DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BRO-STPB-0072(44)		
JOB NO.		BR7208	1	73

4 WEST FORK WHITE RIVER (WOOLSEY) STR. & APPRS. (S)

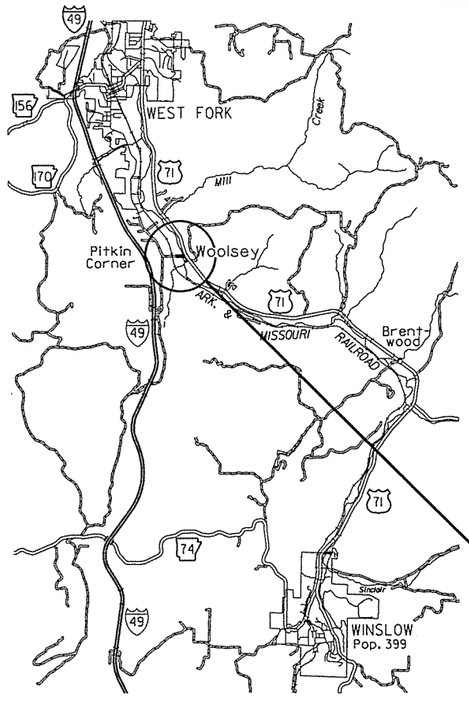
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR PROPOSED COUNTY ROAD

WEST FORK WHITE RIVER (WOOLSEY) STR. & APPRS. (S)

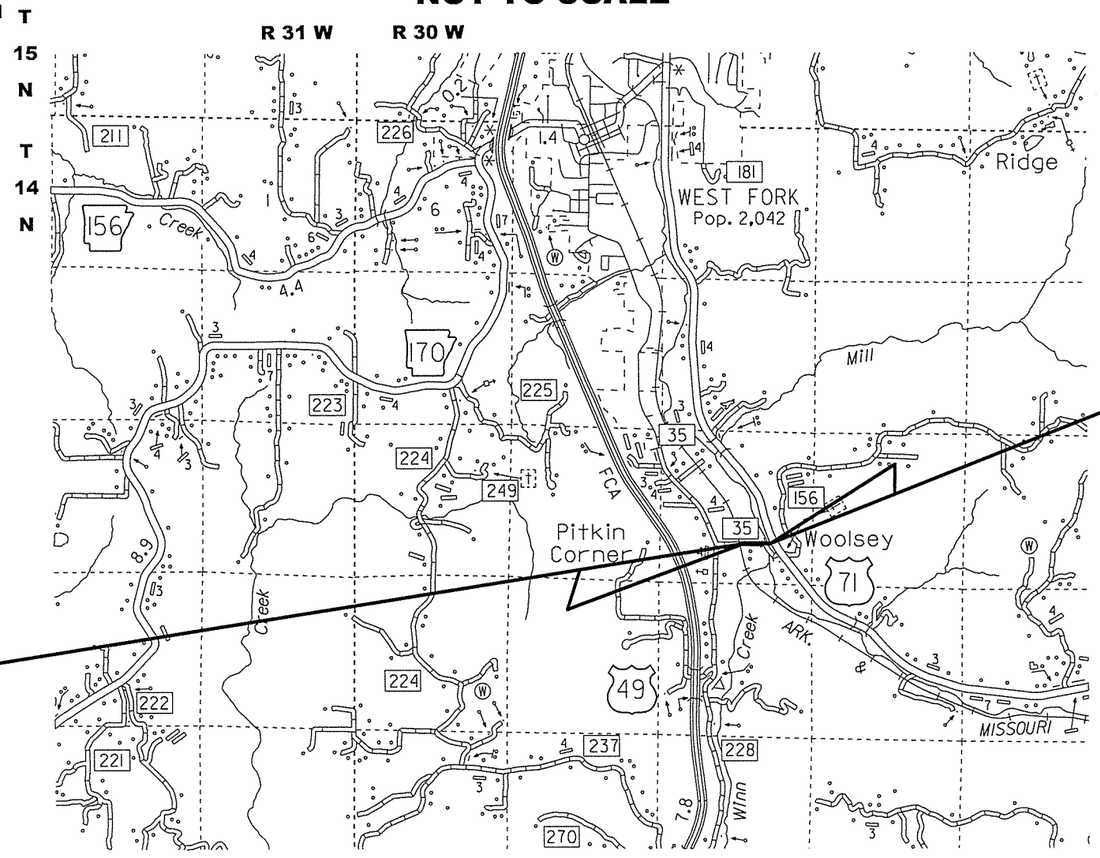
COUNTY ROAD 35
WASHINGTON COUNTY
FED. AID PROJECT BRO-STPB-0072(44)

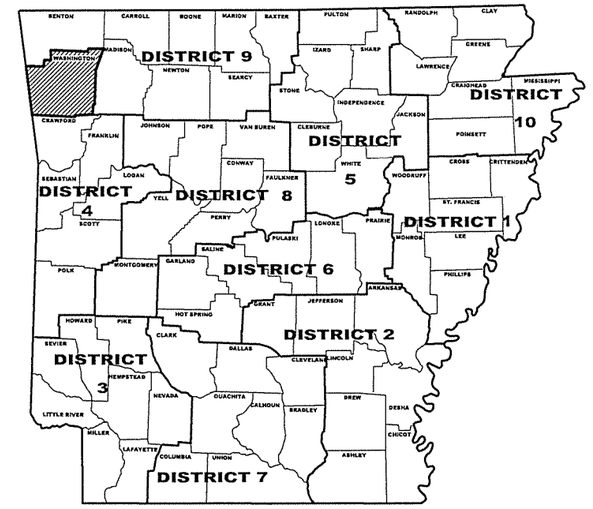
JOB BR7208

NOT TO SCALE



VICINITY MAP





ARKANSAS HIGHWAY DIST. 4

DESIGN TRAFFIC DATA

DESIGN YEAR	2036
2016 ADT	300
2036 ADT	450
2036 DHV	68
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	8%
DESIGN SPEED	40 MPH

STRUCTURES OVER 20' - 0"

SITE 1

STA. 105+63.90 BRIDGE END
PROPOSED 352'-2.5"
CONTINUOUS COMPOSITE
W-BEAM UNIT
(SPANS = 80', 95', 95', 80')
BRIDGE NO. 04934
28'-0" CLEAR ROADWAY
STA. 109+16.10

STA. 100+00.00

BEGIN JOB BR7208
FED. AID PROJECT BRO-STPB-0072(44)

STA. 110+00.00

END JOB BR7208
FED. AID PROJECT BRO-STPB-0072(44)

	BEGIN	MID-POINT	END
LATITUDE	N35^53'07.6"	N35^53'07.6"	N35^53'07.6"
LONGITUDE	W94^10'17.4"	W94^10'11.3"	W94^10'05.3"

GROSS LENGTH OF PROJECT	1000.00	FEET OR	0.189	MILES
NET " " ROADWAY	647.80	" "	0.123	"
NET " " BRIDGE	352.20	" "	0.066	"
NET " " PROJECT	1000.00	" "	0.189	"

APPROVED

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

6-14-16

DEPUTY DIRECTOR
AND CHIEF ENGINEER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	2	73
				(4)	INDEX OF SHEETS, GOV. SPECS. & GEN. NOTES			

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.	DATE
1.	TITLE SHEET			
2.	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES			
3-4.	TYPICAL SECTION OF IMPROVEMENT AND SPECIAL DETAILS			
5.	TEMPORARY EROSION CONTROL DETAILS			
6-7.	QUANTITIES			
8.	SCHEDULE OF BRIDGE QUANTITIES	04934	58551	
9.	SUMMARY OF QUANTITIES AND REVISIONS			
10-11.	SURVEY CONTROL DETAILS			
12-13.	PLAN AND PROFILE SHEETS			
14.	LAYOUT OF BRIDGE OVER WEST FORK WHITE RIVER (SHEET 1 OF 2)	04934	58552	
15.	LAYOUT OF BRIDGE OVER WEST FORK WHITE RIVER (SHEET 2 OF 2)	04934	58553	
16.	SOIL BORINGS-WEST FORK WHITE RIVER	04934	58554	
17.	DETAILS OF BENT 1 (SHEET 1 OF 2)	04934	58555	
18.	DETAILS OF BENT 1 (SHEET 2 OF 2)	04934	58556	
19.	DETAILS OF BENT 2	04934	58557	
20.	DETAILS OF BENT 3	04934	58558	
21.	DETAILS OF BENT 4	04934	58559	
22.	COMMON DETAILS FOR BENTS 2, 3 AND 4	04934	58560	
23.	DETAILS OF BENT 5 (SHEET 1 OF 5)	04934	58561	
24.	DETAILS OF BENT 5 (SHEET 2 OF 5)	04934	58562	
25.	DETAILS OF BENT 5 (SHEET 3 OF 5)	04934	58563	
26.	DETAILS OF BENT 5 (SHEET 4 OF 5)	04934	58564	
27.	DETAILS OF BENT 5 (SHEET 5 OF 5)	04934	58565	
28.	DETAILS OF ELASTOMERIC BEARINGS	04934	58566	
29.	DETAILS OF 350'-0" CONTINUOUS W-BEAM UNIT (SHEET 1 OF 5)	04934	58567	
30.	DETAILS OF 350'-0" CONTINUOUS W-BEAM UNIT (SHEET 2 OF 5)	04934	58568	
31.	DETAILS OF 350'-0" CONTINUOUS W-BEAM UNIT (SHEET 3 OF 5)	04934	58569	
32.	DETAILS OF 350'-0" CONTINUOUS W-BEAM UNIT (SHEET 4 OF 5)	04934	58570	
33.	DETAILS OF 350'-0" CONTINUOUS W-BEAM UNIT (SHEET 5 OF 5)	04934	58571	
34.	DETAILS FOR TYPE 1 SPECIAL APPROACH GUTTER	04934	58572	
35.	DETAILS FOR TYPE 2 SPECIAL APPROACH GUTTER	04934	58573	
36.	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		55000	02-27-14
37.	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES		55001	02-27-14
38.	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		55005	03-24-16
39.	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES		55006	09-02-15
40.	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES		55007	02-11-16
41.	STANDARD DETAILS FOR POURED SILICONE JOINTS		55008	02-11-16
42.	STANDARD DETAILS FOR TYPE C BRIDGE NAME PLATES		55011	02-27-14
43.	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS		55020	03-24-16
44.	STANDARD DETAILS FOR TYPE A APPROACH GUTTERS		55030A	09-02-15
45.	GUARD RAIL DETAILS		GR-8	07-14-10
46.	GUARD RAIL DETAILS		GR-8A	07-14-10
47.	GUARD RAIL DETAILS		GR-9	04-17-08
48.	GUARD RAIL DETAILS		GR-10	07-14-10
49.	GUARD RAIL DETAILS		GR-10A	07-14-10
50.	GUARD RAIL DETAILS		GRT-1	07-14-10
51.	MAILBOX DETAILS		MB-1	11-18-04
52.	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	02-27-14
53.	METAL PIPE CULVERT FILL HEIGHTS & BEDDING		PCM-1	02-27-14
54.	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)		PCP-1	02-27-14
55.	PLASTIC PIPE CULVERT (PVC F949)		PCP-2	02-27-14
56.	PAVEMENT MARKING DETAILS		PM-1	05-12-16
57.	DETAILS OF PIPE UNDERDRAIN		PU-1	04-10-03
58.	STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES		SHS-1	09-12-13
59.	U-CHANNEL POST ASSEMBLIES		SHS-2	02-27-14
60.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	09-02-15
61.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	09-02-15
62.	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	09-02-15
63.	TEMPORARY EROSION CONTROL DEVICES		TEC-1	12-15-11
64.	TEMPORARY EROSION CONTROL DEVICES		TEC-2	06-02-94
65.	TEMPORARY EROSION CONTROL DEVICES		TEC-3	11-03-94
66.	WIRE FENCE TYPE C AND D		WF-4	08-22-02
67-73.	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. 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.
6. ALL SALVAGEABLE PIPE CULVERTS SHALL BE STORED ON THE RIGHT OF WAY AND REMAIN THE PROPERTY OF WASHINGTON COUNTY.
7. 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.
8. THE ROAD WILL BE CLOSED TO THRU TRAFFIC UNTIL THE COMPLETION OF THE PROJECT.

GOVERNING SPECIFICATIONS

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

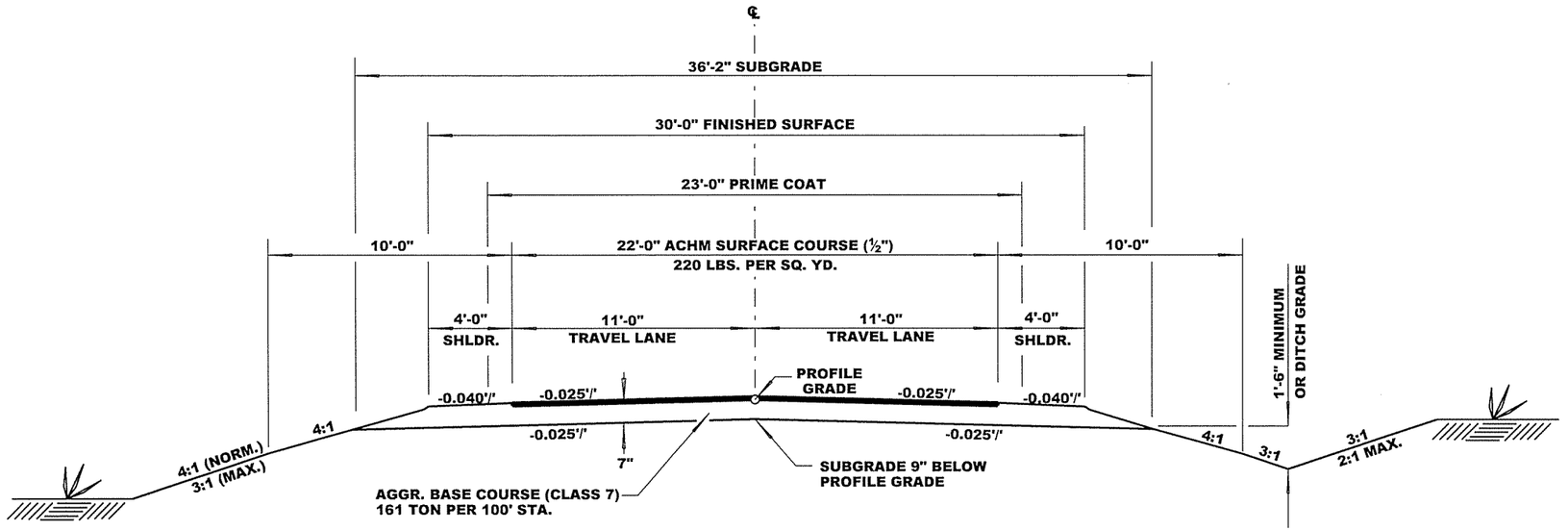
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 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
100-3	CONTRACTOR'S LICENSE
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1	AGGREGATE BASE COURSE
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB BR7208	BIDDING REQUIREMENTS AND CONDITIONS
JOB BR7208	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB BR7208	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB BR7208	CARGO PREFERENCE ACT REQUIREMENTS
JOB BR7208	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB BR7208	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB BR7208	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB BR7208	DRILLED SHAFT FOUNDATIONS
JOB BR7208	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB BR7208	ISSUANCE OF PROPOSALS
JOB BR7208	MANDATORY ELECTRONIC CONTRACT
JOB BR7208	NESTING SITES OF MIGRATORY BIRDS
JOB BR7208	NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB BR7208	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB BR7208	PLASTIC PIPE
JOB BR7208	RECYCLED ASPHALT SHINGLES
JOB BR7208	REMOVAL OF HISTORIC TRUSS SPANS OF BRIDGE NO. 17320
JOB BR7208	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB BR7208	SELECT GRANULAR BACKFILL
JOB BR7208	SPECIAL CLEARING REQUIREMENTS
JOB BR7208	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB BR7208	UTILITY ADJUSTMENTS
JOB BR7208	WARM MIX ASPHALT

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, & GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

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.		BR7208	3	73

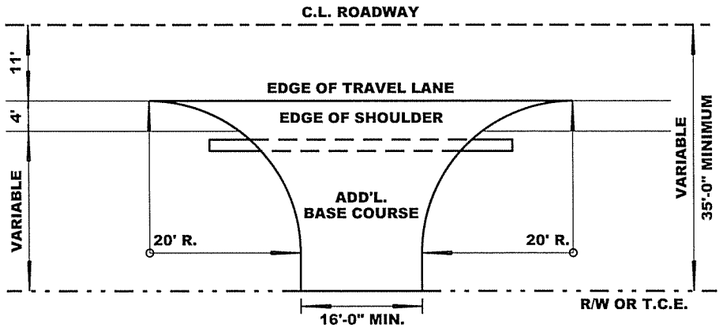
(4) TYPICAL SECTIONS OF IMPROVEMENT



TANGENT SECTION

NOTE: THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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



DETAIL OF PRIVATE ENTRANCES

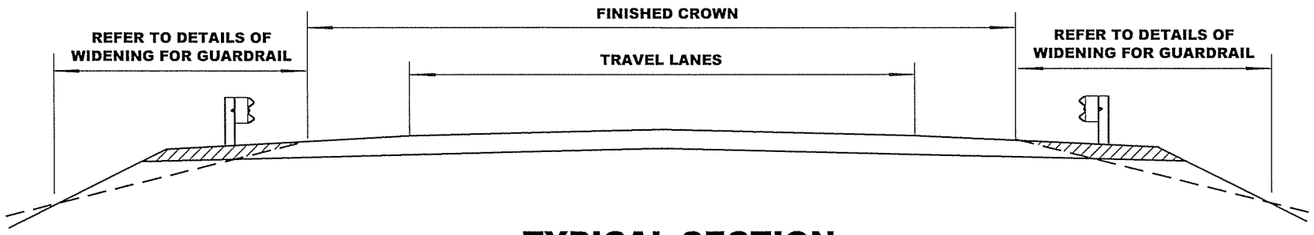
ADD'L.BASE COURSE

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

TYPICAL SECTIONS OF IMPROVEMENT

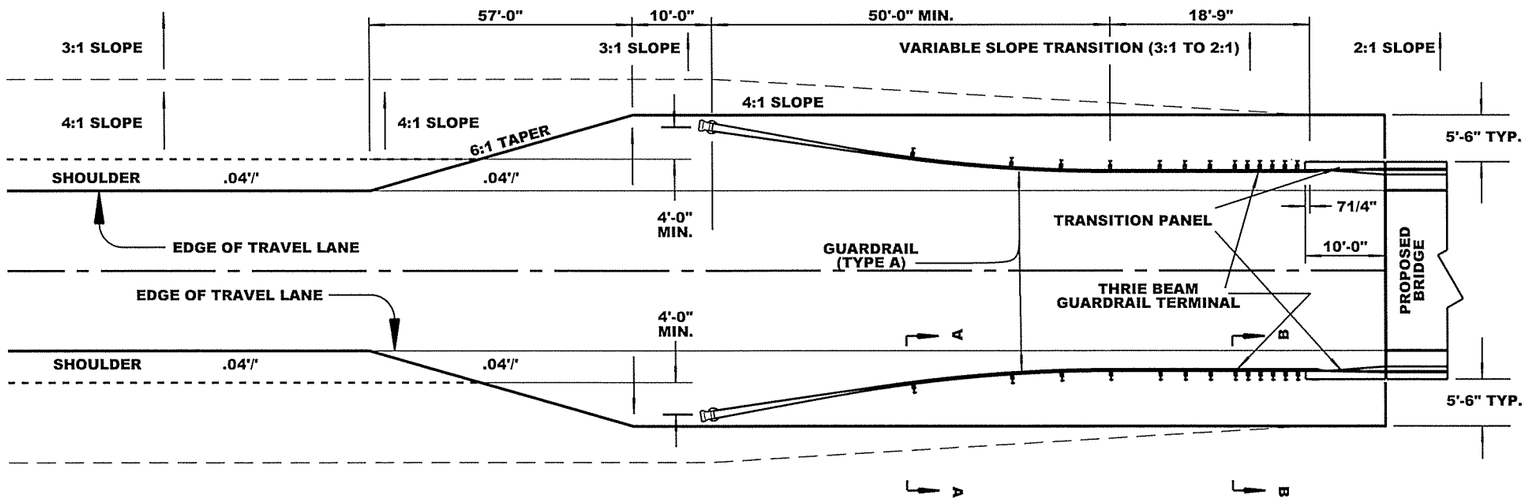
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
4/29/2016

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.		BR7208	4	73
				4	SPECIAL DETAILS			

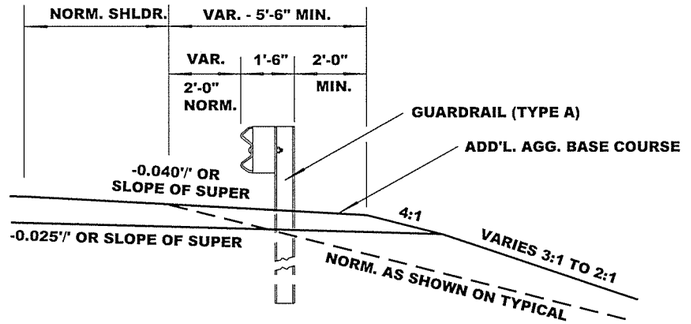


TYPICAL SECTION GUARDRAIL WIDENING
(GR-9A)

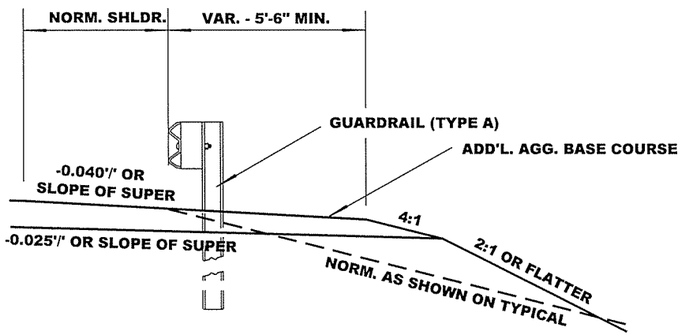
TYPICAL SECTION



DETAILS OF WIDENING FOR GUARDRAIL (28'-0" CLEAR ROADWAY CAST IN PLACE BRIDGE)
NOT TO SCALE



SECTION A-A



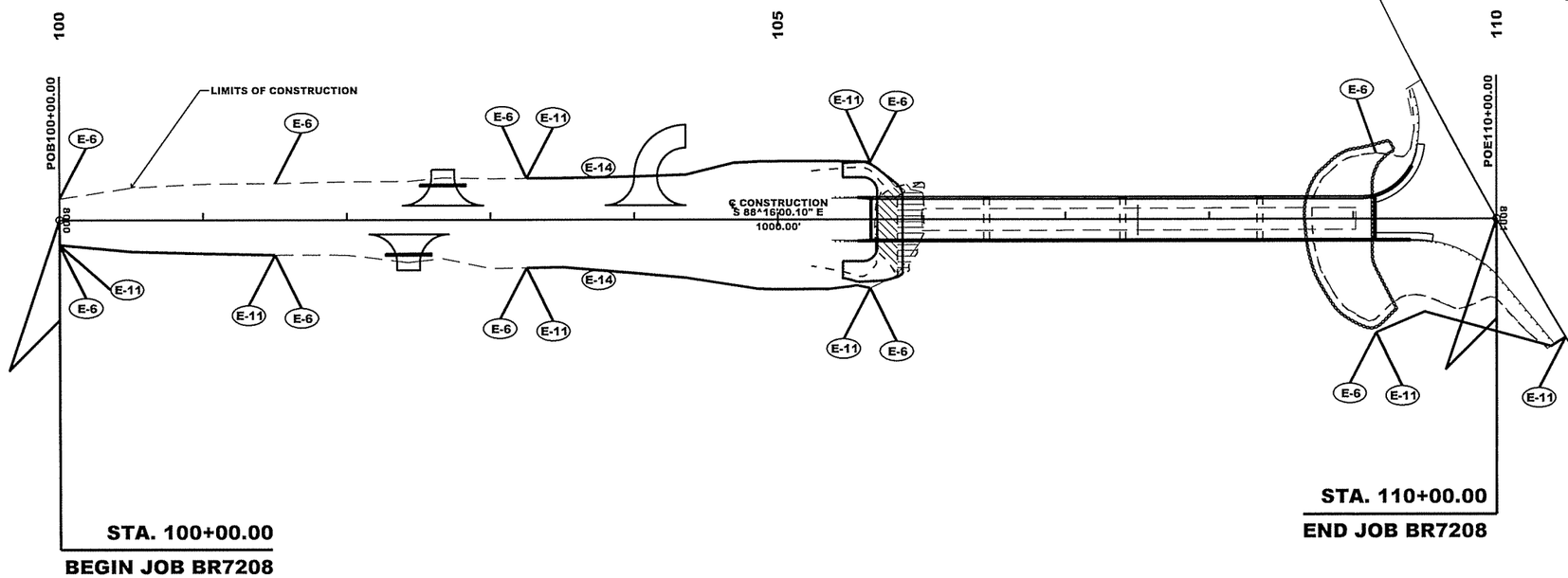
SECTION B-B

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
4/29/2016

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.		BR7208	5	73

4 TEMPORARY EROSION CONTROL DETAILS



50 0 50 100

SCALE: 1"= 100'

N

TEMPORARY EROSION CONTROL DEVICES

ROCK DITCH CHECKS (E-6)

				SEDIMENT REMOVAL AND DISPOSAL
STA. 100+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 101+50	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 103+25	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 105+64	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 109+16	LT. & RT.	= 4	CU. YD.	4 CU. YD.

SILT FENCE (E-11)

			SEDIMENT REMOVAL AND DISPOSAL
STA. 100+00 - STA. 101+50	RT.	= 150 LIN. FT.	5 CU. YD.
STA. 103+25 - STA. 105+64	LT.	= 240 LIN. FT.	7 CU. YD.
STA. 103+25 - STA. 105+64	RT.	= 240 LIN. FT.	7 CU. YD.
STA. 109+16 - STA. 110+40	RT.	= 140 LIN. FT.	4 CU. YD.

SEDIMENT BASIN (E-14)

			SEDIMENT REMOVAL AND DISPOSAL
STA. 103+75	LT.	= 100 CU. YD.	100 CU. YD.
STA. 103+75	RT.	= 100 CU. YD.	100 CU. YD.

OBLIT. OF SED. BASIN = 200 CU. YD.

LEGEND

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

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

REVISION NO.	REVISIONS
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO
4/24/2016

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.		BR7208	6	73

(4) QUANTITIES

EARTHWORK

STATION	STATION	UNCLASSIFIED EXCAVATION				COMPACTED EMBANKMENT		
		MAIN LANES	OBLIT. OF EXISTING ROADWAY	CHANNEL	TOTAL	MAIN LANES	ADDITIONAL	TOTAL
		CUBIC YARD						
100+00	110+00	233			233	4347		4347
102+43							45	45
102+67							45	45
104+08							80	80
105+83	106+01			360	360			
109+47	111+75		256		256			
TOTALS:		233	256	360	849	4347	170	4517

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	DESCRIPTION	FENCE	METAL GATES
				LIN. FT.	EACH
100+00	102+55	LT.	FENCE	255	
102+67		LT.	VEHICULAR GATE (24')		1
102+79	104+21	LT.	FENCE	152	
105+23	105+86	LT.	FENCE	63	
TOTALS:				470	1

TRAFFIC CONTROL DEVICES

LOCATION	W20-3						RII-2		BARRICADES	STANDARD DRAWING NUMBER
	1500 FT.		1000 FT.		500 FT.					
	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	LIN. FT.	
STA. 85+00	1	16								TC-1, 2 & 3
STA. 90+00			1	16						TC-1, 2 & 3
STA. 95+00					1	16				TC-1, 2 & 3
STA. 100+00							1	10	16	TC-1, 2 & 3
HWY. 71							1	10	16	TC-1, 2 & 3
TOTALS:	1	16	1	16	1	16	2	20	32	

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

STATION	SIDE	STANDARD SIGN NUMBER				SUPPORT ASSEMBLIES (TYPE A)	STANDARD DRAWING NUMBER
		W10-1		R1-1			
		NO.	SQ. FT.	NO.	SQ. FT.	EACH	
99+55	LT.	1	7.07			1	SHS - 1 & 2
109+75	RT.			1	6.25	1	SHS - 1 & 2
TOTALS:		1	7.07	1	6.25	2	

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

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	STATION
105+00	110+00	5	5
TOTALS:		5	5

TEMPORARY EROSION CONTROL

STATION	STATION	LOCATION	SAND BAG DITCH CKS. (E-5)	ROCK DITCH CKS. (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLIT. OF SEDIMENT BASIN	SEDIMENT REMOVAL & DISPOSAL	STANDARD DRAWING NUMBER
			BAG	CU. YD.	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	
100+00	110+00	MAIN LANES		20	770	200	200	243	TEC-1, 2&3
* ENTIRE PROJECT AS DIRECTED BY ENGINEER			60		75			12	TEC-1, 2&3
TOTALS:			60	20	845	200	200	255	

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

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

REFLECTORIZED PAINT PAVEMENT MARKING

STATION	STATION	4" YELLOW	4" WHITE
		LIN. FT.	LIN. FT.
100+00	110+00	2000	2045
TOTALS:		2000	2045

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

TEMPORARY & PERMANENT SEEDING

STATION	TEMPORARY SEEDING	LIME	SEEDING	MULCH COVER	WATER	STANDARD DRAWING NO.
	ACRE	TON	ACRE	ACRE	M. GAL.	
ENTIRE PROJECT	0.63	2	0.63	1.26	77.1	TEC-3
TOTALS:	0.63	2	0.63	1.26	77.1	

BASIS OF ESTIMATE:

LIME 2 TONS PER ACRE
WATER 102 M. GALS. PER ACRE PERMANENT SEEDING
WATER 20.4 M. GALS. PER ACRE TEMPORARY SEEDING

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
4/29/2016

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.		BR7208	7	73
				4	QUANTITIES			

STRUCTURES

STATION	DESCRIPTION	SIDE DRAIN 18" LIN. FT.	STANDARD DRAWING
102+43	SIDE DRAIN RT.	32	PCC-1, PCM-1, PCP-1, PCP-2
102+67	SIDE DRAIN LT.	32	PCC-1, PCM-1, PCP-1, PCP-2
TOTAL:		64	

METAL VEHICULAR GATES

STATION	SIDE	WIDTH LIN. FT.	12' EACH
102+67	LT.	12	2
TOTAL:			2

MAILBOXES

STATION	SIDE	MAILBOX SUPPORTS (SINGLE) EACH	MAILBOXES EACH
102+19	RT.	1	1
TOTALS:		1	1

WIRE FENCE

STATION	STATION	SIDE	WIRE FENCE (TYPE D-1) LIN. FT.
100+00	102+55	LT.	255
102+79	104+65	LT.	208
TOTAL:			463

SELECT GRANULAR BACKFILL

LOCATION	SELECT GRANULAR BACKFILL CU. YD.
BENT 5	455
TOTAL:	455

APPROACH GUTTER

STATION	STATION	SIDE	APPROACH GUTTER (TYPE A) CONCRETE CU. YD.	APPROACH GUTTER (TYPE A) REINF. STEEL LB.	APPROACH GUTTER (TYPE SPECIAL 1) CONCRETE CU. YD.	APPROACH GUTTER (TYPE SPECIAL 1) REINF. STEEL LB.	APPROACH GUTTER (TYPE SPECIAL 2) CONCRETE CU. YD.	APPROACH GUTTER (TYPE SPECIAL 2) REINF. STEEL LB.
105+33.90	105+63.90	LT. & RT.	6.80	570				
109+16.10	109+48.87	LT.					4.94	461
109+16.10	109+56.04	RT.			3.88	352		
TOTALS:			6.80	570	3.88	352	4.94	461

AGGREGATE BASE COURSE AND SURFACING

STATION	STATION	DESCRIPTION	LENGTH LIN. FT.	AGGREGATE BASE CRS. (CLASS 7) TON	PRIME COAT WIDTH	PRIME COAT SQ. YD.	PRIME COAT GAL.	*ACHM SURFACE COURSE (½") (220 LBS./SQ. YD.) WIDTH	*ACHM SURFACE COURSE (½") (220 LBS./SQ. YD.) SQ. YD.	*ACHM SURFACE COURSE (½") (220 LBS./SQ. YD.) TON
100+00	101+00	TRANSITION	100.0	135.0	21.5	238.9	95.6	21	233.3	25.7
101+00	104+36.50	MAIN LANES	336.5	541.8	23.0	859.9	344.0	22	822.6	90.5
104+36.50	104+69.50	TAPER	33.0	61.7	23.0	84.3	33.7	22	80.7	8.9
104+69.50	105+63.90	GUARDRAIL WIDENING	94.4	201.1	23.0	241.2	96.5	22	230.8	25.4
109+16.10	110+00	COUNTY ROAD 35 - COUNTY ROAD TURNOUT	83.9	266.1	VARIABLE	651.6	260.6	VARIABLE	651.6	71.7
102+43		PRIVATE DRIVE - RT. SIDE		25.9						
102+67		PRIVATE DRIVE - LT. SIDE		25.9						
104+08		PRIVATE DRIVE - LT. SIDE		54.2						
** ENTIRE JOB		MAINTENANCE OF TRAFFIC		100.0						
TOTALS:				1411.7			830.4			222.2
USE:				1412			830			222

BASIS OF ESTIMATE:

AGGREGATE BASE COURSE (CLASS 7) 135 TONS PER 100' STA. (TRANSISTION)
AGGREGATE BASE COURSE (CLASS 7) 161 TONS PER 100' STA. (MAIN LANES)
AGGREGATE BASE COURSE (CLASS 7) 187 TONS PER 100' STA. (TAPER)
AGGREGATE BASE COURSE (CLASS 7) 213 TONS PER 100' STA. (GUARDRAIL WIDENING)
PRIME COAT 0.40 GAL./SQ. YD.

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

* Nmax = 115

PROPORTION BY WEGHT:
MINERAL AGGREGATE IN ACHM SURFACE COURSE (½") 94.7%
ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (½") 5.3%

DUMPED RIPRAP (GROUTED)

STATION	SIDE	DUMPED RIPRAP (GROUTED) CU. YD.
109+23	LT. (HWY. CULVERT)	100
TOTAL:		100

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

GUARDRAIL

STATION	STATION	SIDE	GUARDRAIL (TYPE A) LIN. FT.	TERMINAL ANCHOR POSTS (TYPE 1) EACH	THRIE BEAM GUARDRAIL TERMINAL EACH
104+85.75	105+35.75	LT. & RT.	100	2	2
109+45.48	109+35.29	LT.	50	1	1
109+58.14	110+33.04	RT.	100	1	1
TOTALS:			250	4	4

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID B. MAYO, JR.
6/13/2016

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.		BR7208	8	73
				① 04934		QUANTITIES		58551

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. BR7208

BRIDGE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	SP & 205	801	802	802	803	804	804	805	805	SP & 807	808	809	812	816	816	816	SP JOB BR7208	SP JOB BR7208	SP JOB BR7208	SP JOB BR7208
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	①STEEL PILING (HP 14x73)	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE C)	DUMPED RIPRAP	FILTER BLANKET	FOUNDATION PROTECTION RIPRAP	DRILLED② SHAFT (72" DIA.)	PERMANENT STEEL CASING (84" DIA.)	CROSSHOLE SONIC LOGGING (72" DIA.)	CORING DRILLED SHAFT
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	CU. YD.	SQ. YD.	TON	LIN. FT.	LIN. FT.	EACH	LIN. FT.
04934 WEST FORK WHITE RIVER	BENT NO. 1			20	24.16		11.5	2,851		88		530	1,856.0			121	212					
	BENT NO. 2				30.69			4,114					2,106.0						27	18	1	
	BENT NO. 3				34.66			4,221					1,566.0						30.5	21.5	1	
	BENT NO. 4				38.59			4,328					1,566.0						30.5	21.5	1	31
	BENT NO. 5			120	163.40		28.4	15,826		200	150	550	1,856.0				670	1,010				
	350'-0" CONT. W-BEAM UNIT					344.20	1,369.6		80,900			319,110		64	1							
	TOTALS FOR JOB NO. BR7208	1	③140	291.50	344.20	1,409.5	31,340	80,900	288	150	320,190	8,950.0	64	1	121	882	1,010	88	61	3	31	

① These steel piles are required to be Grade 50 and have special pile tips which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 14x73)".

② All Drilled Shafts shall be constructed with pipes for nondestructive testing. See Special Provision Job BR7208 "Nondestructive Testing of Drilled Shafts".

③ May include some rock excavation.

AILEEN SCHUBEL
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
WEST FORK WHITE RIVER
(WOOLSEY) STR. & APPRS. (S)
WASHINGTON COUNTY
COUNTY ROAD 35
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 7/20/15 FILENAME: bbr7208_ql.dgn
CHECKED BY: ACP DATE: 3-15-16 SCALE: None
DESIGNED BY: - DATE: -
BRIDGE NO. 04934 DRAWING NO. 58551

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.		BR7208	9	73
				(4)	SUMMARY OF QUANTITIES AND REVISIONS			

SUMMARY OF QUANTITIES

	ITEM NUMBER	ITEM	TOTAL	UNIT
	201	CLEARING	5	STA.
	201	GRUBBING	5	STA.
	202	REMOVAL AND DISPOSAL OF FENCE	470	LIN. FT.
	202	REMOVAL AND DISPOSAL OF GATES	1	EACH
	210	UNCLASSIFIED EXCAVATION	849	CU. YD.
	210	COMPACTED EMBANKMENT	4517	CU. YD.
	SS&303	AGGREGATE BASE COURSE (CLASS 7)	1412	TON
	SS&401	PRIME COAT	830	GAL.
	SPSS&407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (½")	210	TON
	SPSS&407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (½")	12	TON
	504	APPROACH GUTTERS	15.62	CU. YD.
	601	MOBILIZATION	1.00	LUMP SUM
	SP&602	FURNISHING FIELD OFFICE	1	EACH
	603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
	SS&604	SIGNS	68	SQ. FT.
	SS&604	BARRICADES	32	LIN. FT.
	SPSS&606	18" SIDE DRAIN	64	LIN. FT.
	617	GUARDRAIL (TYPE A)	250	LIN. FT.
	617	TERMINAL ANCHOR POSTS (TYPE 1)	4	EACH
	617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
*	619	12' STEEL GATES	2	EACH
*	619	12' ALUMINUM GATES	2	EACH
	619	WIRE FENCE (TYPE D-1)	463	LIN. FT.
	620	LIME	2	TON
	620	SEEDING	0.63	ACRE
	SS&620	MULCH COVER	1.26	ACRE
	620	WATER	77.1	M. GAL.
	621	TEMPORARY SEEDING	0.63	ACRE
	621	SILT FENCE	845	LIN. FT.
	621	SAND BAG DITCH CHECKS	60	BAG
	621	SEDIMENT REMOVAL AND DISPOSAL	255	CU. YD.
	621	ROCK DITCH CHECKS	20	CU. YD.
	621	SEDIMENT BASIN	200	CU. YD.
	621	OBLITERATION OF SEDIMENT BASIN	200	CU. YD.
	635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
	637	MAILBOXES	1	EACH
	637	MAILBOX SUPPORTS (SINGLE)	1	EACH
	718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")	2045	LIN. FT.
	718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")	2000	LIN. FT.
	726	STANDARD SIGN	13.32	SQ. FT.
	729	CHANNEL POST SIGN SUPPORT (TYPE A)	2	EACH
	804	REINFORCING STEEL-ROADWAY (GRADE 60)	1383	LB.
	816	DUMPED RIPRAP (GROUTED)	100	CU. YD.
	SP	SELECT GRANULAR BACKFILL	455	CU. YD.
		STRUCTURES OVER 20'-0" SPAN		
	SP&205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
	636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
	801	UNCLASSIFIED EXCAVATON FOR STRUCTURES-BRIDGE	140	CU. YD.
	802	CLASS S CONCRETE-BRIDGE	291.50	CU. YD.
	802	CLASS S(AE) CONCRETE-BRIDGE	344.20	CU. YD.
	803	CLASS 2 PROTECTIVE SURFACE TREATMENT	1409.5	SQ. YD.
	804	REINFORCING STEEL-BRIDGE (GRADE 60)	31340	LB.
	804	EPOXY COATED REINFORCING STEEL (GRADE 60)	80900	LB.
	805	STEEL PILING (HP 14X73)	288	LIN. FT.
	805	PREBORING	150	LIN. FT.
	SP&807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	320190	LB.
	808	ELASTOMERIC BEARINGS	8950.0	CU. IN.
	809	SILICONE JOINT SEALANT	64	LIN. FT.
	812	BRIDGE NAME PLATE (TYPE C)	1	EACH
	816	FILTER BLANKET	882	SQ. YD.
	816	DUMPED RIPRAP	121	CU. YD.
	816	FOUNDATION PROTECTION RIPRAP	1010	TON
	SP	DRILLED SHAFT (72" DIA.)	88	LIN. FT.
	SP	PERMANENT STEEL CASING (84" DIA.)	61	LIN. FT.
	SP	CROSSHOLE SONIC LOGGING (72" DIA.)	3	EACH
	SP	CORING DRILLED SHAFT	31	LIN. FT.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYOUR
6/13/2016

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.		BR7208	10	73

4 SURVEY CONTROL DETAIL

SURVEY CONTROL COORDINATES
Project Name: BR7208
Date: 1/7/2015
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS :
Projected to Ground Coordinates
Units: U.S. Survey Foot

COORDINATES LISTED BELOW ARE GROUND (Localized) COORDINATES !!!!

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
1	572113.4777	0.0001	668709.1075	0.0001	1383.05	0.002	CTL	PD:AHTD STD. MONUMENT STAMPED PN:1
2	572091.5527	0.0096	669307.8036	0.0083	1371.91	0.002	CTL	PD:AHTD STD. MONUMENT STAMPED PN:2
3	572080.0750	0.0108	669790.6464	0.0091	1374.03	0.002	CTL	PD:AHTD STD. MONUMENT STAMPED PN:3
4	572017.0058	0.0116	670159.0996	0.0099	1377.50	0.002	CTL	PD:AHTD STD. MONUMENT STAMPED PN:4
5	571579.5683	0.0001	670493.7263	0.0001	1393.45	0.001	CTL	PD:AHTD STD. MONUMENT STAMPED PN:5
6	572064.6959	0.0124	670213.4596	0.0109	1397.24	0.001	CTL	PD:AHTD STD. MONUMENT STAMPED PN:6
7	572414.9807	0.0117	670037.8533	0.0102	1395.32	0.001	CTL	PD:AHTD STD. MONUMENT STAMPED PN:7
990	572017.0512	30.0000	670395.9907	30.0000	1398.00	0.000	BM	PD:NGS 1ST ORDER BM E 313

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "Job######", & "PS####". The consultant Professional Surveyor in charge will stamp his/her PS license number on the cap.

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. These monuments will be stamped "Ark. State Hwy Trans. Dept.", "GPS Survey", & "Point No. ######".

SX, SY, SZ – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX:, SY:, and SZ: for additional information. These values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 30 is defined as location by handheld GPS device or scaled from USGS Quadmap.

Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techiniques.

All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

Positional Accuracy:
Horizontal - GPS (1.0 cm± 1PPM) *PN:N/A*
Horizontal - Primary (2.0cm± 20PPM): *PN:1-7*
Horizontal - Secondary (3 cm ± 50PPM): *PN:N/A*
Vertical - NGS 1st Order (±4mm x √dist in km) *PN:E 313*
Vertical - NGS 2nd Order (±6mm x √dist in km) *PN:N/A*
Vertical - NGS 3rd Order (±8mm x √dist in km) *PN:N/A*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0301 - North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.9998829979 has been used to compute the above coordinates. (CAF based off Job #004938)
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM:
A project Elevation Factor of: 0.9999336928 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 1386.31 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 42011.0000 From NGS BM: E 313, B 313, & X 310

NOTE: Elevations based on 3rd order digital levels from 1st order BM E 313. Checked with static GPS from AHTD GPS #720028A whose elevation is based 3WR levels from NGS 1st order BM B 313 and missed by +0.049' from AHTD published elevation. Also checked with RTK from AHTD GPS #720027A whose elevation is based on NGS 1st order BM X 310 and missed elevation by +0.033' from AHTD published elevation.

Basis of Bearing: Grid Bearings based on AHTD GPS points: *(List AHTD GPS points used)*
Convergence Angle is: 01 15 44.85 LEFT at PN: 3
LT: 35-53-07.49 N LG: 094-10-10.37 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

NOTE: Based on PN:1 & PN:5 whose horz. Positions are based on static GPS from CORS sites: ARHR, MOA2, & OKHV

POINT NAME	STATION	NORTHING	EASTING
8000	POB 100+00.00	572108.46426	669218.99449
8001	POE 110+00.00	572078.21703	670218.53611

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				6	ARK.			
				JOB NO.		BR7208	11	73
				4	SURVEY CONTROL DETAIL			

LAND TIE

ALUMINUM STATE MON.
QC. SEC. 16

POB100+00.00

S 63°42'23" W
2,661.94'

S 88°16'00" E
1190.00'

N

STA. 100+00.00
BEGIN JOB BR7208

PN:1103
PD:8" SPIKE
S 92°05'50.30" E
599.10'

POB100+00.00

PN:2
PD:AHTD STD. MONUMENT STAMPED PN:2

SURVEY BASELINE S 91°21'42.22" E
482.98'

℄ CONSTRUCTION
S 88°16'00.10" E
1000.00'

PN:1202
PD:8 SPIKE

PN:1195
PD:8" SPIKE

PN:1198
PD:1198

PN:1196
PD:8 SPIKE

PN:1193
PD:8" SPIKE

PN:3
PD:AHTD STD. MONUMENT STAMPED PN:3

SURVEY BASELINE S 99°42'48.05" E
373.81'

PN:1199
PD:8" SPIKE

PN:1197
PD:1197

PN:7
PD:AHTD STD. MONUMENT STAMPED PN:7

SURVEY BASELINE N 33°22'27.40" W
391.84'

POE110+00.00

PN:1192
PD:8" SPIKE

PN:6
PD:AHTD STD. MONUMENT STAMPED PN:6

PN:4
PD:AHTD STD. MONUMENT STAMPED PN:4

BM
PN:990
PD:NGS 1ST ORDER BM E 313 PID FH1247

PN:1194
PD:8" SPIKE

PN:1191
PD:8" SPIKE

SURVEY BASELINE N 39°09'03.20" W
360.27'

PN:1200
PD:8" SPIKE 8 SPIKE

STA. 110+00.00
END JOB BR7208

PN:1201
PD:8 SPIKE

50 0 50 100
SCALE IN FEET
SCALE RATIO 1" = 100'

STATE OF ARKANSAS
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				6	ARK.			
				JOB NO.		BR7208	12	73

4 PLAN AND PROFILE

SCALE: 1"= 100'

CLEARING AND GRUBBING
STA. 105+00 - STA. 110+00 = 5 STATIONS

APPROACH GUTTER (TYPE A) STA. 105+33.90 TO STA. 105+63.90 - LT. & RT. — CONCRETE = 6.80 CU. YDS. — REINF. STEEL 570 LBS.

APPROACH GUTTER (TYPE SPECIAL 1) STA. 109+16.10 TO STA. 109+46.90 - RT. — CONCRETE = 3.88 CU. YDS. — REINF. STEEL 352 LBS.

APPROACH GUTTER (TYPE SPECIAL 2) STA. 109+16.10 TO STA. 109+46.10 - LT. — CONCRETE = 4.94 CU. YDS. — REINF. STEEL 461 LBS.

STA. 102+67 INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 45 CU. YDS.

24'-0" VEHICULAR GATES
STA. 102+67 ON LT. = 1 EACH

STA. 104+08 CONST.
APPROACH = 80 CU. YDS.
ON LT.

WIRE FENCE (TYPE D-1)
STA. 100+00 - STA. 102+55 LT. = 255 FT.
STA. 102+79 - STA. 104+65 LT. = 208 FT.

STA. 99+55
W10-1
ON LT.

LIMITS OF CONSTRUCTION

STA. 102+43 INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 45 CU. YDS.

STA. 106+00 - STA. 109+03 IN PLACE
303' X 15.8' BRIDGE
2-150' STEEL THRU TRUSS SPANS SUPPORTED BY CONCRETE ABUTMENTS AND PIERS.
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM
STEEL GIRDERS SHALL BE DISMANTLED AND MOVED FOR RE-ERECTION.

STA. 109+75
R1-1
ON RT.
6.25FT

WOOLSEY FARMS, LLC

THE FOCHT FAMILY TRUST

KELLY & LINDA D. GASS

STA. 100+00.00
BEGIN JOB BR7208

STA. 110+00.00
END JOB BR7208

NOTE: THE 100 YEAR FLOODPLAIN LIMITS EXTEND FROM THE BEGINNING TO THE END OF THIS PROJECT.

TRAFFIC CONTROL DEVICES

RII-2
STA. 100+00 - CL.(1 SIGN) = 10 SQ. FT.
HWY. 71 - CL.(1 SIGN) = 10 SQ. FT.

W20-3
STA. 85+00 (1500) - RT.(1 SIGN) = 16 SQ. FT.
STA. 90+00 (1000) - RT.(1 SIGN) = 16 SQ. FT.
STA. 95+00 (500) - RT.(1 SIGN) = 16 SQ. FT.

BARRICADES
STA. 100+00 - 16 LIN. FT.
HWY. 71 - 16 LIN. FT.

REMOVAL AND DISPOSAL OF FENCE		
STA. 100+00 - STA. 102+55	LT. =	255'
STA. 102+79 - STA. 104+21	LT. =	152'
STA. 105+23 - STA. 105+86	LT. =	63'

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

LEGEND
- POWER POLE
- COMBINATION POLE
- POLE W/GUY
- TELEPHONE RISER
- TELEPHONE POLE
- UNDERGROUND CABLE MKR.
- WATER METER
- WATER VALVE

FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A 5 CFS STREAM. THE STREAM BANK ELEVATION IS 1364' BETWEEN STATIONS 106+00 AND 108+80. REFER TO SECTION 110.05(C) OF THE 2014 STANDARD SPECIFICATIONS.

100' TRANSITION

VC=50'
VC=424'

100+00.00 1375.22
101+00.00 1372.57
1372.52
102+50.00 1367.92
103+49.87 1371.23
1367.72
103+50.00 1365.27
1366.64

-2.70%
-1.92%
LT. DITCH GRADE -1.28%
RT. DITCH GRADE -2.69%
4.70%

BR. STA. 105+63.90
BR. STA. 109+16.10
352'-2½" TOTAL LENGTH BRIDGE NO. 04934 CONTINUOUS COMPOSITE W-BEAM UNIT 28'-0" CLEAR ROADWAY TO BE CONSTRUCTED

110+00.00 1398.27

1400 1395 1390 1385 1380 1375 1370 1365 1360 1355

100+00 105+00 110+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYOLO JR.
4/29/2016

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.		BR7208	13	73

4 PLAN AND PROFILE

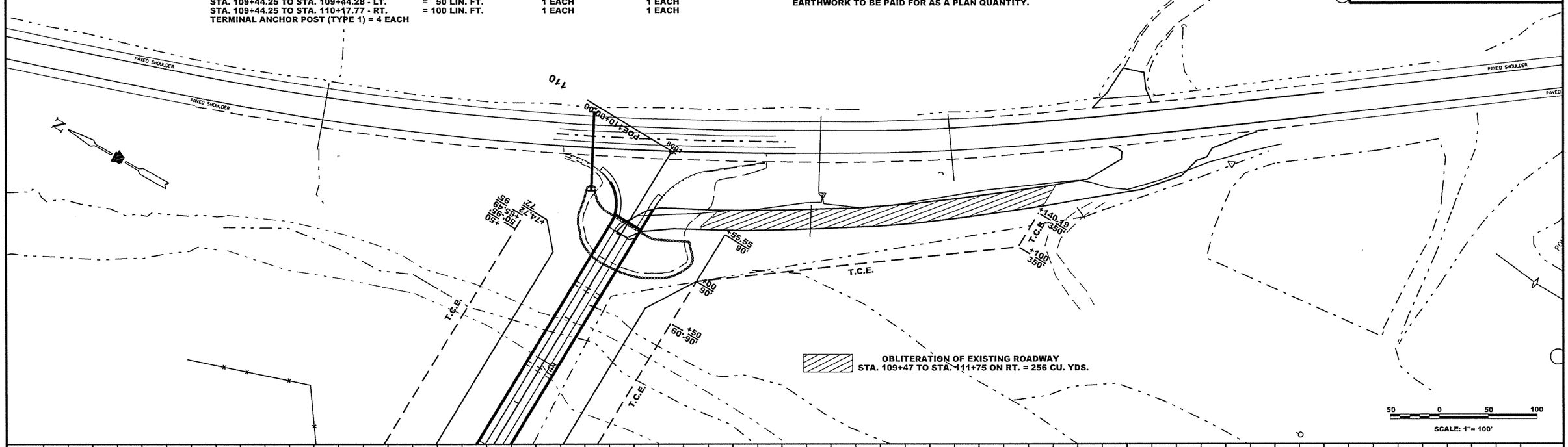
	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TYPE1)	THRIE BEAM GUARDRAIL TERMINAL
STA. 104+94.55 TO STA. 105+44.55 - LT. & RT.	= 100 LIN. FT.	2 EACH	2 EACH
STA. 109+44.25 TO STA. 109+44.28 - LT.	= 50 LIN. FT.	1 EACH	1 EACH
STA. 109+44.25 TO STA. 110+17.77 - RT.	= 100 LIN. FT.	1 EACH	1 EACH

TERMINAL ANCHOR POST (TYPE 1) = 4 EACH

EARTHWORK

UNCLASSIFIED EXCAVATION (MAIN LANES)	907	CU. YDS.
UNCLASSIFIED EXCAVATION (OBLIT. OF RDWY.)	256	CU. YDS.
UNCLASSIFIED EXCAVATION (CHANNEL)	360	CU. YDS.
COMPACTED EMBANKMENT (MAIN LANES)	4347	CU. YDS.
COMPACTED EMBANKMENT (ADDITIONAL)	170	CU. YDS.

EARTHWORK TO BE PAID FOR AS A PLAN QUANTITY.



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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R MAYO JR.
4/27/2016

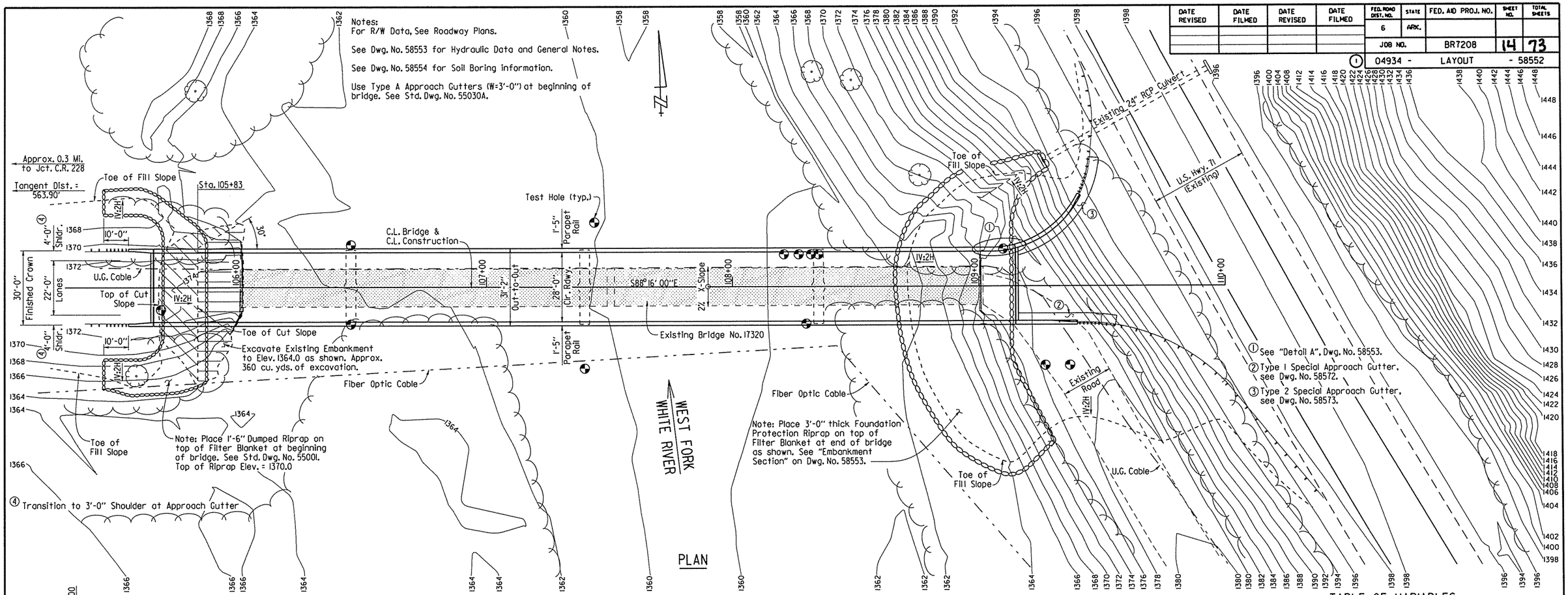
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	14	73
				① 04934 -		LAYOUT	- 58552	

Notes:
For R/W Data, See Roadway Plans.

See Dwg. No. 58553 for Hydraulic Data and General Notes.

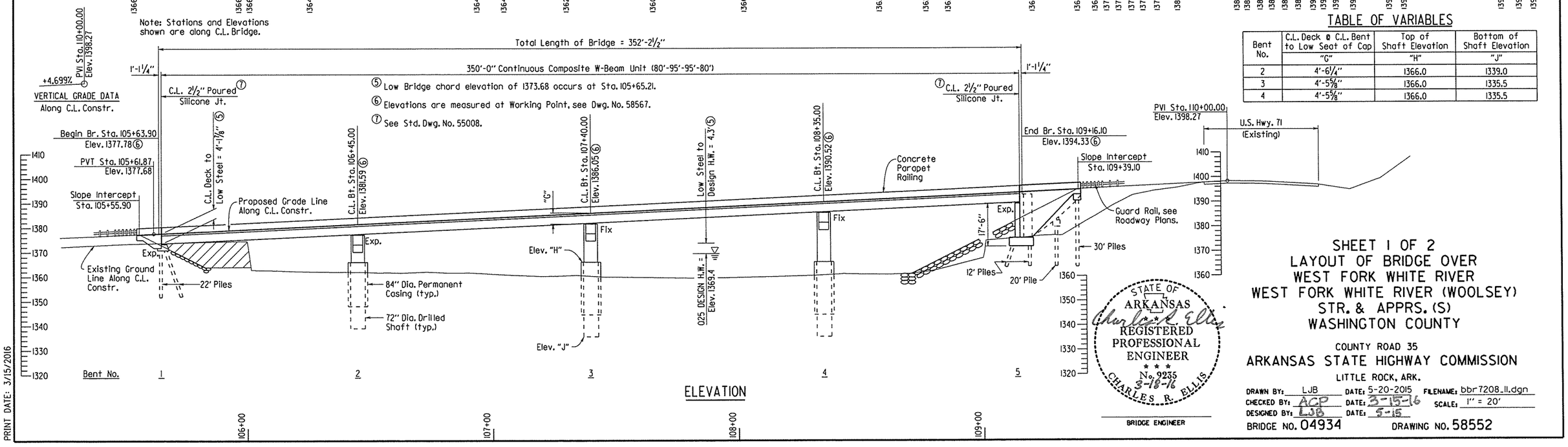
See Dwg. No. 58554 for Soil Boring information.

Use Type A Approach Gutters (W=3'-0") at beginning of bridge. See Std. Dwg. No. 55030A.



PLAN

Note: Stations and Elevations shown are along C.L. Bridge.



ELEVATION

TABLE OF VARIABLES

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap	Top of Shaft Elevation	Bottom of Shaft Elevation
	"G"	"H"	"J"
2	4'-6¼"	1366.0	1339.0
3	4'-5⅝"	1366.0	1335.5
4	4'-5⅝"	1366.0	1335.5

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER WEST FORK WHITE RIVER
WEST FORK WHITE RIVER (WOOLSEY) STR. & APPRS. (S)
WASHINGTON COUNTY

COUNTY ROAD 35

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 5-20-2015 FILENAME: bbr7208_11.dgn
CHECKED BY: ACP DATE: 3-15-16 SCALE: 1" = 20'
DESIGNED BY: LJB DATE: 5-15

BRIDGE NO. 04934 DRAWING NO. 58552

PRINT DATE: 3/15/2016

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.		BR7208	15	73
				(1) 04934 -		LAYOUT		- 58553

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012) with 2013 Interims.

LIVE LOADING: HL93
SEISMIC PERFORMANCE 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 (Gr. 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M 270, 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: All piling shall be HP 14x73 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 130 tons per pile and into the material designated as Hard Limestone on the boring legend. Piling shall be driven after embankment to bottom of cap or footing is in place. At Bent 1, minimum penetration shall be 10' below bottom of cap. At Bent 5, minimum penetration shall be 10' below bottom of footing or below natural ground, whichever is lower.

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. Actual pile lengths to be determined in the field. The Contractor shall use approved steel H-pile driving points on all piles.

PREBORING: Preboring is required for all piling in Bent 5. Prebored holes shall be to a minimum depth of 10' below footing or natural ground, whichever is lower, and shall be a minimum of 3' into material designated as Hard Limestone on the boring legend. The quantities of preboring shown are for bidding purposes only. The actual size and depth of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the bottom of footing. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item "PREBORING".

DRILLED SHAFTS: Drilled shafts in Bents 2 thru 4 shall be constructed in accordance with Special Provision Job No. BR7208 "Drilled Shaft Foundations". Drilled shafts shall be socketed a minimum of 9' into competent rock designated as Hard Limestone or Well Cemented Sandstone on the boring legend. No adjustment to plan tip elevations shall be made without prior approval from the Engineer.

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with Special Provision Job No. BR7208 "Nondestructive Testing of Drilled Shafts".

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.

PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NO.
End Bent 1	58555-58556
Intermediate Bents	58557-58560
End Bent 5	58561-58565
Elastomeric Bearings	58566
350'-0" Continuous W-Beam Unit	58567-58571
Standard General Notes	55006
Standard Details for Steel Bridge Structures	55007
Standard Details for Poured Silicone Joints	55008
Type A Approach Gutter	55030A
Type 1 Special Approach Gutter	58572
Type 2 Special Approach Gutter	58573
Steel Piling	55020

EXISTING BRIDGE: Existing Bridge No. 17320, (L.M. 3.34) is 15.8' wide and 303' long and consists of two 150' steel thru truss spans supported by concrete abutments and a concrete pier.

REMOVAL AND SALVAGE: Existing Bridge No. 17320 shall be removed in accordance with Section 205 and Special Provision Job No. BR7208 "Removal of Historic Truss Spans of Bridge No. 17320". All material from the existing bridge shall become the property of the Contractor except the steel thru truss spans which shall be salvaged for re-erection and shall become the property of the City of West Fork. Payment for this work shall be included in the item "Removal of Existing Bridge Structure". The existing truss spans have a lead and chromate paint coating system.

MAINTENANCE OF TRAFFIC: The existing bridge is closed. The road will remain closed until the new bridge is completed and open to traffic.

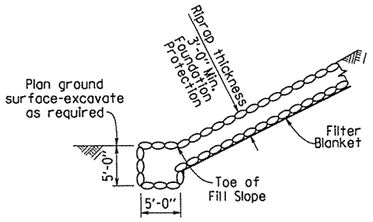
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	14,700	1368.9	1369.7
Base	100	21,100	1370.3	1371.7
Extreme	500	30,500	1372.7	1373.2
Overtopping	30	15,900	1369.1	1370.1

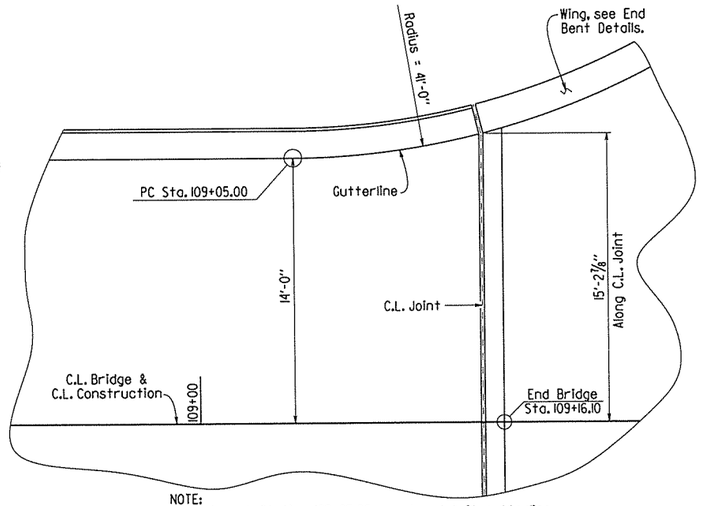
*Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 1371.6
Proposed Low Bridge Chord Elev. = 1373.68

Drainage area = 48.4 square miles
Historical H.W. Elev = 1371.2



EMBANKMENT SECTION
(AT END OF BRIDGE ONLY)
No Scale



NOTE:
Beginning at Station 109+05.00, construct left gutterline on a 41'-0" radius. Beyond Station 109+05.00, all longitudinal lines of the left parapet rail and edge of deck shall be constructed on arcs concentric with the left gutterline.

DETAIL A
1/4" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
6-2-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER
WEST FORK WHITE RIVER
WEST FORK WHITE RIVER (WOOLSEY)
STR. & APPRS. (S)
WASHINGTON COUNTY

COUNTY ROAD 35
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

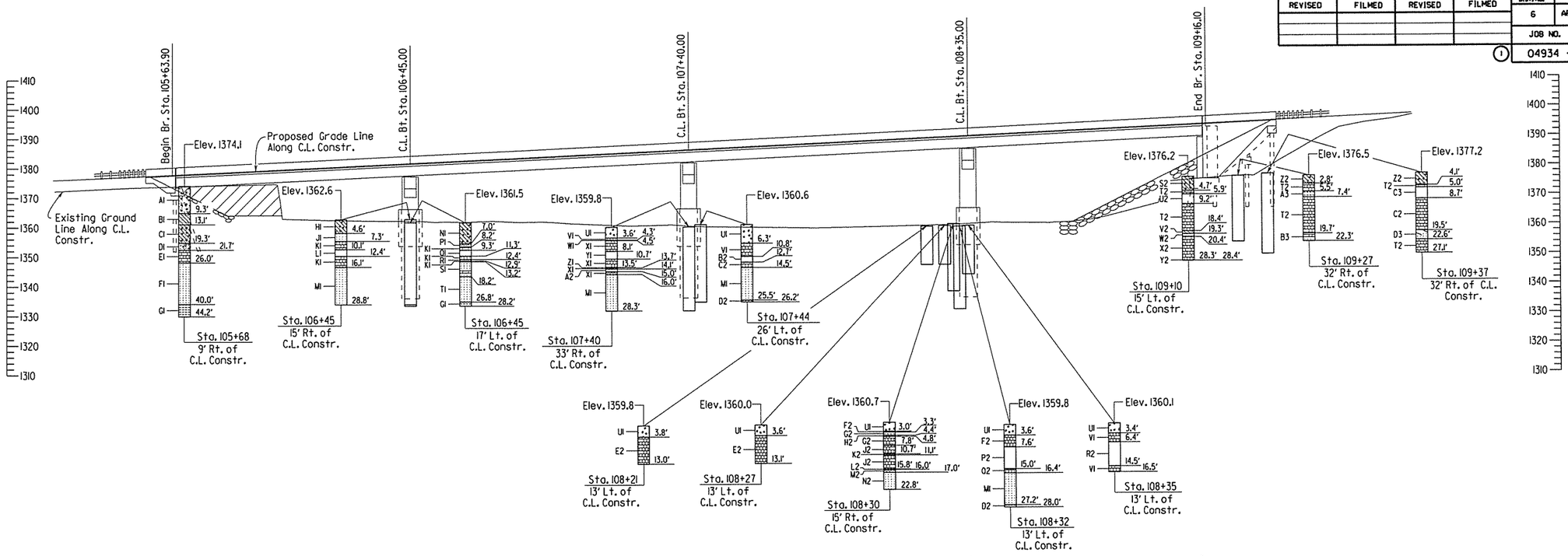
DRAWN BY: LJB DATE: 5-20-2015 FILENAME: bbr7208_ll.dgn
CHECKED BY: ACP DATE: 6-2-16 SCALE: 1" = 20'
DESIGNED BY: LJB DATE: 5-15

BRIDGE NO. 04934 DRAWING NO. 58553

PRINT DATE: 6/2/2016

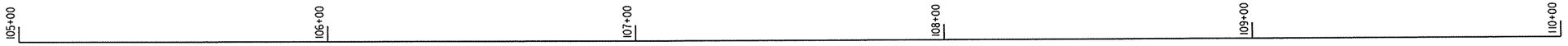
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BR7208	16	73
① 04934 -	SOIL BORINGS		- 58554	



Bent No. 1 2 3 4 5

SOIL BORINGS



"N" VALUES

Sta. 105+68 - 9' Rt. of C.L. Constr.
4.8 - 5.8, N=10
9.8 - 10.8, N=8
14.8 - 15.8, N=18
19.8 - 20.8, N=35

Sta. 106+45 - 17' Lt. of C.L. Constr.
4.7 - 5.7, N=24

Sta. 109+10 - 15' Lt. of C.L. Constr.
4.7 - 4.7, N=30(6)

BORING LEGEND

AI-Moist, Loose, Brown Sand with Gravel (Sandstone Fragments)
BI-Moist, Medium Stiff, Dark Brown Sandy Clay
CI-Wet, Very Stiff, Dark Brown Sandy Clay with Gravel
DI-Wet, Dense, Gravel with Clay and Sand
EI-LIMESTONE - Hard, Slightly Weathered, Occasional Vug, Slight Dip, Gray
FI-SANDSTONE - Calcareous, Well Cemented, Slightly Weathered, Slight Dip, Light Gray
GI-SHALE - Medium Hard, Slightly Weathered, Slight Dip, Dark Gray
HI-Moist, Very Stiff, Brown Clay with Gravel (Sandstone Fragments)
JI-SANDSTONE - Calcareous, Well Cemented, Weathered, Slight Dip, Light Gray
KI-LIMESTONE - Hard, Weathered, Slight Dip, Gray
LI-Soil Filled Cavity (10.1' to 12.4')
MI-SANDSTONE - Calcareous, Well Cemented, Slight Dip, Light Gray
NI-Moist, Very Stiff, Brown Clay with Gravel
PI-SANDSTONE INTERBEDDED WITH LIMESTONE - Well Cemented, Weathered, Slight Dip, Gray
QI-Soil Filled Cavity (9.3' to 11.3')
RI-Soil Filled Cavity (12.4' to 12.9')
SI-SANDSTONE WITH OCCASIONAL LIMESTONE LAYERS - Calcareous, Well Cemented, Slight Dip, Light Gray
TI-SANDSTONE - Calcareous, Well Cemented, Slight Dip, Light Gray
UI-Gravel
VI-LIMESTONE
WI-Soil Filled Cavity (4.3' to 4.5')
XI-LIMESTONE - Hard, Slightly Weathered, Slight Dip, Gray
YI-Soil Filled Void (8.1' to 10.7')
ZI-Soil Filled Void (13.5' to 13.7')
A2-Soil Filled Void (14.1' to 15.0')
B2-Soil Filled Cavity (10.8' to 12.7')
C2-LIMESTONE - Hard, Slight Dip, Gray
D2-SHALE - Medium Hard, Slight Dip, Dark Gray
E2-LIMESTONE - Hard
F2-LIMESTONE - Fractured
G2-LIMESTONE WITH FREQUENT SHALE SEAMS AND LAYERS - Hard, Slightly Weathered, Occasional Fractures, Occasional Slickensides, Slight Dip, Gray
H2-Soil Filled Cavity (4.4' to 4.8')
J2-LIMESTONE - Hard, Slightly Weathered, Occasional Fractures, Slight Dip, Gray
K2-Soil Filled Cavity (10.7' to 11.1')
L2-Soil Filled Cavity (15.8' to 16.0')
M2-LIMESTONE - Hard, Slightly Weathered, Slight Dip, Gray
N2-SANDSTONE - Well Cemented, Slight Dip, Light Gray
P2-Soil Filled Cavity (7.6' to 15.0')
Q2-LIMESTONE - Hard, Slightly Weathered, Occasional Fractures, Slight Dip, Dark Gray
R2-Soil Filled Cavity (6.4' to 14.5')
S2-Moist, Very Hard, Brown Clay with Gravel (Sandstone Fragments)
T2-LIMESTONE - Hard, Slightly Weathered, Gray
U2-Soil Filled Cavity (5.9' to 9.2')
V2-Claystone - Weathered, Soft, Dark Gray
W2-SANDSTONE - Calcareous, Weathered to Slightly Weathered, Cemented, Gray
X2-LIMESTONE WITH OCCASIONAL SHALE SEAMS- Hard, Gray
Y2-SHALE - Slightly Weathered, Medium Hard, Dark Gray
Z2-Clay with Gravel
A3-SHALE WITH OCCASIONAL LIMESTONE LAYERS - Soft to Medium Hard, Highly Weathered to Weathered, Dark Gray
B3-SANDSTONE WITH OCCASIONAL CLAY LAYERS - Cemented, Slightly Weathered, Gray
C3-Soil Filled Cavity (5.0' to 8.7')
D3-SANDSTONE WITH OCCASIONAL CLAY LAYERS - Calcareous, Cemented, Weathered, Gray

STATE OF ARKANSAS
Charles R. Ellis
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3-18-16
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SOIL BORINGS
WEST FORK WHITE RIVER
WASHINGTON COUNTY

COUNTY ROAD 35

ARKANSAS STATE HIGHWAY COMMISSION

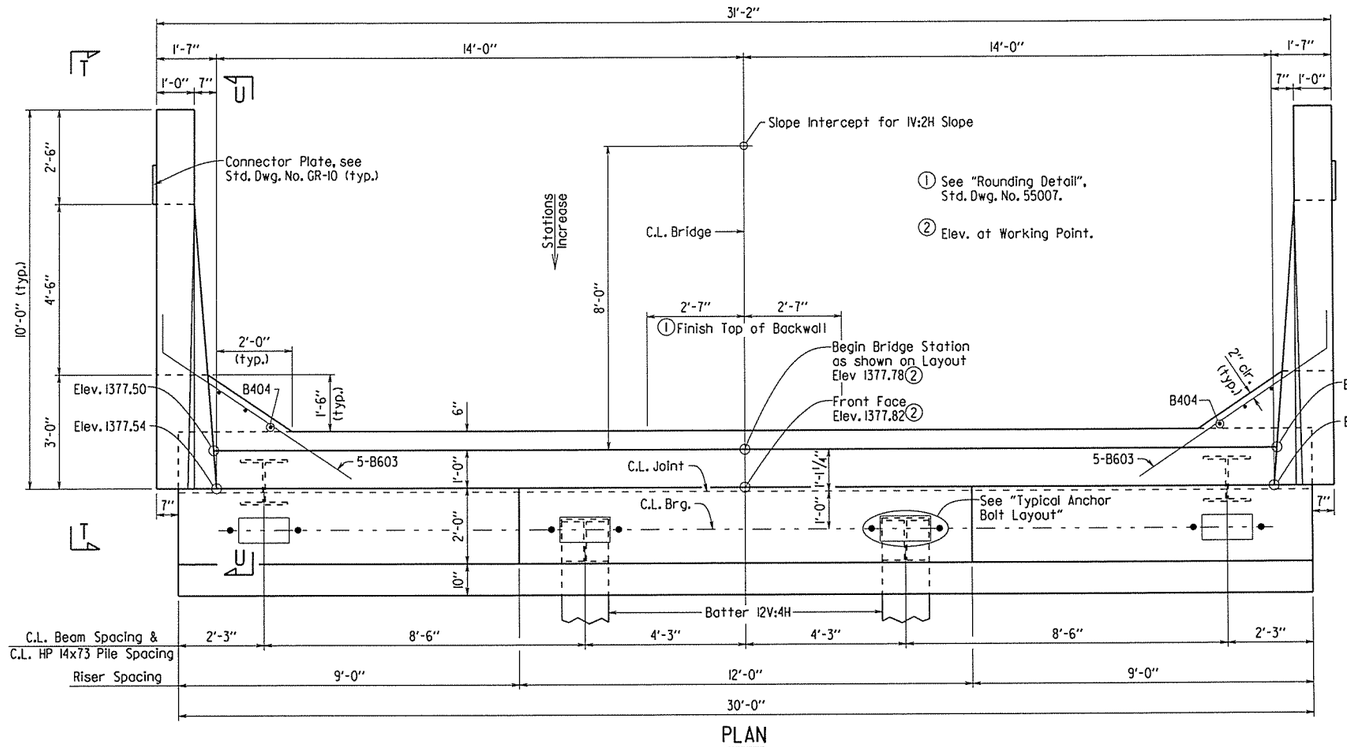
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 5-20-2015 FILENAME: bbr7208_11.dgn
CHECKED BY: ACP DATE: 3-15-16 SCALE: 1" = 20'
DESIGNED BY: LJB DATE: 5-15

BRIDGE NO. 04934 DRAWING NO. 58554

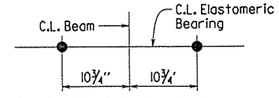
PRINT DATE: 3/15/2016

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.		BR7208	17	73
				① 04934 -		END BENT	- 58555	



PLAN

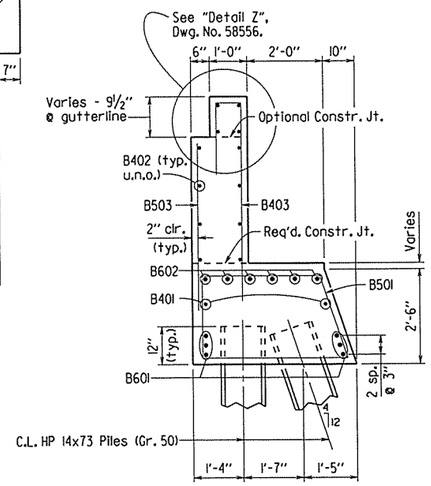
½" = 1'-0"



For Details of Elastomeric Bearings, see Dwg. No. 58566.

TYPICAL ANCHOR BOLT LAYOUT

No Scale



SECTION A-A

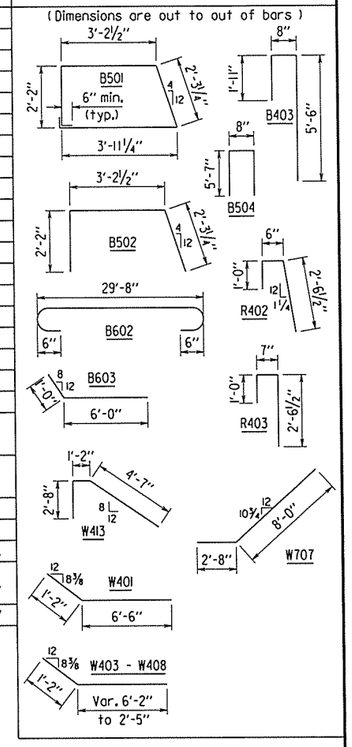
½" = 1'-0"

BAR LIST

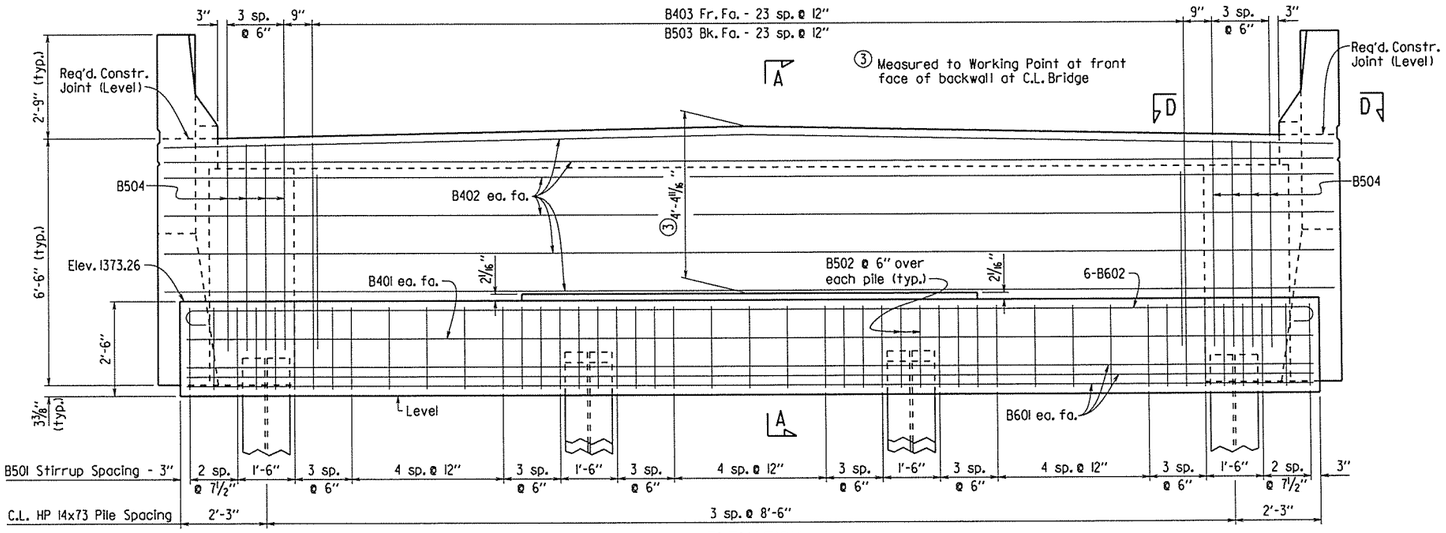
Mark	No. Req'd.	Length	Pin Dia.
B401	2	29'-8"	Str.
B402	12	30'-10"	Str.
B403	24	7'-11"	2"
B404	6	5'-4"	Str.
B501	39	12'-1"	2½"
B502	8	7'-6"	2½"
B503	24	4'-8"	Str.
B504	8	11'-8"	2½"
B601	6	29'-8"	Str.
B602	6	31'-0"	4½"
B603	10	7'-0"	4½"
R401	12	9'-8"	Str.
R402	8	4'-0"	2"
R403	8	4'-0"	2"
R601	16	4'-5"	Str.
R602	6	5'-0"	Str.
W401	6	7'-8"	2"
W402	6	8'-9"	Str.
W403 - W407	2 ea.	Var. 7'-4" to 3'-7"	2"
W408 - W412	2 ea.	Var. 8'-6" to 4'-9"	Str.
W413	6	8'-4"	2"
W701	12	9'-8"	Str.
W702 - W706	4 ea.	Var. 7'-1" to 3'-8"	Str.
W707	4	10'-8"	5¼"

Bending Diagrams

(Dimensions are out to out of bars)



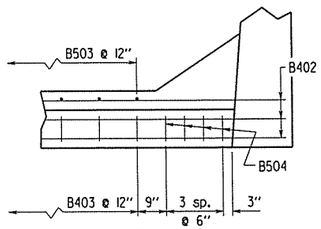
NOTE: The Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Std. Dwg. No. 55008, "Expansion Device Installation at End Bents", for additional information.



ELEVATION

Looking Back

½" = 1'-0"



VIEW D-D

½" = 1'-0"

Notes:
Class 2 Protective Surface Treatment shall be applied to the top of the backwall and to the roadway face and top of the wing rails.

Structural steel in end bent shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

For "View T-T", "View U-U", and Details of wing and rail, see Dwg. No. 58556.

See Std. Dwg. No. 55006 for additional notes.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
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3-18-16
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SHEET 1 OF 2
DETAILS OF BENT 1

ROUTE SEC.

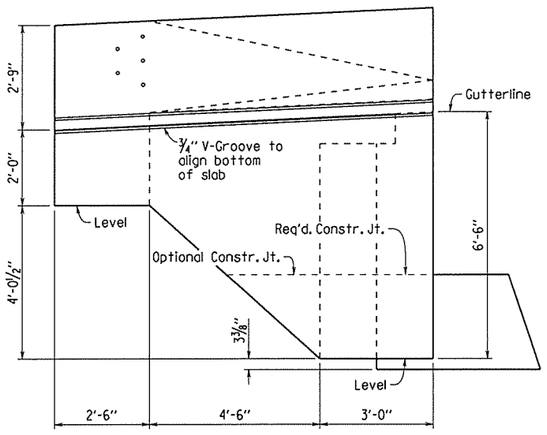
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 9-8-2015 FILENAME: bbr7208_b1.dgn
CHECKED BY: JJP DATE: 3-15-16 SCALE: as noted
DESIGNED BY: LJB DATE: 12-2015

BRIDGE NO. 04934 DRAWING NO. 58555

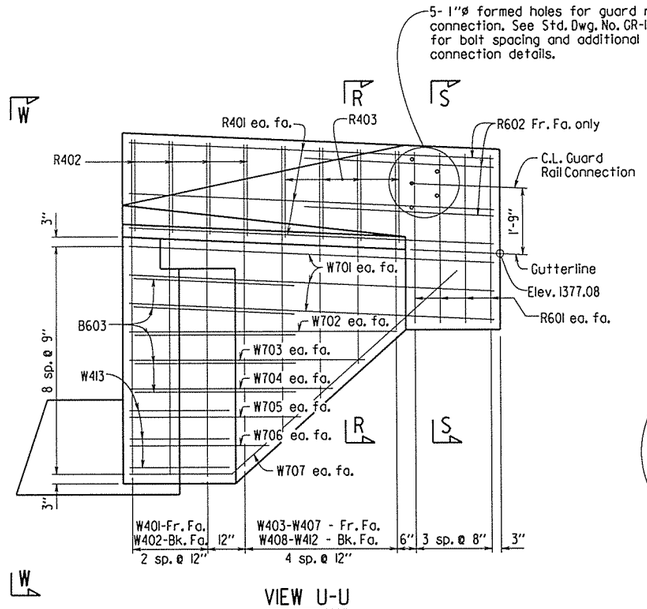
PRINT DATE: 3/15/2016

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.		BR7208	18	73
				(1) 04934 -		END BENT	- 58556	



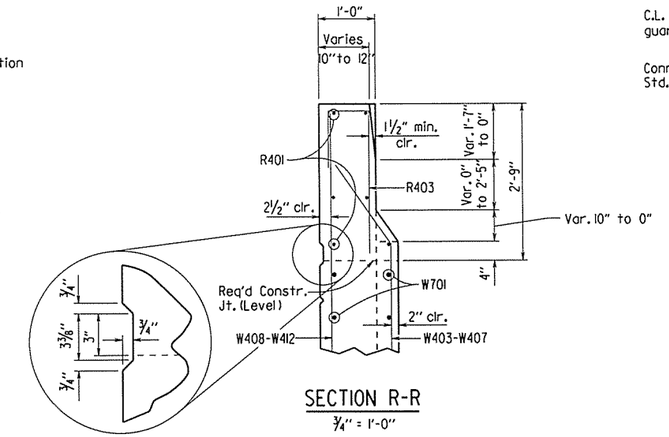
VIEW T-T

½" = 1'-0"



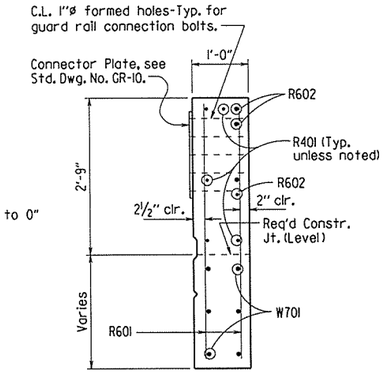
VIEW U-U

½" = 1'-0"



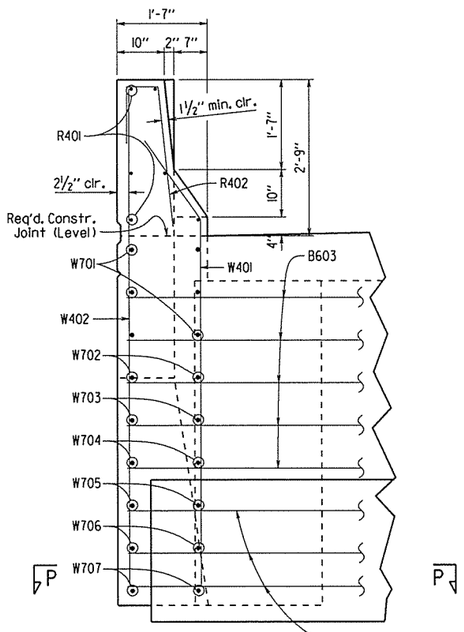
SECTION R-R

¾" = 1'-0"



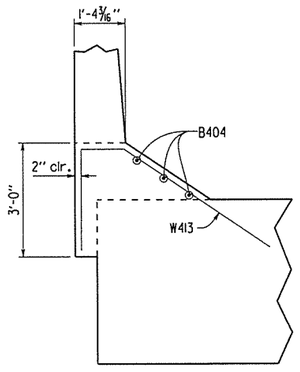
SECTION S-S

¾" = 1'-0"



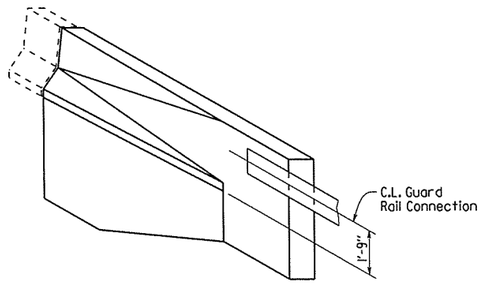
VIEW W-W

¾" = 1'-0"



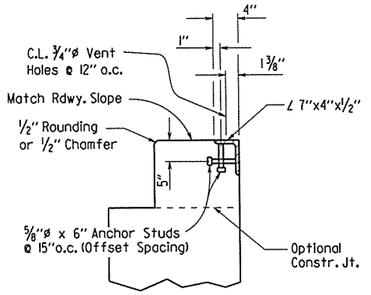
SECTION P-P

½" = 1'-0"



THREE DIMENSIONAL VIEW OF RAIL

No Scale



For additional joint details see Std. Dwg. No. 55008.

Concrete shall be hand packed under the joint armor in the backwall.

DETAIL Z

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

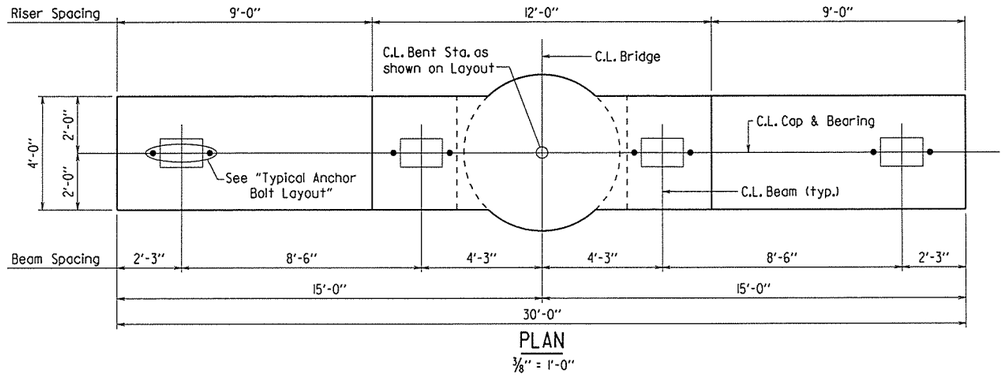
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 9-8-2015 FILENAME: bbr7208_bl.dgn
CHECKED BY: JHP DATE: 3-15-16 SCALE: as noted
DESIGNED BY: LJB DATE: 12-2015

BRIDGE NO. 04934 DRAWING NO. 58556

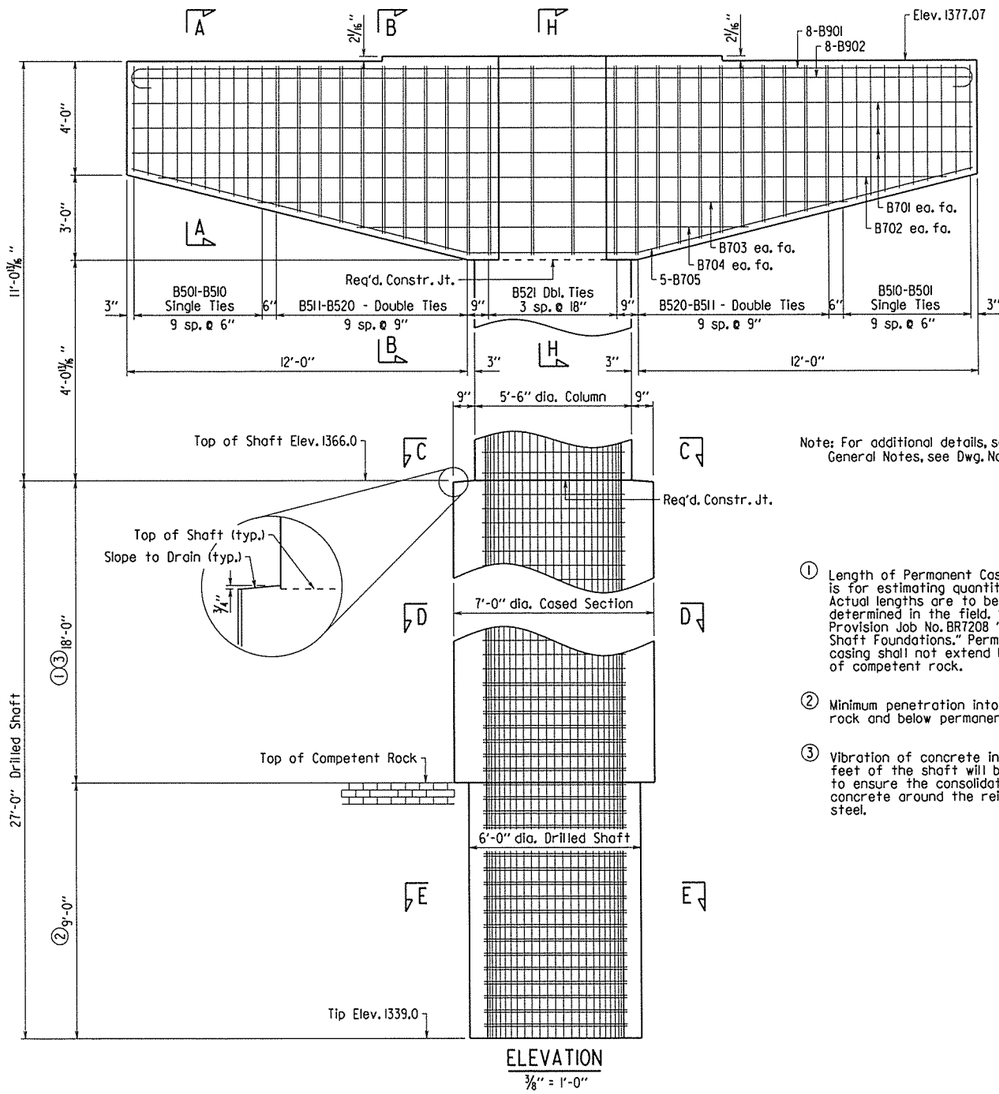
PRINT DATE: 3/15/2016

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.		BR7208	19	73
				①	04934 -	BENT 2	- 58557	



PLAN

3/8" = 1'-0"



ELEVATION

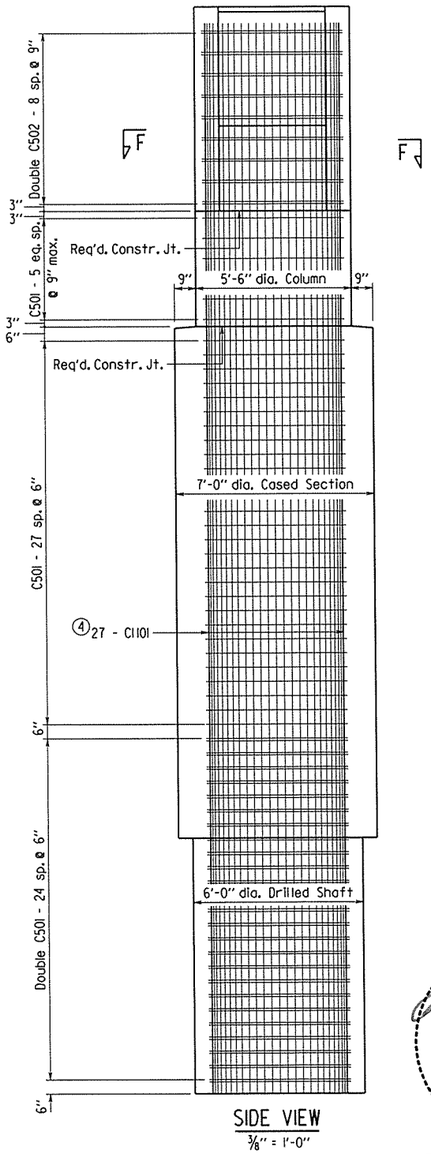
3/8" = 1'-0"

Note: For additional details, sections and General Notes, see Dwg. No. 58560.

① Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. BR7208 "Drilled Shaft Foundations." Permanent casing shall not extend below top of competent rock.

② Minimum penetration into competent rock and below permanent casing.

③ Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel.



SIDE VIEW

3/8" = 1'-0"

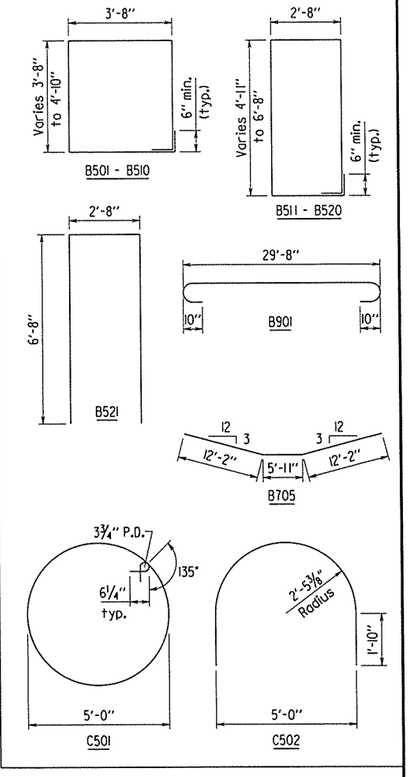
BAR LIST

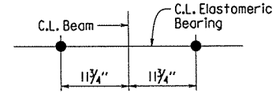
Mark	No. Req'd.	Length	Pin Dia.
B501 - B510	2 ea.	Var. 15'-2" to 17'-6"	2½"
B511 - B520	4 ea.	Var. 15'-8" to 19'-2"	2½"
B521	8	15'-10"	Str.
C501	6	17'-1"	3¾"
	④ 78		
C502	18	11'-6"	-
B701	6	29'-8"	Str.
B702	2	27'-10"	Str.
B703	2	20'-10"	Str.
B704	2	13'-10"	Str.
B705	5	30'-3"	5¼"
B901	8	32'-2"	9"
B902	8	29'-8"	Str.
④C1101	27	37'-6"	Str.

④ Non-pay item - Subsidiary to SP Job No. BR7208 "Drilled Shaft Foundations".

Bending Diagrams

(Dimensions are out to out of bars)





For Details of Elastomeric Bearings, see Dwg. No. 58566.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT 2

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 10-28-15 FILENAME: bbr7208_b2.dgn

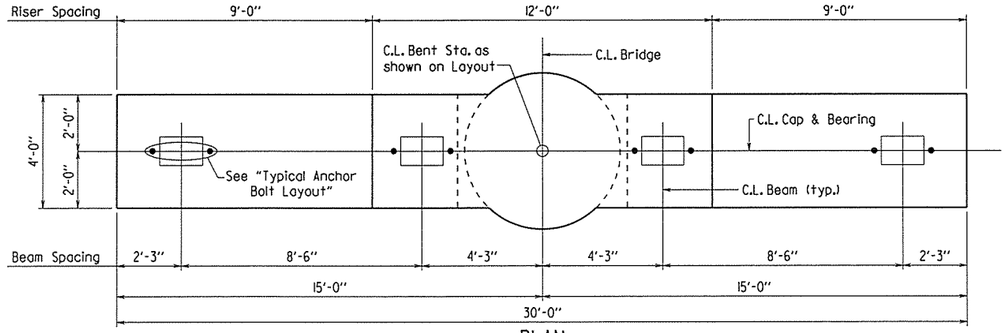
CHECKED BY: ACP DATE: 3-15-16 SCALE: as noted

DESIGNED BY: LJB DATE: 10-15

BRIDGE NO. 04934 DRAWING NO. 58557

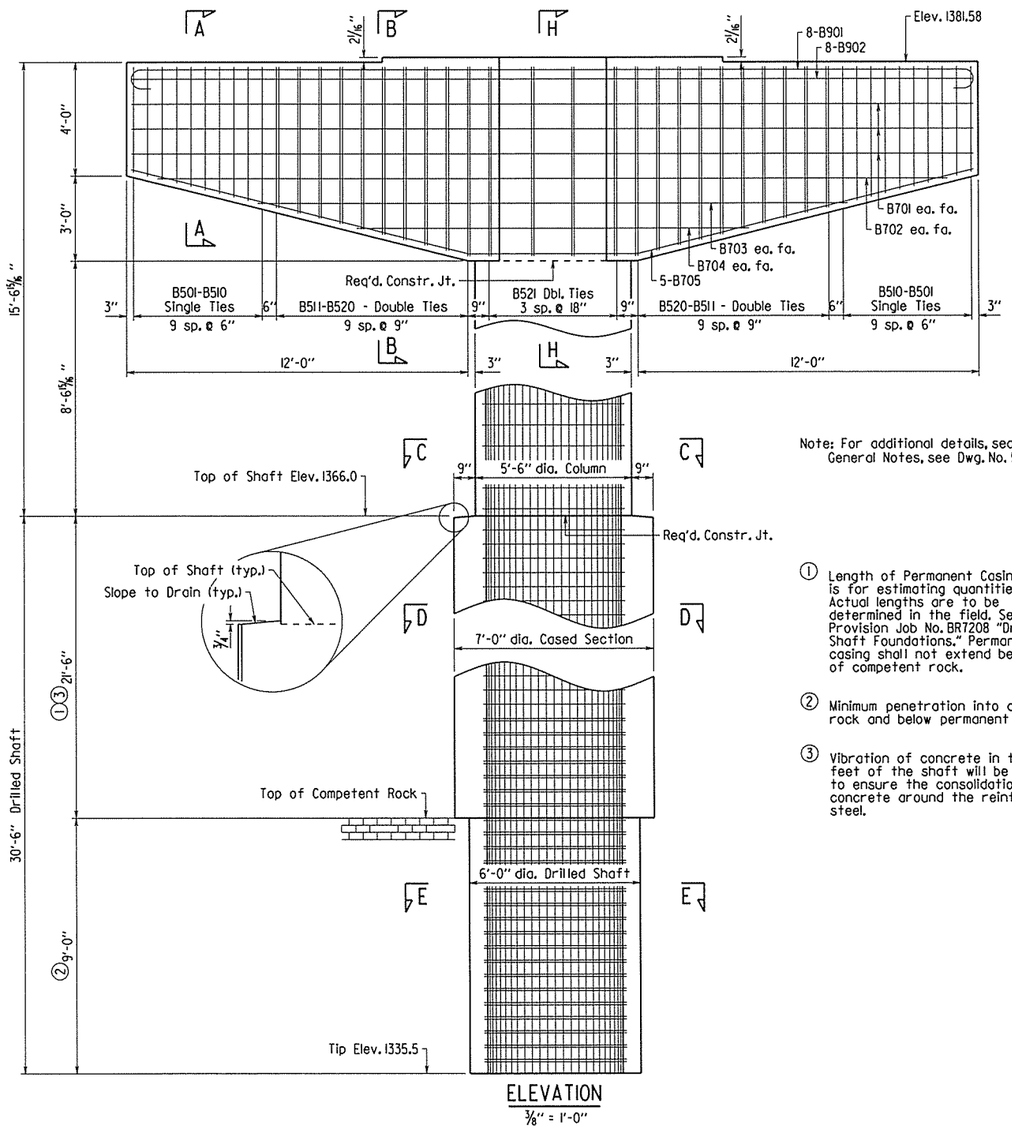
PRINT DATE: 3/15/2016

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.		BR7208	20	73
				(1) 04934 -		BENT 3	- 58558	



PLAN

3/8" = 1'-0"



ELEVATION

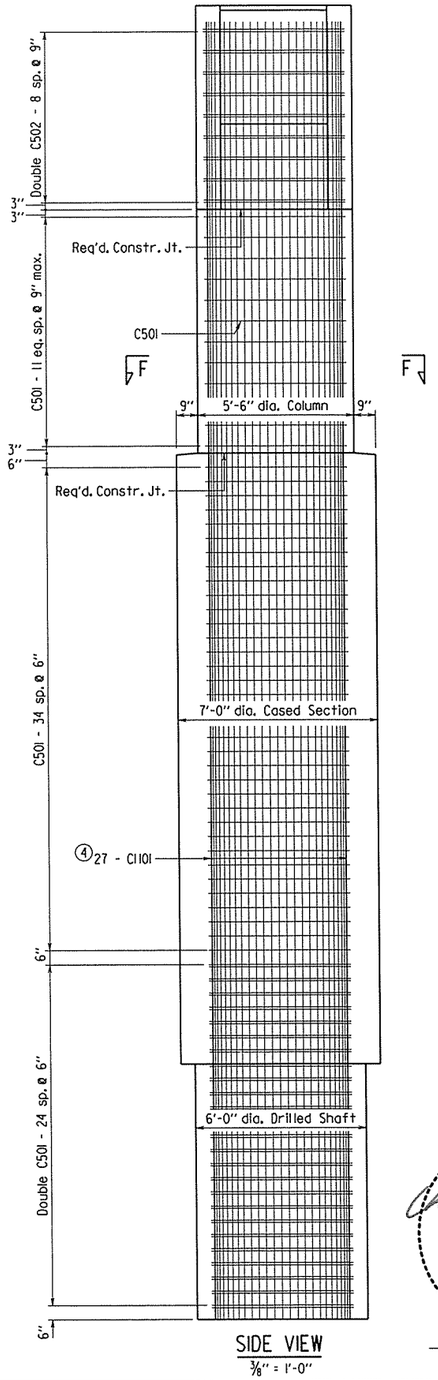
3/8" = 1'-0"

Note: For additional details, sections and General Notes, see Dwg. No. 58560.

(1) Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. BR7208 "Drilled Shaft Foundations." Permanent casing shall not extend below top of competent rock.

(2) Minimum penetration into competent rock and below permanent casing.

(3) Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel.



SIDE VIEW

3/8" = 1'-0"

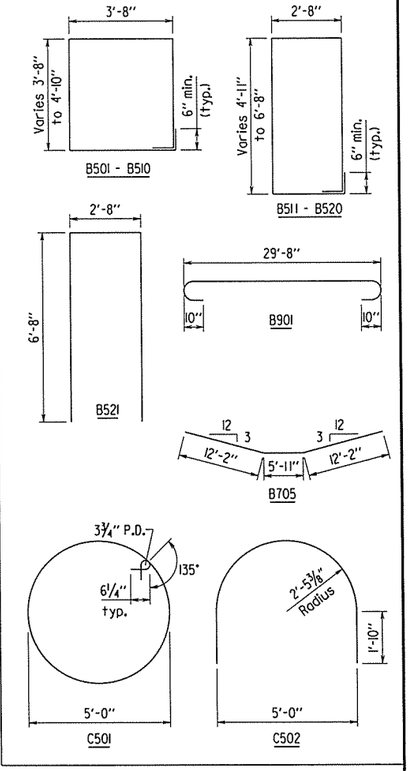
BAR LIST

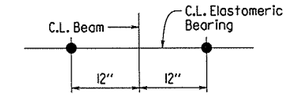
Mark	No. Req'd.	Length	Pin Dia.
B501 - B510	2 ea.	15'-2" - 17'-6"	2 1/2"
B511 - B520	4 ea.	Var. 15'-8" to 19'-2"	2 1/2"
B521	8	15'-10"	Str.
C501	12	17'-1"	3 3/4"
	(4) 85		
C502	18	11'-6"	-
B701	6	29'-8"	Str.
B702	2	27'-10"	Str.
B703	2	20'-10"	Str.
B704	2	13'-10"	Str.
B705	5	30'-3"	5 1/4"
B901	8	32'-2"	9"
B902	8	29'-8"	Str.
(4) C1101	27	45'-6"	Str.

(4) Non-pay item - Subsidiary to SP Job No. BR7208 "Drilled Shaft Foundations".

Bending Diagrams

(Dimensions are out to out of bars)





For Details of Elastomeric Bearings, see Dwg. No. 58566.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-16-16
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 10-28-15 FILENAME: bbr7208_b2.dgn

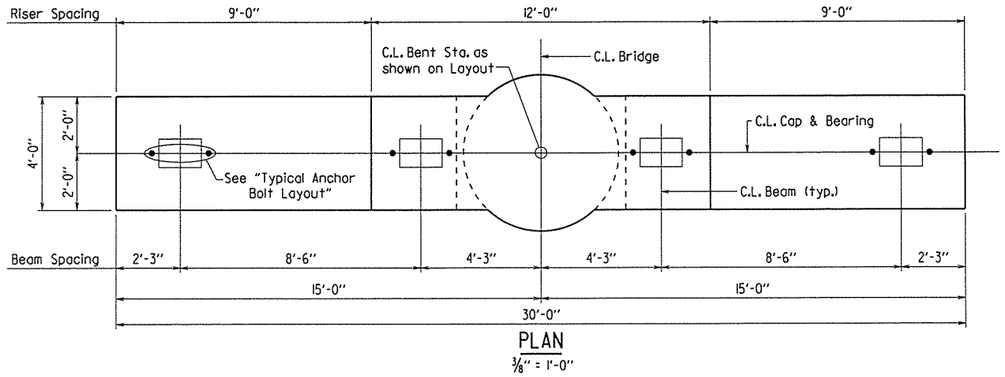
CHECKED BY: ACP DATE: 3-17-16 SCALE: as noted

DESIGNED BY: L.J.B DATE: 10-15

BRIDGE NO. 04934 DRAWING NO. 58558

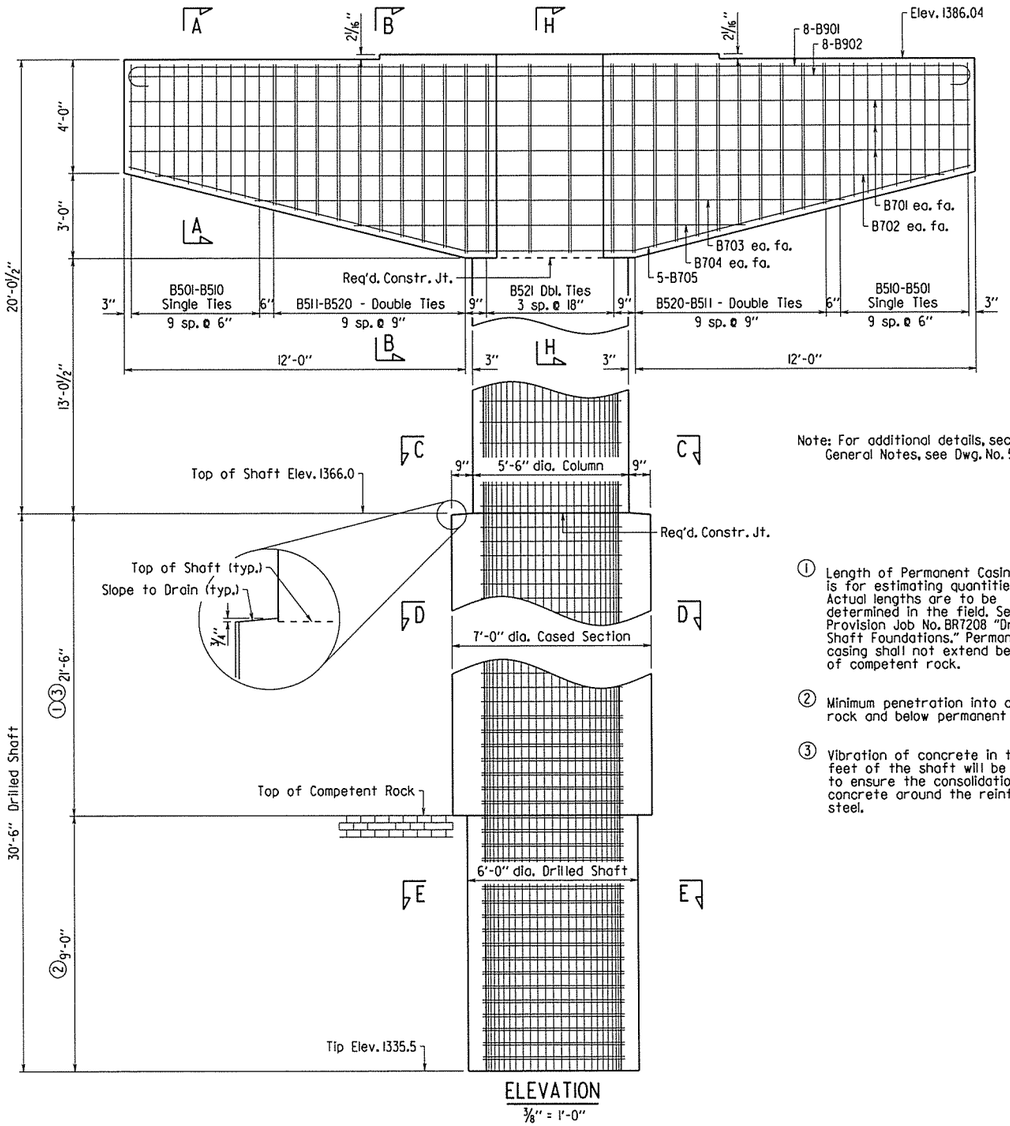
PRINT DATE: 3/15/2016

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.		BR7208	21	73
				① 04934 -		BENT 4	- 58559	



PLAN

3/8" = 1'-0"



ELEVATION

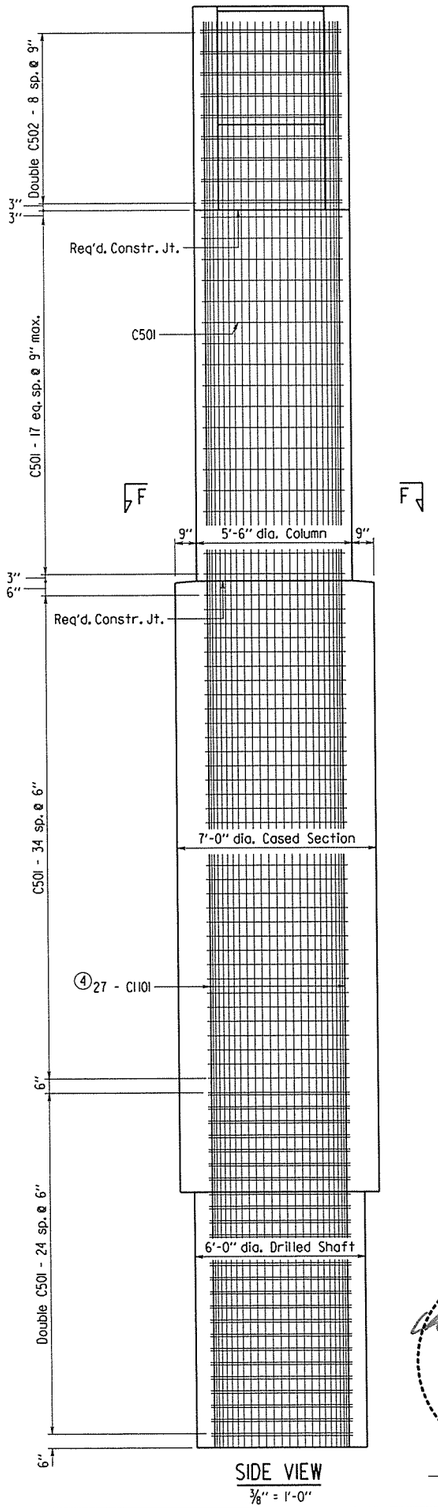
3/8" = 1'-0"

Note: For additional details, sections and General Notes, see Dwg. No. 58560.

① Length of Permanent Casing shown is for estimating quantities only. Actual lengths are to be determined in the field. See Special Provision Job No. BR7208 "Drilled Shaft Foundations." Permanent casing shall not extend below top of competent rock.

② Minimum penetration into competent rock and below permanent casing.

③ Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel.



SIDE VIEW

3/8" = 1'-0"

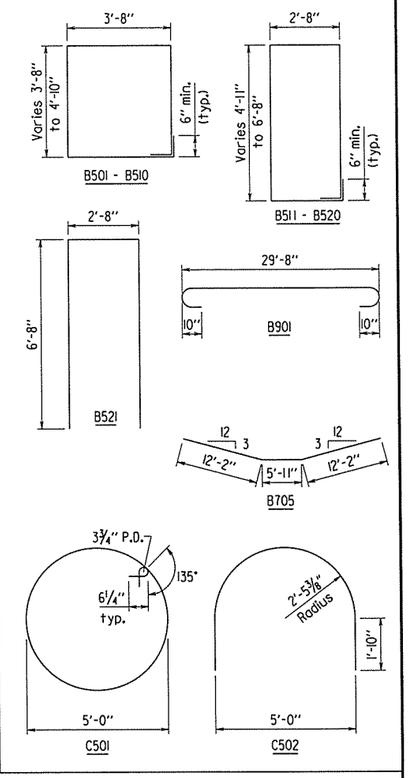
BAR LIST

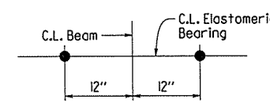
Mark	No. Req'd.	Length	Pin Dia.
B501 - B510	2 ea.	15'-2" - 17'-6"	2 1/2"
B511 - B520	4 ea.	Var. 15'-8" to 19'-2"	2 1/2"
B521	8	15'-10"	Str.
C501	18	17'-1"	3 3/4"
	④ 85		
C502	18	11'-6"	-
B701	6	29'-8"	Str.
B702	2	27'-10"	Str.
B703	2	20'-10"	Str.
B704	2	13'-10"	Str.
B705	5	30'-3"	5 1/4"
B901	8	32'-2"	9"
B902	8	29'-8"	Str.
④ C1101	27	50'-0"	Str.

④ Non-pay item - Subsidiary to SP Job No. BR7208 "Drilled Shaft Foundations".

Bending Diagrams

(Dimensions are out to out of bars)





For Details of Elastomeric Bearings, see Dwg. No. 58566.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

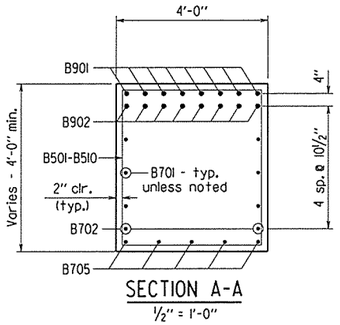
DRAWN BY: LJB DATE: 10-28-15
CHECKED BY: ACP DATE: 3-15-16
DESIGNED BY: LJB DATE: 10-15

FILENAME: bbr7208_b2.dgn
SCALE: as noted

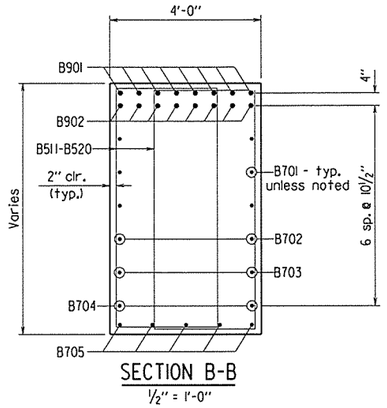
BRIDGE NO. 04934 DRAWING NO. 58559

PRINT DATE: 3/15/2016

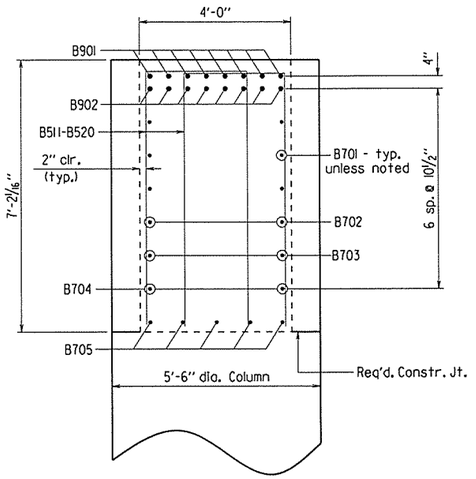
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	22	73
				①	04934 - COMMON INT. BENT - 58560			



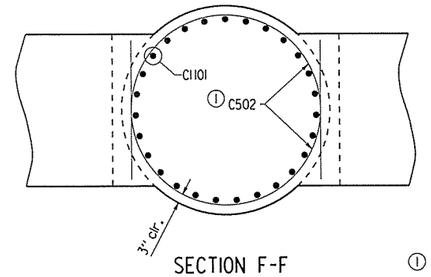
SECTION A-A
½" = 1'-0"



SECTION B-B
½" = 1'-0"

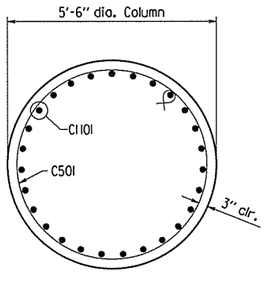


SECTION H-H
½" = 1'-0"

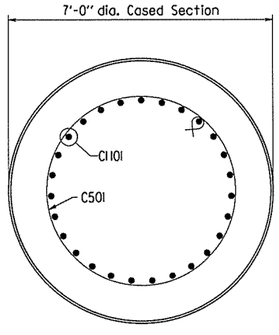


SECTION F-F
½" = 1'-0"

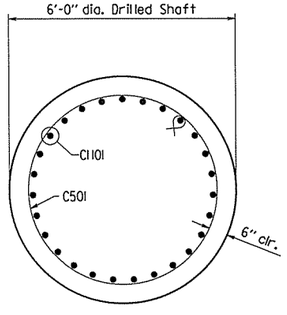
① Legs of Double C502 shall be oriented in opposite directions as shown.



SECTION C-C
½" = 1'-0"



SECTION D-D
½" = 1'-0"



SECTION E-E
½" = 1'-0"

GENERAL NOTES

Concrete and Reinforcing Steel placed in the the Drilled Shaft, and at other locations shown in the plans, will not be paid for directly but shall be considered subsidiary to the unit price bid for "Drilled Shaft (72" Dia.)". No additional payment shall be made for spacers, additional splices, or bracing needed for assembly, shipping, handling, or erecting. Drilled shafts shall conform to Special Provision Job BR7208 "Drilled Shaft Foundations" and shall be paid for at the unit price bid for "Drilled Shaft (72" Dia.)".

See Std. Dwg. No. 55006 for additional notes.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS
BRIDGE ENGINEER

COMMON DETAILS FOR BENTS 2, 3 AND 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

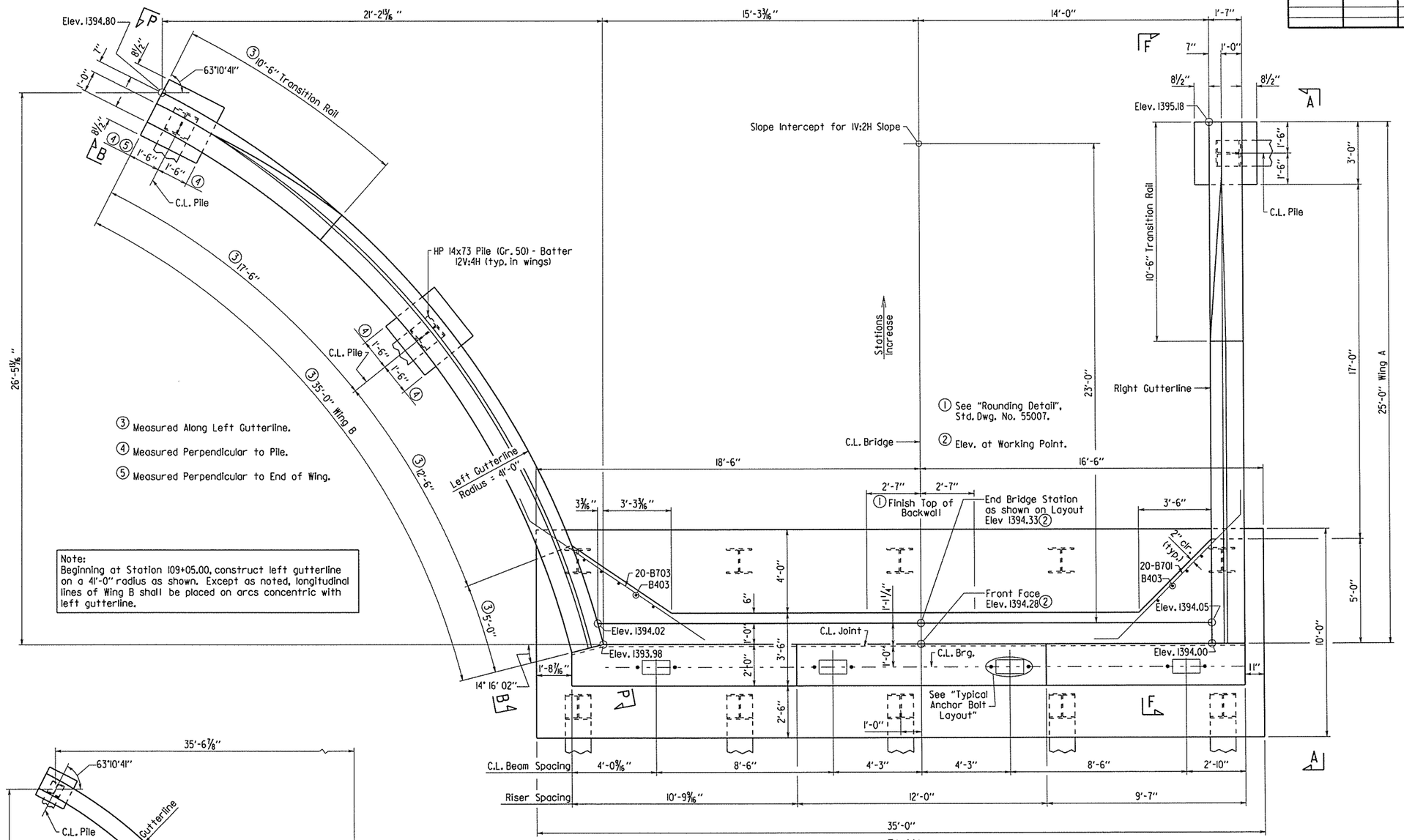
DRAWN BY: LJB DATE: 10-28-15
CHECKED BY: ACP DATE: 3-15-16
DESIGNED BY: LJB DATE: 10-15

FILENAME: bbr7208_b2.dgn
SCALE: as noted

BRIDGE NO. 04934 DRAWING NO. 58560

PRINT DATE: 3/15/2016

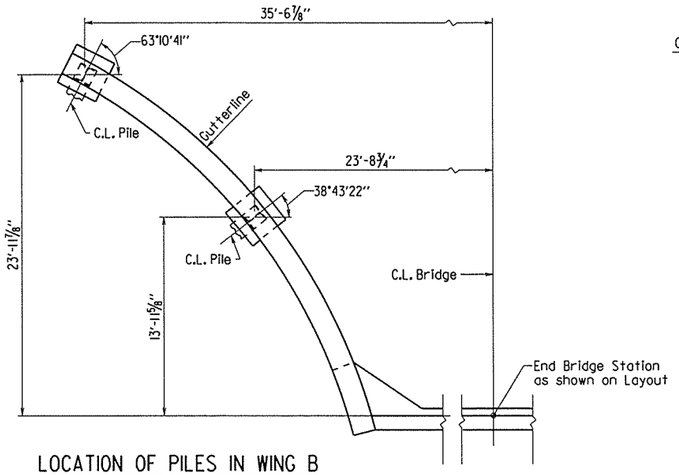
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	23	73
				(1) 04934 -		END BENT		- 58561



Note:
Beginning at Station 109+05.00, construct left gutterline on a 41'-0" radius as shown. Except as noted, longitudinal lines of Wing B shall be placed on arcs concentric with left gutterline.

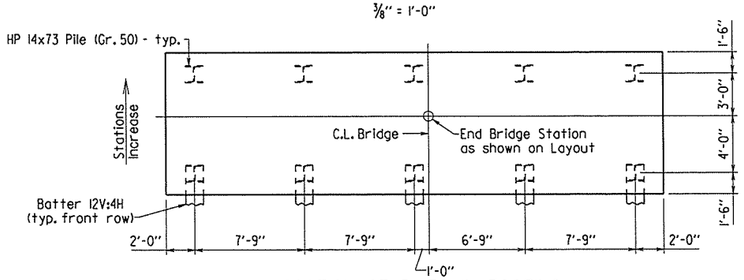
PLAN

3/8" = 1'-0"



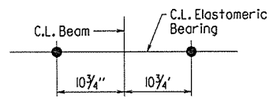
LOCATION OF PILES IN WING B

3/4" = 1'-0"



LOCATION OF PILES IN FOOTING

3/4" = 1'-0"



For Details of Elastomeric Bearings, see Dwg. No. 58566.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

Notes:
Class 2 Protective Surface Treatment shall be applied to the top of the backwall and to the roadway face and top of the wing rails.

Structural steel in end bent shall be AASHTO M 270, Grade 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

For Elevation views, see Dwg. No. 58562.

For "View A-A", "View F-F", and additional details of Wing A, see Dwg. No. 58563.

For "View B-B", "View P-P", and additional details of Wing B, see Dwg. No. 58564.

See Std. Dwg. No. 55006 for additional notes.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF BENT 5

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 12-15-2015 FILENAME: bbr7208_b5.dgn
CHECKED BY: JNP DATE: 3-15-16 SCALE: as noted
DESIGNED BY: LJB DATE: 12-2015

BRIDGE NO. 04934 DRAWING NO. 58561

PRINT DATE: 3/15/2016

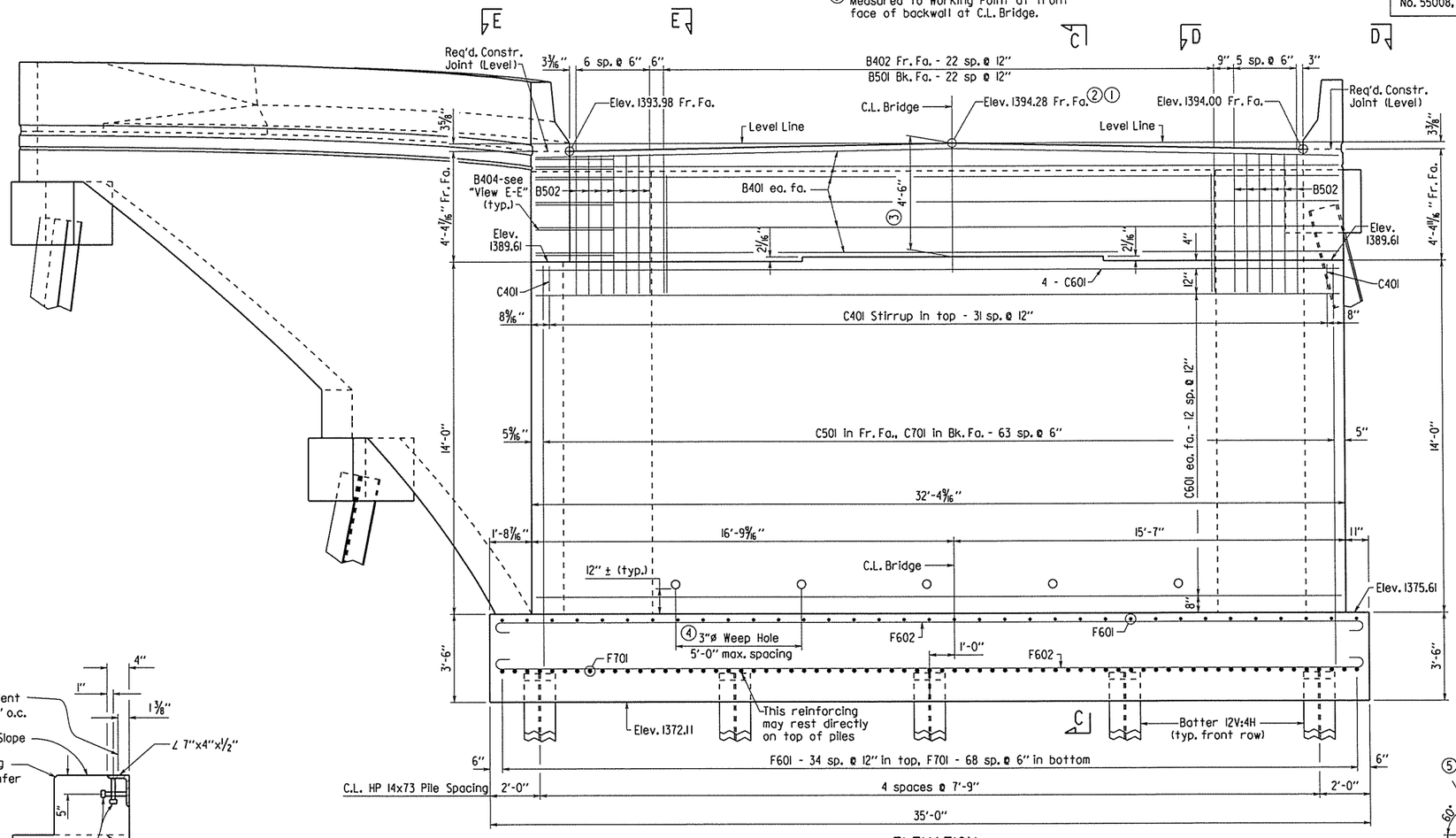
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	24	73
				①	04934 -	END BENT		- 58562

① See "Rounding Detail", Std. Dwg. No. 55007.

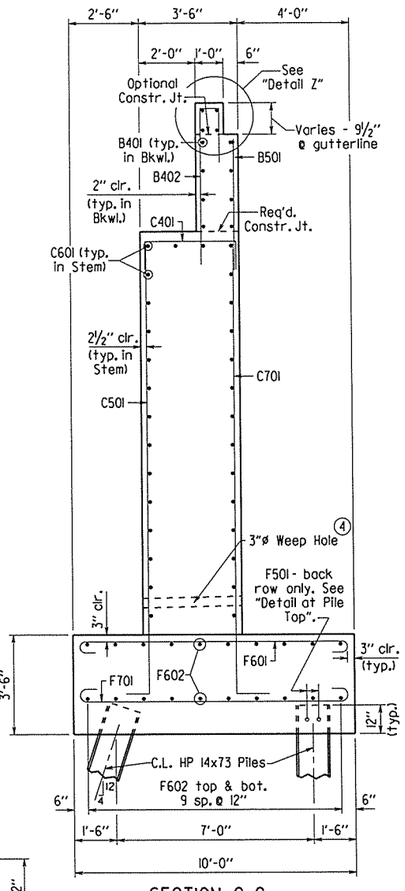
② Elev. at Working Point.

③ Measured to Working Point at front face of backwall at C.L. Bridge.

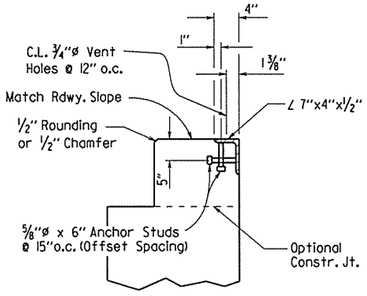
NOTE: The Backwall above the required construction joint shall not be poured until the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used, See Std. Dwg. No. 55008, "Expansion Device Installation at End Bents", for additional information.



ELEVATION
Looking Ahead
3/8" = 1'-0"



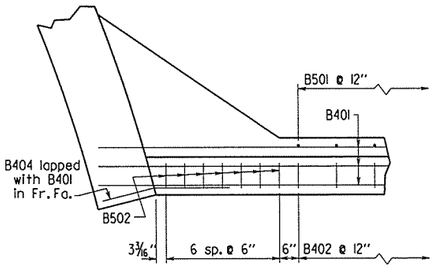
SECTION C-C
3/8" = 1'-0"



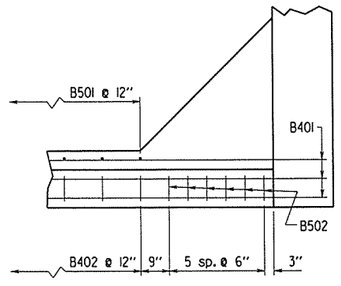
For additional joint details, see Std. Dwg. No. 55008.

Concrete shall be hand packed under the joint armor in the backwall.

DETAIL Z
No Scale

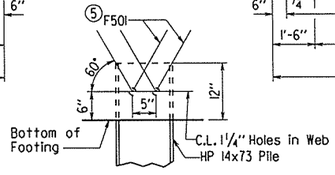


VIEW E-E
1/2" = 1'-0"



VIEW D-D
1/2" = 1'-0"

④ 3"ø Weep Hole (Schedule 40 PVC) through wall at 5'-0" max. spacing. See "Details of Backfill and Drainage", Dwg. No. 58565.



⑤ Tie or wedge this reinforcing to bear at top of holes.

DETAIL AT PILE TOP
See "Section C-C" for Location
No Scale

STATE OF ARKANSAS
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SHEET 2 OF 5
DETAILS OF BENT 5

ROUTE SEC.

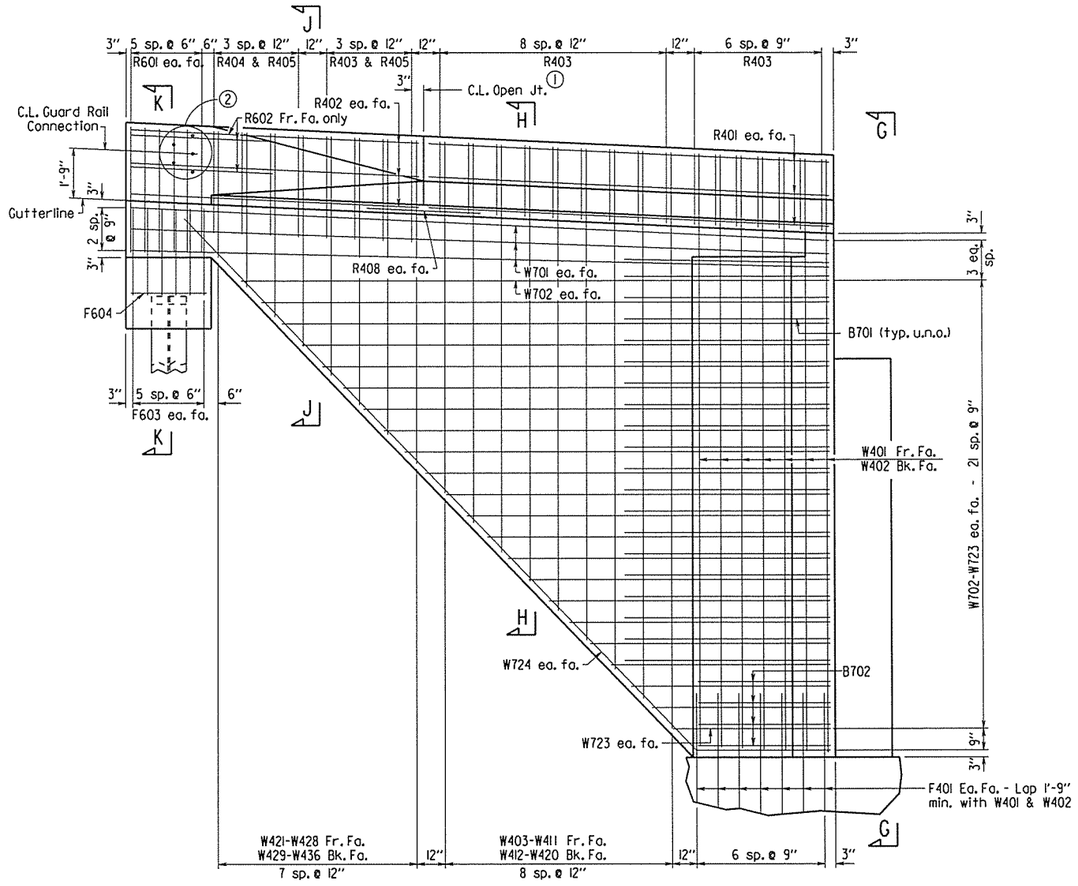
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 12-15-2015 FILENAME: bbr7208_b5.dgn
CHECKED BY: JNP DATE: 3-15-16 SCALE: as noted
DESIGNED BY: LJB DATE: 12-2015

BRIDGE NO. 04934 DRAWING NO. 58562

PRINT DATE: 3/15/2016

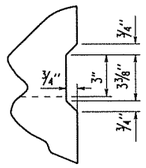
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	25	73
				① 04934 -		END BENT		- 58563



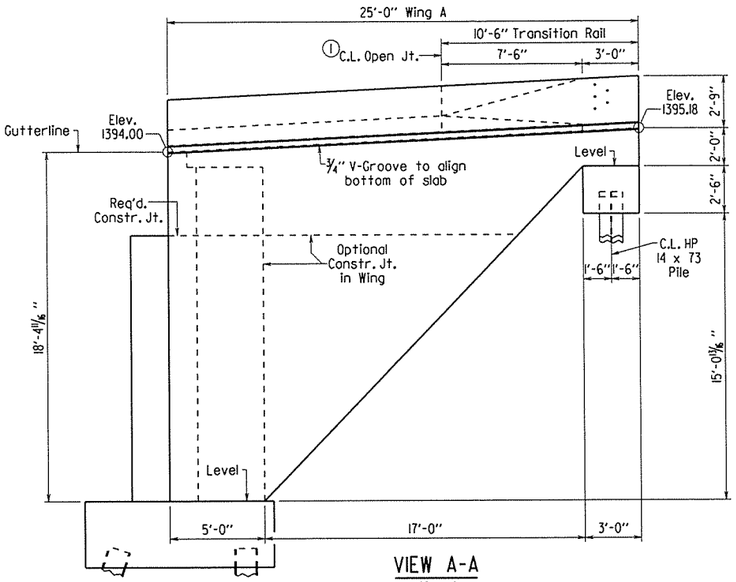
VIEW F-F
Wing A
3/8" = 1'-0"

① Open joint in Rail (1/4" to 1" max.) Stop 4" from Gutterline.

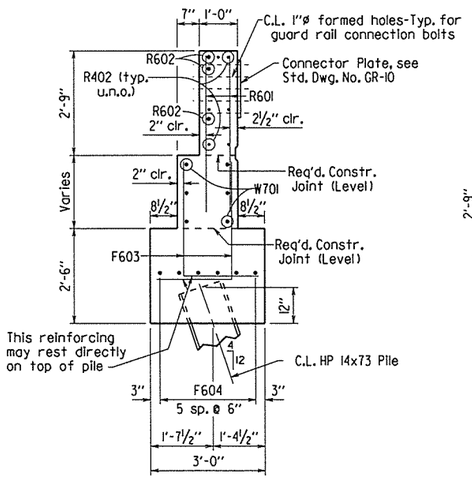
② 5- 1"ø formed holes for guard rail connection. See Std. Dwg. No. GR-10 for bolt spacing and additional connection details.



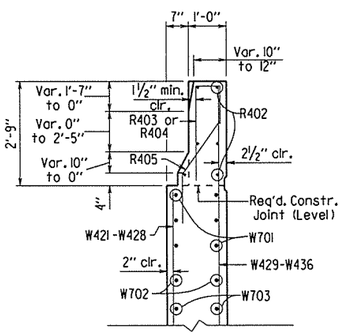
DETAIL B
No Scale



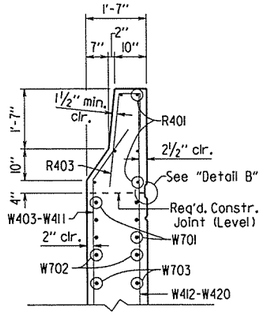
VIEW A-A
Wing A
1/4" = 1'-0"



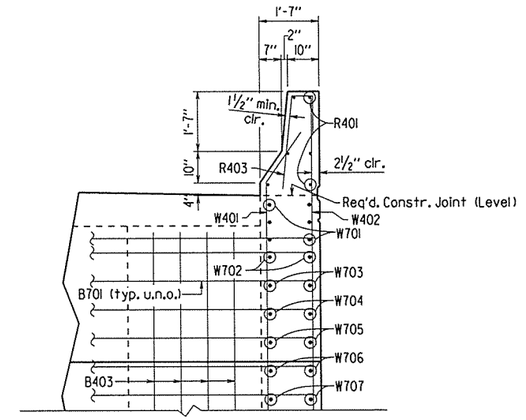
SECTION K-K
1/2" = 1'-0"



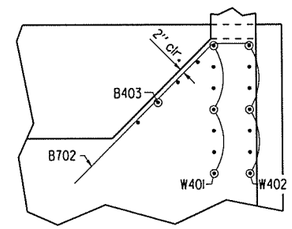
SECTION J-J
1/2" = 1'-0"



SECTION H-H
1/2" = 1'-0"



VIEW G-G
1/2" = 1'-0"



SECTION L-L
3/8" = 1'-0"

STATE OF ARKANSAS
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SHEET 3 OF 5
DETAILS OF BENT 5

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 12-15-2015 FILENAME: bbr7208_b5.dgn
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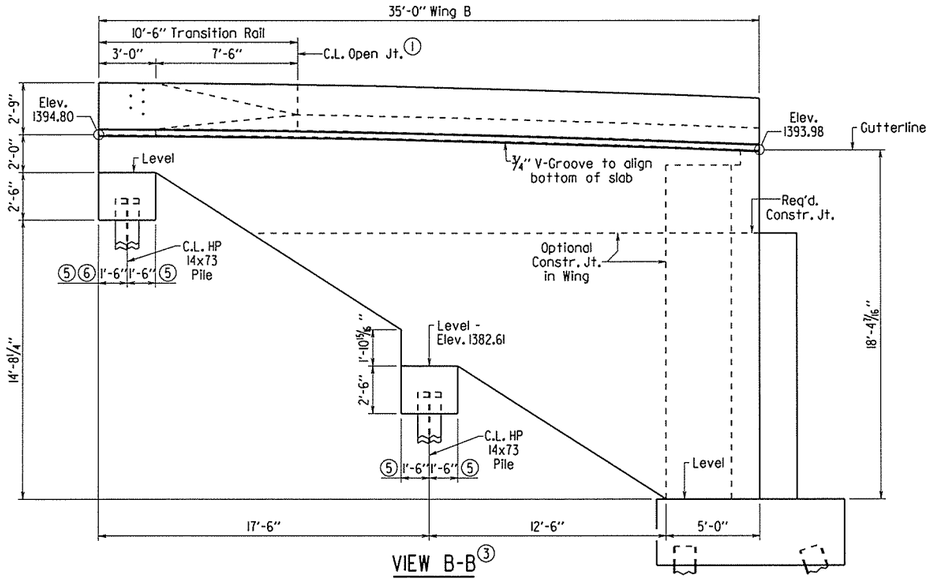
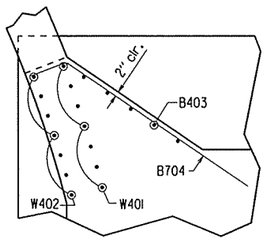
BRIDGE NO. 04934 DRAWING NO. 58563

PRINT DATE: 3/15/2016

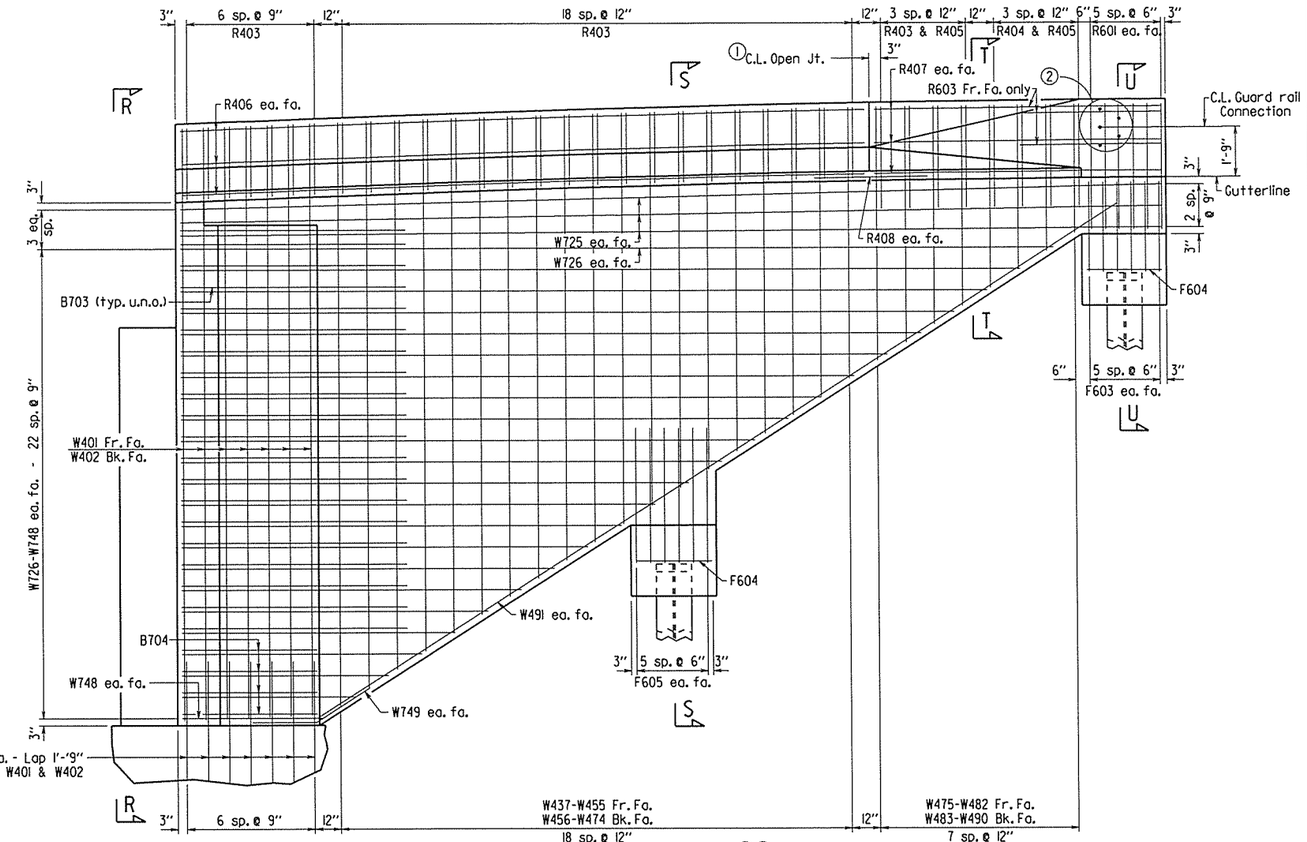
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	26	73
				①	04934 -	END BENT	- 58564	



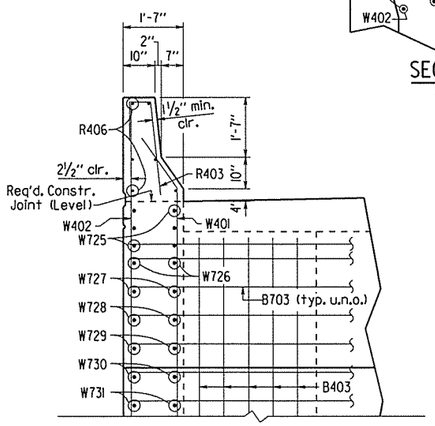
VIEW B-B ③
Wing B
¼" = 1'-0"



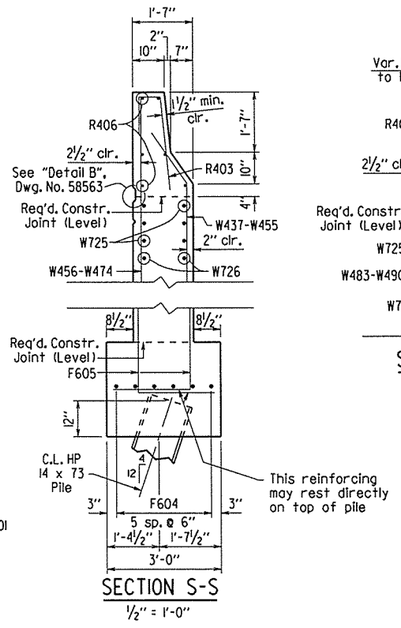
SECTION V-V
⅜" = 1'-0"



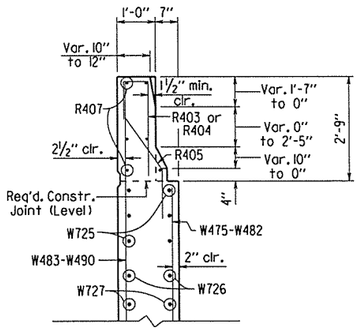
VIEW P-P ③④
Wing B
⅜" = 1'-0"



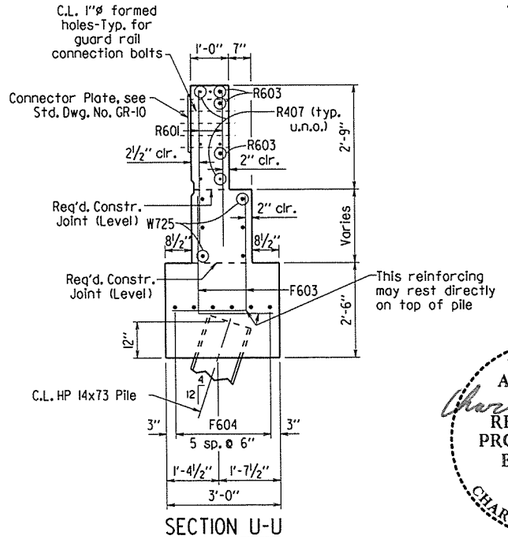
VIEW R-R
½" = 1'-0"



SECTION S-S
½" = 1'-0"



SECTION T-T
½" = 1'-0"



SECTION U-U
½" = 1'-0"

① Open Joint in Rail (¼" to 1" max.) Stop 4" from Gutterline.

② 5-1"ø formed holes for guard rail connection. See Std. Dwg. No. GR-10 for bolt spacing and additional connection details.

③ Except as noted, longitudinal lines are arcs concentric with left gutterline and all longitudinal dimensions are measured along left gutterline.

④ Transverse reinforcing steel shall be placed on radial lines to the left gutterline. Spacing shown is measured along the left gutterline.

⑤ Measured Perpendicular to Pile.

⑥ Measured Perpendicular to End of Wing.

STATE OF ARKANSAS
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SHEET 4 OF 5
DETAILS OF BENT 5

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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BRIDGE NO. 04934 DRAWING NO. 58564

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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.		BR7208	27	73
① 04934 -		END BENT	- 58565	

BAR LIST

Mark	No. Req'd.	Length	Pin Dia.
B401	12	32'-2"	Str.
B402	23	7'-11"	2"
B403	9	18'-7"	Str.
B404	6	3'-7"	2"
B501	23	4'-8"	Str.
B502	13	11'-8"	2½"
B701	20	10'-9"	5¼"
B702	4	8'-2"	5¼"
B703	20	11'-4"	5¼"
B704	4	9'-0"	5¼"
F401	37	5'-3"	3"
F501	10	2'-0"	3¾"
F601	35	10'-10"	4½"
F602	20	35'-10"	4½"
F603	24	4'-9"	4½"
F604	18	2'-8"	Str.
F605	12	6'-6"	4½"
F701	69	11'-2"	5¼"
C401	32	4'-11"	2"
C501	64	16'-6"	3¾"
C601	30	32'-0"	Str.
C701	64	16'-9"	5¼"
R401	6	14'-2"	Str.
R402	6	10'-2"	Str.
R403	50	4'-0"	2"
R404	8	4'-0"	2"
R405	16	2'-7"	2"
R406	6	24'-1" ①	Str.①
R407	6	10'-1" ①	Str.①
R408	4	3'-10"	Str.
R601	24	4'-5"	Str.
R602	3	5'-0"	Str.
R603	3	See "Table of Variables"	
W401	14	19'-9"	2"
W402	14	20'-11"	Str.
W403 - W411	1 ea.	Var. 19'-1" to 11'-3"	2"
W412 - W420	1 ea.	Var. 20'-2" to 12'-4"	Str.
W421 - W428	1 ea.	Var. 8'-7" to 1'-8"	Str.
W429 - W436	1 ea.	Var. 11'-4" to 4'-5"	Str.
W437 - W455	1 ea.	Var. 19'-4" to 8'-4"	2"
W456 - W474	1 ea.	Var. 20'-6" to 9'-6"	Str.
W475 - W482	1 ea.	Var. 6'-1" to 1'-9"	Str.
W483 - W490	1 ea.	Var. 8'-10" to 4'-6"	Str.
W491	2	33'-5" ①	Str.①
W701	6	24'-8"	Str.
W702 - W723	2 ea.	Var. 20'-9" to 5'-6"	Str.
W724	2	30'-8"	5¼"
W725	6	See "Table of Variables"	
W726 - W748	2 ea.		
W749	2	4'-6"	5¼"

Bending Diagrams

(Dimensions are out to out of bars)

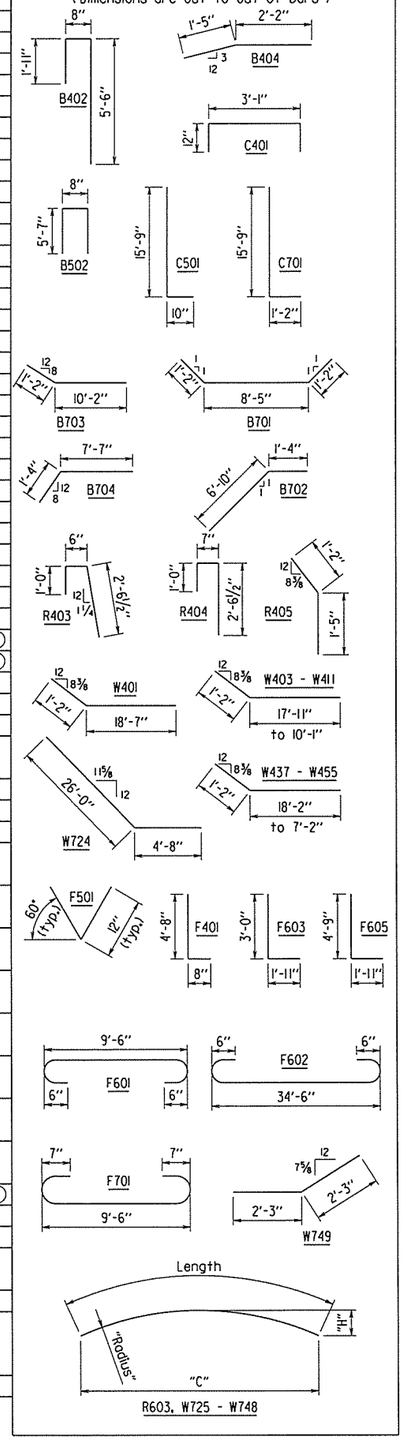
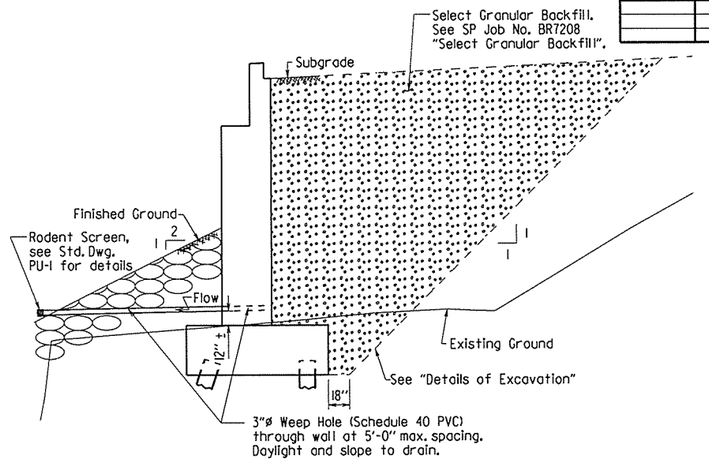


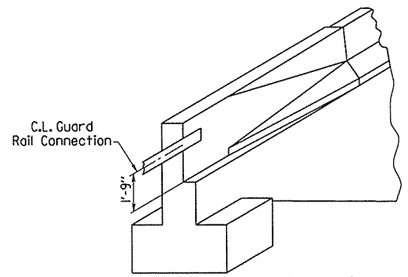
TABLE OF VARIABLES

Mark	Location	Length	Radius	"C"	"H"
R603	Fr. Fa.	5'-0"	40'-3"	5'-0"	1½"
W725	Fr. Fa.	34'-6"	40'-9½"	33'-5¾"	3'-7⅞"
	Bk. Fa.	33'-6"	39'-8⅜"	32'-6⅛"	3'-6⅝"
W726	Fr. Fa.	30'-8"	40'-9½"	29'-11⅜"	2'-11"
	Bk. Fa.	29'-10"	39'-8⅜"	29'-1⅝"	2'-10"
W727	Fr. Fa.	29'-6"	40'-9½"	28'-10⅜"	2'-8½"
	Bk. Fa.	28'-8"	39'-8⅜"	28'-0⅝"	2'-7½"
W728	Fr. Fa.	28'-4"	40'-9½"	27'-9¼"	2'-6"
	Bk. Fa.	27'-7"	39'-8⅜"	27'-0⅜"	2'-5¼"
W729	Fr. Fa.	27'-2"	40'-9½"	26'-8"	2'-3¾"
	Bk. Fa.	26'-5"	39'-8⅜"	25'-11⅛"	2'-3"
W730	Fr. Fa.	26'-0"	40'-9½"	25'-6¾"	2'-1½"
	Bk. Fa.	25'-3"	39'-8⅜"	24'-9⅞"	2'-0¾"
W731	Fr. Fa.	24'-10"	40'-9½"	24'-5⅜"	1'-11⅜"
	Bk. Fa.	24'-2"	39'-8⅜"	23'-9½"	1'-10¾"
W732	Fr. Fa.	23'-8"	40'-9½"	23'-4"	1'-9¼"
	Bk. Fa.	23'-0"	39'-8⅜"	22'-8⅛"	1'-8¾"
W733	Fr. Fa.	22'-6"	40'-9½"	22'-2⅝"	1'-7⅞"
	Bk. Fa.	21'-10"	39'-8⅜"	21'-6¾"	1'-6¾"
W734	Fr. Fa.	21'-4"	40'-9½"	21'-1⅛"	1'-5½"
	Bk. Fa.	20'-9"	39'-8⅜"	20'-6⅛"	1'-5"
W735	Fr. Fa.	20'-1"	40'-9½"	19'-10⅝"	1'-3⅝"
	Bk. Fa.	19'-7"	39'-8⅜"	19'-4⅝"	1'-3¼"
W736	Fr. Fa.	18'-11"	40'-9½"	18'-9"	1'-2"
	Bk. Fa.	18'-5"	39'-8⅜"	18'-3"	1'-1⅝"
W737	Fr. Fa.	17'-9"	40'-9½"	17'-7⅞"	1'-0⅜"
	Bk. Fa.	17'-4"	39'-8⅜"	17'-2⅜"	1'-0⅛"
W738	Fr. Fa.	16'-7"	40'-9½"	16'-5⅝"	10⅞"
	Bk. Fa.	16'-2"	39'-8⅜"	16'-0⅝"	10¾"
W739	Fr. Fa.	15'-5"	40'-9½"	15'-3⅞"	9⅝"
	Bk. Fa.	15'-0"	39'-8⅜"	14'-10⅞"	9⅜"
W740	Fr. Fa.	14'-3"	40'-9½"	14'-2⅛"	8¼"
	Bk. Fa.	13'-11"	39'-8⅜"	13'-10⅛"	8⅛"
W741	Fr. Fa.	13'-1"	40'-9½"	13'-0⅜"	7⅛"
	Bk. Fa.	12'-9"	39'-8⅜"	12'-8⅜"	7"
W742	Fr. Fa.	11'-11"	40'-9½"	11'-10½"	6⅛"
	Bk. Fa.	11'-7"	39'-8⅜"	11'-6½"	5⅞"
W743	Fr. Fa.	10'-9"	40'-9½"	10'-8⅝"	5⅛"
	Bk. Fa.	10'-6"	39'-8⅜"	10'-5⅞"	5"
W744	Fr. Fa.	9'-7"	40'-9½"	9'-6¾"	4¼"
	Bk. Fa.	9'-4"	39'-8⅜"	9'-3¾"	4⅛"
W745	Fr. Fa.	8'-5"	40'-9½"	8'-4⅞"	3½"
	Bk. Fa.	8'-2"	39'-8⅜"	8'-1⅞"	3⅜"
W746	Fr. Fa.	7'-3"	40'-9½"	7'-2⅞"	2¾"
	Bk. Fa.	7'-0"	39'-8⅜"	6'-11⅞"	2¾"
W747	Fr. Fa.	6'-1"	40'-9½"	6'-0⅞"	2¼"
	Bk. Fa.	5'-11"	39'-8⅜"	5'-10⅞"	2¼"
W748	Fr. Fa.	4'-10"	40'-9½"	4'-10"	1¾"
	Bk. Fa.	4'-9"	39'-8⅜"	4'-9"	1¾"

① These longitudinal reinforcing bars shall be trimmed and bent in the field to fit in Wing B.



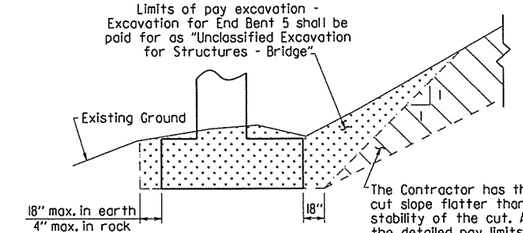
DETAILS OF BACKFILL AND DRAINAGE



For details of guard rail connection, See Std. Dwg. no. GR-10

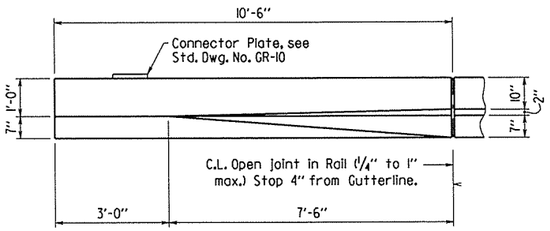
THREE DIMENSIONAL VIEW OF RAIL

Wing A shown, Wing B similar



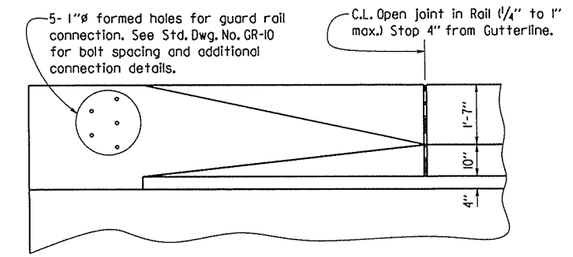
DETAILS OF EXCAVATION

The Contractor has the option of using a cut slope flatter than detailed to maintain stability of the cut. Any excavation beyond the detailed pay limits shall be backfilled with "Select Granular Backfill". Excavation and backfill beyond the detailed pay limits will not be paid for directly, but shall be considered incidental to the item bid for "Unclassified Excavations for Structures - Bridge".



PLAN OF TRANSITION RAIL

Wing A shown, Wing B similar



ELEVATION OF TRANSITION RAIL

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 9235
3-18-16
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF BENT 5

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

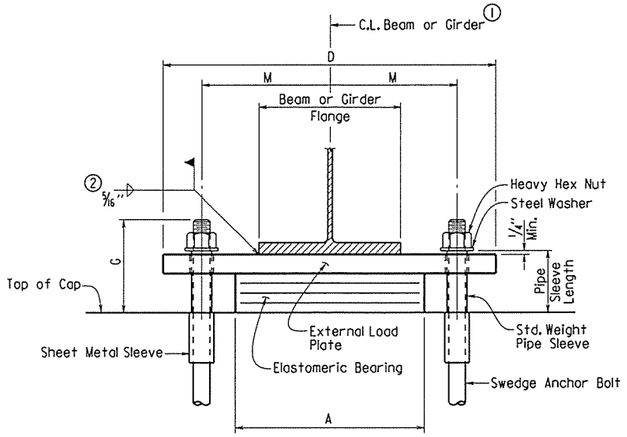
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 12-15-2015 FILENAME: bbr7208_b5.dgn
CHECKED BY: LJB DATE: 3-15-16 SCALE: no scale
DESIGNED BY: LJB DATE: 12-2015

BRIDGE NO. 04934 DRAWING NO. 58565

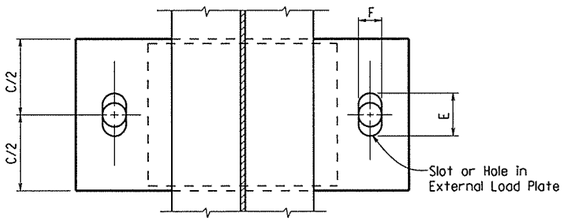
PRINT DATE: 3/15/2016

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.		BR7208	28	73
				①	04934 -	ELASTO BRGS. - 58566		

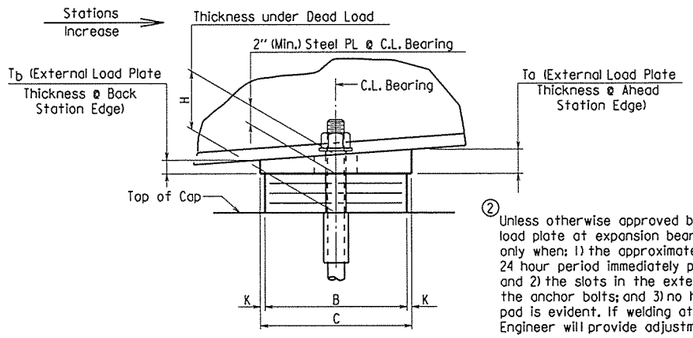


FRONT VIEW

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



PLAN VIEW

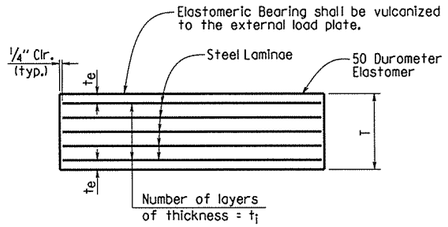


SIDE VIEW

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.

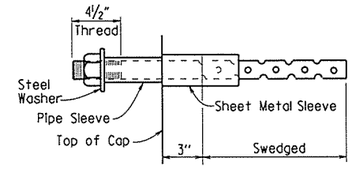


t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



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 QPL 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 (M 270, Gr. 50W)".

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.)
04934	1	All	Exp.	4	121	8 5/8"	5 5/16"	16"	8"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	10"	27 1/2"	5 1/8"	2 5/8"	1"	10 3/4"	2.24"	1.76"	1 3/4" x 28"	55	2" x 5 1/16"	4" x 6"	3 3/8"
	2	All	Exp.	4	282	7 7/8"	4 3/8"	18"	12"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	13"	30"	5 1/8"	3 1/8"	1/2"	11 3/4"	2.31"	1.69"	2 1/4" x 33"	55	2 1/2" x 4 5/8"	4" x 9"	4"
	3	All	Fix	4	278	8 1/8"	3 11/16"	18"	12"	2	1/2"	1/4"	3 @ 12 Ga.	1 11/16"	13"	31"	3 3/4"	3 3/4"	1/2"	12"	2.31"	1.69"	2 3/4" x 38"	55	3" x 4 1/8"	5" x 9"	5"
	4	All	Fix	4	282	8 1/8"	3 11/16"	18"	12"	2	1/2"	1/4"	3 @ 12 Ga.	1 11/16"	13"	31"	3 3/4"	3 3/4"	1/2"	12"	2.31"	1.69"	2 3/4" x 38"	55	3" x 4 1/8"	5" x 9"	5"
	5	All	Exp.	4	121	8 5/8"	5 5/16"	16"	8"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	10"	27 1/2"	5 1/8"	2 5/8"	1"	10 3/4"	2.24"	1.76"	1 3/4" x 28"	55	2" x 5 1/16"	4" x 6"	3 3/8"

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 M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, 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
3-18-16
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 12-14-15 FILENAME: bbr7208_el.dgn
CHECKED BY: LJB DATE: 3-15-16 SCALE: None
DESIGNED BY: LJB DATE: 5-2015
BRIDGE NO. 04934 DRAWING NO. 58566

PRINT DATE: 3/15/2016

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.		BR7208	29	73
				① 04934 -		350 FT. UNIT	- 58567	

Slab Reinforcing:

Longitudinal: S402E Top and Bottom placed as shown
S601E placed as shown over int. supports, See "Reinforcing Plan & Slab Pouring Sequence", Dwg. No. 58570.

Transverse: S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom — Alternate
S502E @ 12" o.c. bent up over beams —
S503E @ 6" in top of overhangs (bundled with No. 5 bars)

NOTES:
At the Contractor's option, two straight epoxy coated No. 5 bars, top and bottom, may be substituted for bar S502E. Payment will be based on the weight of bar S502E.

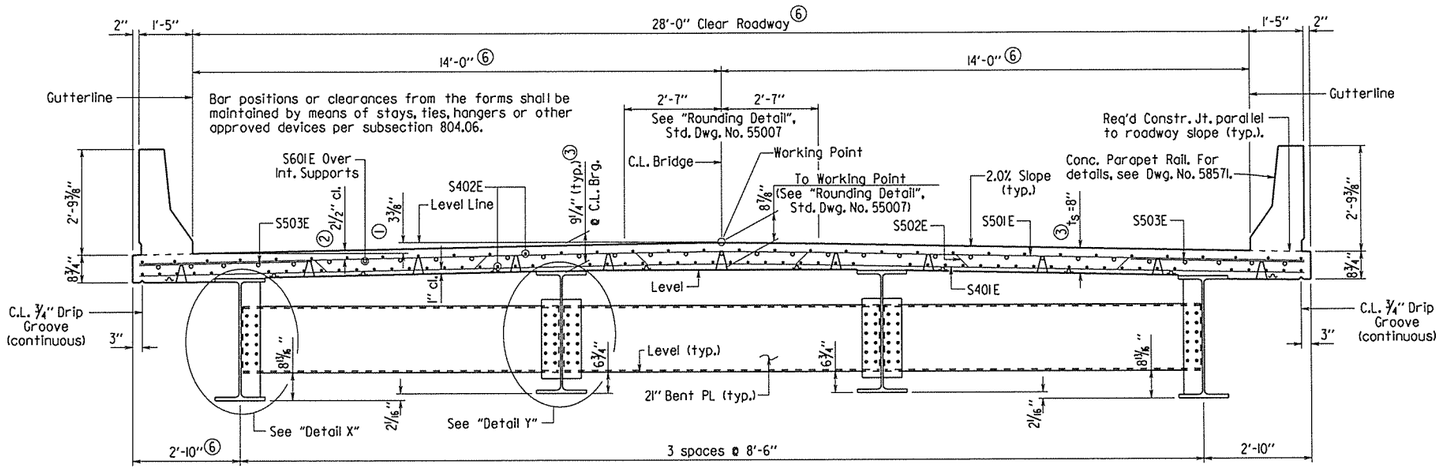
Bars with an "E" suffix are epoxy coated.

Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail.

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" on Std. Dwg. 55007.

③ See "Adjustment for Slab Thickness Tolerance" on Std. Dwg. No. 55007.

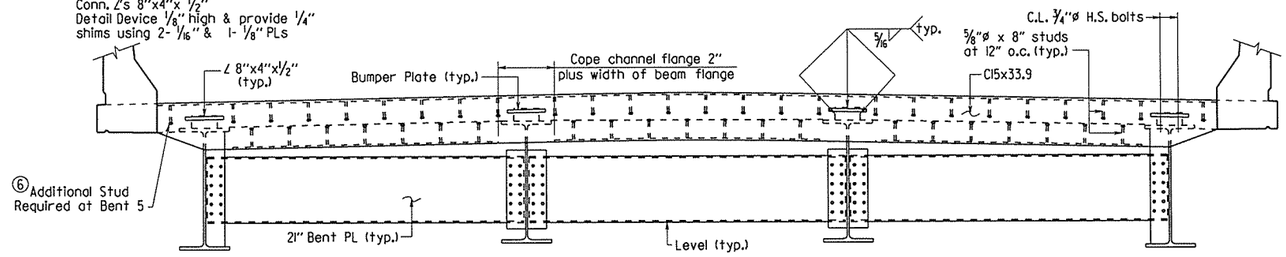


TYPICAL ROADWAY SECTION

Looking Ahead
½" = 1'-0"

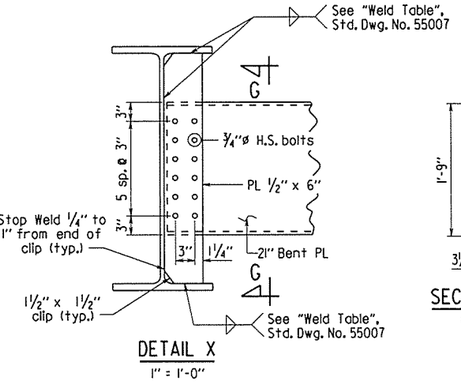
⑥ Dimensions from Begin Bridge to Station 109+05.00. For variances beyond Station 109+05.00, see Dwg. No. 58570.

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



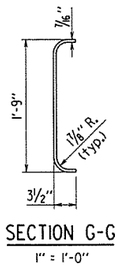
TYPICAL ROADWAY SECTION NEAR JOINT

Looking Ahead
½" = 1'-0"



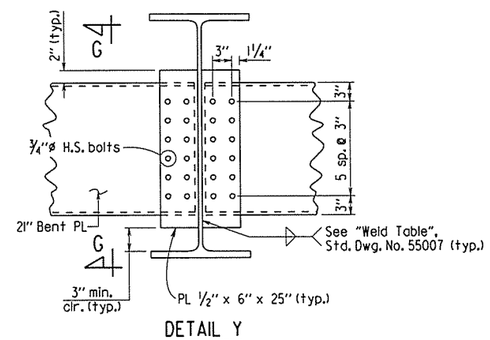
DETAIL X

1" = 1'-0"



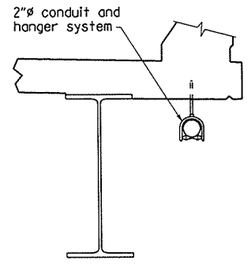
SECTION G-G

1" = 1'-0"



DETAIL Y

1" = 1'-0"



NOTES:
Prior to pouring the concrete deck, the Contractor shall coordinate with Windstream Holdings, Inc. (870) 365-5917 for the attachment of a telephone conduit to the deck. Installation details for this work shall be provided by the Utility Owner in accordance with Department utility permit guidelines and submitted for approval. Payment for this work and materials shall be the responsibility of the Utility Owner.

Placement of hangers shall not interfere with reinforcing steel in the deck. Adhesive anchor systems shall not be used.

UTILITY CONNECTION

No Scale

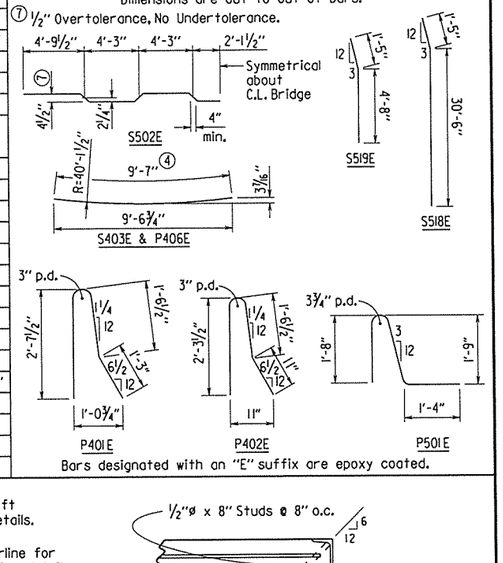
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	343	30'-10"	Str.
S402E	920	37'-4"	Str.
S403E④	4	9'-7"	R=40'-1½"
S501E	343	30'-10"	Str.
S502E	342	31'-6"	3"
S503E	1,384	4'-7"	Str.
S504E-S516E	2 ea.	"X"	Str.
S517E	13	6'-0"	Str.
S518E	2	31'-11"	3¾"
S519E	1	6'-1"	3¾"
S601E	99	45'-0"	Str.
P401E⑤	1,112	5'-6"	3"
P402E⑤	288	4'-10"	3"
P403E	128	5'-6"	Str.
P404E	105	9'-8"	Str.
P405E	252	14'-8"	Str.
P406E④	7	9'-7"	R=40'-1½"
P501E⑤	1,112	4'-10"	3¾"

BENDING DIAGRAMS

Dimensions are out to out of bars.

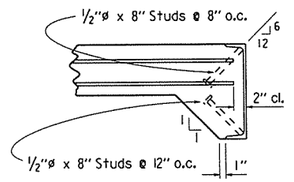
⑦ ½" Overtolerance, No Undertolerance.



Bars designated with an "E" suffix are epoxy coated.

④ Placed on curves concentric with left gutterline. See Dwg. No. 58750 for details.

⑤ Placed on radial lines to left gutterline for curved parapet. See Dwg. No. 58750 for details.



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 AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

TABLE OF VARIABLES

BAR	"X"
S504E	30'-11"
S505E	30'-11"
S506E	31'-0"
S507E	31'-1"
S508E	31'-1"
S509E	31'-2"
S510E	31'-3"
S511E	31'-4"
S512E	31'-5"
S513E	31'-6"
S514E	31'-7"
S515E	31'-9"
S516E	31'-10"

TABLE OF SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature Of:			"B" Perpendicular to Joint at 60°F	Bumper Plate Size
40°F	60°F	80°F		
2¹¹⁄₁₆"	2½"	2³⁄₁₆"	2½" ±	1" x 1¼"

For details of poured silicone joint, see Std. Dwg. No. 55008.

STATE OF ARKANSAS
Charles R. Ellis
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No. 9235
3-18-16
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BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 350'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

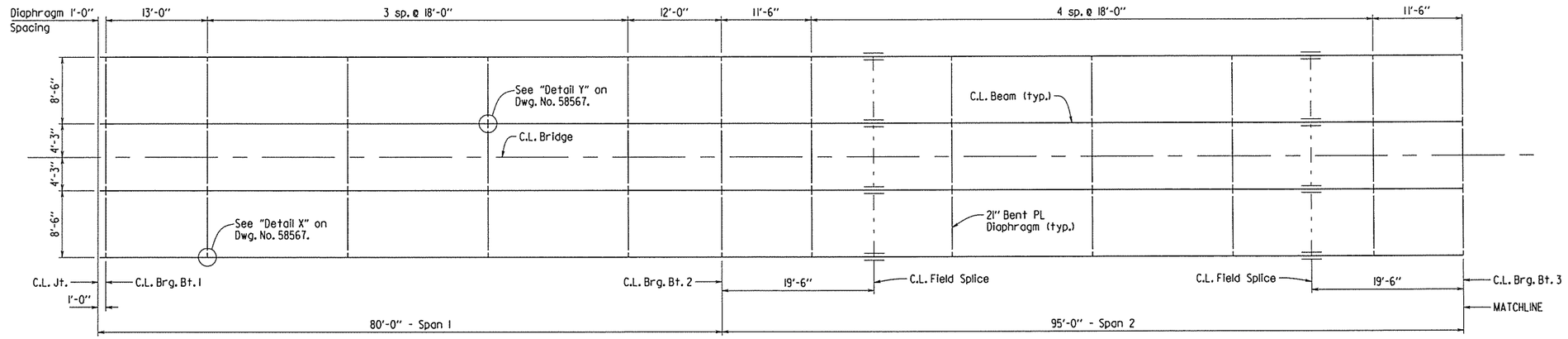
DRAWN BY: LJB DATE: 06/24/15 FILENAME: bbr7208_sl.dgn
CHECKED BY: ECR DATE: 3/16/16 SCALE: As Noted
DESIGNED BY: LJB DATE: 5-2015

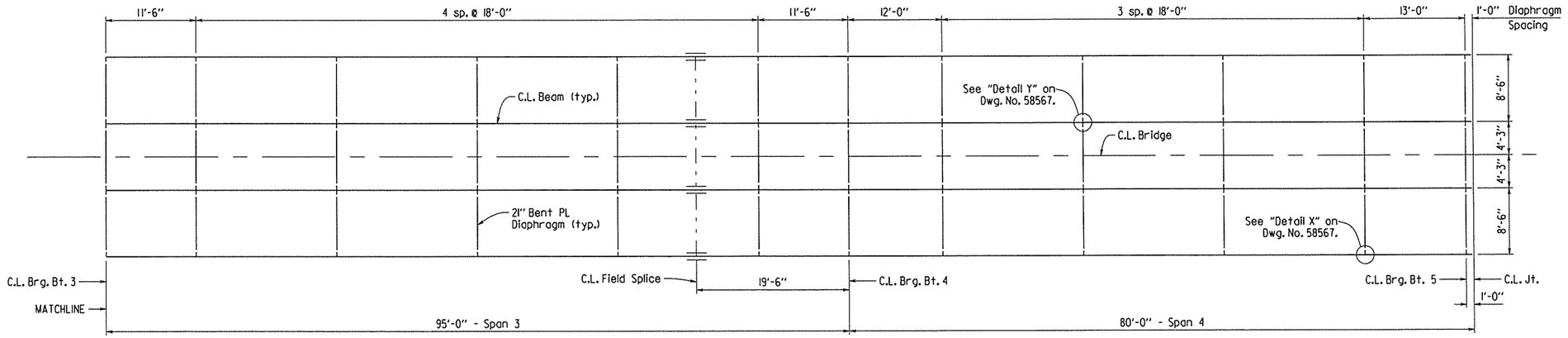
BRIDGE NO. 04934 DRAWING NO. 58567

PRINT DATE: 4/25/2016

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.		BR7208	30	73
①	04934 - 350' CONT. UNIT		- 58568	





FRAMING PLAN

1/8" = 1'-0"

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 9235
3-18-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF
350'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

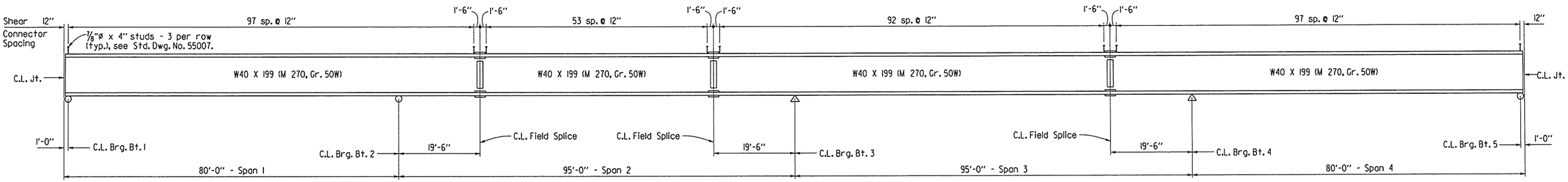
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 06/24/15 FILENAME: bbr7208_sl.dgn
CHECKED BY: EOR DATE: 3/16/16 SCALE: As Noted
DESIGNED BY: LJB DATE: 5-2015

BRIDGE NOS. 04934 DRAWING NO. 58568

PRINT DATE: 3/15/2016

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.		BR7208	31	73
				(1)	04934 - 350' CONT. UNIT		- 58569	



BEAM ELEVATION

No Scale

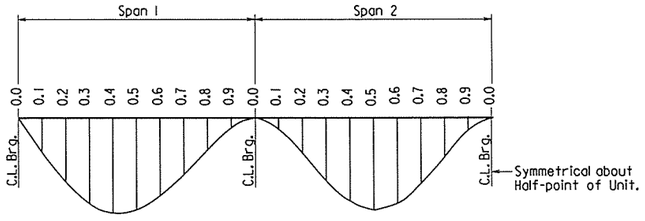
NOTES: All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

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

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Rail	
		Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam
1	0	0	0	0	0	0	0
	0.1	0.068	0.072	0.326	0.395	0.363	0.430
	0.2	0.126	0.133	0.601	0.728	0.669	0.793
	0.3	0.165	0.175	0.790	0.957	0.880	1.042
	0.4	0.183	0.193	0.873	1.057	0.972	1.151
	0.5	0.177	0.187	0.845	1.023	0.940	1.114
	0.6	0.150	0.159	0.717	0.869	0.798	0.946
	0.7	0.108	0.115	0.518	0.628	0.576	0.683
	0.8	0.061	0.064	0.291	0.351	0.324	0.382
	0.9	0.019	0.021	0.092	0.113	0.102	0.123
2	0	0	0	0	0	0	0
	0.1	0.021	0.022	0.100	0.121	0.111	0.131
	0.2	0.070	0.074	0.334	0.405	0.370	0.440
	0.3	0.123	0.130	0.587	0.710	0.651	0.771
	0.4	0.162	0.171	0.773	0.935	0.858	1.016
	0.5	0.176	0.186	0.842	1.020	0.935	1.108
	0.6	0.163	0.172	0.779	0.943	0.865	1.025
	0.7	0.125	0.132	0.598	0.724	0.664	0.787
	0.8	0.073	0.077	0.348	0.421	0.386	0.457
	0.9	0.023	0.024	0.110	0.133	0.122	0.144
	0	0	0	0	0	0	0

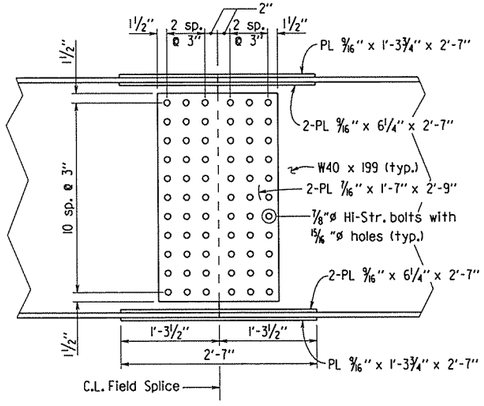
Symmetrical about Half-point of Unit.



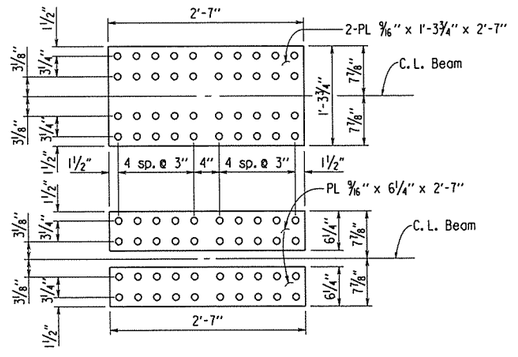
DEAD LOAD DEFLECTION DIAGRAM

NOTES: Camber for Dead Load Deflection ± 1/4" tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing.

Vertical curve corrections are not included.



WEB SPLICE



FLANGE SPLICE

TYPICAL FIELD SPLICE DETAILS

No Scale

NOTES: All field splice bolts shall be 7/8"ø Hi-strength bolts and all holes for splice bolts shall be 15/16"ø. All field splice plates shall be AASHTO M 270, Gr. 50W.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF
350'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

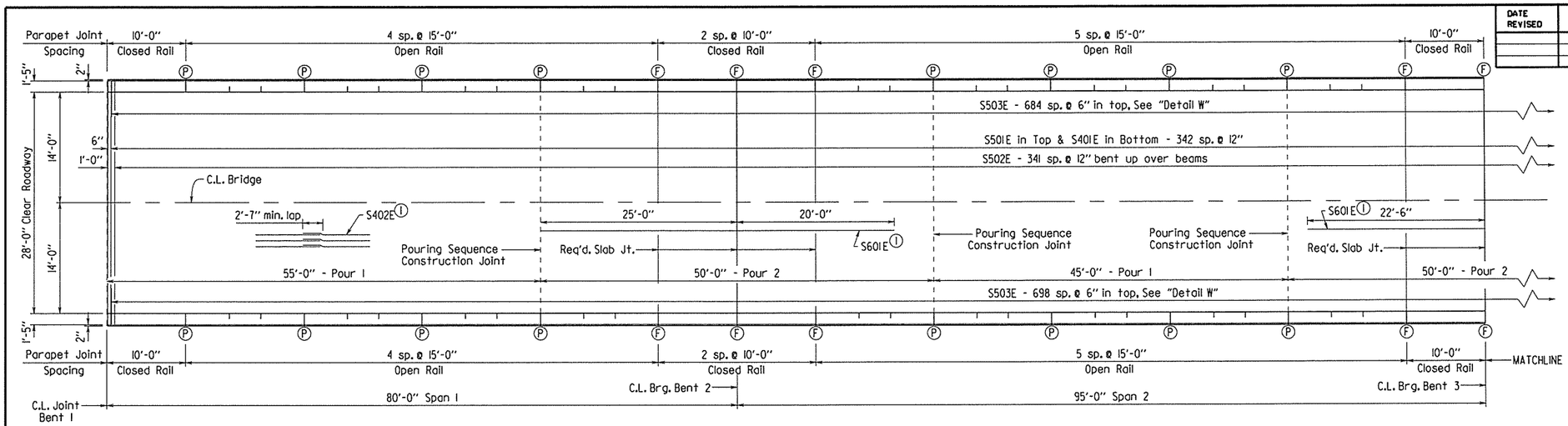
ARKANSAS STATE HIGHWAY COMMISSION

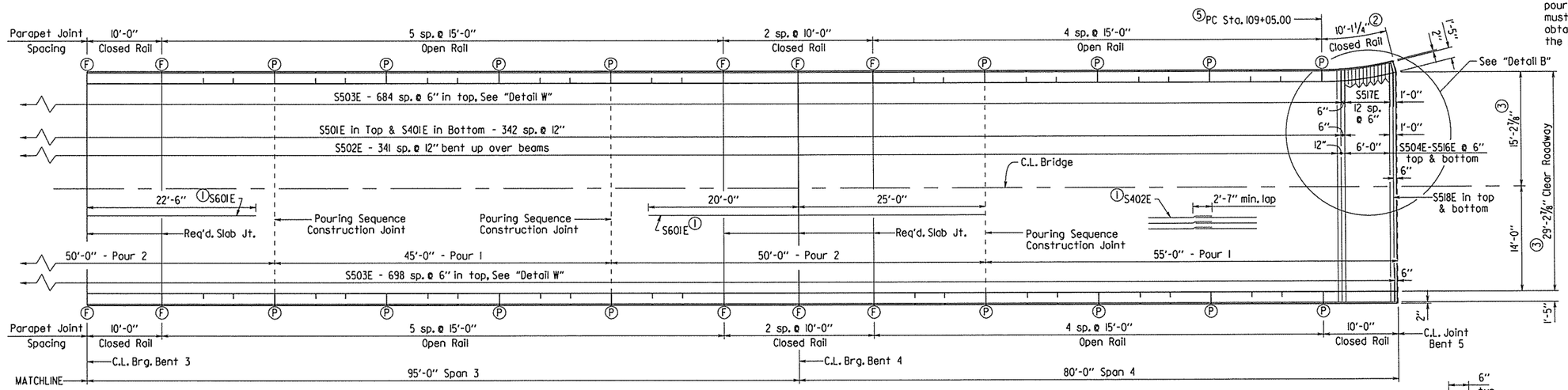
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 06/24/15 FILENAME: bbr7208_sl.dgn
CHECKED BY: EOR DATE: 3/16/16 SCALE: As Noted
DESIGNED BY: LJB DATE: 5-2015
BRIDGE NOS. 04934 DRAWING NO. 58569

PRINT DATE: 3/15/2016

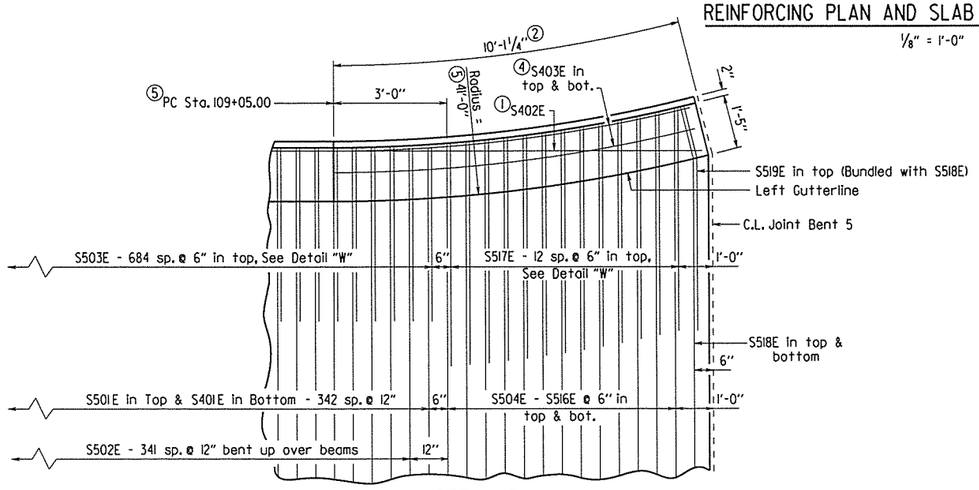
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	32	73
				(1) 04934 - 350' CONT. UNIT			- 58570	





REINFORCING PLAN AND SLAB POURING SEQUENCE

1/8" = 1'-0"



DETAIL B

1/2" = 1'-0"

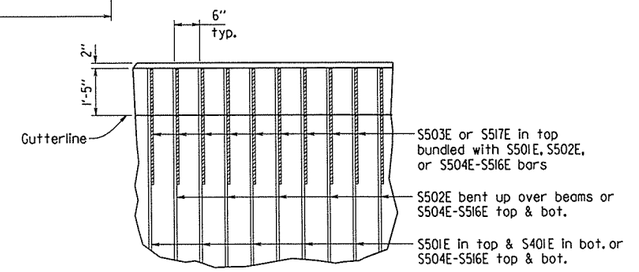
(1) Placed as shown in "Typical Roadway Section," Dwg. No. 58567.

(2) Measured Along Left Gutterline.

(3) Measured Along C.L. Joint.

(4) Placed on curves concentric with left gutterline.

(5) Beginning at Station 109+05.00, construct left gutterline on a 41'-0" radius. Beyond Station 109+05.00, all longitudinal lines of the left parapet rail and edge of deck shall be constructed on arcs concentric with the left gutterline.



DETAIL W

No Scale

NOTES:
For Parapet Details and Bar List, See Dwg. Nos. 58571 & 58567, respectively.

Req'd. slab joints and pouring sequence joints shall align with open joints in parapet rail at the gutterline.

(P) Partial Depth Parapet Joint at this location

(F) Full Depth Parapet Joint at this location

Slab Pouring Sequence Notes:
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 adjacent pours. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

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.

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 unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-18-16
CHARLES R. ELLIS
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SHEET 4 OF 5
DETAILS OF
350'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

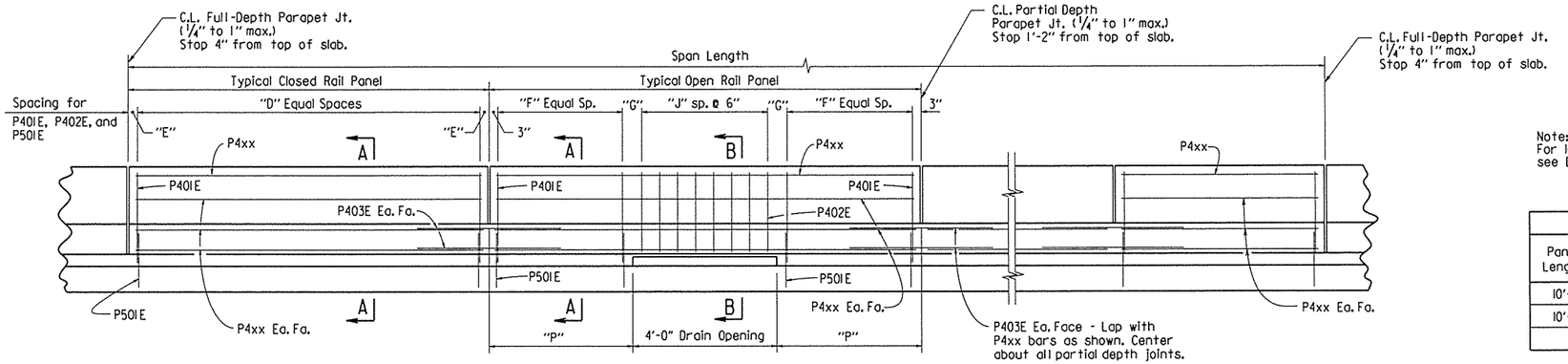
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 06/24/15 FILENAME: bbr7208_sl.dgn
CHECKED BY: EOR DATE: 3/16/16 SCALE: As Noted
DESIGNED BY: LJB DATE: 5-2015
BRIDGE NOS. 04934 DRAWING NO. 58570

PRINT DATE: 3/15/2016

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.		BR7208	33	73
① 04934 -	350 FT. UNIT		- 58571	



ELEVATION - CONCRETE PARAPET RAIL

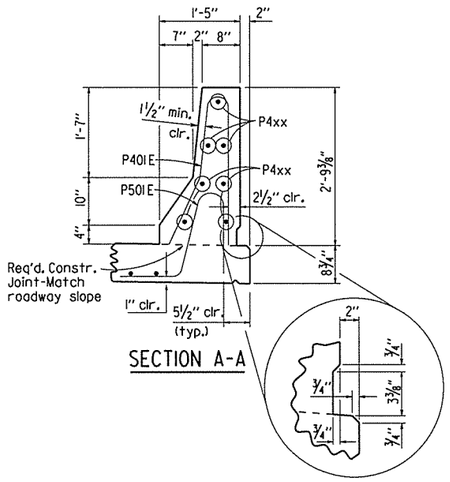
NOTE: Place P401E & P501E on radial lines to left gutterline for curved parapet. See Dwg. No. 58570 for details.

Note:
For location of full and partial depth parapet joints, see Dwg. No. 58570.

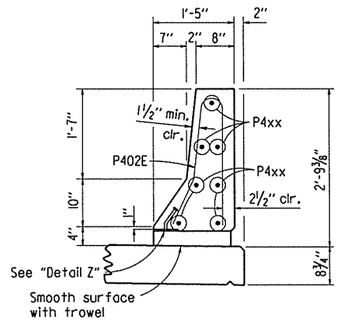
TABLE OF VARIABLES

Closed Rail Panels				Open Rail Panels					
Panel Length	"D"	"E"	P4xx Bar	Panel Length	"F"	"G"	"J"	"P"	P4xx Bar
10'-0"	19	3"	P404E	15'-0"	10	6"	7	5'-6"	P405E
10'-1 1/4"	19	3"	P406E①						

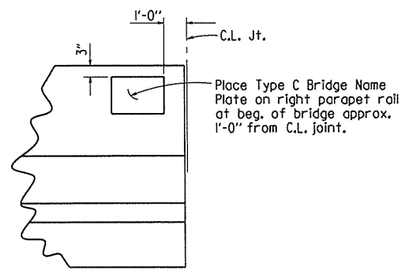
①Placed on curves concentric with left gutterline. See Dwg. No. 58570 for details.



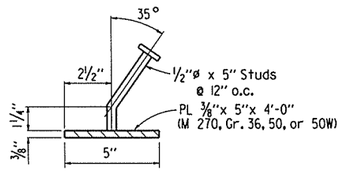
SECTION A-A



SECTION B-B



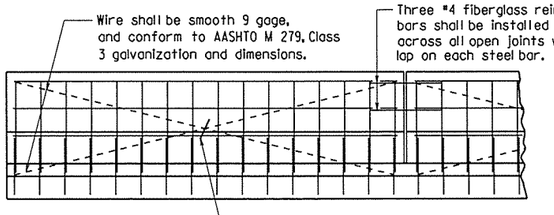
VIEW SHOWING LOCATION OF NAME PLATE

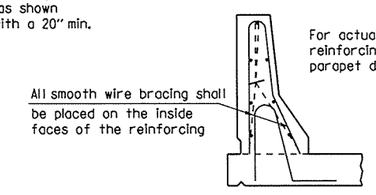


NOTES:
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as Structural Steel in Beam Spans (M 270, Gr. 50W).

The surfaces of the 3/8" Plates which will not be in contact with concrete shall be painted 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 (M 270, Gr. 50W).

DETAIL Z





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 1/4". 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 Class 2 Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

STATE OF ARKANSAS
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No. 9235
3-16-16
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF
350'-0" CONTINUOUS W-BEAM UNIT

ROUTE SEC.

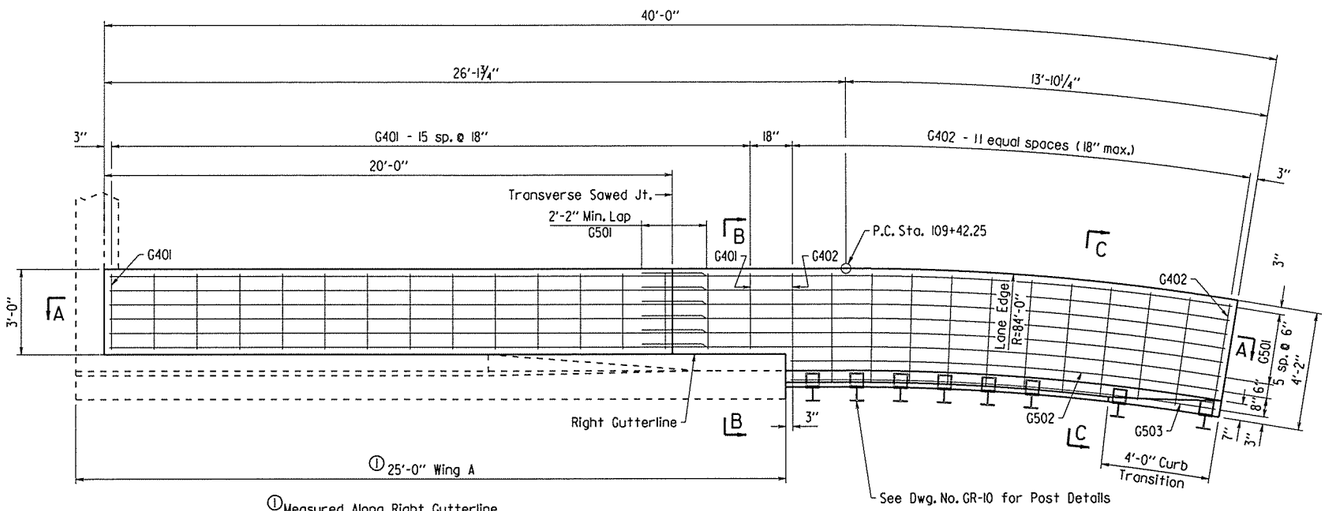
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 06/24/15
CHECKED BY: EOR DATE: 3/16/16
DESIGNED BY: LJB DATE: 5-2015
FILENAME: bbr7208_sl.dgn
SCALE: No Scale

BRIDGE NO. 04934 DRAWING NO. 58571

PRINT DATE: 3/15/2016

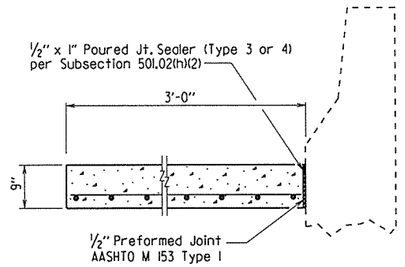
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR7208	34	73
				① 04934 -		APPR. GUTTER	- 58572	



① Measured Along Right Gutterline

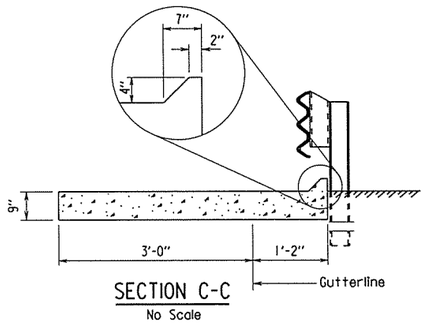
PLAN

⅜" = 1'-0"



SECTION B-B

No Scale



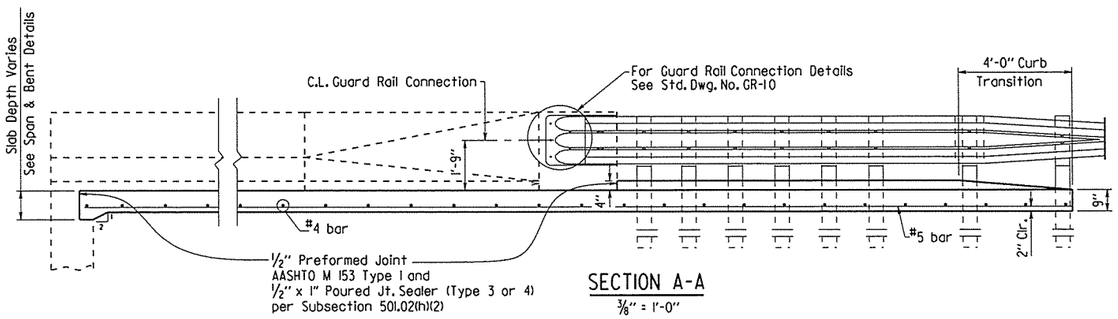
SECTION C-C

No Scale

NOTES:
Beginning at Sta. 109+42.25, the right lane edge shall be constructed on a 84'-0" radius. Beyond Sta. 109+42.25, all longitudinal dimensions are measured along the lane edge, except as noted.

All longitudinal lines and reinforcing steel shall be placed on arcs concentric with the lane edge.

Transverse reinforcing steel shall be placed on radial lines to the right lane edge. Spacing shown is measured along the lane edge.



SECTION A-A

⅜" = 1'-0"

BAR LIST

Mark	No. Req'd.	Length
G401	16	2'-8"
G402	12	3'-10"
G501	12	20'-11"
G502	1	15'-1"
G503	1	15'-0"

QUANTITIES

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
352	3.88

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.

Dimensions and details shown are approximate and may require adjustment to provide a smooth transition to the gutter and guardail. Prior to construction the Contractor shall verify dimensions and make adjustments as required with the approval of the Engineer.

Longitudinal reinforcing steel shall be bent to fit in the field.

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DETAILS OF TYPE I SPECIAL APPROACH GUTTER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 12-14-2015 FILENAME: bbr7208_ag.dgn
CHECKED BY: ACP DATE: 3-15-16 SCALE: as noted
DESIGNED BY: LJB DATE: 12-15

BRIDGE NO. 04934 DRAWING NO. 58572

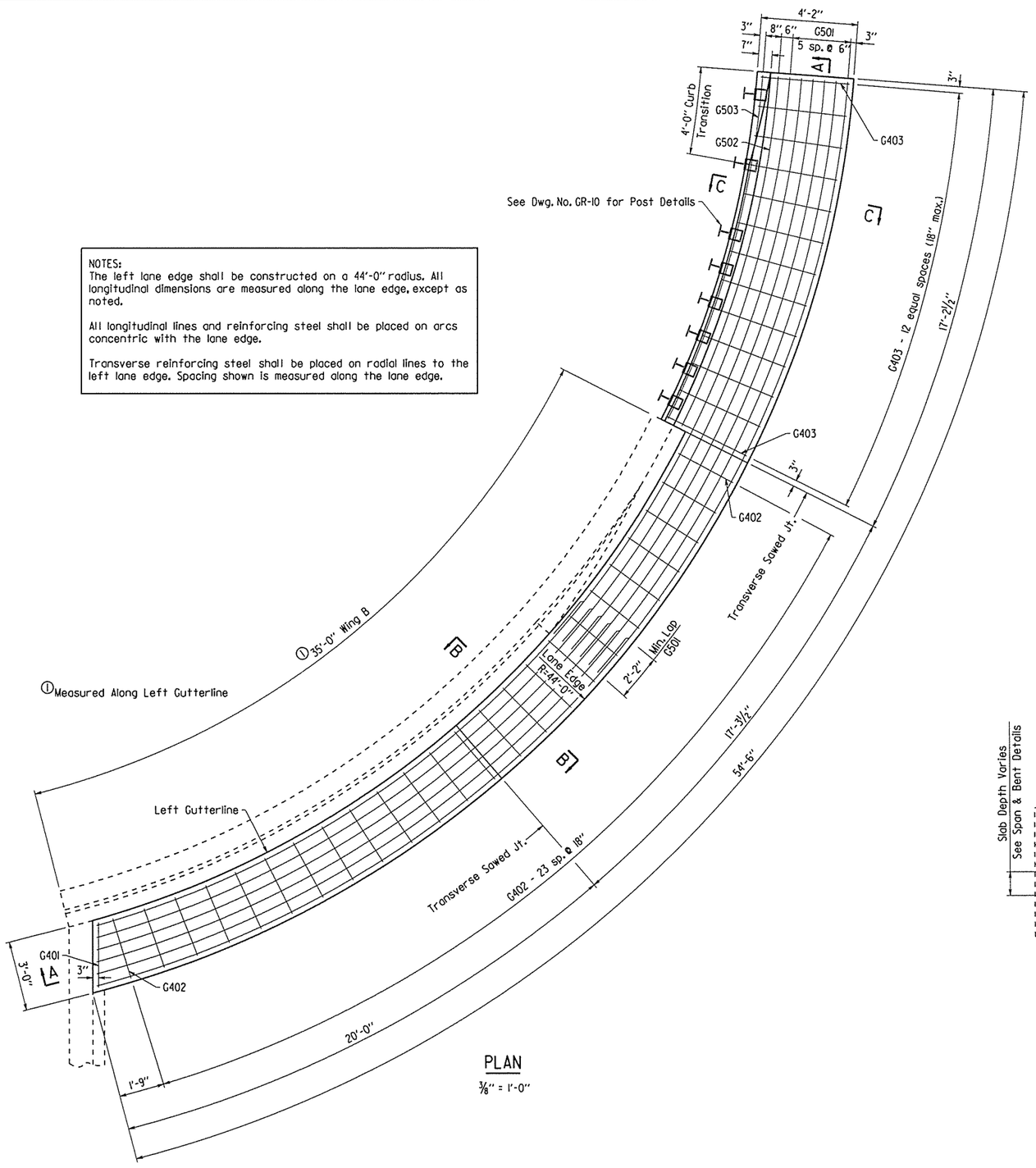
PRINT DATE: 3/15/2016

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.		BR7208	35	73
				① 04934 -		APPR. GUTTER	- 58573	

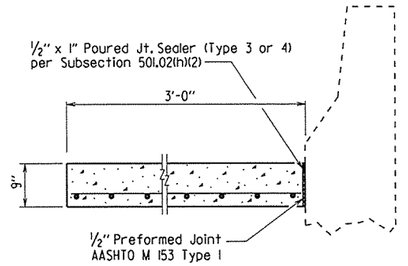
NOTES:
The left lane edge shall be constructed on a 44'-0" radius. All longitudinal dimensions are measured along the lane edge, except as noted.

All longitudinal lines and reinforcing steel shall be placed on arcs concentric with the lane edge.

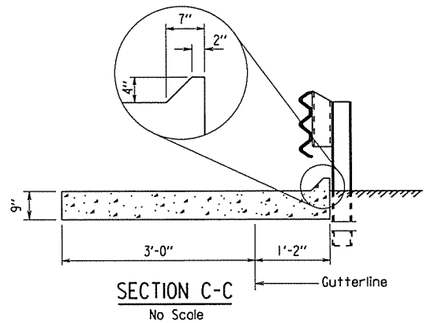
Transverse reinforcing steel shall be placed on radial lines to the left lane edge. Spacing shown is measured along the lane edge.



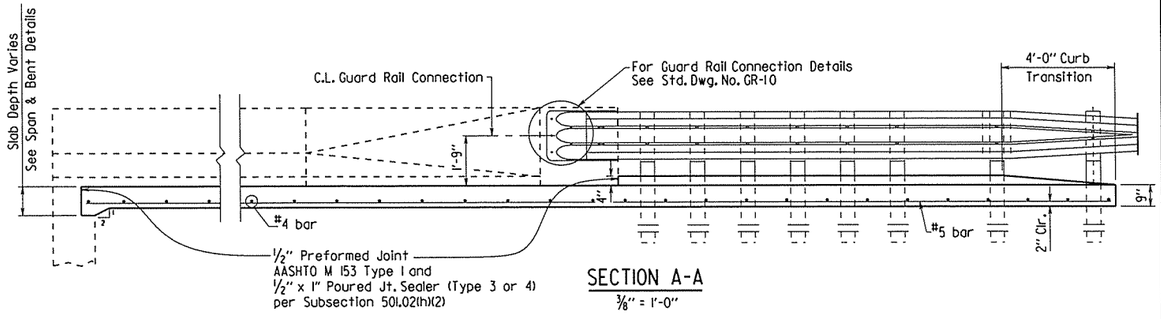
PLAN
⅜" = 1'-0"



SECTION B-B
No Scale



SECTION C-C
No Scale



SECTION A-A
⅜" = 1'-0"

BAR LIST

Mark	No. Req'd.	Length
G401	1	2'-9"
G402	24	2'-8"
G403	13	3'-10"
G501	12	28'-0"
G502	1	15'-7"
G503	1	15'-4"

QUANTITIES

(FOR INFORMATION ONLY)

Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
461	4.94

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 31or M 322, Type A, with mill test reports.

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

Dimensions and details shown are approximate and may require adjustment to provide a smooth transition to the gutter and guardail. Prior to construction the Contractor shall verify dimensions and make adjustments as required with the approval of the Engineer.

Longitudinal reinforcing steel shall be bent to fit in the field.

STATE OF ARKANSAS
Charles R. Ellis
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DETAILS OF TYPE 2 SPECIAL APPROACH GUTTER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

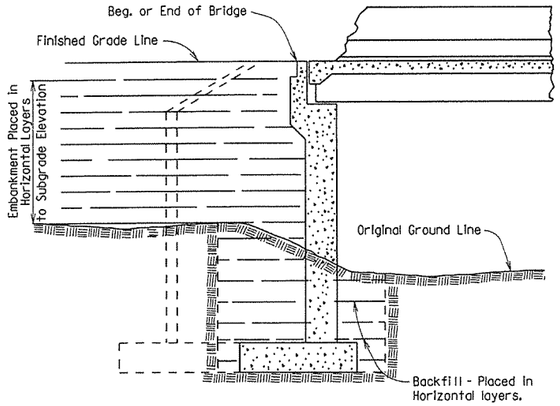
LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 12-14-2015 FILENAME: bbr7208_ag.dgn
CHECKED BY: ACP DATE: 3-16-16 SCALE: as noted
DESIGNED BY: LJB DATE: 12-15

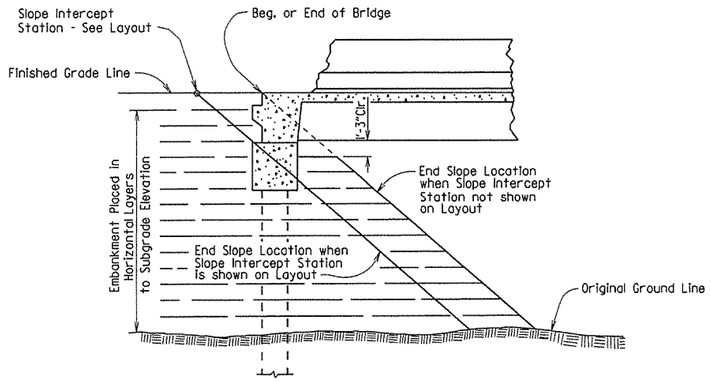
BRIDGE NO. 04934 DRAWING NO. 58573

PRINT DATE: 3/15/2016

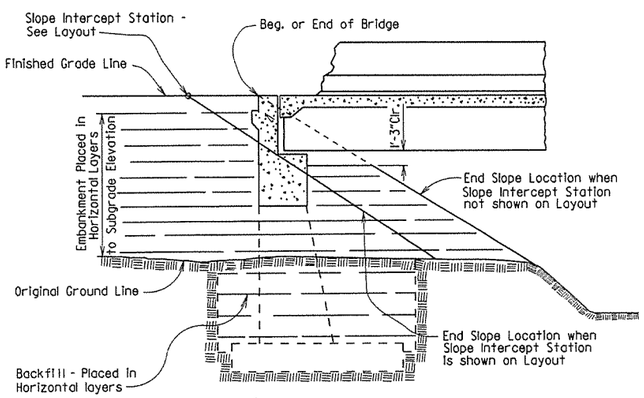
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		56	
				JOB NO.				
				① EMBANKMENT & BACKFILL 55000				



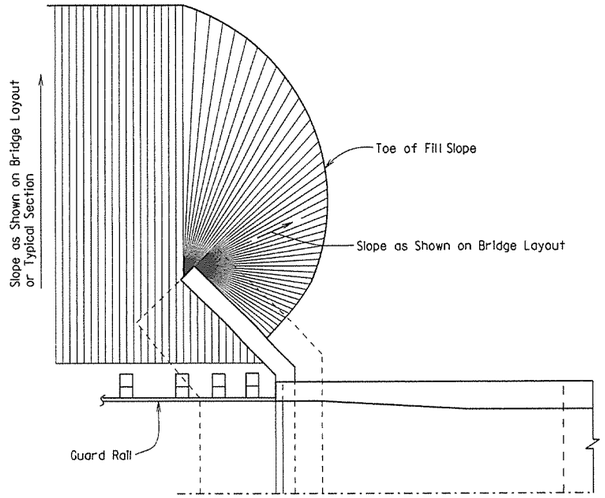
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



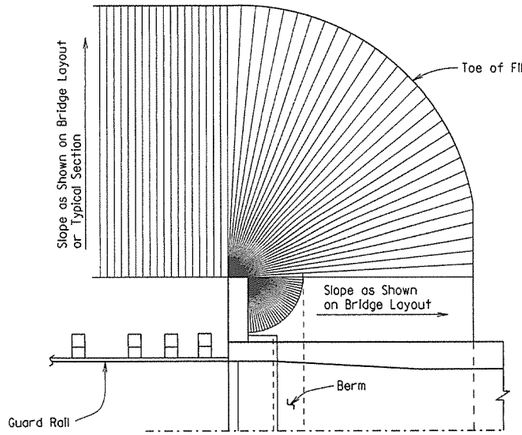
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



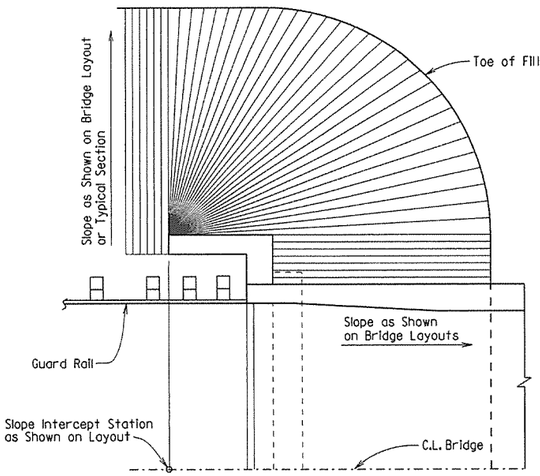
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



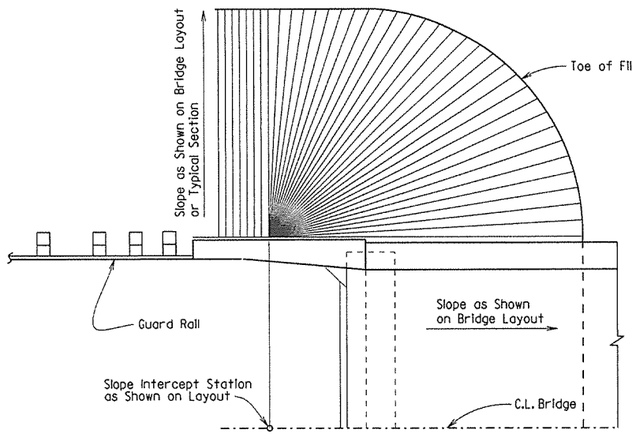
VERTICAL WALL ABUTMENTS



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

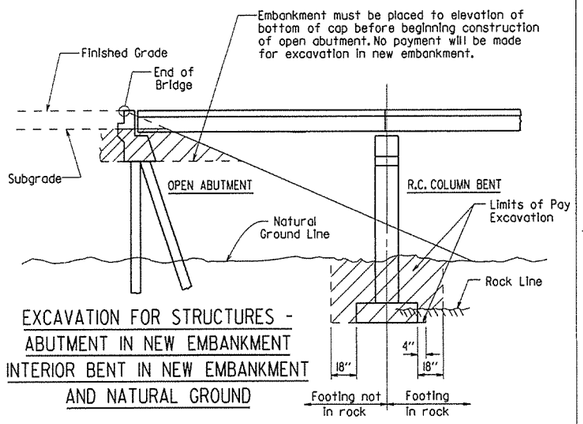
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

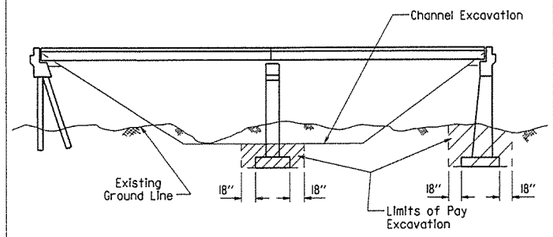
DRAWING NO. 55000

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

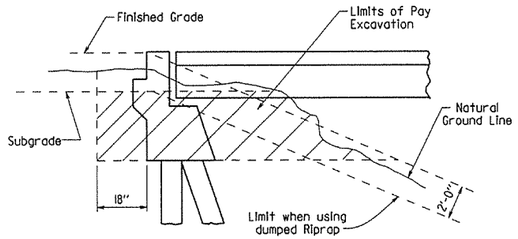
(1) RIPRAP & EXCAV. 55001



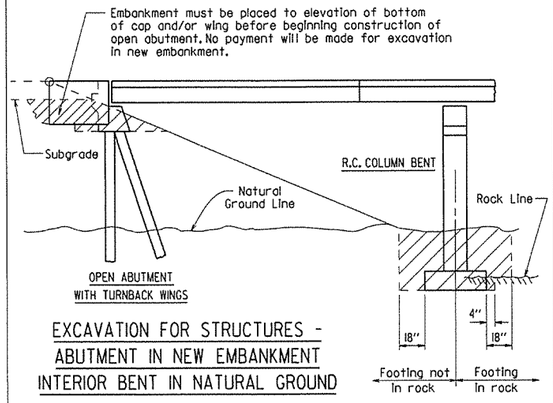
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



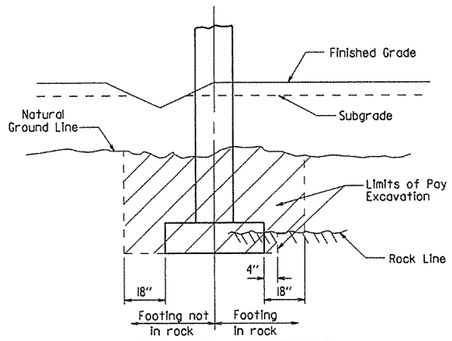
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



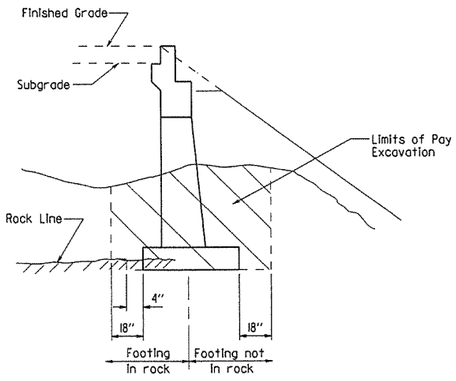
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



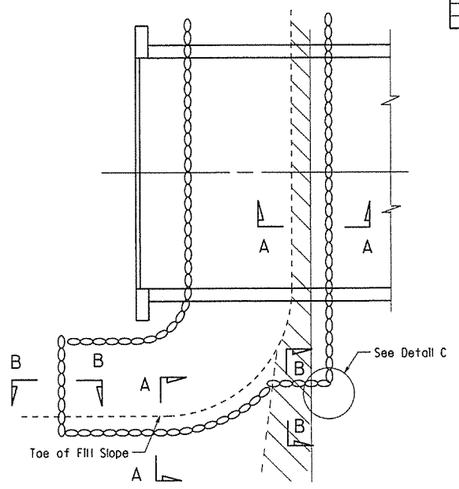
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



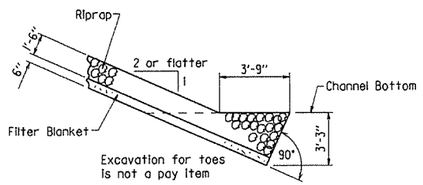
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



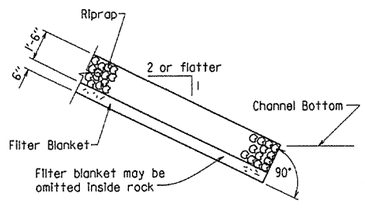
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



PLAN OF DUMPED RIPRAP



SECTION A-A
(Toe Excavation In Soil)

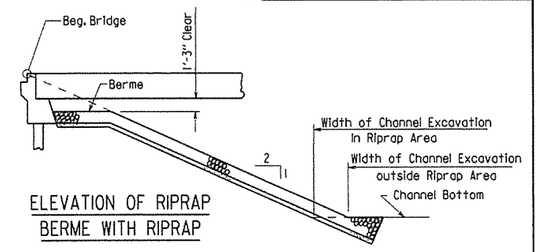


SECTION A-A
(Toe Excavation In Rock)

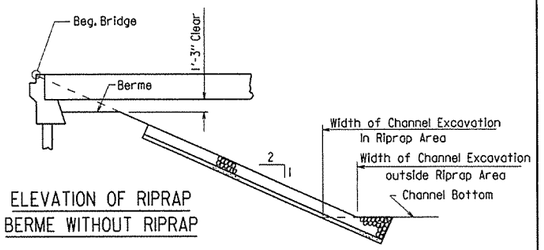
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

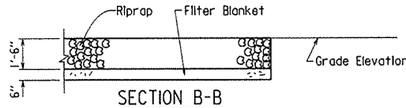
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



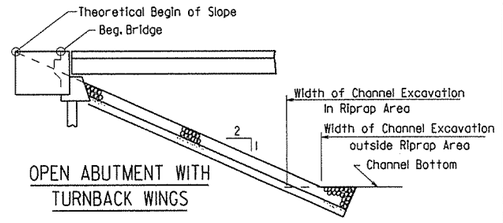
ELEVATION OF RIPRAP BERME WITH RIPRAP



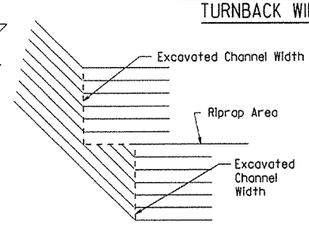
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



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.

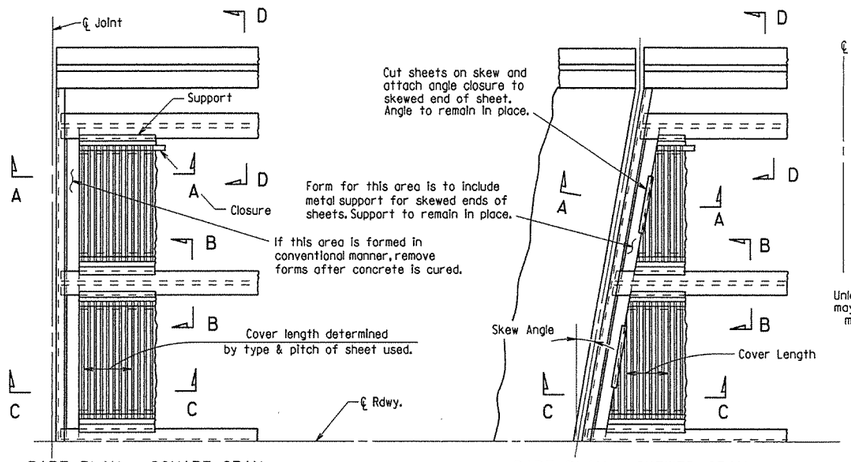
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

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
3/24/16				6	ARK.		38	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

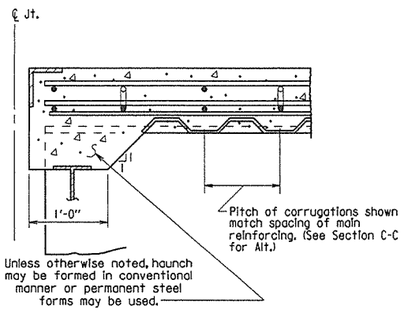


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

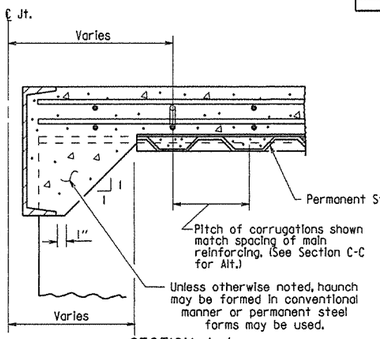
3/8" = 1'-0"



SECTION A-A

N.T.S.

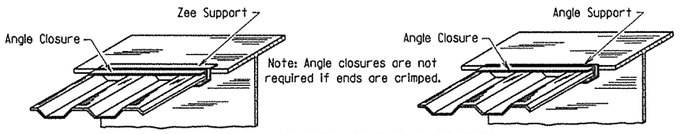
(Angle at end of span)



SECTION A-A

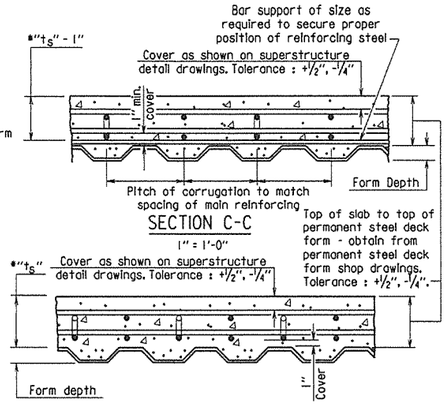
N.T.S.

(Channel at end of span)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.



SECTION C-C

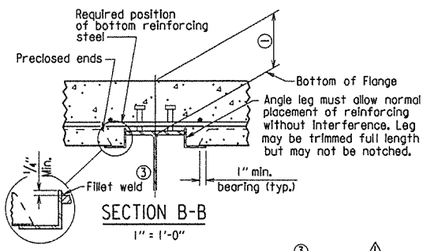
1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

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

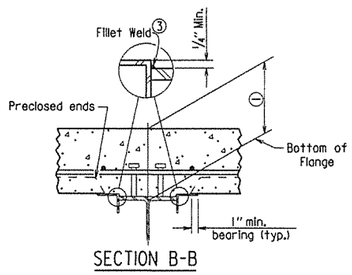
*t_s = slab thickness as shown on superstructure detail drawings.



SECTION B-B

1" = 1'-0"

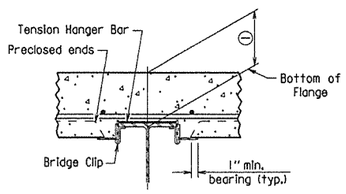
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)



SECTION B-B

1" = 1'-0"

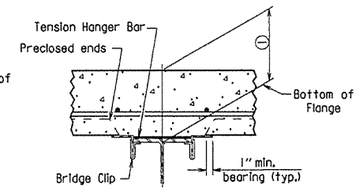
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

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

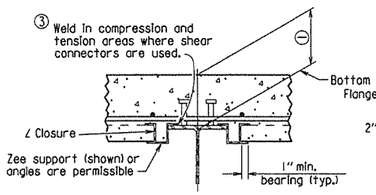


SECTION B-B

1" = 1'-0"

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

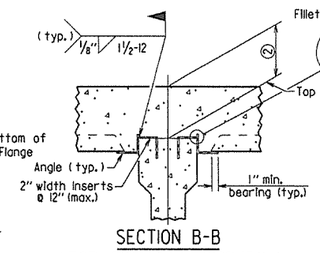
③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

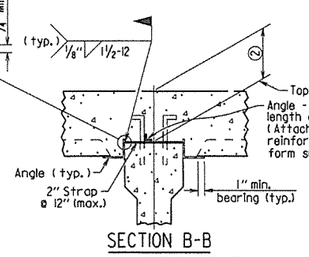


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

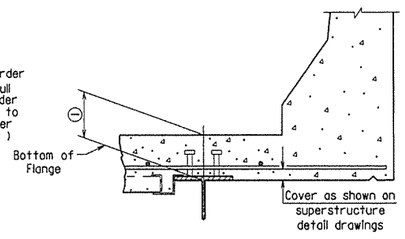


SECTION B-B

(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 7/8" + 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.

⚠ Revised weld dimension by KWY, Ck'd. by BEF, 3/24/16.

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.		39	
				JOB NO.				
				①	GENERAL NOTES		55006	

GENERAL NOTES

These GENERAL NOTES are applicable unless otherwise shown in the Plan Details, Special Provisions, or Supplemental Specifications.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c =	4,000 psi
Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A)	fy =	60,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy =	36,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy =	50,000 psi
Structural Steel (AASHTO M 270, Gr. HPS70W)	Fy =	70,000 psi

See Plan Details for Grade(s) of Structural Steel required.

CONCRETE:

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

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.

Use of a longitudinal screed is not permitted on any span of a bridge deck with horizontal curvature.

The concrete deck (roadway surface) shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall receive a broomed finish as specified for final finishing in Subsection 802.19 for Class 6 Broomed 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 or girder. When permitted, the use of a longitudinal strike-off will require that a vertical camber adjustment be made in the strike-off to account for the future dead load deflection due to any railings, median barrier, and sidewalks.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. 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 "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL (COMMON TO W-BEAMS AND PLATE GIRDERS):

Structural steel shall be AASHTO M 270 with grade and payment as specified in the plans. Grade 50W steel shall not be painted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Grade 36 and Grade 50 steel shall be painted unless otherwise noted and all exposed surfaces shall be cleaned in accordance with Subsection 807.84. Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, 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.

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 falsework 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.

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 15/16 " ø open holes. 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. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

When painting is required, all structural steel except galvanized steel and steel completely encased in concrete shall be painted in accordance with Subsection 807.75. The color of paint shall be as specified in the plans.

STRUCTURAL STEEL (W-BEAMS):

All beams and field splice plates, and all diaphragms and connection plates attached to horizontally curved beams 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 (M 270, Gr.___)".

All beams in continuous units and simple spans with field splices shall be blocked in their true position in the shop in groups as specified in Subsection 807.54(b)(2) with the webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All beams in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

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 beam dimensions are based on a temperature of 60 degrees F. A tolerance of 1/4" +/- is allowed for camber.

Bent plate diaphragms for horizontally curved beams 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. Bent plate diaphragms for straight beams may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved beams.

Unless otherwise noted, 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.

STRUCTURAL STEEL (PLATE GIRDERS):

All references to cross-frames shall include "X" or "K" types.

All girder web and flange plates, all field splice plates, and all diaphragms, cross-frames and connection plates attached to horizontally curved girders 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 Plate Girder Spans (M 270, Gr.___)".

All girders in continuous units and simple spans with field splices shall be assembled in the shop as specified in Subsection 807.54(b)(2) and blocked in their true position with webs horizontal. The camber, length of sections, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram.

All girders in simple spans without field splices shall be blocked in their true position with webs horizontal. The camber, distance between bearings, and openings of joints shall be measured and this information shall become part of the permanent records.

Web and flange plates for main members and flange splice plates for main members 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.

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment will be made for shop welded splices.

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of 1/4" +/- is allowed for camber.

Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr.___)".

Bent plate diaphragms for horizontally curved girders 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. Bent plate diaphragms for straight girders may be cut and fabricated in accordance with Subsection 807.35 or as required for horizontally curved girders.

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

SUBSTRUCTURE NOTES:

CONCRETE:

Unless otherwise noted, concrete in caps, columns and footings (except seal footings) shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. Seal Concrete for footings shall have a minimum 28 day compressive strength f'c = 2,100 psi.

Concrete in drilled shafts shall be Class "S" as modified by Job SP "Drilled Shaft Foundations".

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

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.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

STRUCTURAL STEEL:

Structural steel in end bents shall be AASHTO M 270 with grade and payment as specified in the plans.

FOR ADDITIONAL INFORMATION AND NOTES, SEE LAYOUT(S) AND PLAN DETAILS.

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

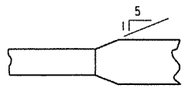
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 9-2-2015 FILENAME: b55006.dgn
CHECKED BY: B.E.F. DATE: 9-2-2015 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55006

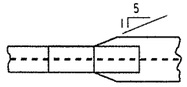
PRINT DATE: 9/10/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		40	
				JOB NO.				
				①	STEEL BRIDGE STRUCTURES 55007			

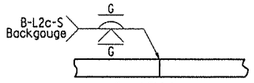


Plan-Unequal Width (Flg.)

FLANGE SPLICE

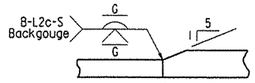


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

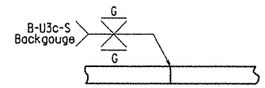
WEB & FLANGE SPLICE



Unequal Thickness

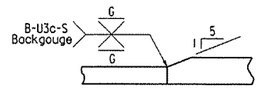
FLANGE SPLICE

(Use when Base Metal Thickness Is Equal to or Less than 2")



Equal Thickness

WEB & FLANGE SPLICE

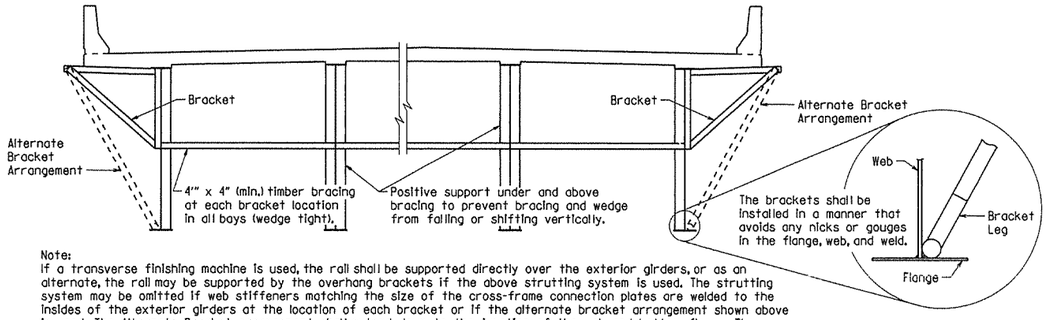


Unequal Thickness

FLANGE SPLICE

(Use when Base Metal Thickness Is Greater than 2")

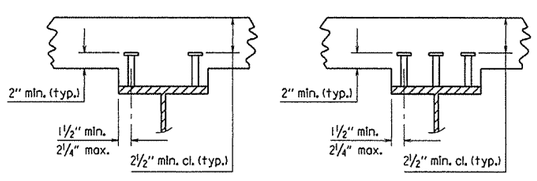
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the cross-frame connection plates are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The Alternate Bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for cross frame connection plates shown on the plans. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (____)".

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)

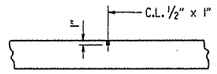


2 STUDS PER ROW

3 STUDS PER ROW

Stud Shear Connectors shall be automatically end welded to the beam or girder flange in accordance with the recommendations of the Manufacturer. See plan details for number and size.

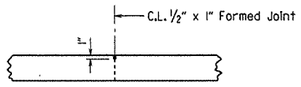
SHEAR CONNECTOR DETAIL



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 and shall align with open joints at the front face of the parapet. 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 from gutterline to gutterline.

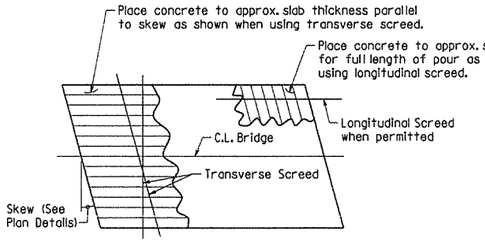
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck slab from gutterline to gutterline and acrosss the top of the sidwalk or raised median to the edge of the slab. No joint sealer shall be placed on the deck slab under the sidewalk or raised median.

TRANSVERSE SLAB JOINT DETAIL



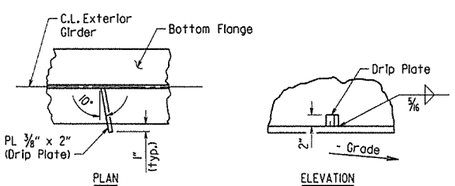
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



Note: At the Contractor's option, the transverse screed may be placed parallel to the skew or perpendicular to C.L. Bridge.

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



PLAN

ELEVATION

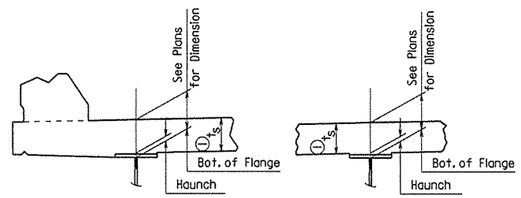
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

Locate drip plate 5'-0" from C.L. Bearing on high side of each Bent, unless otherwise noted in the plans.

BOTTOM FLANGE DRIP PLATE

(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)

t_s = slab thickness. See "Typical Roadway Section" in the plans.



EXTERIOR BEAM OR GIRDER

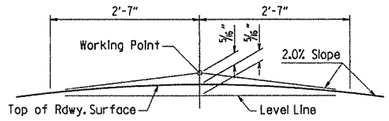
INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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" unless otherwise noted in the plans. 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.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

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.

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS.

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

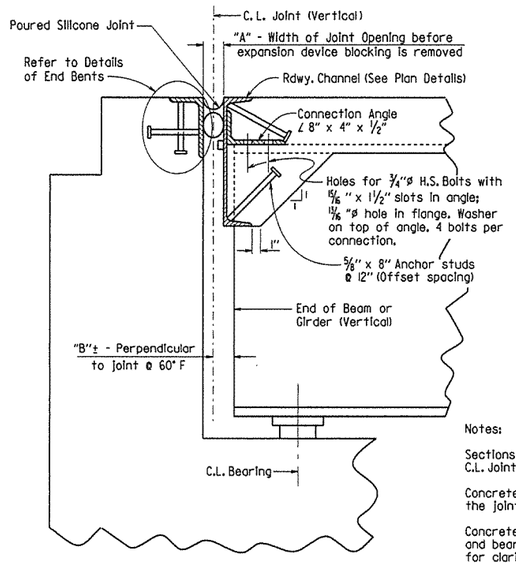
DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn

CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		41	
				JOB NO.				
				①	POURED SILICONE JOINT			55008



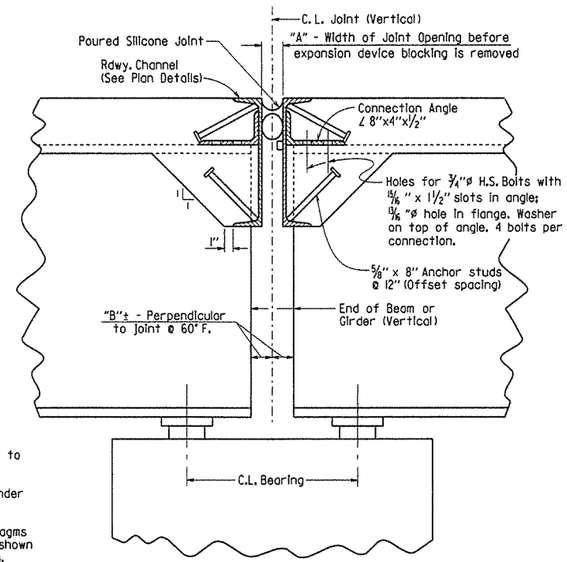
SECTION THRU JOINT AT END BENT

Notes:

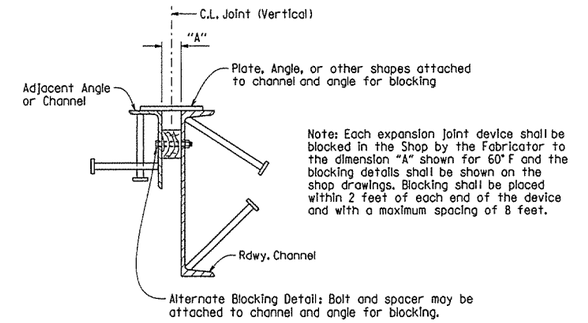
Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.



SECTION THRU JOINT AT INTERMEDIATE BENT



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 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

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

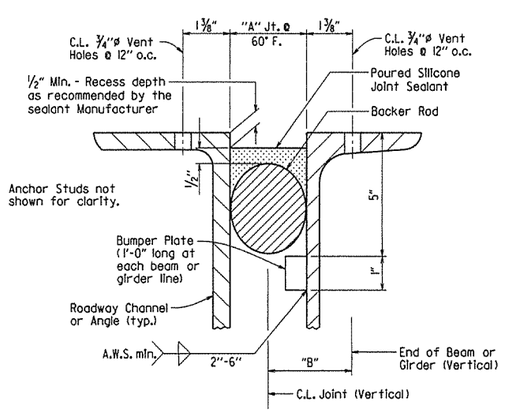
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior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

2) The backwall shall be poured to the optional construction joint after beams or girders 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 and grade.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.



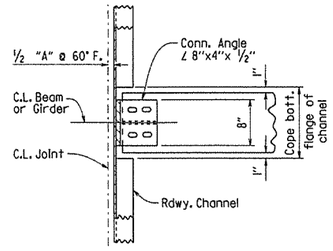
DETAIL OF POURED SILICONE JOINT

Silicone joint material and installation shall conform to Section 809. 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.

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. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

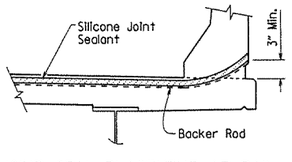
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.

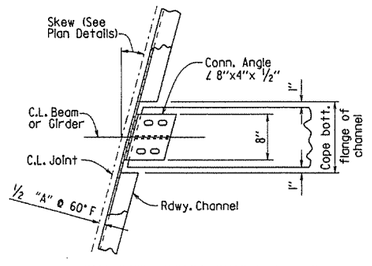


CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

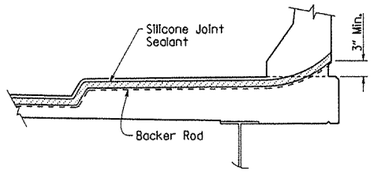


JOINT SEAL PLACEMENT AT RAIL



CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



JOINT SEAL PLACEMENT AT SIDEWALK

SECTION AND SUBSECTION REFER TO THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2014 EDITION).

THESE DETAILS ARE APPLICABLE UNLESS OTHERWISE SHOWN IN THE PLAN DETAILS, SPECIAL PROVISIONS, OR SUPPLEMENTAL SPECIFICATIONS. SEE "TABLE OF SILICONE JOINT DATA" IN PLAN DETAILS FOR VARIABLES "A" AND "B", AND BUMPER PLATE SIZE.

STANDARD DETAILS FOR POURED SILICONE JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

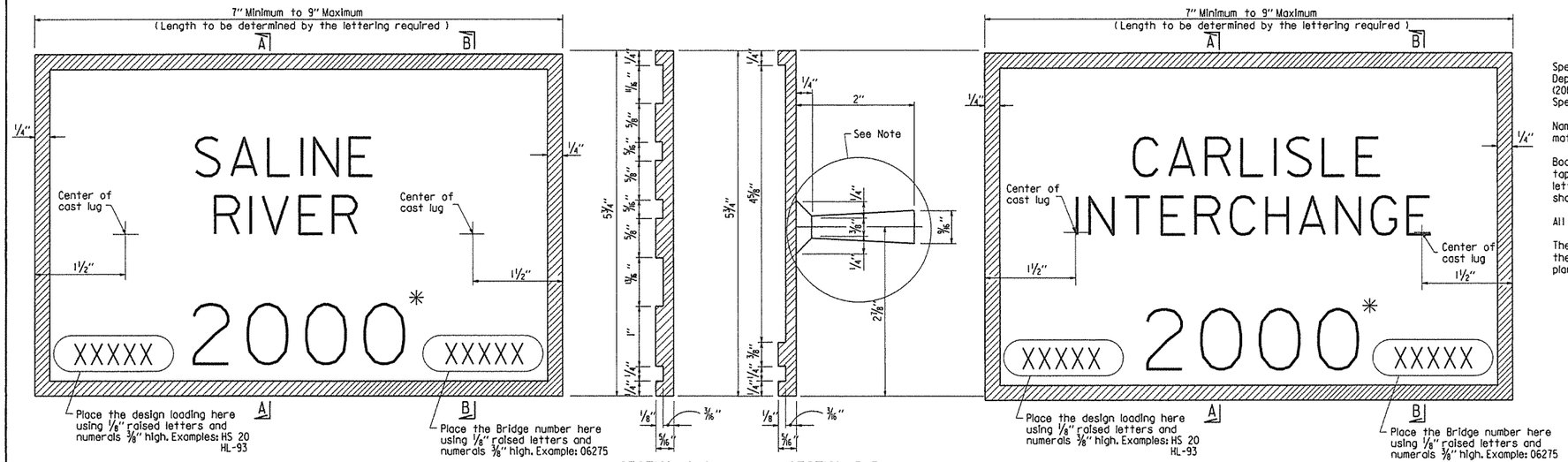
DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn

CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		42	
				JOB NO.				
				①	TYPE C NAME PLATE		55011	



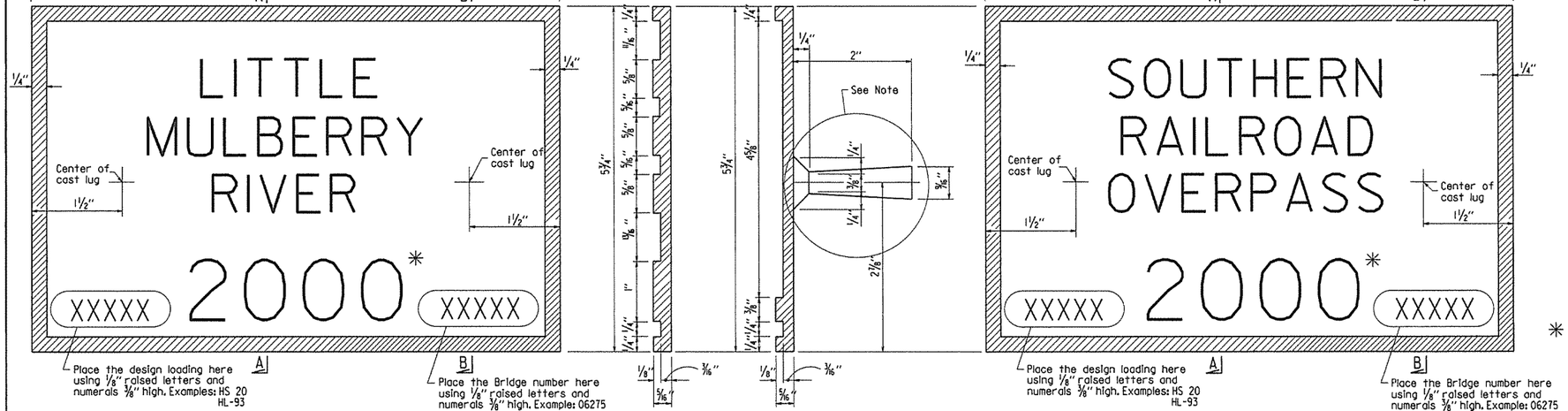
TYPICAL BRIDGE NAME PLATE-STYLE 1 - FULL SIZE
STREAM CROSSINGS

SECTION A-A

SECTION B-B

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

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



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

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 ⅜" to 9/16"x 2" long. The border and all lettering shall be raised ⅛" 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.

* 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
3/24/16				6	ARK.		43	
				JOB NO.				
				①	STEEL H-PILES			55020

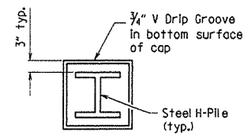
GENERAL NOTES FOR STEEL H-PILES:

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

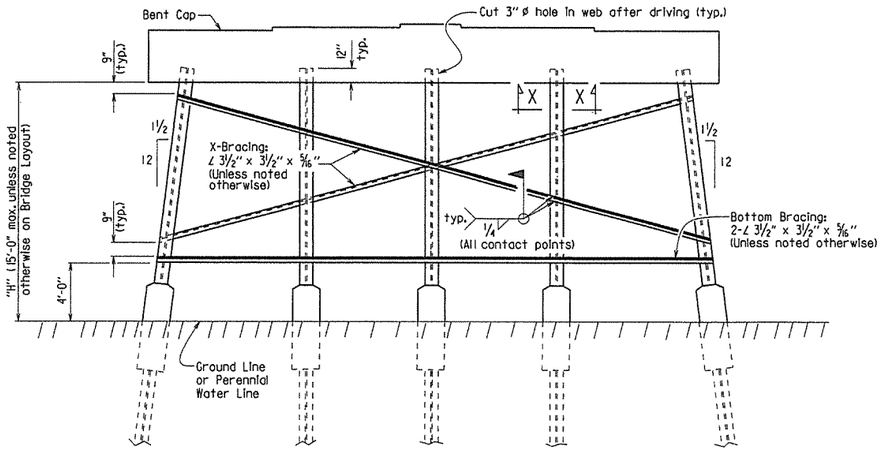
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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.

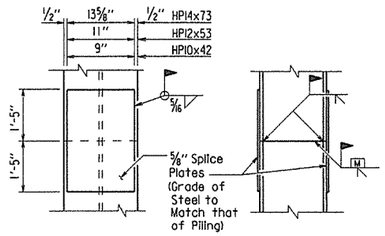
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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)



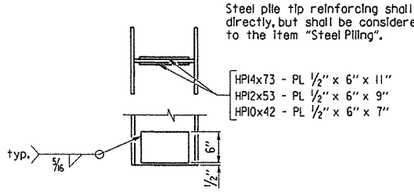
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

⚠ H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/16" fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifications for Highway Construction (2014 Edition).

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:

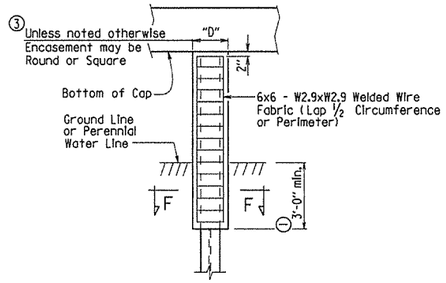
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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.

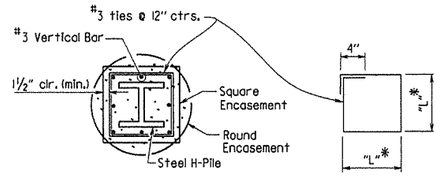
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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)

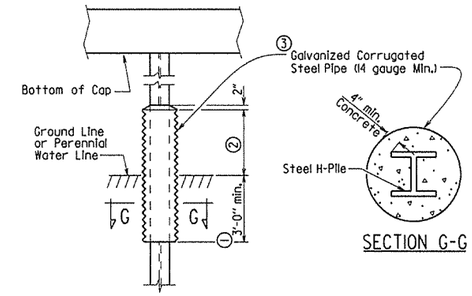


SECTION F-F

*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

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.

⚠ Added alternate method of splicing H-piles and revised pile encasement note.
3/24/2016 AMS

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

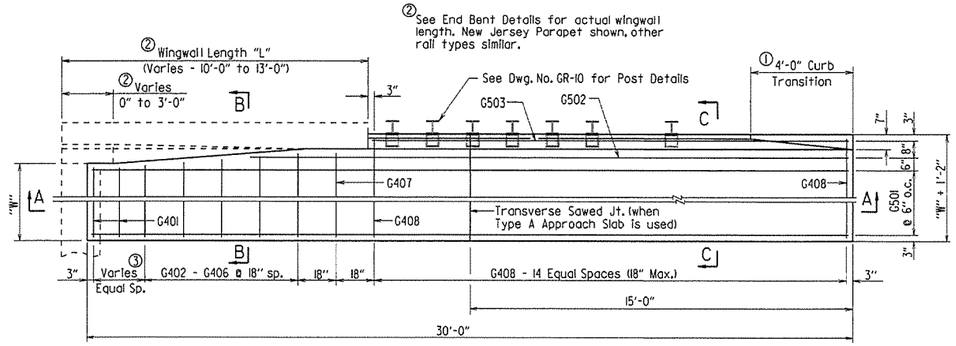
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

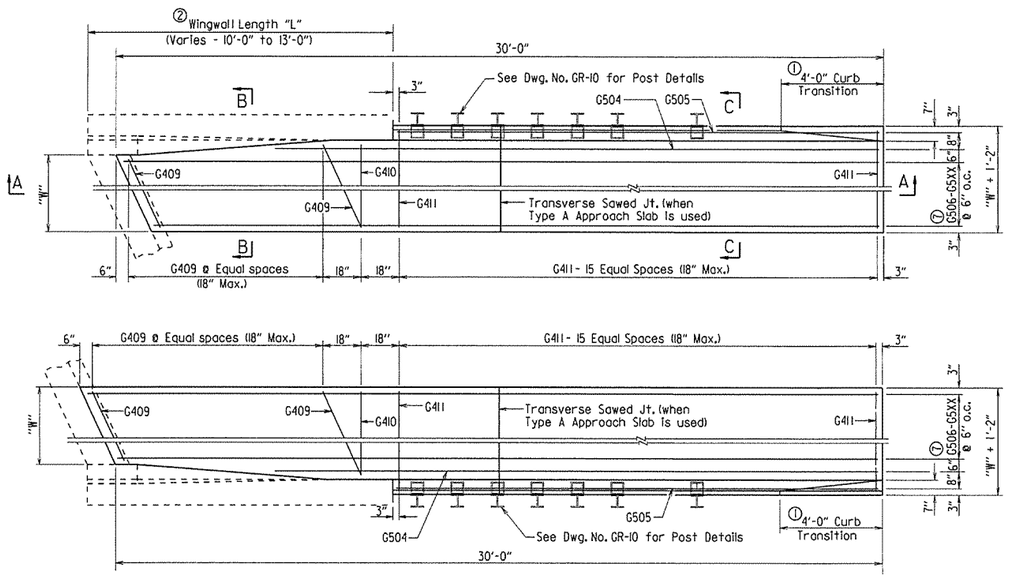
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.		44	
				JOB NO.				

① TYPE A GUTTERS 55030A

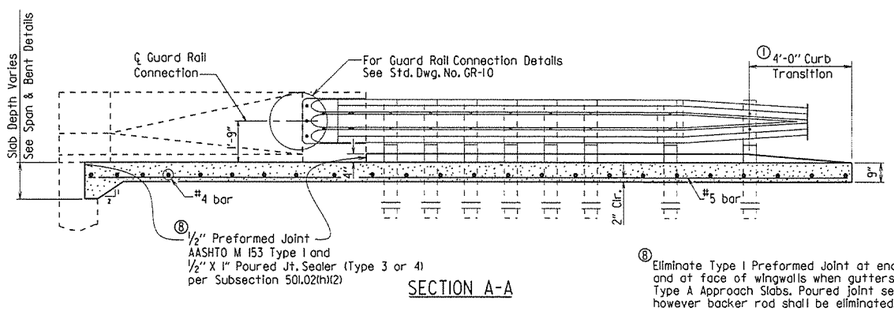


③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE



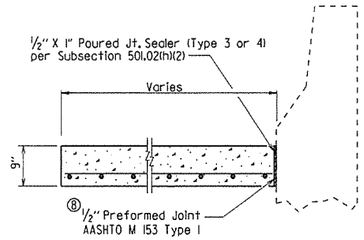
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



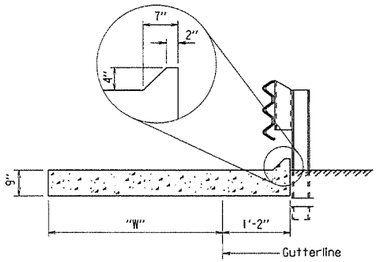
SECTION A-A

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.

BAR LIST FOR ONE TYPE A GUTTER

	Mark	No. Req'd. for Width "W" ⚠ 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	15	15	15	15	15	"W"+ 10"
	G501	4	6	8	12	16	29'-8"
	G502	1	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	1	"W"+3"
	G411	16	16	16	16	16	"W"+ 10"
	G504	1	1	1	1	1	⑤
	G505	1	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	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 G509 for "W" = 2' ⚠
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.)
2	210	2.55
3	285	3.40
4	360	4.25
6	515	5.90
8	665	7.55

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

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.

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.

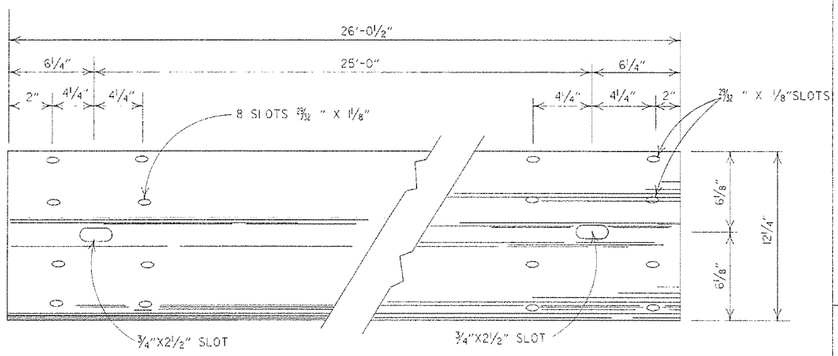
⚠ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

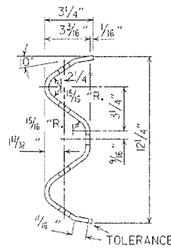
STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

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:

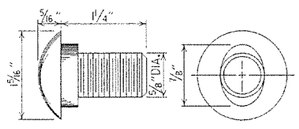
DRAWING NO. 55030A



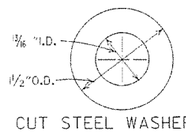


DETAILS OF
W-BEAM GUARD RAIL

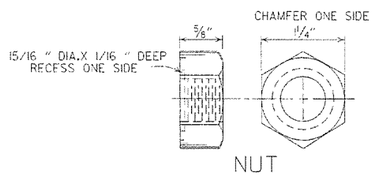
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



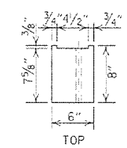
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

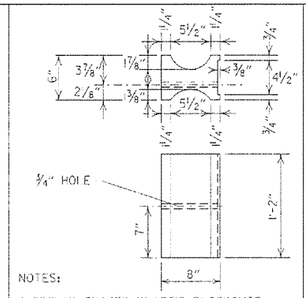


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

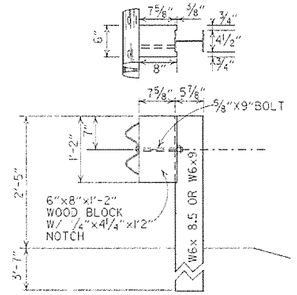
WOOD BLOCKOUT
(W-BEAM)



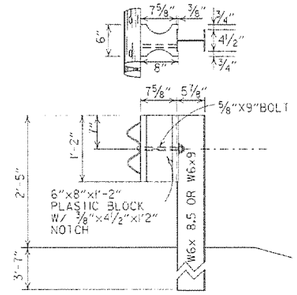
NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT
(W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.

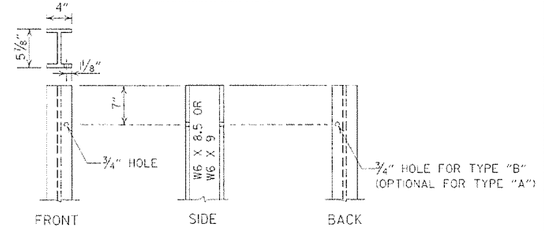


WOOD BLOCKOUT CONNECTIONS

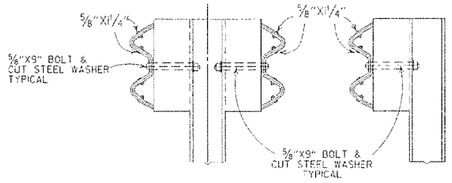


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)



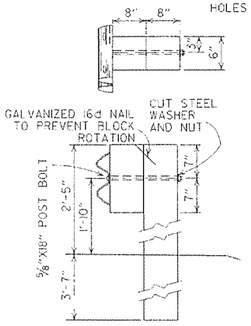
STEEL POST



TYPE "B" TYPE "A"

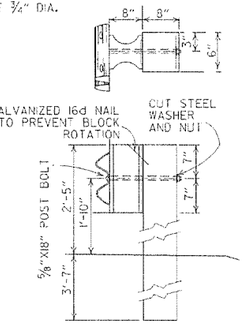
DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ½".

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 ¾" 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.

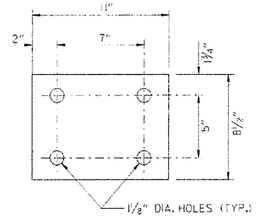
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7 14 10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERRANCE TO MASH	
4 10 03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
8-16-01	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 M.T. 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	807-10-9-87

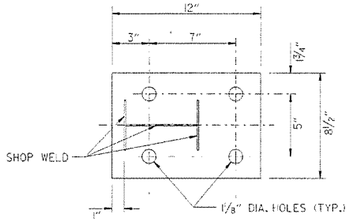
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

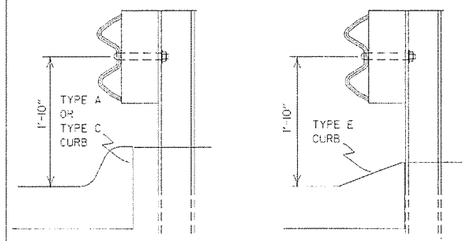


WASHER PLATE



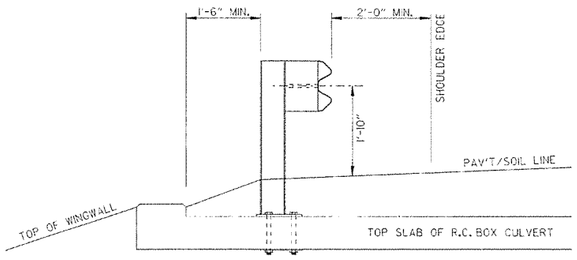
BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

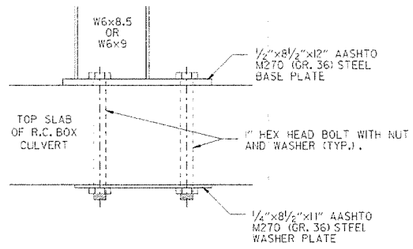


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

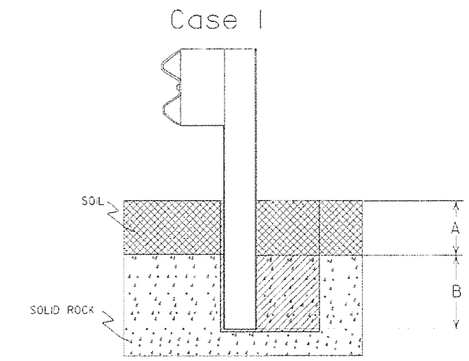
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

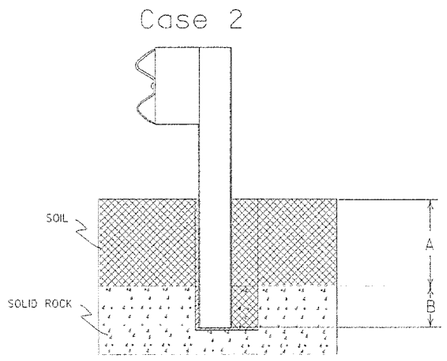


SECTION A-A



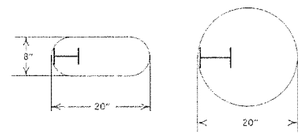
DETAIL OF CONNECTION





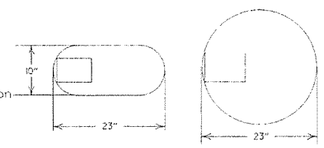
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

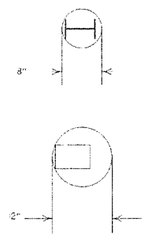
Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

Zone A:
Backfill according to Section 617.03(a).

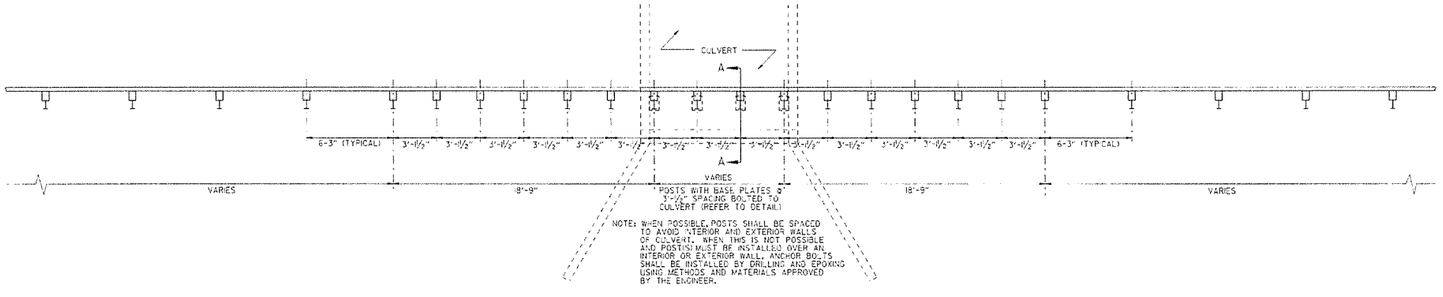
Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.



Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

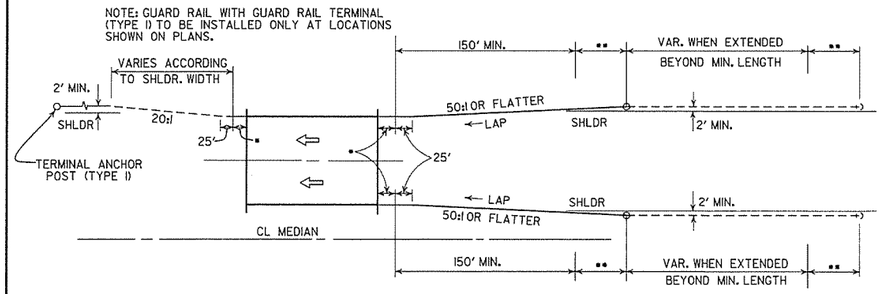
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

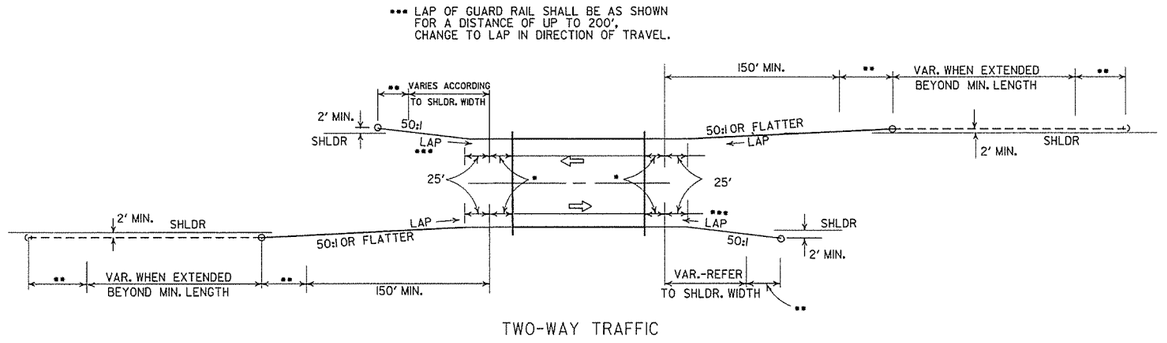
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8A



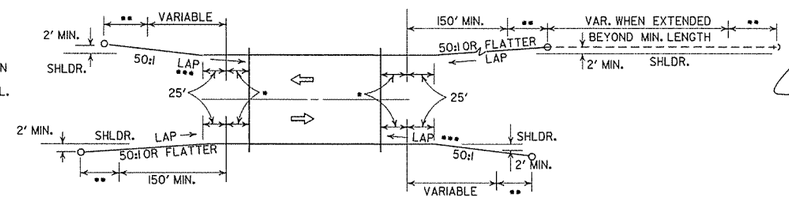
ONE-WAY TRAFFIC



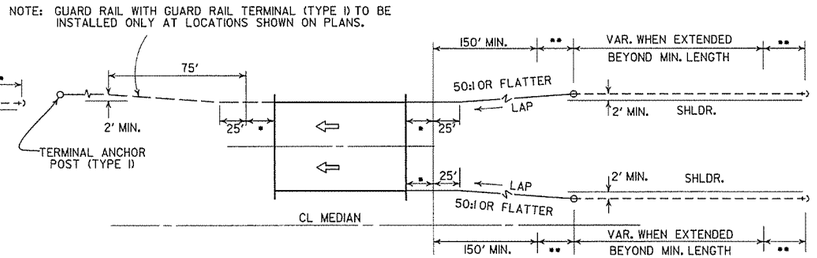
TWO-WAY TRAFFIC

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.



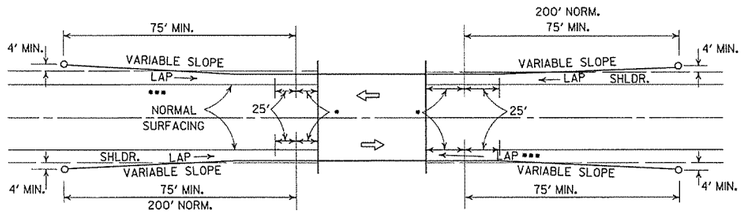
TWO-WAY TRAFFIC



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.



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

LEGEND

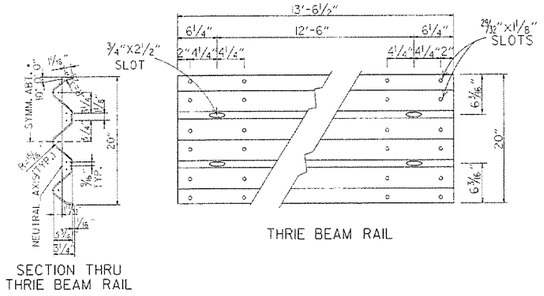
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

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

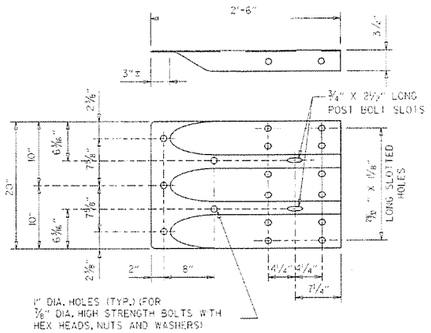
GUARD RAIL DETAILS

STANDARD DRAWING GR-9



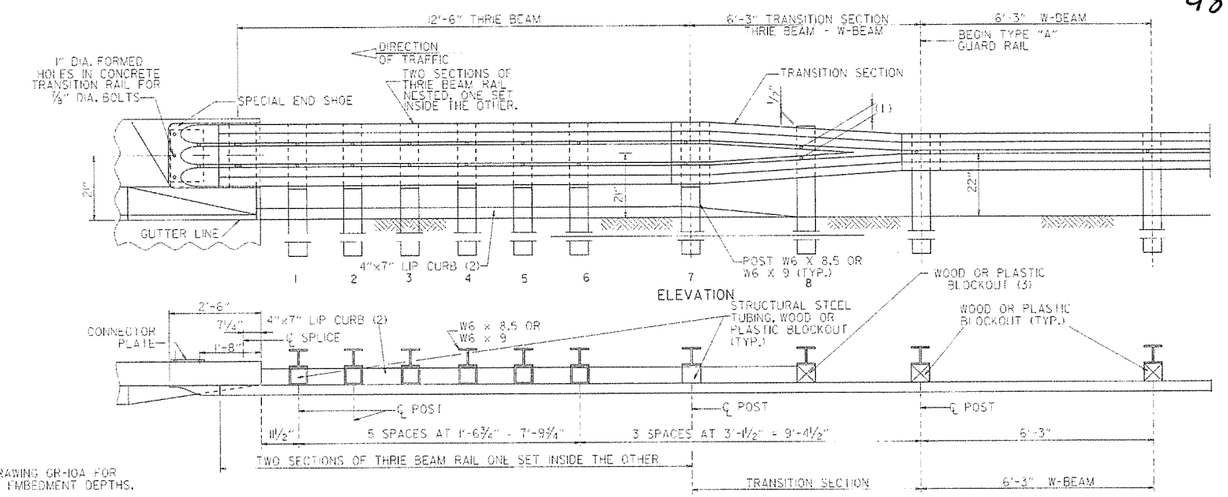
THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



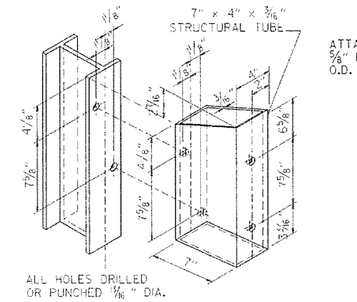
1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

SPECIAL END SHOE



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

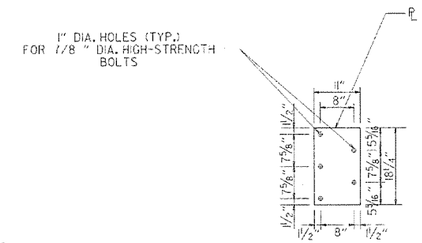
(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.



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

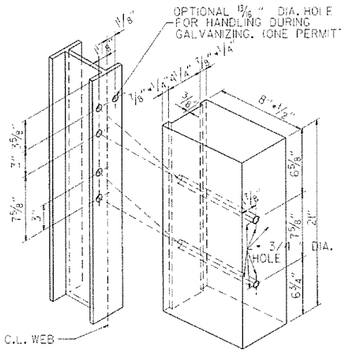
ALL HOLES DRILLED OR PUNCHED ⅛" DIA.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



CONNECTOR PLATE

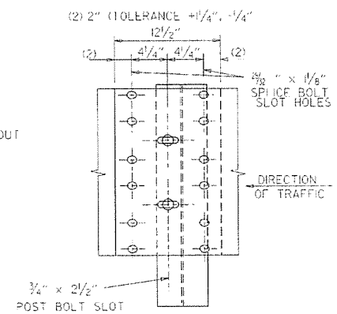
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.13 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



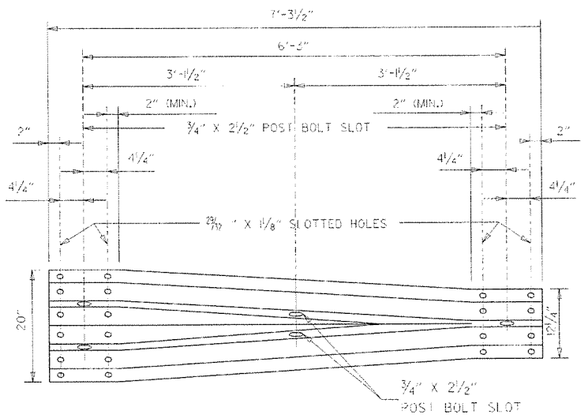
ALL HOLES ⅛" DIAMETER EXCEPT AS NOTED

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

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 II.

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 F (1400 f) OR NO. 1 1350 f 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.

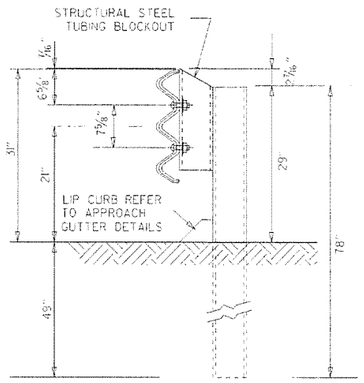
THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

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	

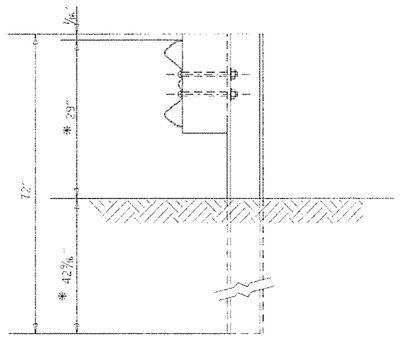
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

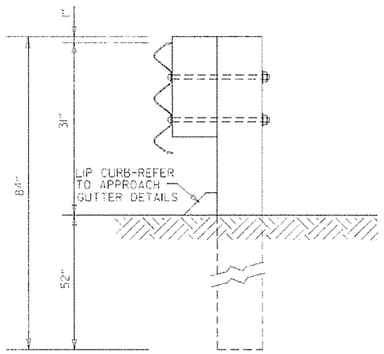


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

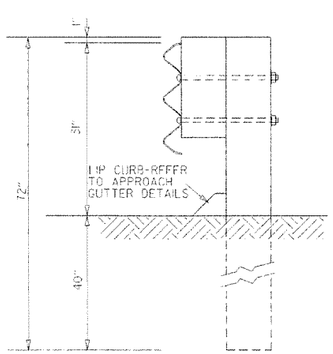


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

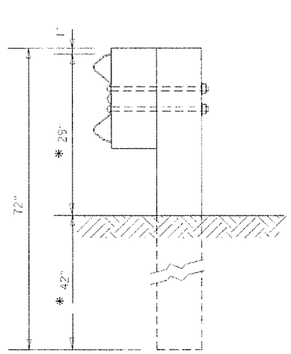
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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.

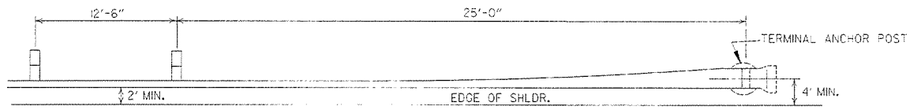
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 #) OR NO. 1 1350 # SOUTHERN PINE.

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	

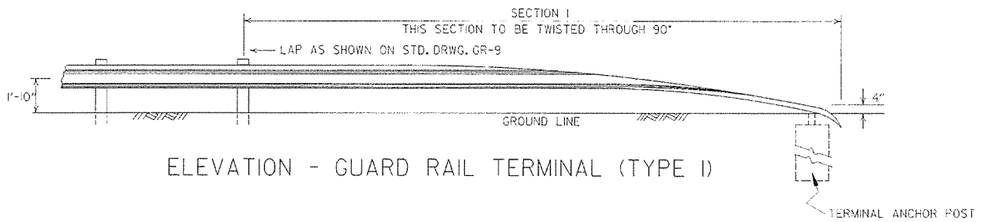
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

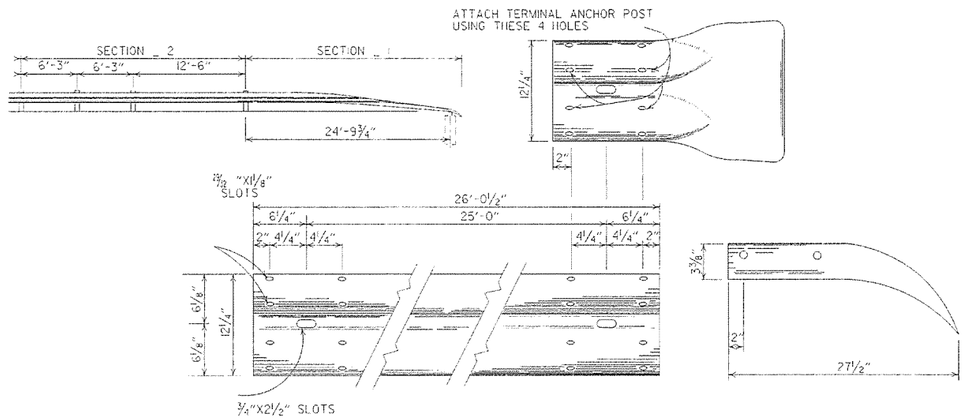


PLAN - GUARD RAIL TERMINAL (TYPE I)



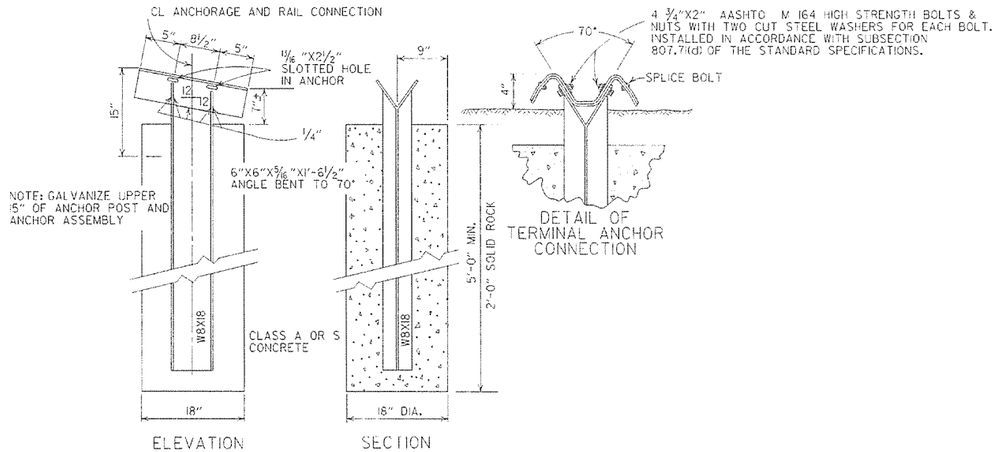
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

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.

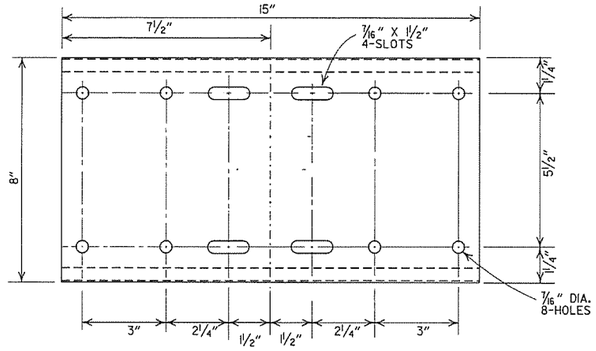
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

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

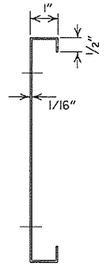
ARKANSAS STATE HIGHWAY COMMISSION

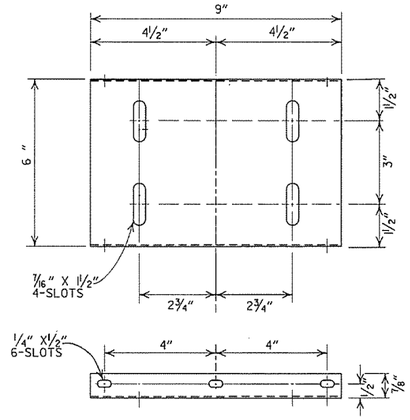
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

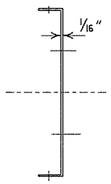


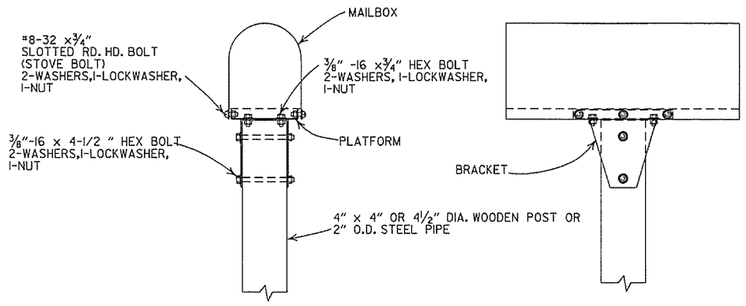
SHELF



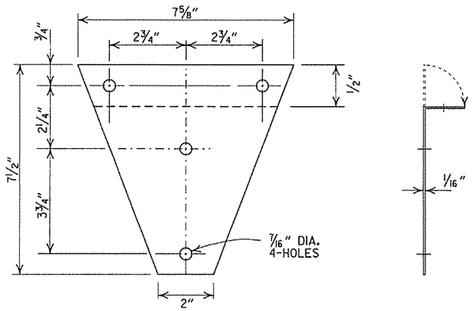


PLATFORM





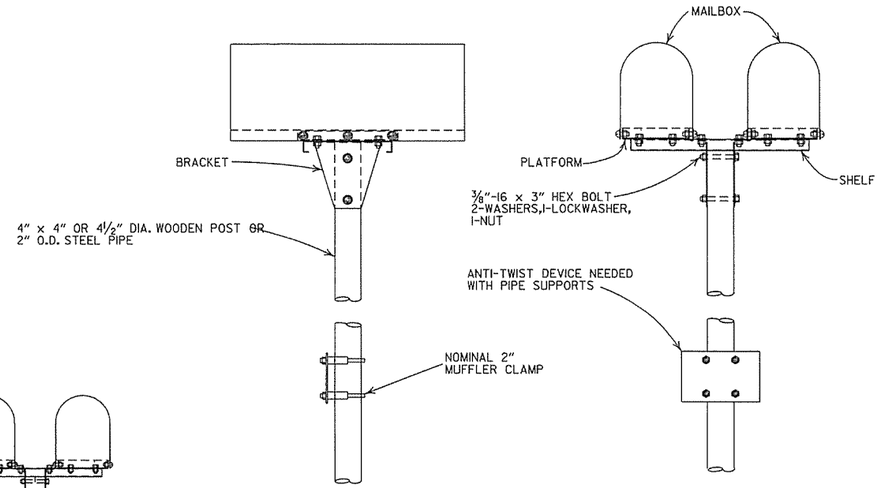
SINGLE INSTALLATION



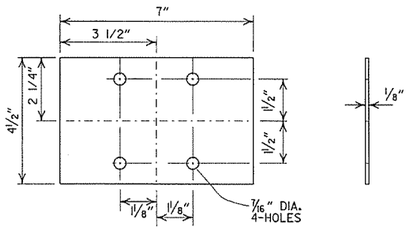
BRACKET

GENERAL NOTES

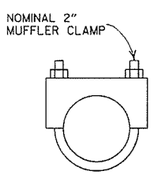
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED 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.



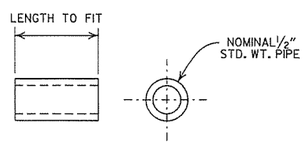
DOUBLE INSTALLATION



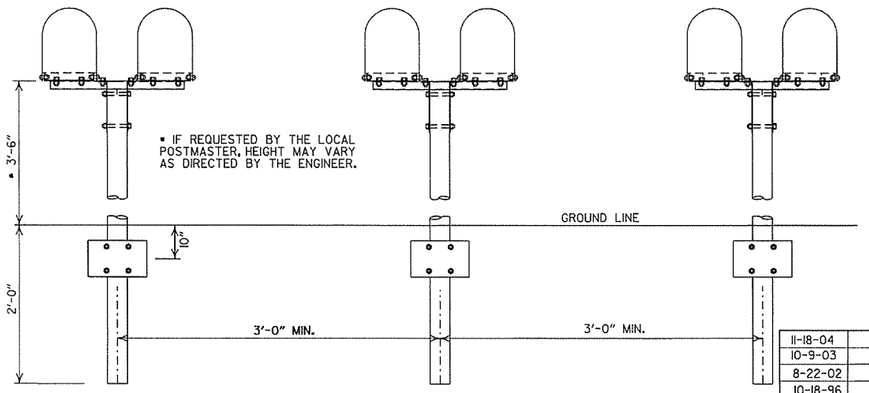
ANTI-TWIST PLATE



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	43⅞	44	26⅝	27
42	51⅛	51	31⅜	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)(ii).

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

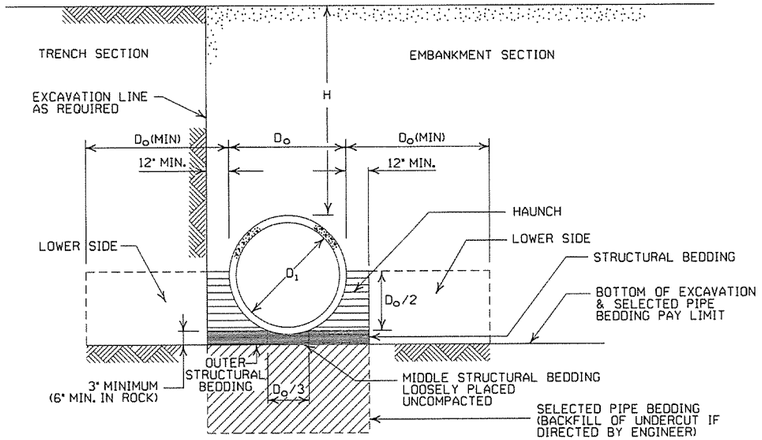
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

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

CONSTRUCTION SEQUENCE

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

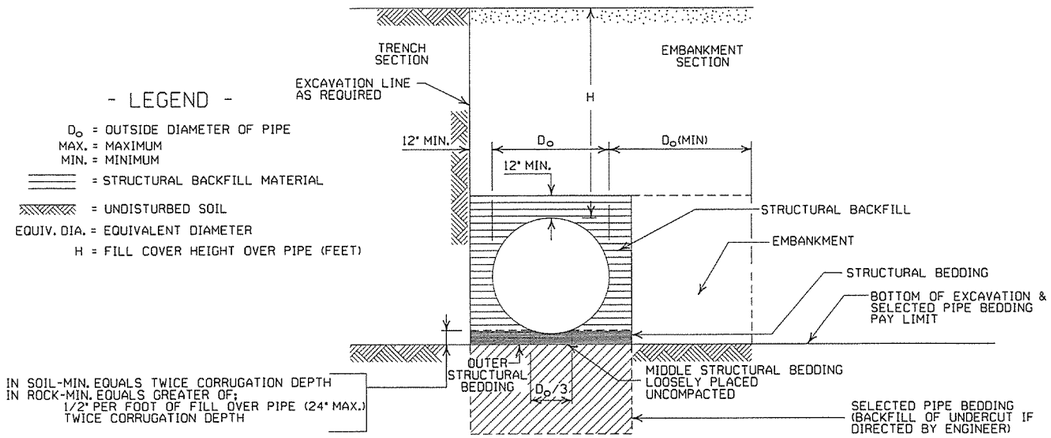
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1OR 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 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

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 TRENCH WIDTH BASED ON FILL HEIGHT "H"

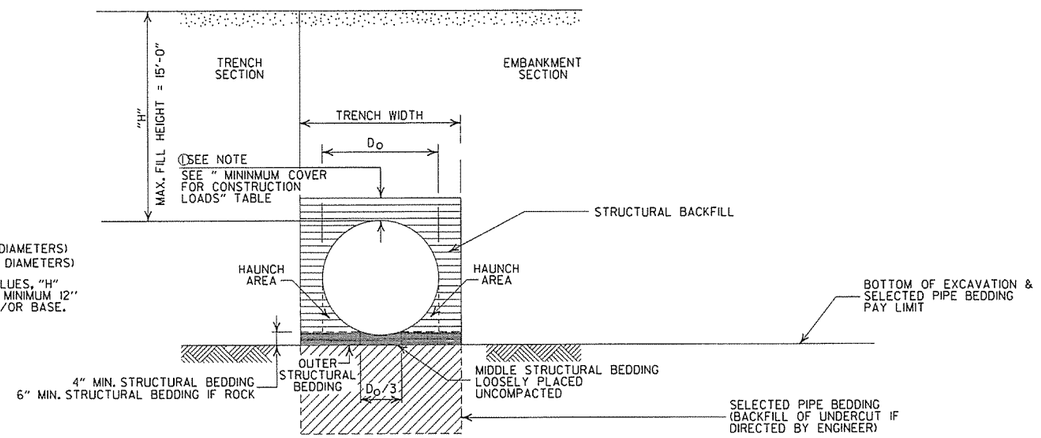
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

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.

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

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 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

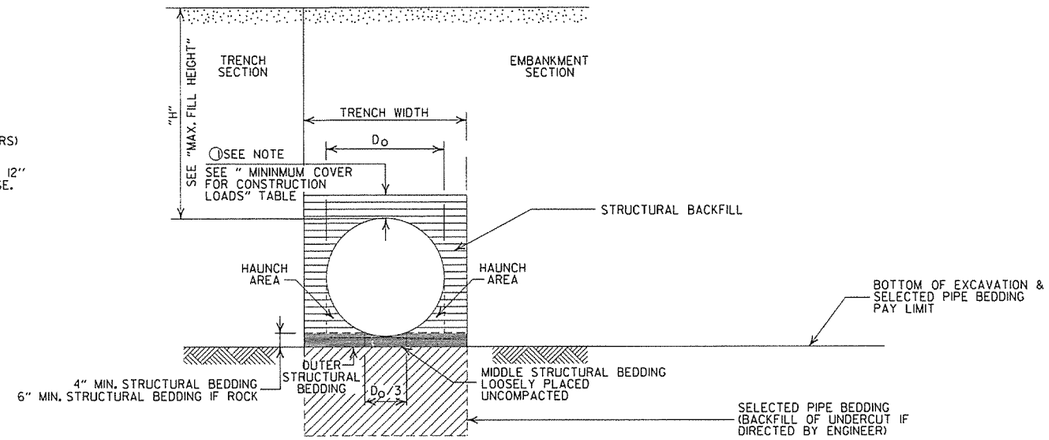
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL 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

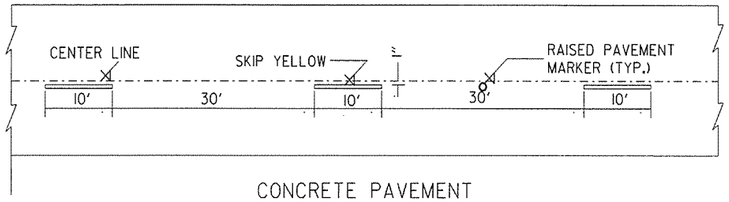
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

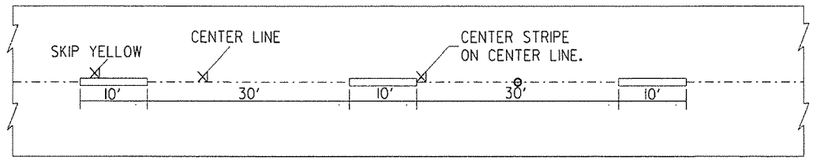
PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2

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

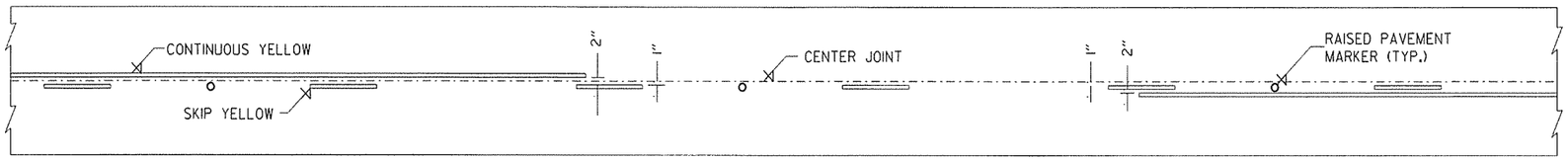


CONCRETE PAVEMENT

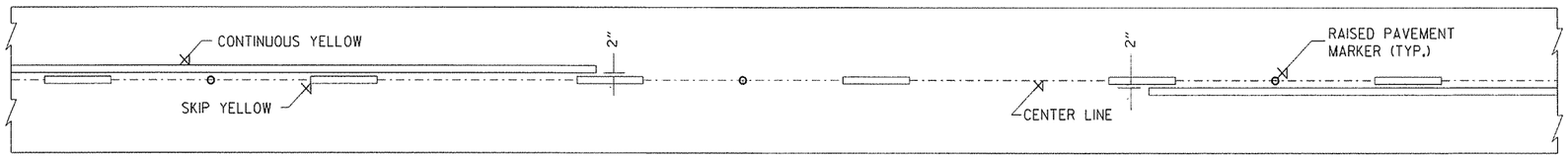


ASPHALT PAVEMENT

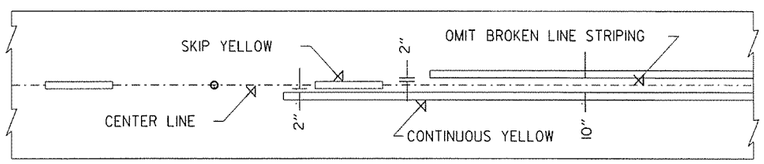
BROKEN LINE STRIPING



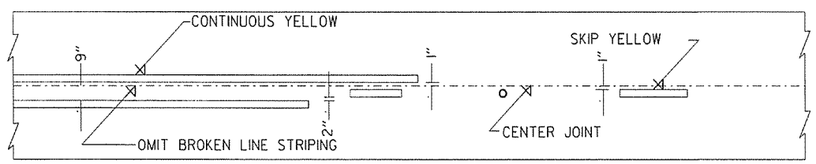
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

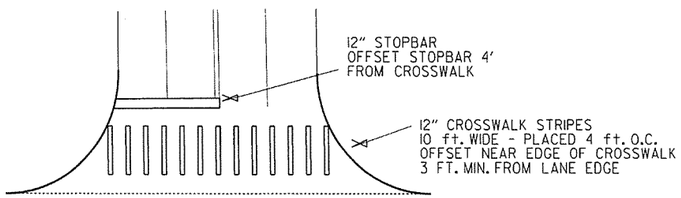


ASPHALT PAVEMENT

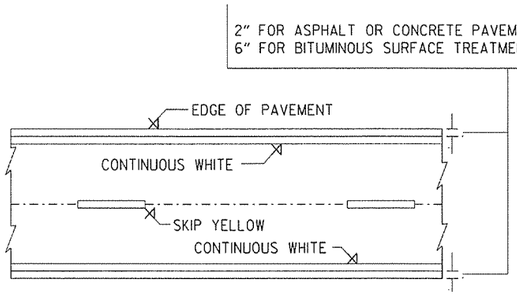


CONCRETE PAVEMENT

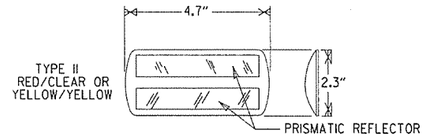
STRIPING AT ADJACENT NO PASSING LANES



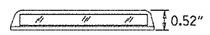
CROSSWALK AND STOPBAR DETAILS



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

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.

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

ARKANSAS STATE HIGHWAY COMMISSION

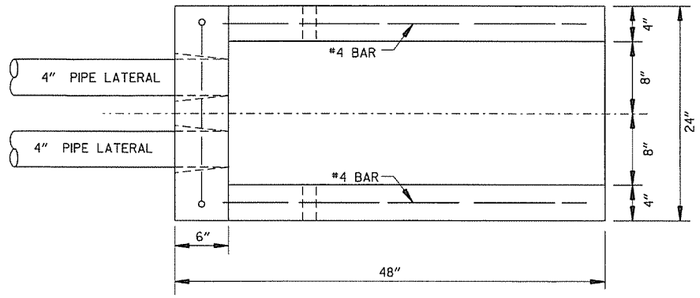
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

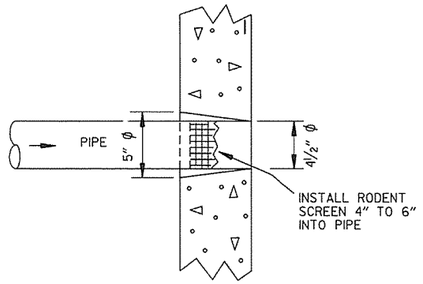
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

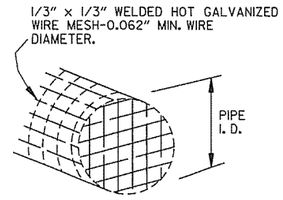
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



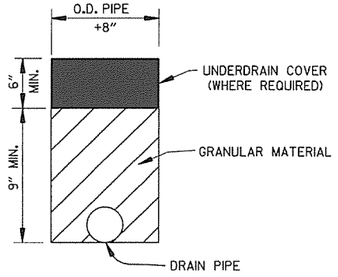
PLAN VIEW

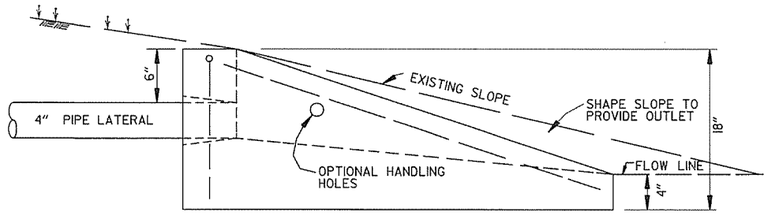


DETAIL OF HOLE FOR 4" PIPE

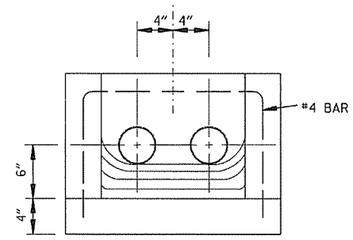


DETAIL OF RODENT SCREEN

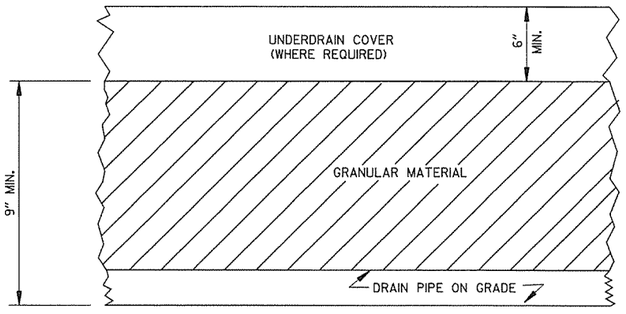




SIDE VIEW

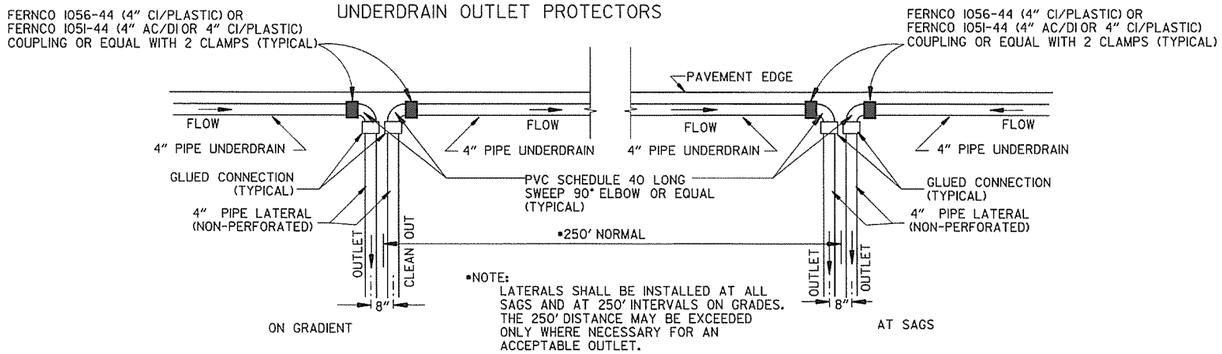


FRONT VIEW



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

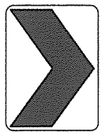
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

R1-1
30"X30"

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

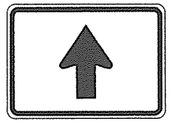


W1-8
18"X24"

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.)

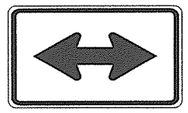
W2-1
30"X30"

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"

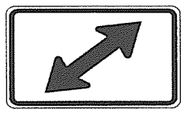
W1-5
30"X30"
(LT. or RT.)

W2-2
30"X30"

W5-2
36"X36"

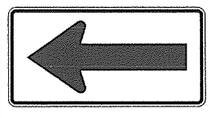
W8-3
36"X36"

R1-3P
18"X6"

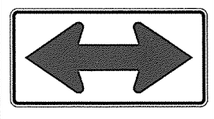


M6-5
21"X15"

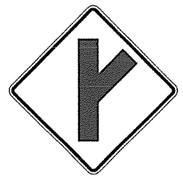
W1-1
30"X30"
(LT. or RT.)



W1-6
48"X24"

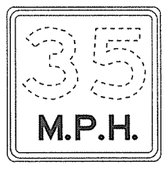


W1-7
48"X24"

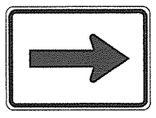


W2-3
30"X30"
(LT. or RT.)

W5-3
36"X36"

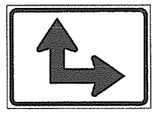


W13-1P
18"X18"



M6-1
21"X15"

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

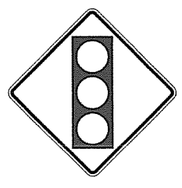


M6-6
21"X15"

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

W2-4
30"X30"

W10-1
36" DIAMETER

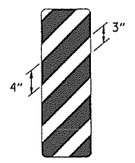


W3-3
36"X36"

M6-2
21"X15"

S4-3P
24"X8"

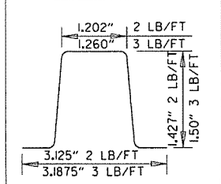
S4-2P
24"X10"



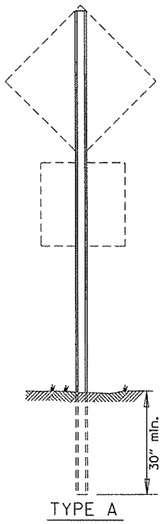
OM-3
12"X36"
(LT. or RT.)

MINIMUM DIMENSIONS SHOWN

SUPPORT SECTION

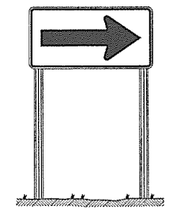


(U-CHANNEL)
STANDARD SUPPORT
ASSEMBLIES

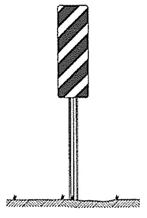


TYPE A

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

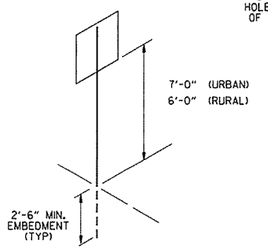
DATE	REVISION	DATE FILMED
9-12-13	DELETED JOB NO. BLOCK; REVISED R1-3 TO R1-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1& W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3; ADDED W1-8	
1-5-81	REDRAWN	960-1-15-81
9-15-78	ADDED W14-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2#-3#; ADDED S4-2 & 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

SUPPORT ASSEMBLIES

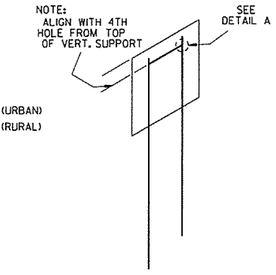
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

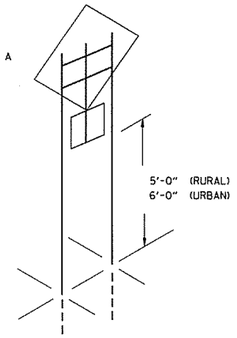
STANDARD DRAWING SHS-1



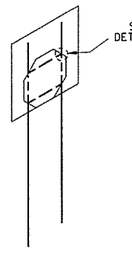
U-1



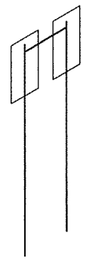
U-2



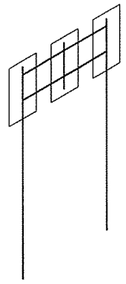
U-2 (A)



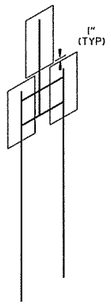
U-2 (B)



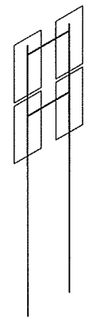
U-2 (1)



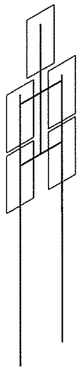
U-2 (2)



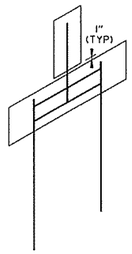
U-2 (3)



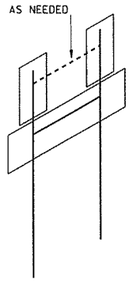
U-2 (4)



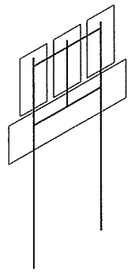
U-2 (5)



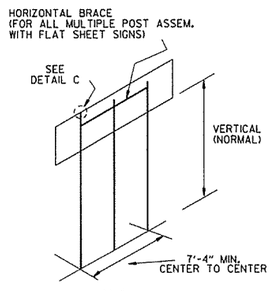
U-2 (6)



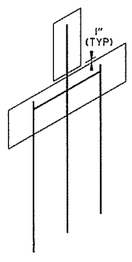
U-2 (7)



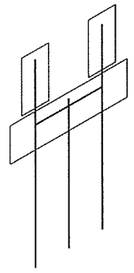
U-2 (8)



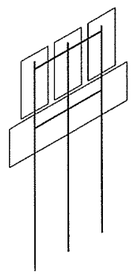
U-3



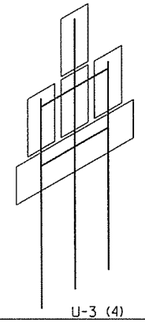
U-3 (1)



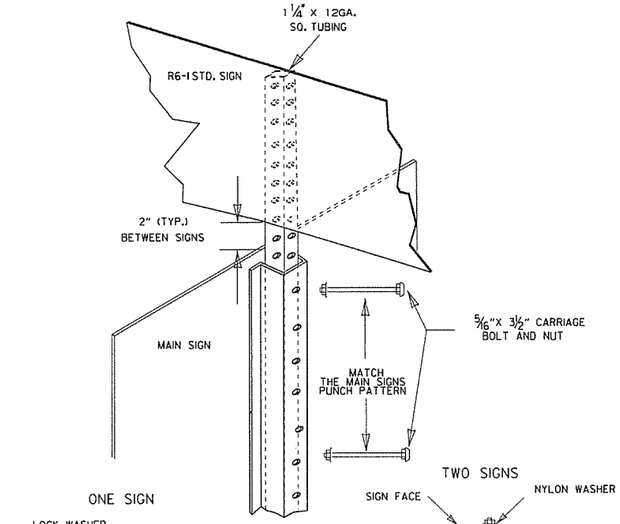
U-3 (2)



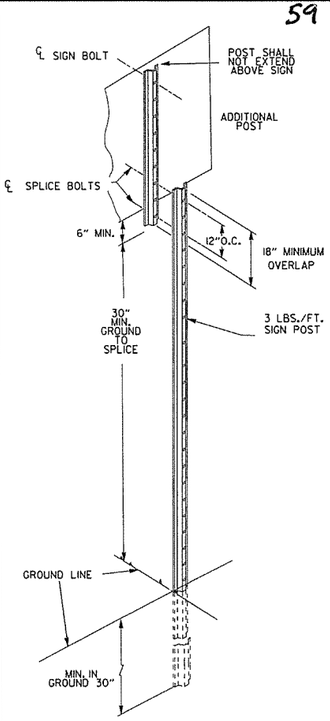
U-3 (3)



U-3 (4)



DETAIL E
R6-1 EXTENSION
FOR U-CHANNEL POST



DETAIL F
DETAIL OF SPLICES

NOTES:

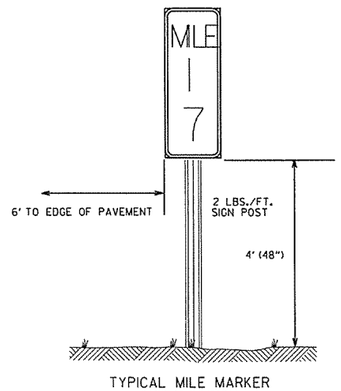
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

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

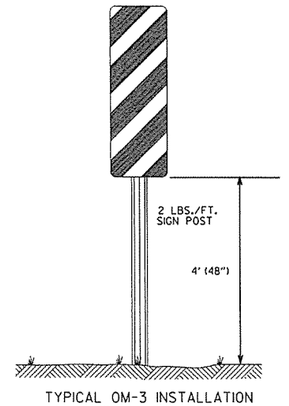
NORMAL INSTALLATIONS WILL REQUIRE 5/16 " DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

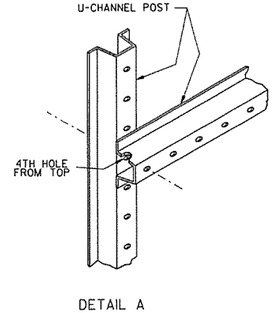
THE POST FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.



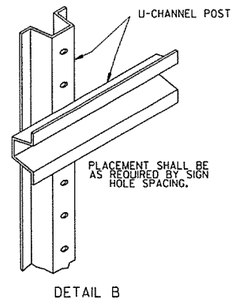
TYPICAL MILE MARKER INSTALLATION



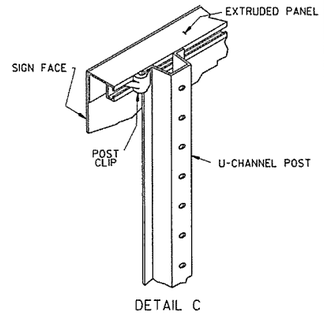
TYPICAL OM-3 INSTALLATION AT EDGE OF OBSTRUCTION



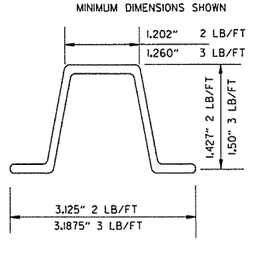
DETAIL A
SHOWING HORIZONTAL BRACE



DETAIL B
SHOWING BACK-TO-BACK INSTALLATION



DETAIL C
SHOWING GUIDE SIGN MOUNTING WITH EXTRUDED PANELS



DETAIL C
U-CHANNEL POST

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

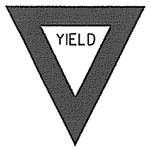
U-CHANNEL POST ASSEMBLIES

STANDARD DRAWING SHS-2

R1-1

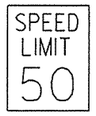
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



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

R2-1



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

W3-5

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

W3-5a

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

R4-1

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

R4-2

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

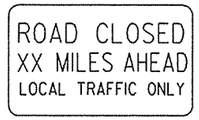
R5-1

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

RII-2

48"X30"

RII-3A



60"X30"

RII-4

60"X30"

RSP-1

48"X30"

WI-1

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

WI-2

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

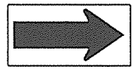
WI-3

STD. 48"X48"

WI-4

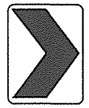
STD. 48"X48"

WI-6



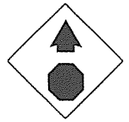
STD. 48"X24"
SPECIAL 60"X30"

WI-8



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

W3-1

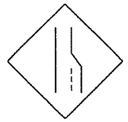


STD. 36"X36"
SPECIAL 48"X48"

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"

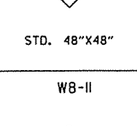
W20-2

STD. 48"X48"

W20-3

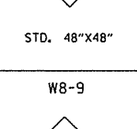
STD. 48"X48"

W20-4



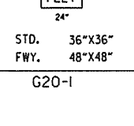
STD. 48"X48"

W20-5



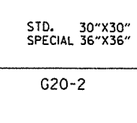
STD. 48"X48"

W20-7a



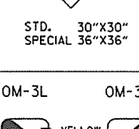
STD. 36"X36"
FWY. 48"X48"

W21-2



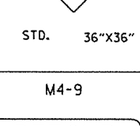
STD. 30"X30"
SPECIAL 36"X36"

W21-5



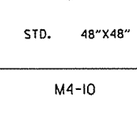
STD. 30"X30"
SPECIAL 36"X36"

W24-1



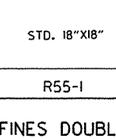
STD. 36"X36"

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	1/2 MILE
1000 FT	3/4 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.

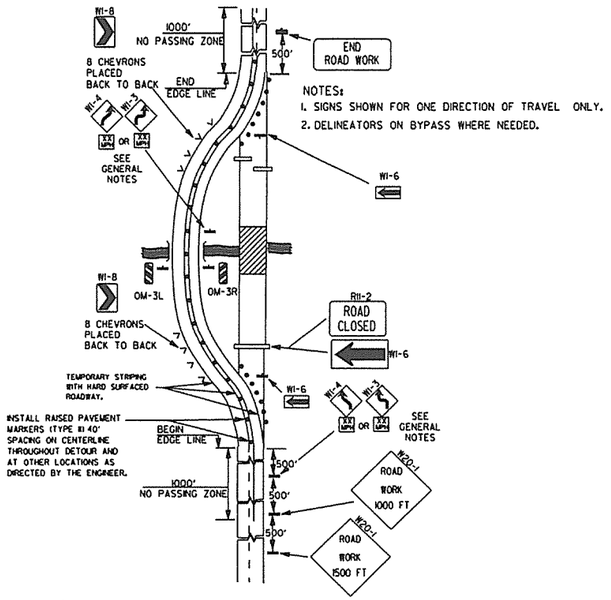
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY 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	
1-17-10	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	
8-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
8-18-98	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	
8-15-9	DRAWN AND PLACED IN USE	

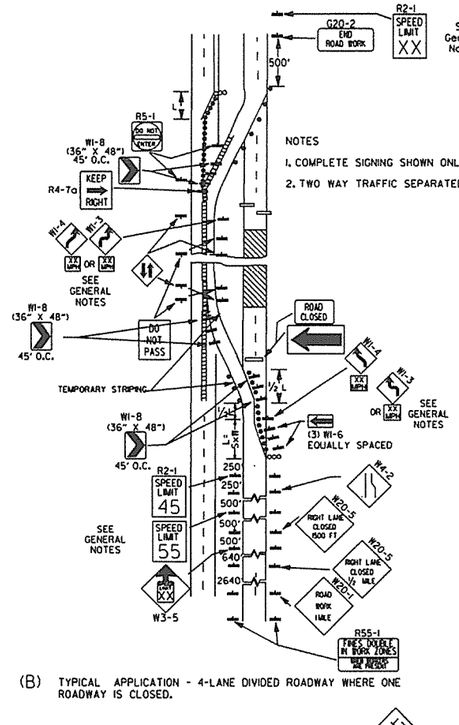
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1

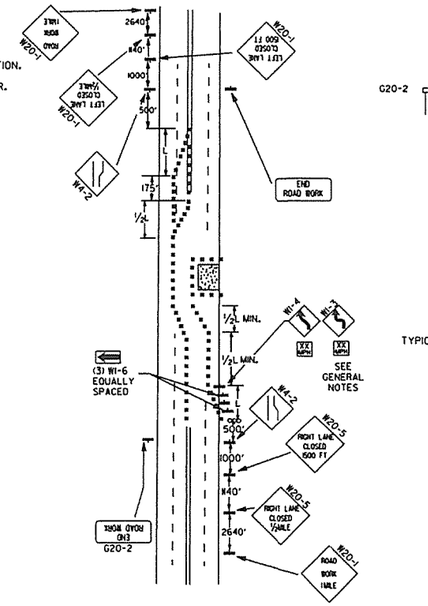


(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

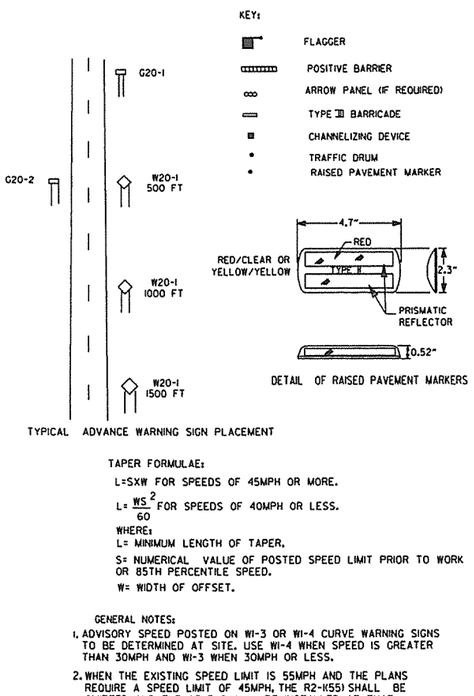


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

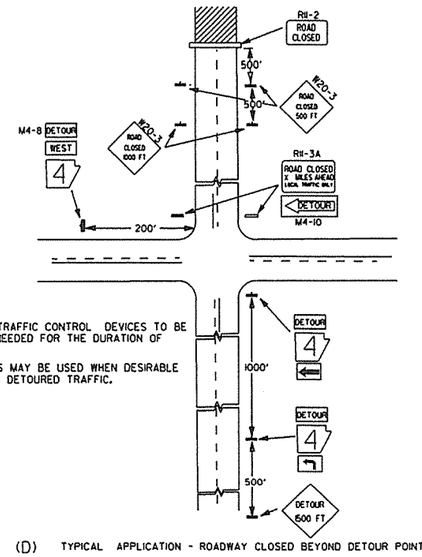
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

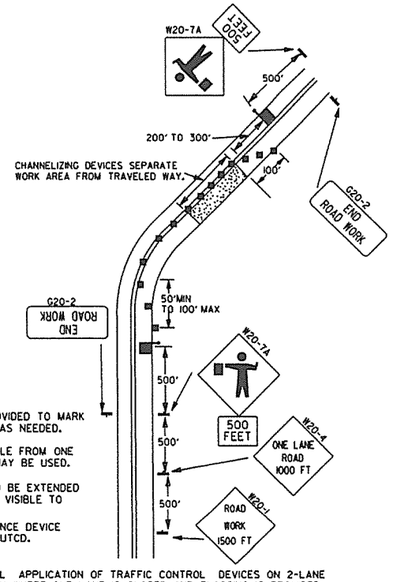
GENERAL NOTES:

1. 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) 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.



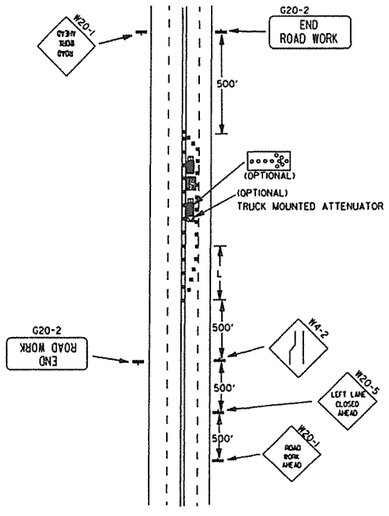
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



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

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



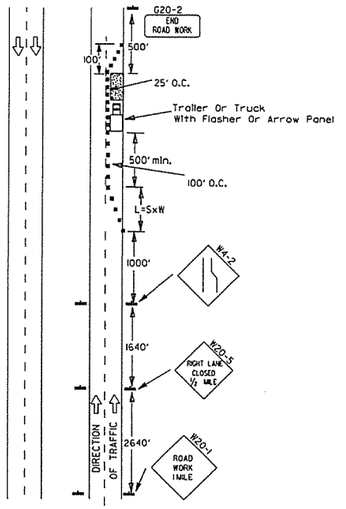
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
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 (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

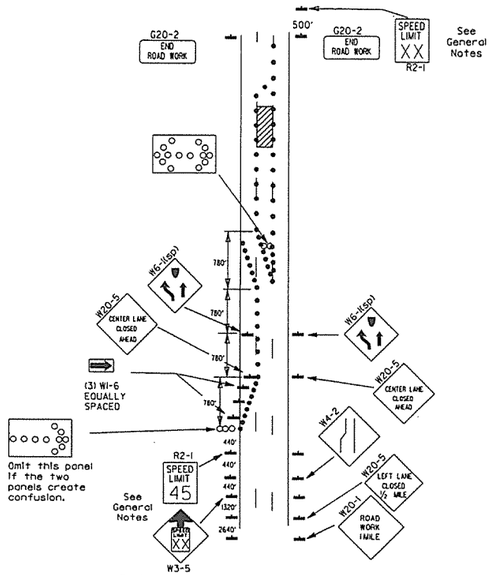
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

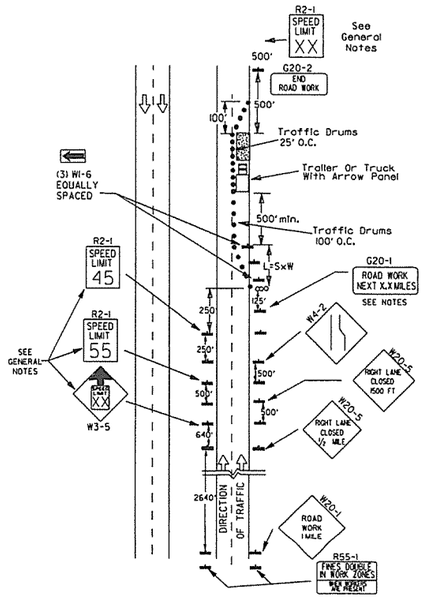
STANDARD DRAWING TC-2



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



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



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

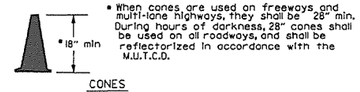
KEY:

- ooo Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

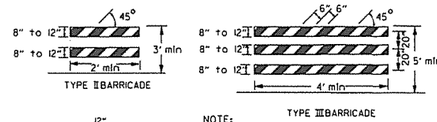
GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of 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.

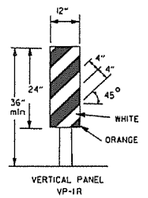
Channelizing devices

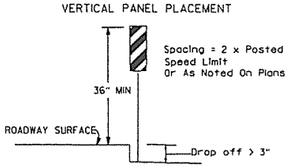


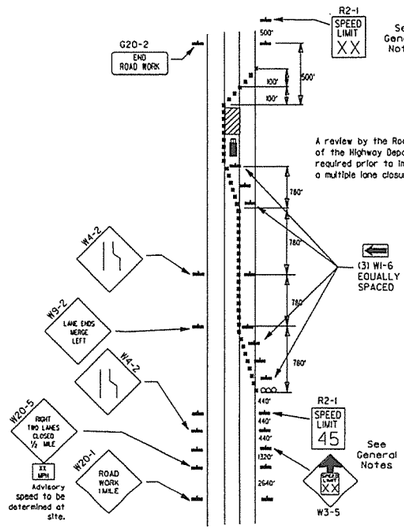
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.



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







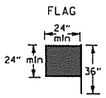
(D) Typical application - closing multiple lanes of a multilane highway.

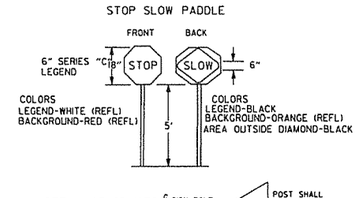
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

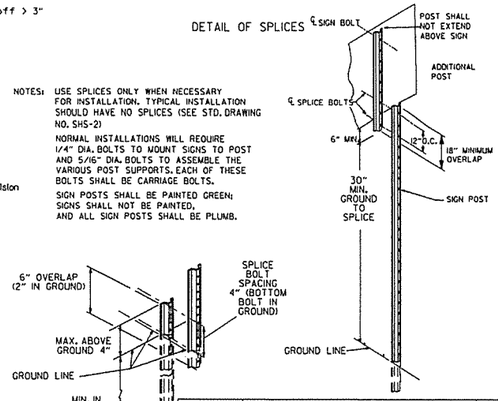
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical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







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	

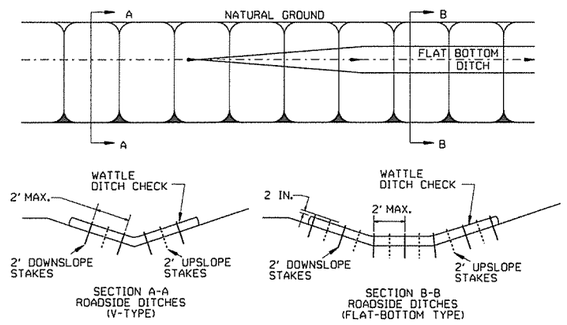
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

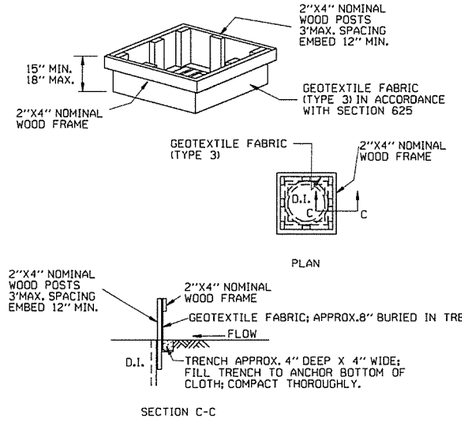
STANDARD DRAWING TC-3

GENERAL NOTES

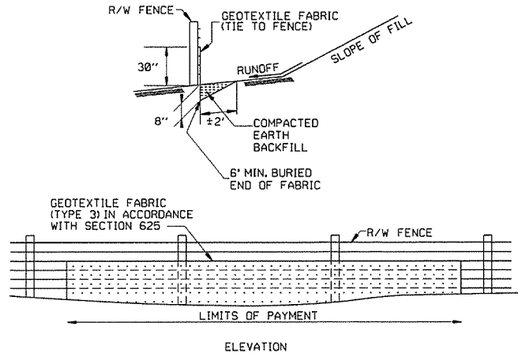
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



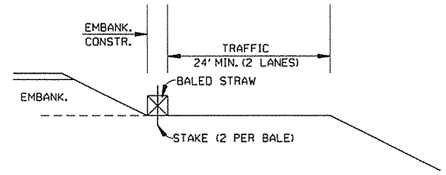
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

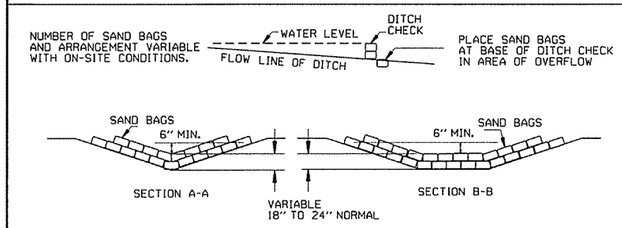
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

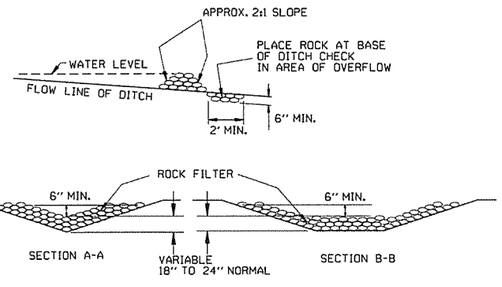
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED 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.



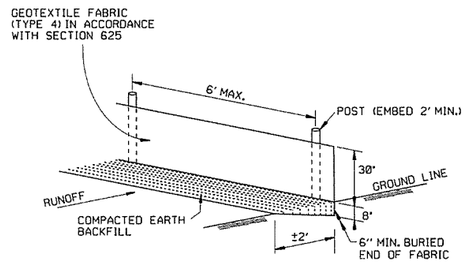
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

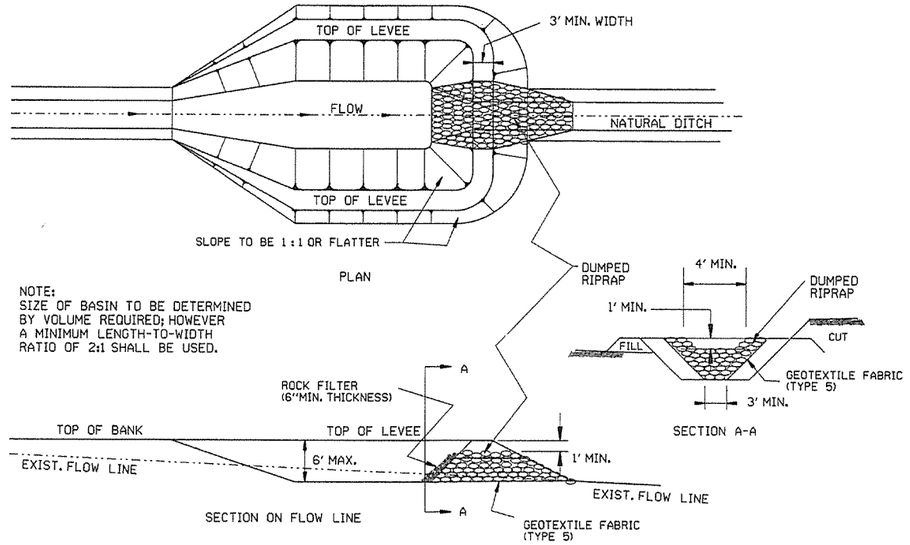
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

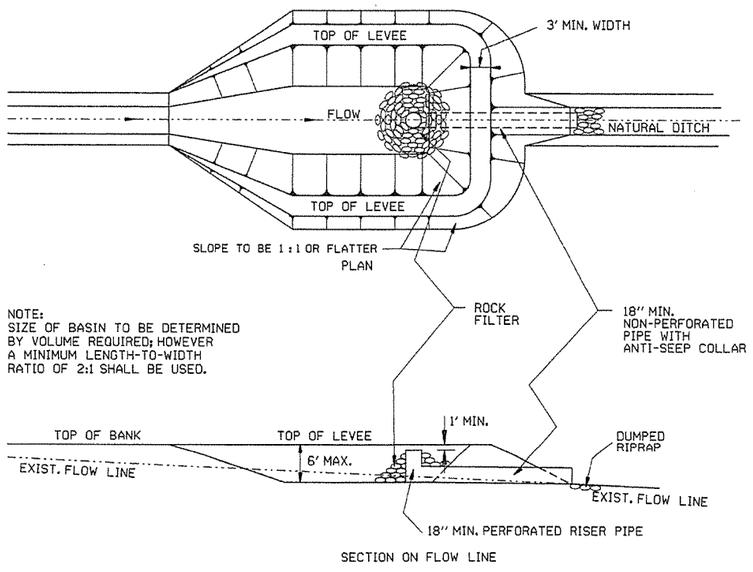
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

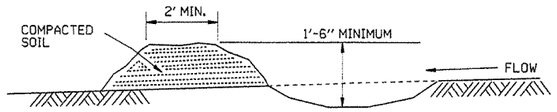
STANDARD DRAWING TEC-1



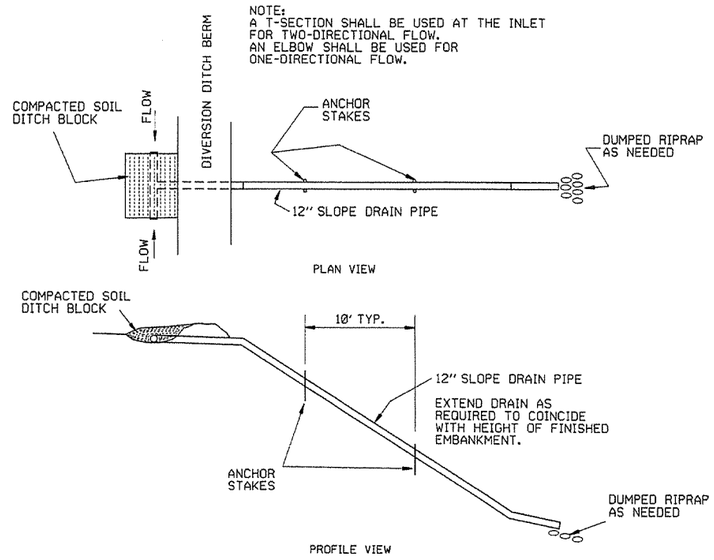
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



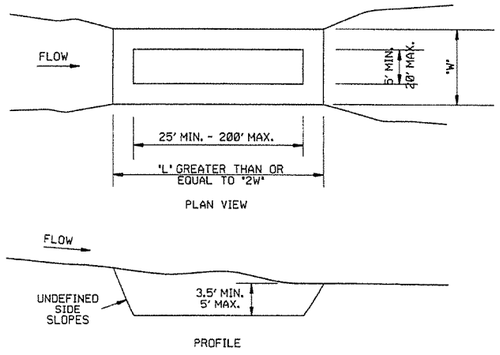
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

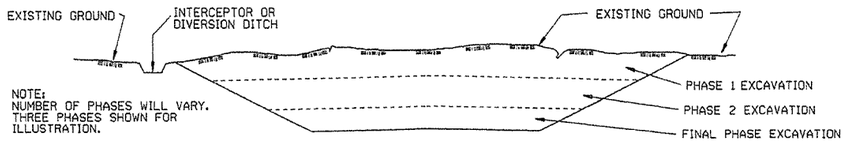
STANDARD DRAWING TEC-2

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



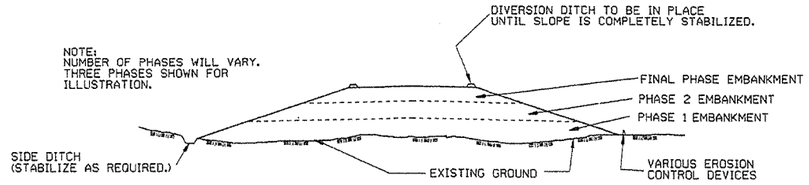
GENERAL NOTE

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

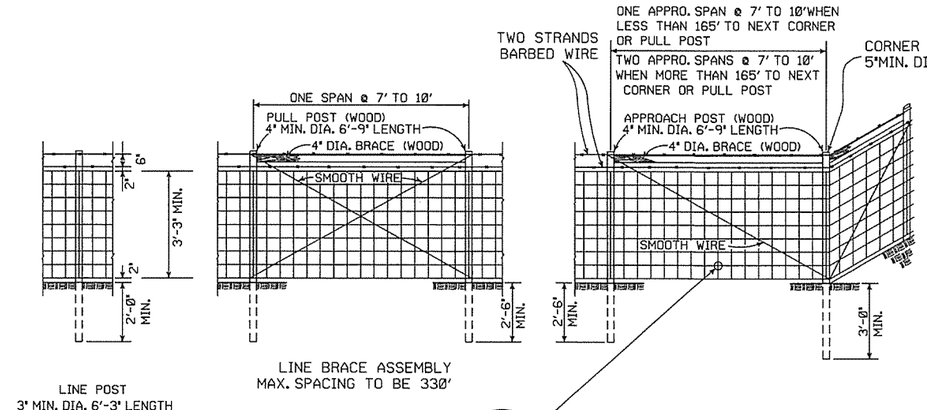
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

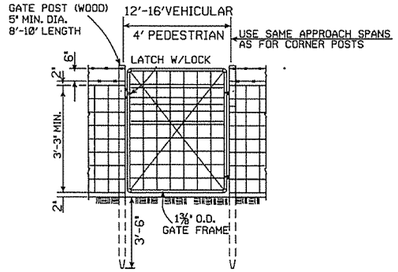
stdtec3.dgn

TYPE C FENCE (WOOD POSTS)



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

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'



GENERAL NOTES:

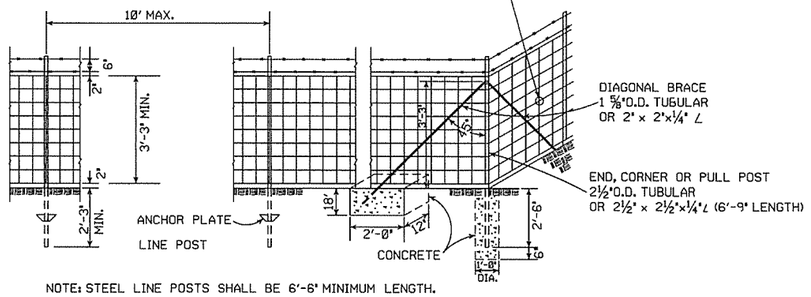
STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO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

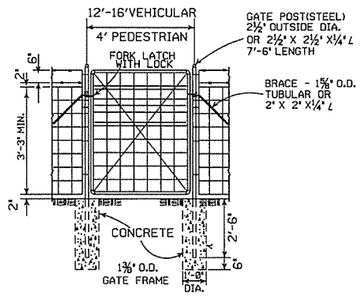
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED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

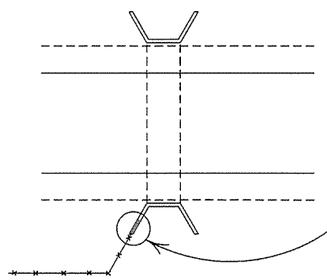
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED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

OTHER APPROVED TIES WILL BE PERMITTED

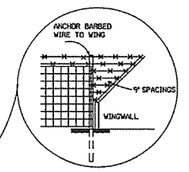


NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.





NOTE: USE ⅜" X 1½" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.



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

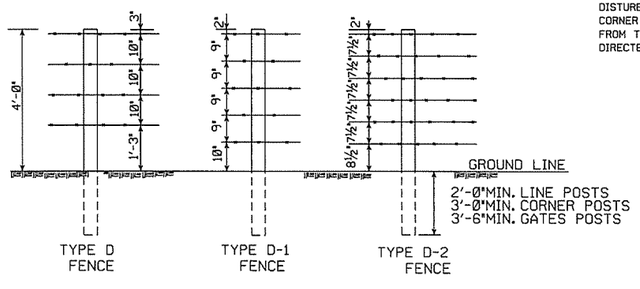
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

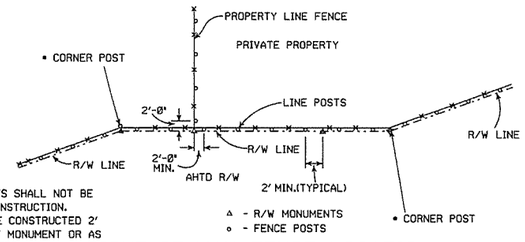
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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

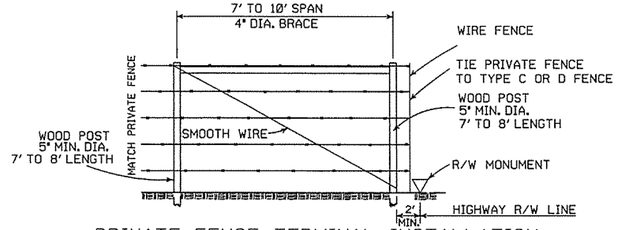


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

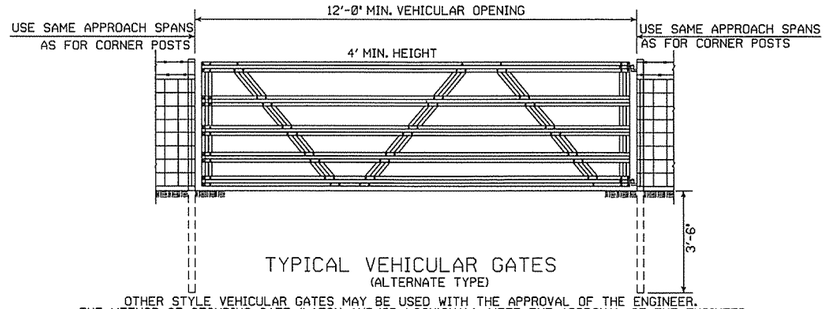


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



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



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)

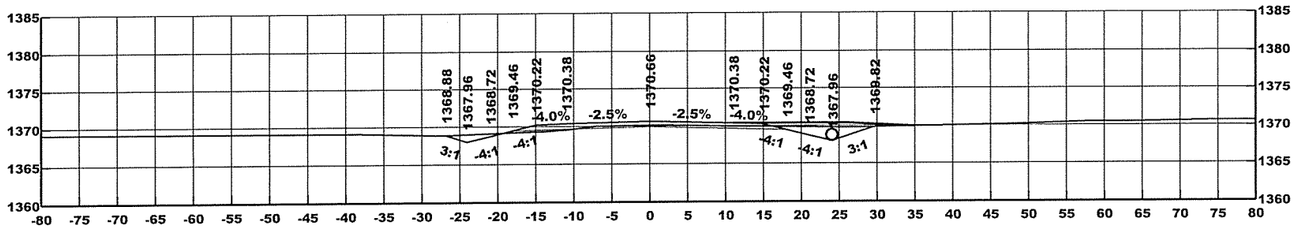
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

STANDARD DRAWING WF-4

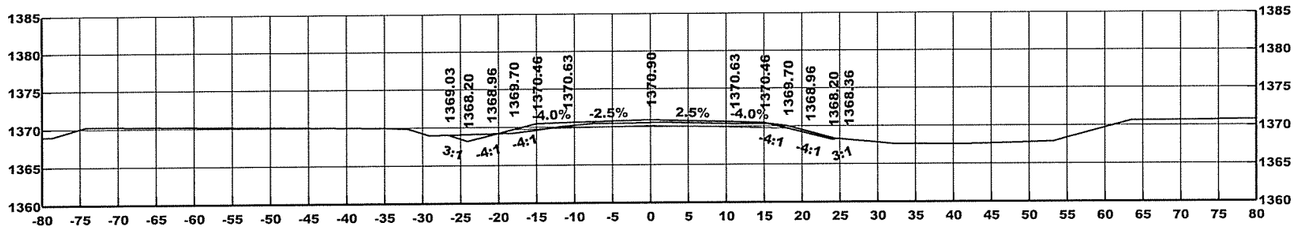


AREA CUT 22.96
AREA FILL 1.87

↑ **102+43** ↑

CUT VOLUME 32.67
FILL VOLUME 2.74

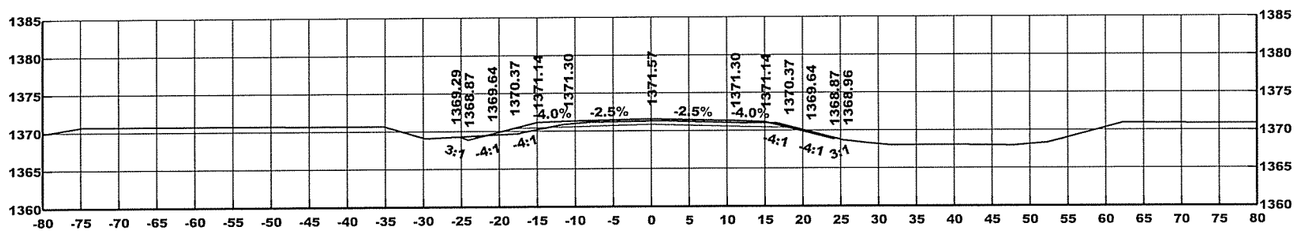
INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 45 CU. YDS.



AREA CUT 18.07
AREA FILL 1.57

↑ **102+00** ↑

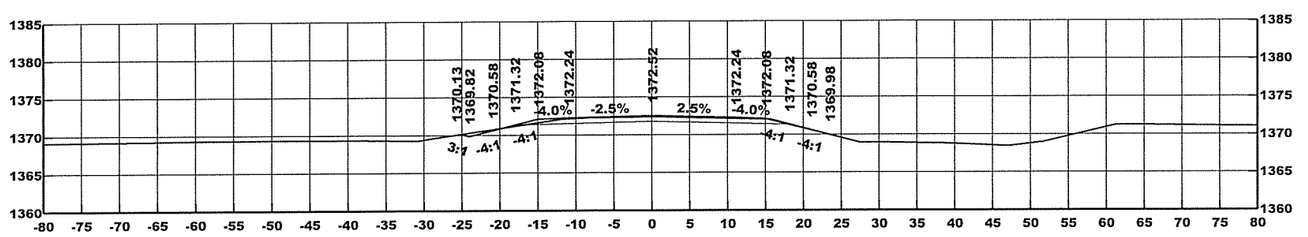
CUT VOLUME 32.02
FILL VOLUME 4.33



AREA CUT 16.51
AREA FILL 3.11

↑ **101+50** ↑

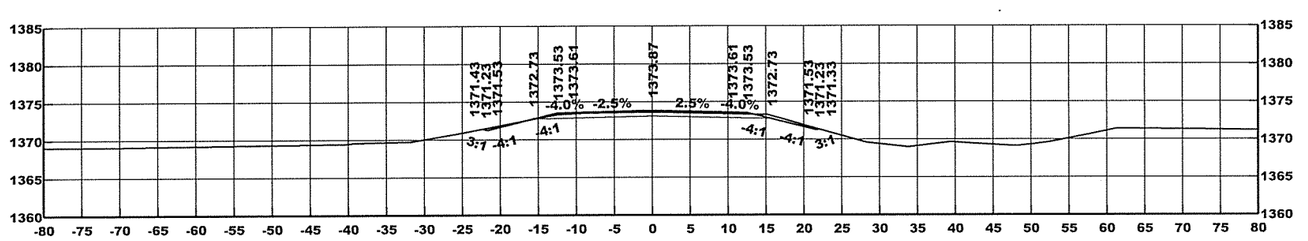
CUT VOLUME 34.40
FILL VOLUME 3.10



AREA CUT 20.64
AREA FILL 0.24

↑ **101+00** →

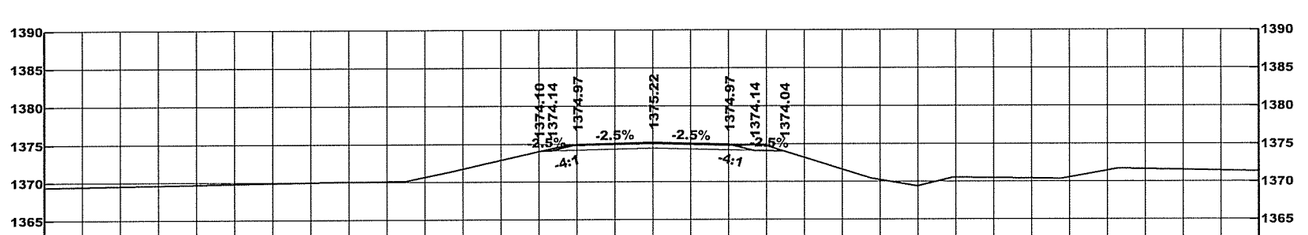
CUT VOLUME 36.52
FILL VOLUME 0.25



AREA CUT 18.80
AREA FILL 0.03

↑ **100+50** ↑

CUT VOLUME 32.56
FILL VOLUME 0.03



AREA CUT 16.36
AREA FILL 0.00

← **100+00** →

CUT VOLUME 0.00
FILL VOLUME 0.00

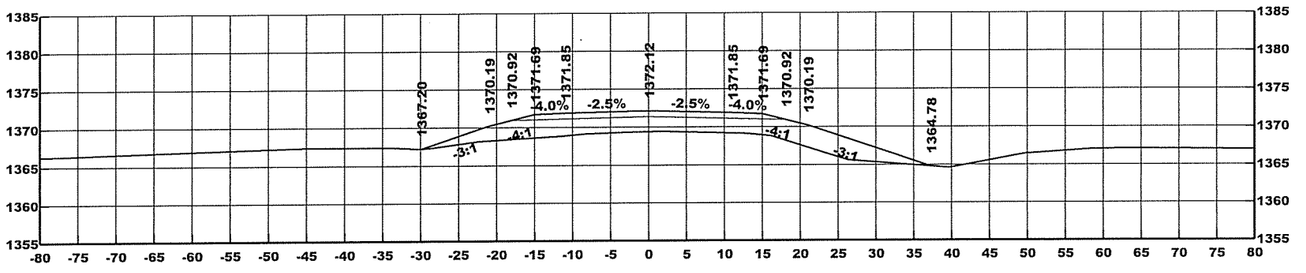
BEGIN JOB BR7208

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.NO. DIST.NO.	STATE
				6	ARK.

JOB NO.	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
BR7208		67	73

CROSS SECTIONS

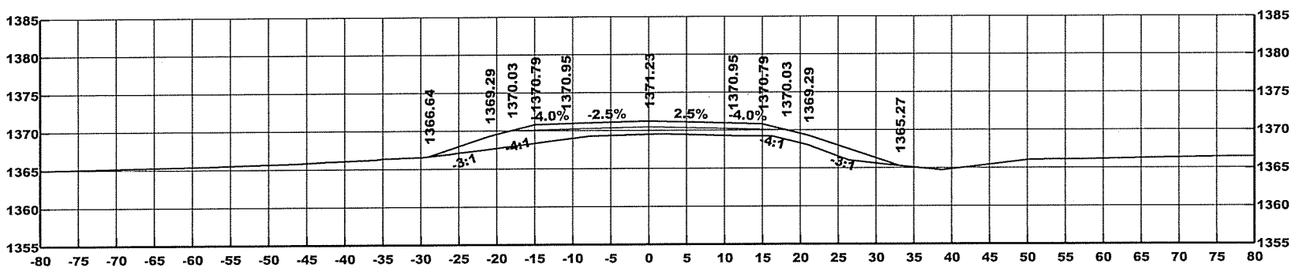
4



AREA CUT 0.00
AREA FILL 129.20

← 104+00 →

CUT VOLUME 0.00
FILL VOLUME 183.43

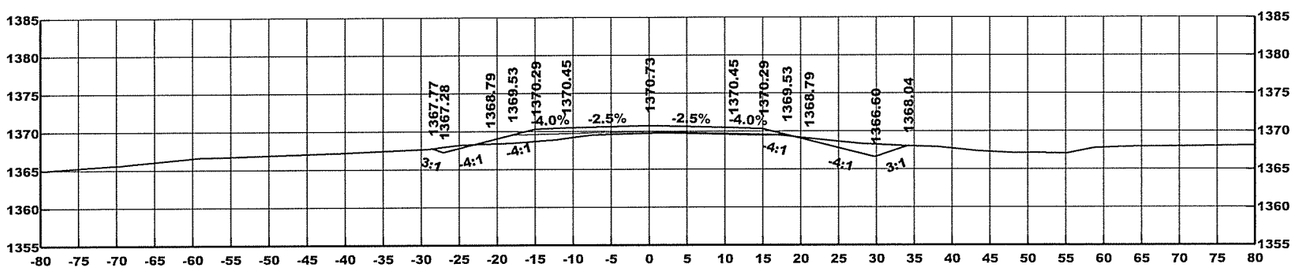


AREA CUT 0.00
AREA FILL 68.90

← 103+50 →

CUT VOLUME 12.64
FILL VOLUME 78.00

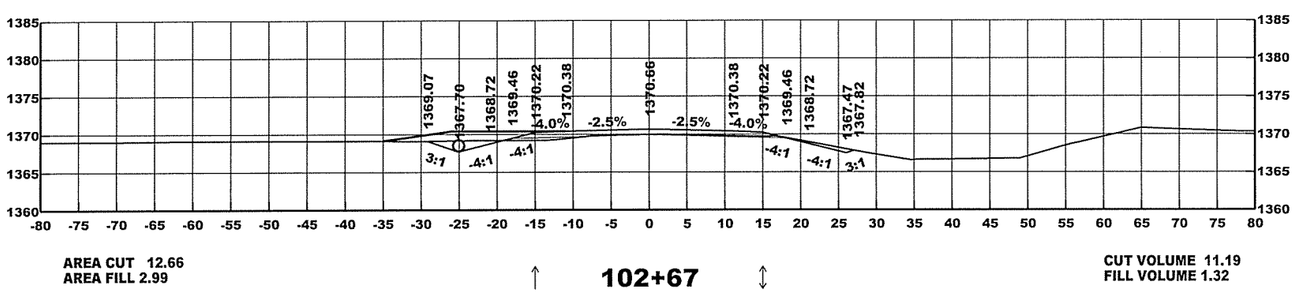
END DITCH GRADE
ON LT. AND RT.



AREA CUT 13.65
AREA FILL 15.34

↑ 103+00 ↕

CUT VOLUME 16.08
FILL VOLUME 11.20

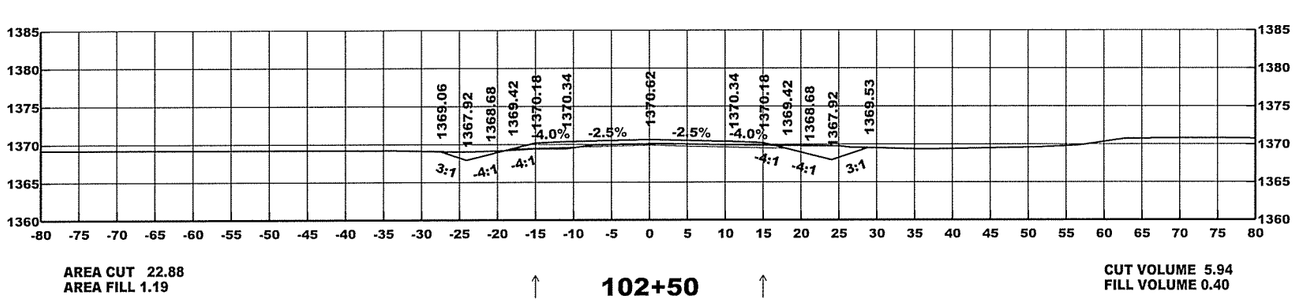


AREA CUT 12.66
AREA FILL 2.99

↑ 102+67 ↕

CUT VOLUME 11.19
FILL VOLUME 1.32

INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 45 CU. YDS.



AREA CUT 22.88
AREA FILL 1.19

↑ 102+50 ↑

CUT VOLUME 5.94
FILL VOLUME 0.40

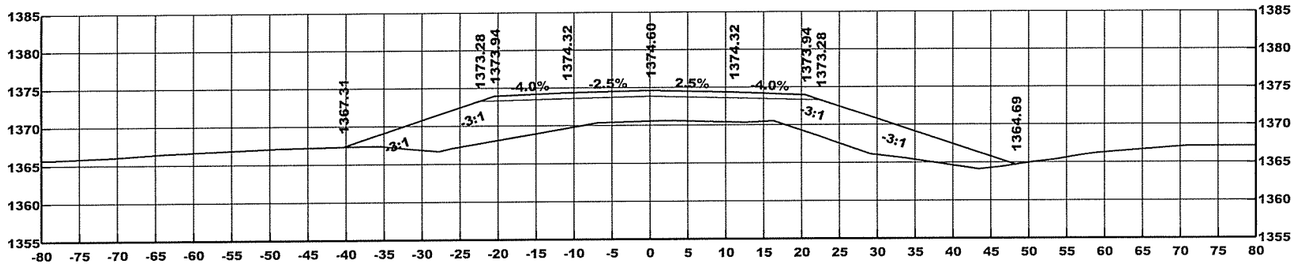
START DITCH GRADE
ON LT. AND RT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

4

CROSS SECTIONS

JOB NO.	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
BR7208	6	ARK.		68	73

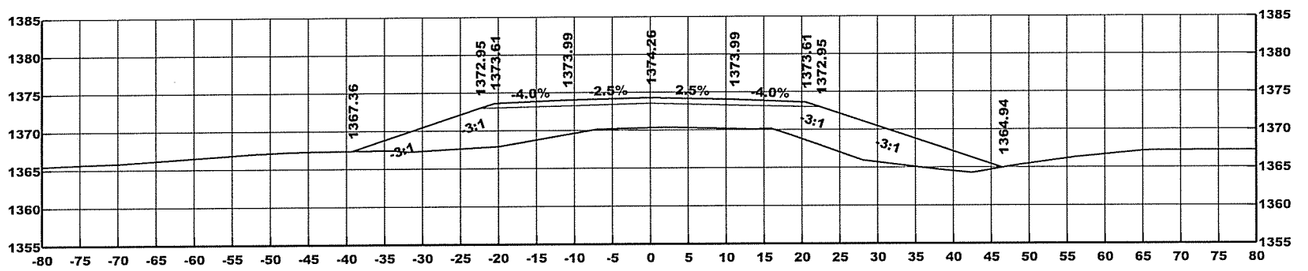


AREA CUT 0.00
AREA FILL 313.44

← 104+86 →

CUT VOLUME 0.00
FILL VOLUME 112.81

**BEGIN GUARDRAIL
ON LT. & RT.**

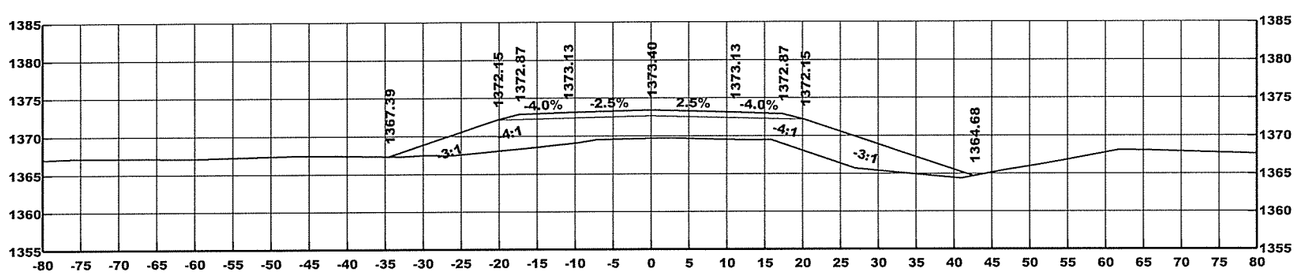


AREA CUT 0.00
AREA FILL 295.74

← 104+76 →

CUT VOLUME 0.00
FILL VOLUME 250.36

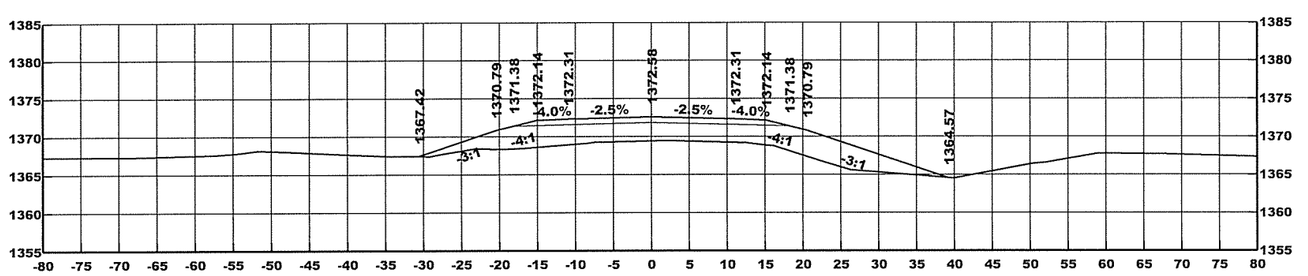
**END TAPER
ON LT. & RT.**



AREA CUT 0.00
AREA FILL 224.24

← 104+50 →

CUT VOLUME 0.00
FILL VOLUME 219.45

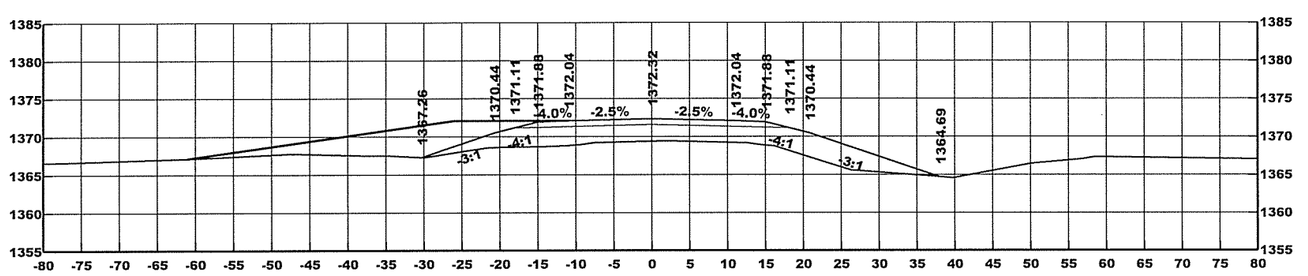


AREA CUT 0.00
AREA FILL 158.03

← 104+19 →

CUT VOLUME 0.00
FILL VOLUME 60.71

**BEGIN TAPER
ON LT. & RT.**



AREA CUT 0.00
AREA FILL 139.98

← 104+08 →

CUT VOLUME 0.00
FILL VOLUME 39.88

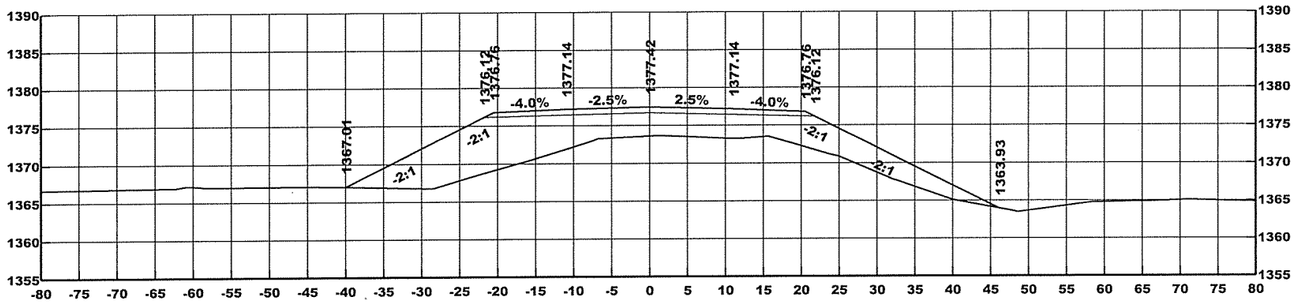
**CONST. APPR. = 80 CU. YDS.
ON LT.**

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

4

CROSS SECTIONS

JOB NO.	FED.ROAD DIST.NO.
6	
ARK.	STATE
BR7208	FED.AID PROJ.NO.
69	SHEET NO.
73	TOTAL SHEETS

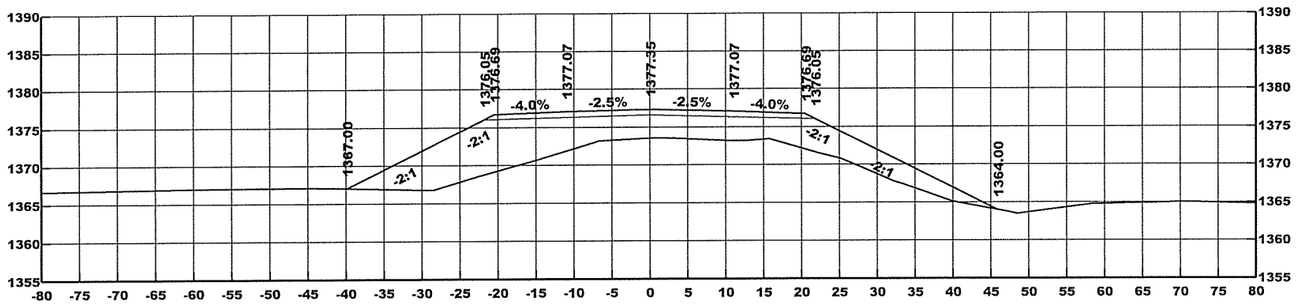


AREA CUT 0.00
AREA FILL 315.24

← 105+56 →

CUT VOLUME 0.00
FILL VOLUME 12.15

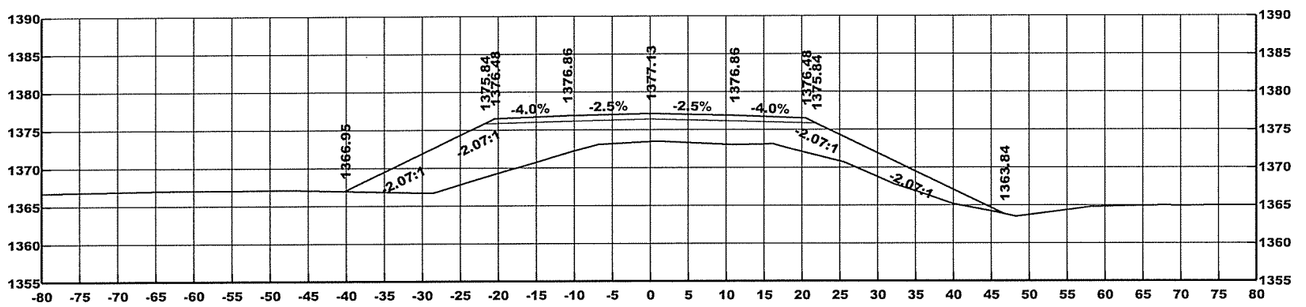
SLOPE INTERCEPT



AREA CUT 0.00
AREA FILL 340.64

← 105+55 →

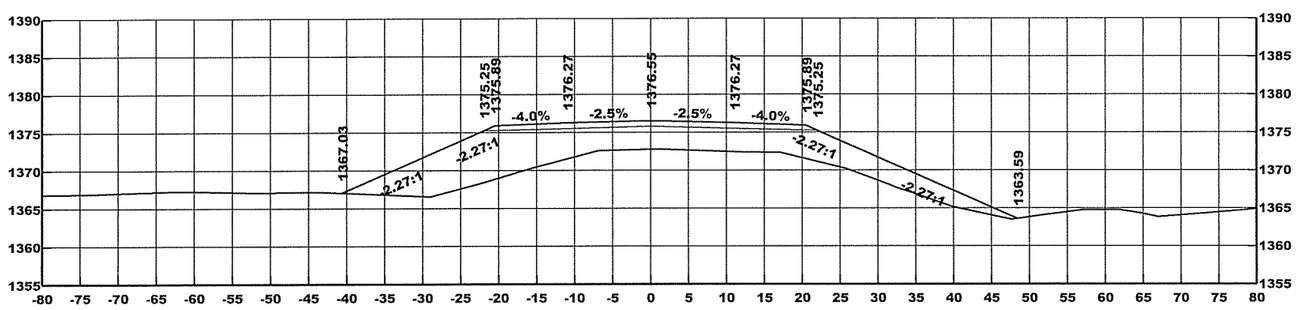
CUT VOLUME 0.00
FILL VOLUME 59.77



AREA CUT 0.00
AREA FILL 304.85

← 105+50 →

CUT VOLUME 0.00
FILL VOLUME 157.87

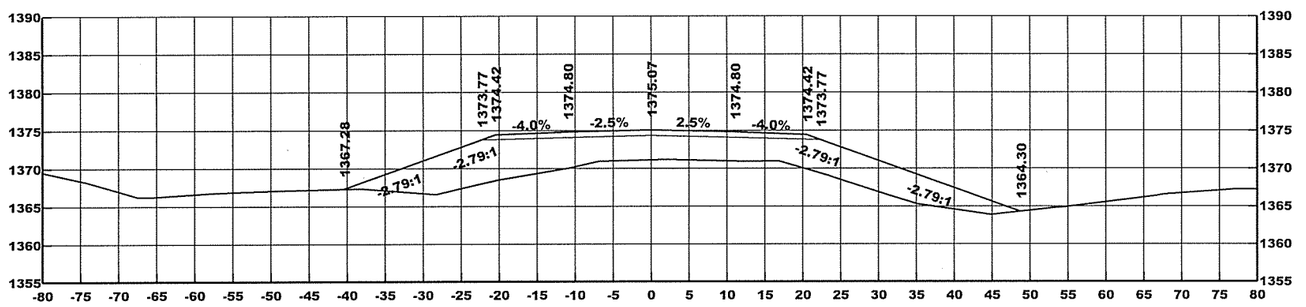


AREA CUT 0.00
AREA FILL 304.09

← 105+36 →

CUT VOLUME 0.00
FILL VOLUME 410.27

END GUARDRAIL ON LT. & RT.



AREA CUT 0.00
AREA FILL 311.32

← 105+00 →

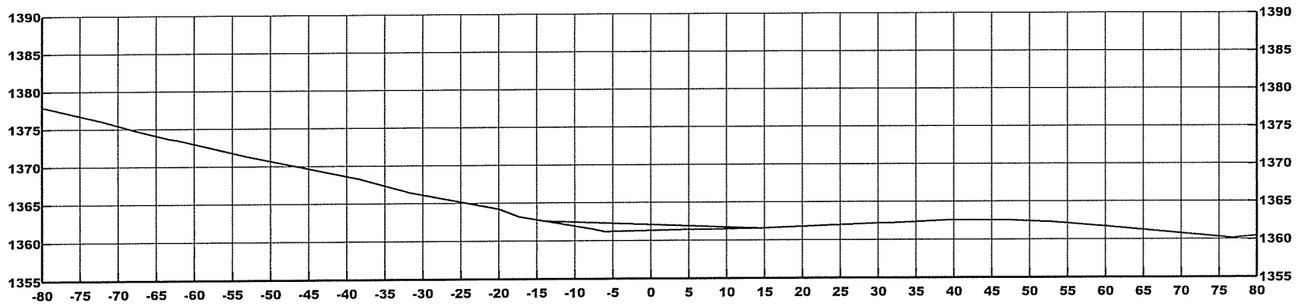
CUT VOLUME 0.00
FILL VOLUME 161.97

CROSS SECTIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		70	73

JOB NO. BR7208

4

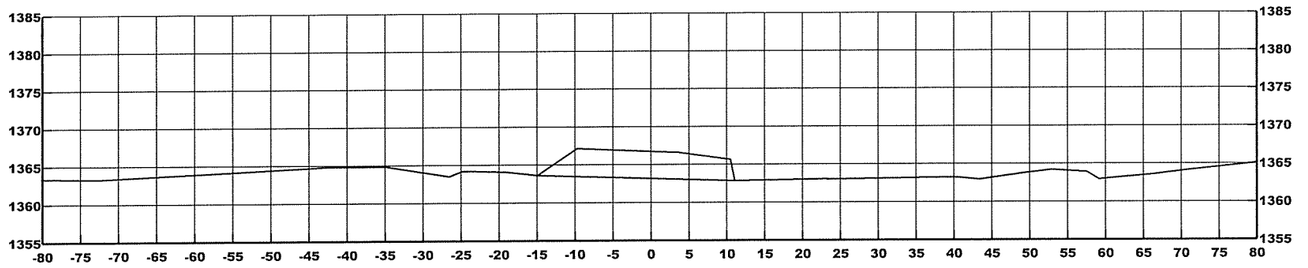


AREA CUT 0.00
AREA FILL 15.24

CUT VOLUME 0.00
FILL VOLUME 0.00

108+71

TOE OF SLOPE



AREA CUT 0.00
AREA FILL 0.00

CUT VOLUME 0.00
FILL VOLUME 0.00

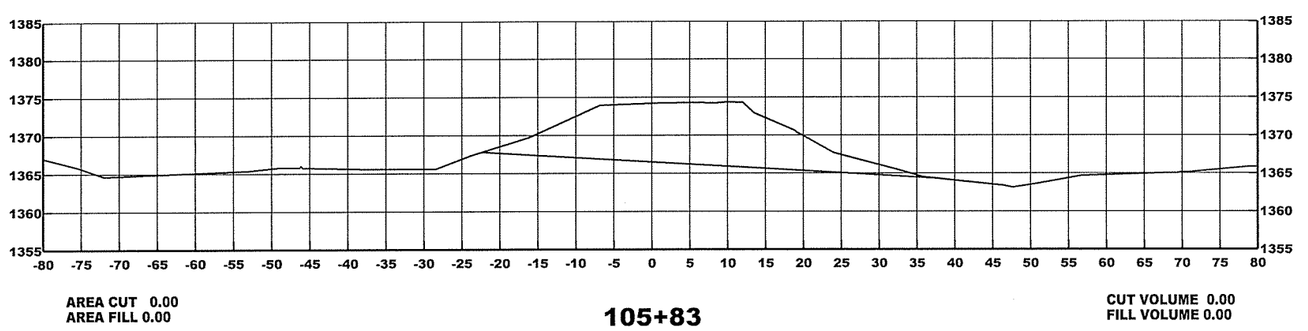
106+01

END OF SLOPE EXCAVATION

AREA CUT 0.00
AREA FILL 0.00

CUT VOLUME 0.00
FILL VOLUME 0.00

106+00

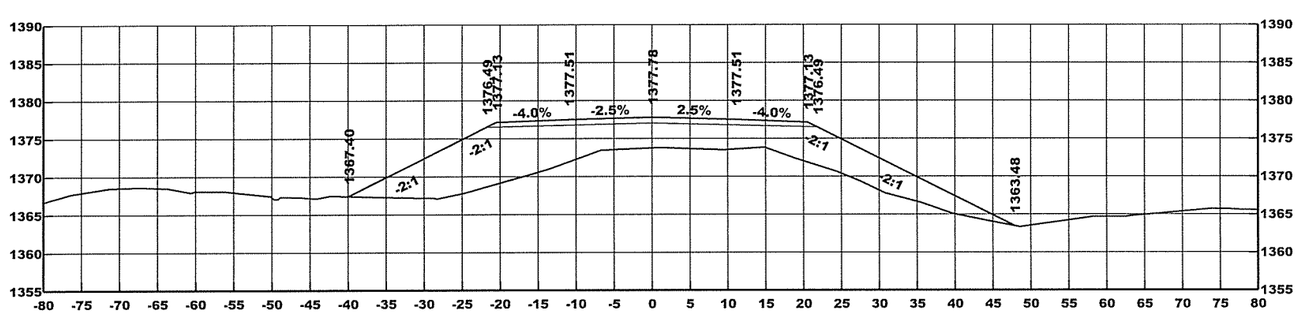


AREA CUT 0.00
AREA FILL 0.00

CUT VOLUME 0.00
FILL VOLUME 0.00

105+83

TOE OF SLOPE



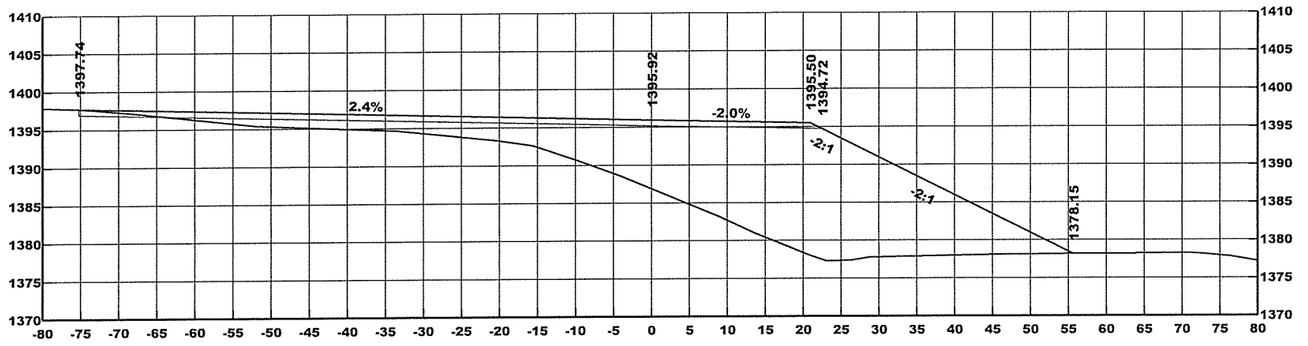
AREA CUT 0.00
AREA FILL 345.03

CUT VOLUME 0.00
FILL VOLUME 96.60

← 105+64 →

BRIDGE END

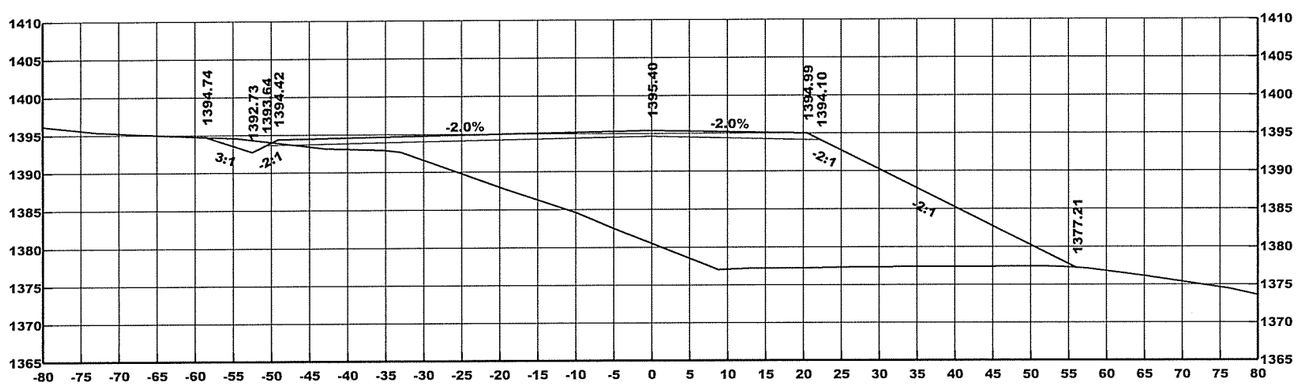
					DATE REVISED
					DATE FILMED
					DATE REVISED
					DATE FILLED
CROSS SECTIONS	JOB NO.	ARK.	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
4	6		BR7208	71	73
		STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS



AREA CUT 4.77
AREA FILL 720.90

↓ **109+50** →

CUT VOLUME 2.58
FILL VOLUME 331.94

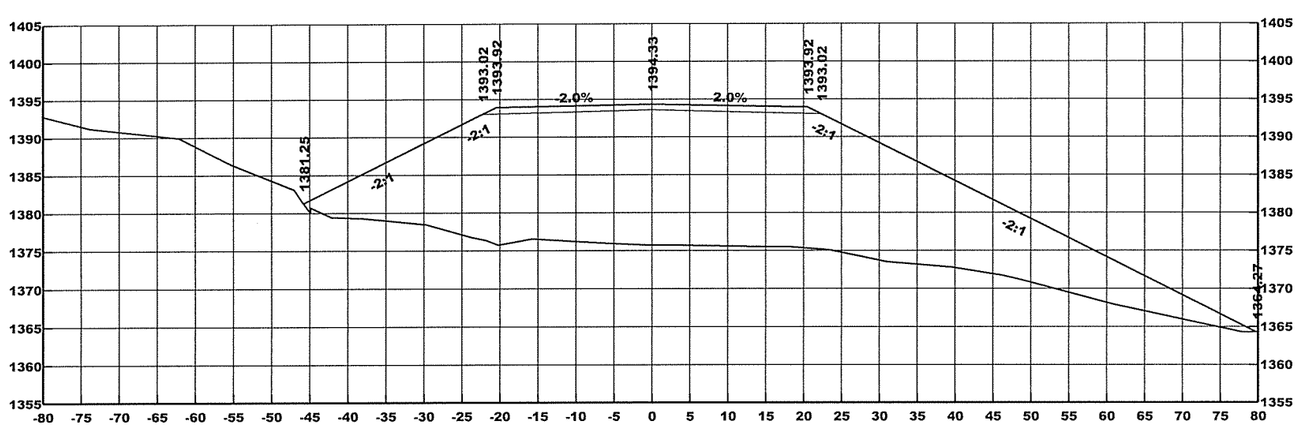


AREA CUT 7.89
AREA FILL 908.61

↓ **109+39** →

CUT VOLUME 3.36
FILL VOLUME 1013.99

SLOPE INTERCEPT

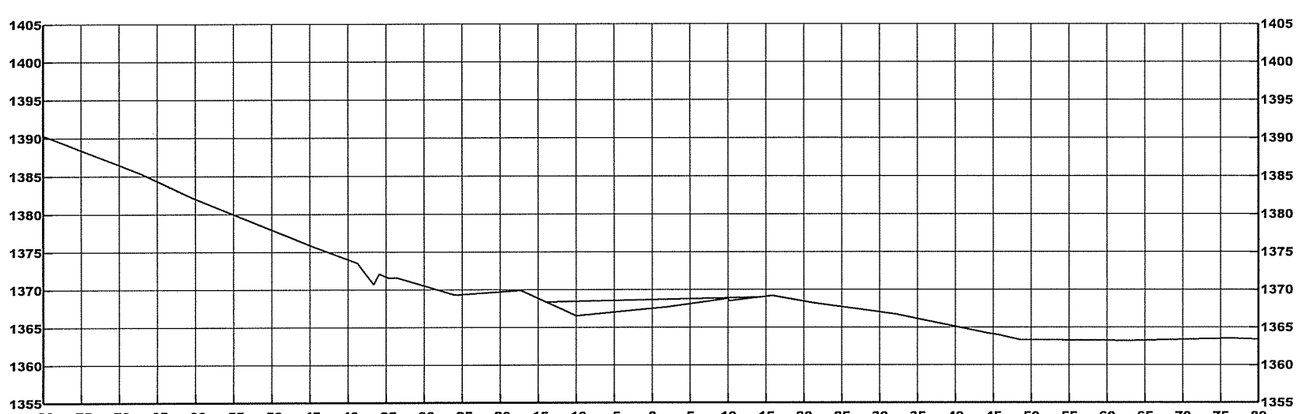


AREA CUT 0.00
AREA FILL 1472.07

↓ **109+16** →

CUT VOLUME 7.93
FILL VOLUME 444.10

BRIDGE END



AREA CUT 0.00
AREA FILL 26.77

109+00

CUT VOLUME 0.00
FILL VOLUME 22.56

CROSS SECTIONS

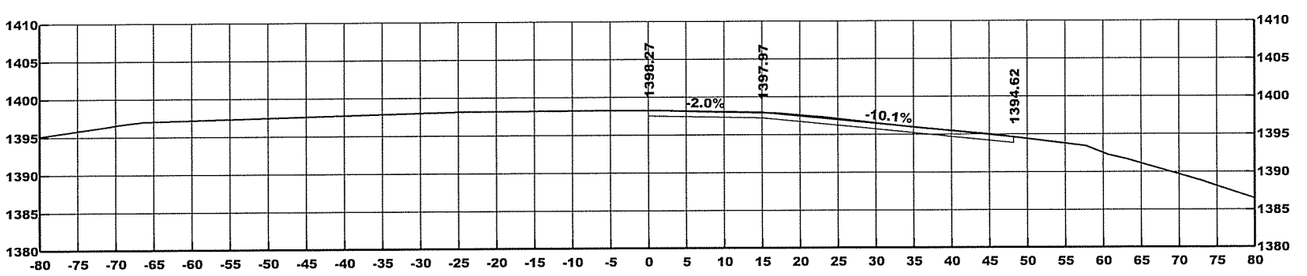
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR7208	72	73

JOB NO.

4

END JOB BR7208



AREA CUT 0.00
AREA FILL 0.00

↓ 110+00 →

CUT VOLUME 4.42
FILL VOLUME 667.50

CROSS SECTIONS

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.				
				BR7208			73	73

4