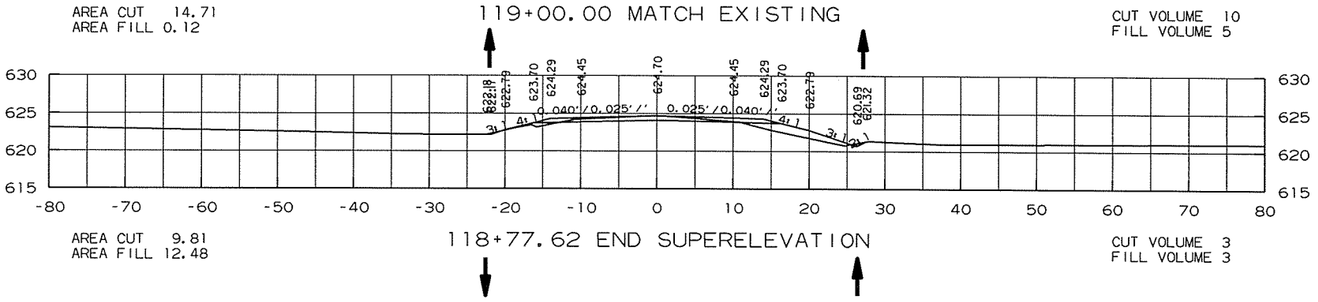
CUT VOLUME 0
FILL VOLUME 0



AREA CUT 14.71
AREA FILL 0.12

119+00.00 MATCH EXISTING

CUT VOLUME 10
FILL VOLUME 5



AREA CUT 9.81
AREA FILL 12.48

118+77.62 END SUPERELEVATION

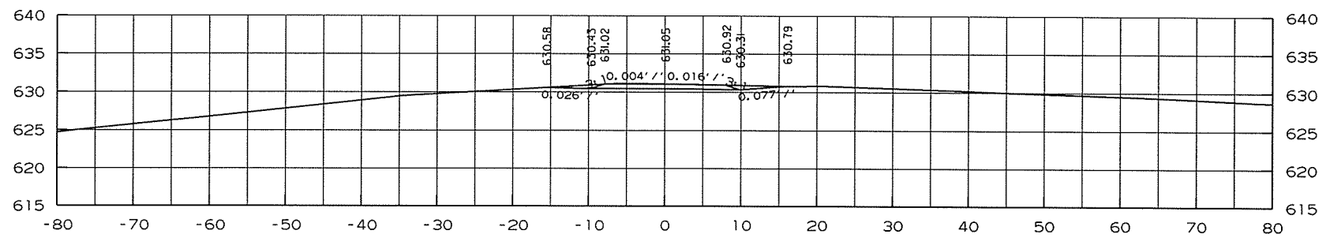
CUT VOLUME 3
FILL VOLUME 3

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED

4 CROSS SECTIONS STA. 118+77.62 TO 119+00.00

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.				
BR4906			74	85

BR4906 Field Ent. 98+85Rt.

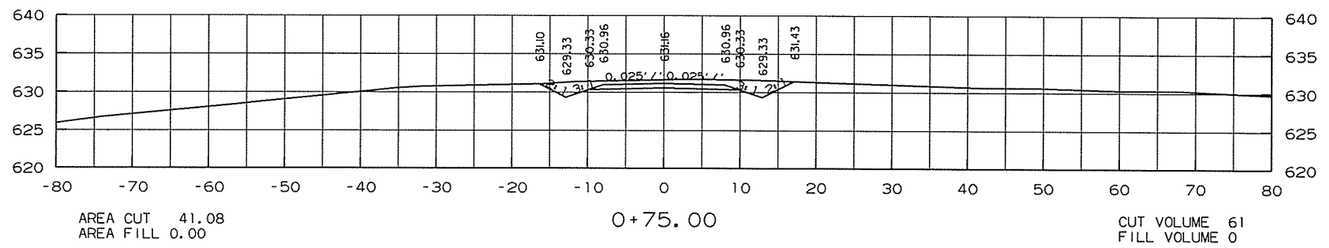


AREA CUT 14.99
AREA FILL 0.00

1+00.00

CUT VOLUME 26
FILL VOLUME 0

BR4906 Field Ent. 98+85Rt.

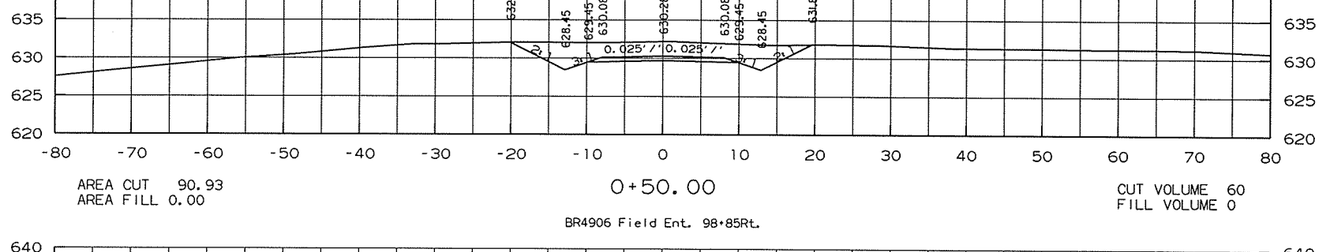


AREA CUT 41.08
AREA FILL 0.00

0+75.00

CUT VOLUME 61
FILL VOLUME 0

BR4906 Field Ent. 98+85Rt.

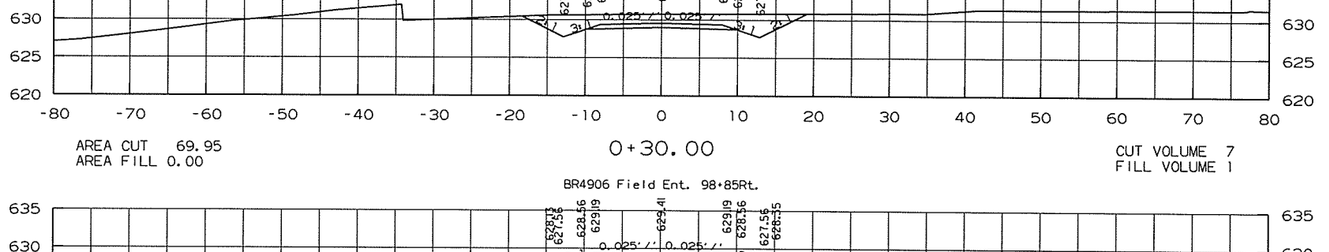


AREA CUT 90.93
AREA FILL 0.00

0+50.00

CUT VOLUME 60
FILL VOLUME 0

BR4906 Field Ent. 98+85Rt.

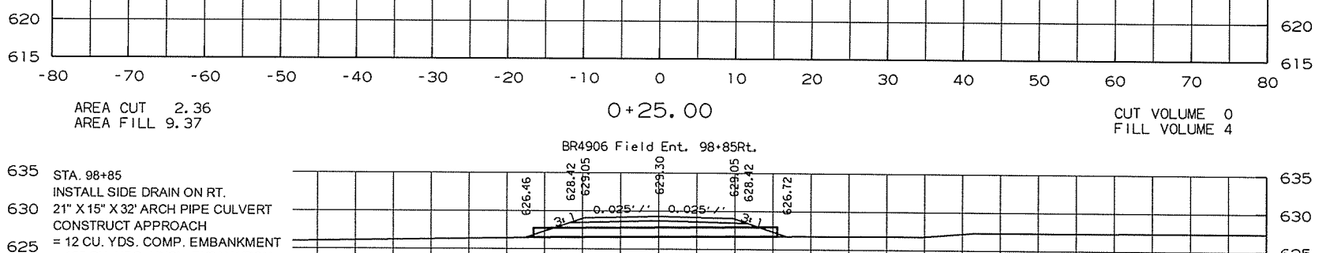


AREA CUT 69.95
AREA FILL 0.00

0+30.00

CUT VOLUME 7
FILL VOLUME 1

BR4906 Field Ent. 98+85Rt.



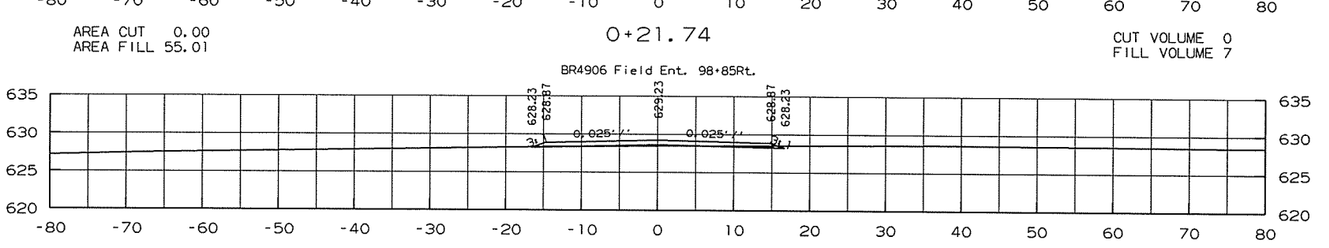
AREA CUT 2.36
AREA FILL 9.37

0+25.00

CUT VOLUME 0
FILL VOLUME 4

BR4906 Field Ent. 98+85Rt.

STA. 98+85
INSTALL SIDE DRAIN ON RT.
21" X 15" X 32' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 12 CU. YDS. COMP. EMBANKMENT
= 155 CU. YDS. UNCL. EXCAVATION
= 78.7 TONS AGGR. BASE COURSE

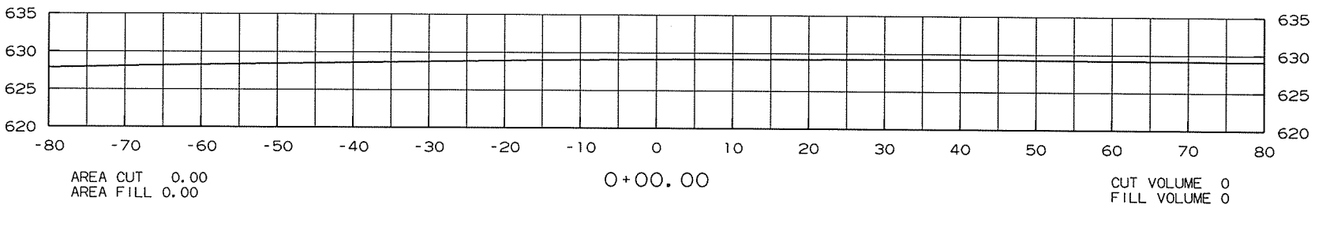


AREA CUT 0.00
AREA FILL 55.01

0+21.74

CUT VOLUME 0
FILL VOLUME 7

BR4906 Field Ent. 98+85Rt.



AREA CUT 1.95
AREA FILL 1.47

0+15.00

CUT VOLUME 1
FILL VOLUME 0

BR4906 Field Ent. 98+85Rt.

AREA CUT 0.00
AREA FILL 0.00

0+00.00

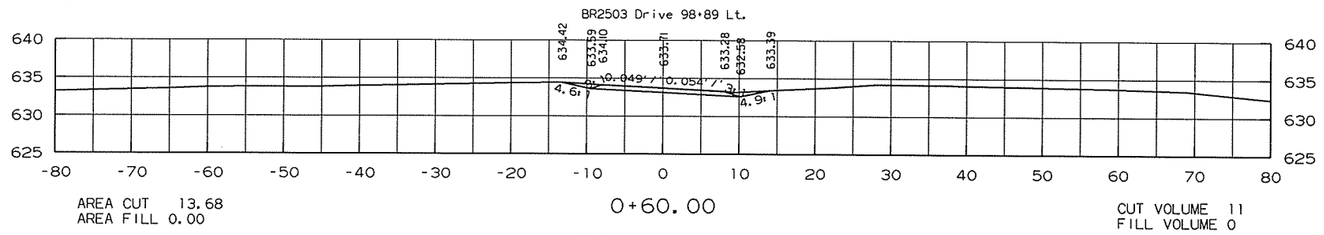
CUT VOLUME 0
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

4 CROSS SECTIONS FIELD ENTRANCE 98+85 RT.

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR4906	75	85

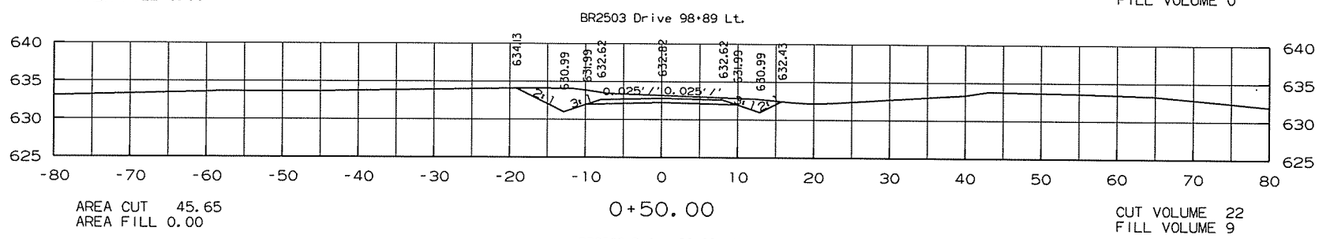
JOB NO.



AREA CUT 13.68
AREA FILL 0.00

0+60.00

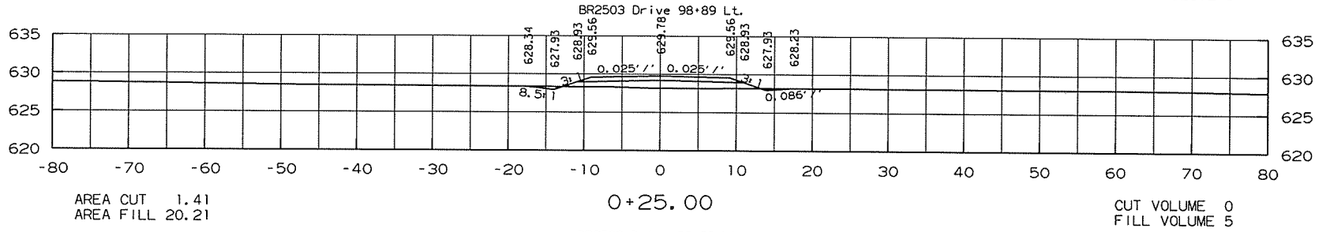
CUT VOLUME 11
FILL VOLUME 0



AREA CUT 45.65
AREA FILL 0.00

0+50.00

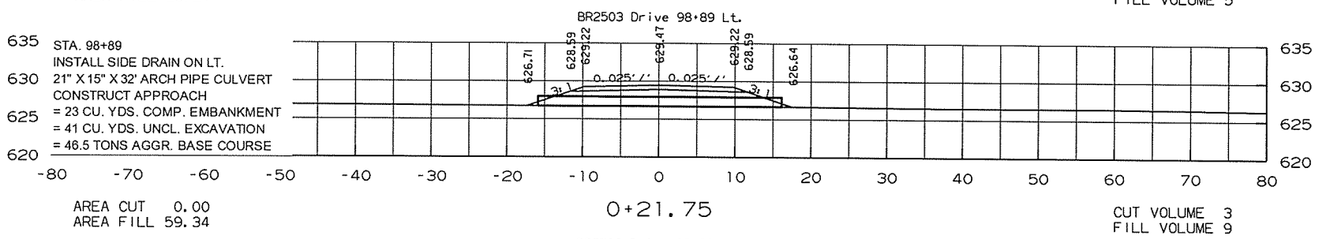
CUT VOLUME 22
FILL VOLUME 9



AREA CUT 1.41
AREA FILL 20.21

0+25.00

CUT VOLUME 0
FILL VOLUME 5

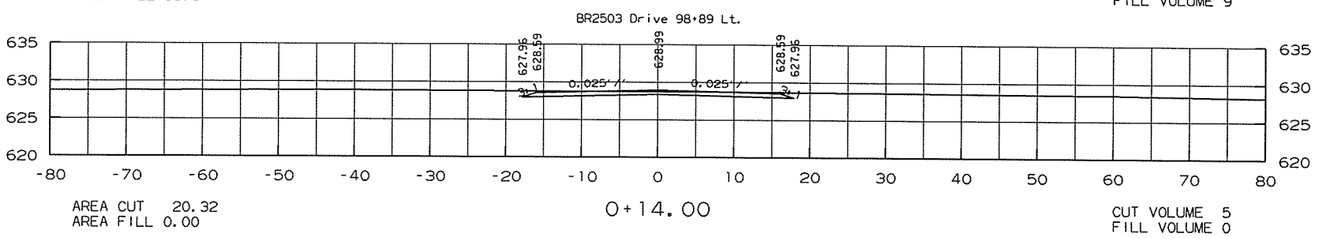


STA. 98+89
INSTALL SIDE DRAIN ON LT.
21" X 15" X 32' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 23 CU. YDS. COMP. EMBANKMENT
= 41 CU. YDS. UNCL. EXCAVATION
= 46.5 TONS AGGR. BASE COURSE

AREA CUT 0.00
AREA FILL 59.34

0+21.75

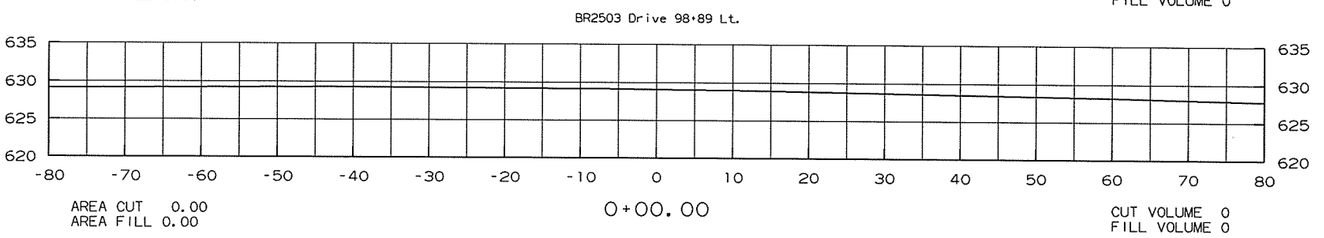
CUT VOLUME 3
FILL VOLUME 9



AREA CUT 20.32
AREA FILL 0.00

0+14.00

CUT VOLUME 5
FILL VOLUME 0



AREA CUT 0.00
AREA FILL 0.00

0+00.00

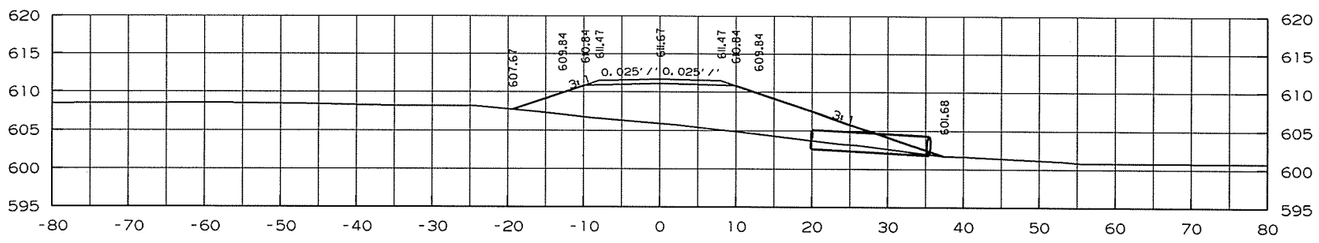
CUT VOLUME 0
FILL VOLUME 0

4 CROSS SECTIONS DRIVE 98+89 LT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR4906	76	85

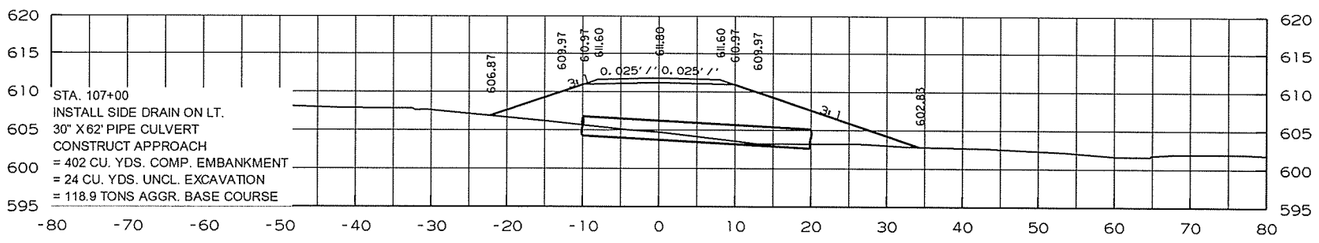
JOB NO.



AREA CUT 0.00
AREA FILL 201.20

0+56.81

CUT VOLUME 0
FILL VOLUME 57

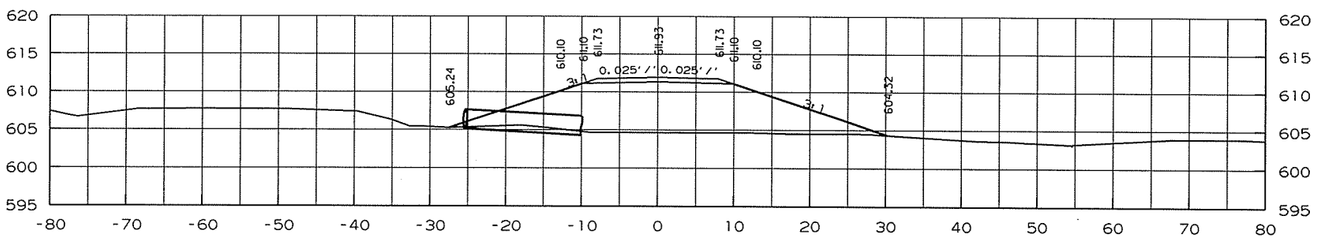


STA. 107+00
INSTALL SIDE DRAIN ON LT.
30" X62' PIPE CULVERT
CONSTRUCT APPROACH
= 402 CU. YDS. COMP. EMBANKMENT
= 24 CU. YDS. UNCL. EXCAVATION
= 118.9 TONS AGGR. BASE COURSE

AREA CUT 0.00
AREA FILL 250.24

0+50.00

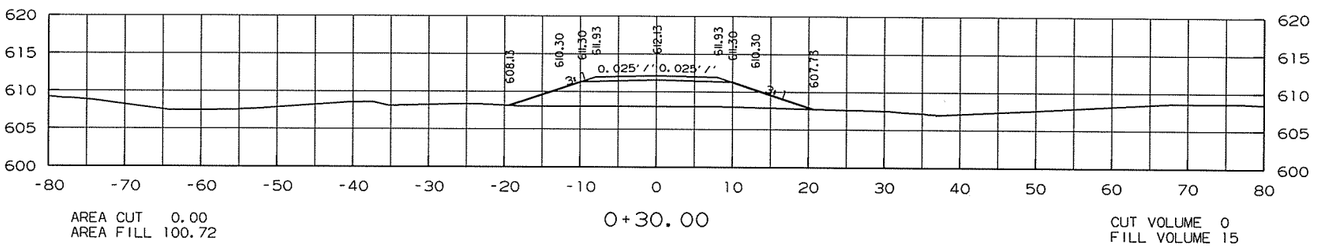
CUT VOLUME 0
FILL VOLUME 54



AREA CUT 0.00
AREA FILL 245.17

0+44.10

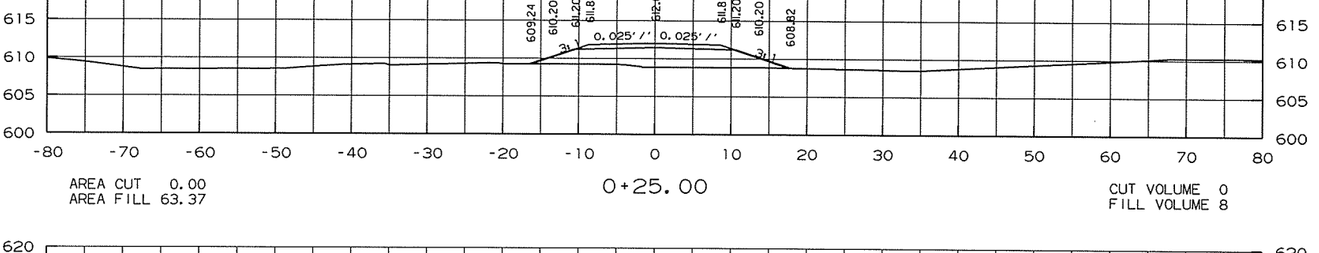
CUT VOLUME 0
FILL VOLUME 90



AREA CUT 0.00
AREA FILL 100.72

0+30.00

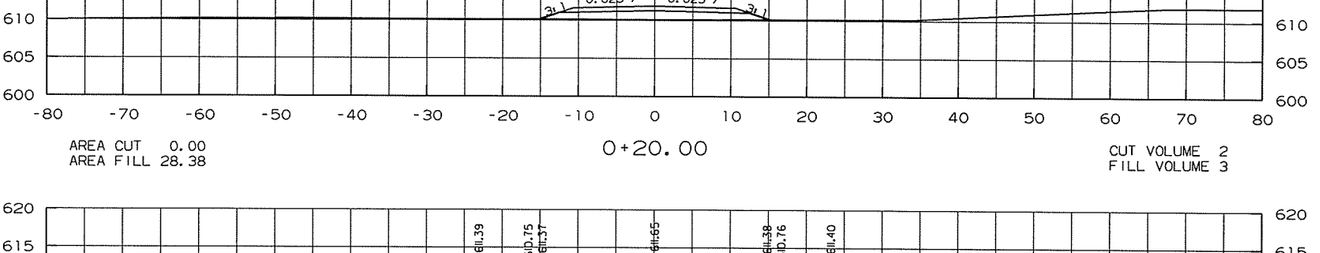
CUT VOLUME 0
FILL VOLUME 15



AREA CUT 0.00
AREA FILL 63.37

0+25.00

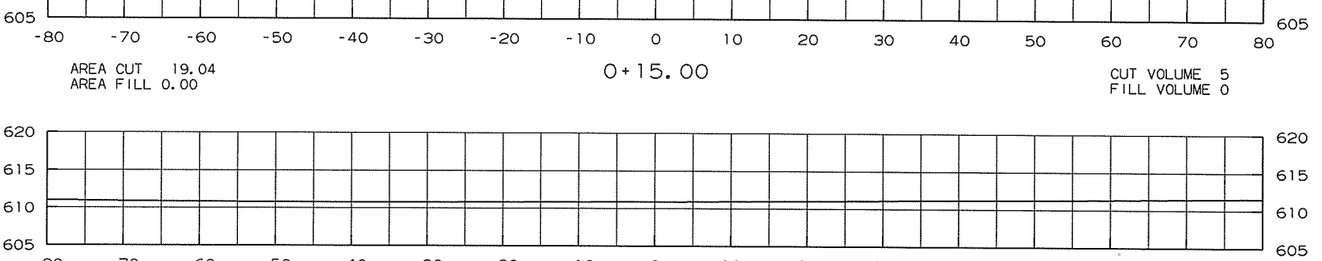
CUT VOLUME 0
FILL VOLUME 8



AREA CUT 0.00
AREA FILL 28.38

0+20.00

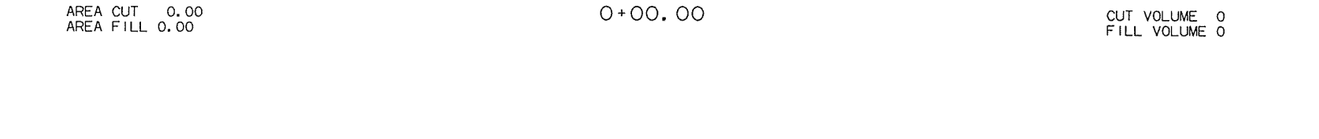
CUT VOLUME 2
FILL VOLUME 3



AREA CUT 19.04
AREA FILL 0.00

0+15.00

CUT VOLUME 5
FILL VOLUME 0



AREA CUT 0.00
AREA FILL 0.00

0+00.00

CUT VOLUME 0
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		77	85

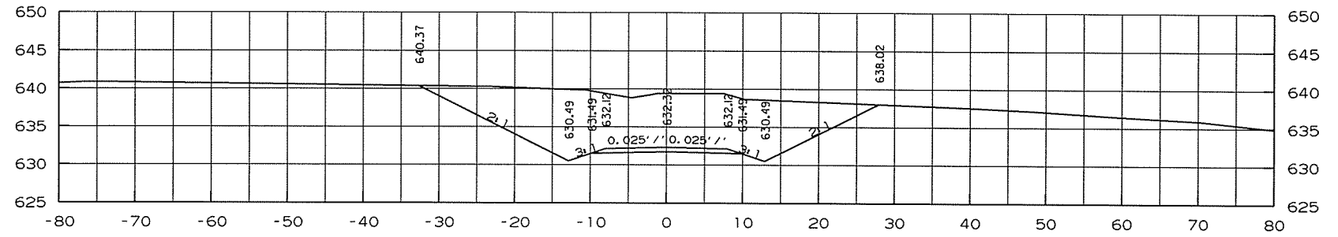
4 CROSS SECTIONS FIELD ENTRANCE 107+00 LT.

JOB NO. BR4906

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.		BR4906	78	85

(4) CROSS SECTIONS FIELD ENTRANCE 107+00 LT.

BR4906 Drive 116+78 Lt.

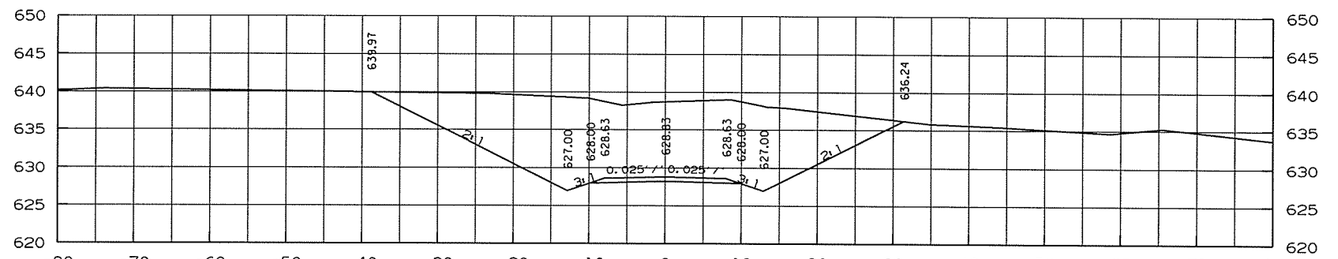


AREA CUT 356.15
AREA FILL 0.00

1+25.00

CUT VOLUME 417
FILL VOLUME 0

BR4906 Drive 116+78 Lt.

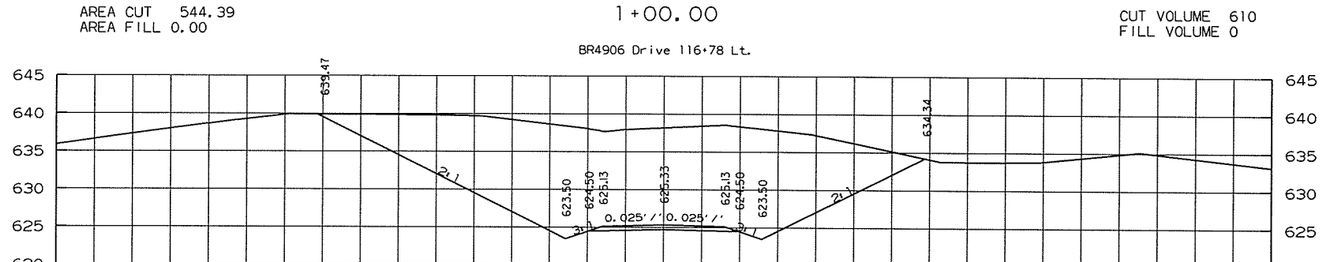


AREA CUT 544.39
AREA FILL 0.00

1+00.00

CUT VOLUME 610
FILL VOLUME 0

BR4906 Drive 116+78 Lt.

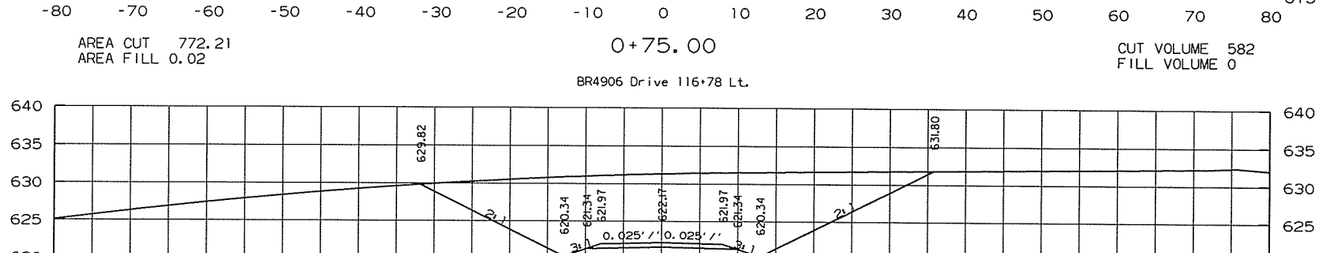


AREA CUT 772.21
AREA FILL 0.02

0+75.00

CUT VOLUME 582
FILL VOLUME 0

BR4906 Drive 116+78 Lt.

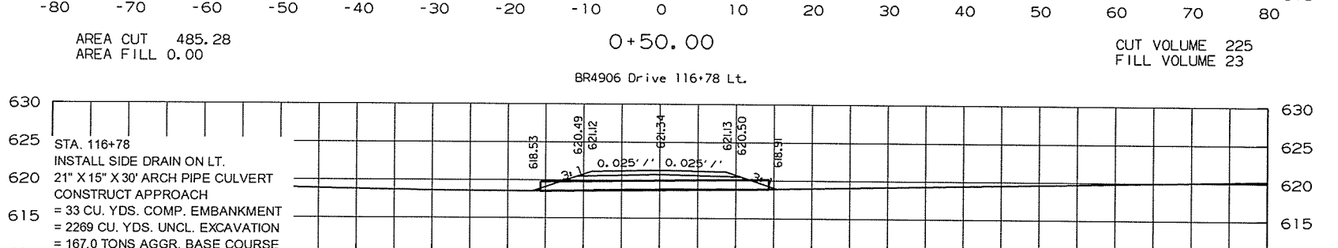


AREA CUT 485.28
AREA FILL 0.00

0+50.00

CUT VOLUME 225
FILL VOLUME 23

BR4906 Drive 116+78 Lt.

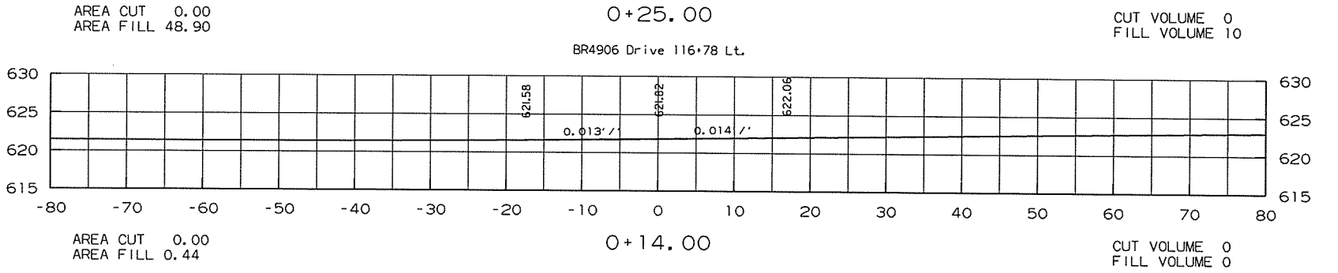


AREA CUT 0.00
AREA FILL 48.90

0+25.00

CUT VOLUME 0
FILL VOLUME 10

BR4906 Drive 116+78 Lt.

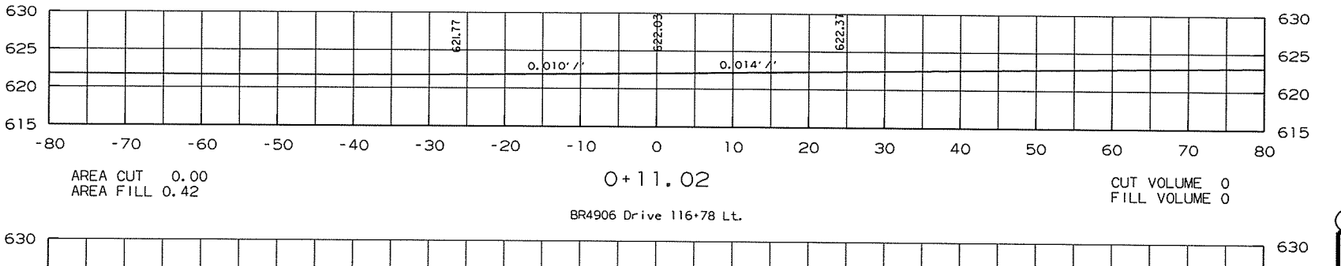


AREA CUT 0.00
AREA FILL 0.44

0+14.00

CUT VOLUME 0
FILL VOLUME 0

BR4906 Drive 116+78 Lt.

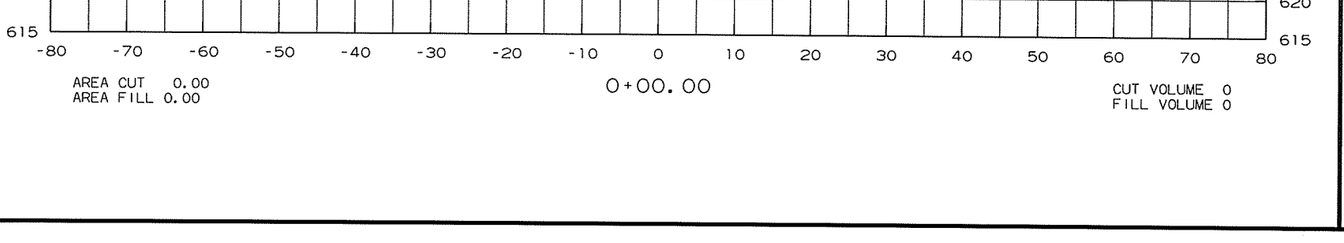


AREA CUT 0.00
AREA FILL 0.42

0+11.02

CUT VOLUME 0
FILL VOLUME 0

BR4906 Drive 116+78 Lt.



AREA CUT 0.00
AREA FILL 0.00

0+00.00

CUT VOLUME 0
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		79	85

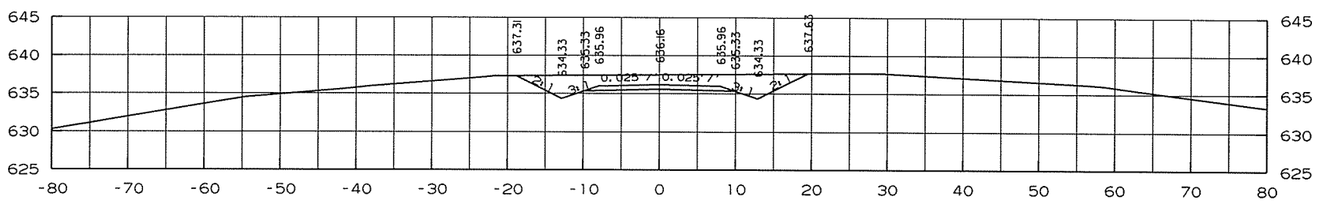
JOB NO. BR4906

4 CROSS SECTIONS DRIVE 116+78 LT.

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.		BR4906	80	85

4 CROSS SECTIONS DRIVE 116+78 LT.

BR4906 Field Ent. 116+78 Rt.

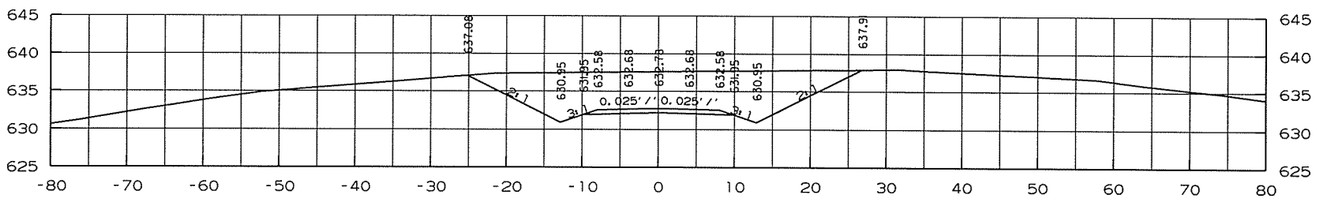


AREA CUT 75.47
AREA FILL 0.00

1+00.00

CUT VOLUME 143
FILL VOLUME 0

BR4906 Field Ent. 116+78 Rt.

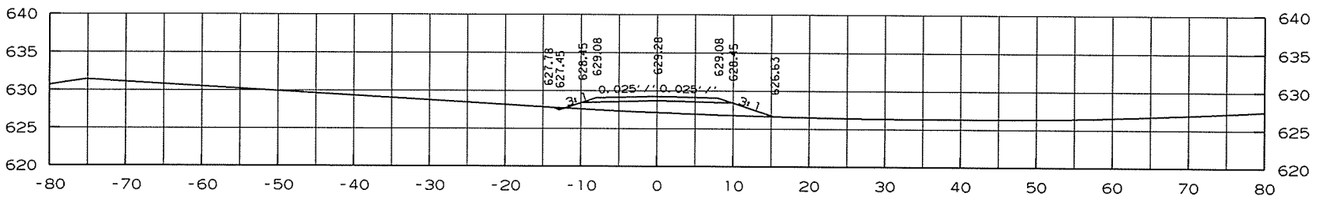


AREA CUT 233.77
AREA FILL 0.00

0+75.00

CUT VOLUME 108
FILL VOLUME 16

BR4906 Field Ent. 116+78 Rt.

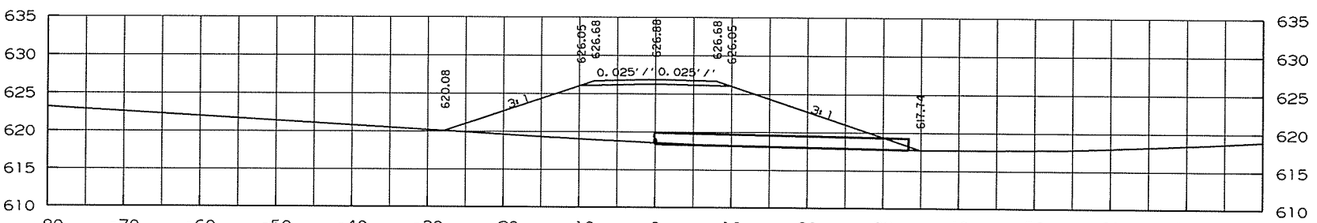


AREA CUT 0.21
AREA FILL 33.66

0+50.00

CUT VOLUME 0
FILL VOLUME 109

BR4906 Field Ent. 116+78 Rt.

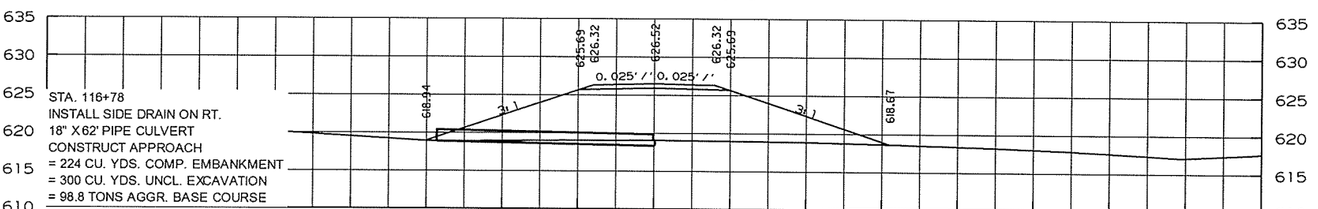


AREA CUT 0.00
AREA FILL 310.73

0+32.86

CUT VOLUME 0
FILL VOLUME 28

BR4906 Field Ent. 116+78 Rt.



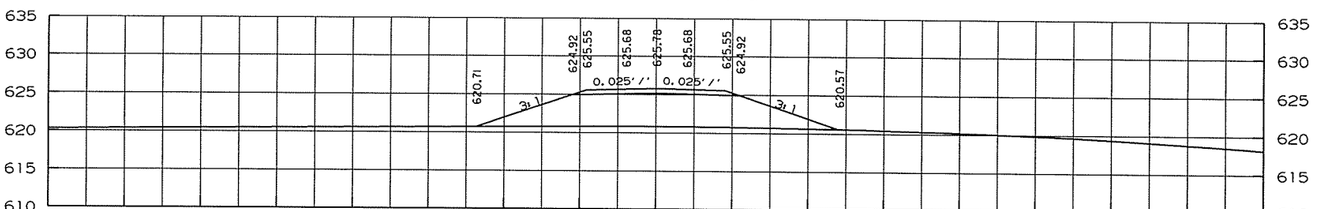
STA. 116+78
INSTALL SIDE DRAIN ON RT.
18" X 62' PIPE CULVERT
CONSTRUCT APPROACH
= 224 CU. YDS. COMP. EMBANKMENT
= 300 CU. YDS. UNCL. EXCAVATION
= 98.8 TONS AGGR. BASE COURSE

AREA CUT 0.00
AREA FILL 271.46

0+30.30

CUT VOLUME 0
FILL VOLUME 41

BR4906 Field Ent. 116+78 Rt.

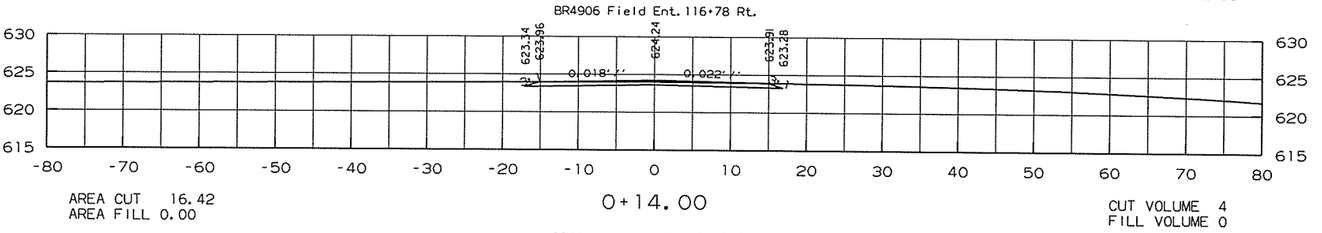


AREA CUT 0.00
AREA FILL 146.69

0+25.00

CUT VOLUME 3
FILL VOLUME 30

BR4906 Field Ent. 116+78 Rt.

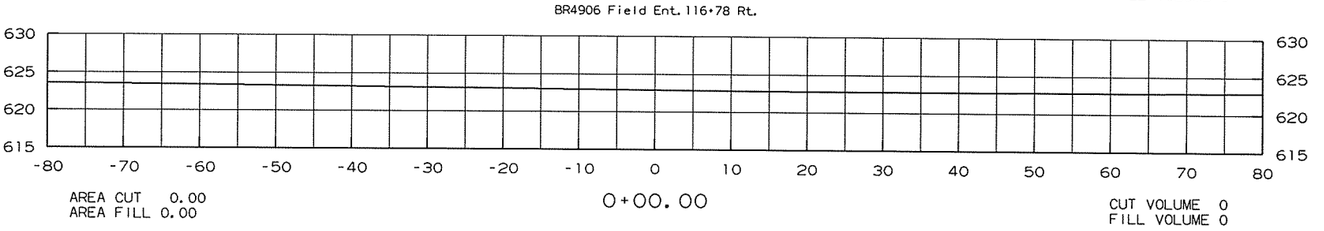


AREA CUT 16.42
AREA FILL 0.00

0+14.00

CUT VOLUME 4
FILL VOLUME 0

BR4906 Field Ent. 116+78 Rt.



AREA CUT 0.00
AREA FILL 0.00

0+00.00

CUT VOLUME 0
FILL VOLUME 0

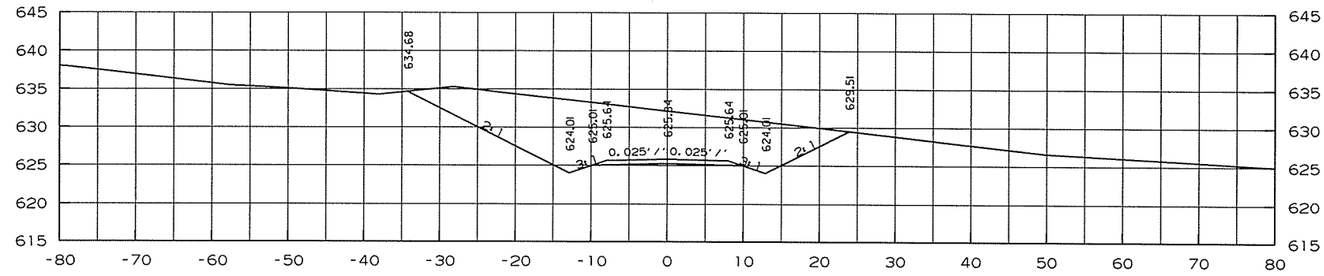
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR4906	81	85

4 CROSS SECTIONS FIELD ENTRANCE 116+78 RT.

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.		BR4906	82	85

(4) CROSS SECTIONS FIELD ENTRANCE 116+78 RT.

BR4906 Field Ent. 117+70 Lt.

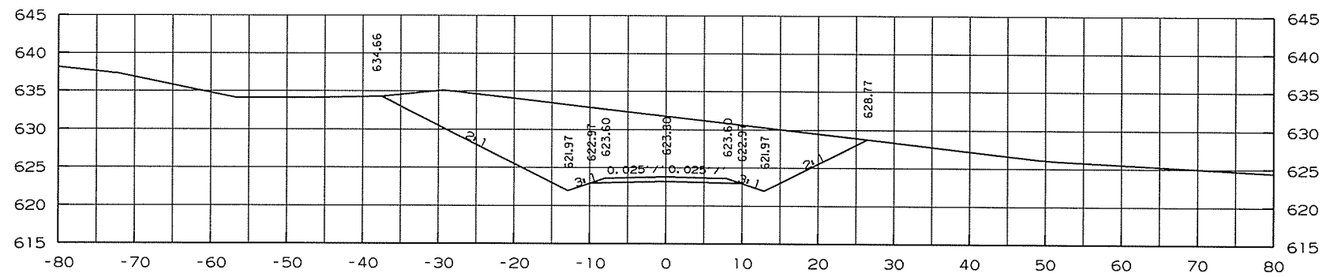


AREA CUT 333.83
AREA FILL 0.00

1+00.00

CUT VOLUME 357
FILL VOLUME 0

BR4906 Field Ent. 117+70 Lt.

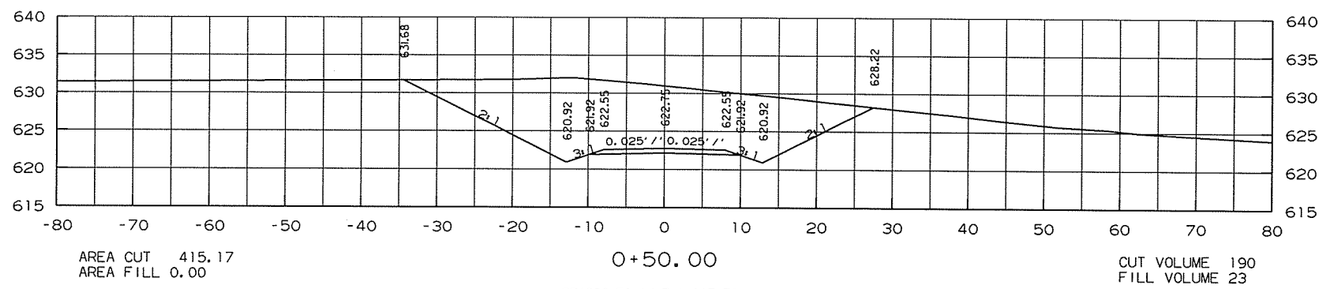


AREA CUT 437.64
AREA FILL 0.14

0+75.00

CUT VOLUME 395
FILL VOLUME 0

BR4906 Field Ent. 117+70 Lt.

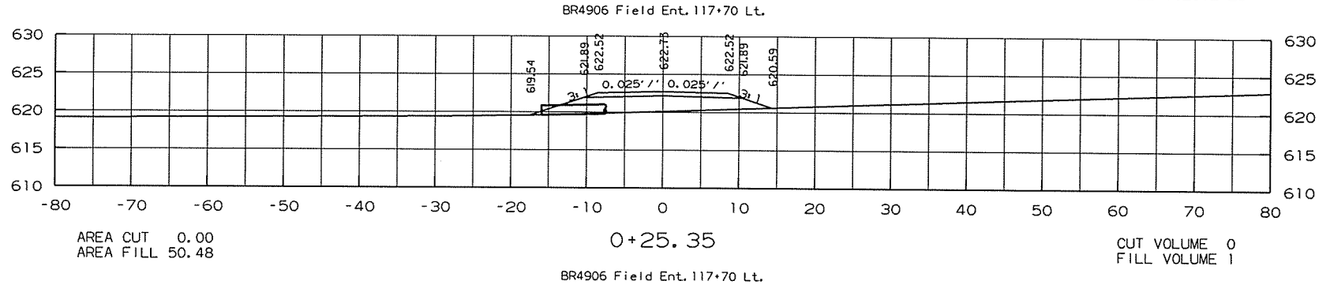


AREA CUT 415.17
AREA FILL 0.00

0+50.00

CUT VOLUME 190
FILL VOLUME 23

BR4906 Field Ent. 117+70 Lt.



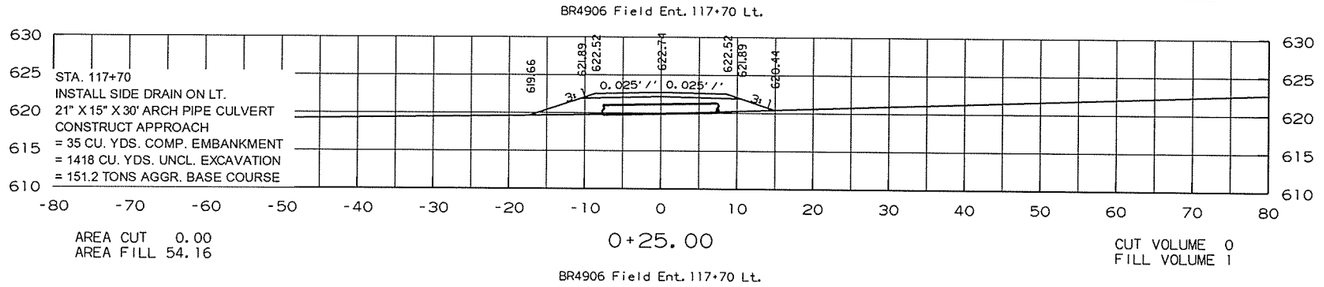
AREA CUT 0.00
AREA FILL 50.48

0+25.35

CUT VOLUME 0
FILL VOLUME 1

BR4906 Field Ent. 117+70 Lt.

STA. 117+70
INSTALL SIDE DRAIN ON LT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH
= 35 CU. YDS. COMP. EMBANKMENT
= 1418 CU. YDS. UNCL. EXCAVATION
= 151.2 TONS AGGR. BASE COURSE

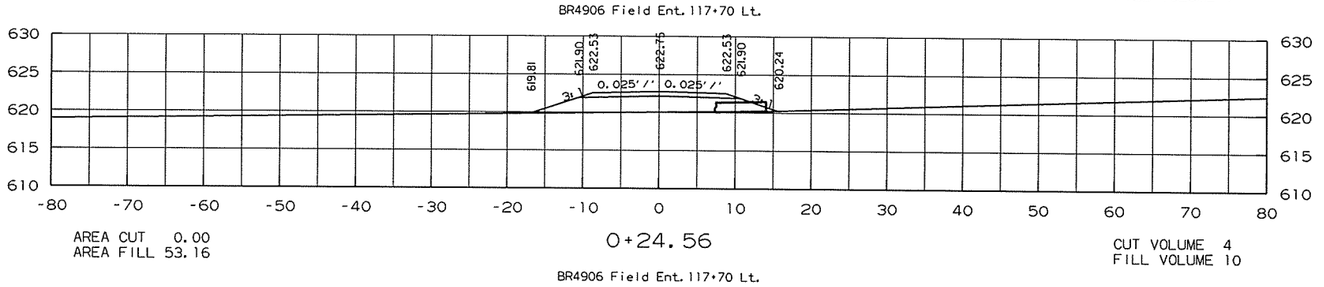


AREA CUT 0.00
AREA FILL 54.16

0+25.00

CUT VOLUME 0
FILL VOLUME 1

BR4906 Field Ent. 117+70 Lt.

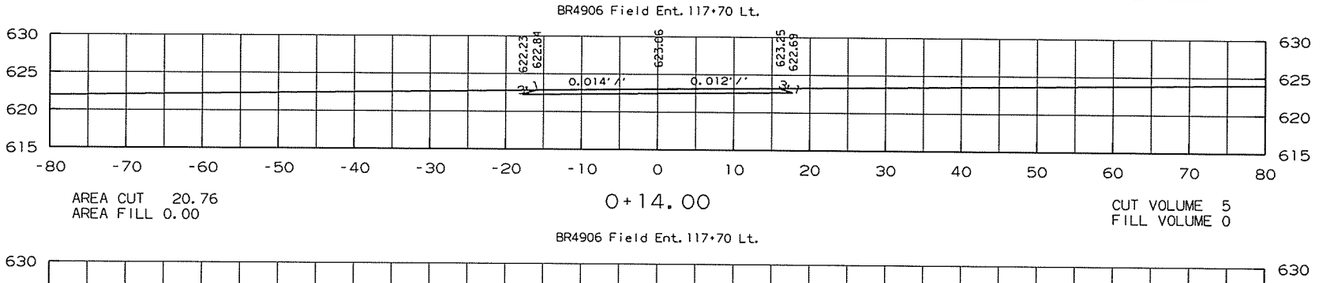


AREA CUT 0.00
AREA FILL 53.16

0+24.56

CUT VOLUME 4
FILL VOLUME 10

BR4906 Field Ent. 117+70 Lt.

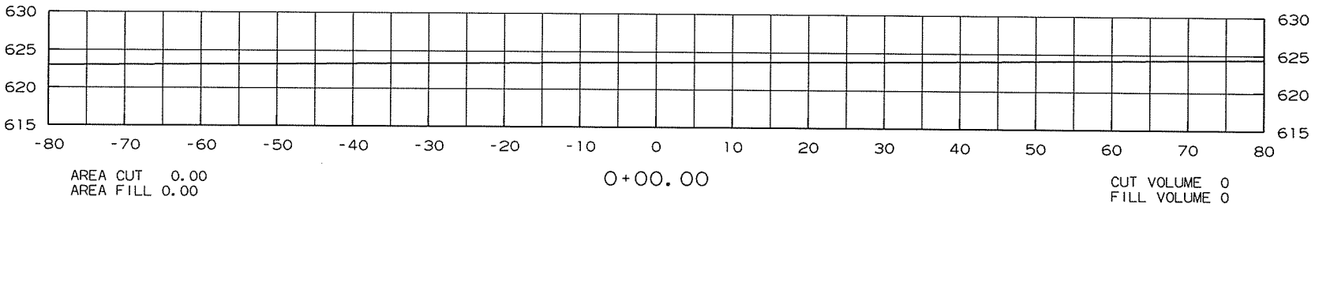


AREA CUT 20.76
AREA FILL 0.00

0+14.00

CUT VOLUME 5
FILL VOLUME 0

BR4906 Field Ent. 117+70 Lt.



AREA CUT 0.00
AREA FILL 0.00

0+00.00

CUT VOLUME 0
FILL VOLUME 0

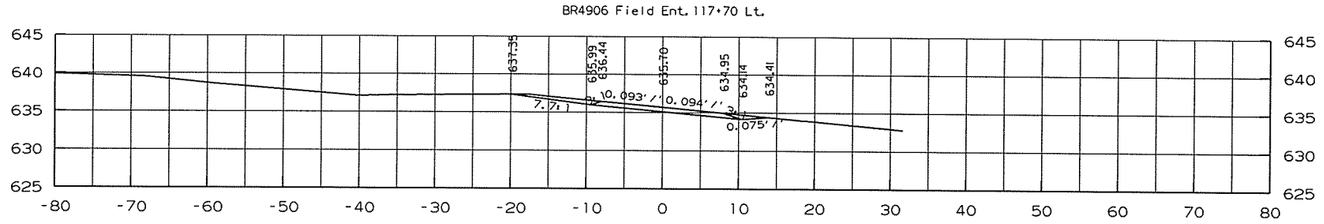
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR4906	83	85

JOB NO.

4 CROSS SECTIONS FIELD ENTRANCE 117+70 LT.

BR4906 Field Ent. 117+70 Lt.

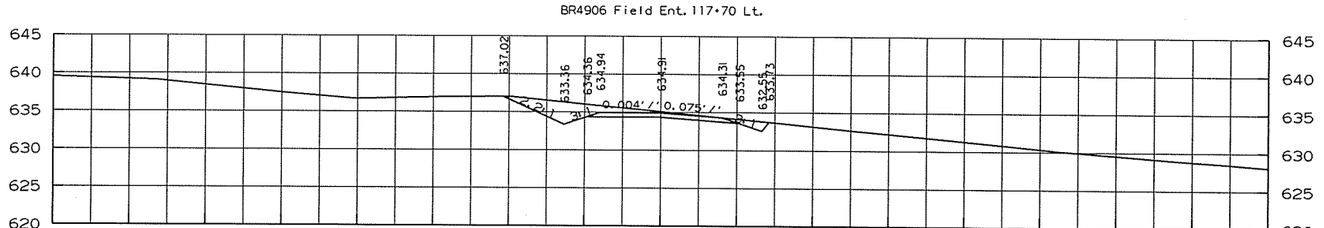


AREA CUT 16.44
AREA FILL 0.00

1+90.00

CUT VOLUME 16
FILL VOLUME 0

BR4906 Field Ent. 117+70 Lt.

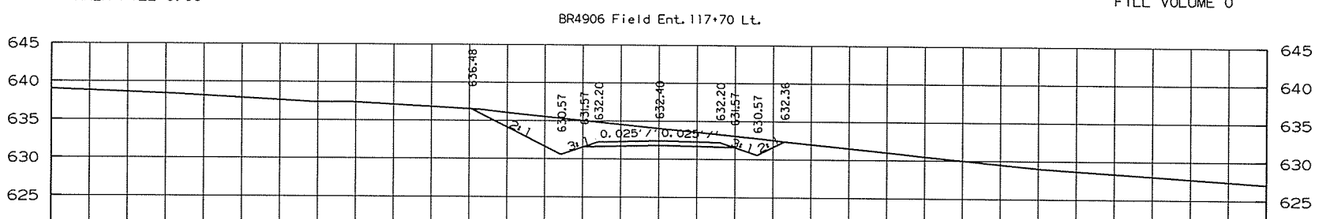


AREA CUT 40.75
AREA FILL 0.00

1+75.00

CUT VOLUME 63
FILL VOLUME 0

BR4906 Field Ent. 117+70 Lt.

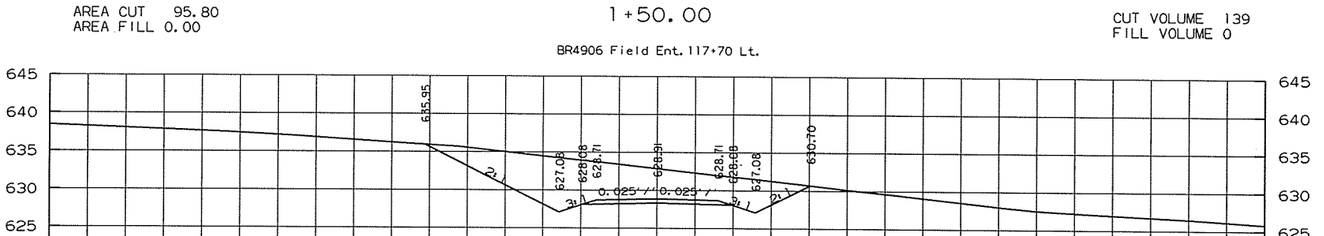


AREA CUT 95.80
AREA FILL 0.00

1+50.00

CUT VOLUME 139
FILL VOLUME 0

BR4906 Field Ent. 117+70 Lt.



AREA CUT 204.71
AREA FILL 0.00

1+25.00

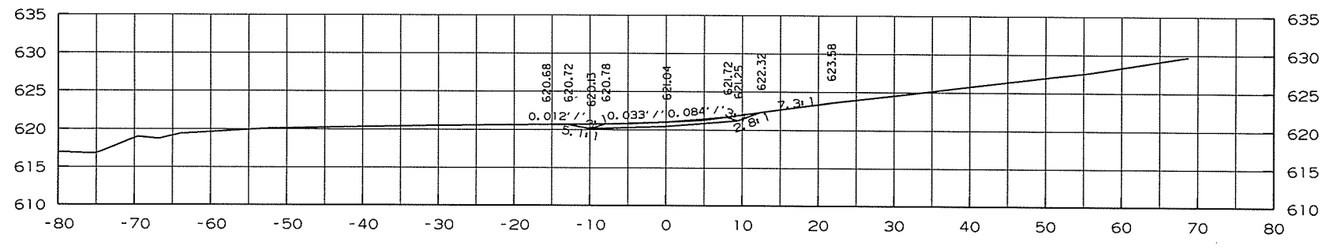
CUT VOLUME 249
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		84	85

JOB NO. BR4906

4 CROSS SECTIONS FIELD ENTRANCE 117+70 LT.

BR4906 Field Ent. 118+25 Rt.

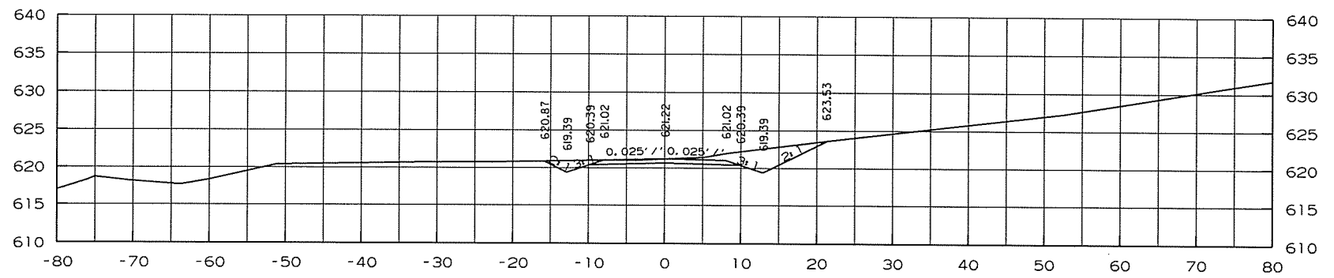


AREA CUT 12.39
AREA FILL 0.01

1+40.00

CUT VOLUME 15
FILL VOLUME 0

BR4906 Field Ent. 118+25 Rt.

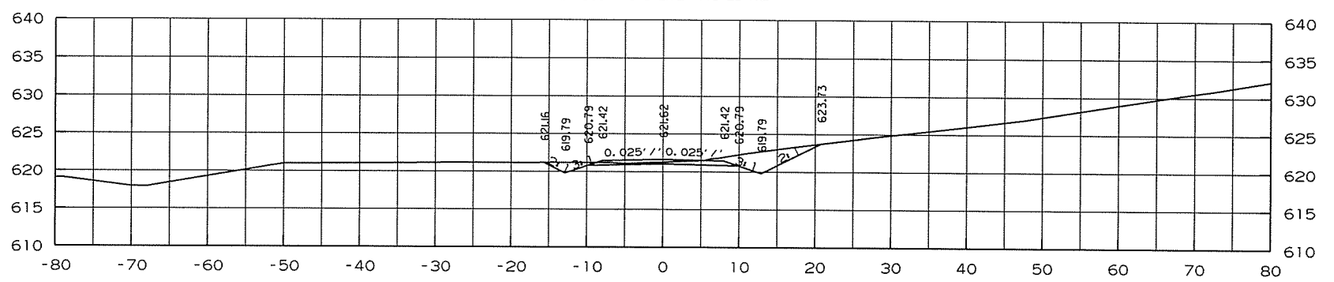


AREA CUT 41.69
AREA FILL 0.00

1+25.00

CUT VOLUME 34
FILL VOLUME 0

BR4906 Field Ent. 118+25 Rt.

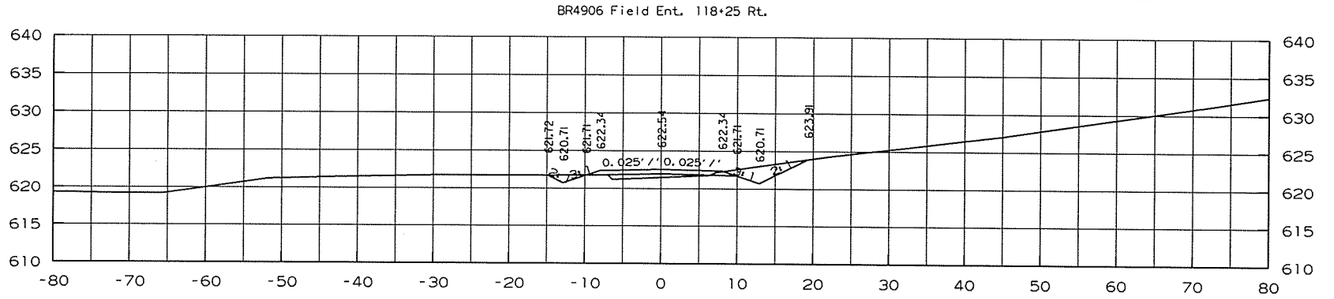


AREA CUT 32.00
AREA FILL 0.00

1+00.00

CUT VOLUME 22
FILL VOLUME 3

BR4906 Field Ent. 118+25 Rt.

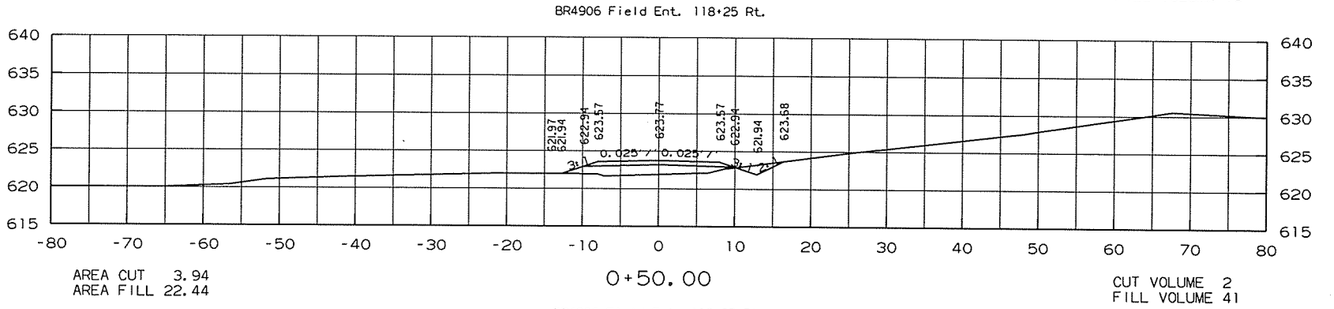


AREA CUT 16.28
AREA FILL 5.45

0+75.00

CUT VOLUME 9
FILL VOLUME 13

BR4906 Field Ent. 118+25 Rt.



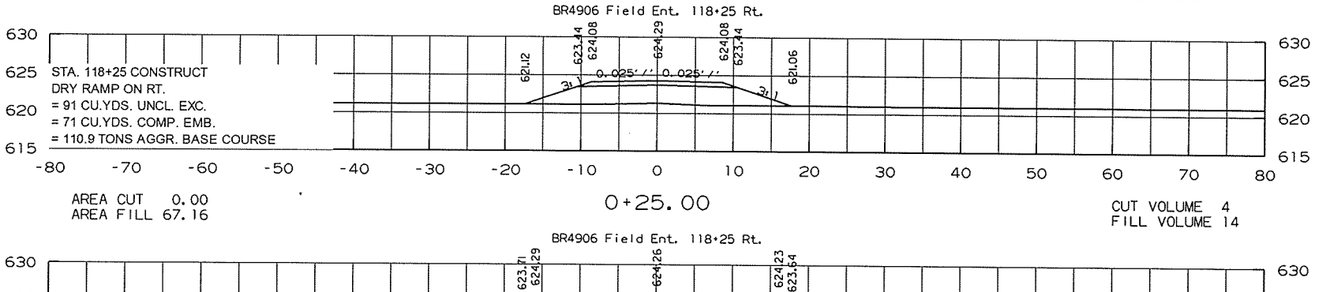
AREA CUT 3.94
AREA FILL 22.44

0+50.00

CUT VOLUME 2
FILL VOLUME 41

BR4906 Field Ent. 118+25 Rt.

STA. 118+25 CONSTRUCT
DRY RAMP ON RT.
= 91 CU.YDS. UNCL. EXC.
= 71 CU.YDS. COMP. EMB.
= 110.9 TONS AGGR. BASE COURSE

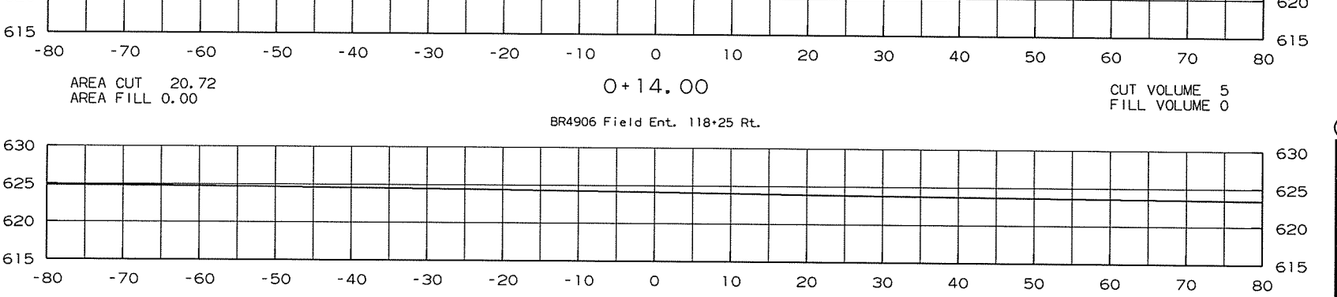


AREA CUT 0.00
AREA FILL 67.16

0+25.00

CUT VOLUME 4
FILL VOLUME 14

BR4906 Field Ent. 118+25 Rt.



AREA CUT 20.72
AREA FILL 0.00

0+14.00

CUT VOLUME 5
FILL VOLUME 0

BR4906 Field Ent. 118+25 Rt.

AREA CUT 0.00
AREA FILL 0.00

0+00.00

CUT VOLUME 0
FILL VOLUME 0

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR4906	85	85

4 CROSS SECTIONS FIELD ENTRANCE 118+25 RT.