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.		BR2503	1	64
				④	SPRING RIVER STR. & APPRS. (S)			

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR PROPOSED COUNTY ROAD

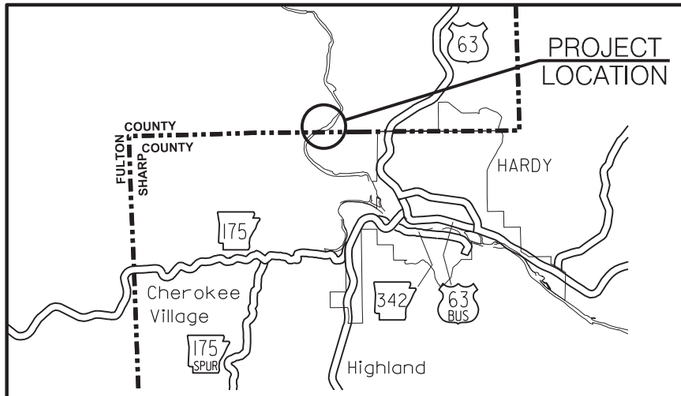
SPRING RIVER STR. & APPRS. (S)

CO. RD. 42

FULTON COUNTY

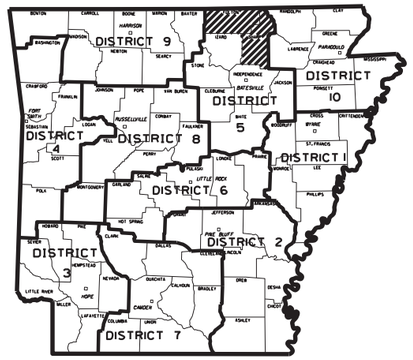
JOB BR2503

FED. AID PROJECT STPB-0025(15)



VICINITY MAP

NOT TO SCALE



ARKANSAS HIGHWAY DISTRICT 5

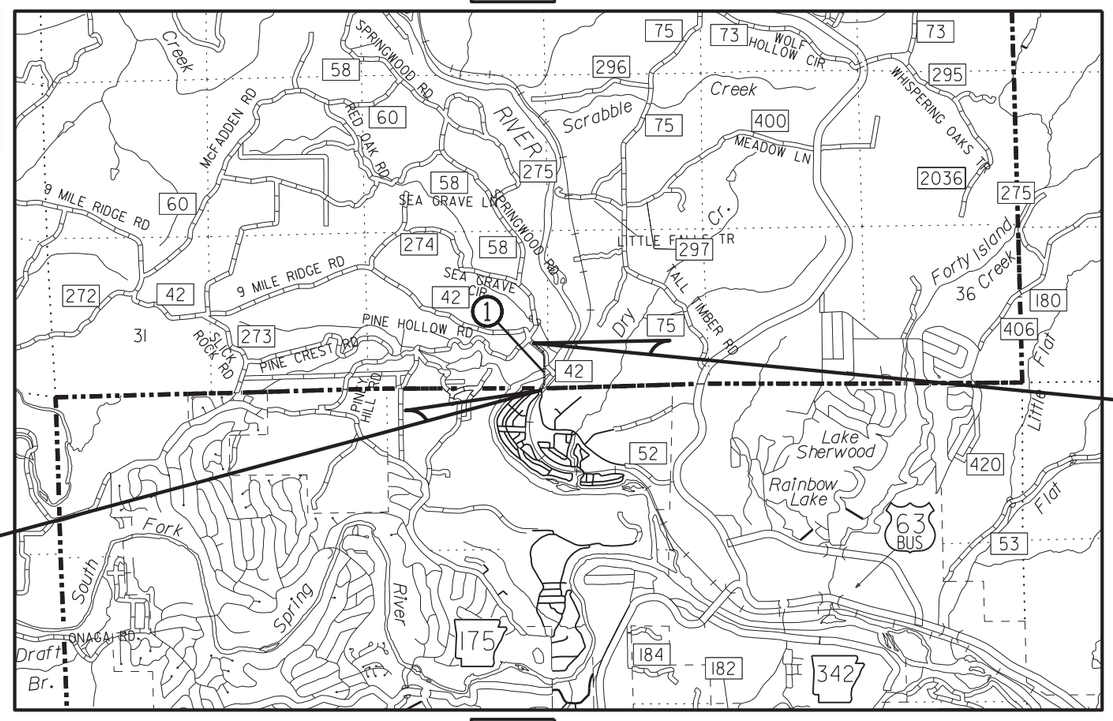
STRUCTURES OVER 20'-0"

① STA. 102+19.82 BRIDGE END
BRIDGE NO. 04929
TWO - 277' - 0 " CONT. COMP. W-BEAM UNITS
24' - 0" CLEAR ROADWAY
(25° RT. FWD. SKEW)
BRIDGE LENGTH = 558' - 2 3/16"

R5W

T 20 N

T 19 N



R5W

STA. 99+07.00
BEGIN JOB BR2503

STA. 117+02.73
END JOB BR2503

DESIGN TRAFFIC DATA

DESIGN YEAR	2040
2020 ADT	130
2040 ADT	160
2040 DHV	24
DIRECTIONAL DISTRIBUTON	0.60
TRUCKS	5%
DESIGN SPEED	20 MPH

APPROVED

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

Banks, Emanuel
Jul 31 2020 7:39 AM
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DEPUTY DIRECTOR
AND CHIEF ENGINEER

PROJECT COORDINATES:

	BEGIN	MID-POINT	END
LAT.	N 36° 20' 11"	N 36° 20' 19"	N 36° 20' 27"
LONG.	W 91° 30' 35"	W 91° 30' 33"	W 91° 30' 38"

GROSS LENGTH OF	PROJECT	1795.73	FEET OR	0.340	MILES
NET	" "	ROADWAY	1237.55	" "	0.234	"
NET	" "	BRIDGE	558.18	" "	0.106	"
NET	" "	PROJECT	1795.73	" "	0.340	"

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.		BR2503	2	64

(4) INDEX OF SHEETS AND STANDARD DRAWINGS

INDEX OF SHEETS

NOTE: CROSS SECTIONS NOT INCLUDED IN PROSPECTIVE BIDDERS' PLANS MAY BE OBTAINED UPON REQUEST.

BRIDGE STANDARD DRAWINGS

DRWG. NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-2014
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-2014
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-2016
55011	STANDARD DETAILS FOR TYPE C BRIDGE NAME PLATES	02-27-2020
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-2016
55030A	STANDARD DETAILS FOR TYPE A APPROACH GUTTERS	09-02-2015

ROADWAY STANDARD DRAWINGS

DRWG. NO.	TITLE	DATE
GR-8	GUARD RAIL DETAILS	11-07-2019
GR-10	GUARD RAIL DETAILS	11-07-2019
GR-11	GUARD RAIL DETAILS	11-07-2019
GR-12	GUARD RAIL DETAILS	05-14-2020
GRT-1	GUARD RAIL DETAILS	11-07-2019
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-2014
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-2014
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-2014
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-2014
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-2020
PM-1	PAVEMENT MARKING DETAILS	02-27-2020
RRS-1	PAVEMENT MARKING FOR RAILROAD CROSSING	12-08-2016
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-2019
SHS-1	STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES	09-12-2013
SHS-2	U-CHANNEL POST ASSEMBLIES	07-25-2019
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-2019
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-2019
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-2020
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-2017
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-1994
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-1994
WF-3	CHAIN LINK FENCE	11-17-2010
WF-4	WIRE FENCE TYPE C AND D	08-22-2002

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

Freeling, Bryan E.
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INDEX OF SHEETS AND STANDARD DRAWINGS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-13-2020				6	ARK.			
1-22-2021				JOB NO.		BR2503	3	64
2-12-2021								

(4) GOVERNING SPECIFICATIONS & GENERAL NOTES

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273_____	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273_____	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273_____	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273_____	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273_____	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273_____	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273_____	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
102-2_____	ISSUANCE OF PROPOSALS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____	PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____	UNCLASSIFIED EXCAVATION
303-1_____	AGGREGATE BASE COURSE
306-1_____	QUALITY CONTROL AND ACCEPTANCE
400-1_____	TACK COATS
400-4_____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____	LIQUID ANTI-STRIP ADDITIVE
400-7_____	TRACKLESS TACK
404-3_____	DESIGN OF ASPHALT MIXTURES
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
600-2_____	INCIDENTAL CONSTRUCTION
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
723-1_____	GENERAL REQUIREMENTS FOR SIGNS
729-1_____	CHANNEL POST SIGN SUPPORT
734-1_____	BRIDGE END TERMINAL
800-1_____	STRUCTURES
802-3_____	CONCRETE FOR STRUCTURES
804-2_____	REINFORCING STEEL FOR STRUCTURES
807-2_____	STEEL STRUCTURES
808-1_____	INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____	ELASTOMERIC BEARINGS
JOB BR2503_____	BIDDING REQUIREMENTS AND CONDITIONS
JOB BR2503_____	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB BR2503_____	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB BR2503_____	CARGO PREFERENCE ACT REQUIREMENTS
JOB BR2503_____	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB BR2503_____	CLEARING
JOB BR2503_____	DELAY IN RIGHT OF WAY OCCUPANCY
JOB BR2503_____	DETAILS FOR SAFETY OF STREAM TRAFFIC
JOB BR2503_____	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB BR2503_____	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB BR2503_____	DRILLED SHAFT FOUNDATIONS
JOB BR2503_____	ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB BR2503_____	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB BR2503_____	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (BNSF)
JOB BR2503_____	MANDATORY ELECTRONIC CONTRACT
JOB BR2503_____	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB BR2503_____	NESTING SITES OF MIGRATORY BIRDS
JOB BR2503_____	NONDESTRUCTIVE TESTING OF DRILLED SHAFTS
JOB BR2503_____	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB BR2503_____	PARTNERING REQUIREMENTS
JOB BR2503_____	PLASTIC PIPE
JOB BR2503_____	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB BR2503_____	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB BR2503_____	RECYCLED ASPHALT SHINGLES
JOB BR2503_____	SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
JOB BR2503_____	SHORING FOR CULVERTS
JOB BR2503_____	SPECIAL CLEARING REQUIREMENTS
JOB BR2503_____	STORM WATER POLLUTION PREVENTION PLAN
JOB BR2503_____	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB BR2503_____	UTILITY ADJUSTMENTS
JOB BR2503_____	VALUE ENGINEERING
JOB BR2503_____	VEGETATED BUFFER ZONE
JOB BR2503_____	WARM MIX ASPHALT
JOB BR2503_____	WATER POLLUTION CONTROL
JOB BR2503_____	WORKING DAY WITH IMMEDIATE WORK ORDER
JOB BR2503_____	WELLHEAD PROTECTION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN IN PLANS
2. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
3. TEMPORARY EASEMENTS ARE PROVIDED FOR CONTRACTOR ACCESS. AREAS OUTSIDE THE CONSTRUCTION LIMITS SHALL NOT BE CLEARED OR GRUBBED UNLESS DIRECTED BY THE ENGINEER.
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 OPERATION.
5. UTILITIES INTERFERING WITH CONSTRUCTION SHALL BE MOVED BY THE OWNERS.
6. SUPERELEVATION SHALL BE COMPUTED AS SHOWN ON THE PLANS AND REVOLVE ABOUT THE INNER EDGE OF TRAVEL LANE UNLESS OTHERWISE SHOWN.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR PERMIT REQUIREMENTS.
9. THE ROAD SHALL BE MAINTAINED AND REMAIN OPEN TO TRAFFIC THROUGHOUT THE MAJORITY OF THE PROJECT, BUT MAY BE CLOSED TO CONSTRUCT APPROACHES. THE BRIDGE SHALL BE OPENED TO TRAFFIC AS SOON AS PRACTICABLE.
10. EXISTING BRIDGE NO. 13129 SHALL BE REMOVED IN ACCORDANCE WITH SECTION 205 OF THE STANDARD SPECIFICATIONS. ALL MATERIAL FROM THE EXISTING BRIDGE SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
11. THE CONTRACTOR WILL BE REQUIRED TO PROTECT THE BRIDGE DECK DURING PRIME AND PAVING OPERATIONS.
12. THE CONTRACTOR SHALL MAINTAIN MAILBOXES WITHIN THE PROJECT LIMITS SUCH THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. THE CONTRACTOR SHALL REMOVE AND RESTORE TO THE PROPER HEIGHT THE EXISTING MAILBOX POSTS AND MAILBOXES AS DIRECTED BY THE ENGINEER. ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT NO COST TO THE DEPARTMENT. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICES BID FOR OTHER ITEMS OF THE CONTRACT.
13. PAVEMENT TO BE REMOVED SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. PAVEMENT SHALL BE REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT RETAINED. ANY DAMAGE TO RETAINED PAVEMENT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
14. INSTALLATION OF PERMANENT TRAFFIC SAFETY SIGNS NOT SHOWN IN THE PLANS ARE THE RESPONSIBILITY OF FULTON COUNTY.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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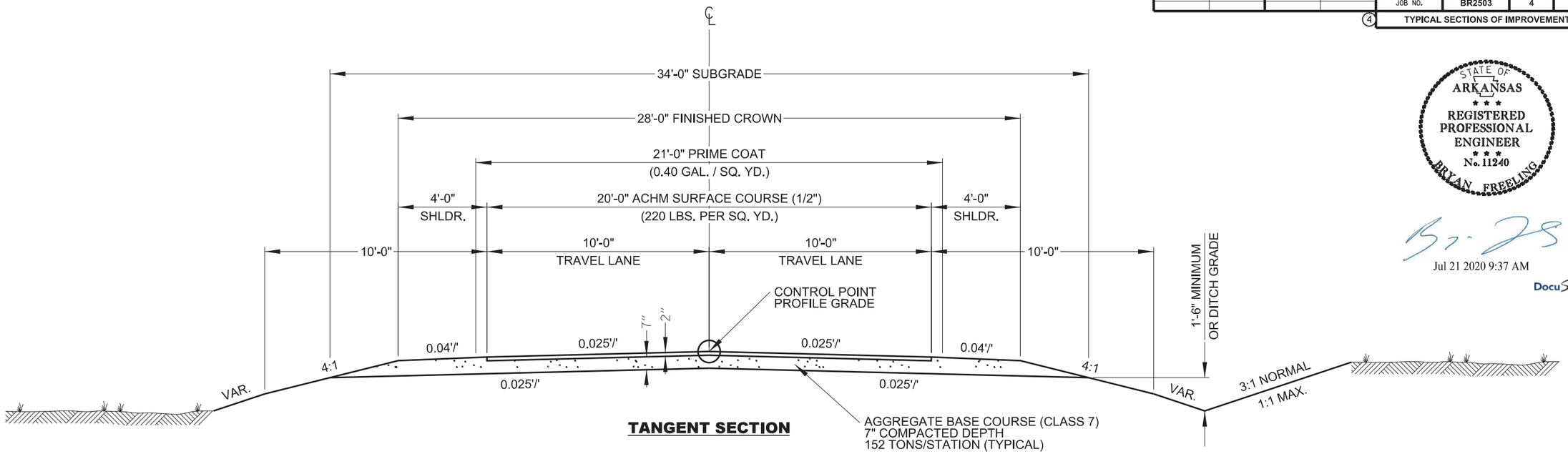
GOVERNING SPECIFICATIONS AND GENERAL NOTES

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.		BR2503	4	64

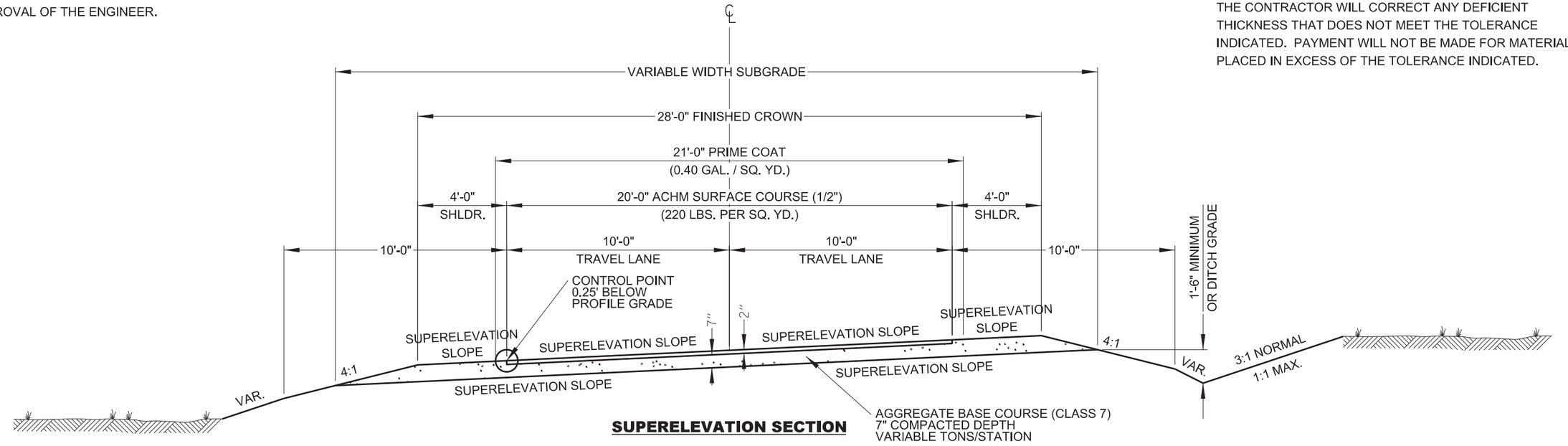
(4) **TYPICAL SECTIONS OF IMPROVEMENT**



TANGENT SECTION

NOTE: 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.

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



SUPERELEVATION SECTION

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	5	64

④ TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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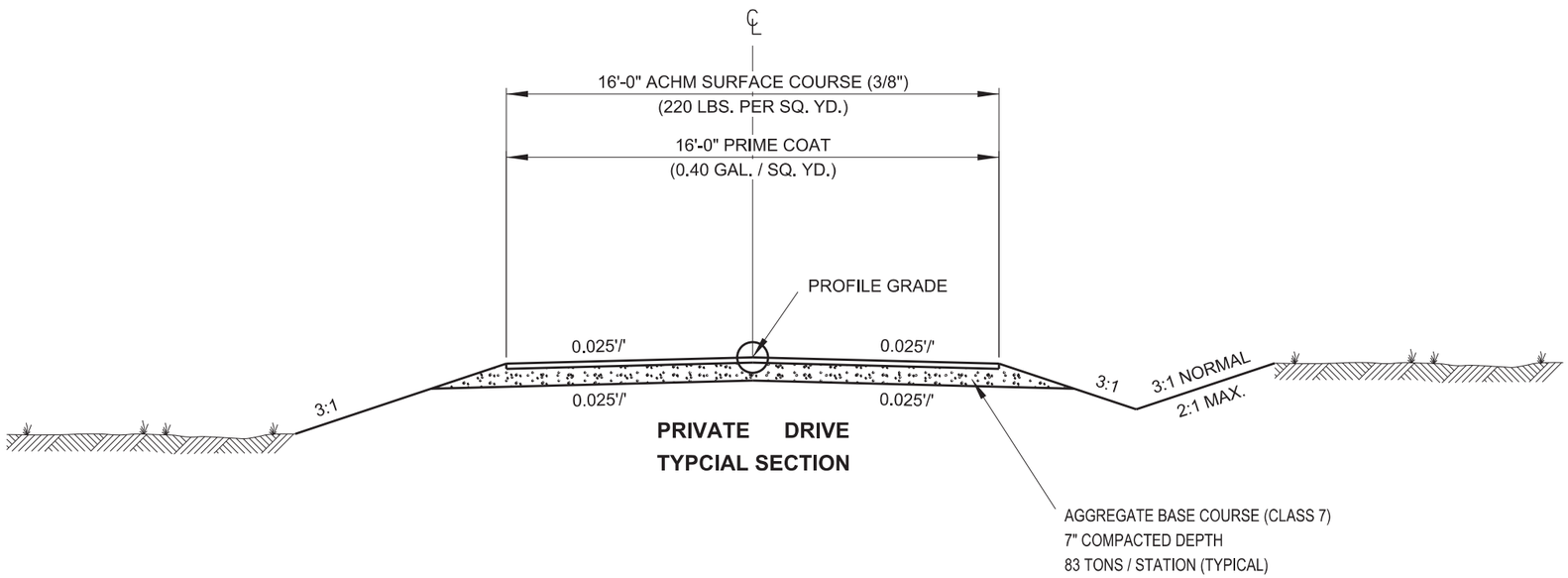
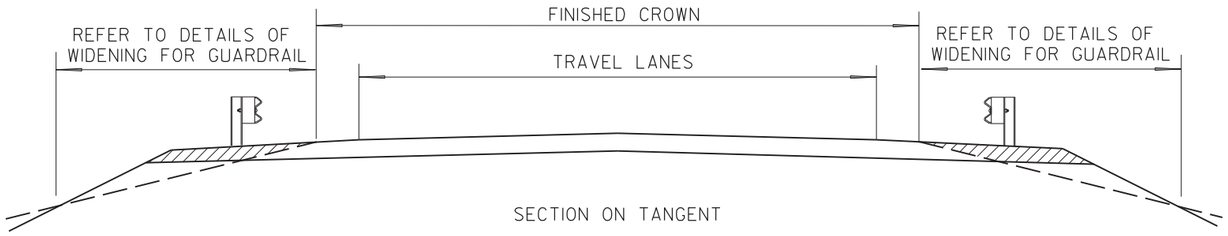
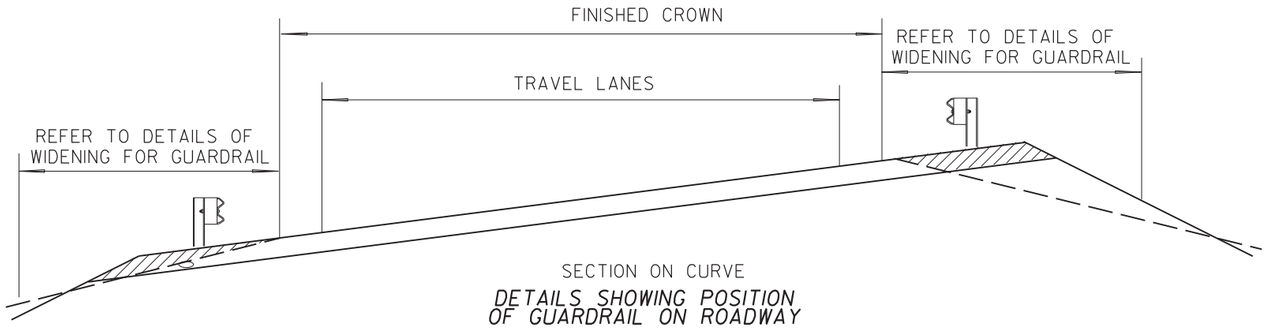


PRIVATE DRIVE
TYPCIAL SECTION

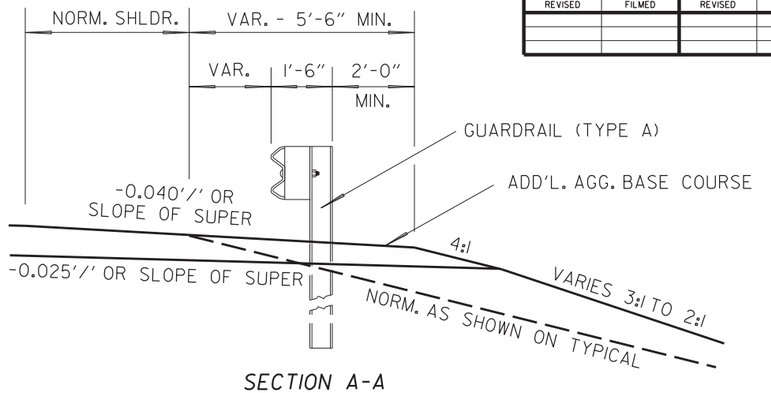
TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	6	64
				4	SPECIAL DETAILS			

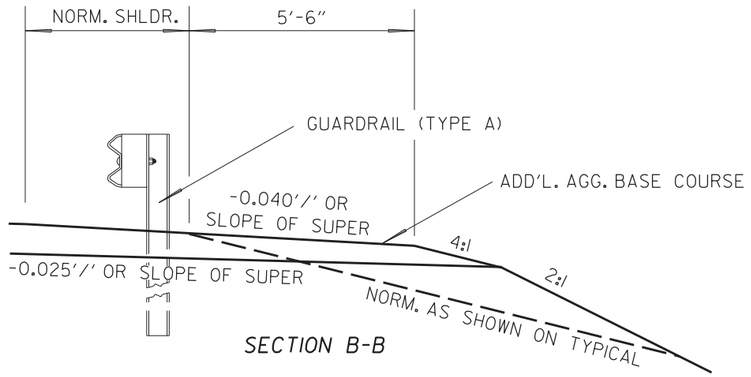




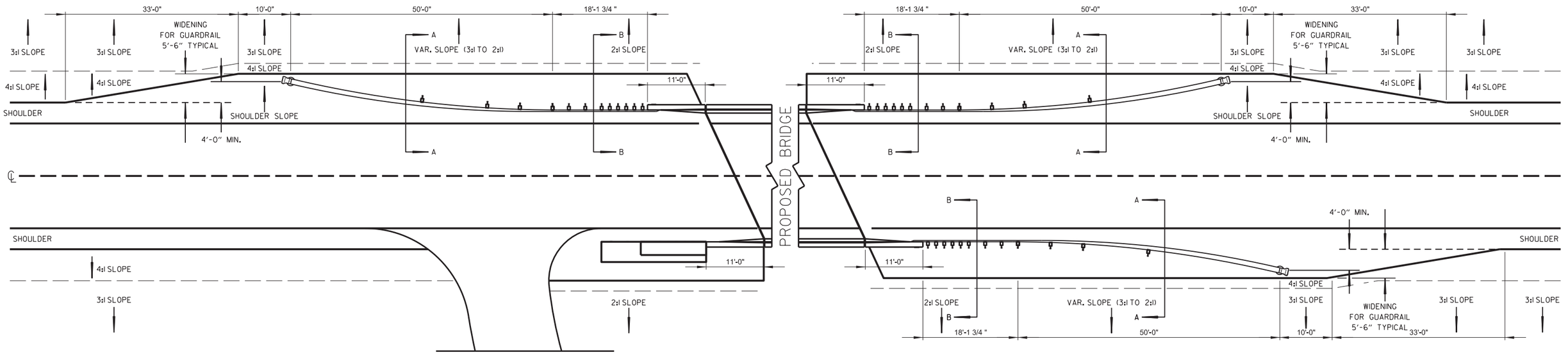
DETAILS SHOWING POSITION OF GUARDRAIL ON ROADWAY



SECTION A-A



SECTION B-B



DETAILS OF ROADWAY WIDENING FOR GUARDRAIL

NOT TO SCALE

STATE OF ARKANSAS
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No. 11240
BRYAN FREELING

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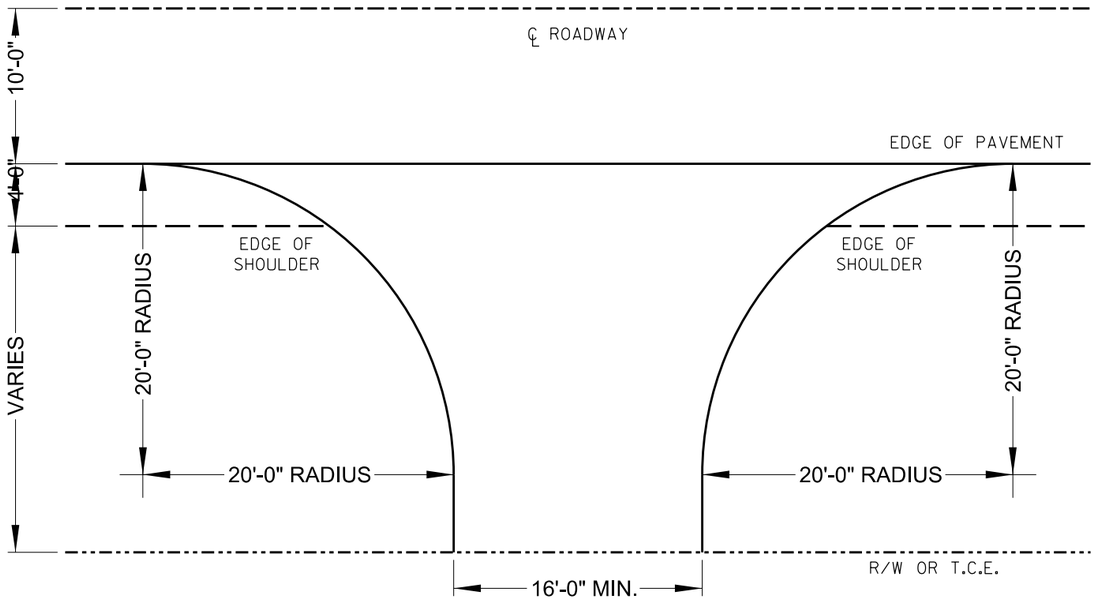
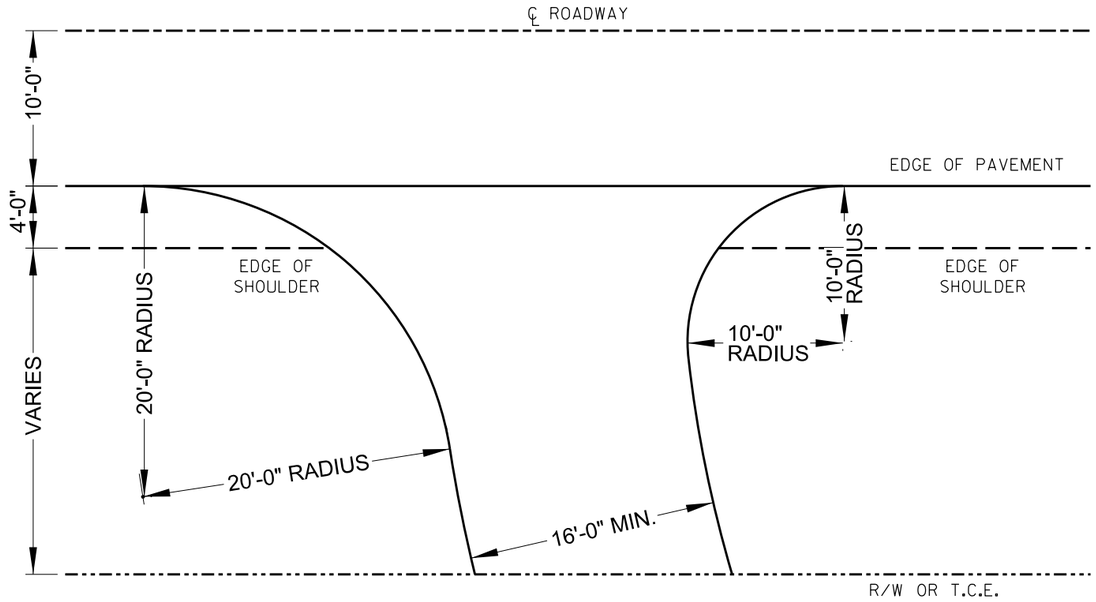
SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
2-12-2021				6	ARK.			
				JOB NO.		BR2503	7	64

4 SPECIAL DETAILS

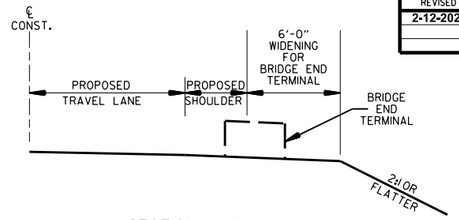


DETAIL OF TYPICAL PRIVATE ENTRANCES

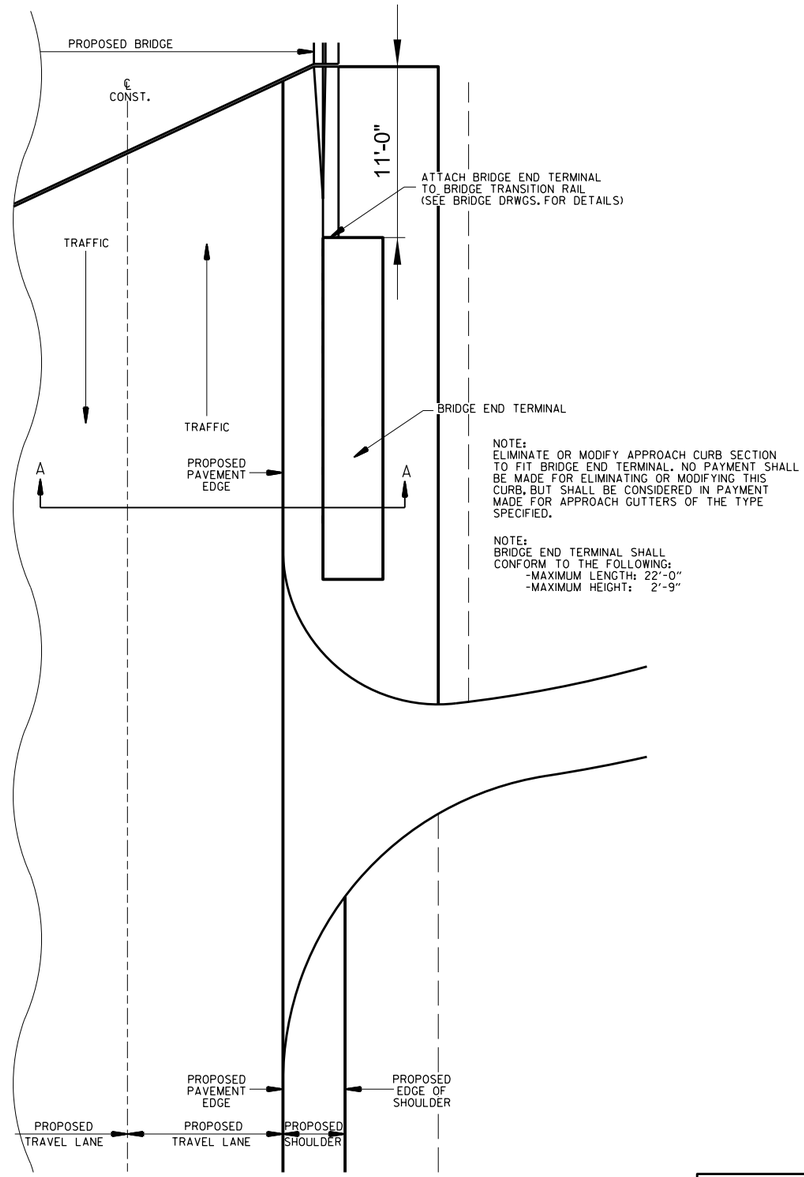


DETAIL OF PRIVATE ENTRANCE AT STA. 101+75 RT.

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



SECTION A-A



PLAN VIEW
(NOT TO SCALE)

BRIDGE END TERMINAL SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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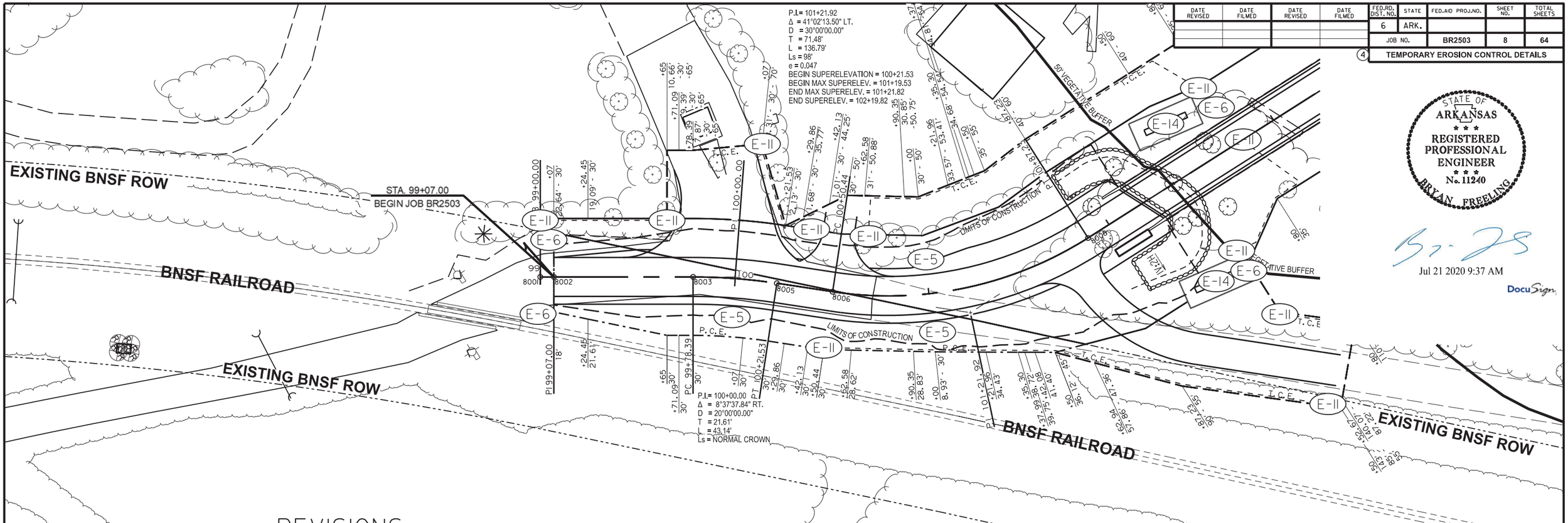
SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	8	64

4 TEMPORARY EROSION CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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REVISIONS

DATE	DESCRIPTION

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

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

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

TEMPORARY EROSION CONTROL

SAND BAG DITCH CHECKS (E-5)				SEDIMENT REMOVAL AND DISPOSAL
STA. 100+00	RT.	=	22 BAGS	1.5 CU. YDS
STA. 101+00	LT. & RT.	=	44 BAGS	3.0 CU. YDS
ROCK DITCH CHECKS (E-6)				SEDIMENT REMOVAL AND DISPOSAL
STA. 99+07	LT. & RT.	=	6 CU.YDS.	3.0 CU. YDS
STA. 102+50	RT.	=	3 CU.YDS.	1.5 CU. YDS
STA. 102+75	LT.	=	3 CU.YDS.	1.5 CU. YDS
SILT FENCE (E-11)				SEDIMENT REMOVAL AND DISPOSAL
STA. 99+07 TO STA. 99+65	LT.	=	65 LIN. FT.	7.0 CU. YDS
STA. 100+06 TO STA. 100+35	LT.	=	70 LIN. FT.	8.0 CU. YDS
STA. 100+50 TO STA. 102+45	RT.	=	262 LIN. FT.	29.0 CU. YDS
STA. 100+67 TO STA. 102+76	LT.	=	212 LIN. FT.	23.0 CU. YDS
STA. 102+48 TO STA. 102+82	RT.	=	95 LIN. FT.	10.0 CU. YDS
STA. 102+49 TO STA. 102+74	RT.	=	32 LIN. FT.	4.0 CU. YDS
*ENTIRE PROJECT AS DIRECTED BY ENGINEER		=	250 LIN. FT.	28.0 CU. YDS
SEDIMENT BASIN (E-14)				SEDIMENT REMOVAL AND DISPOSAL
STA. 102+31	RT.	=	30 CU. YDS	30.0 CU. YDS
STA. 102+52	LT.	=	30 CU. YDS	30.0 CU. YDS
OBLITERATION OF SEDIMENT BASIN				
STA. 102+31	RT.	=	30 CU. YDS	
STA. 102+52	LT.	=	30 CU. YDS	

TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	9	64

4 TEMPORARY EROSION CONTROL DETAILS

P.I.= 112+12.04
Δ = 47°44'45.26" LT.
D = 18°00'00.00"
T = 140.88'
L = 265.26'
Ls = 150'
BEGIN SUPERELEV. = 109+58.67
BEGIN MAX. SUPERELEV. = 111+08.67
END MAX. SUPERELEV. = 112+98.92
END SUPERELEV. = 114+48.92

PCI 110+71.17

PI 112+12.04

LIMITS OF CONSTRUCTION

50' VEGETATIVE BUFFER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
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REVISIONS

DATE	DESCRIPTION

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

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

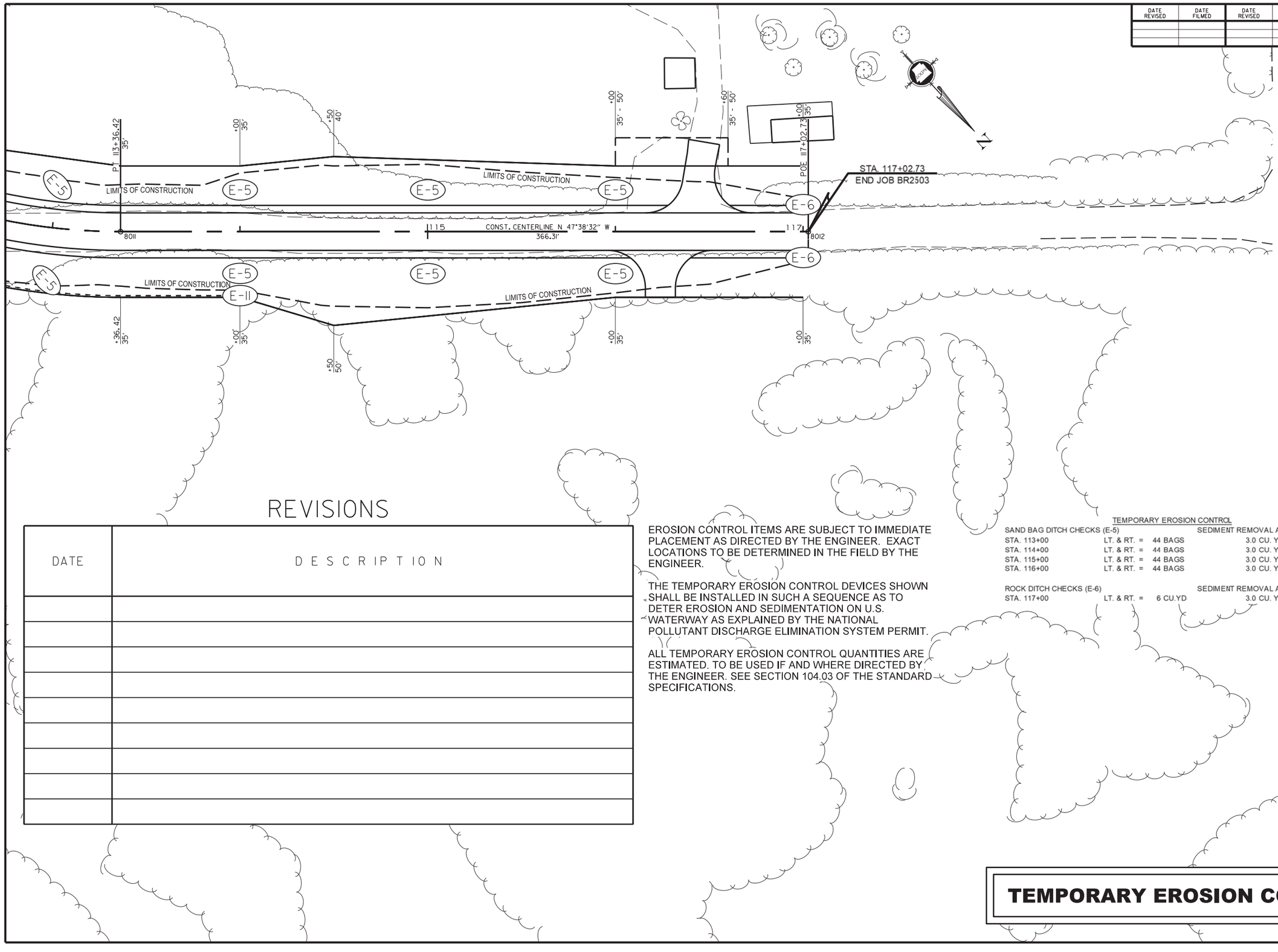
ALL TEMPORARY EROSION CONTROL QUANTITIES ARE ESTIMATED. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

TEMPORARY EROSION CONTROL

SAND BAG DITCH CHECKS (E-5)				SEDIMENT REMOVAL AND DISPOSAL
STA. 109+00	LT. & RT.	=	44 BAGS	3.0 CU. YDS
STA. 110+00	LT. & RT.	=	44 BAGS	3.0 CU. YDS
STA. 111+00	LT. & RT.	=	44 BAGS	3.0 CU. YDS
STA. 112+00	LT. & RT.	=	44 BAGS	3.0 CU. YDS
ROCK DITCH CHECKS (E-6)				SEDIMENT REMOVAL AND DISPOSAL
STA. 107+05	LT.	=	3 CU.YDS.	1.5 CU. YDS
STA. 108+00	RT.	=	3 CU.YDS.	1.5 CU. YDS
SILT FENCE (E-11)				SEDIMENT REMOVAL AND DISPOSAL
STA. 107+25 TO STA. 111+65	LT.	=	430 LIN. FT.	47.0 CU. YDS
STA. 107+75 TO STA. 110+20	RT.	=	247 LIN. FT.	27.0 CU. YDS
STA. 110+55 TO STA. 114+00	RT.	=	373 LIN. FT.	41.0 CU. YDS
SEDIMENT BASIN (E-14)				SEDIMENT REMOVAL AND DISPOSAL
STA. 107+34	LT.	=	77 CU. YDS	77.0 CU. YDS
OBLITERATION OF SEDIMENT BASIN				
STA. 107+34	LT.	=	77 CU. YDS	

TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	10	64
				4	TEMPORARY EROSION CONTROL DETAILS			



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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REVISIONS

DATE	DESCRIPTION

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

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

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

TEMPORARY EROSION CONTROL

SAND BAG DITCH CHECKS (E-5)			SEDIMENT REMOVAL AND DISPOSAL
STA. 113+00	LT. & RT. =	44 BAGS	3.0 CU. YDS
STA. 114+00	LT. & RT. =	44 BAGS	3.0 CU. YDS
STA. 115+00	LT. & RT. =	44 BAGS	3.0 CU. YDS
STA. 116+00	LT. & RT. =	44 BAGS	3.0 CU. YDS
ROCK DITCH CHECKS (E-6)			SEDIMENT REMOVAL AND DISPOSAL
STA. 117+00	LT. & RT. =	6 CU.YD	3.0 CU. YDS

TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	11	64

(4) **QUANTITIES**

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	STATION
99+07	103+00	4	4
104+00	106+00	2	2
107+00	117+00	10	10
TOTALS:		16	16

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	SIDE	REMOVAL AND DISPOSAL OF FENCE
			LIN. FT.
101+10	101+20	LT.	10
101+20	102+04	RT.	105
107+71	108+31	RT.	72
108+27	110+56	RT.	229
108+41	110+09	RT.	223
110+56	110+85	LT.	41
111+03	116+03	RT.	522
111+48	112+60	LT.	113
114+09	115+96	LT.	188
116+35	117+00	RT.	65
116+74	117+00	LT.	26
TOTAL:			1594

REMOVAL AND DISPOSAL OF GATE

STATION	SIDE	REMOVAL AND DISPOSAL OF GATE
		EACH
116+24	RT.	1
TOTAL:		1

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FENCE REMOVED AND RECONSTRUCTED

STATION	STATION	DESCRIPTION	SIDE	LIN. FT.
115+96	115+99	WOOD FENCE	LT.	50*
116+67	116+74	WOOD FENCE	LT.	20*
TOTAL:				70*

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION			COMPACTED EMBANKMENT			*STONE BACKFILL
			NORMAL	ADD'L	TOTAL	NORMAL	ADD'L	TOTAL	
			CUBIC YARD						TON
99+07	103+00	MAIN LANES	58		58	2450		2450	
107+00	117+02.73	MAIN LANES	2406		2406	11215		11215	
99+93		DRIVEWAY ON LT.					11	11	
100+49		DRIVEWAY ON LT.					10	10	
101+76		DRIVEWAY ON RT.					496	496	
110+36		DRIVEWAY ON RT.					105	105	
116+24		DRIVEWAY ON RT.					15	15	
116+44		DRIVEWAY ON LT.					17	17	
*ENTIRE PROJECT									100*
TOTALS:					2464			14319	100*

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

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

GATES

STATION	STATION	DESCRIPTION	SIDE	18' STEEL GATES	18' ALUMINUM GATES	GATES REMOVED AND RECONSTRUCTED
				EACH	EACH	EACH
100+49		18' GATE	LT.	1	1	
101+76		18' GATE	RT.	1	1	
108+26	108+41	DOUBLE 8' STEEL GATE	RT.			2
116+24		18' GATE	RT.	1	1	
TOTALS:				3	3	2

BASE AND SURFACING

STARTING STATION	ENDING STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		PRIME COAT				ACHM SURFACE COURSE (1/2")*			
			FEET	TON/STATION	TON	WIDTH	SQ. YD.	GAL./SQ.YD.	GALLON	WIDTH	SQ. YD.	LB./SQ. YD.	TON
99+07.00	99+50.00	MAIN LANES	43.00	131.4	56.5	21.00	100.3	0.40	40.1	20.00	95.56	220.00	10.51
99+50.00	100+21.53	MAIN LANES	71.53	151.8	108.6	21.00	166.9	0.40	66.8	20.00	158.96	220.00	17.49
100+21.53	100+92.08	MAIN LANES	70.55	153.0	107.9	21.00	164.6	0.40	65.8	20.00	156.78	220.00	17.25
100+92.08	101+19.53	MAIN LANES	27.45	155.3	42.6	21.00	64.1	0.40	25.6	20.00	61.00	220.00	6.71
101+19.53	101+21.82	MAIN LANES	2.29	184.6	4.2	21.00	5.3	0.40	2.1	20.00	5.09	220.00	0.56
101+21.82	101+25.08	MAIN LANES	3.26	187.4	6.1	21.00	7.6	0.40	3.0	20.00	7.24	220.00	0.80
101+25.08	101+65.42	MAIN LANES	40.34	186.0	75.0	21.00	94.1	0.40	37.6	20.00	89.64	220.00	9.86
101+65.42	101+75.42	MAIN LANES	10.00	193.9	19.4	21.00	23.3	0.40	9.3	20.00	22.22	220.00	2.44
101+75.42	102+19.82	MAIN LANES	44.40	220.6	97.9	21.00	103.6	0.40	41.4	20.00	98.67	220.00	10.85
107+78.00	108+61.55	MAIN LANES	83.55	220.6	184.3	21.00	195.0	0.40	78.0	20.00	185.67	220.00	20.42
108+61.55	108+72.74	MAIN LANES	11.19	204.2	22.8	21.00	26.1	0.40	10.4	20.00	24.87	220.00	2.74
108+72.74	108+94.55	MAIN LANES	21.81	192.4	42.0	21.00	50.9	0.40	20.4	20.00	48.47	220.00	5.33
108+94.55	109+05.74	MAIN LANES	11.19	156.5	17.5	21.00	26.1	0.40	10.4	20.00	24.87	220.00	2.74
109+05.74	109+58.67	MAIN LANES	52.93	151.8	80.3	21.00	123.5	0.40	49.4	20.00	117.62	220.00	12.94
109+58.67	111+08.67	MAIN LANES	150.00	155.3	233.0	21.00	350.0	0.40	140.0	20.00	333.33	220.00	36.67
111+08.67	112+98.92	MAIN LANES	190.25	156.3	297.4	21.00	443.9	0.40	177.6	20.00	422.78	220.00	46.51
112+98.92	114+48.92	MAIN LANES	150.00	155.3	233.0	21.00	350.0	0.40	140.0	20.00	333.33	220.00	36.67
114+48.92	116+50.00	MAIN LANES	201.08	151.8	305.2	21.00	469.2	0.40	187.7	20.00	446.84	220.00	49.15
116+50.00	117+02.73	MAIN LANES	52.73	120.8	63.7	21.00	123.0	0.40	49.2	20.00	117.18	220.00	12.89
99+93		DRIVEWAY LT.	50.00	VAR.	122.0	42.80	303.9	0.40	121.6	42.80	303.90	220.00	33.43
100+49		DRIVEWAY LT.	30.00	VAR.	30.4	16.00	79.8	0.40	31.9	16.00	79.80	220.00	8.78
101+76		DRIVEWAY RT.	150.00	VAR.	111.4	16.00	271.4	0.40	108.6	16.00	271.40	220.00	29.85
110+36		DRIVEWAY RT.	38.00	VAR.	47.7	16.00	108.0	0.40	43.2	16.00	108.00	220.00	11.88
116+24		DRIVEWAY RT.	55.00	VAR.	25.9	16.00	67.5	0.40	27.0	16.00	67.50	220.00	7.43
116+44		DRIVEWAY LT.	25.00	VAR.	36.2	16.00	130.2	0.40	52.1	16.00	130.20	220.00	14.32
MAINTENANCE OF TRAFFIC*		ENTIRE PROJECT			400.0								
TOTALS:					2771.0				1539.2				408.22
USE:					2771				1539				408

BASIS OF ESTIMATE:
AGGREGATE BASE COURSE (CLASS 7) _____ 143 TONS / STA.(TYPICAL)
AGGR. BASE COURSE (CLASS 7) FOR SHOULDERS _____ 4.4 TONS / STA. (TYPICAL, EACH SIDE)
PRIME COAT _____ 0.40 GAL. / SQ. YD.
ACHM SURFACE COURSE (1/2") _____ 220 LBS. PER SQ. YD.

VOLUME CONTROL:
ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2") _____ 5.4%
MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2") _____ 94.6%

***Nmax=115**

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

QUANTITIES

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.		BR2503	12	64
				4	QUANTITIES			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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APPROACH GUTTERS

STATION	STATION	SIDE	APPROACH GUTTERS (TYPE A)	REINFORCING STEEL - ROADWAY (GRADE 60)
			CU. YD.	LB.
101+84	102+14	LT.	3.44	317
101+95	102+25	RT.	3.56	325
107+42	107+72	LT.	3.56	325
107+54	107+84	RT.	3.44	317
TOTALS:			14.00	1284

NOTE: W = 3' - 0"

TRAFFIC CONTROL DEVICES

STATION	W20-1 1500 FT. NO.	W20-1 1500 FT. SQ. FT.	W20-1 1000 FT. NO.	W20-1 1000 FT. SQ. FT.	W20-1 500 FT. NO.	W20-1 500 FT. SQ. FT.	W20-1 AHEAD NO.	W20-1 AHEAD SQ. FT.	G20-1 (ROAD WORK NEXT X.X MILES) NO.	G20-1 (ROAD WORK NEXT X.X MILES) SQ. FT.	G20-2 (END ROAD WORK) NO.	G20-2 (END ROAD WORK) SQ. FT.	R11-2* (ROAD CLOSED) NO.	R11-2* (ROAD CLOSED) SQ. FT.	R11-3A (ROAD CLOSED XX MILES AHEAD) NO.	R11-3A (ROAD CLOSED XX MILES AHEAD) SQ. FT.	BARRICADES (TYPE III) LIN. FT.	TRAFFIC DRUMS EACH	STREAM TRAFFIC SAFETY SIGNS SQ. FT.	STANDARD DRAWING NUMBER
INTERSECTION OAK RIDGE ROAD															1	12.50				TC-1, TC-2, TC-3
84+07	1	16.00																		TC-1, TC-2, TC-3
89+07			1	16.00																TC-1, TC-2, TC-3
94+07					1	16.00					1	8.00								TC-1, TC-2, TC-3
99+07									1	10.00										TC-1, TC-2, TC-3
LOBERG DRIVE							1	16.00												TC-1, TC-2, TC-3
102+00													1	10.00			16*	15*		TC-1, TC-2, TC-3
108+00													1	10.00			16*	15*		TC-1, TC-2, TC-3
117+03									1	10.00										TC-1, TC-2, TC-3
INTERSECTION SEAGRAVE CIRCLE							1	16.00												TC-1, TC-2, TC-3
INTERSECTION PINE HOLLOW ROAD							1	16.00							1	12.50				TC-1, TC-2, TC-3
122+03					1	16.00					1	8.00								TC-1, TC-2, TC-3
127+03			1	16.00																TC-1, TC-2, TC-3
132+03	1	16.00																		TC-1, TC-2, TC-3
SPRING RIVER																			47	TC-1, TC-2, TC-3
TOTALS:	2	32.00	2	32.00	2	32.00	3	48.00	2	20.00	2	16.00	2	20.00	2	25.00	32*	30*	47	

NOTE: LOCATION OF THE TRAFFIC CONTROL DEVICES TO BE AS DIRECTED BY THE ENGINEER.SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

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

STRUCTURES

STATION	DESCRIPTION	SIDE DRAINS 18"	SIDE DRAINS 21" X 15"	SELECTED PIPE BEDDING*	STANDARD DRAWING NUMBERS
		LINEAR FT.		CU. YD.	
101+76	INSTALL PIPE CULVERT RT. SIDE DRAIN	64		2	PCM-1, PCC-1, PCP-1, PCP-2
110+36	INSTALL PIPE CULVERT RT. SIDE DRAIN	56		2	PCM-1, PCC-1, PCP-1, PCP-2
116+24	INSTALL PIPE CULVERT RT. SIDE DRAIN		30	2	PCM-1, PCC-1, PCP-1, PCP-2
116+44	INSTALL PIPE CULVERT LT. SIDE DRAIN		30	2	PCM-1, PCC-1, PCP-1, PCP-2
TOTALS:		120	60	8	

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

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

4" PIPE UNDERDRAIN

LOCATION	4' PIPE UNDERDRAIN
	LIN. FT.
ENTIRE PROJECT	200
TOTAL:	200

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

QUANTITIES

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.		BR2503	13	64

4 QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
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GUARDRAIL

STATION	STATION	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POST (TYPE 1)	BRIDGE END TERMINAL
			LIN. FT.	EACH	EACH	EACH
101+35	102+04	LT.	50	1	1	
101+94	102+14	RT.				1
107+83	108+52	LT.	50	1	1	
107+94	108+63	RT.	50	1	1	
TOTALS:			150	3	3	1

FENCING

STATION	STATION	SIDE	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D-1)	4' STEEL CHAIN LINK FENCE
			LIN. FT.	LIN. FT.	LIN. FT.
100+50	102+52	RT.		270	
100+58	102+81	LT.		200	
102+04	102+50	RT.		47	
106+53	115+98	LT.	940		
107+25	108+87	RT.		177	
108+87	110+09	RT.			125
110+62	114+00	RT.			370
114+00	116+00	RT.	325		
116+35	117+00	RT.	85		
116+67	117+00	LT.	52		
ENTIRE PROJECT			200*	100*	100*
TOTALS:			1602	794	595

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL			
			LIME	SEEDING	MULCH COVER	WATER
			TON	ACRE	ACRE	M. GAL.
99+07	107+00	MAIN LANES	1	0.38	0.38	38.8
107+00	112+50	MAIN LANES	2	1.23	1.23	125.5
112+50	117+03	MAIN LANES	1	0.50	0.50	51.0
TOTALS:			4	2.11	2.11	215.3

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

TEMPORARY EROSION CONTROL

STATION	STATION	LOCATION	TEMPORARY SEEDING	MULCH COVER	WATER	SILT FENCE (E-11)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	SEDIMENT REMOVAL AND DISPOSAL
			ACRE	ACRE	M. GAL.	LIN. FT.	BAG	CU.YD.	CU. YD.	CU. YD.	CU. YD.
99+07	107+00	MAIN LANES	0.38	0.38	7.8	728	66	12	60	60	152
107+00	112+50	MAIN LANES	1.23	1.23	25.1	1050	176	6	77	77	207
112+50	117+03	MAIN LANES	0.50	0.50	10.2		176	6			15
*ENTIRE PROJECT AS DIRECTED BY ENGINEER						250					28
TOTALS:			2.11	2.11	43.1	2028	418	24	137	137	402

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

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

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

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

PAVEMENT MARKING

STATION		REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4") CONTINUOUS	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4") CONTINUOUS	REFLECTORIZED PAINT PAVEMENT MARKING (RAILROAD EMBLEMS)
FROM	TO	LIN. FT.	LIN. FT.	EACH
99+07	117+00	3586	3586	
98+00				1
99+13				1
TOTALS:		3586	3586	2

NOTE: THIS IS A LOW VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. STATION LOCATIONS ARE APPROXIMATE. EXACT LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

STATION	SIDE	STANDARD SIGN NUMBER														SUPPORT ASSEMBLIES		BRIDGE MOUNTED SIGN STRUCTURE (TYPE 1)**	STANDARD DRAWING NUMBER
		W1-1L (SHARP TURN)		W1-1R (SHARP TURN)		W5-1 (ROAD NARROWS)		W8-3 (PAVEMENT ENDS)		W10-12 (SKEWED RR CROSSING)		OM-3L		OM-3R		TYPE A	TYPE C		
		NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	EACH			
99+25	LT.									1	9.00					1			SHS 1&2
99+50	RT.	1	6.25													1			SHS 1&2
102+04	LT.											1	3.00*				1		SHS 1&2
102+16	RT.													1	3.00*		1		SHS 1&2
102+87	LT.			1	6.25													1	SHS 1&2
107+83	LT.													1	3.00*		1		SHS 1&2
107+95	RT.											1	3.00*				1		SHS 1&2
109+71	RT.	1	6.25													1			SHS 1&2
114+36	LT.			1	6.25											1			SHS 1&2
115+52	RT.							1	9.00							1			SHS 1&2
116+02	RT.					1	9.00									1			SHS 1&2
TOTALS:		2	12.50	2	12.50	1	9.00	1	9.00	1	9.00	2	6.00*	2	6.00*	6	4	1	

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

*NOTE: OM-3 TO BE PLACED AT EACH CORNER OF BRIDGE OR CULVERT.

**SEE MOUNTING BRACKET DETAIL ON SHEET 54926A OF BRIDGE DRAWINGS.

QUANTITIES

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.		BR2503	14	64
				① 04929 -		QUANTITIES	- 54907	

SCHEDULE OF BRIDGE QUANTITIES - JOB. NO. BR2503

BRIDGE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	SS & 802	SP, SS, & 802	803	~~SS~~ 804	SS & 805	SP, SS, & 807	SS & 808	SS & 809	812	816	816	SP JOB BR2503	SP JOB BR2503	SP JOB BR2503	SP JOB BR2503
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	STEEL PILING (HP 12X53)	STRUCTURAL STEEL IN W-BEAM SPANS (M270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE C)	FILTER BLANKET	FOUNDATION PROTECTION RIPRAP	DRILLED SHAFT (84'' DIA.)	②PERMANENT STEEL CASING (96'' DIA.)	CROSSHOLE SONIC LOGGING (84'' DIA.)	CORING DRILLED SHAFT
		UNIT	LUMP SUM	CU. YD.	CU. YD.	GAL.	LB.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	SQ. YD.	TON	LIN. FT.	LIN. FT.	EACH	LIN. FT.
04929 SPRING RIVER	BENT NO. 1			24.56		0.2	3,110	92	508				198	916				
	BENT NO. 2			34.80			6,806								26	12	1	26
	BENT NO. 3			38.29			7,454								28	14	1	28
	BENT NO. 4			60.36		0.1	9,684		1,016						34	20	1	34
	BENT NO. 5			39.64			7,783								34	20	1	34
	BENT NO. 6			38.81			7,574								31	17	1	31
	BENT NO. 7			24.54		0.2	3,110	132	508				472	1,835				
	TWO - 277'-0'' CONT. COMP. W-BEAM UNITS				464.60	38.0	116,199		608,038	12,662.0	118	1						
	EXIST. BR. NO. 13129 (SITE NO. 1)		1															
TOTALS FOR JOB NO. BR2503			1	261.00	464.60	38.5	161,720	① 224	610,070	12,662.0	118	1	670	2,751	153	83	5	153

① These steel piles are required to have driving points which will not be paid for directly, but will be considered subsidiary to the item ''Steel Piling (HP 12x53)''.

② Lengths shown are for estimating purposes only. Actual lengths will be determined in the field.

BRYAN FREELING
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
CHARLES R. ELLIS
LICENSED PROFESSIONAL ENGINEER
No. 9235
1/15/19
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
SPRING RIVER STR. & APPRS. (S)
FULTON COUNTY

COUNTY ROAD 42
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-10-13 FILENAME: bbr2503_ql.dgn
CHECKED BY: CJR DATE: 2-10-14 SCALE: NONE
DESIGNED BY: — DATE: —

BRIDGE NO. 04929 DRAWING NO. 54907

PRINT DATE: 1/15/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-13-2020		2-12-2021		6	ARK.			
12-30-2020				JOB NO.		BR2503	15	64
1-22-2021								

(4) SUMMARY OF QUANTITIES AND REVISIONS

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	16	STA.
201	GRUBBING	16	STA.
202	REMOVAL AND DISPOSAL OF FENCE	1594	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	1	EACH
207	STONE BACKFILL	100	TON
208	FENCE REMOVED AND RECONSTRUCTED	70	LIN. FT.
208	GATES REMOVED AND RECONSTRUCTED	2	EACH
SS & 210	UNCLASSIFIED EXCAVATION	2464	CU. YD.
210	COMPACTED EMBANKMENT	14319	CU. YD.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	2771	TON
SS & 401	PRIME COAT	1539	GAL.
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	386	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	22	TON
504	APPROACH GUTTERS	14.00	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SP, SS, & 604	SIGNS	272	SQ. FT.
SS & 604	BARRICADES	32	LIN. FT.
SS & 604	TRAFFIC DRUMS	30	EACH
SP, SS, & 606	18" SIDE DRAIN	120	LIN. FT.
SS & 606	21" X 15" SIDE DRAIN	60	LIN. FT.
606	SELECTED PIPE BEDDING	8	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	200	LIN. FT.
SS & 617	GUARDRAIL (TYPE A)	150	LIN. FT.
SS & 617	TERMINAL ANCHOR POSTS (TYPE 1)	3	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	3	EACH
619	WIRE FENCE (TYPE C)	1602	LIN. FT.
619	WIRE FENCE (TYPE D-1)	794	LIN. FT.
* 619	4' STEEL CHAIN LINK FENCE (ALTERNATE NO. 1)	595	LIN. FT.
* 619	4' ALUMINUM CHAIN LINK FENCE (ALTERNATE NO. 2)	595	LIN. FT.
* 619	18' STEEL GATES (ALTERNATE NO. 1)	3	EACH
* 619	18' ALUMINUM GATES (ALTERNATE NO. 2)	3	EACH
620	LIME	4	TON
620	SEEDING	2.11	ACRE
SS & 620	MULCH COVER	4.22	ACRE
620	WATER	258.4	M. GAL.
621	TEMPORARY SEEDING	2.11	ACRE
621	SILT FENCE	2028	LIN. FT.
621	SAND BAG DITCH CHECKS	418	BAG
621	SEDIMENT BASIN	137	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	137	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	402.0	CU. YD.
621	ROCK DITCH CHECKS	24	CU. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")	3586	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")	3586	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING (RAILROAD EMBLEMS)	2	EACH
SP & 724	BRIDGE MOUNTED SIGN STRUCTURE (TYPE 1)	1	EACH
SS & 726	STANDARD SIGN	64.00	SQ. FT.
SS & 729	CHANNEL POST SIGN SUPPORT (TYPE A)	6	EACH
SS & 729	CHANNEL POST SIGN SUPPORT (TYPE C)	4	EACH
SS & 734	BRIDGE END TERMINAL	1	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	1284	POUND
	STRUCTURES OVER 20'-0" SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
SS & 802	CLASS S CONCRETE-BRIDGE	261.00	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	464.60	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	38.5	GAL.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	161720	POUND
SS & 805	STEEL PILING (HP 12X53)	224	LIN. FT.
SP	CORING DRILLED SHAFT	153	LIN. FT.
SP	DRILLED SHAFT (84" DIAMETER)	153	LIN. FT.
SP	PERMANENT STEEL CASING (96" DIAMETER)	83	LIN. FT.
SP	CROSSHOLE SONIC LOGGING (84" DIAMETER)	5	EACH
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	610070	POUND
SS & 808	ELASTOMERIC BEARINGS	12662.0	CU. IN.
SS & 809	SILICONE JOINT SEALANT	118	LIN. FT.
812	BRIDGE NAME PLATE (TYPE C)	1	EACH
816	FILTER BLANKET	670	SQ. YD.
816	FOUNDATION PROTECTION RIPRAP	2751	TON

* DENOTES ALTERNATE BID ITEMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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REVISIONS

DATE	REVISION	SHEET NUMBER
11/13/2020	REVISED SS 100-3. ADDED SS 400-7. ADDED PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT SP.	3 & 15
12/30/2020	REVISED VEGETATED BUFFER ZONE SP.	15
1/22/2021	ADDED DELAY IN RIGHT OF WAY OCCUPANCY SP.	3 & 15
2/12/2021	REVISED MAXIMUM LENGTH OF BRIDGE END TERMINAL, ADDED WORKING DAY WITH IMMEDIATE WORK ORDER SP, ADDED CLEARING SP, REVISED SPECIAL CLEARING REQUIREMENTS SP.	3, 7, & 15

SUMMARY OF QUANTITIES AND REVISIONS

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.		BR2503	16	64

4 SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

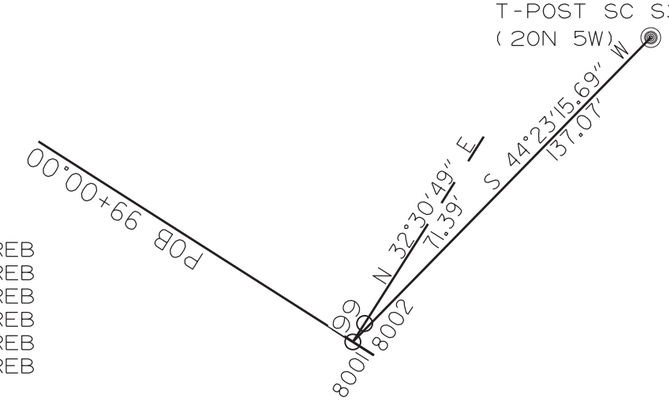
Project Name: sbr2503
Date: 9/27/2010
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	730486.96	1456131.70	384.10	CTL	T1*"RBR 2"ALUM CAP
2	731008.24	1456542.71	380.34	CTL	T-2 2"ALUM CAP W/*" REBAR
3	730750.95	1456864.05	370.23	CTL	T-3 2" ALUMINUM CAP W/*" REB
4	730489.65	1456933.10	371.49	CTL	T-4 2" ALUMINUM CAP W/*" REB
5	730270.65	1457026.40	365.42	CTL	T-5 2" ALUMINUM CAP W/*" REB
6	729994.11	1457213.81	365.16	CTL	T-6 2" ALUMINUM CAP W/*" REB
7	729404.74	1456740.27	380.75	CTL	T-7 2" ALUMINUM CAP W/*" REB
8	728974.22	1456624.32	389.75	CTL	T-8 2" ALUMINUM CAP W/*" REB
900	728366.95	1460022.97	552.14	TBM	CPS IN POWER POLE
901	727649.12	1458062.77	403.39	TBM	BOLT HEAD ON FIRE HYDRANT
902	729394.10	1456737.95	382.78	BM	CHISLED BOX IN CONC RRS WEST CO
903	729987.52	1457192.37	365.54	BM	CENTERLINE
904	-99999.00	-99999.00	382.63	TBM	CPS IN PP
905	729361.75	1456745.00	382.78	BM	CHISELED SQUARE IN CONC.
906	-99999.00	-99999.00	365.54	BM	CHISELED SQR CONC
990	731626.74	1464588.09	643.33	BM	NGS MARK M 313
991	728983.78	1461983.60	615.78	BM	NGS MARK N 313
1500	731041.23	1456320.78	383.55	CTL	2"ALUM CAP2'X5/8"REBAR
1501	731179.13	1456519.94	379.53	CTL	2"ALUM CAP2'X5/8"REBAR
1502	730979.23	1456771.09	382.17	CTL	2"ALUM CAP2'X5/8"REBAR
1503	730762.94	1456528.36	373.08	CTL	2"ALUM CAP2'X5/8"REBAR
1504	730692.85	1457242.08	375.03	CTL	2"ALUM CAP2'X5/8"REBAR
1505	730525.60	1456799.89	369.06	CTL	2"ALUM CAP2'X5/8"REBAR
1506	730429.68	1457176.40	372.81	CTL	2"ALUM CAP2'X5/8"REBAR
1507	730273.38	1456788.47	370.65	CTL	2"ALUM CAP2'X5/8"REBAR
1508	729691.38	1456534.89	369.59	CTL	2"ALUM CAP2'X5/8"REBAR
1509	729504.58	1456284.11	367.51	CTL	2"ALUM CAP2'X5/8"REBAR

Note - Rebar and Cap - Standard -" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 1.0000020975 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME.sbr2503gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 880088-880088A
CONVERGENCE ANGLE: 0-17-08.43 RIGHT AT LT:36-20-21.1 LG:091-30-32.6
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.



LAND TIE

NOTE:
THE SET NAIL AT TEEPOST AND LARGE STONE (PN:203) IS THE SOUTH POINT OF A BOUNDARY LINE ESTABLISHED BY THE FULTON COUNTY CHANCERY COURT DATED AUGUST 2, 1988, CASE NO. E-88-49.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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CONSTRUCTION CENTER LINE

	POINT NAME	STATION	NORTHING	EASTING
POB	(8001)	99+00.00	729429.17793	1456762.47985
PI	(8002)	99+07.00	729435.08078	1456766.24235
PC	(8003)	99+78.39	729495.28399	1456804.61615
PT	(8005)	100+21.53	729529.77937	1456830.44754
PC	(8006)	100+50.44	729551.55134	1456849.46776
PT	(8008)	101+87.23	729676.85750	1456896.62280
PC	(8009)	110+71.17	730560.79533	1456898.22284
PT	(8011)	113+36.42	730796.58714	1456794.37744
POE	(8012)	117+02.73	731043.39005	1456523.69373

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	17	64

4 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
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EXISTING BNSF ROW

STA. 99+07.00
BEGIN JOB BR2503

BNSF RAILROAD

EXISTING BNSF ROW

SURVEY BASELINE N 15°04'24" E
445.86

PN:8
PD:T-8 2" ALUMINUM CAP W/ 5/8" REB

PN:110I
PD:ST60DNL

PN:902 BM
PD:CHISLED BOX IN CONC
RRS WEST CO

PN:7 CTL
PD:T-7 2" ALUMINUM CAP W/ 5/8" REB

PN:905 BM
PD:CHISELED SQUARE IN CONC.

PN:110O
PD:ST60DNL

P.I.= 101+21.92
Δ = 41°02'13.50" LT.
D = 30°00'00.00"
T = 71.48'
L = 136.79'
Ls = 98'
e = 0.047
BEGIN SUPERELEVATION = 100+21.53
BEGIN MAX SUPERELEV. = 101+19.53
END MAX SUPERELEV. = 101+21.82
END SUPERELEV. = 102+19.82

P.I.= 100+00.00
Δ = 8°37'37.84" RT.
D = 20°00'00.00"
T = 21.61'
L = 43.14'
Ls = NORMAL CROWN

T-POST SC S33;34/T20N (5W 20N)

POB 99+00.00
PC 99+78.39
PI 99+07.00
PT 100+21.53
PI 100+00.00
PC 100+50.44
PT 101+81.23
PI 101+21.92
8001 8002 8003 8004 8005 8006 8007 8008

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.		BR2503	18	64

④ SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
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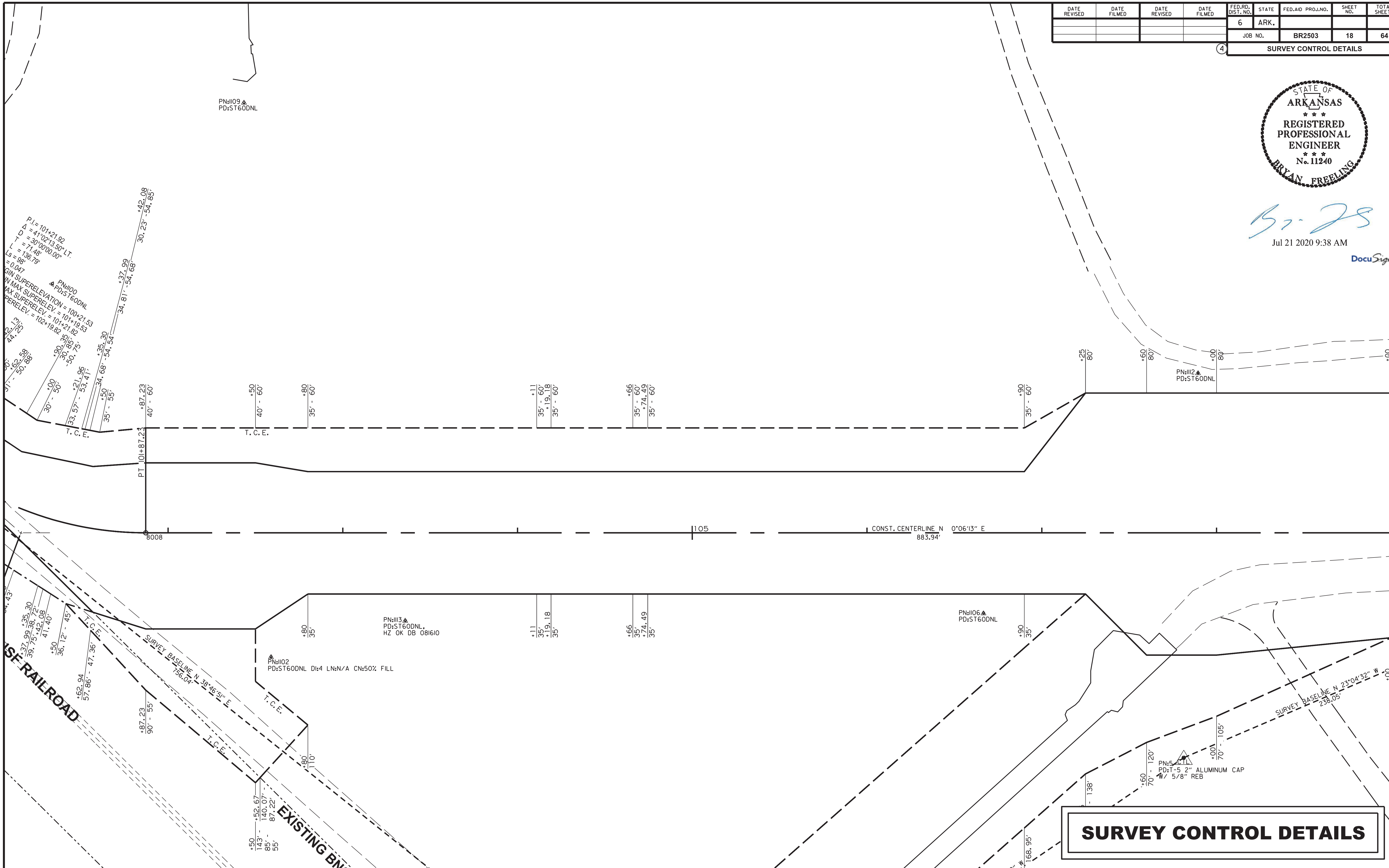
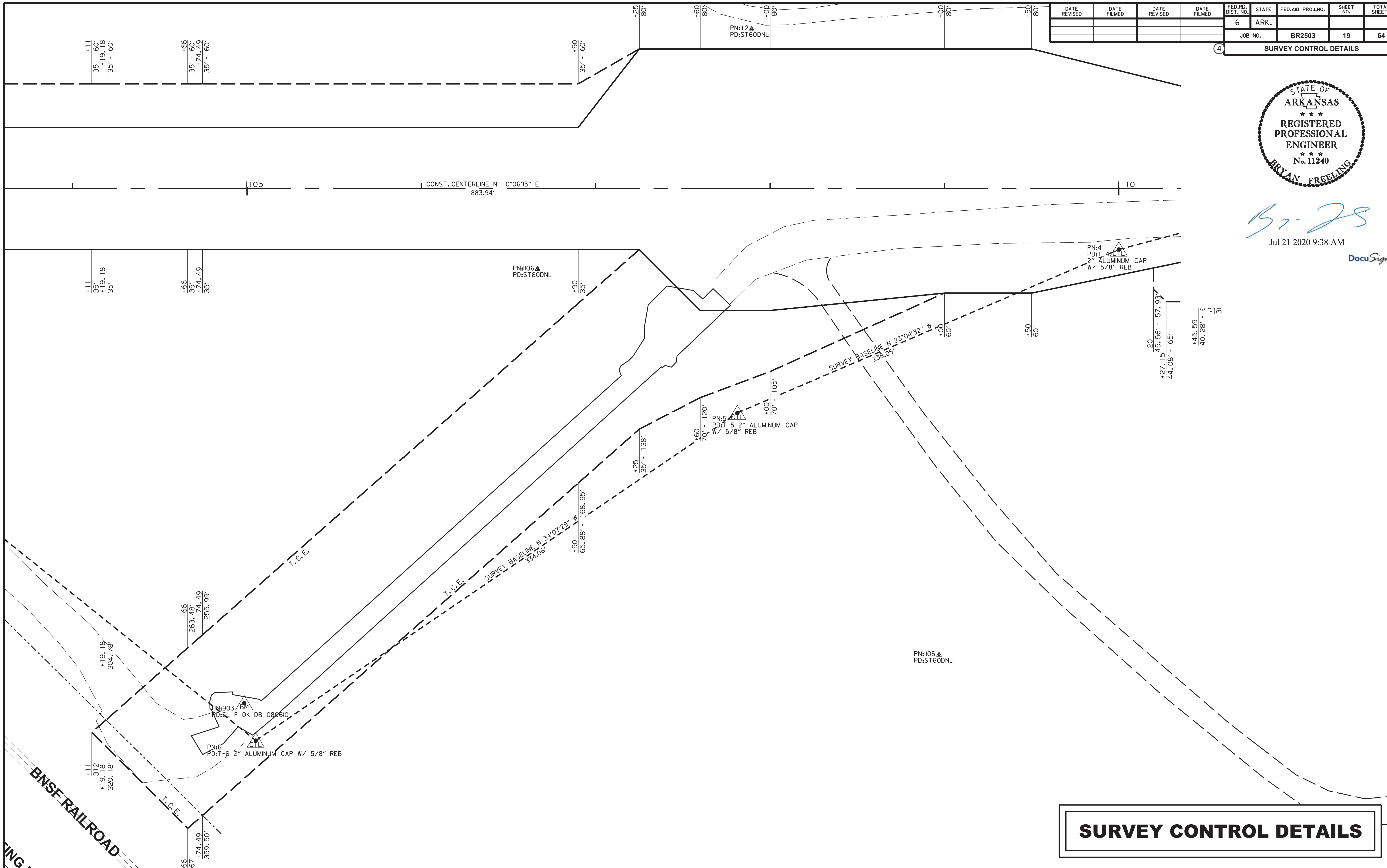


SURVEY CONTROL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	19	64

(4) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	20	64
				4	SURVEY CONTROL DETAILS			

STATE OF ARKANSAS
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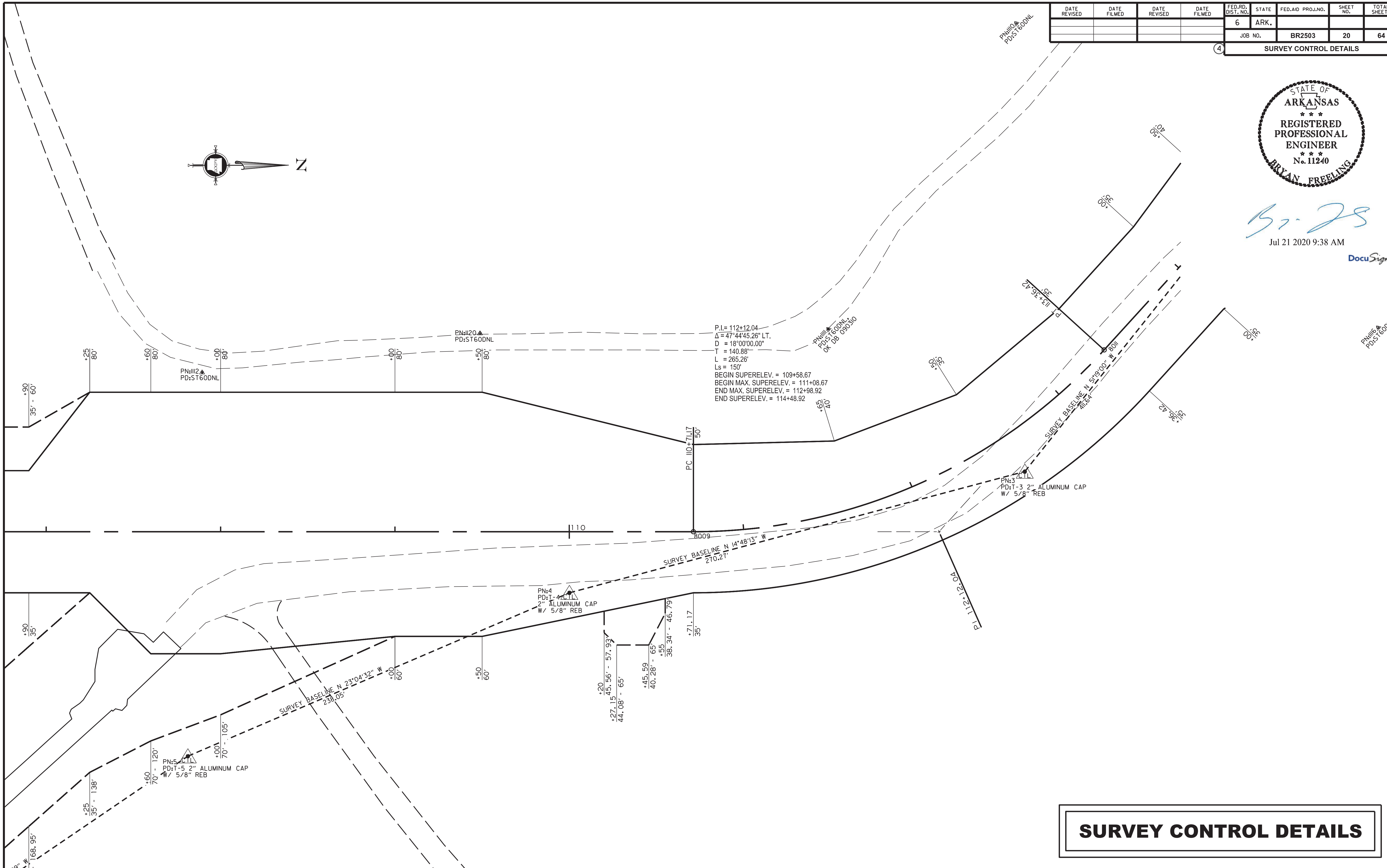

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	21	64

4 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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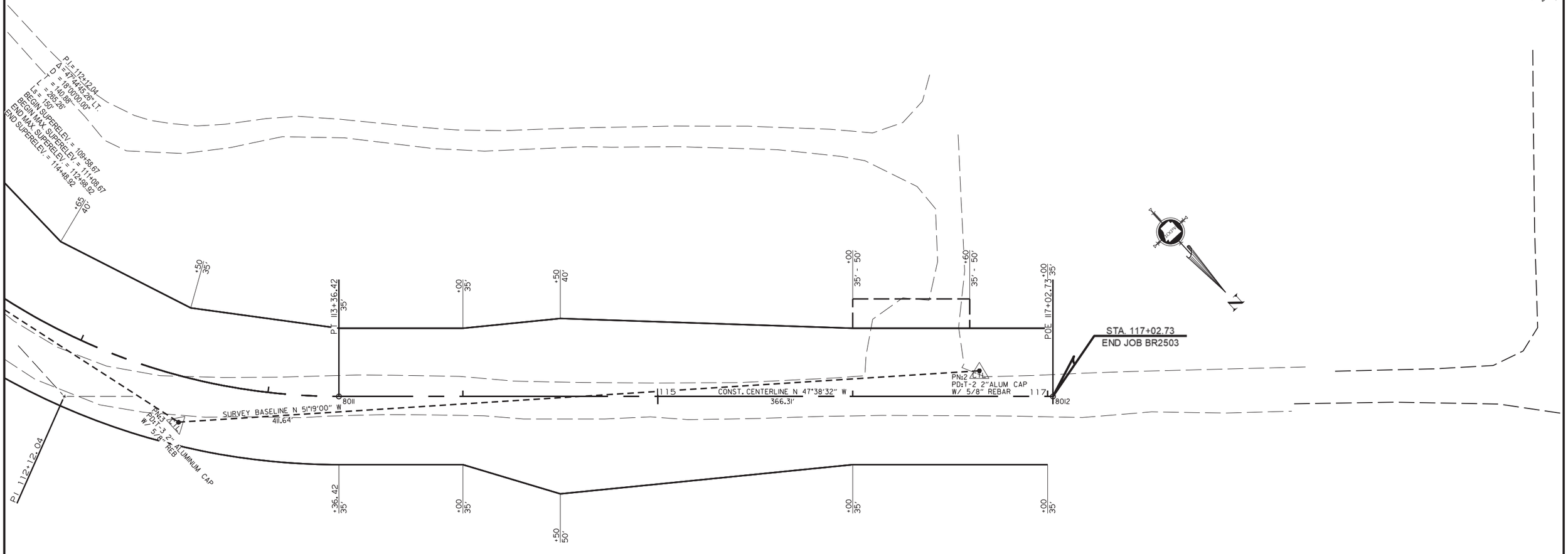

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	22	64

4 PLAN AND PROFILE SHEETS

LEGEND

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

CLEARING AND GRUBBING
STA. 99+07 TO STA. 103+00 = 4 STA.

STA. 99+25 CONSTRUCT STD. HWY. SIGNS W10-12 ON LT. TYPE A SUPPORT ASSEMBLY

STA. 99+93 ON LT. CONSTRUCT APPROACH = 11 CU. YDS. COMP. EMB.

REMOVAL AND DISPOSAL OF FENCE
STA. 101+10 TO STA. 101+20 ON LT. = 10 LIN. FT.
STA. 101+20 TO STA. 102+04 ON RT. = 105 LIN. FT.

FENCING
WIRE FENCE (TYPE D-1)
STA. 100+50 TO STA. 102+52 ON RT. = 270 LIN.FT.
STA. 100+58 TO STA. 102+81 ON LT. = 200 LIN.FT.
STA. 102+04 TO STA. 102+50 ON RT. = 47 LIN.FT.
ENTIRE PROJECT = 100* LIN.FT.

P.I.= 101+21.92
Δ = 41°02'13.50" LT.
D = 30°00'00.00"
T = 71.48'
L = 136.79'
Ls = 98'
e = 0.047
BEGIN SUPERELEVATION = 100+21.53
BEGIN MAX SUPERELEV. = 101+19.53
END MAX SUPERELEV. = 101+21.82
END SUPERELEV. = 102+19.82

STA. 100+49 ON LT. CONSTRUCT APPROACH = 10 CU. YDS. COMP. EMB.

STA. 102+04 CONSTRUCT STD. HWY. SIGNS OM-3L ON LT. TYPE C SUPPORT ASSEMBLY

STATE OF ARKANSAS
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No. 11240
BRYAN FREELING

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STA. 99+07.00
BEGIN JOB BR2503

BNSF RAILROAD

EARTHWORK
STA.99+07 TO STA.103+00
UNCLASSIFIED EXCAVATION (NORMAL) = 58 CU.YDS.
COMPACTED EMBANKMENT (NORMAL) = 2450 CU.YDS.
COMPACTED EMBANKMENT (DRIVEWAYS) = 517 CU.YDS.
NOTE: EARTHWORK SHALL BE PAID AS PLAN QUANTITY.

EXISTING BNSF ROW

SURVEY BASELINE N 15°04'24" E 445.86'

P.I.= 100+00.00
Δ = 8°37'37.84" RT.
D = 20°00'00.00"
T = 21.61'
L = 43.14'
Ls = NORMAL CROWN

STA. 99+50 CONSTRUCT STD. HWY. SIGNS W1-1L ON RT. TYPE A SUPPORT ASSEMBLY

GATES
STA. 100+49 18' GATE ON LT. = 1 EACH
STA. 101+76 18' GATE ON RT. = 1 EACH

STA. 101+76 INSTALL SIDE DRAIN ON RT. 18" X 64 PIPE CULVERT CONSTRUCT APPROACH = 496 CU.YDS. COMP. EMB.

BRIDGE 04929 TO BE CONSTRUCTED

50' VEGETATIVE BUFFER

LIMITS OF CONSTRUCTION

FRONT

SURVEY BASELINE N 38°46'51" E 756.04'

STA. 102+16 CONSTRUCT STD. HWY. SIGNS OM-3R ON RT. TYPE C SUPPORT ASSEMBLY

EXISTING BNSF ROW

TRAFFIC CONTROL DEVICES

W20-1			
STA. 84+07 (1500 FT.)	1 SIGN	=	16 SQ. FT.
STA. 89+07 (1000 FT.)	1 SIGN	=	16 SQ. FT.
STA. 94+07 (500 FT.)	1 SIGN	=	16 SQ. FT.
LOBERG DRIVE (AHEAD)	1 SIGN	=	16 SQ. FT.
INTERSECTION SEAGRAVE CIRCLE (AHEAD)	1 SIGN	=	16 SQ. FT.
INTERSECTION PINE HOLLOW ROAD (AHEAD)	1 SIGN	=	16 SQ. FT.
STA. 122+03 (500 FT.)	1 SIGN	=	16 SQ. FT.
STA. 127+03 (1000 FT.)	1 SIGN	=	16 SQ. FT.
STA. 132+03 (1500 FT.)	1 SIGN	=	16 SQ. FT.
G20-1 (ROAD WORK NEXT X.X MILES)			
STA. 99+07	1 SIGN	=	10 SQ. FT.
STA. 117+03	1 SIGN	=	10 SQ. FT.
G20-2 (END ROAD WORK)			
STA. 94+07	1 SIGN	=	8 SQ. FT.
STA. 122+03	1 SIGN	=	8 SQ. FT.
R11-2* (ROAD CLOSED)			
STA. 102+00	1 SIGN	=	10 SQ. FT.
STA. 108+00	1 SIGN	=	10 SQ. FT.
R11-3A (ROAD CLOSED XX MILES AHEAD)			
INTERSECTION OAK RIDGE ROAD	1 SIGN	=	12.5 SQ. FT.
INTERSECTION PINE HOLLOW ROAD	1 SIGN	=	12.5 SQ. FT.
BARRICADES (TYPE III)			
STA. 102+00		=	16 LIN. FT.
STA. 108+00		=	16 LIN. FT.
TRAFFIC DRUMS			
STA. 102+00		=	15 EACH
STA. 108+00		=	15 EACH
STREAM TRAFFIC SAFETY SIGNS			
SPRING RIVER	3 SIGNS	=	47 SQ. FT.

GUARDRAIL
GUARDRAIL (TYPE A)
STA. 101+35 TO STA. 102+04 ON LT. = 50 LIN. FT.

THRIE BEAM GUARDRAIL TERMINAL
STA. 101+35 TO STA. 102+04 ON LT. = 1 EACH

TERMINAL ANCHOR POST (TYPE 1)
STA. 101+35 TO STA. 102+04 ON LT. = 1 EACH

BRIDGE END TERMINAL
STA. 101+94 TO STA. 102+14 ON RT. = 1 EACH

STA. 102+19.82 BRIDGE END
BRIDGE NO. 04929
277' - 0 " CONT. COMP. W-BEAM UNITS
24' - 0" CLEAR ROADWAY
(25° RT. FWD. SKEW)
BRIDGE LENGTH = 558' - 2 3/16"
STA. 107+78.00 BRIDGE END

4.3' TRANSITION
VC=250'
e=4.11'
6.75%
RT. DITCH GRADE -2.14%
RT. DITCH GRADE -4.10%
RT. DITCH GRADE -0.54%
RT. DITCH GRADE -3.16%
LT. DITCH GRADE -0.73%
RT. DITCH GRADE -1.47%

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

PLAN AND PROFILE SHEETS

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.		BR2503	23	64

4 PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
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CLEARING AND GRUBBING
STA. 104+00 TO STA. 106+00 = 2 STA.

STA. 102+87 CONSTRUCT
STD. HWY. SIGNS
W1-1R ON LT.
BRIDGE MOUNTED SIGN STRUCTURE (TYPE 1)**

FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 366 FEET MSL BETWEEN STATIONS 102+85 AND 107+15. REFER TO SECTION 110.06(c) OF THE STANDARD SPECIFICATIONS.

APPROACH GUTTERS (TYPE A)

	CONCRETE	REINFORCING STEEL
STA. 101+84 TO STA. 102+14 ON LT. =	3.44 CU. YDS.	317 LB.
STA. 101+95 TO STA. 102+25 ON RT. =	3.56 CU. YDS.	325 LB.
STA. 107+42 TO STA. 107+72 ON LT. =	3.56 CU. YDS.	325 LB.
STA. 107+54 TO STA. 107+84 ON RT. =	3.44 CU. YDS.	317 LB.

REMOVAL AND DISPOSAL OF FENCE
STA. 107+71 TO STA. 108+31 ON RT. = 72 LIN. FT.

STA. 102+19.82 BRIDGE END
BRIDGE NO. 04929
277' - 0 " CONT. COMP. W-BEAM UNITS
24' - 0" CLEAR ROADWAY
(25° RT. FWD. SKEW)
BRIDGE LENGTH = 558' - 2 3/16"
STA. 107+78.00 BRIDGE END

PLAN AND PROFILE SHEETS

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	24	64

④ PLAN AND PROFILE SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11240 BRYAN FREELING

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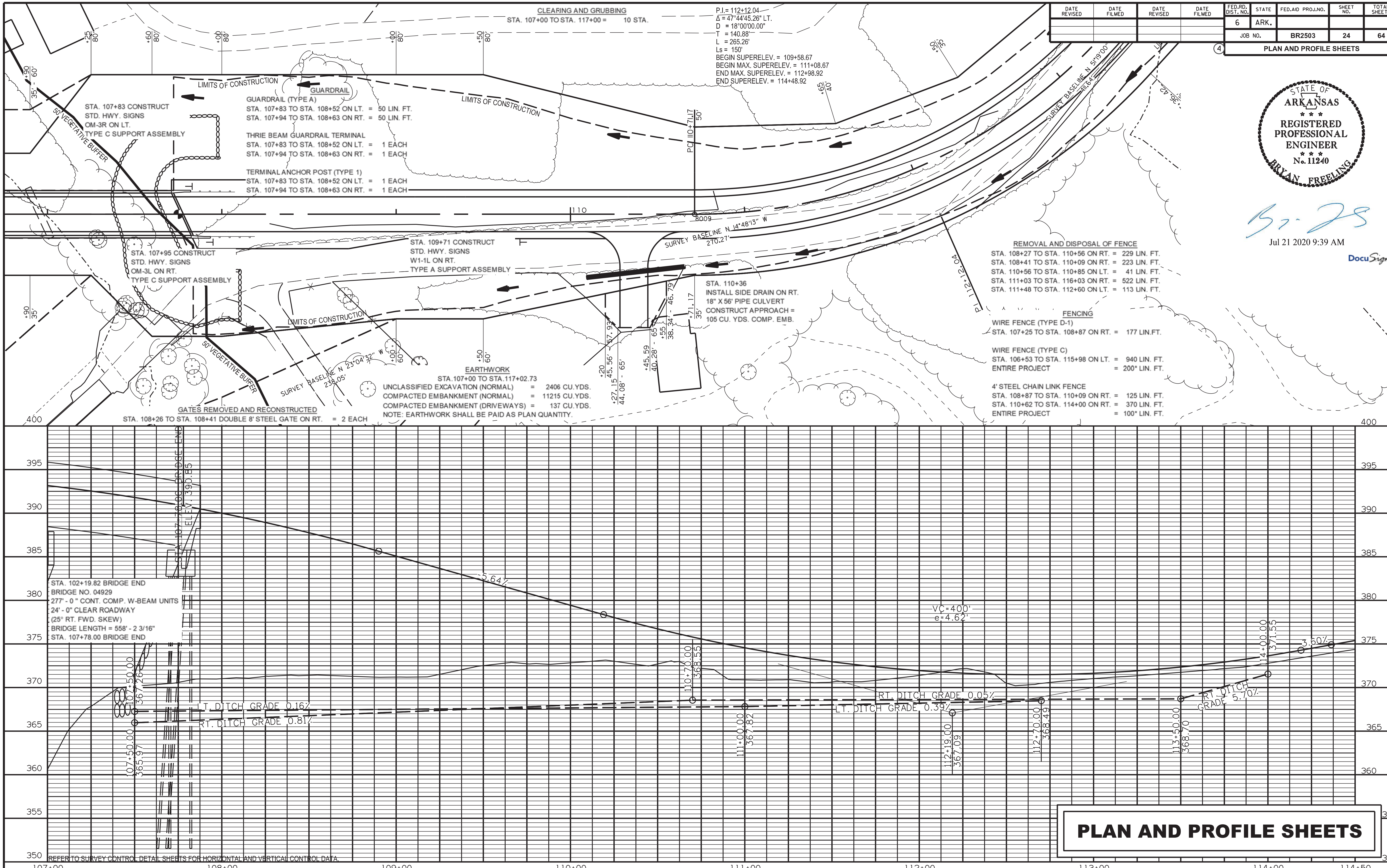

PLAN AND PROFILE SHEETS

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.		BR2503	25	64
				4	PLAN AND PROFILE SHEETS			

REMOVAL AND DISPOSAL OF FENCE
STA. 114+09 TO STA. 115+96 ON LT. = 188 LIN. FT.
STA. 116+35 TO STA. 117+00 ON RT. = 65 LIN. FT.
STA. 116+74 TO STA. 117+00 ON LT. = 26 LIN. FT.

FENCE REMOVED AND RECONSTRUCTED
STA. 115+96 TO STA. 115+99 WOOD FENCE ON LT. = 50 LIN. FT.
STA. 116+67 TO STA. 116+74 WOOD FENCE ON LT. = 20 LIN. FT.

STA. 116+44
INSTALL SIDE DRAIN ON LT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH =
17 CU. YDS. COMP. EMB.

STA. 114+36 CONSTRUCT
STD. HWY. SIGNS
W1-1R ON LT.
TYPE A SUPPORT ASSEMBLY

FENCING
WIRE FENCE (TYPE C)
STA. 114+00 TO STA. 116+00 ON RT. = 325 LIN. FT.
STA. 116+35 TO STA. 117+00 ON RT. = 85 LIN. FT.
STA. 116+67 TO STA. 117+00 ON LT. = 52 LIN. FT.

STATE OF ARKANSAS
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No. 11240
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STA. 117+02.73
END JOB BR2503

LIMITS OF CONSTRUCTION

CONST. CENTERLINE N 47°38'32" W
366.31'

SURVEY BASELINE N 51°19'00" W
411.64'

REMOVAL AND DISPOSAL OF GATE
STA. 116+24 GATE ON RT. = 1 EACH

GATES
STA. 116+24 18' GATE ON RT. = 1 EACH

STA. 115+52 CONSTRUCT
STD. HWY. SIGNS
W8-3 ON RT.
TYPE A SUPPORT ASSEMBLY

STA. 116+02 CONSTRUCT
STD. HWY. SIGNS
W5-1 ON RT.
TYPE A SUPPORT ASSEMBLY

STA. 116+24
INSTALL SIDE DRAIN ON RT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH =
15 CU. YDS. COMP. EMB.

50' TRANSITION

3.60%

2.16%

VC=200'
e=-0.36'

RT. DITCH
GRADE 0.05%

RT. DITCH
GRADE 5.70%

113+50.00
368.70

114+00.00
371.55

115+36.35
378.51

117+02.73
382.10

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

PLAN AND PROFILE SHEETS

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.		BR2503	26	64

4 PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11240
BRYAN FREELING

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EXISTING BNSF ROW
BNSF RAILROAD
50' VEGETATIVE BUFFER
T. C. E.
STA. 105+07 TO STA. 107+37
EXISTING BRIDGE NO. 13129
12' X 300' LOW WATER STRUCTURE
REMOVE AS EXISTING BRDGE
STRUCTURE (SITE NO. 1) = 1 LUMP SUM
BRIDGE 04929 TO BE CONSTRUCTED
SURVEY BASELINE N 34°07'29" W 334.06'
SURVEY BASELINE N 23°04'32" W 238.05'
LIMITS OF CONSTRUCTION
105+40.00 405.38
107+50.00 367.26
107+80.00 366.22
VC=700'
e=-10.84'
-5.64%
LT. DITCH GRADE 0.16%
RT. DITCH GRADE 0.80%

400 395 390 385 380 375 370 365 360 355 350

102+50 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00

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

PLAN AND PROFILE SHEETS

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.		BR2503	27	64
				04929 -		LAYOUT		- 54908

Note: For R/W Data, see Rdwy. Plans

Underground Telephone Utility Cable

Building

PC Sta. 100+50.44

Approx. 1.5 miles to Jct. U.S. Hwy. 63

Existing Road

PT Sta. 101+81.23

1V:2H

Bridge End Terminal

BNSF RailRoad

Toe of Fill Slope

Proposed 18"ø X 55.3' CMP

Existing Road to be relocated. See Rdwy. Plans

Test Hole - typ.

2.0% X-Slope

1'-5" Para.

24'-0" Cl. Rdwy.

1'-5" Para.

℄ Bridge & ℄ Construction

Electric Utility Line

Spring River

Note: 3'-0" thick Foundation Protection Riprap placed on Filter Blanket at each bridge end. See "Typical Embankment Section" on Dwg. No. 54909. Top of Riprap Elev. 378.5.

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

Building

Building

Building

Existing Br. No. 13129

Telephone Utility Line

Underground Telephone & Electric Utility Cables

Gravel Road

Toe of Fill Slope

Tang. Dist. = 293.2'

HORIZONTAL CURVE DATA
PI = Sta. 101+21.92
Delta = 41°02'13.50" Lt.
D = 30°
T = 71.48'
L = 136.79'

Approx. 0.2 miles to Jct. County Rd. 274

15'-0" typ.

25' typ.

4'-0" Shdr.

20'-0" Rdwy.

4'-0" Shdr.

28'-0" Finished Crown

27'-2" out to out

N 0° 06' 13.36" E

Existing Road

Gravel Road

Building

PLAN

① Install Bridge End Terminal as shown. Eliminate or modify approach curb sections to fit bridge end terminal. Payment for eliminating or modifying this curb shall be considered subsidiary to Approach Gutters (Type A).

Total Length of Bridge = 558'-2⅜"

1'-2⅜" | 277'-0" Continuous Composite W-Beam Unit (81', 115', 81') | 1'-9⅝" | 277'-0" Continuous Composite W-Beam Unit (81', 115', 81') | 1'-2⅜"

℄ 1¾" Poured Silicone Jt.

Beg. Br. Sta. 102+19.82 Elev. 383.69

℄ Deck to Low Steel = 4'-5⅞"

Slope Intercept Sta. 102+10.3

℄ Bent Sta. 103+02 Elev. 388.20

Low Steel to Design Flood with Backwater = 7.8'

℄ Bent Sta. 104+17 Elev. 392.52

℄ Bent Sta. 104+98.91 Elev. 394.16

℄ Bent Sta. 105+80.82 Elev. 394.62

℄ Bent Sta. 106+95.82 Elev. 393.25

End Br. Sta. 107+78.00 Elev. 390.85

Slope Intercept Sta. 107+87.52

Concrete Parapet Railing

Guard Rail See Rdwy. Plans

P.V.I. Sta. 105+40.0 Elev. 405.38

6.75 % -5.64 %

L = 700'

VERTICAL CURVE DATA ALONG ℄ BRIDGE

Proposed Grade Line ℄ Construction

Existing Ground Line ℄ Construction

23' Piles

26'-0"

15'-5⅞"

Elev. 368.0

8'-0" ø Permanent Casing

7'-0" ø Drilled Shaft

Elev. 342.0

Design Flood (03) Elev. with Backwater Elev. 371.5

28'-0"

19'-10⅝"

Elev. 368.0

8'-0" ø Permanent Casing

7'-0" ø Drilled Shaft

Elev. 340.0

34'-0"

21'-6"

Elev. 368.0

8'-0" ø Permanent Casing

7'-0" ø Drilled Shaft

Elev. 334.0

34'-0"

22'-1⅝"

Elev. 368.0

8'-0" ø Permanent Casing

7'-0" ø Drilled Shaft

Elev. 334.0

31'-0"

20'-8⅛"

Elev. 368.0

8'-0" ø Permanent Casing

7'-0" ø Drilled Shaft

Elev. 337.0

33' Piles

Stations & Elevations are shown along ℄ Bridge. Elevations shown are at working point.

Bent No.	℄ Deck at ℄ Bent to Low Side Top of Cap
2	4'-8½"
3	4'-7⅞"
4	4'-7⅝"
5	4'-5¾"
6	4'-6⅝"

Bent No. 1 2 3 4 5 6 7

ELEVATION

For Soil Boring Information, General Notes, and Hydraulic Data, See Dwg. No. 54909.

100+00 102+00 103+00 104+00 105+00 106+00 107+00

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9225
7-23-14
CHARLES R. ELLIS
BRIDGE ENGINEER

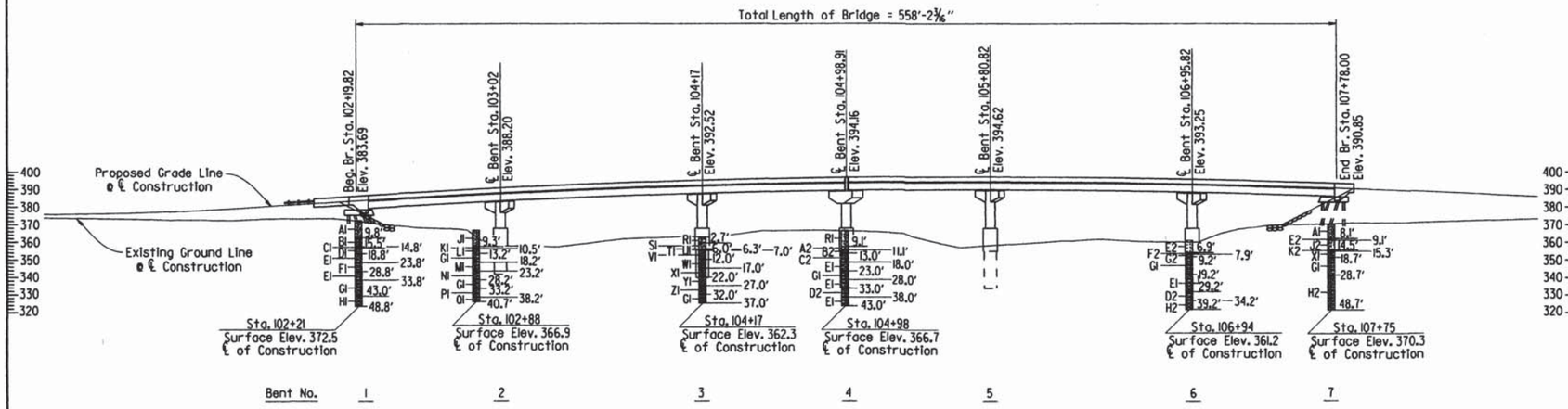
SHEET 1 OF 2
LAYOUT OF BRIDGE OVER SPRING RIVER
SPRING RIVER STR. & APPRS. (S)
FULTON COUNTY
COUNTY ROAD 42
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 1/10/13 FILENAME: bbr2503_ll.dgn
CHECKED BY: AON DATE: 3-17-14 SCALE: 1" = 30'
DESIGNED BY: CJR DATE: 1/13

BRIDGE NO. 04929 DRAWING NO. 54908

PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	28	64
				① 04929 -		LAYOUT		- 54909



BORING LEGEND

AI-Moist. Loose, Brown Clayey Sand
BI-Moist, Stiff, Brown Sandy Clay with Gravel (Chert Fragments)
CI-Wet, Very Dense, Brown Sand with Gravel (Chert Fragments)
DI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
EI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip
FI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers
GI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip
HI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip with Fractured Layers
JI-Moist, Loose, Brown Clayey Sand
KI-Moist, Very Dense, Gray and Brown Clayey Sand with Gravel (Chert Fragments)
LI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers
MI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Moderate Dip and Fractured Layers
NI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thin Bedded, Slightly Weathered, Hard, with Moderate Dip and frequent Fractured Layers
PI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers
QI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Weathered, Vuggy, Hard, with Slight Dip and frequent Fractured Layers
RI-Moist, Medium Dense, Brown Sand with Gravel (Chert Fragments)
SI-Wet, Medium Dense, Brown Sand with Gravel (Chert Fragments)
TI-DOLOSTONE - Gray, Hard
UI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Weathered, Hard, with Moderate Dip
VI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Moderate Dip and Fractured Layers
WI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Moderate Dip and occasional Fractured Layer
XI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip
YI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Moderate Dip and frequent Fractured Layers
ZI-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Moderate Dip and frequent Fractured Layers
A2-Wet, Very Dense, Brown Sand with Gravel (White Chert Fragments) and Trace of Gray Clay
B2-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Weathered, Moderately Hard, with Moderate Dip and Fractured Layers
C2-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thin Bedded, Weathered, Moderately Hard, with Moderate Dip and Fractured Layers
D2-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip and occasional Fractured Layers
E2-Gravel
F2-DOLOSTONE - Gray, Moderately Hard
G2-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Moderately Hard, with Slight Dip
H2-DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and occasional Fractured Layers
J2-Wet, Medium Dense, Brown Sand with Gravel (Dolostone Fragments)
K2-Wet, Very Dense, Brown Sand with Gravel (Dolostone Fragments)

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	**NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
*Design	3	19590	371.2	371.5
Base	100	86800	380.6	381.1
Extreme	500	118200	383.3	383.8

**Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 380.90.
Proposed Low Bridge Chord Elev. = 378.29.
Drainage area = 535 square miles.
Historical H.W. Elev. = 380.0 ft.

*Design Flood based on overtopping event.

By written agreement with Fulton County, if the roadway embankment within the floodplain of Spring River is raised in the future, additional waterway opening(s) will be required to allow a maximum 1.0 foot increase in the upstream water surface elevations.

"N" VALUES

Sta. 102+21 - ℄ of Construction
5.3 - 6.3, N=7
10.3 - 11.3, N=9
14.8 - 15.1, N=60(3' ')
15.5 - 15.5, N=60(.01' ')

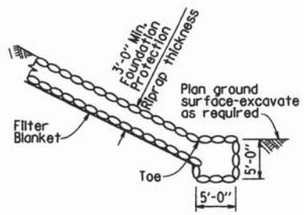
Sta. 102+88 - ℄ of Construction
4.8 - 5.8, N=5
9.3 - 9.6, N=60(4' ')
10.5 - 10.5, N=60(.01' ')

Sta. 104+17 - ℄ of Construction
4.8 - 5.8, N=16
6.3 - 6.3, N=60(.01' ')

Sta. 104+98 - ℄ of Construction
4.6 - 5.6, N=17
9.1 - 9.4, N=60(4' ')
11.1 - 11.1, N=60(.01' ')

Sta. 106+94 - ℄ of Construction
7.9 - 7.9, N=60(.01' ')

Sta. 107+75 - ℄ of Construction
5.0 - 6.0, N=6
10.0 - 11.0, N=19
14.5 - 14.6, N=60(1' ')
15.3 - 15.3, N=60(.01' ')



TYPICAL EMBANKMENT SECTION
No Scale

GENERAL NOTES

BENCH MARK: 905, 7.2' Lt. of C. L. Construction Station 98+30.71, Elev. 382.78.

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

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

LIVE LOADING: HL-93 SEISMIC ZONE: I

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 M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division upon request.

STEEL PILING: Piling for Bents 1 & 7 shall be HP 12x53 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile. Piles shall be driven into the material designated as Hard Dolostone on the boring legend, and shall be driven after embankment to bottom of cap is in place. On all piles the Contractor shall use approved Steel H-Pile driving points. Lengths of piling shown are assumed for estimating quantities and for determining payment for cut-off and build-up in accordance with the Standard Specifications. Actual lengths to be determined in the field.

DRILLED SHAFTS: Foundations for intermediate bents shall consist of Drilled Shafts. All drilled shafts shall be founded to the minimum rock penetrations and tip elevations as shown on the plans. No adjustment in plan tip elevation shall be made without prior approval from the Engineer. Methods of construction of the drilled shafts shall be in accordance with Special Provision Job No. BR2503 "Drilled Shaft Foundations".

CROSSHOLE SONIC LOGGING: Nondestructive testing shall be performed on each drilled shaft in accordance with Special Provision Job No. BR2503 "Nondestructive Testing of Drilled Shafts".

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

DETAIL DRAWINGS:	DRAWING NO.
End Bents	54910-54911
Int. Bents	54912-54918
277' Cont. Comp W-Beam Unit	54919-54925
Elastomeric Bearings	54926
Steel Piling	55020
Type A Approach Gutters	55030A

EXISTING BRIDGE: Existing Bridge No. 13129 is 11' wide and 301' long and consists of thirty 10' concrete deck spans supported by concrete bents. The existing bridge is located approximately 250' upstream from C. L. Construction.

REMOVAL AND SALVAGE: After the new bridge is opened to traffic, existing bridge No. 13129 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9225
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER SPRING RIVER
SPRING RIVER STR. & APPRS. (S)
FULTON COUNTY

COUNTY ROAD 42
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

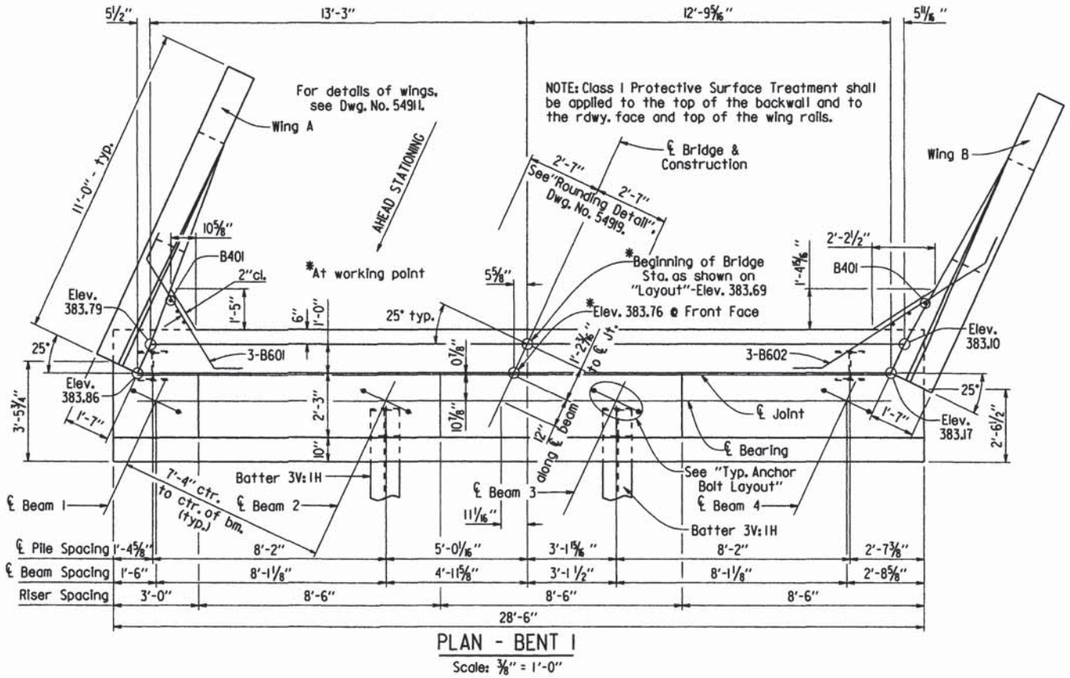
DRAWN BY: CJR DATE: 1/10/13 FILENAME: bbr2503_ll.dgn
CHECKED BY: ADN DATE: 3-17-14 SCALE: 1" = 40'
DESIGNED BY: CJR DATE: 1/13

BRIDGE NO. 04929 DRAWING NO. 54909

PRINT DATE: 7/23/2014

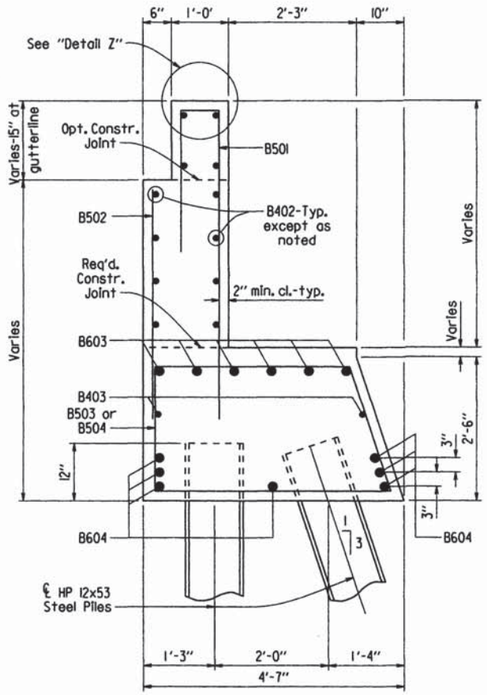
10+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

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.		BR2503	29	64
				①	04929 -	END BENTS	- 54910	



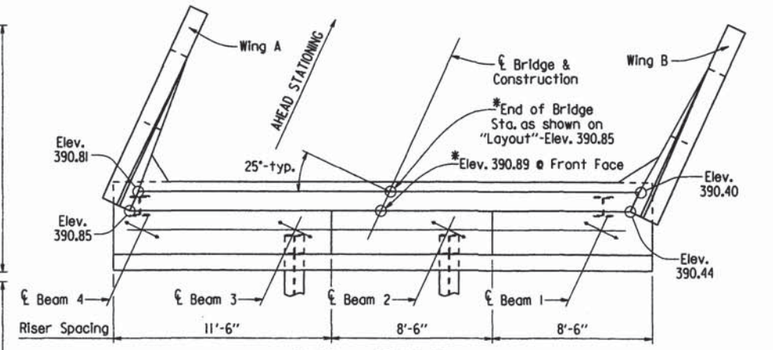
PLAN - BENT 1

Scale: ⅜" = 1'-0"



SECTION A-A

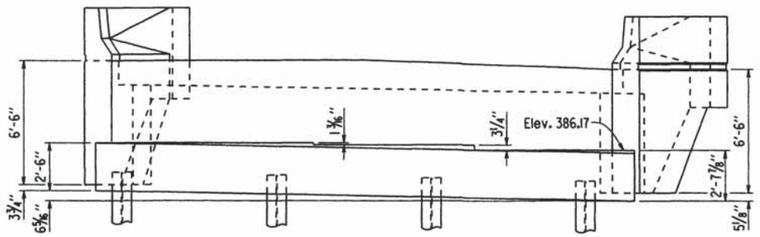
Scale: ¾" = 1'-0"



PLAN - BENT 7

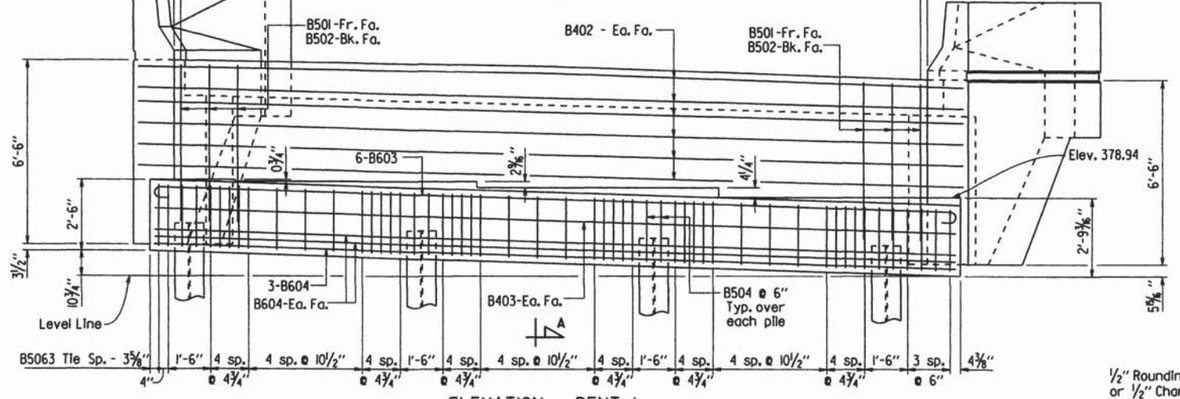
Scale: ¼" = 1'-0"

Note: Reinforcing steel, details and dimensions shown for Bent 1 are the same for Bent 7 except as shown.



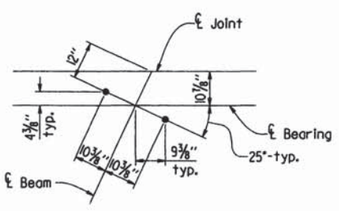
ELEVATION - BENT 7

Looking Ahead
Scale: ¼" = 1'-0"



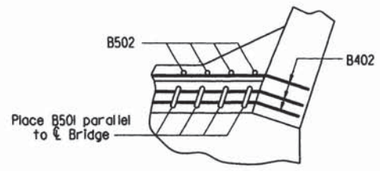
ELEVATION - BENT 1

Looking Back
Scale: ⅜" = 1'-0"



TYP. ANCHOR BOLT LAYOUT

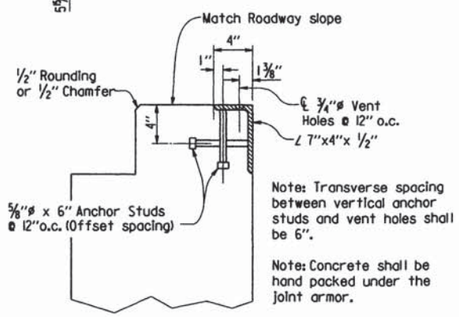
No Scale



VIEW B-B

No Scale

Note: The profile of the backwall angle shall be established based on the vertical curve in conjuction with the skew.



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

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

Note: For additional joint details, see Dwg. No. 54925.

DETAIL Z

No Scale

GENERAL NOTES

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

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

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

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

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 54925.

For additional information, See layout.

STATE OF ARKANSAS
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7-23-14
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BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF END BENTS
SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-3-13 FILENAME: bbr2503_b1.dgn

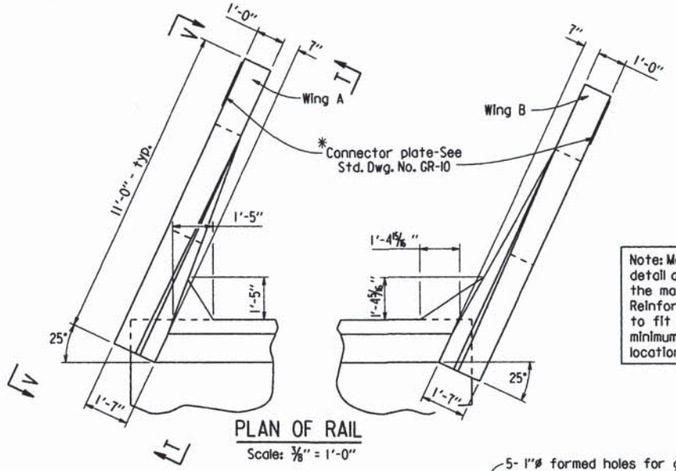
CHECKED BY: CSR DATE: 4/23/14 SCALE: AS NOTED

DESIGNED BY: CSR DATE: 9/15

BRIDGE NO. 04929 DRAWING NO. 54910

PRINT DATE: 7/23/2014

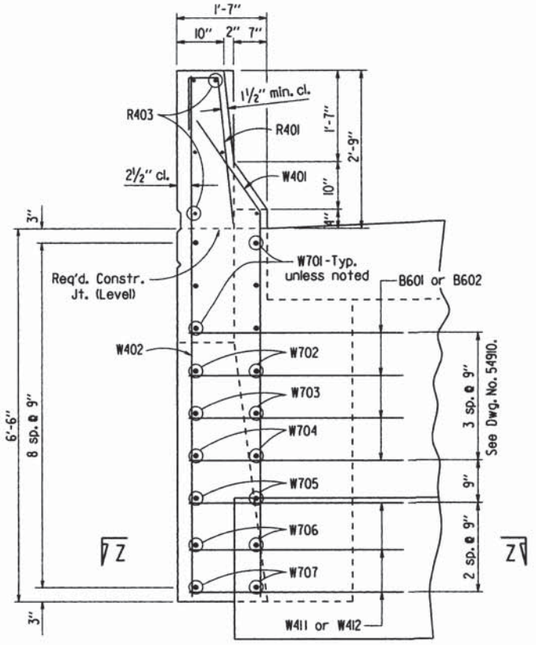
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	30	64
				①	04929 -	END BENTS	- 54911	



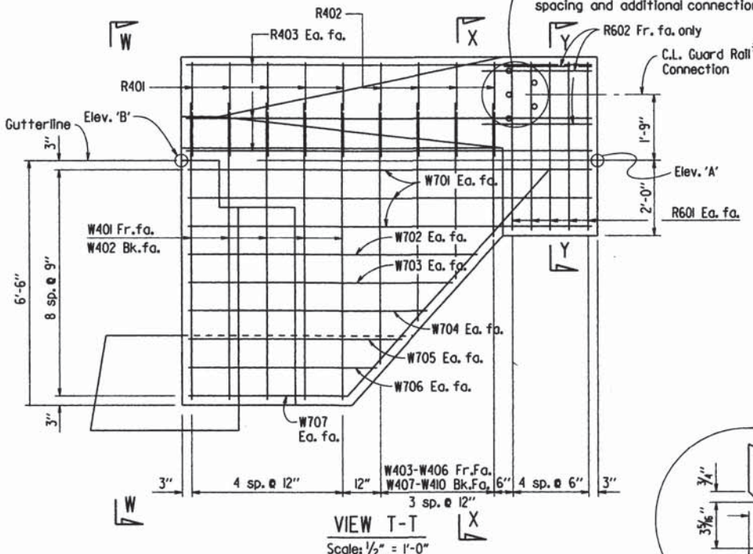
PLAN OF RAIL
Scale: ⅜" = 1'-0"

*Connector plate & guard rail as required, see Roadway Plans for location of guard rail.

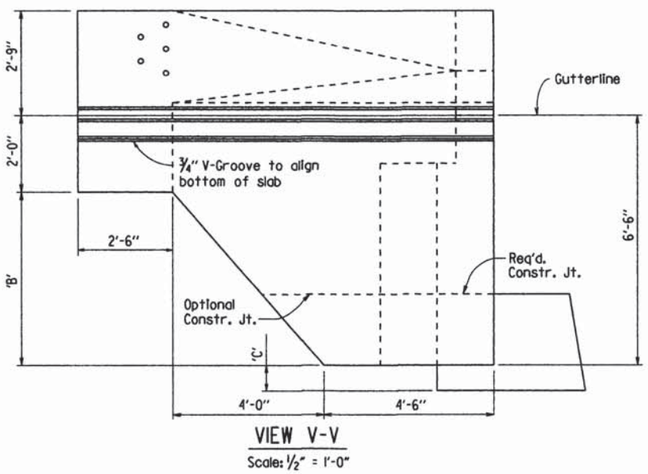
Note: Modify the bridge rail and connection detail above the gutterline as required by the manufacturer of the bridge end terminal. Reinforcing bars that are relocated or bent to fit the modified bridge rail shall have minimum plan concrete cover. See Layout for location of bridge end terminal.



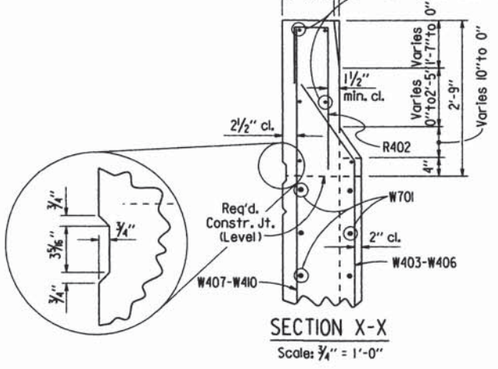
VIEW W-W
Scale: ¾" = 1'-0"



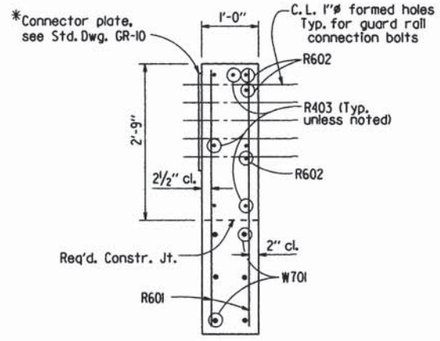
VIEW T-T
Scale: ½" = 1'-0"



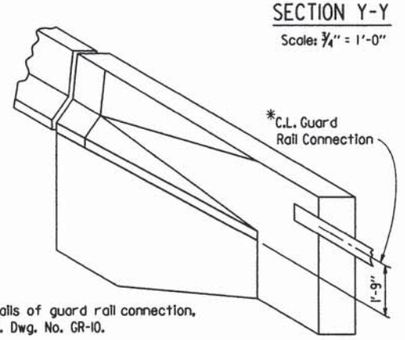
VIEW V-V
Scale: ½" = 1'-0"



SECTION X-X
Scale: ¾" = 1'-0"



SECTION Y-Y
Scale: ¾" = 1'-0"



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

THREE DIMENSIONAL VIEW OF RAIL
No Scale

TABLE OF VARIABLES

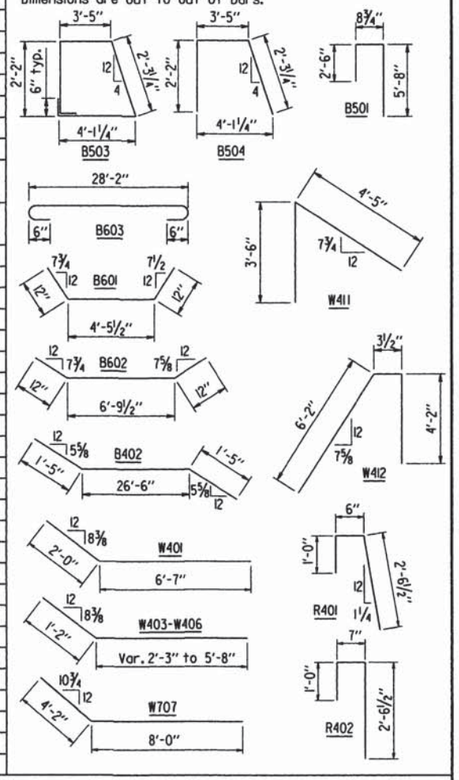
Bent	Wing	Elev. 'A'	Elev. 'B'	'B'	'C'
1	A	383.18	383.86	3'-9⅛"	3½"
	B	382.46	383.17	3'-9½"	5⅝"
7	A	390.45	390.85	4'-1⅜"	3¾"
	B	390.02	390.44	4'-0⅝"	5⅛"

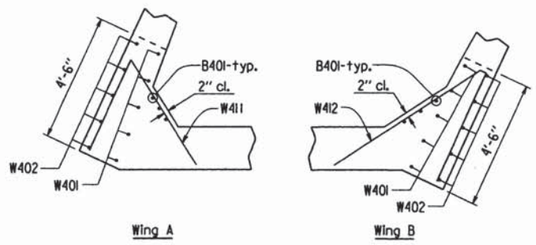
BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	4'-11"	Str.
B402	12	29'-4"	2"
B403	2	28'-2"	Str.
R401	10	3'-11"	2"
R402	8	4'-0"	2"
R403	12	10'-8"	Str.
W401	10	8'-7"	2"
W402	10	8'-11"	Str.
W403-W406	2 each	Var. 3'-5" to 6'-10"	2"
W407-W410	2 each	Var. 4'-7" to 8'-0"	Str.
W411	3	7'-10"	2"
W412	3	10'-6"	2"
B501	27	8'-8"	2½"
B502	27	4'-4"	Str.
B503	45	12'-6"	2½"
B504	8	7'-8"	2½"
B601	4	6'-6"	4½"
B602	4	8'-10"	4½"
B603	6	29'-6"	4½"
B604	7	28'-2"	Str.
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W701	12	10'-8"	Str.
W702	4	7'-8"	Str.
W703	4	7'-0"	Str.
W704	4	6'-4"	Str.
W705	4	5'-8"	Str.
W706	4	5'-0"	Str.
W707	4	12'-2"	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.





Wing A Wing B

SECTION Z-Z
Scale: ⅜" = 1'-0"

STATE OF ARKANSAS
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SHEET 2 OF 2
DETAILS OF END BENTS
SPRING RIVER

ROUTE SEC.

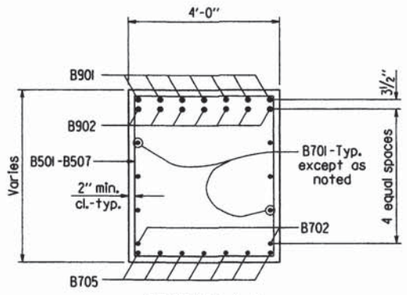
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-4-13
CHECKED BY: CSR DATE: 4/23/14
DESIGNED BY: CSR DATE: 9/13
FILENAME: bbr2503_bl.dgn
SCALE: AS NOTED

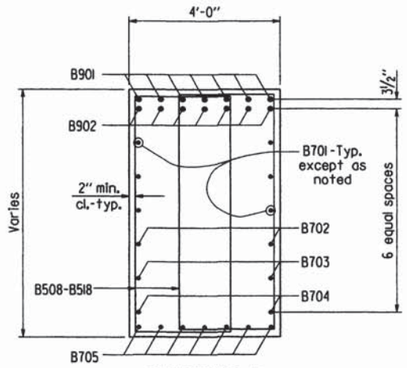
BRIDGE NO. 04929 DRAWING NO. 54911

PRINT DATE: 7/23/2014

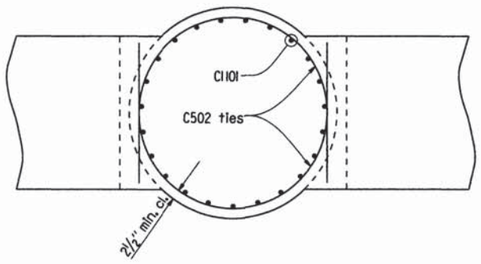
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	31	64
				① 04929 - COMMON INT. BT. DTLS. - 54912				



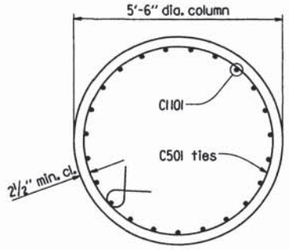
SECTION A-A
Scale: ½" = 1'-0"



SECTION B-B
Scale: ½" = 1'-0"



SECTION F-F
Scale: ½" = 1'-0"



SECTION C-C
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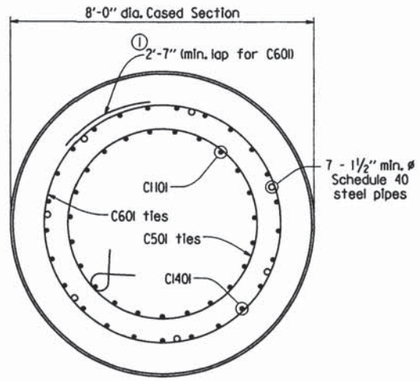
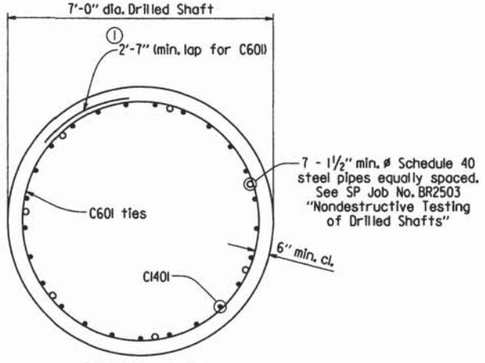
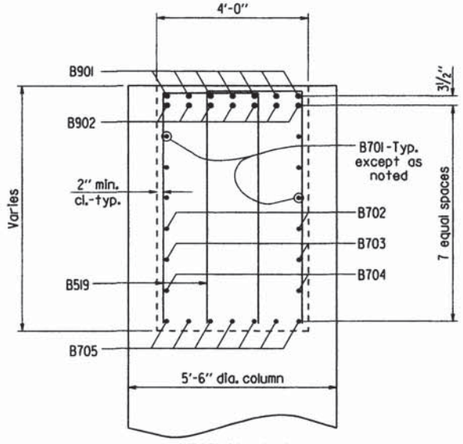


SECTION D-D
Scale: ½" = 1'-0"

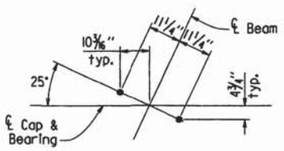
① Laps of adjacent ties shall be oriented 180 degrees.



SECTION E-E
Scale: ½" = 1'-0"



SECTION G-G
Scale: ½" = 1'-0"



TYP. ANCHOR BOLT LAYOUT
No Scale

GENERAL NOTES

Concrete in the cap and column shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. Concrete in the drilled shaft shall be Class S as modified by SP Job No. BR2503 "Drilled Shaft Foundations". All exposed corners to be chamfered ¾" unless otherwise noted.

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

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

For additional information see layout.

Drilled shafts shall conform to SP Job No. BR2503 "Drilled Shaft Foundations".

STATE OF ARKANSAS
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REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

COMMON DETAILS FOR BENTS 2, 3, 5 & 6 SPRING RIVER

ROUTE SEC.

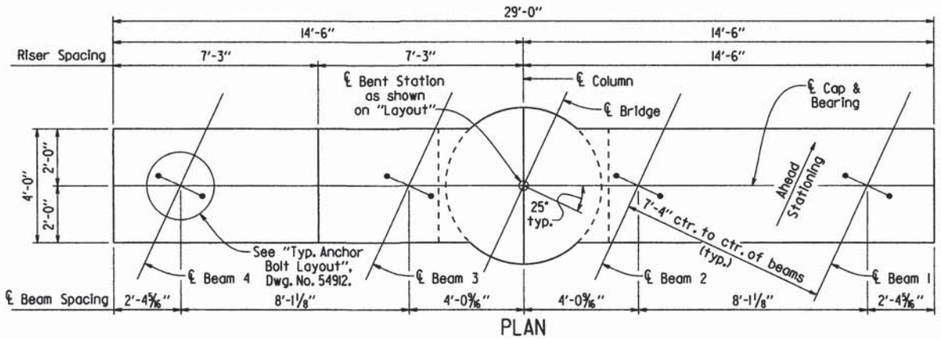
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-20-13 FILENAME: bbr2503.b26.dgn
CHECKED BY: CSR DATE: 11/20/14 SCALE: AS NOTED
DESIGNED BY: CSR DATE: 9/13

BRIDGE NO. 04929 DRAWING NO. 54912

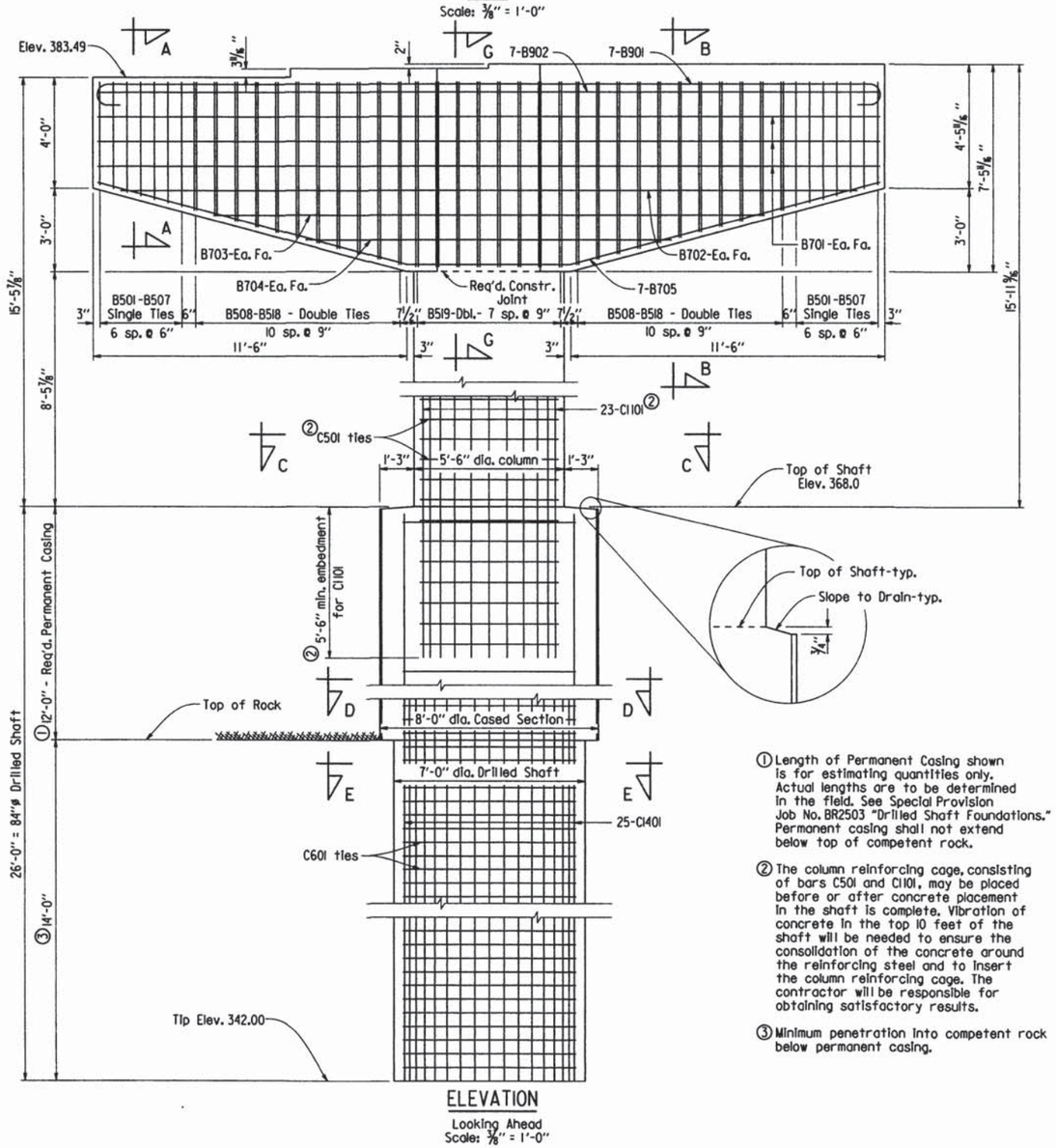
PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	32	64
				① 04929 -		BENT 2	- 54913	



PLAN

Scale: ⅜" = 1'-0"



ELEVATION

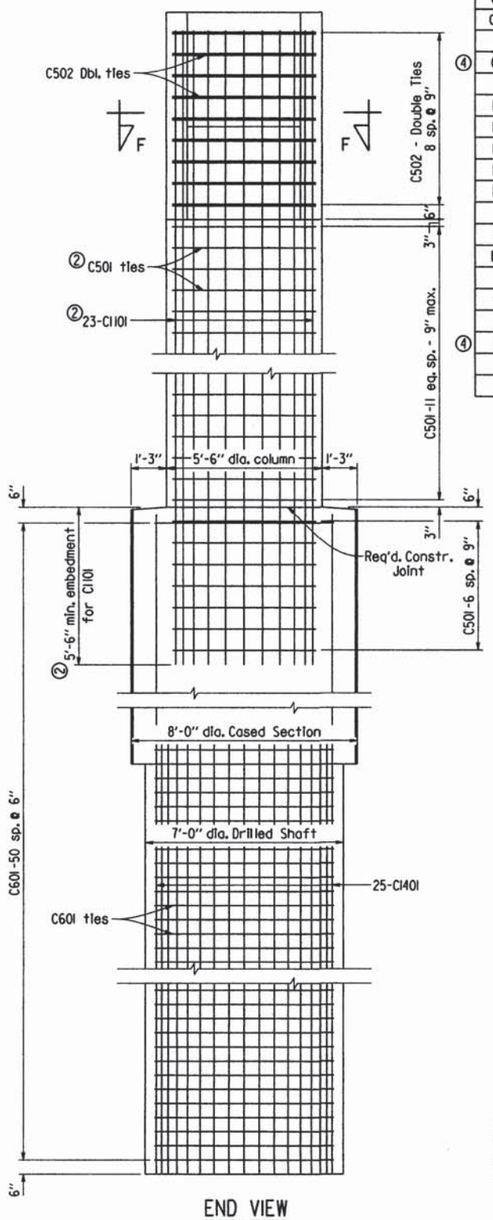
Looking Ahead

Scale: ⅜" = 1'-0"

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. BR2503 "Drilled Shaft Foundations." Permanent casing shall not extend below top of competent rock.

② The column reinforcing cage, consisting of bars C501 and C1101, may be placed before or after concrete placement in the shaft is complete. 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 and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

③ Minimum penetration into competent rock below permanent casing.

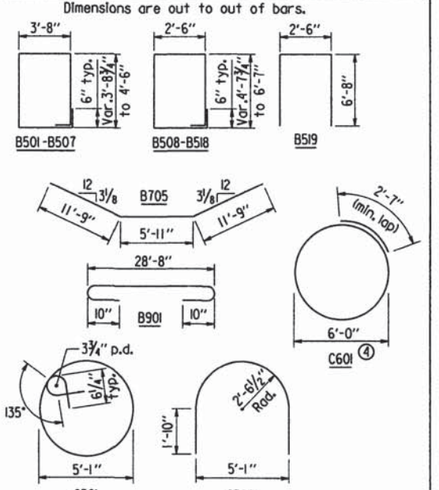


END VIEW

Scale: ⅜" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B501-B507	2 each	Var. 15'-4" to 16'-10"	2½"	Dimensions are out to out of bars.
B508-B518	4 each	Var. 14'-10" to 18'-8"	2½"	
B519	16	15'-8"	2½"	
C501	19	17'-4"	3¾"	
C502	18	11'-6"	—	
④ C601	51	21'-6"	4½"	
B701	6	28'-8"	Str.	
B702	2	27'-3"	Str.	
B703	2	20'-4"	Str.	
B704	2	13'-5"	Str.	
B705	7	29'-5"	5¼"	
B901	7	31'-2"	9"	
B902	7	28'-8"	Str.	
C1101	23	20'-9"	Str.	
④ C1401	25	25'-9"	Str.	



④ Non-pay Item - Subsidiary to SP Job No. BR2503 "Drilled Shaft Foundations"

Note: For additional details, sections and General Notes, see Dwg. No. 54912.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENT 2
SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH	DATE: 11-19-13	FILENAME: bbr2503_b26.dgn
CHECKED BY: CSR	DATE: 11/23/14	SCALE: AS NOTED
DESIGNED BY: CSR	DATE: 10/13	

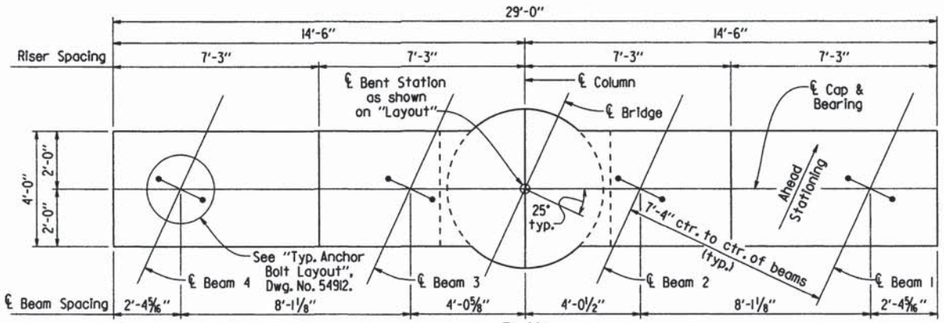
BRIDGE NO. 04929 DRAWING NO. 54913

PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

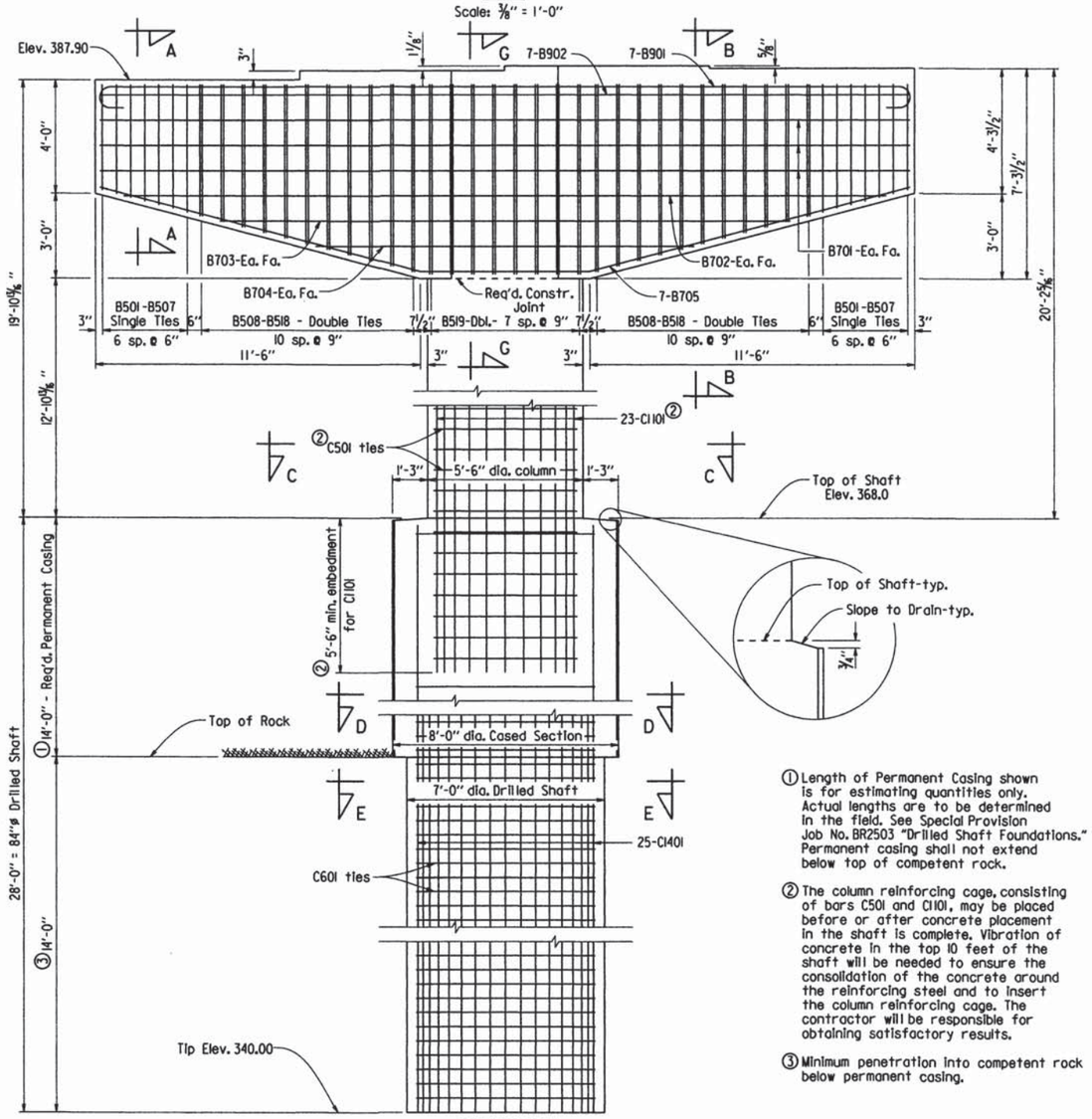
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BR2503	33	64

① 04929 - BENT 3 - 54914



PLAN

Scale: ⅜" = 1'-0"



ELEVATION

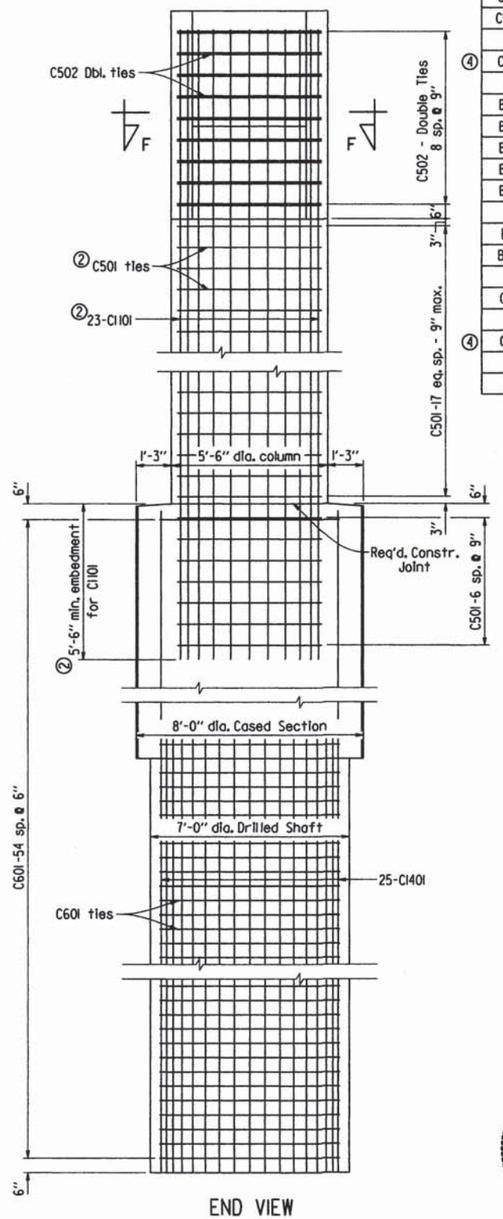
Looking Ahead

Scale: ⅜" = 1'-0"

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. BR2503 "Drilled Shaft Foundations." Permanent casing shall not extend below top of competent rock.

② The column reinforcing cage, consisting of bars C501 and C1101, may be placed before or after concrete placement in the shaft is complete. 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 and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

③ Minimum penetration into competent rock below permanent casing.

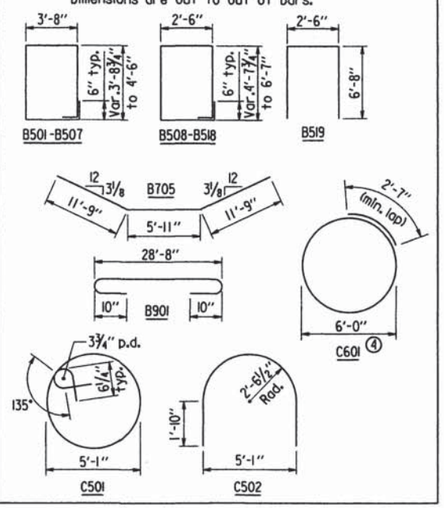


END VIEW

Scale: ⅜" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B501-B507	2 each	Var. 15'-4" to 16'-10"	2½"	Dimensions are out to out of bars.
B508-B518	4 each	Var. 14'-10" to 18'-8"	2½"	
B519	16	15'-8"	2½"	
C501	25	17'-4"	3¾"	
C502	18	11'-6"	—	
④ C601	55	21'-6"	4½"	
B701	6	28'-8"	Str.	
B702	2	27'-3"	Str.	
B703	2	20'-4"	Str.	
B704	2	13'-5"	Str.	
B705	7	29'-5"	5¼"	
B901	7	31'-2"	9"	
B902	7	28'-8"	Str.	
C1101	23	25'-2"	Str.	
④ C1401	25	27'-9"	Str.	



④ Non-pay Item - Subsidiary to SP Job No. BR2503 "Drilled Shaft Foundations"

Note: For additional details, sections and General Notes, see Dwg. No. 54912.

STATE OF ARKANSAS
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7-23-14
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BRIDGE ENGINEER

DETAILS OF BENT 3 SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-19-13 FILENAME: bbr2503.b26.dgn

CHECKED BY: CSR DATE: 4/23/14 SCALE: AS NOTED

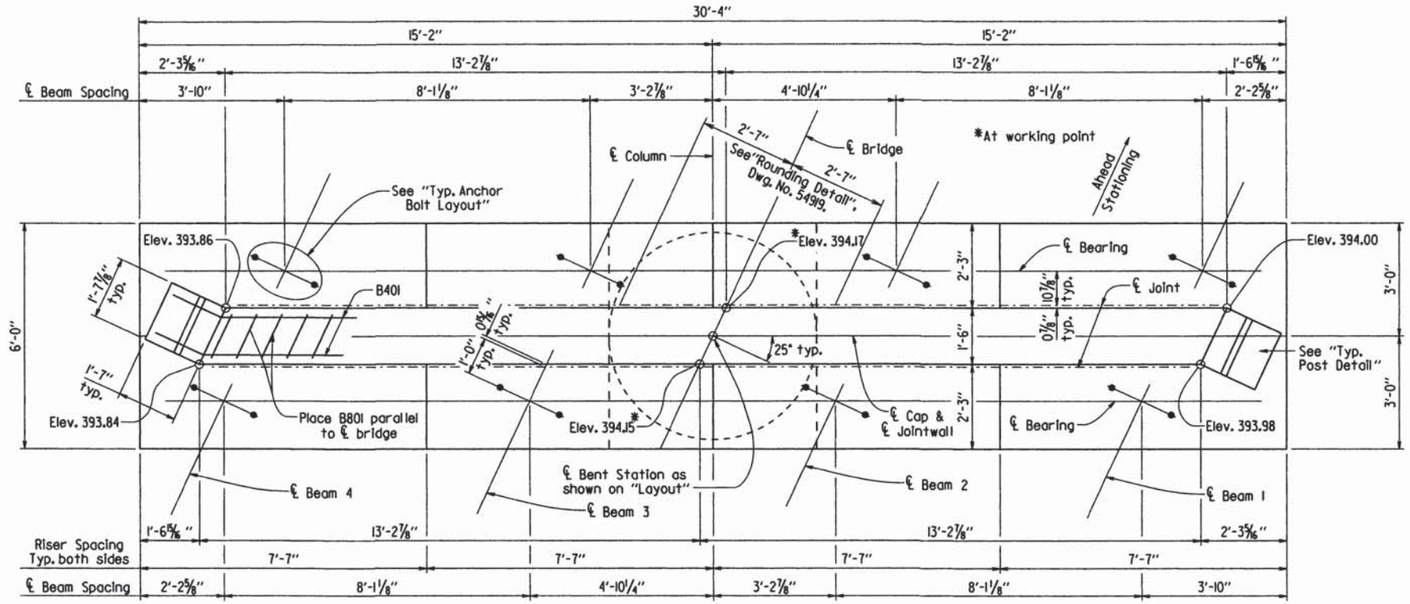
DESIGNED BY: CSR DATE: 10/13

BRIDGE NO. 04929 DRAWING NO. 54914

PRINT DATE: 7/23/2014

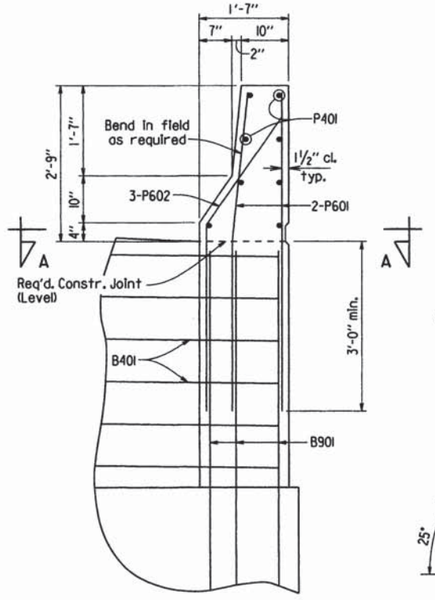
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	34	64
				① 04929 -		BENT 4	- 54915	

NOTE: Class I Protective Surface Treatment shall be applied to the top of the jointwall, and to the rdwy. face and top of post.



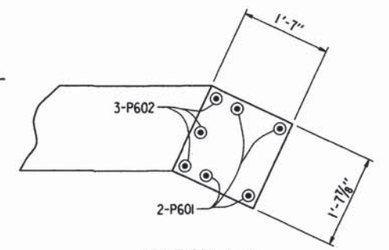
PLAN

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



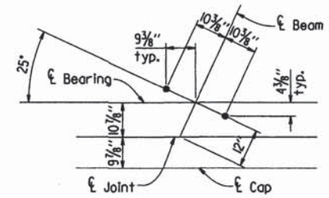
TYP. POST DETAIL

Scale: 3/4" = 1'-0"



SECTION A-A

Scale: 3/4" = 1'-0"



TYP. ANCHOR BOLT LAYOUT

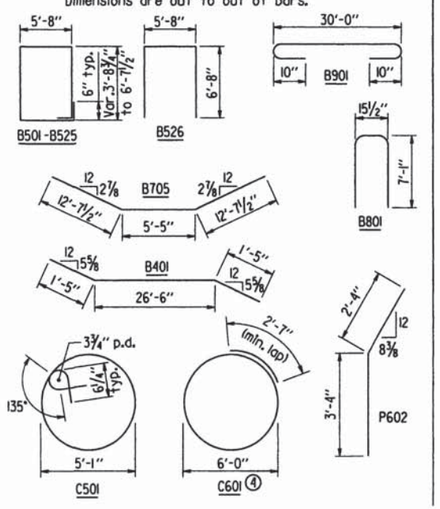
No Scale

BAR LIST

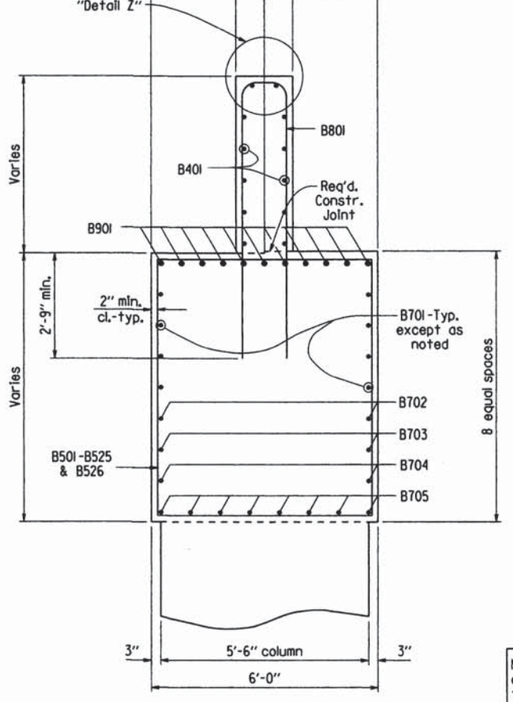
MARK	NO. REQ'D.	LENGTH	P.D.
B401	12	29'-4"	2"
P401	16	1'-4"	Str.
B501 - B525	2 each	Var. 19'-4" to 25'-1"	2½"
B526	10	18'-10"	2½"
C501	36	17'-4"	3¾"
① C601	67	21'-6"	4½"
P601	8	5'-8"	Str.
P602	6	5'-8"	4½"
B701	8	30'-0"	Str.
B702	2	26'-4"	Str.
B703	2	19'-7"	Str.
B704	2	12'-10"	Str.
B705	8	30'-8"	5¼"
B801	40	14'-11"	6"
B901	11	32'-6"	9"
C1101	23	26'-9"	Str.
① C1401	25	33'-9"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.

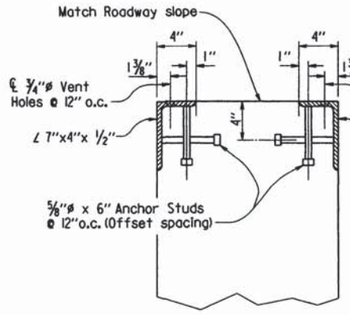


① Non-pay item - Subsidiary to SP Job No. BR2503 "Drilled Shaft Foundations"



SECTION THRU CAP

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



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

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

Note: For additional joint details, see Dwg. No. 54925.

DETAIL Z

No Scale

Note: The profile of the jointwall angles shall be established based on the vertical curve in conjuction with the skew.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENT NO. 4

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

GENERAL NOTES

Concrete in the cap, jointwall and column shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. Concrete in the drilled shaft shall be Class S as modified by SP Job No. BR2503 "Drilled Shaft Foundations". All exposed corners to be chamfered ¾" unless otherwise noted.

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

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

For additional information see layout.

Drilled shafts shall conform to SP Job No. BR2503 "Drilled Shaft Foundations".

STATE OF ARKANSAS
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SHEET 1 OF 2
DETAILS OF BENT 4
SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-8-13 FILENAME: bbr2503_b4.dgn

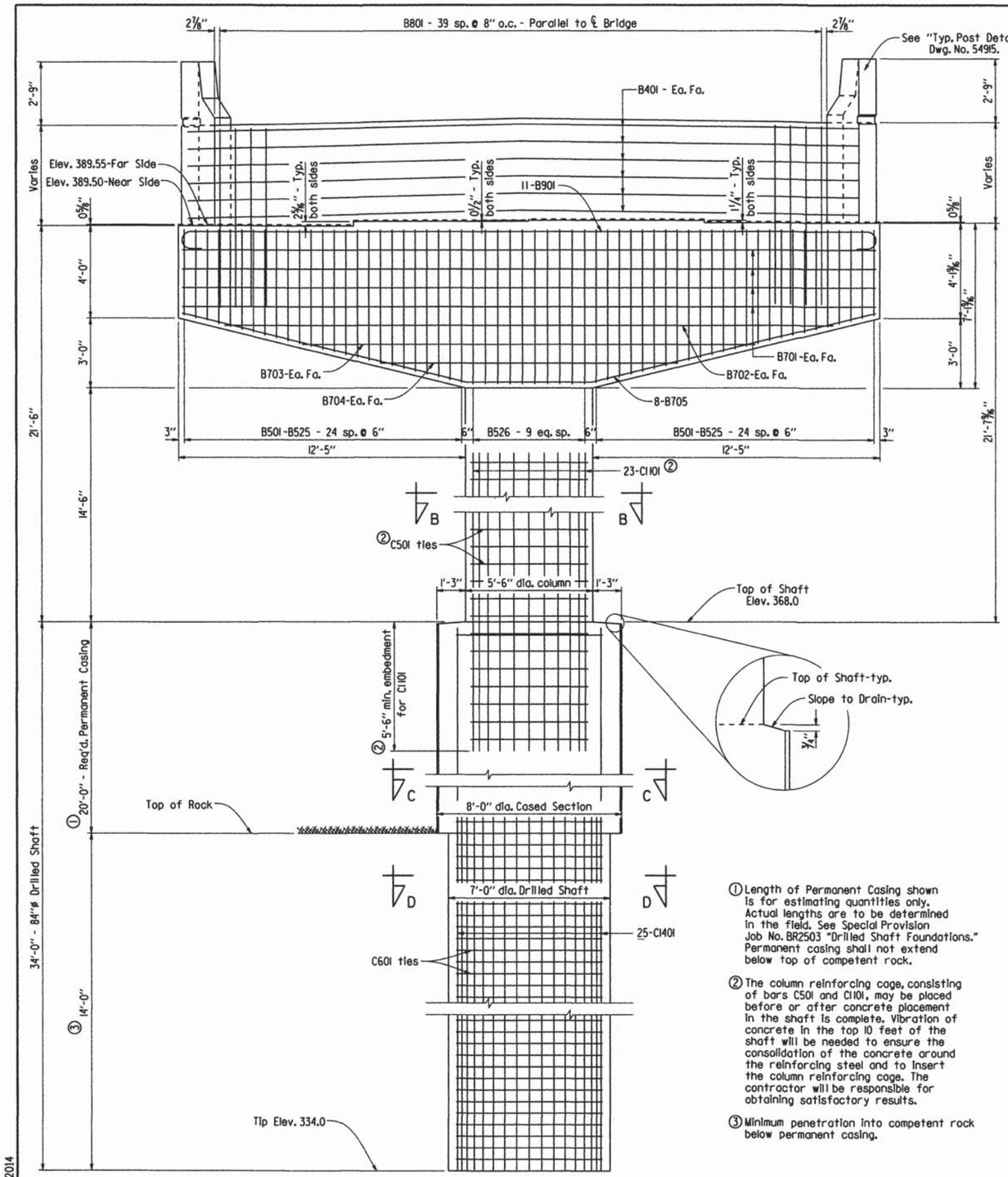
CHECKED BY: CSR DATE: 4/23/14 SCALE: AS NOTED

DESIGNED BY: CSR DATE: 10/13

BRIDGE NO. 04929 DRAWING NO. 54915

PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	35	64
				① 04929 -		BENT 4	- 54916	



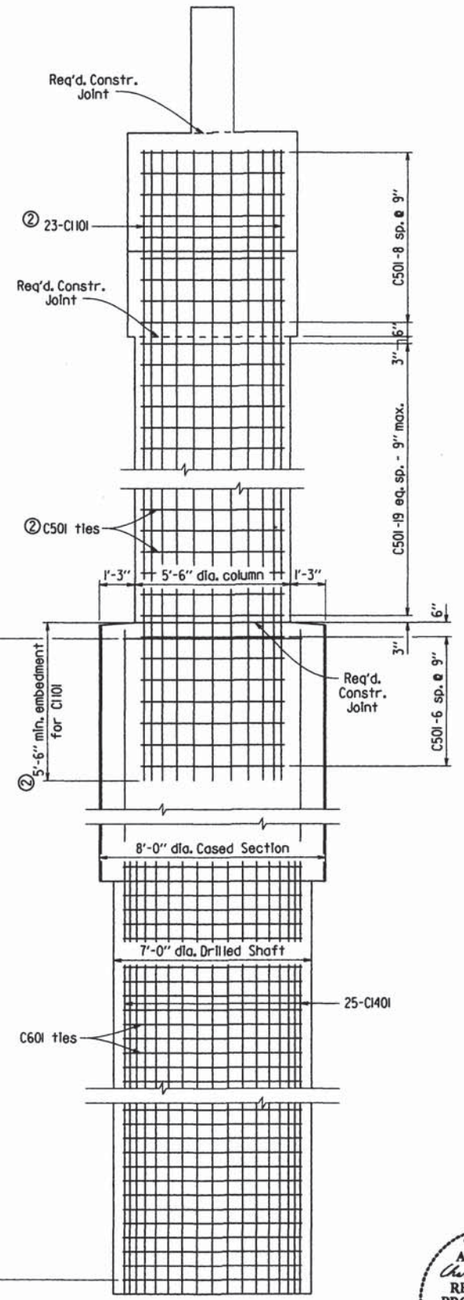
ELEVATION

Looking Ahead
Scale: ⅜" = 1'-0"

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. BR2503 "Drilled Shaft Foundations." Permanent casing shall not extend below top of competent rock.

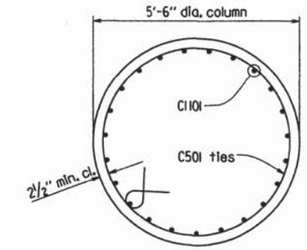
② The column reinforcing cage, consisting of bars C501 and C1101, may be placed before or after concrete placement in the shaft is complete. Vibration of concrete in the top 10 feet of the shaft will be needed to ensure the consolidation of the concrete around the reinforcing steel and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

③ Minimum penetration into competent rock below permanent casing.



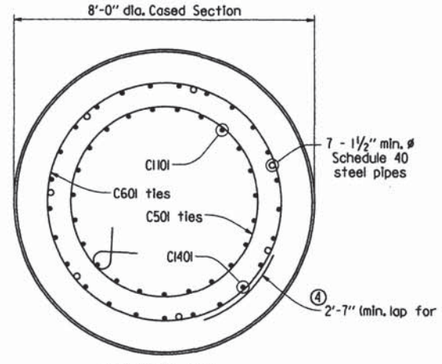
END VIEW

Scale: ⅜" = 1'-0"



SECTION B-B

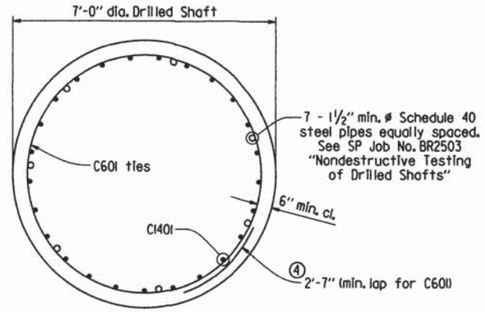
Scale: ½" = 1'-0"



SECTION C-C

Scale: ½" = 1'-0"

④ Laps of adjacent ties shall be oriented 180 degrees.



SECTION D-D

Scale: ½" = 1'-0"

STATE OF ARKANSAS
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No. 9235
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CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 4
SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

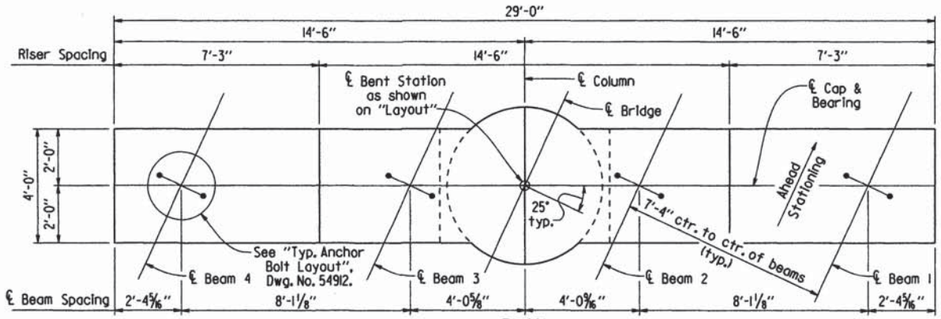
DRAWN BY: KDH DATE: 11-11-13
CHECKED BY: CSR DATE: 11/23/14
DESIGNED BY: CSR DATE: 10/13

FILENAME: bbr2503_b4.dgn
SCALE: AS NOTED

BRIDGE NO. 04929 DRAWING NO. 54916

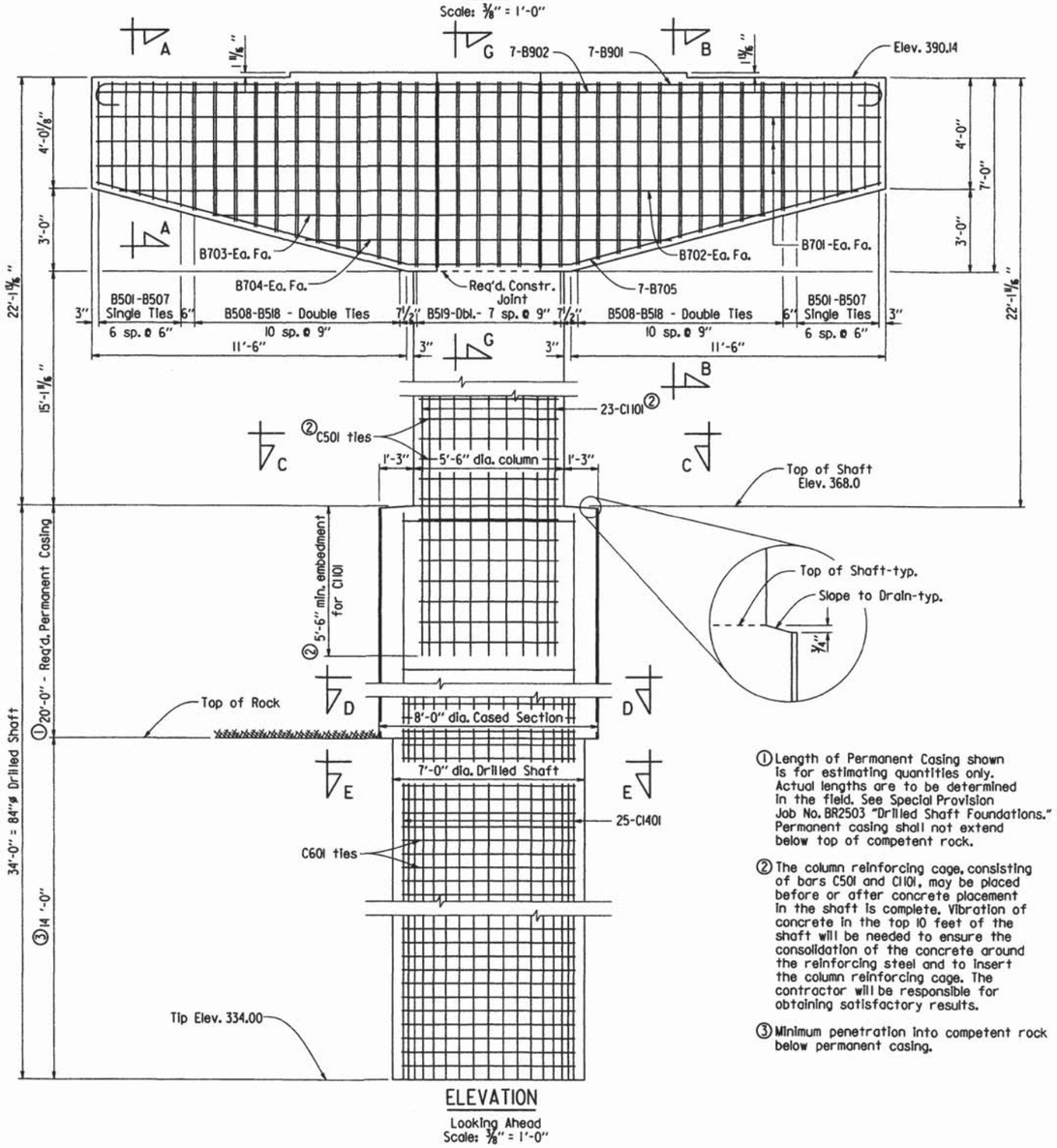
PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	36	64
				① 04929 -		BENT 5	- 54917	



PLAN

Scale: ⅜" = 1'-0"



ELEVATION

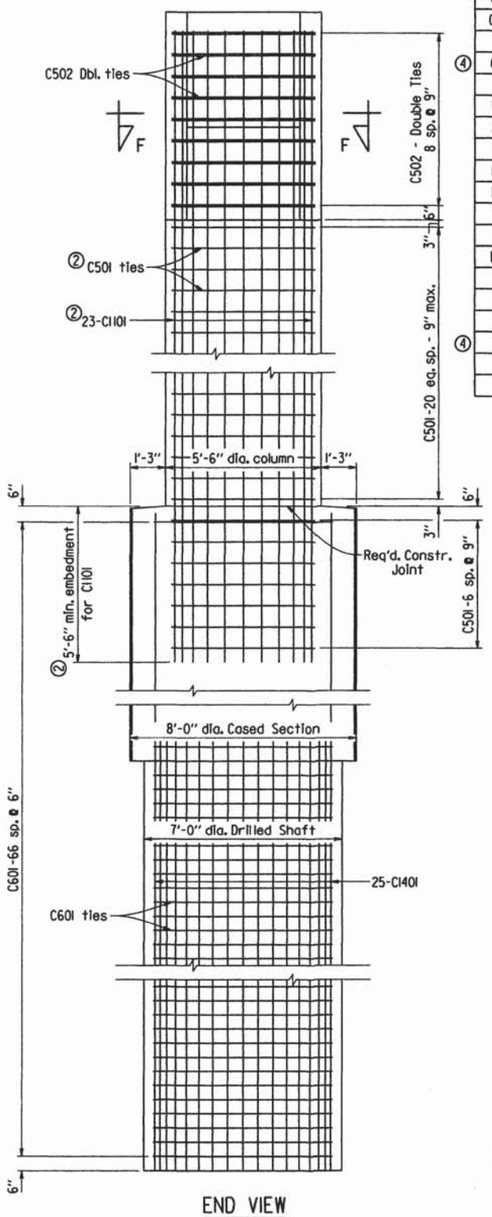
Looking Ahead

Scale: ⅜" = 1'-0"

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. BR2503 "Drilled Shaft Foundations." Permanent casing shall not extend below top of competent rock.

② The column reinforcing cage, consisting of bars C501 and C1101, may be placed before or after concrete placement in the shaft is complete. 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 and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

③ Minimum penetration into competent rock below permanent casing.

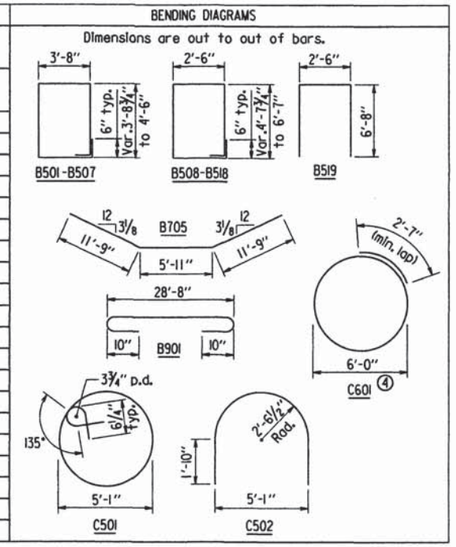


END VIEW

Scale: ⅜" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B501-B507	2 each	Var. 15'-4" to 16'-10"	2½"	Dimensions are out to out of bars.
B508-B518	4 each	Var. 14'-10" to 18'-8"	2½"	
B519	16	15'-8"	2½"	
C501	28	17'-4"	3¾"	
C502	18	11'-6"	—	
④ C601	67	21'-6"	4½"	
B701	6	28'-8"	Str.	
B702	2	27'-3"	Str.	
B703	2	20'-4"	Str.	
B704	2	13'-5"	Str.	
B705	7	29'-5"	5¼"	
B901	7	31'-2"	9"	
B902	7	28'-8"	Str.	
C1101	23	27'-5"	Str.	
④ C1401	25	33'-9"	Str.	



④ Non-pay item - Subsidiary to SP Job No. BR2503 "Drilled Shaft Foundations"

Note: For additional details, sections and General Notes, see Dwg. No. 54912.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
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BRIDGE ENGINEER

DETAILS OF BENT 5 SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-19-13 FILENAME: bbr2503_b26.dgn

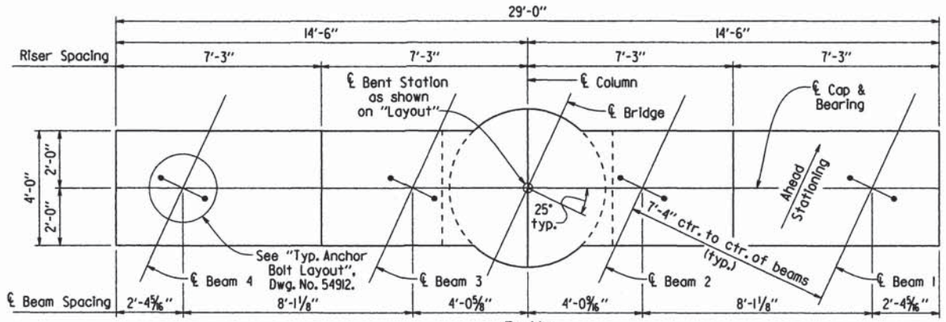
CHECKED BY: CJK DATE: 4/23/14 SCALE: AS NOTED

DESIGNED BY: CJK DATE: 10/13

BRIDGE NO. 04929 DRAWING NO. 54917

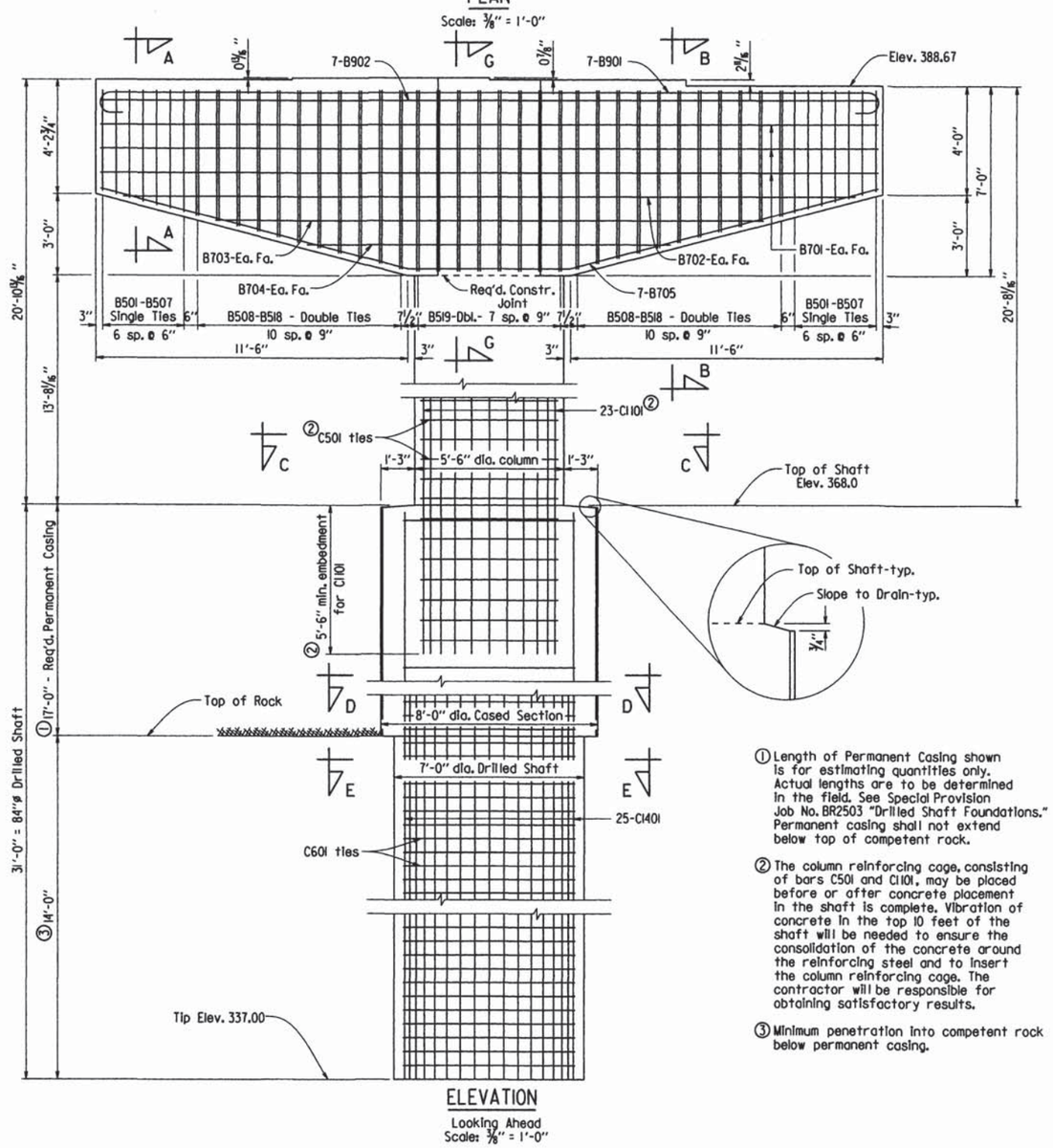
PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	37	64
				①	04929 -	BENT 6	- 54918	



PLAN

Scale: ⅜" = 1'-0"



ELEVATION

Looking Ahead

Scale: ⅜" = 1'-0"

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. BR2503 "Drilled Shaft Foundations." Permanent casing shall not extend below top of competent rock.

② The column reinforcing cage, consisting of bars C501 and C1101, may be placed before or after concrete placement in the shaft is complete. 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 and to insert the column reinforcing cage. The contractor will be responsible for obtaining satisfactory results.

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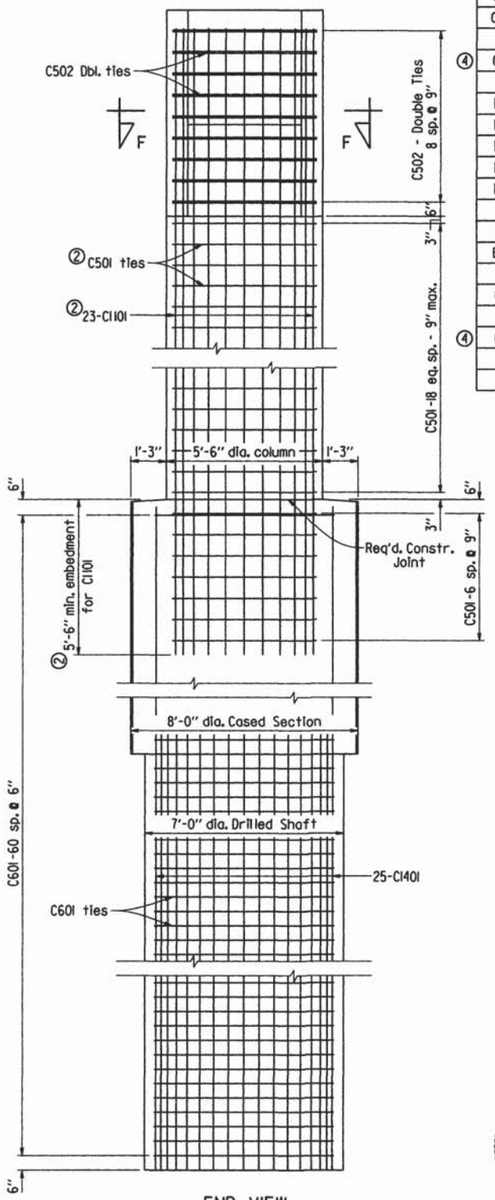


END VIEW

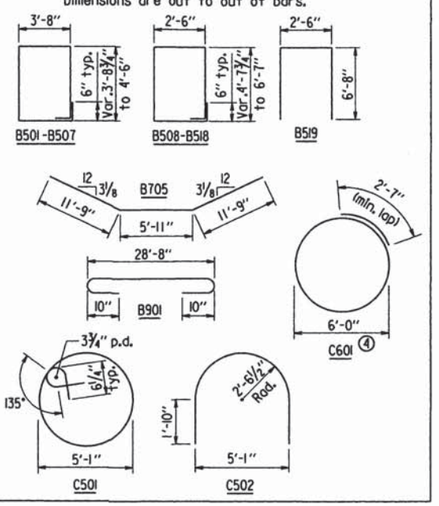
Scale: ⅜" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B501-B507	2 each	Var. 15'-4" to 16'-10"	2½"
B508-B518	4 each	Var. 14'-10" to 18'-8"	2½"
B519	16	15'-8"	2½"
C501	26	17'-4"	3¾"
C502	18	11'-6"	—
④ C601	61	21'-6"	4½"
B701	6	28'-8"	Str.
B702	2	27'-3"	Str.
B703	2	20'-4"	Str.
B704	2	13'-5"	Str.
B705	7	29'-5"	5¼"
B901	7	31'-2"	9"
B902	7	28'-8"	Str.
C1101	23	26'-0"	Str.
④ C1401	25	30'-9"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



④ Non-pay item - Subsidiary to SP Job No. BR2503 "Drilled Shaft Foundations"

Note: For additional details, sections and General Notes, see Dwg. No. 54912.

STATE OF ARKANSAS
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No. 9225
7-23-14
CHARLES R. ELLIS

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DETAILS OF BENT 6
SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

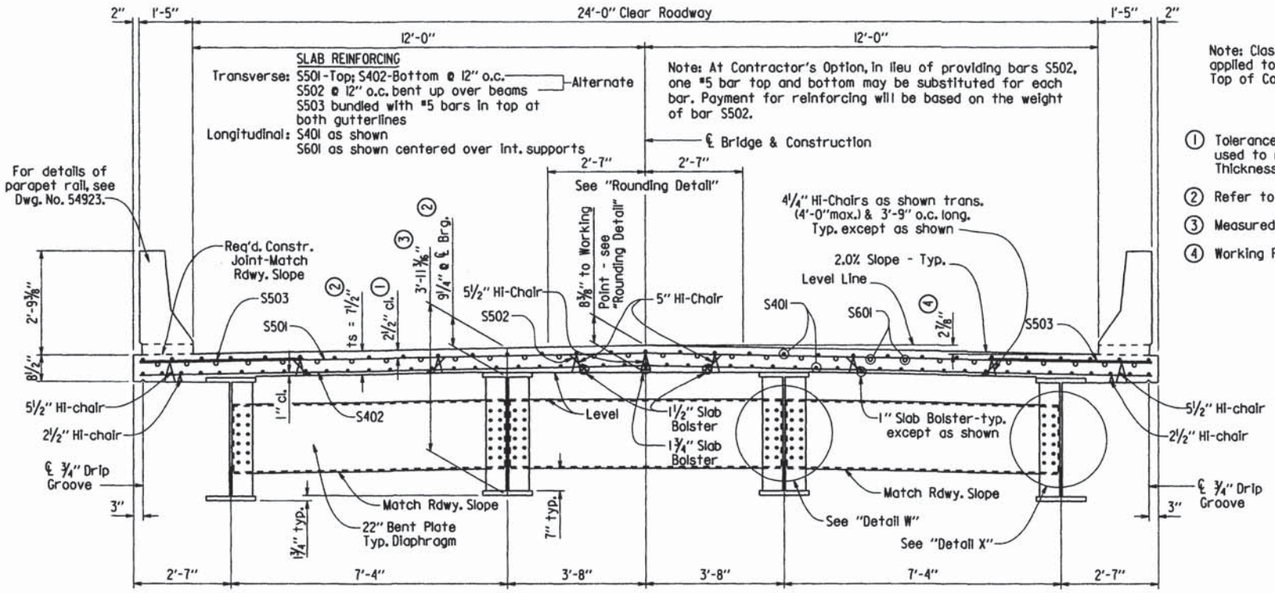
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-19-13
CHECKED BY: CSR DATE: 4/23/14
DESIGNED BY: CSR DATE: 10/13
FILENAME: bbr2503_b26.dgn
SCALE: AS NOTED

BRIDGE NO. 04929 DRAWING NO. 54918

PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	38	64
				①	04929 -	277 FT. UNIT	- 54919	



TYPICAL ROADWAY SECTION

Scale: ½" = 1'-0"

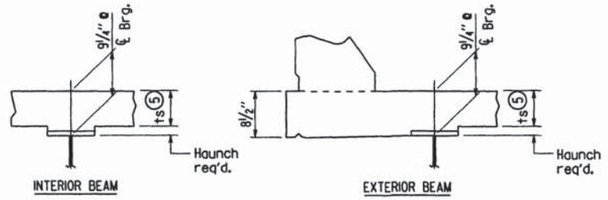
Note: Class 1 Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

① Tolerance : Minus = ¼". Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance - see "Adjustment for Slab Thickness Tolerance".

② Refer to "Adjustment for Slab Thickness Tolerance".

③ Measured at ℄ Bearing & ℄ Beam

④ Working Point to gutterline - See "Rounding Detail".



⑤ Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

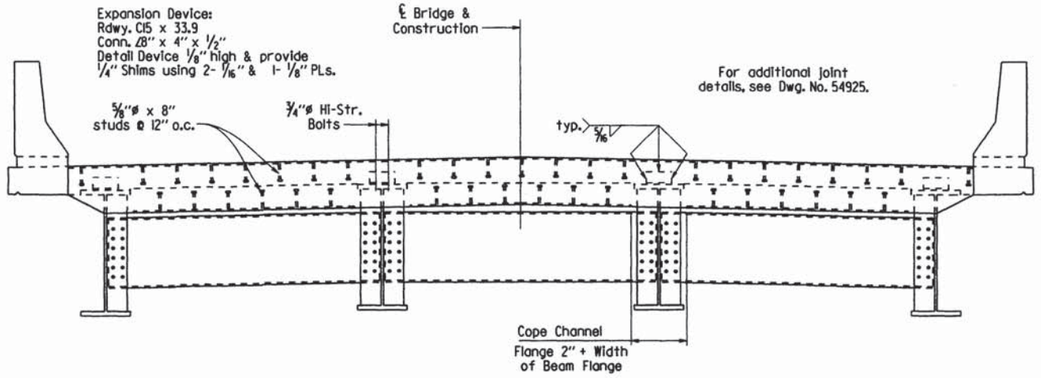
Note : ts = slab thickness as shown in "Typical Roadway Section".

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

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

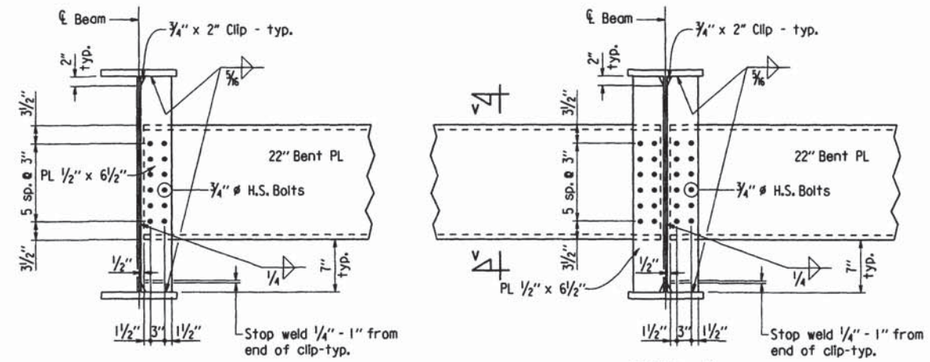
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale



TYPICAL SECTION THRU JOINTS

Scale: ½" = 1'-0"



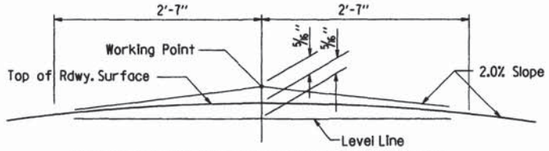
DETAIL X

No Scale

Bolts in diaphragm connections shall be properly installed and tightened in accordance with subsection 807.11.

DETAIL W

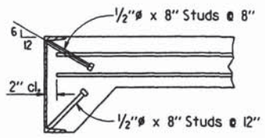
No Scale



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

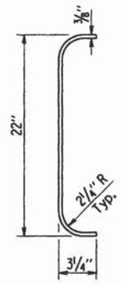
No Scale



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

DETAILS OF ALTERNATE ANCHORS

No Scale



Typical cross-section for all 22" bent plate diaphragms.

SECTION V-V

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 277' CONTINUOUS COMPOSITE W-BEAM UNIT SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-22-13 FILENAME: bbr2503_sl.dgn
CHECKED BY: CJR DATE: 7/23/14 SCALE: AS NOTED
DESIGNED BY: CJR DATE: 9/13

BRIDGE NO. 04929 DRAWING NO. 54919

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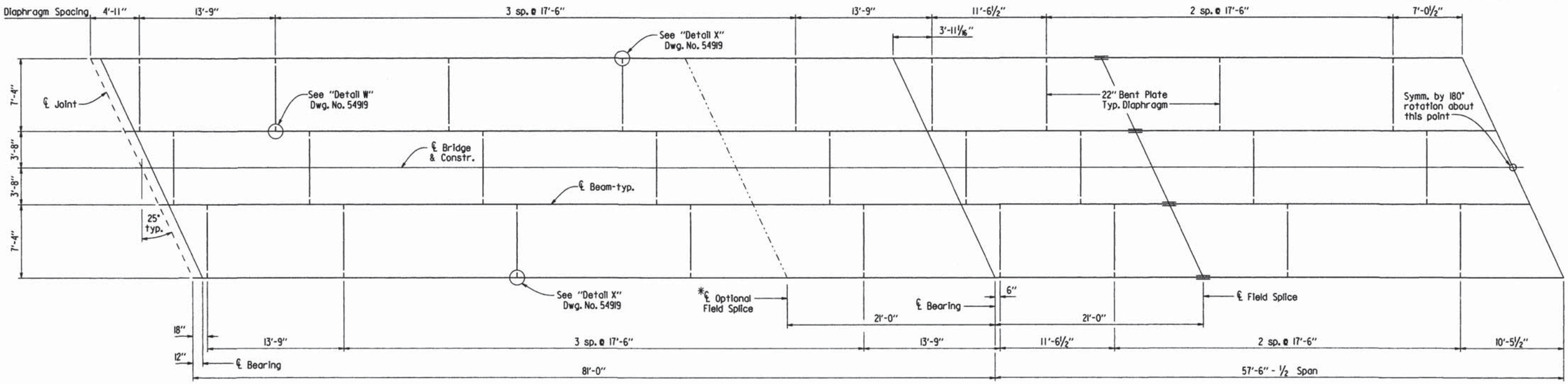
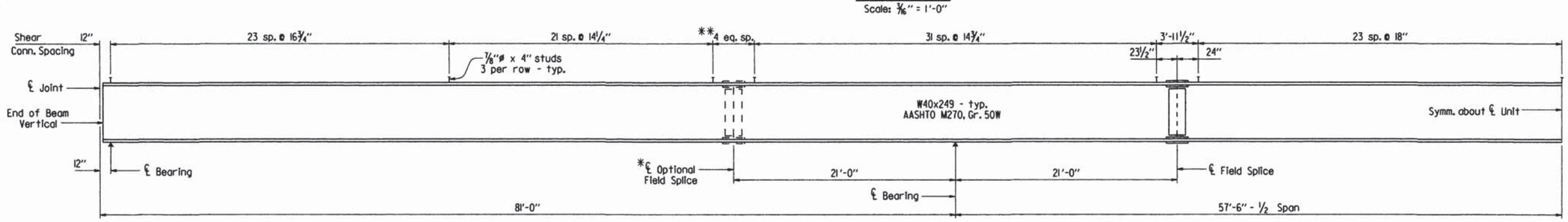
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	39	64
				① 04929 -		277 FT. UNIT	-	54920



FRAMING PLAN

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



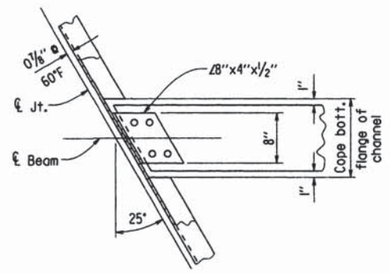
TYPICAL BEAM ELEVATION

No Scale

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

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

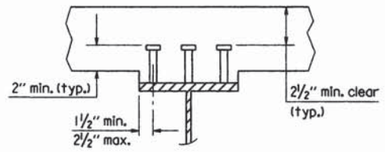
**If the optional field splice is used eliminate the shear connectors at this location.



CHANNEL CONNECTION DETAIL

No Scale

Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. Maximum stud spacing = 24".



SHEAR CONNECTOR DETAIL

No Scale

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-23-14

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 277' CONTINUOUS COMPOSITE W-BEAM UNIT
SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-23-13 FILENAME: bbr2503_sl.dgn
CHECKED BY: CJR DATE: 7/23/14 SCALE: AS NOTED
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BRIDGE NO. 04929 DRAWING NO. 54920

PRINT DATE: 7/23/2014

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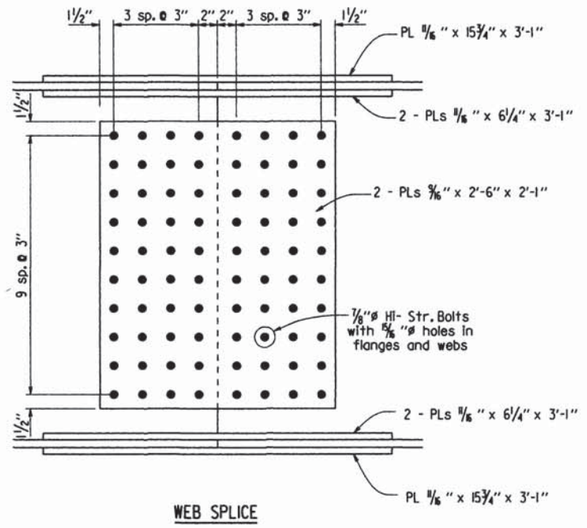
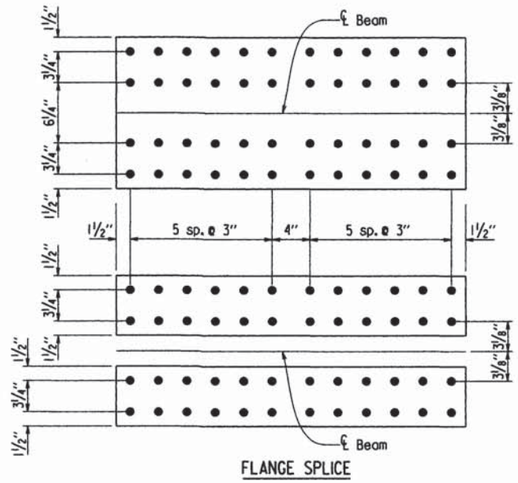
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BR2503	40	64
① 04929 -		277 FT. UNIT	- 54921	



WEB SPLICE



FLANGE SPLICE

Note: All splice plates shall be AASHTO M270, Gr. 50W

FIELD SPLICE DETAIL

Scale: 1½" = 1'-0"

TABLE FOR WELD

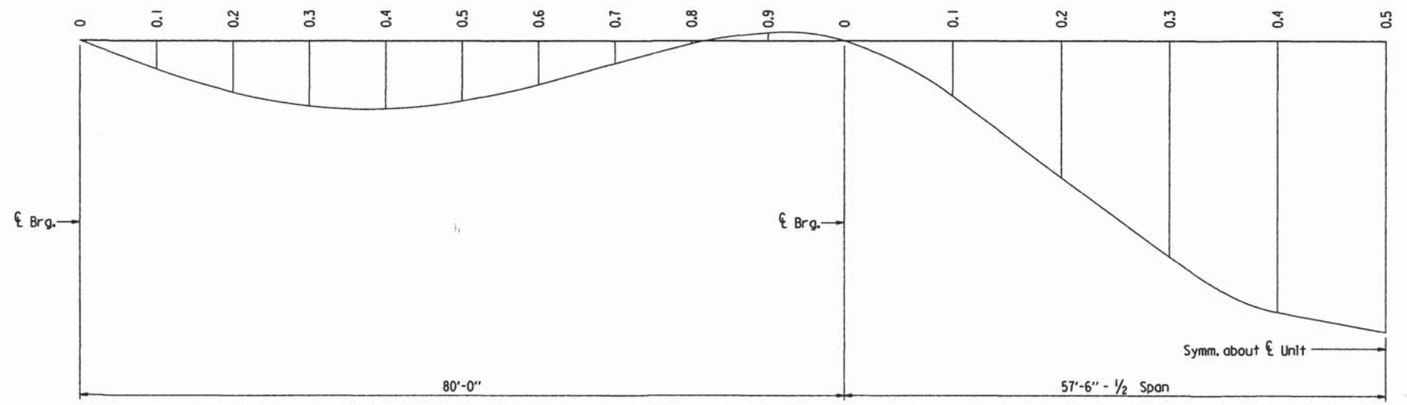
Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

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

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
80'-0"	0	0	0	0	0	0	0
	0.1	0.049	0.047	0.178	0.158	0.201	0.182
	0.2	0.089	0.086	0.323	0.287	0.364	0.330
	0.3	0.113	0.109	0.409	0.365	0.461	0.419
	0.4	0.118	0.114	0.428	0.381	0.482	0.438
	0.5	0.105	0.101	0.379	0.338	0.427	0.388
	0.6	0.076	0.073	0.276	0.245	0.311	0.281
	0.7	0.040	0.038	0.144	0.127	0.162	0.146
	0.8	0.005	0.005	0.018	0.016	0.020	0.018
	0.9	-0.014	-0.013	-0.050	-0.044	-0.056	-0.051
57'-6" - ½ Span	0	0	0	0	0	0	0
	0.1	0.096	0.092	0.347	0.308	0.391	0.354
	0.2	0.237	0.227	0.859	0.763	0.968	0.877
	0.3	0.373	0.359	1.354	1.205	1.526	1.384
	0.4	0.470	0.451	1.704	1.515	1.920	1.741
	0.5	0.504	0.484	1.828	1.626	2.060	1.868

← Table is symm. about ℄ Unit



DEAD LOAD DEFLECTIONS DIAGRAM

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 277' CONTINUOUS COMPOSITE W-BEAM UNIT SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-23-13
CHECKED BY: CJR DATE: 7/23/14
DESIGNED BY: CJR DATE: 9/13
FILENAME: bbr2503_sl.dgn
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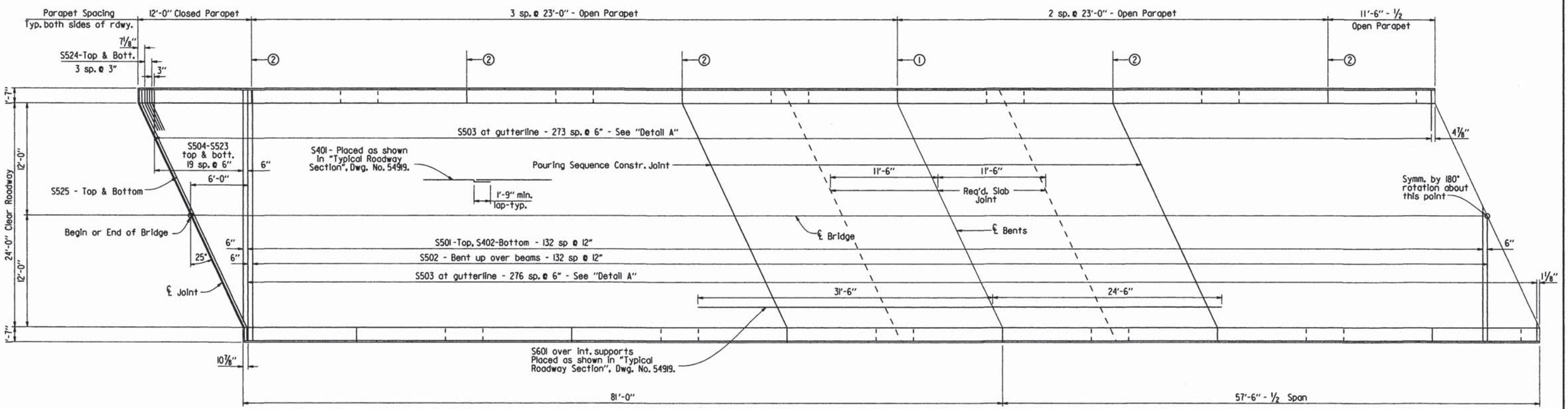
BRIDGE NO. 04929 DRAWING NO. 54921

PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	41	64
				① 04929 -		277 FT. UNIT	- 54922	

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

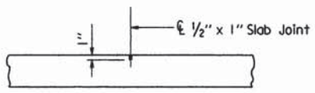
② ℄ Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.



HALF-REINFORCING PLAN

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

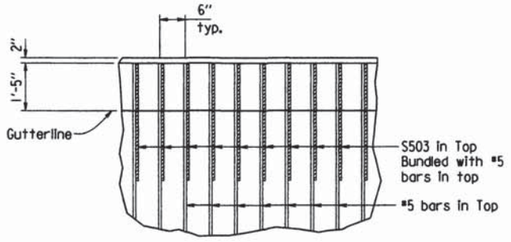
Notes:
Unless otherwise noted, required slab joints and pouring sequence construction joints shall align with parapet joints at the gutterline.



SLAB JOINT DETAIL

No Scale

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



DETAIL A

No Scale

STATE OF ARKANSAS
Charles R. Ellis
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No. 9226
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 277' CONTINUOUS COMPOSITE W-BEAM UNIT
SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-24-13 FILENAME: bbr2503_sl.dgn
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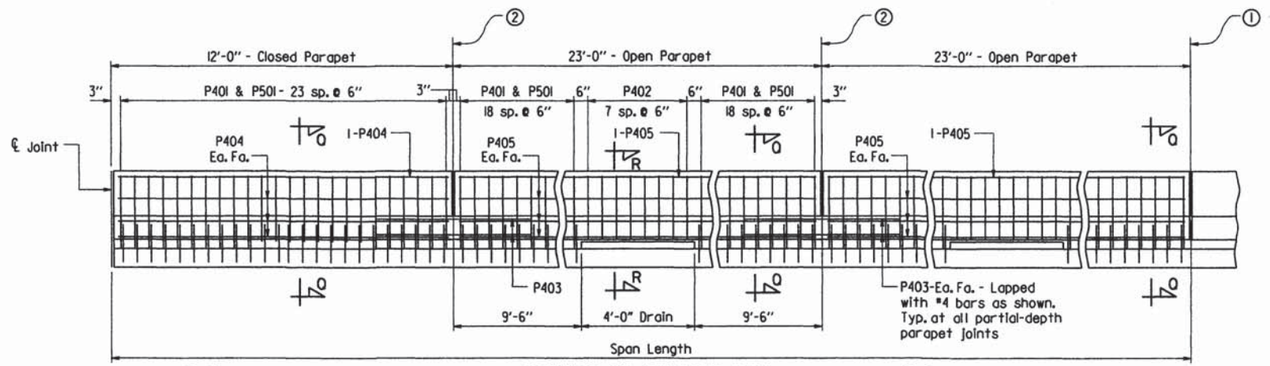
BRIDGE NO. 04929 DRAWING NO. 54922

PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	42	64
				①	04929 - 277 FT. UNIT - 54923			

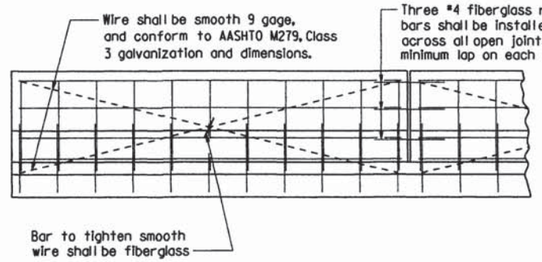


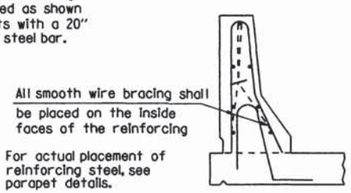
① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Half - Reinforcing Plan", Dwg. No. 54922. Stop 4" from top of slab.

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Half - Reinforcing Plan", Dwg. No. 54922. Stop 1'-2" from top of slab.

DETAILS OF PARAPET RAIL

Scale: ⅜" = 1'-0"



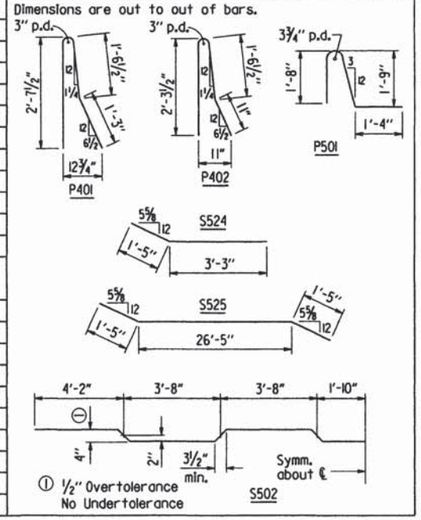


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ⅛". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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

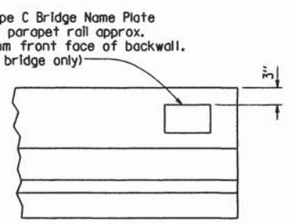
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401	640	36'-2"	Str.	Dimensions are out to out of bars.
S402	266	26'-10"	Str.	
P401	932	5'-6"	3"	
P402	176	4'-10"	3"	
P403	80	3'-10"	Str.	
P404	28	11'-8"	Str.	
P405	154	22'-8"	Str.	
S501	266	26'-10"	Str.	
S502	265	27'-4"	3"	
S503	1100	4'-4"	Str.	
S504-S523	4 Each	Var. 4'-4" to 24'-7"	Str.	
S524	16	4'-8"	3¾"	
S525	4	29'-3"	3¾"	
P501	932	4'-10"	3¾"	
S601	60	56'-0"	Str.	



① ½" Overtolerance
No Undertolerance

Place Type C Bridge Name Plate on right parapet rail approx. 2'-0" from front face of backwall. (Beg. of bridge only)

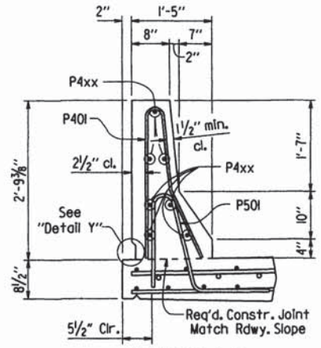


NAME PLATE DETAIL

No Scale

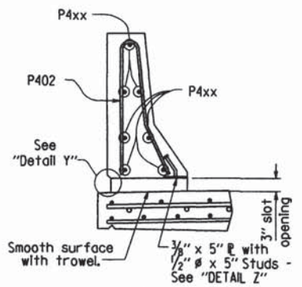
DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



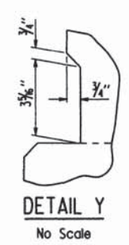
SECTION O-O

Scale: ¾" = 1'-0"



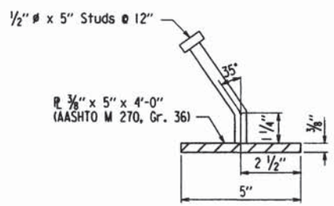
SECTION R-R

Scale: ¾" = 1'-0"



DETAIL Y

No Scale



DETAIL Z

No Scale

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

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

STATE OF ARKANSAS
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REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-23-14
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BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 277' CONTINUOUS COMPOSITE W-BEAM UNIT
SPRING RIVER
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-24-13
CHECKED BY: CJR DATE: 7/23/14
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BRIDGE NO. 04929 DRAWING NO. 54923

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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.		BR2503	43	64
				(1) 04929 -		277 FT. UNIT	- 54924	

GENERAL NOTES

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

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

MATERIAL AND STRENGTHS:

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

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

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

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

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

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

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

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

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

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

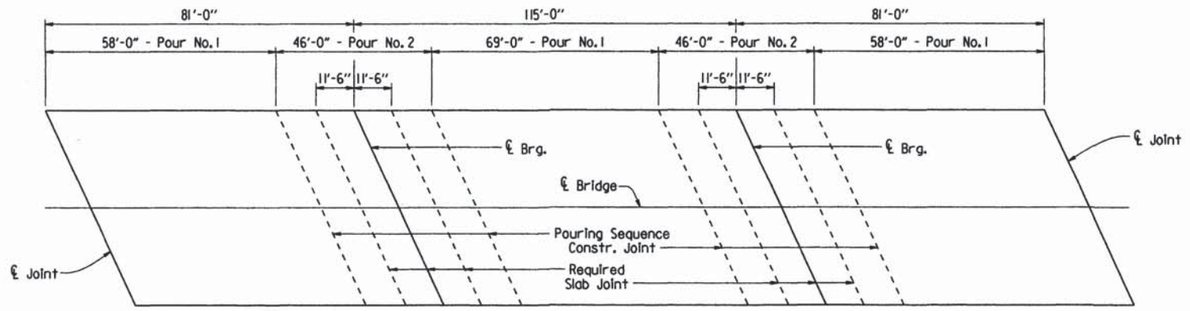
Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

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

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

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

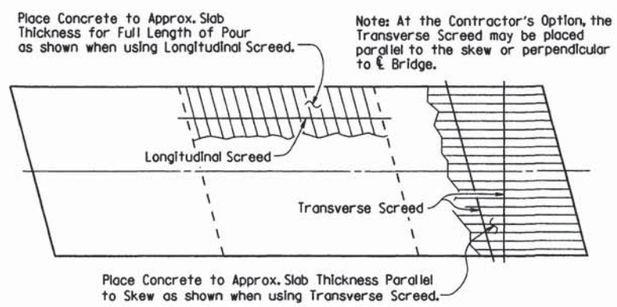
All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.



CONCRETE POURING SEQUENCE

No Scale

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



CONCRETE PLACEMENT PROCEDURE

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 277' CONTINUOUS COMPOSITE W-BEAM UNIT SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

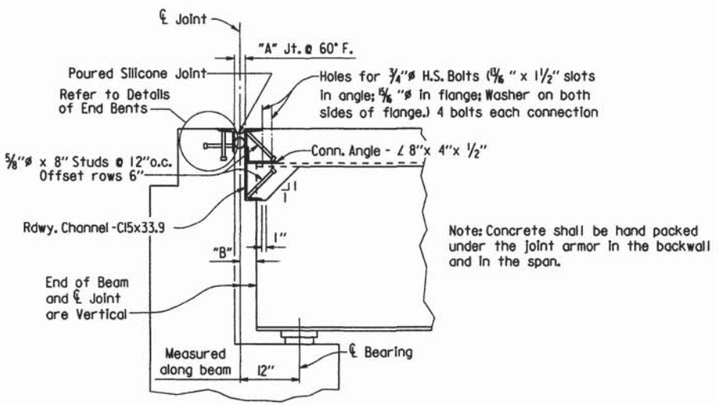
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-25-13 FILENAME: bbr2503_sl.dgn
CHECKED BY: CJR DATE: 7/23/14 SCALE: NO SCALE
DESIGNED BY: CJR DATE: 9/13

BRIDGE NO. 04929 DRAWING NO. 54924

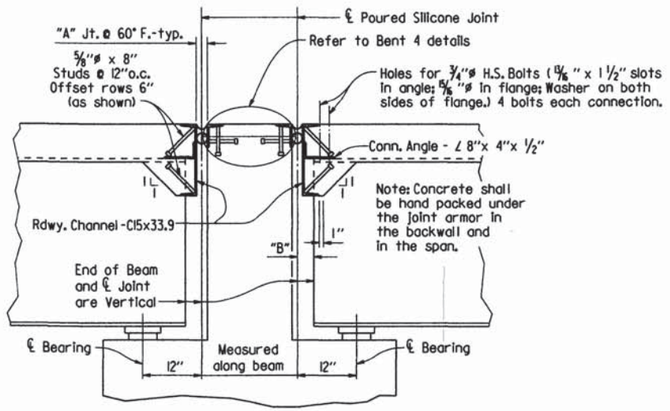
PRINT DATE: 7/23/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	44	64
				① 04929 -		JOINTS	-	54925



SECTION THRU JOINT AT BENTS 1 & 7

No Scale



SECTION THRU JOINTS AT BENT 4

No Scale

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Bar Size	"D"
	40°F	60°F	80°F			
1, 4 & 7	1 5/16"	1 3/4"	1 3/16"	2" ±	1" x ¾"	4"

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

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

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

② BACKER ROD NOTE:

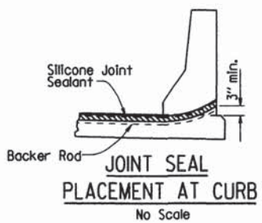
Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

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

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

DETAIL OF POURED SILICONE JOINT SEAL

No Scale



JOINT SEAL PLACEMENT AT CURB

No Scale

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

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

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

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

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

Note: For "Expansion Device Installation at Intermediate Bent 4", see Dwg. No. 54915.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF JOINTS SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

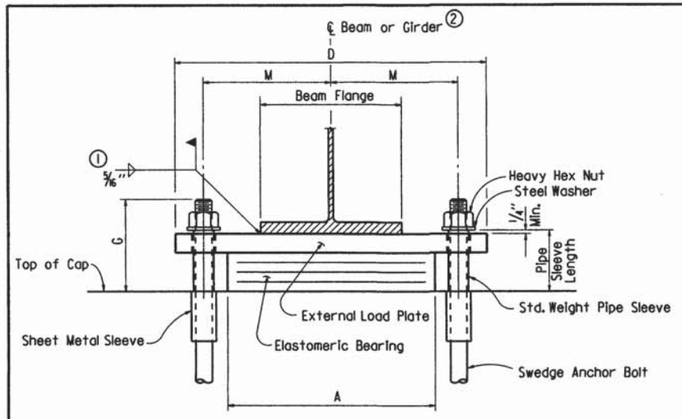
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-29-13 FILENAME: bbr2503_jt1.dgn
CHECKED BY: CSR DATE: 7/23/14 SCALE: AS NOTED
DESIGNED BY: CSR DATE: 9/13

BRIDGE NO. 04929 DRAWING NO. 54925

PRINT DATE: 7/23/2014

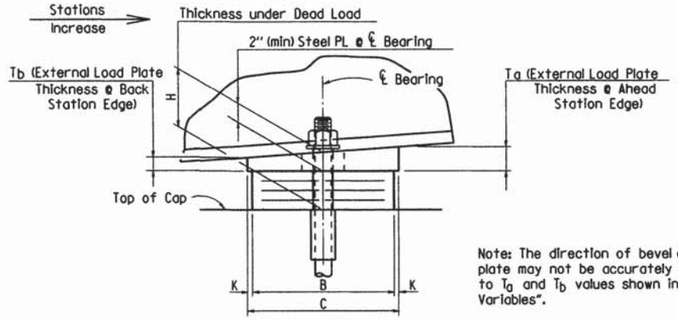
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	45	64
				①	04929 - ELASTO. BRGS. - 54926			



FRONT VIEW

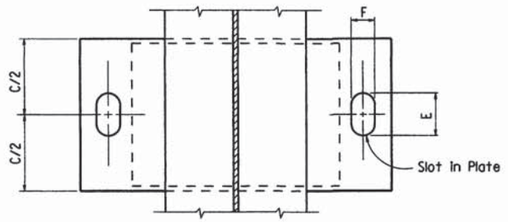
① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

② ℄ Elastomeric pad shall be aligned with ℄ Beam.

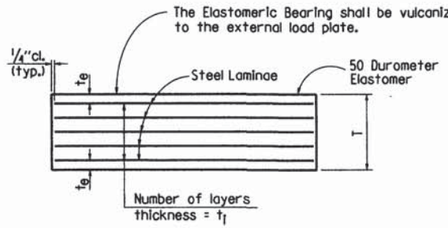


SIDE VIEW

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



PLAN VIEW



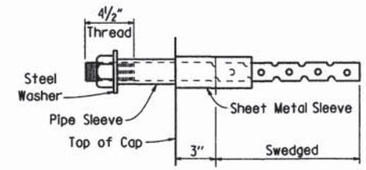
t_e = thickness of elastomer cover on top and bottom of pad

t_l = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_l

ELASTOMERIC BEARING

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam 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.



ANCHOR BOLT DETAIL

NOTE: 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 masonry. 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)"

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 A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

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

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

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

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

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD: G	H	A	B	N	t_l	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE: C	D	E	F	K	M	**T_a	**T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
04929	1	All	Exp.	4	112	8"	5"	16"	7 1/2"	4	1/2"	1/4"	5 @ 12 Gauge	3"	8 1/2"	26 1/4"	4 3/8"	2 1/4"	1/2"	10 3/8"	2.26"	1.74"	1 1/2" x 25"	55	1 1/2" x 5 1/2"	3" x 9"	3"
	2	1	Fix	3	284	7 1/2"	4"	17"	14"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	15"	29"	3 1/8"	3 1/8"	1/2"	11 1/4"	2.55"	1.83"	2" x 29 1/2"	55	2 1/2" x 4 1/2"	4" x 9"	3 3/4"
	2	2 - 4	Fix	1	284	7 1/4"	3 15/16"	17"	14"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	15"	29"	3 1/8"	3 1/8"	1/2"	11 1/4"	2.36"	1.64"	2" x 29 1/2"	55	2 1/2" x 4 1/4"	4" x 9"	3 3/4"
	3	All	Fix	4	284	7 1/4"	3 15/16"	17"	14"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	15"	29"	3 1/8"	3 1/8"	1/2"	11 1/4"	2.20"	1.80"	2" x 29 1/2"	55	2 1/2" x 4 1/4"	4" x 9"	3 3/4"
	4	All	Exp.	8	112	8"	5"	16"	7 1/2"	4	1/2"	1/4"	5 @ 12 Gauge	3"	8 1/2"	26 1/4"	4 3/8"	2 1/4"	1/2"	10 3/8"	2.05"	1.95"	1 1/2" x 25"	55	1 1/2" x 5 1/2"	3" x 9"	3"
	5	1, 2, & 4	Fix	3	284	7 1/4"	3 15/16"	17"	14"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	15"	29"	3 1/8"	3 1/8"	1/2"	11 1/4"	1.98"	2.02"	2" x 29 1/2"	55	2 1/2" x 4 1/4"	4" x 9"	3 3/4"
	5	3	Fix	1	284	7 1/2"	3 7/8"	17"	14"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	15"	29"	3 1/8"	3 1/8"	1/2"	11 1/4"	2.04"	2.08"	2" x 29 1/2"	55	2 1/2" x 4 1/2"	4" x 9"	3 3/4"
	6	All	Fix	4	284	7 1/4"	3 15/16"	17"	14"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	15"	29"	3 1/8"	3 1/8"	1/2"	11 1/4"	1.83"	2.17"	2" x 29 1/2"	55	2 1/2" x 4 1/4"	4" x 9"	3 3/4"
	7	1, 2, & 4	Exp.	3	112	8"	5"	16"	7 1/2"	4	1/2"	1/4"	5 @ 12 Gauge	3"	8 1/2"	26 1/4"	4 3/8"	2 1/4"	1/2"	10 3/8"	1.84"	2.16"	1 1/2" x 25"	55	1 1/2" x 5 1/2"	3" x 9"	3"
	7	3	Exp.	1	112	8 1/2"	5 5/16"	16"	7 1/2"	4	1/2"	1/4"	5 @ 12 Gauge	3"	8 1/2"	26 1/4"	4 3/8"	2 1/4"	1/2"	10 3/8"	2.15"	2.47"	1 1/2" x 25"	55	1 1/2" x 6"	3" x 9"	3"

** Includes Load Plate Thickening for Bearings Along Beam 1, Bent 2; Beam 3, Bent 5; and Beam 3, Bent 7.

* Maximum Design Load = Service I Limit State

Tabular Data by : KDH Date: 10-29-13

Checked by : CJR Date: 2/23/14

Designed by : CJR Date: 9/13

STATE OF ARKANSAS Richard D. Ellis REGISTERED PROFESSIONAL ENGINEER No. 9235 7-23-14 CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS SPRING RIVER

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: Nov.1996 FILENAME: bbr2503_el.dgn

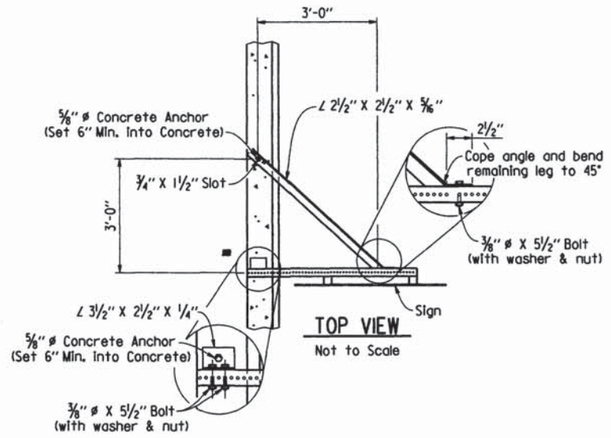
CHECKED BY: AWS DATE: Jul.7.05 SCALE: NONE

DESIGNED BY: Std. DATE:

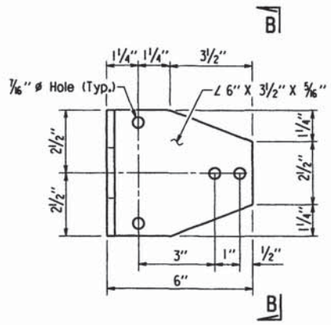
BRIDGE NO. 04929 DRAWING NO. 54926

PRINT DATE: 7/23/2014

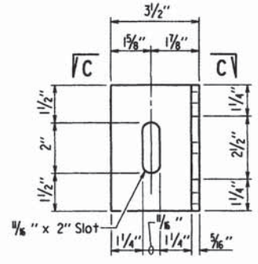
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	46	64
				①		04929 - SIGN STRUCTURE - 54926A		



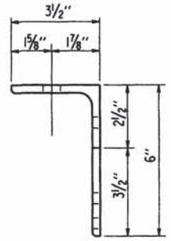
TOP VIEW
Not to Scale



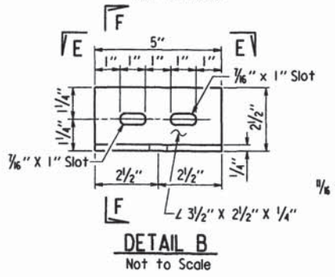
DETAIL A
Not to Scale



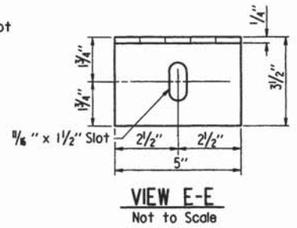
VIEW B-B
Not to Scale



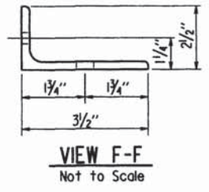
VIEW C-C
Not to Scale



DETAIL B
Not to Scale



VIEW E-E
Not to Scale



VIEW F-F
Not to Scale

GENERAL NOTES

Design Specifications: Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, AASHTO Fifth Edition with 2011 Interims.

Construction Specifications: Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of 2014, with applicable Special Provisions and Supplemental Specifications.

Basic Wind Speed: 90 m.p.h.

All sign panels shall be mounted level.

All tubing material, bolts, and other mounting hardware shall be hot-dipped galvanized.

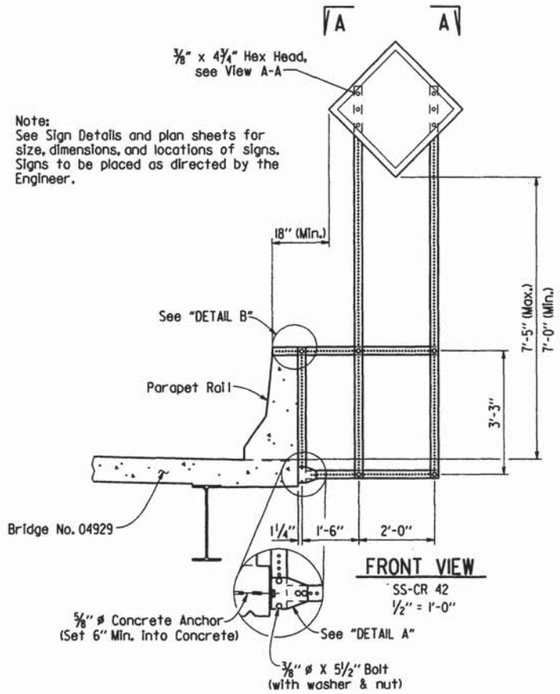
All bolted connections shall have locknuts equipped with nylon locking inserts or other approved type locking system. Locknuts to be installed according to Manufacturer's recommendations.

The Contractor shall make check measurements in the field and make any adjustments necessary to meet required clearances, to fit the new structure to existing conditions, to avoid any joints in concrete parapet rail, and to avoid rail posts on the parapet. This may include shifting the sign structures with approval from the Engineer.

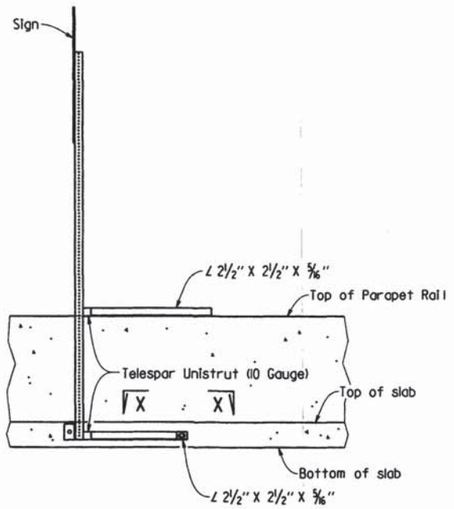
Bolts, nuts, and all other mounting hardware shall not be paid for directly, but shall be considered subsidiary to the pay item "Bridge Mounted Sign Structures (Type I)".

MATERIAL REQUIREMENTS:

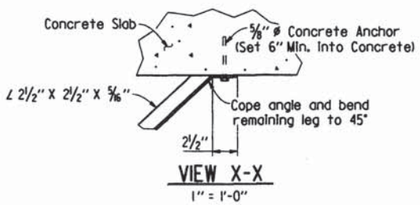
1. Angle steel shall have a minimum yield strength of 36 ksi.
2. Unistrut: Telespar 2 1/2" X 2 1/2", 10 Gauge thick, Grade 50 or approved equal.
3. Bolt: ASTM A325, 3/8" Diameter, for bolt length see Drawing.
4. Anchor Bolts: 5/8" ø KWIK Bolt 3 Expansion Anchor Assembly or approved equal.



FRONT VIEW
SS-CR 42
1/2" = 1'-0"

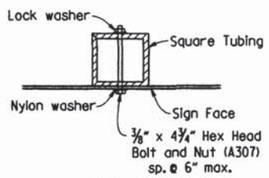


SIDE VIEW
1/2" = 1'-0"



VIEW X-X
1" = 1'-0"

Note:
Anchor bolts shall be a mechanical system type installed according to Manufacturers recommendations. Bolts shall be located a minimum of 1'-6" from any parapet rail joint.



VIEW A-A
Not to Scale

STATE OF ARKANSAS
Charles Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9225
7-23-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BRIDGE MOUNTED SIGN STRUCTURE (TYPE I)

ROUTE SEC.

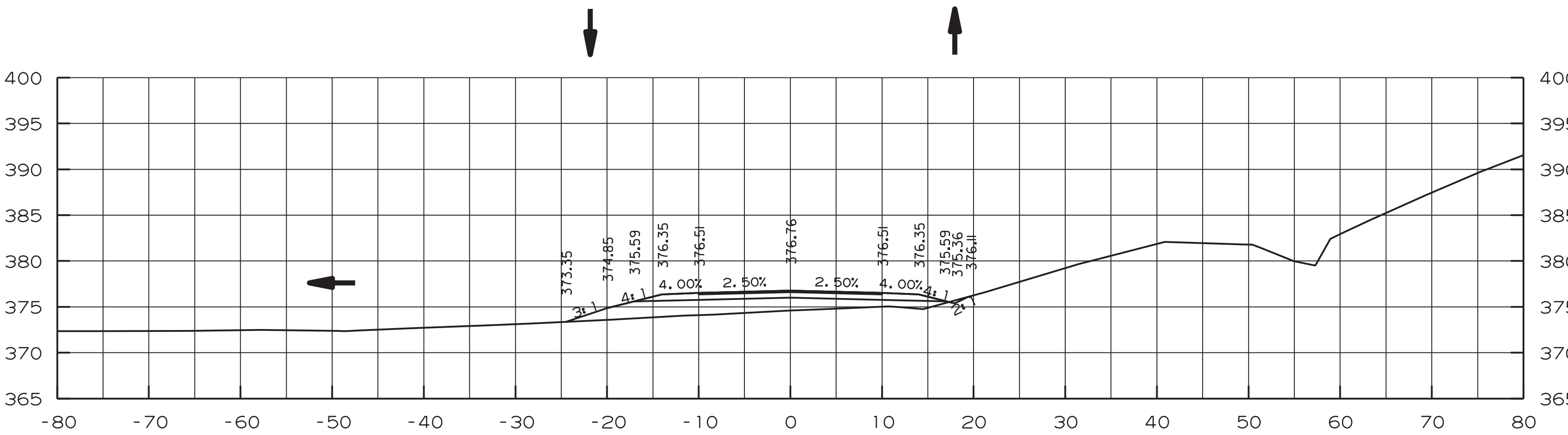
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 5-19-14 FILENAME: bbr2503_sign.dgn
CHECKED BY: BEF DATE: 5/27/14 SCALE: AS NOTED
DESIGNED BY: STD. DATE: —

BRIDGE NO. 04929 DRAWING NO. 54926A

PRINT DATE: 7/23/2014

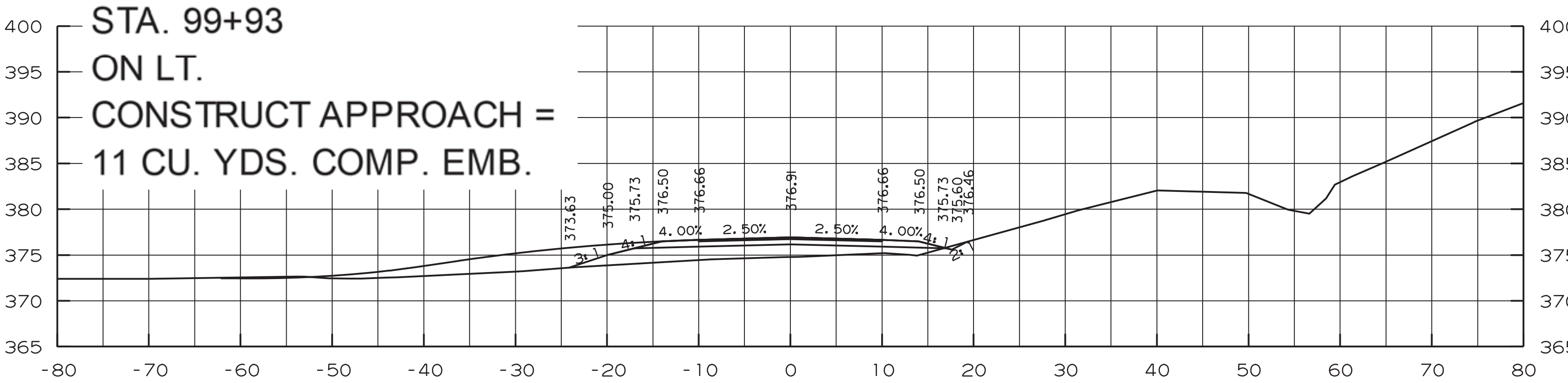


AREA CUT 0.36
AREA FILL 50.99

100+00.00

CUT VOLUME 0
FILL VOLUME 11

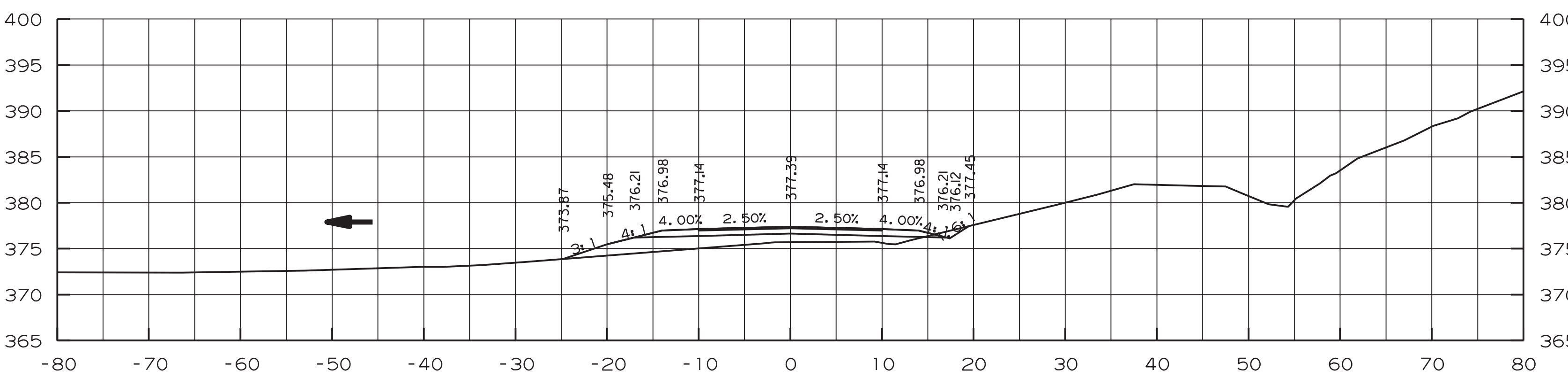
STA. 99+93
ON LT.
CONSTRUCT APPROACH =
11 CU. YDS. COMP. EMB.



AREA CUT 0.49
AREA FILL 46.55

99+93.00
DRIVEWAY ON LEFT

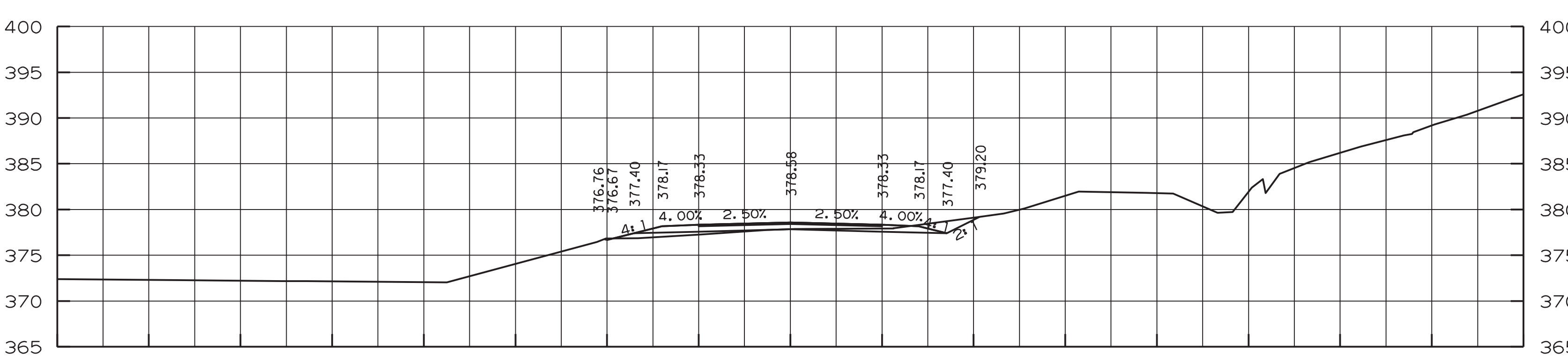
CUT VOLUME 1
FILL VOLUME 25



AREA CUT 1.91
AREA FILL 39.47

99+78.39

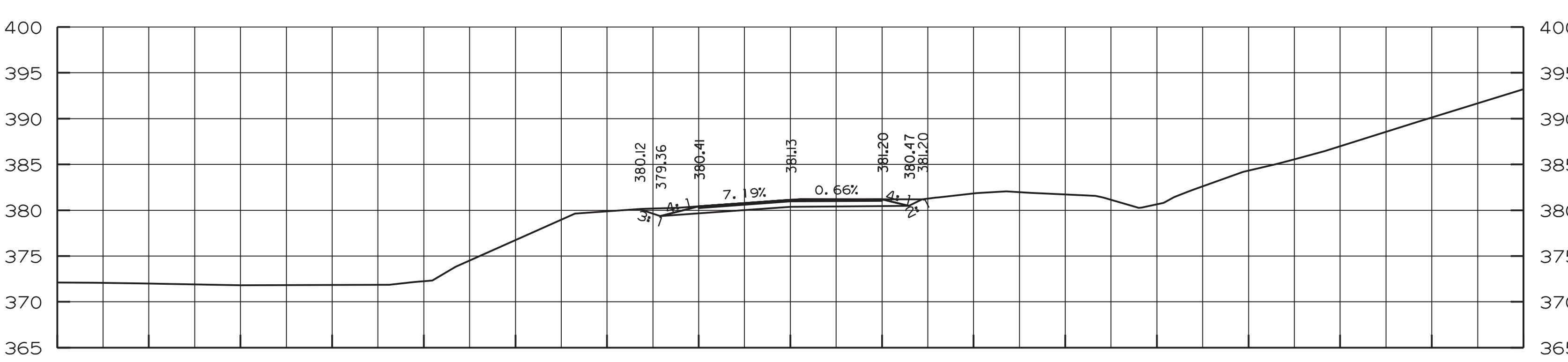
CUT VOLUME 6
FILL VOLUME 23



AREA CUT 9.74
AREA FILL 5.00

99+50.00
END TRANSITION

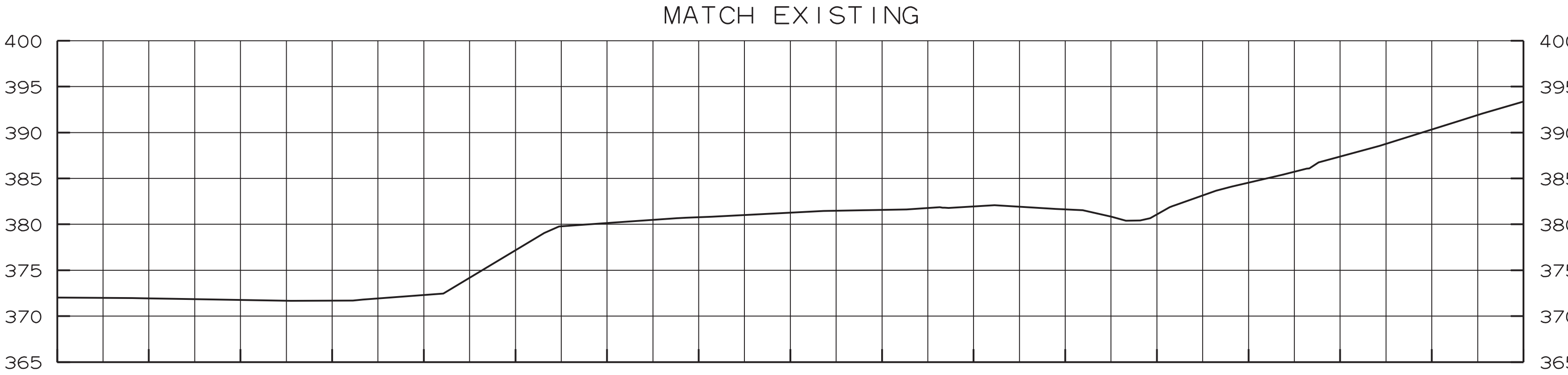
CUT VOLUME 25
FILL VOLUME 4



AREA CUT 22.25
AREA FILL 0.00

99+07.00
BEGIN JOB BR2503
MATCH EXISTING

CUT VOLUME 3
FILL VOLUME 0



AREA CUT 0.00
AREA FILL 0.00

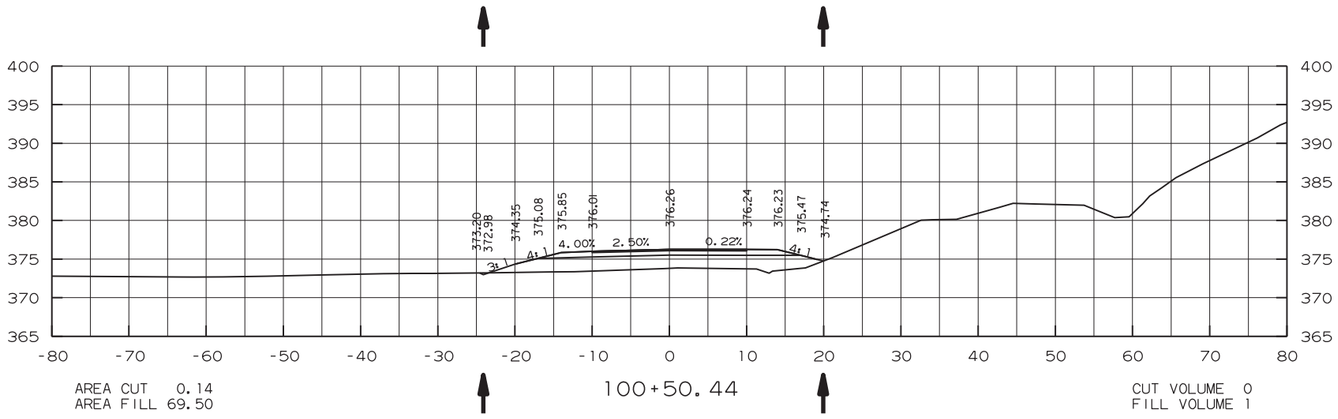
99+00.00

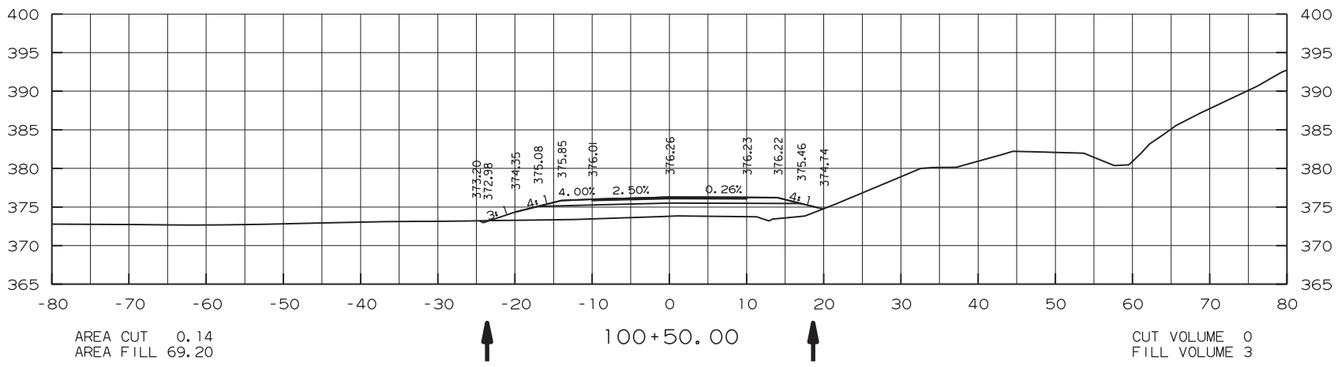
CUT VOLUME 0
FILL VOLUME 0

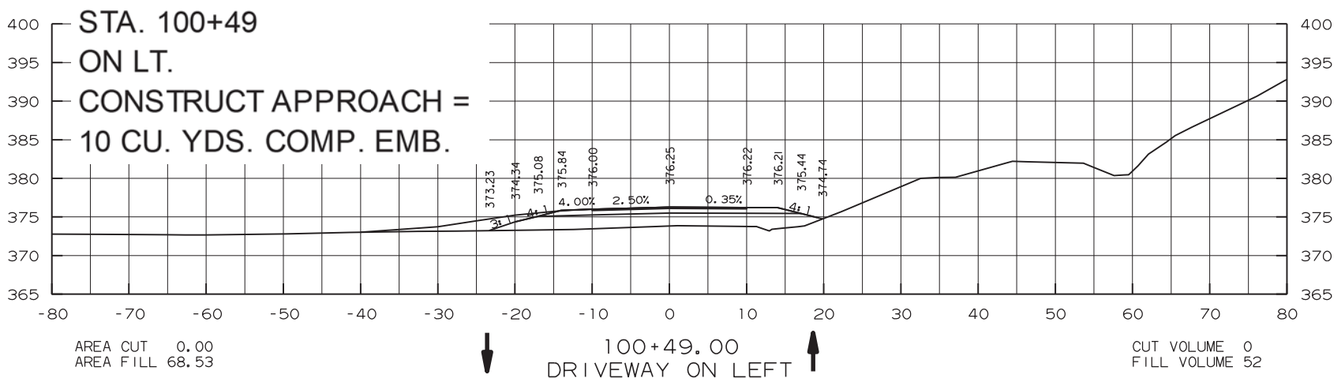
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
	JOB NO.	BR2503	47	64

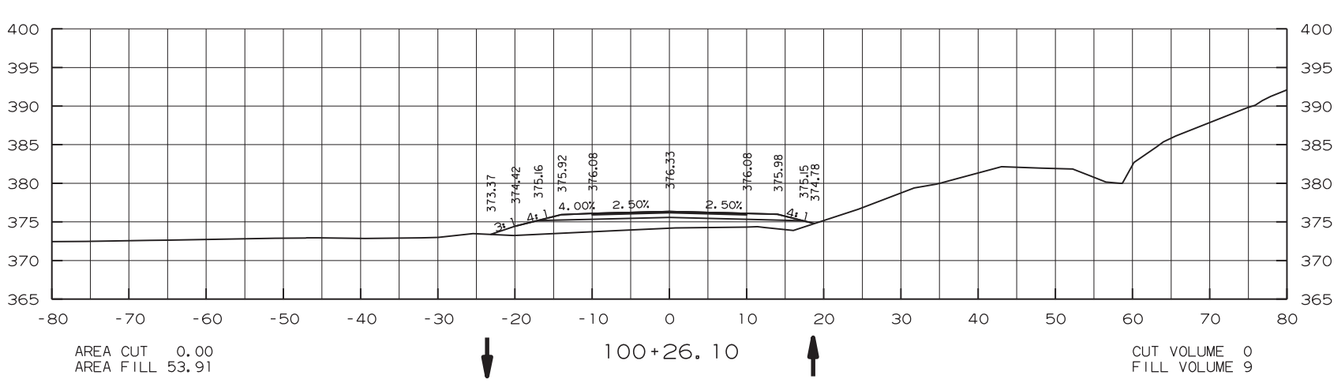
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

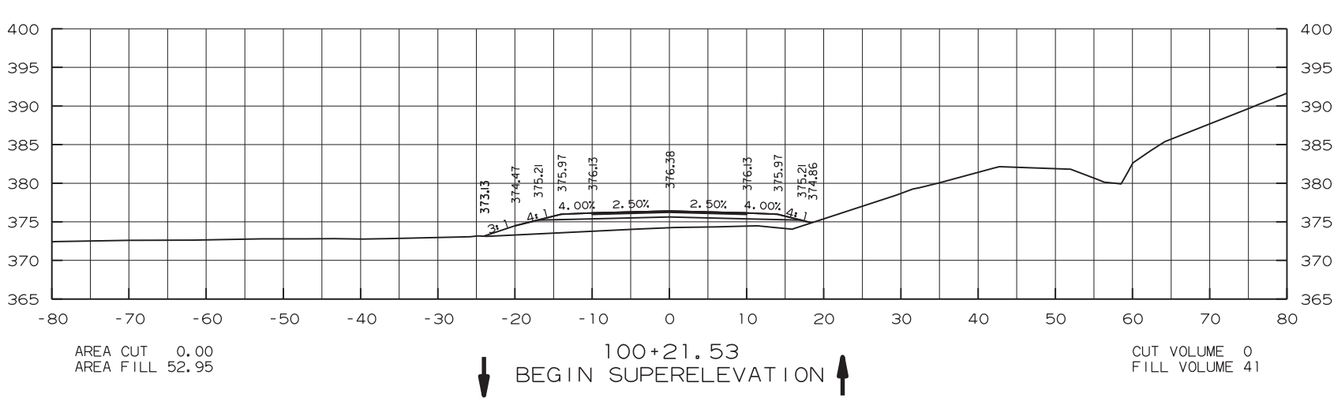
4 CROSS SECTIONS STA. 99+00.00 TO 100+00.00



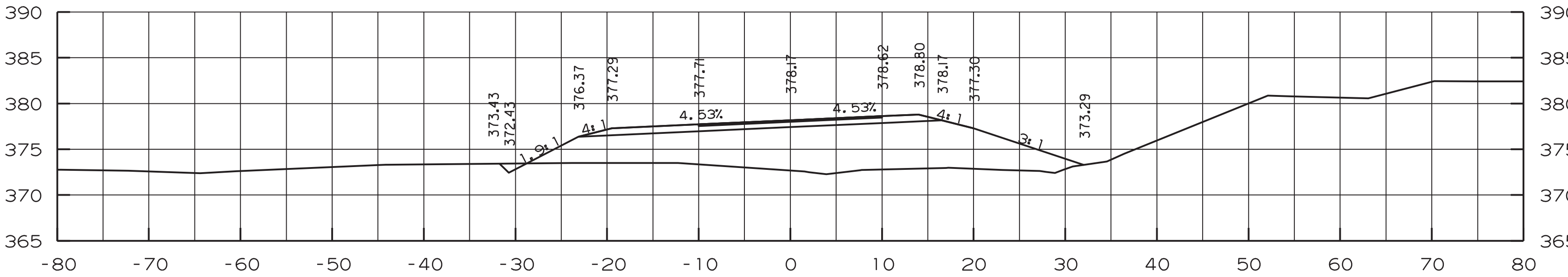








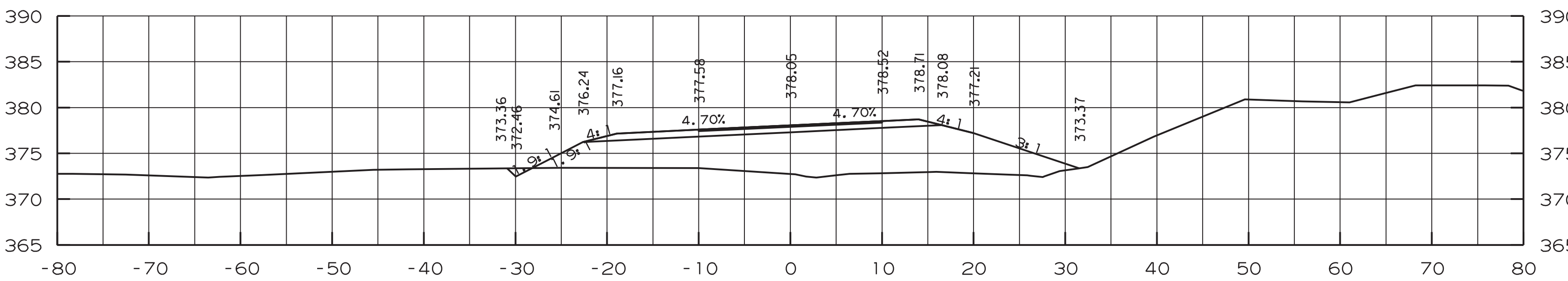
						DATE REVISED	DATE FILMED
4	CROSS SECTIONS STA. 100+21.53 TO 100+50.44						
		JOB NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS	FED.AID SYS.NO.
		BR2503	ARK.		48	64	6



AREA CUT 1.49
AREA FILL 223.23

101+25.00

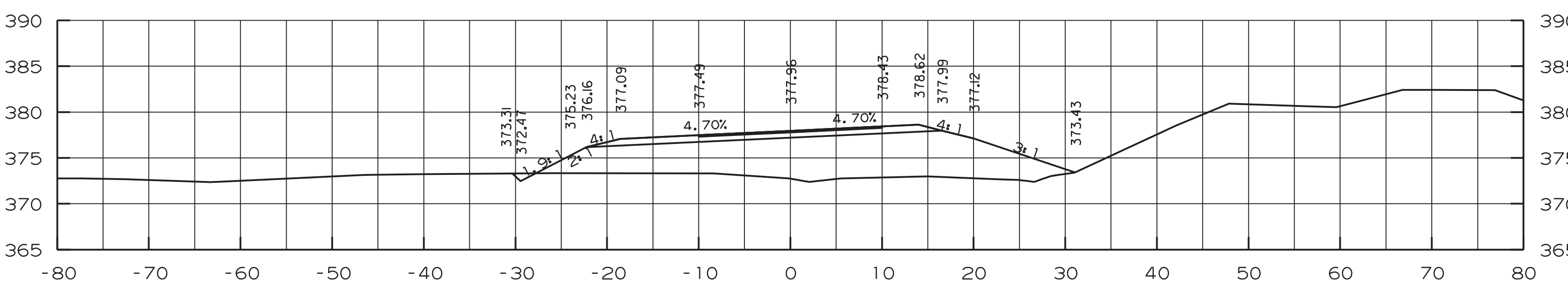
CUT VOLUME 0
FILL VOLUME 26



AREA CUT 1.25
AREA FILL 214.67

101+21.82
END MAX SUPERELEVATION

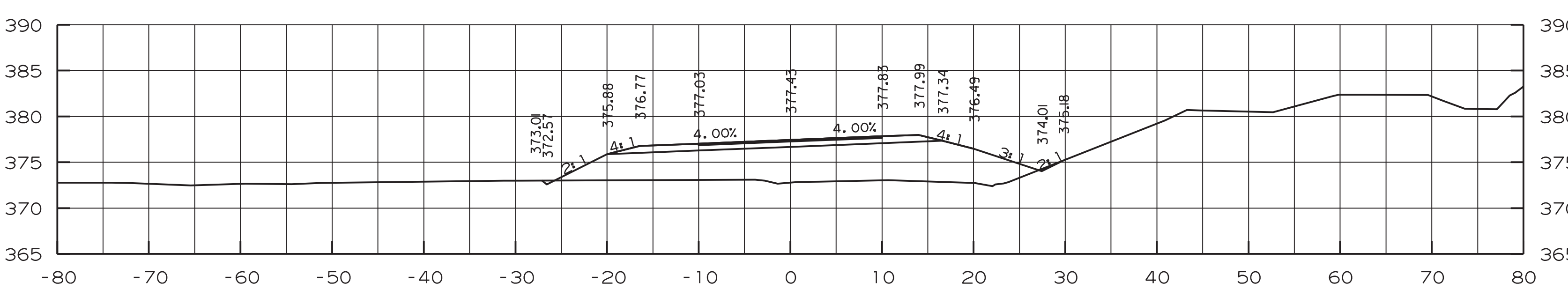
CUT VOLUME 0
FILL VOLUME 18



AREA CUT 1.08
AREA FILL 208.26

101+19.53
BEGIN MAX SUPERELEVATION

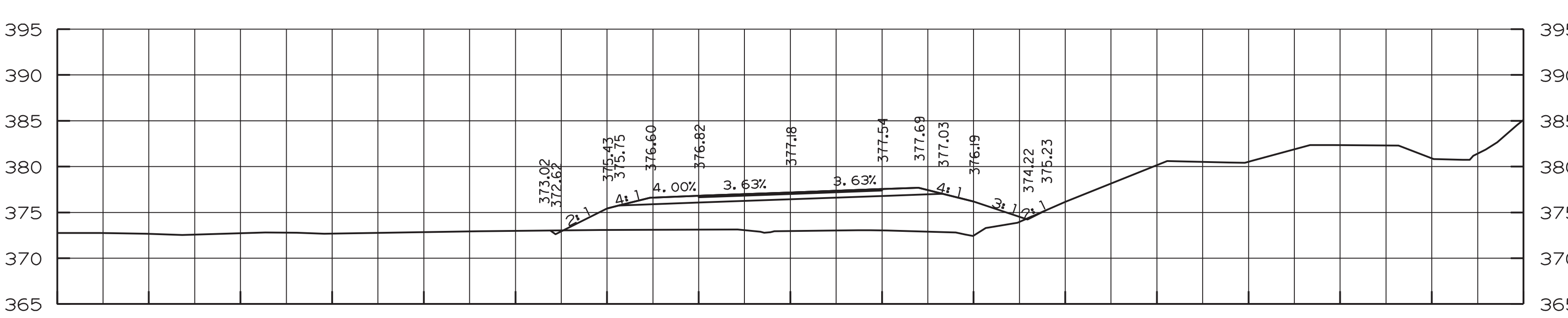
CUT VOLUME 0
FILL VOLUME 90



AREA CUT 0.64
AREA FILL 171.42

101+06.75

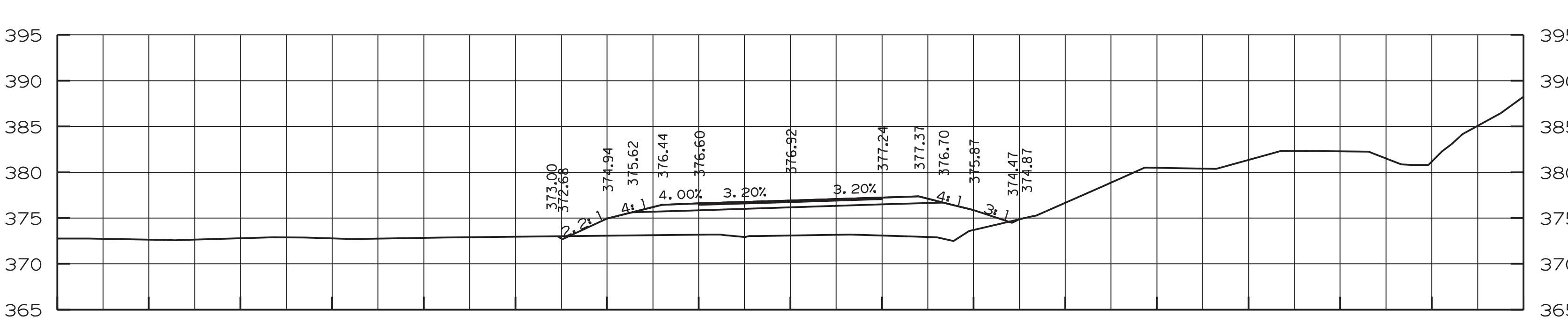
CUT VOLUME 0
FILL VOLUME 40



AREA CUT 0.42
AREA FILL 151.03

101+00.00

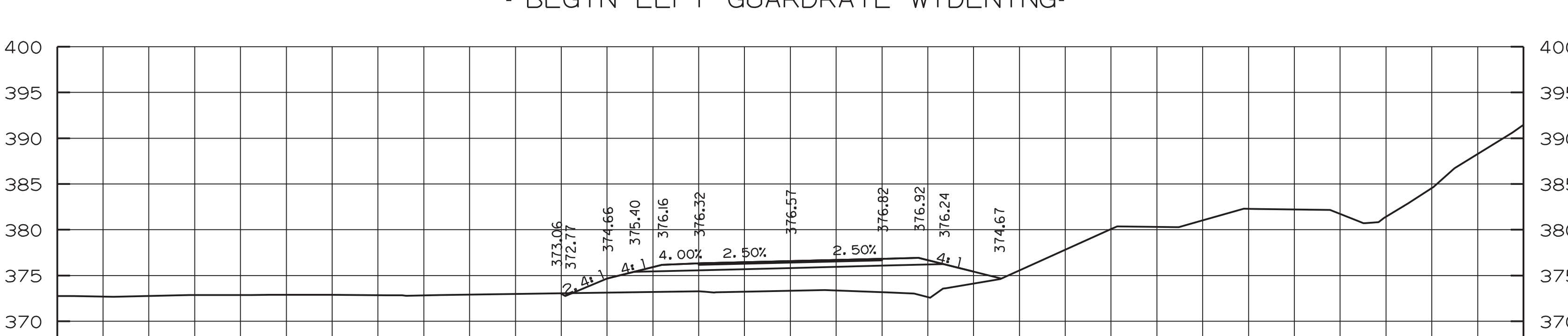
CUT VOLUME 0
FILL VOLUME 41



AREA CUT 0.33
AREA FILL 129.15

100+92.08
BEGIN LEFT GUARDRAIL WIDENING

CUT VOLUME 0
FILL VOLUME 55



AREA CUT 0.18
AREA FILL 104.70

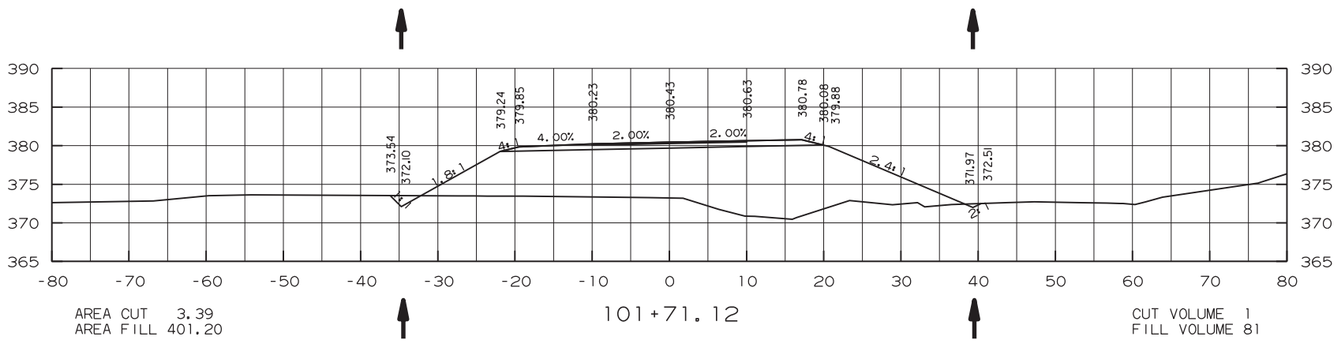
100+79.36

CUT VOLUME 0
FILL VOLUME 93

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BR2503	49	64

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

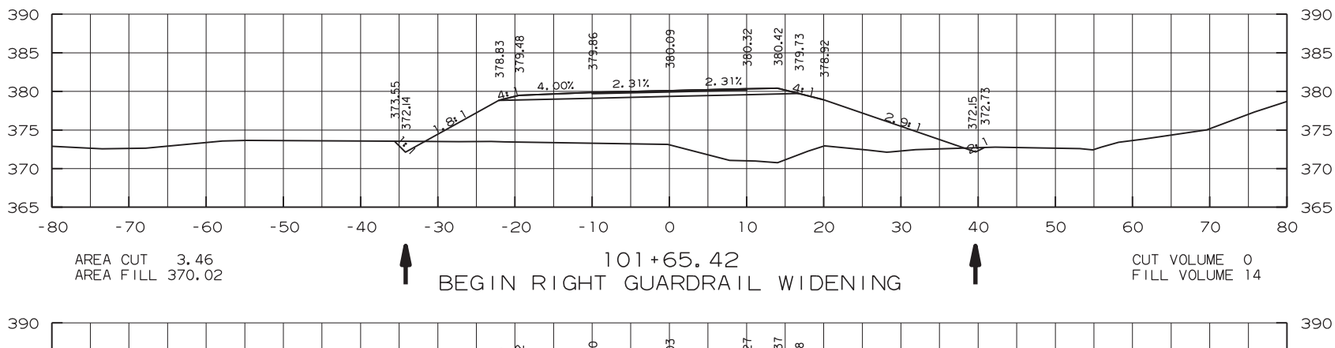
4 CROSS SECTIONS STA. 100+79.36 TO 101+25.00



AREA CUT 3.39
AREA FILL 401.20

101+71.12

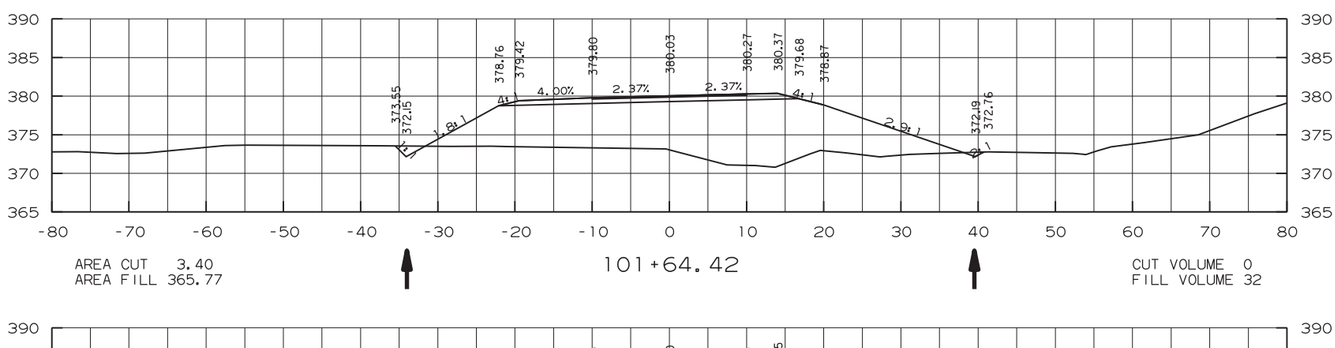
CUT VOLUME 1
FILL VOLUME 81



AREA CUT 3.46
AREA FILL 370.02

101+65.42
BEGIN RIGHT GUARDRAIL WIDENING

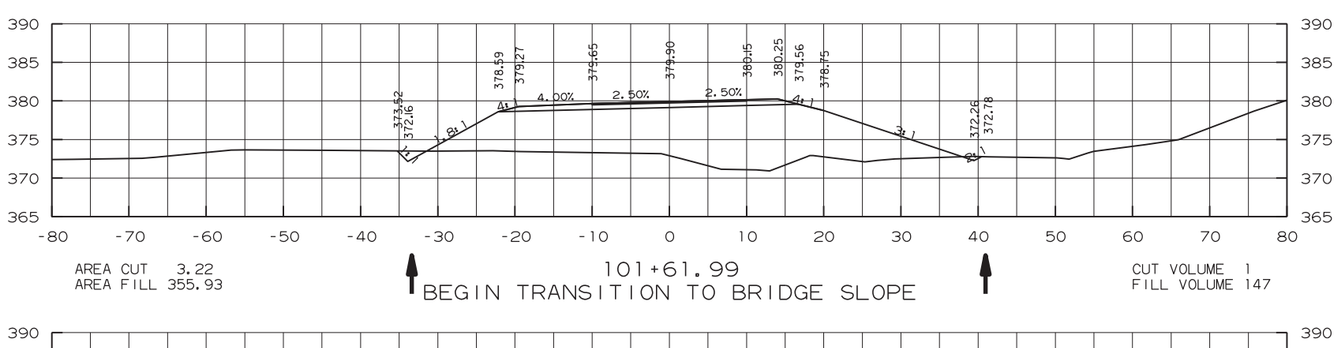
CUT VOLUME 0
FILL VOLUME 14



AREA CUT 3.40
AREA FILL 365.77

101+64.42

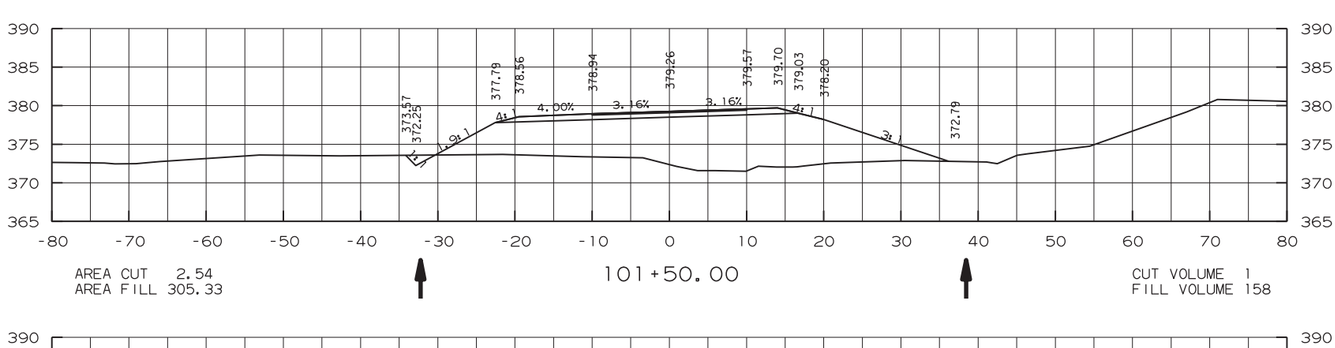
CUT VOLUME 0
FILL VOLUME 32



AREA CUT 3.22
AREA FILL 355.93

101+61.99
BEGIN TRANSITION TO BRIDGE SLOPE

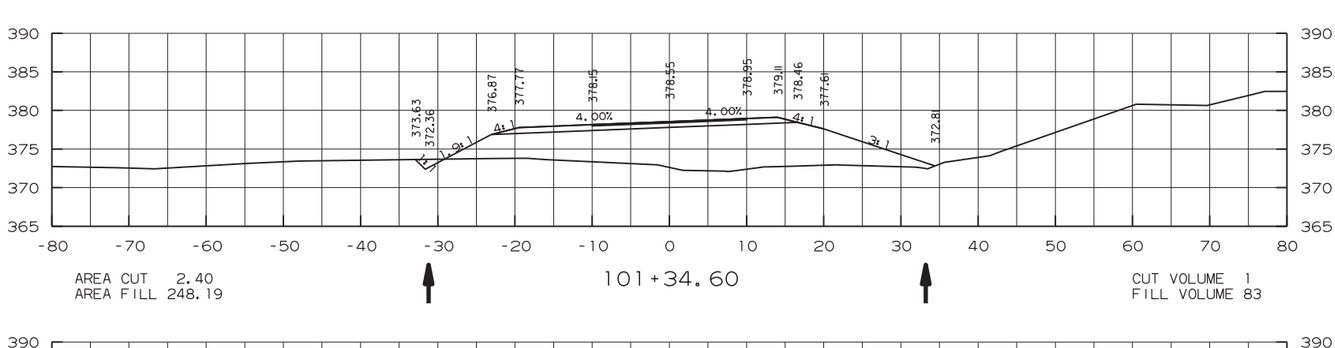
CUT VOLUME 1
FILL VOLUME 147



AREA CUT 2.54
AREA FILL 305.33

101+50.00

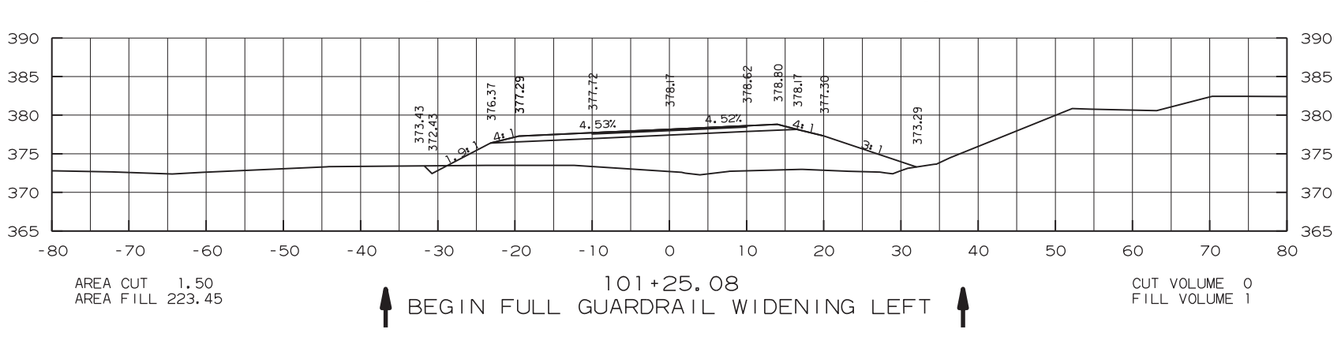
CUT VOLUME 1
FILL VOLUME 158



AREA CUT 2.40
AREA FILL 248.19

101+34.60

CUT VOLUME 1
FILL VOLUME 83



AREA CUT 1.50
AREA FILL 223.45

101+25.08
BEGIN FULL GUARDRAIL WIDENING LEFT

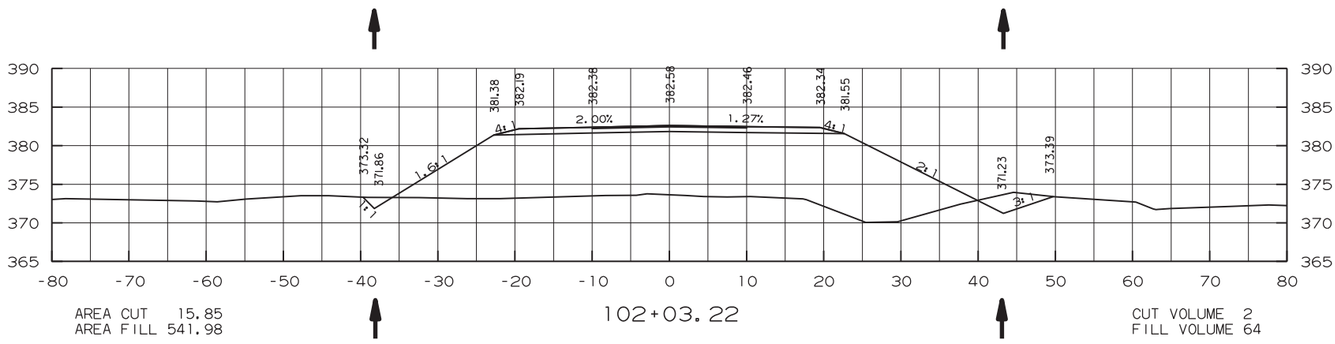
CUT VOLUME 0
FILL VOLUME 1

PART REVISED	DATE PLANED	DATE REVISED	PART PLANED

4 CROSS SECTIONS STA. 101+25.08 TO 101+71.12

FED.ROAD DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR2503	50	64

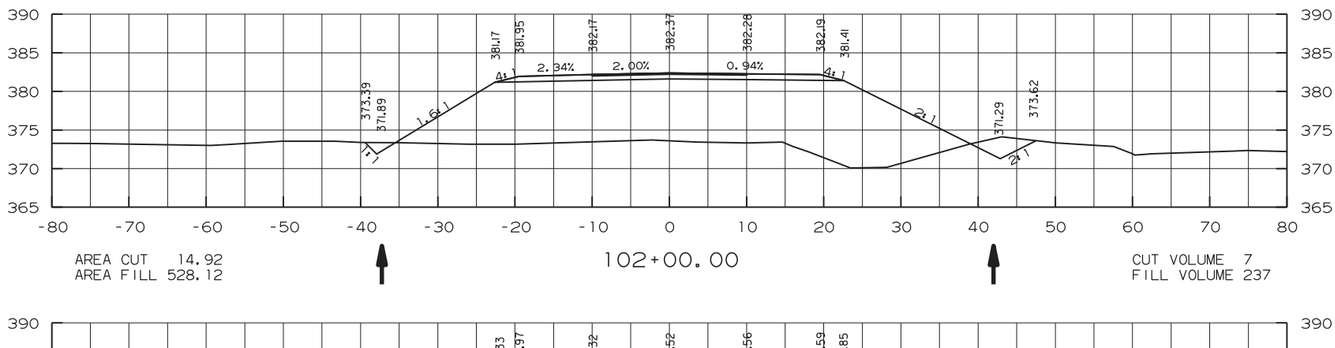
JOB NO.



AREA CUT 15.85
AREA FILL 541.98

102+03.22

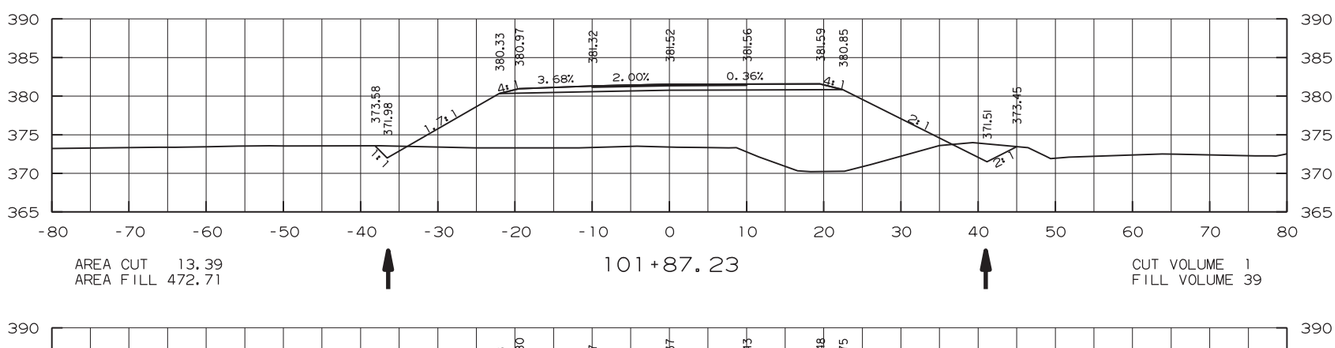
CUT VOLUME 2
FILL VOLUME 64



AREA CUT 14.92
AREA FILL 528.12

102+00.00

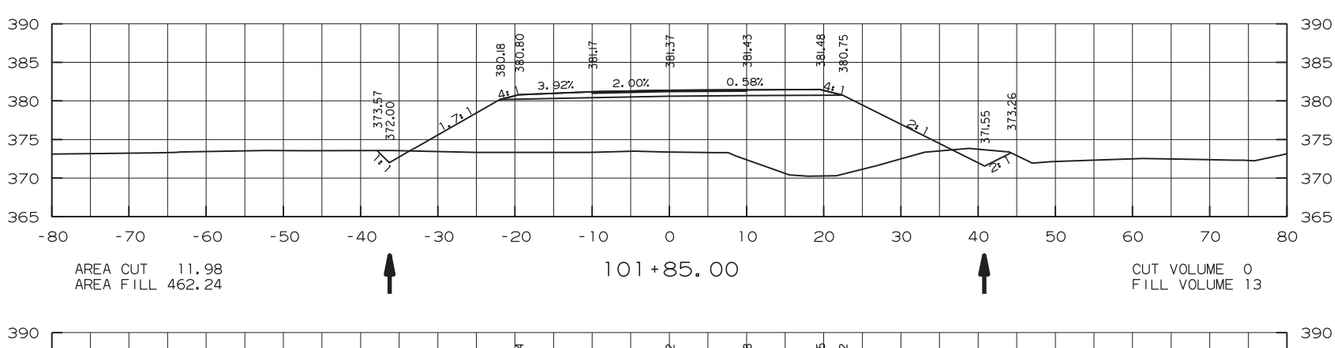
CUT VOLUME 7
FILL VOLUME 237



AREA CUT 13.39
AREA FILL 472.71

101+87.23

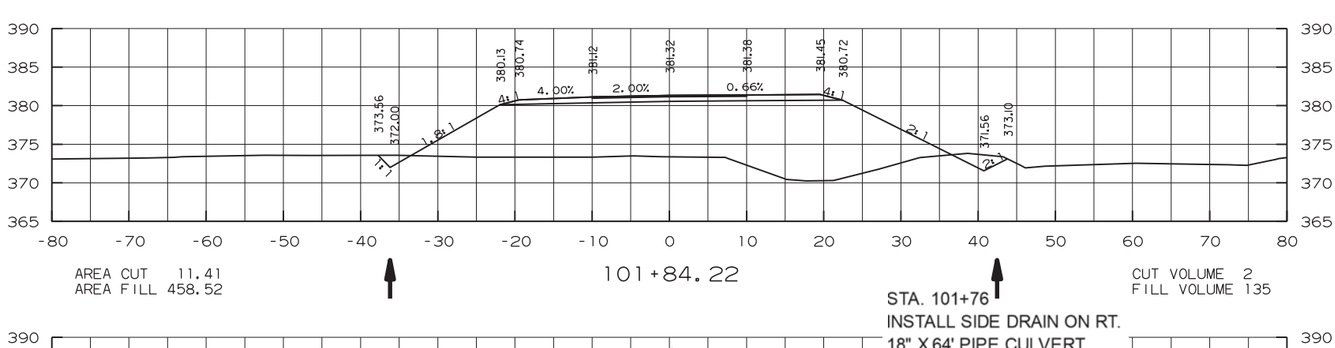
CUT VOLUME 1
FILL VOLUME 39



AREA CUT 11.98
AREA FILL 462.24

101+85.00

CUT VOLUME 0
FILL VOLUME 13

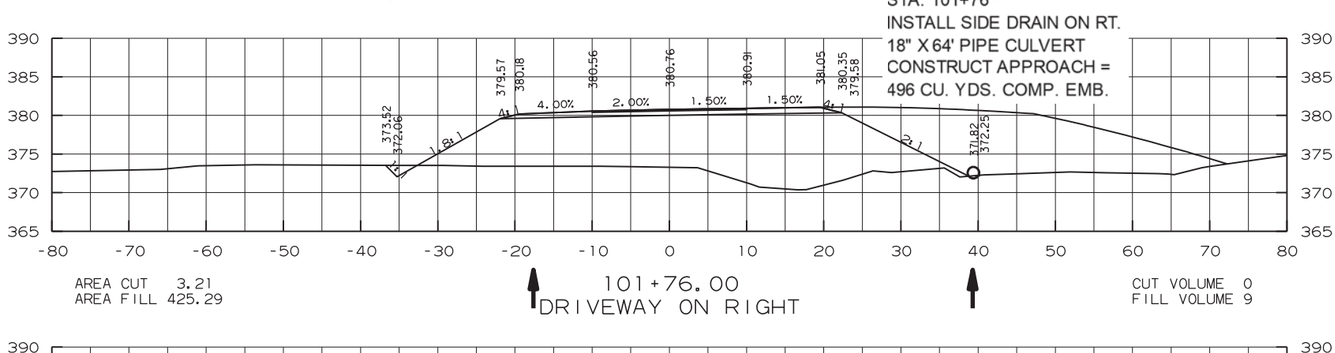


AREA CUT 11.41
AREA FILL 458.52

101+84.22

CUT VOLUME 2
FILL VOLUME 135

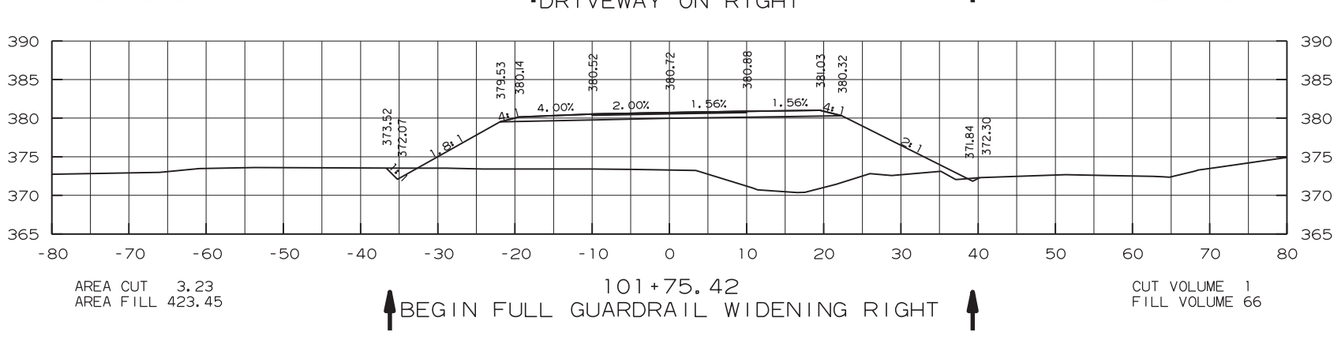
STA. 101+76
INSTALL SIDE DRAIN ON RT.
18" X 64' PIPE CULVERT
CONSTRUCT APPROACH =
496 CU. YDS. COMP. EMB.



AREA CUT 3.21
AREA FILL 425.29

101+76.00
DRIVEWAY ON RIGHT

CUT VOLUME 0
FILL VOLUME 9



AREA CUT 3.23
AREA FILL 423.45

101+75.42
BEGIN FULL GUARDRAIL WIDENING RIGHT

CUT VOLUME 1
FILL VOLUME 66

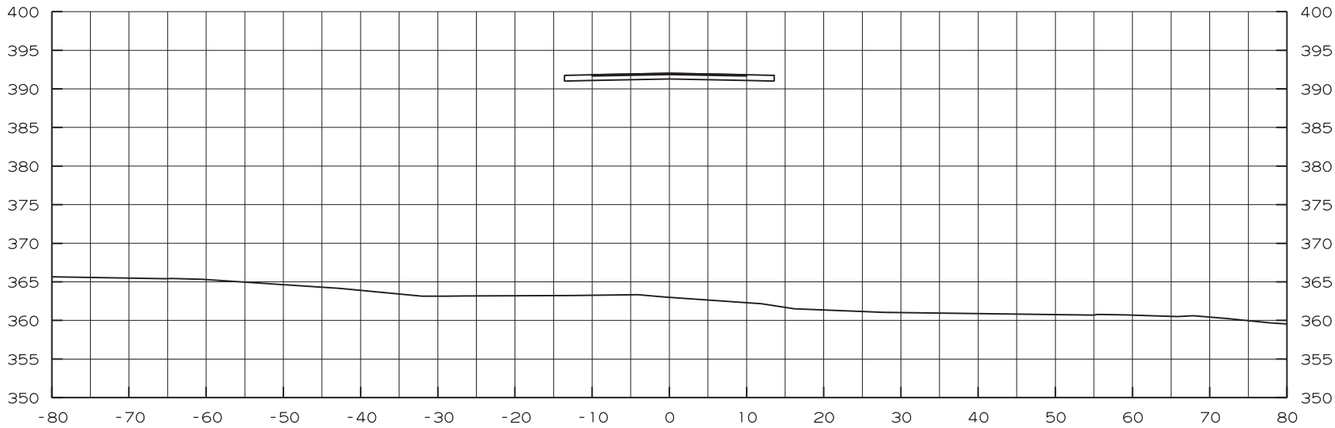
4 CROSS SECTIONS STA. 101+75.42 TO 102+03.22

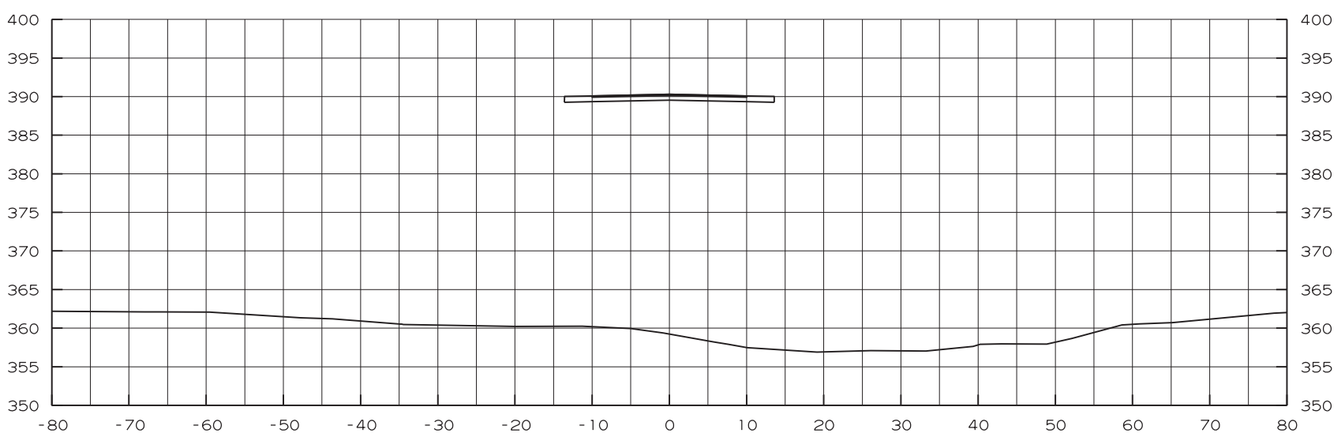
PART REVISED	PART PLANED	DATE REVISED	DATE PLANED	FED.RDS. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR2503	51	64

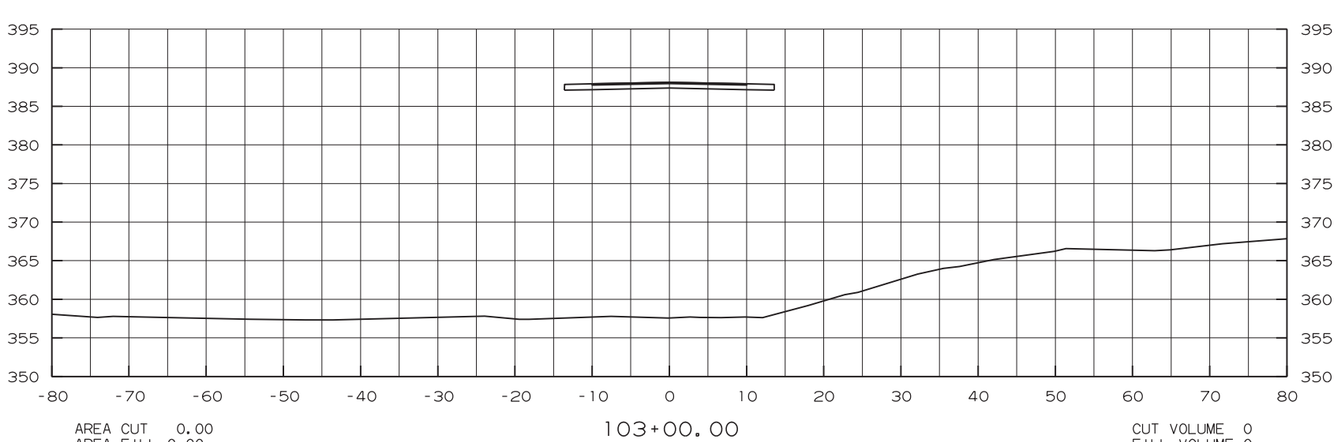
JOB NO.

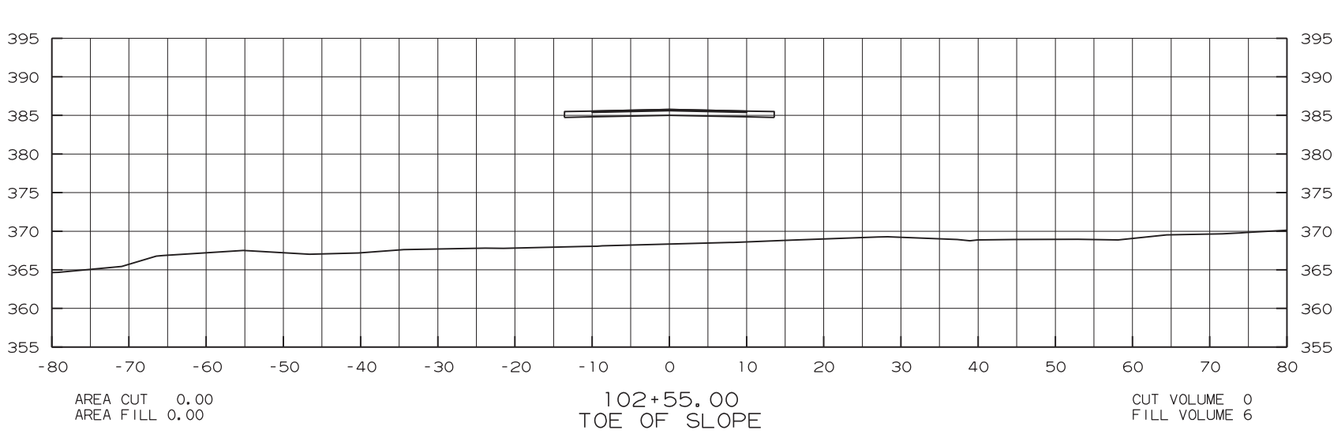
4 CROSS SECTIONS STA. 102+10.35 TO 102+25.43

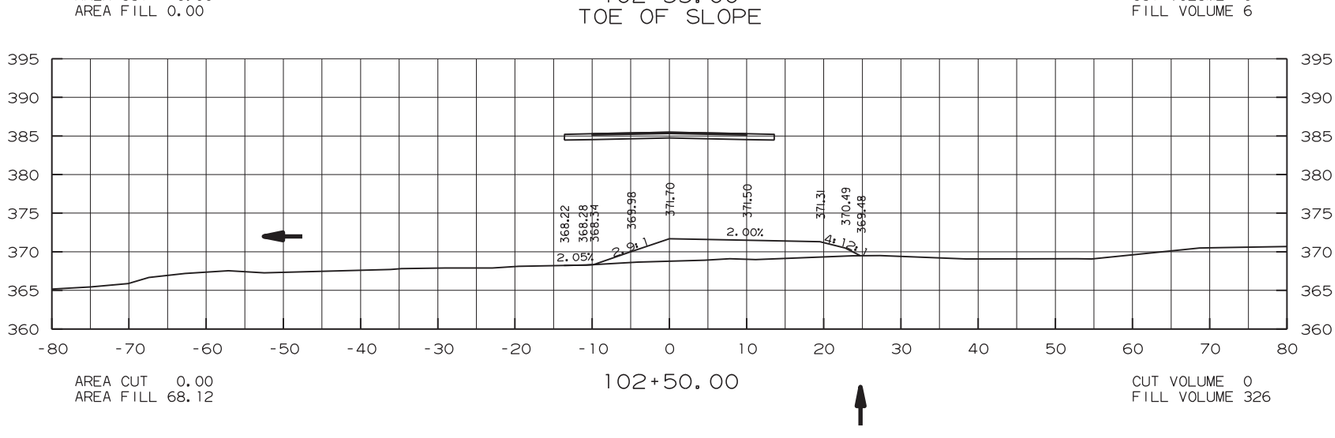
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	JOB NO.			
				FED.RD. DIST.NO.	6	BR2503	64
				STATE	ARK.		
				FED.AID PROJ.NO.			
				SHEET NO.	52		
				TOTAL SHEETS	64		







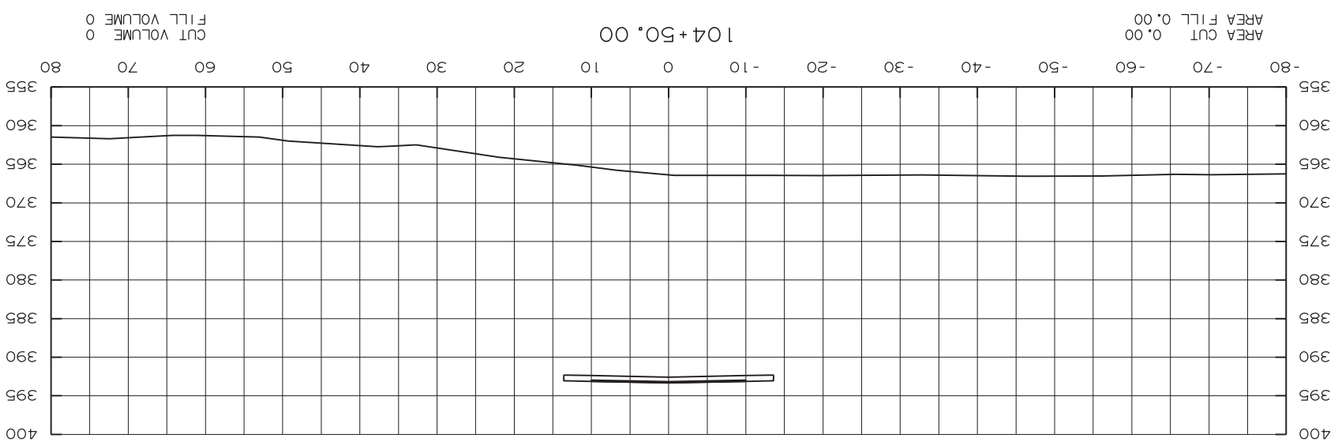


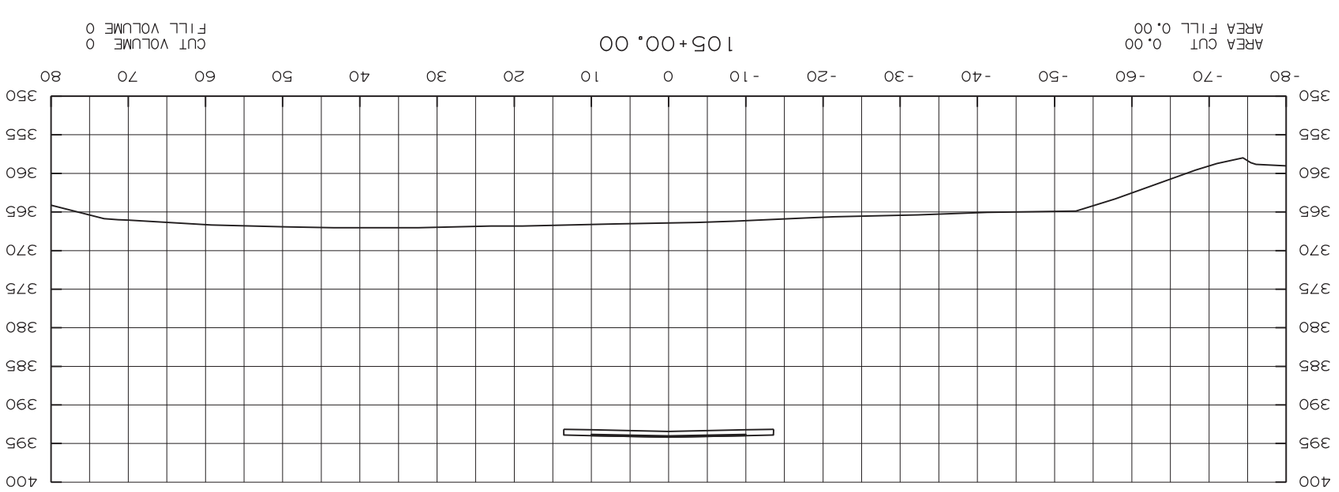


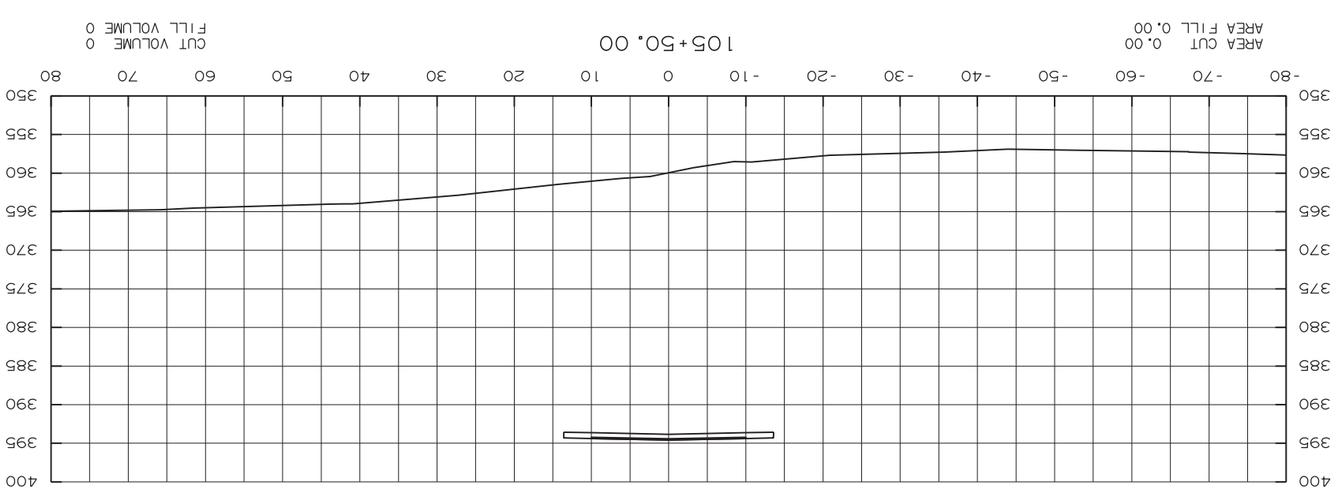
4	CROSS SECTIONS STA. 102+50.00 TO 104+00.00
JOB NO.	6
STATE	ARK.
FED.AID PROJ.NO.	BR2503
SHEET NO.	53
TOTAL SHEETS	64
FED.REG. DES.NO.	
DATE REVISED	
DATE PLANED	
DATE REVISED	
DATE PLANED	

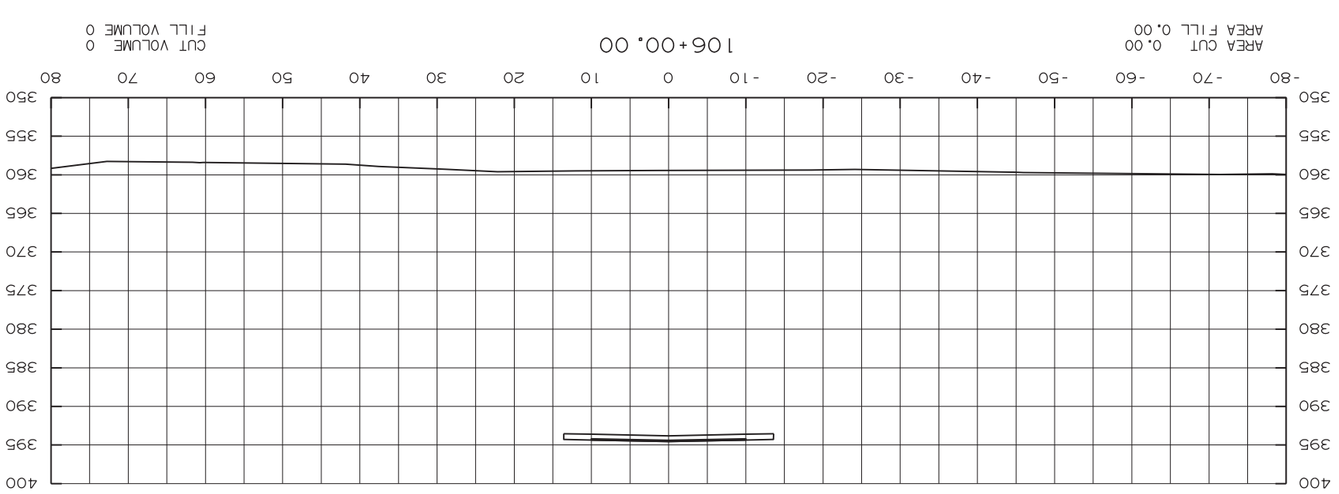
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	54	64

4 CROSS SECTIONS STA. 104+50.00 TO 106+00.00



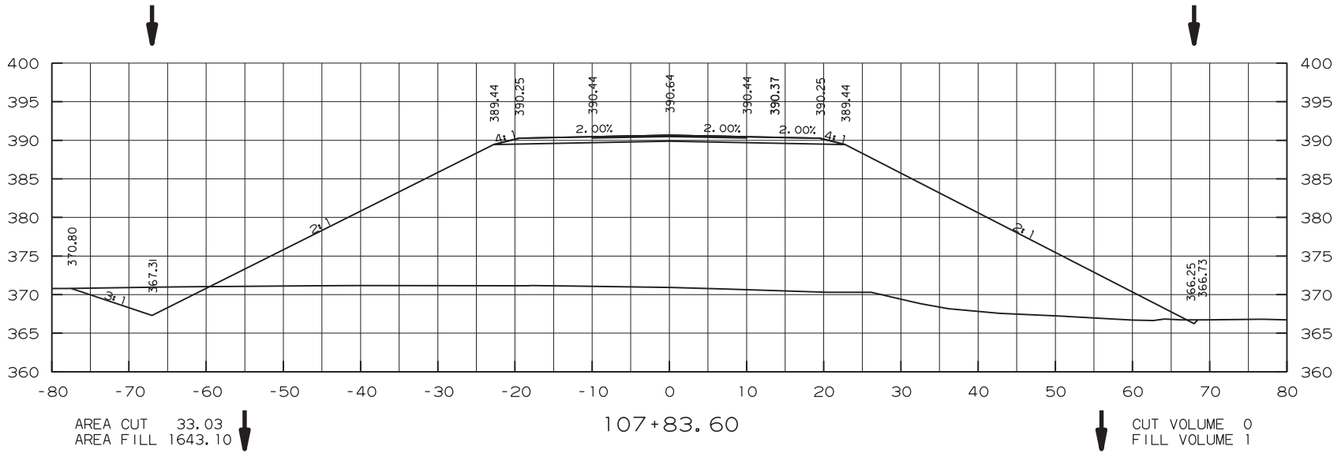






DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.RD. DIST.NO.	6	ARK.	JOB NO.	BR2503	55	64
				STATE	FED.AID PROJ.NO.		SHEET NO.		TOTAL SHEETS	

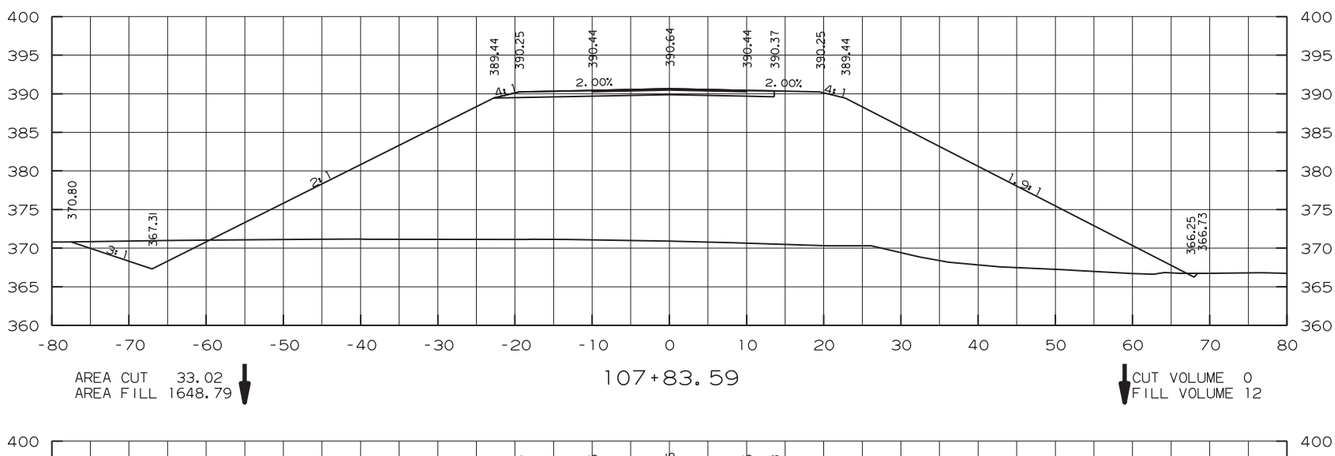
4 CROSS SECTIONS STA. 106+50.00 TO 107+72.39



AREA CUT 33.03
AREA FILL 1643.10

107+83.60

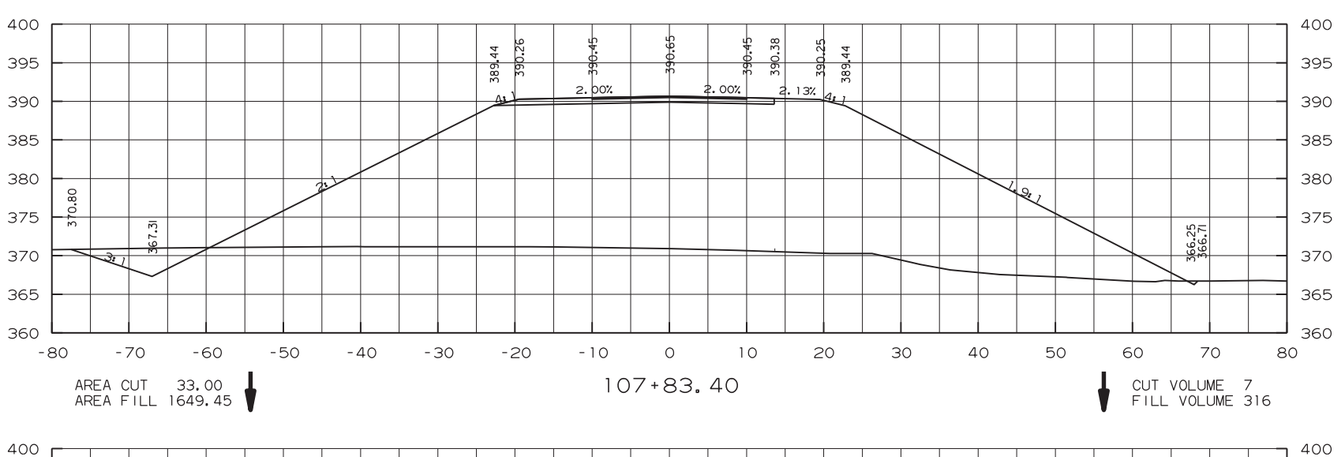
CUT VOLUME 0
FILL VOLUME 1



AREA CUT 33.02
AREA FILL 1648.79

107+83.59

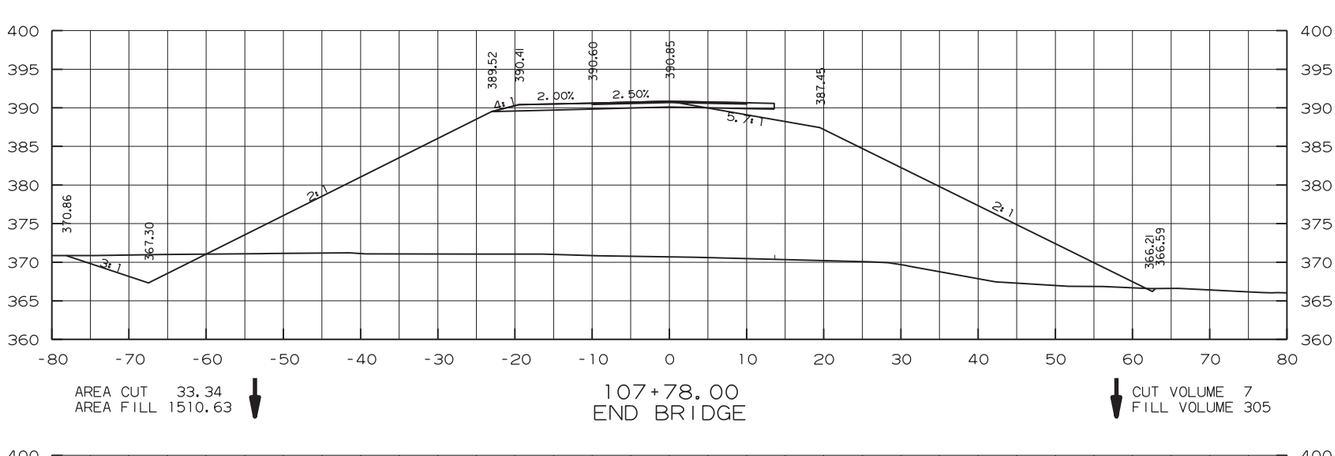
CUT VOLUME 0
FILL VOLUME 12



AREA CUT 33.00
AREA FILL 1649.45

107+83.40

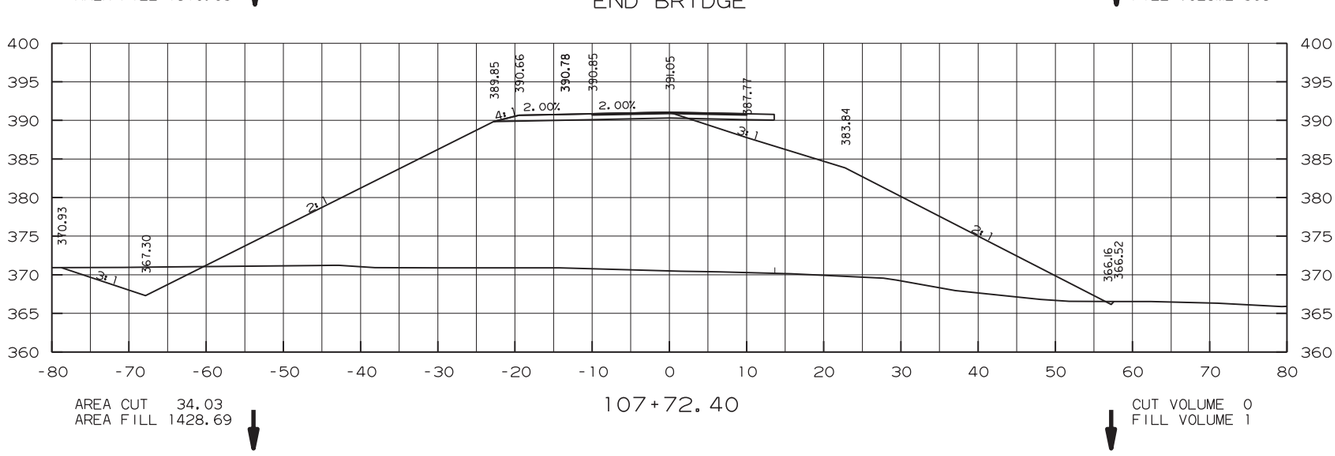
CUT VOLUME 7
FILL VOLUME 316



AREA CUT 33.34
AREA FILL 1510.63

107+78.00
END BRIDGE

CUT VOLUME 7
FILL VOLUME 305



AREA CUT 34.03
AREA FILL 1428.69

107+72.40

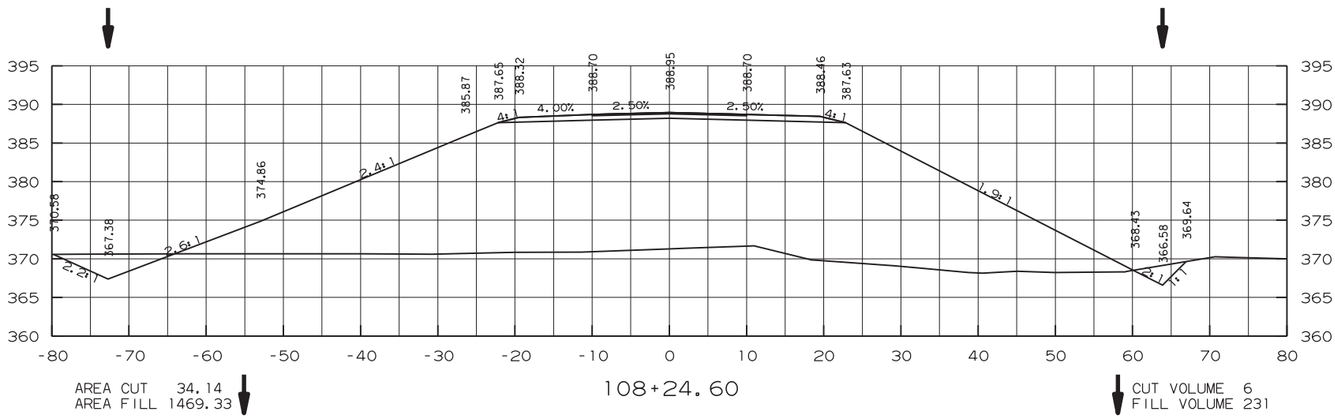
CUT VOLUME 0
FILL VOLUME 1

4 CROSS SECTIONS STA. 107+72.40 TO 107+83.60

PART REVISED	DATE REVISED	PART PLANED	DATE PLANED

JOB NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR2503	56	64

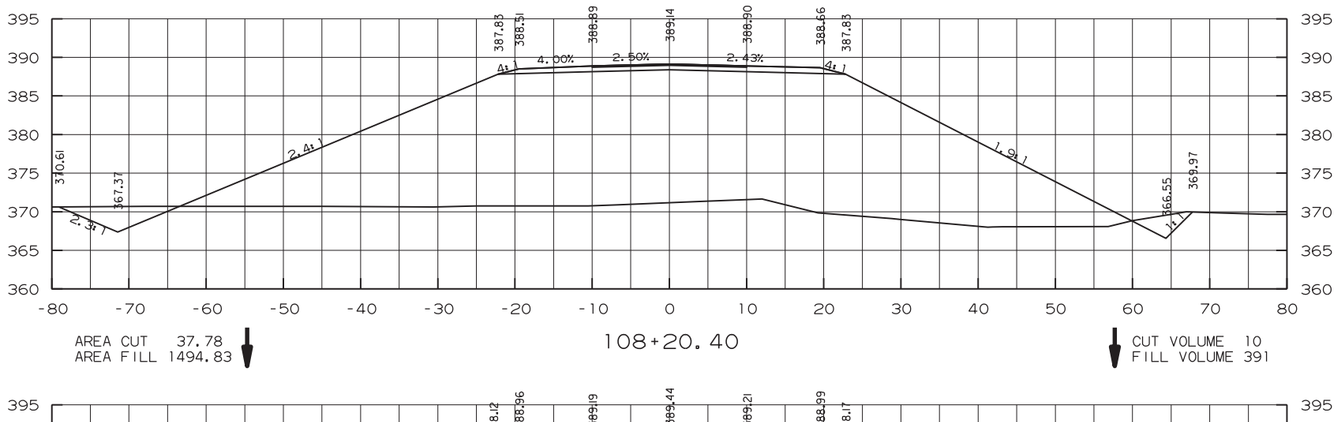
FED.AID DIST.NO.



AREA CUT 34.14
AREA FILL 1469.33

108+24.60

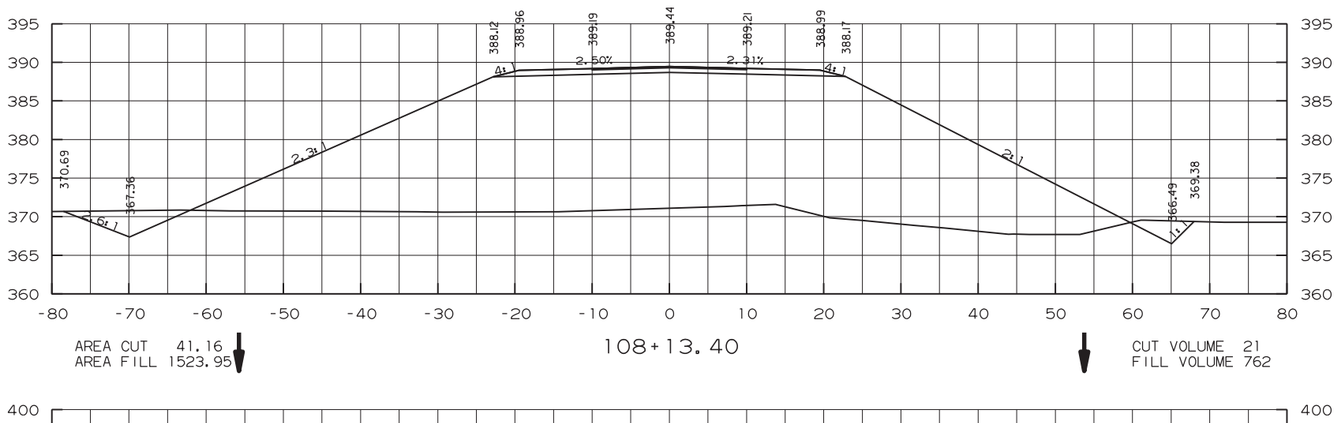
CUT VOLUME 6
FILL VOLUME 231



AREA CUT 37.78
AREA FILL 1494.83

108+20.40

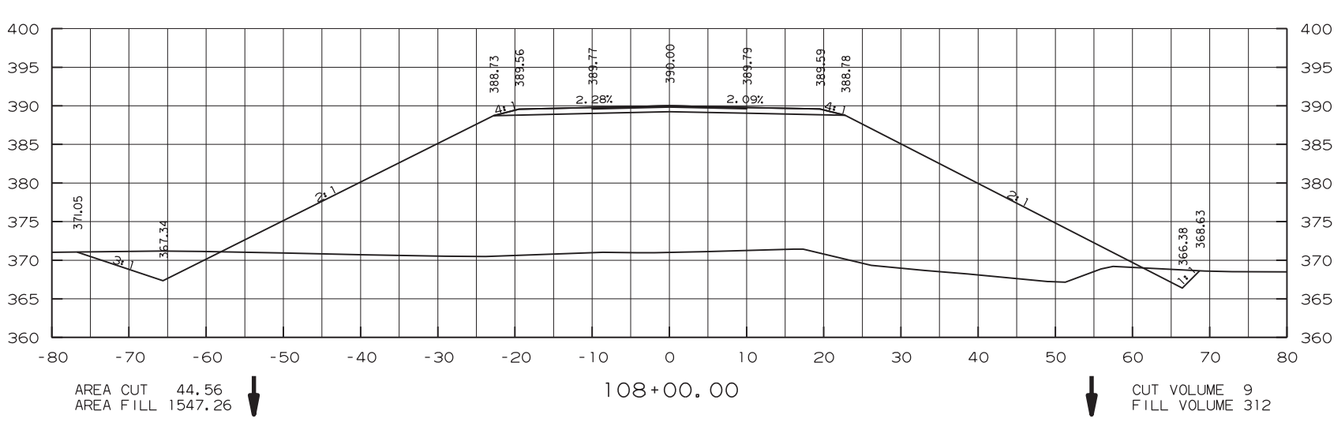
CUT VOLUME 10
FILL VOLUME 391



AREA CUT 41.16
AREA FILL 1523.95

108+13.40

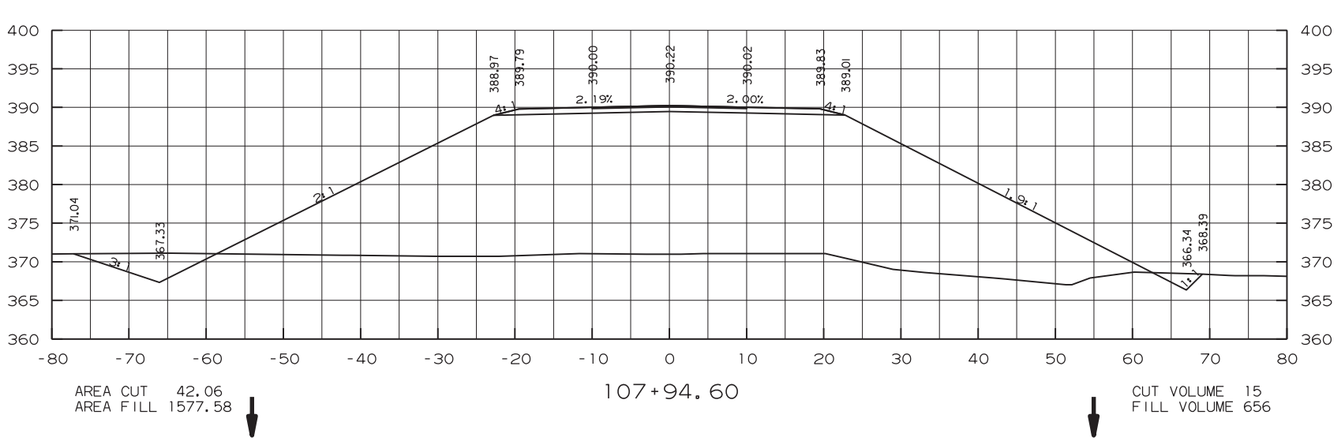
CUT VOLUME 21
FILL VOLUME 762



AREA CUT 44.56
AREA FILL 1547.26

108+00.00

CUT VOLUME 9
FILL VOLUME 312



AREA CUT 42.06
AREA FILL 1577.58

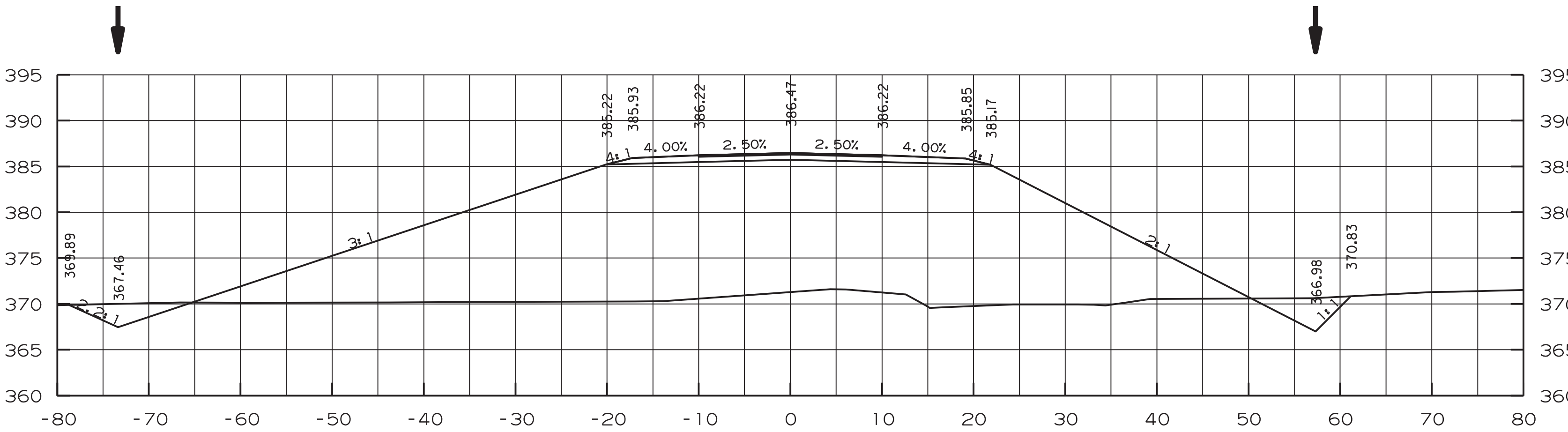
107+94.60

CUT VOLUME 15
FILL VOLUME 656

4 CROSS SECTIONS STA. 107+94.60 TO 108+24.60

PART REVISED	PART PLANED	DATE REVISED	DATE PLANED	FED.ROAD DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	BR2503	57	64

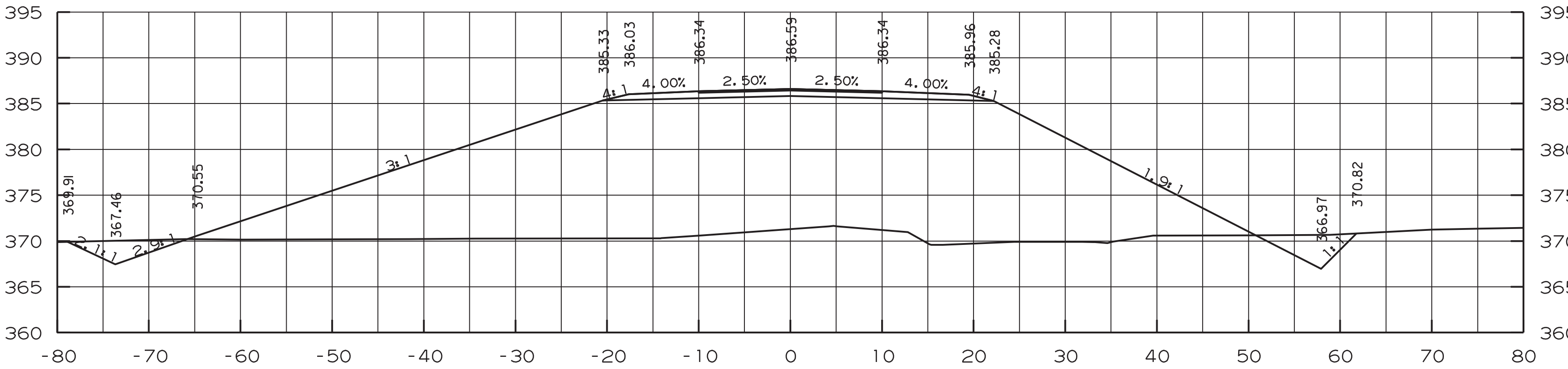
JOB NO.



AREA CUT 37.10
AREA FILL 1176.43

108+75.00

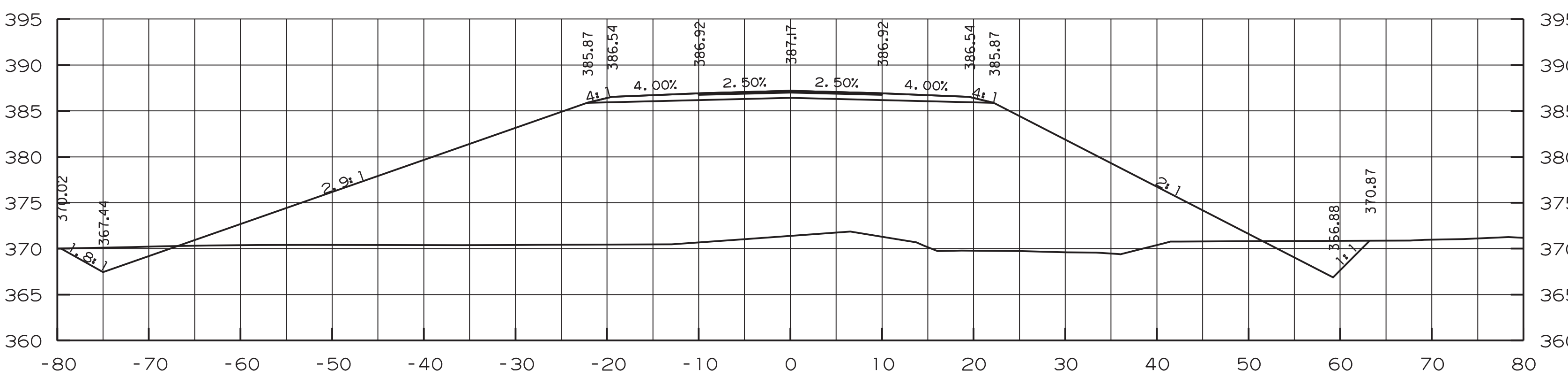
CUT VOLUME 3
FILL VOLUME 99



AREA CUT 37.10
AREA FILL 1198.72

108+72.74
BEGIN RIGHT GUARDRAIL WIDENING TRANSITION

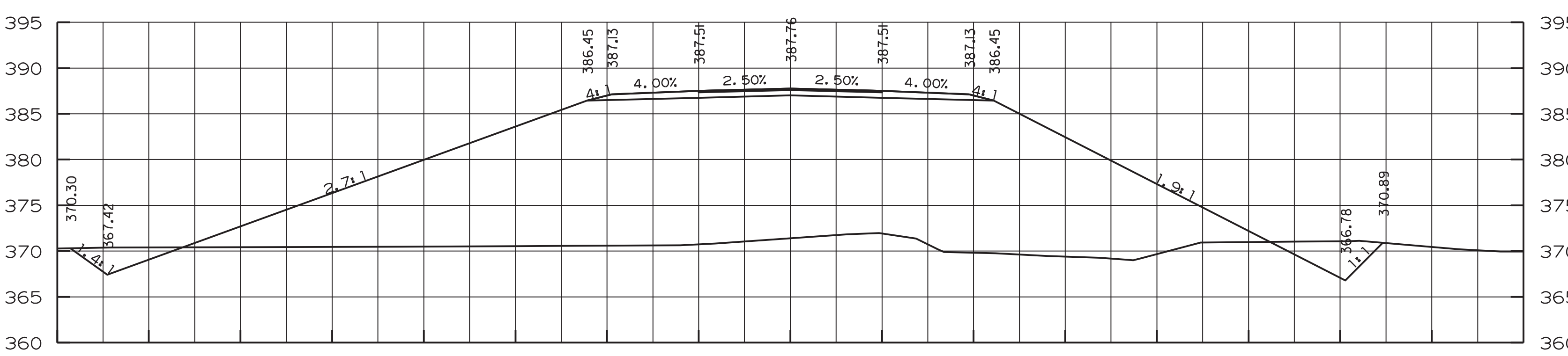
CUT VOLUME 16
FILL VOLUME 511



AREA CUT 40.18
AREA FILL 1266.88

108+61.55
BEGIN LEFT GUARDRAIL WIDENING TRANSITION

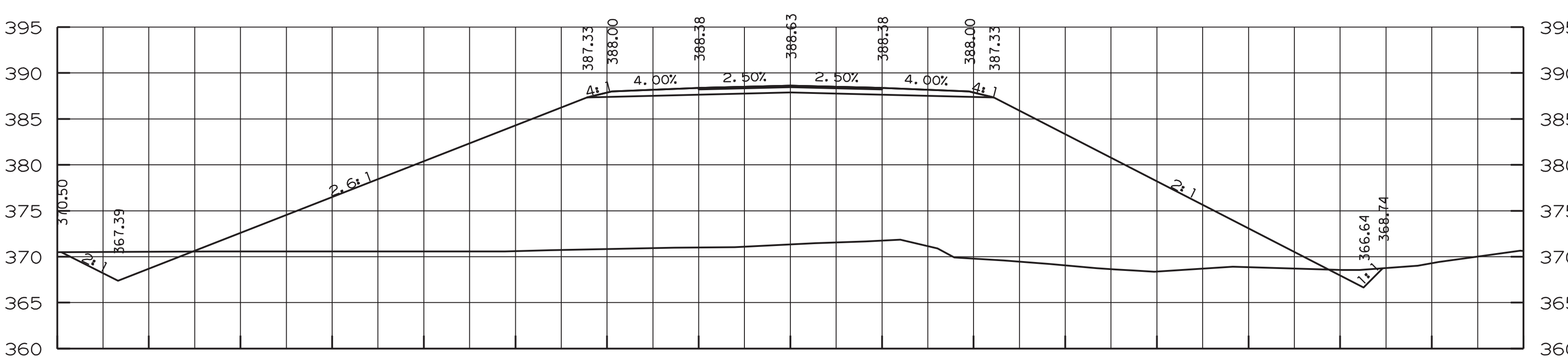
CUT VOLUME 18
FILL VOLUME 552



AREA CUT 44.78
AREA FILL 1316.15

108+50.00

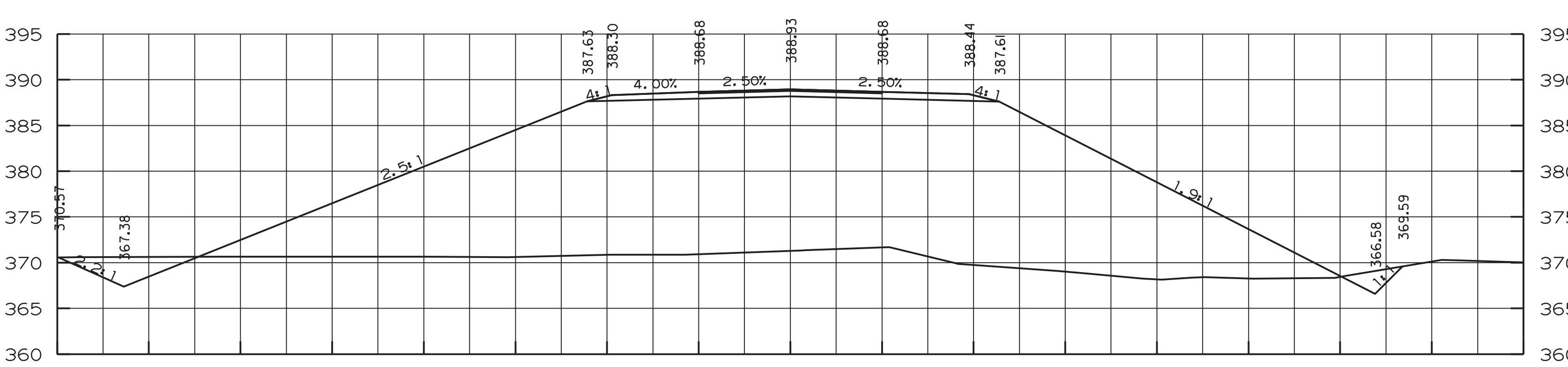
CUT VOLUME 25
FILL VOLUME 935



AREA CUT 28.10
AREA FILL 1427.40

108+31.60

CUT VOLUME 7
FILL VOLUME 355



AREA CUT 33.00
AREA FILL 1477.04

108+25.00

CUT VOLUME 0
FILL VOLUME 22

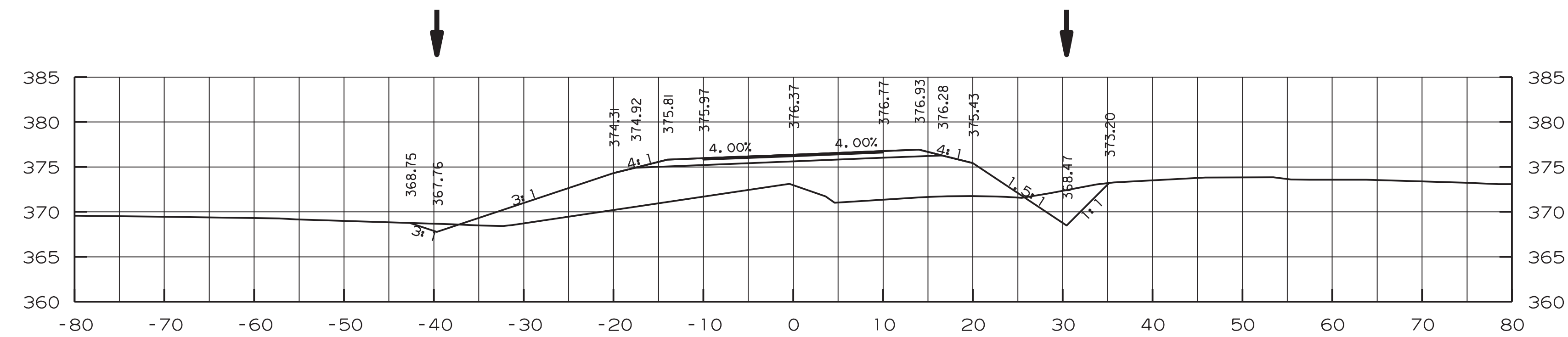
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BR2503	58	64

(4) CROSS SECTIONS STA. 108+25.00 TO 108+75.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR2503	59	64
JOB NO.				

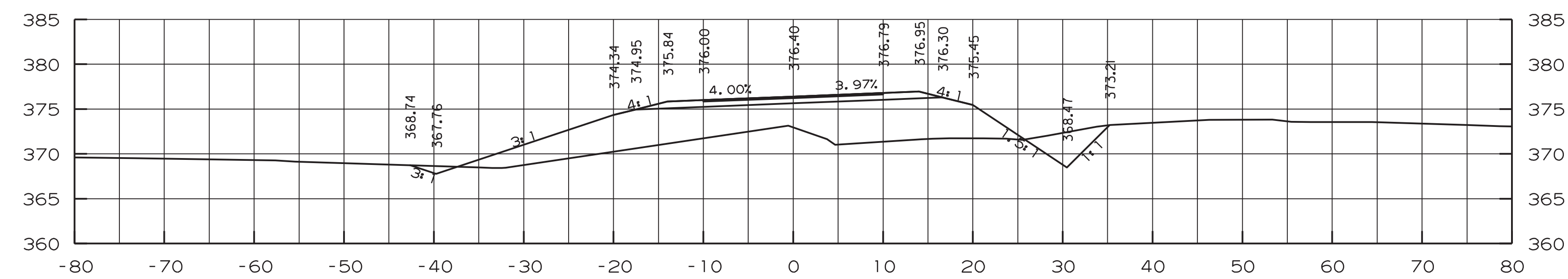
4 CROSS SECTIONS STA. 108+94.55 TO 109+58.67



AREA CUT 21.20
AREA FILL 208.19

110+60.61

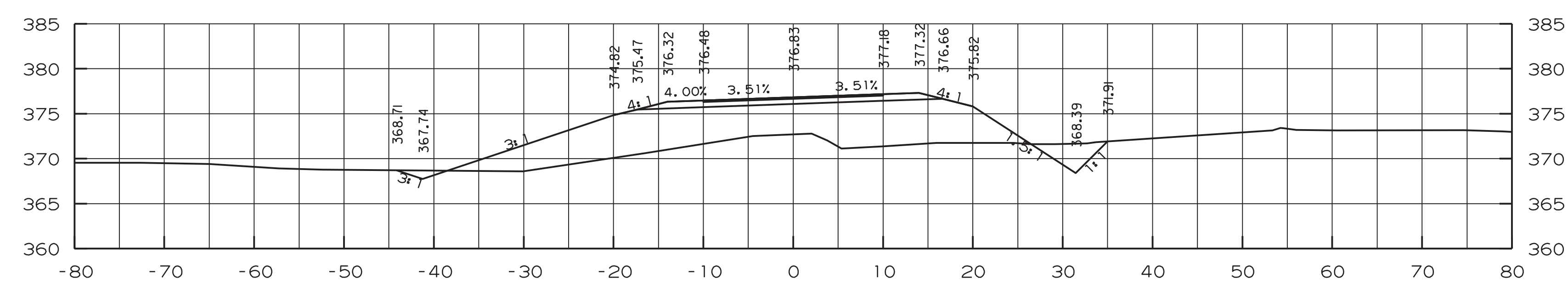
CUT VOLUME 0
FILL VOLUME 5



AREA CUT 21.22
AREA FILL 208.23

110+60.00

CUT VOLUME 7
FILL VOLUME 83

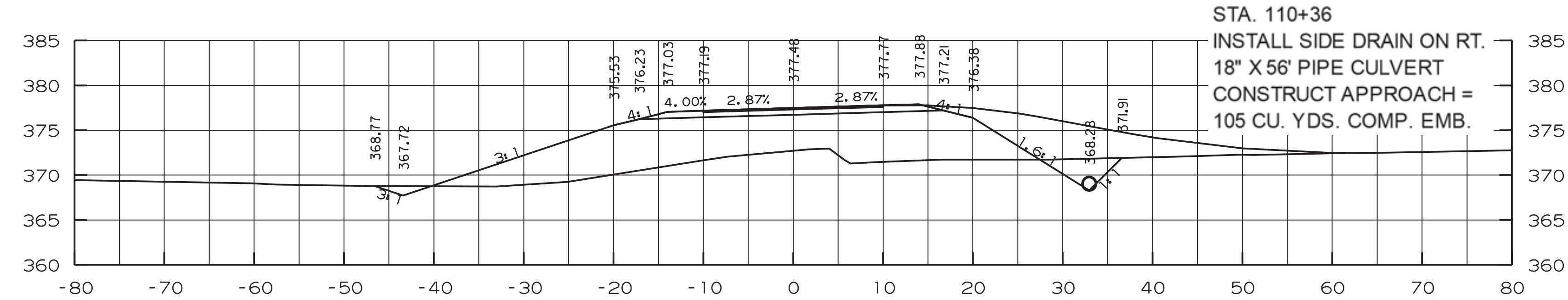


AREA CUT 16.48
AREA FILL 237.89

110+50.00

CUT VOLUME 9
FILL VOLUME 134

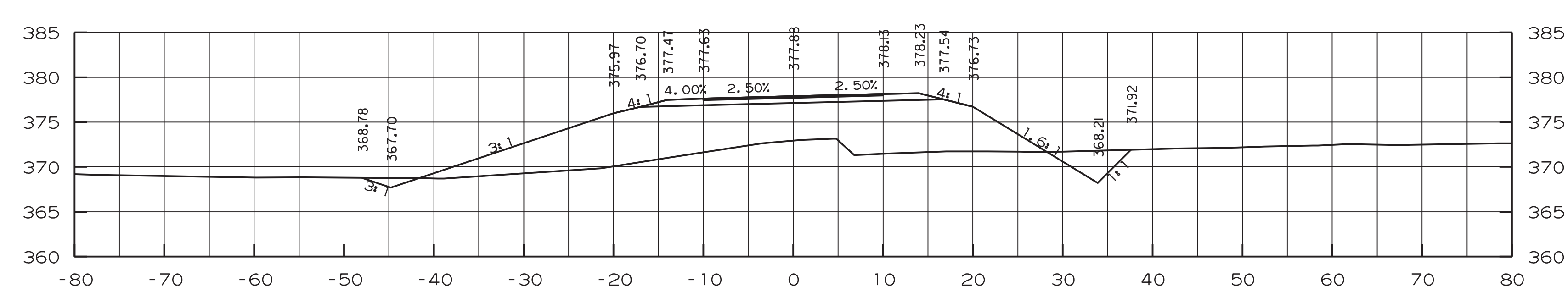
STA. 110+36
INSTALL SIDE DRAIN ON RT.
18" X 56' PIPE CULVERT
CONSTRUCT APPROACH =
105 CU. YDS. COMP. EMB.



AREA CUT 19.43
AREA FILL 277.86

110+36.00
DRIVEWAY ON RIGHT

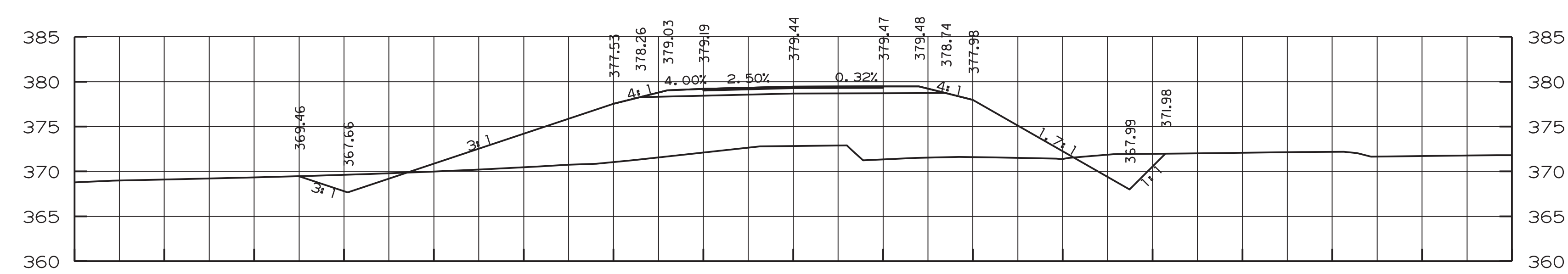
CUT VOLUME 6
FILL VOLUME 87



AREA CUT 20.15
AREA FILL 298.68

110+27.84

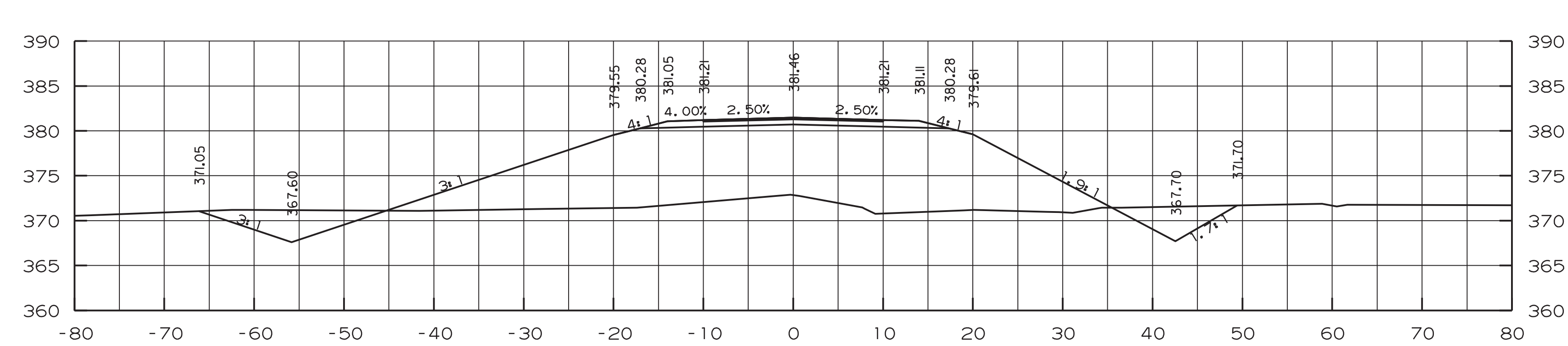
CUT VOLUME 27
FILL VOLUME 346



AREA CUT 32.34
AREA FILL 372.37

110+00.00

CUT VOLUME 64
FILL VOLUME 592



AREA CUT 64.62
AREA FILL 519.00

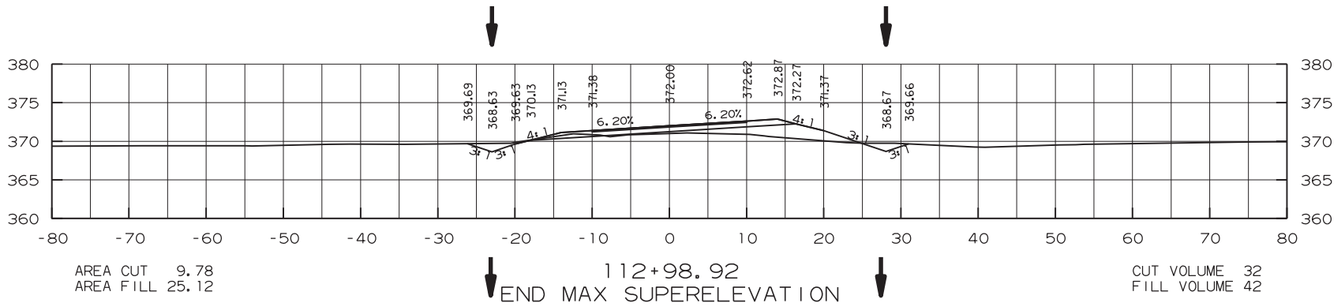
109+64.13

CUT VOLUME 13
FILL VOLUME 108

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BR2503	60	64

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

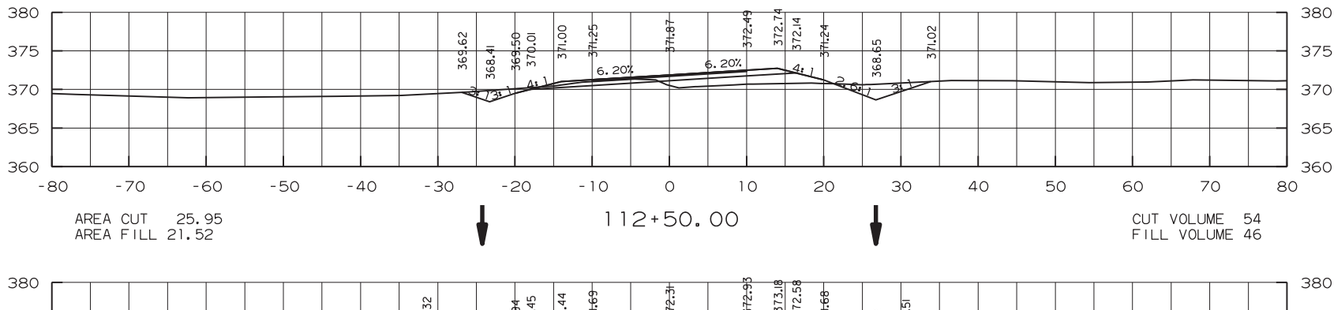
(4) CROSS SECTIONS STA. 109+64.13 TO 110+60.61



AREA CUT 9.78
AREA FILL 25.12

112+98.92
END MAX SUPERELEVATION

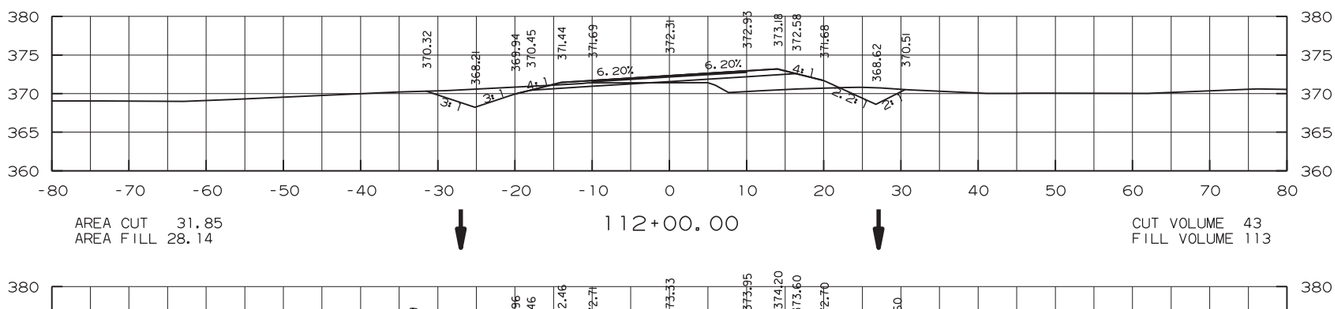
CUT VOLUME 32
FILL VOLUME 42



AREA CUT 25.95
AREA FILL 21.52

112+50.00

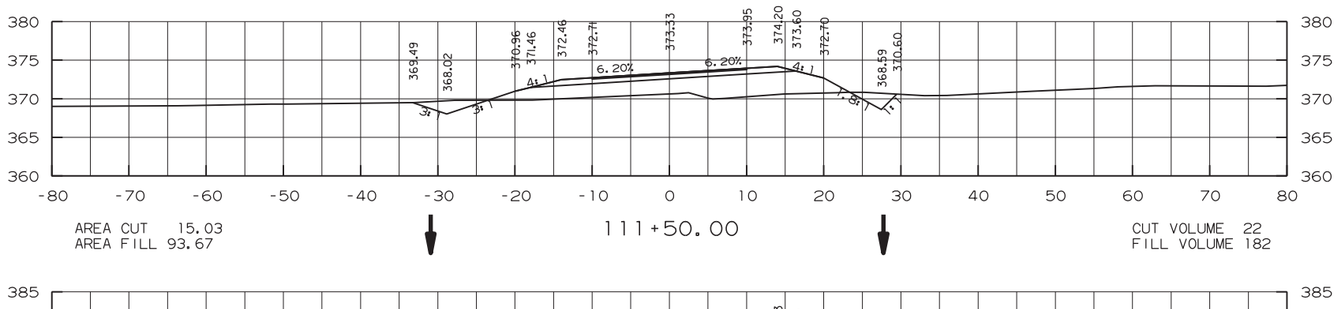
CUT VOLUME 54
FILL VOLUME 46



AREA CUT 31.85
AREA FILL 28.14

112+00.00

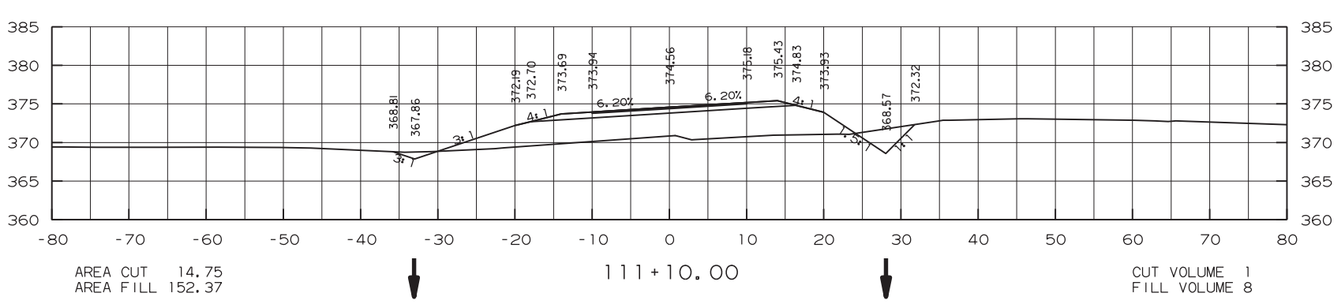
CUT VOLUME 43
FILL VOLUME 113



AREA CUT 15.03
AREA FILL 93.67

111+50.00

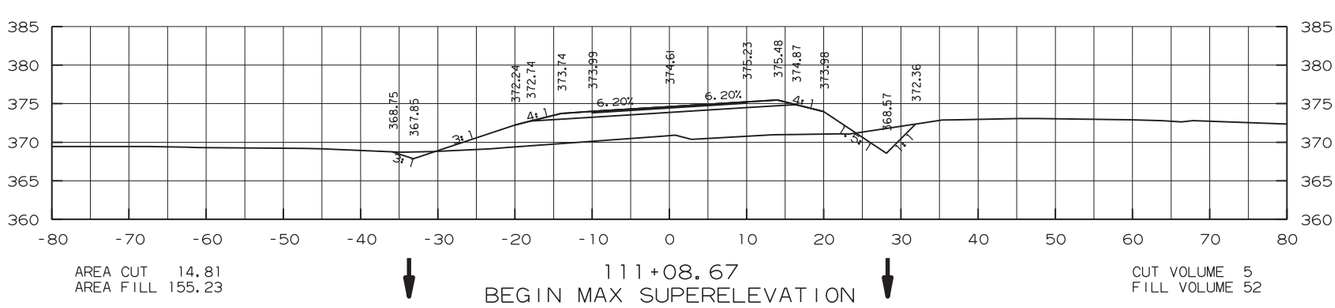
CUT VOLUME 22
FILL VOLUME 182



AREA CUT 14.75
AREA FILL 152.37

111+10.00

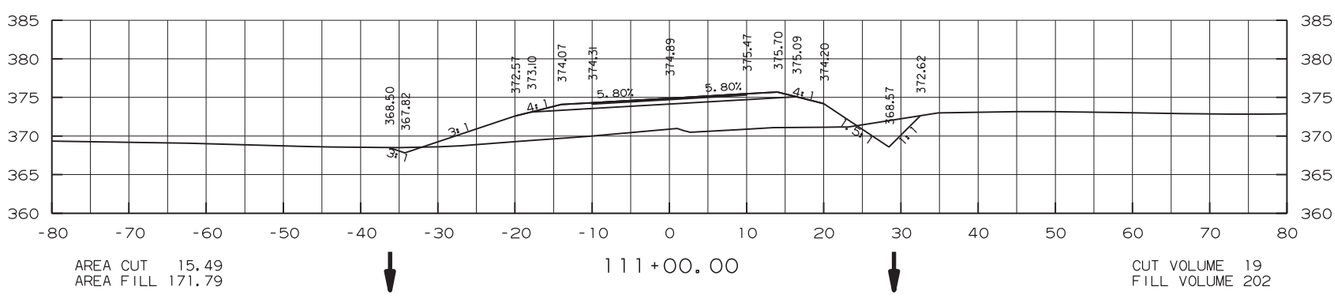
CUT VOLUME 1
FILL VOLUME 8



AREA CUT 14.81
AREA FILL 155.23

111+08.67
BEGIN MAX SUPERELEVATION

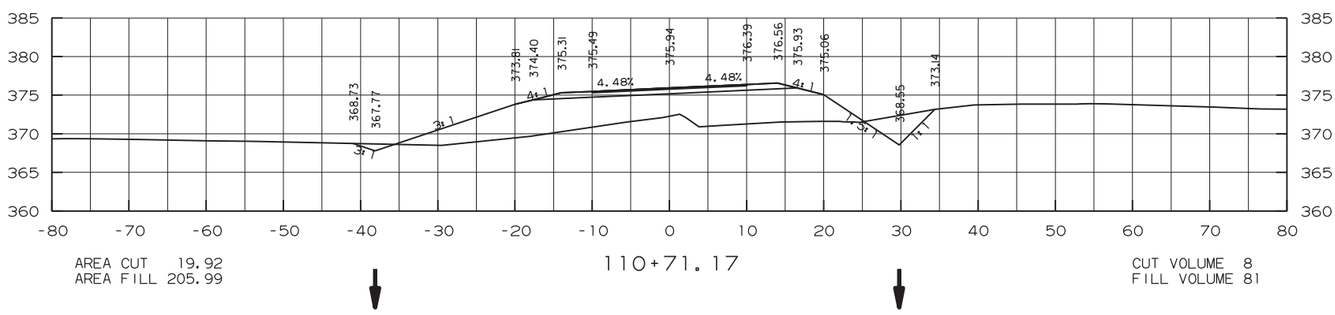
CUT VOLUME 5
FILL VOLUME 52



AREA CUT 15.49
AREA FILL 171.79

111+00.00

CUT VOLUME 19
FILL VOLUME 202



AREA CUT 19.92
AREA FILL 205.99

110+71.17

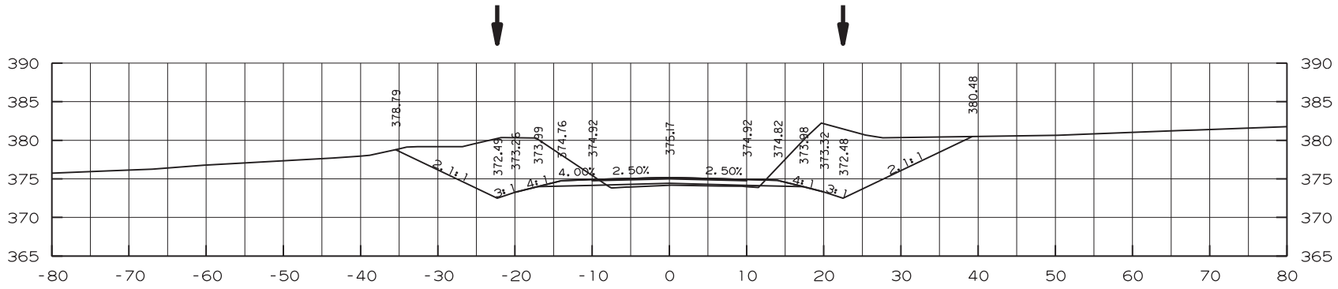
CUT VOLUME 8
FILL VOLUME 81

4 CROSS SECTIONS STA. 110+71.17 TO 112+98.92

PART REVISED	DATE PLANED	DATE REVISED	PART PLANED

FED.ROAD DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR2503	61	64

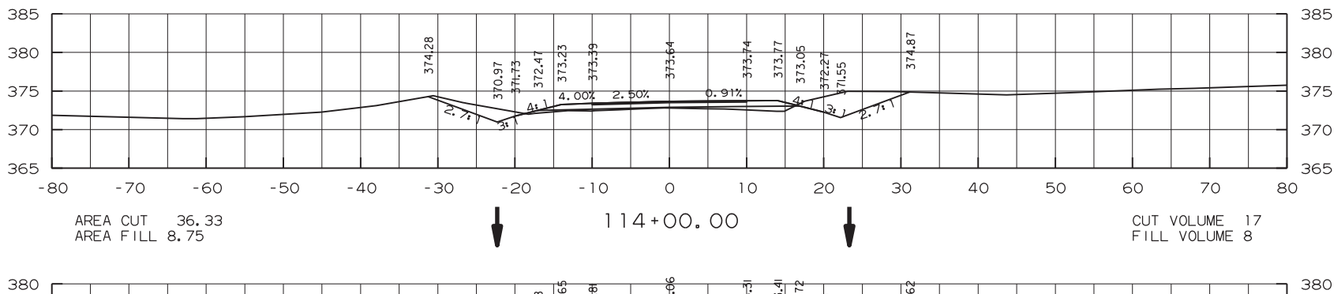
JOB NO.



AREA CUT 239.60
AREA FILL 4.74

114+43.46

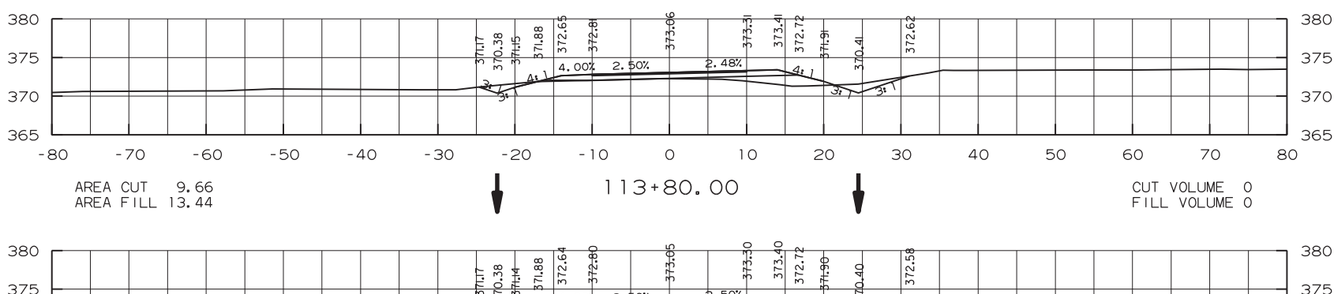
CUT VOLUME 222
FILL VOLUME 11



AREA CUT 36.33
AREA FILL 8.75

114+00.00

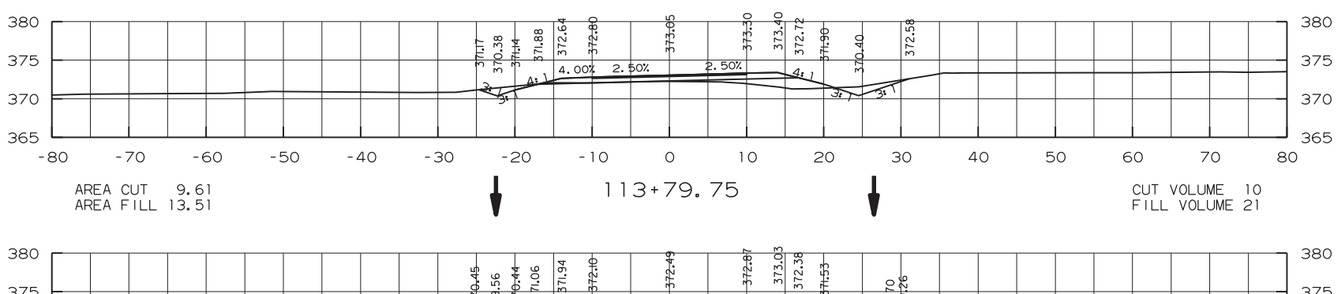
CUT VOLUME 17
FILL VOLUME 8



AREA CUT 9.66
AREA FILL 13.44

113+80.00

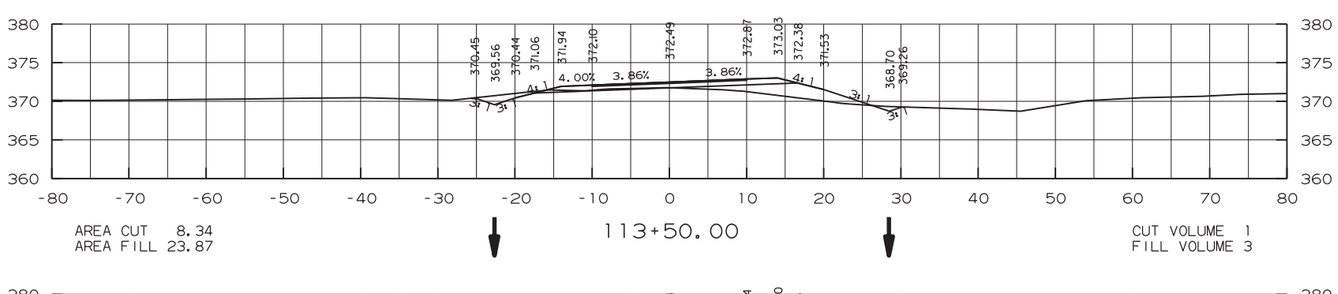
CUT VOLUME 0
FILL VOLUME 0



AREA CUT 9.61
AREA FILL 13.51

113+79.75

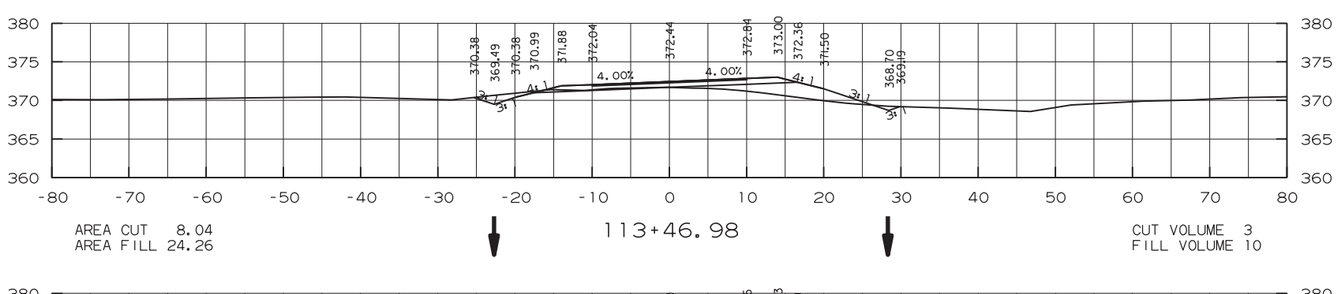
CUT VOLUME 10
FILL VOLUME 21



AREA CUT 8.34
AREA FILL 23.87

113+50.00

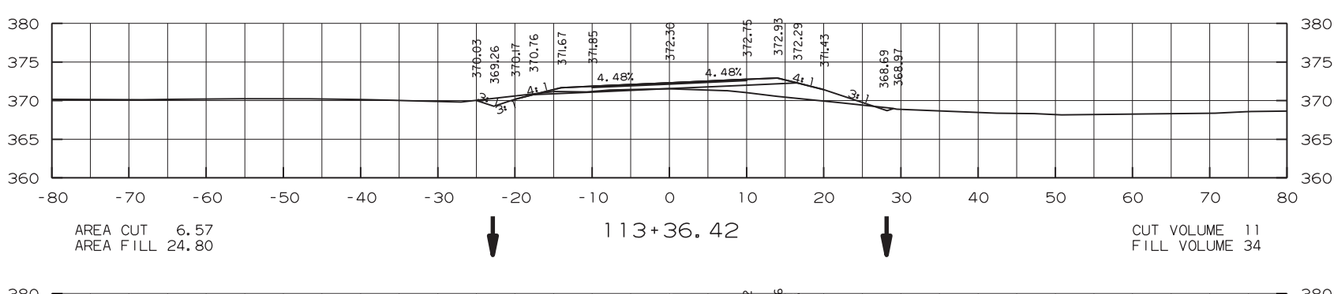
CUT VOLUME 1
FILL VOLUME 3



AREA CUT 8.04
AREA FILL 24.26

113+46.98

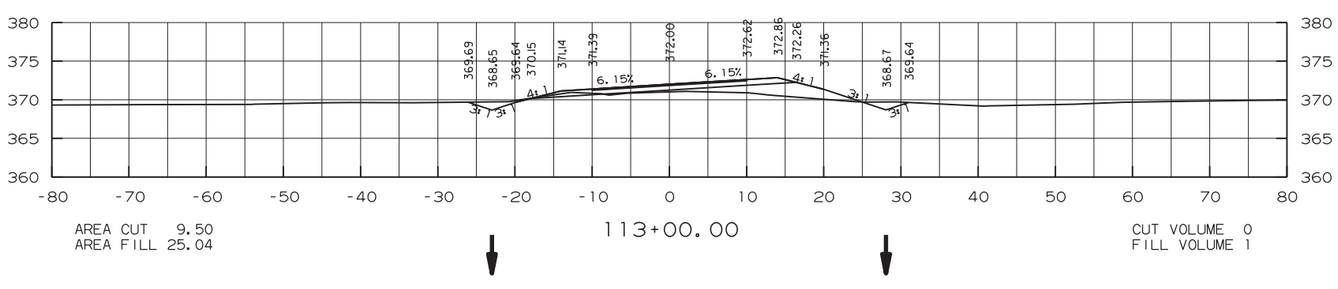
CUT VOLUME 3
FILL VOLUME 10



AREA CUT 6.57
AREA FILL 24.80

113+36.42

CUT VOLUME 11
FILL VOLUME 34



AREA CUT 9.50
AREA FILL 25.04

113+00.00

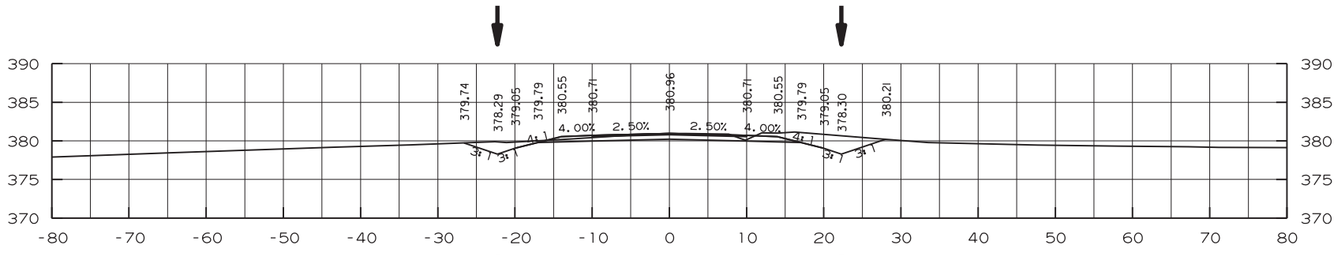
CUT VOLUME 0
FILL VOLUME 1

4 CROSS SECTIONS STA. 113+00.00 TO 114+43.46

PART REVISED	DATE REVISED	PART PLANED	DATE PLANED

FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
BR2303	62	64

JOB NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BR2303	62	64

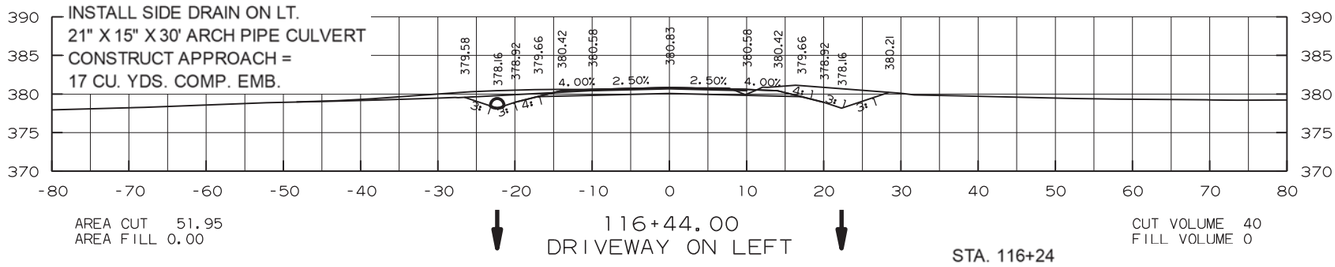


AREA CUT 47.05
AREA FILL 0.00

116+50.00
BEGIN TRANSITION

CUT VOLUME 11
FILL VOLUME 0

STA. 116+44
INSTALL SIDE DRAIN ON LT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH =
17 CU. YDS. COMP. EMB.

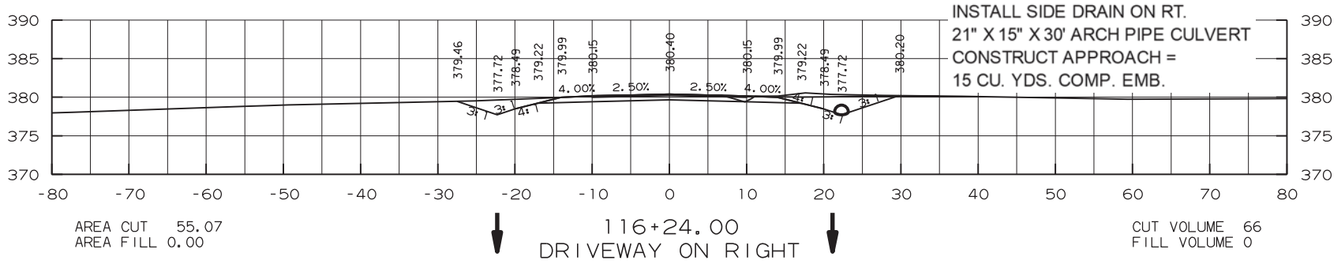


AREA CUT 51.95
AREA FILL 0.00

116+44.00
DRIVEWAY ON LEFT

CUT VOLUME 40
FILL VOLUME 0

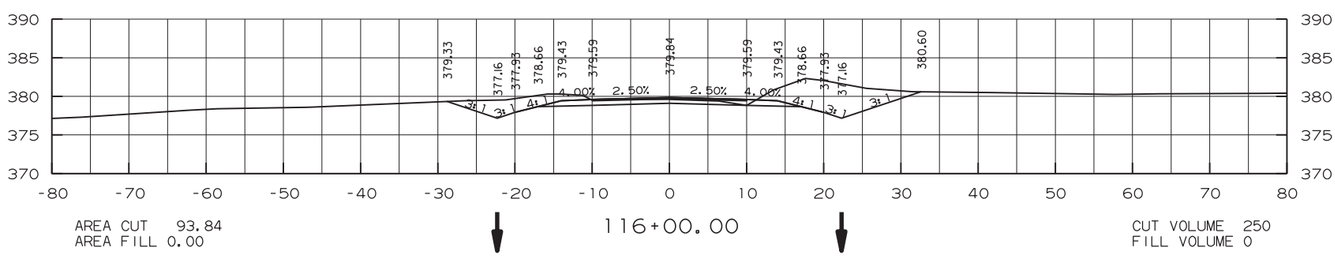
STA. 116+24
INSTALL SIDE DRAIN ON RT.
21" X 15" X 30' ARCH PIPE CULVERT
CONSTRUCT APPROACH =
15 CU. YDS. COMP. EMB.



AREA CUT 55.07
AREA FILL 0.00

116+24.00
DRIVEWAY ON RIGHT

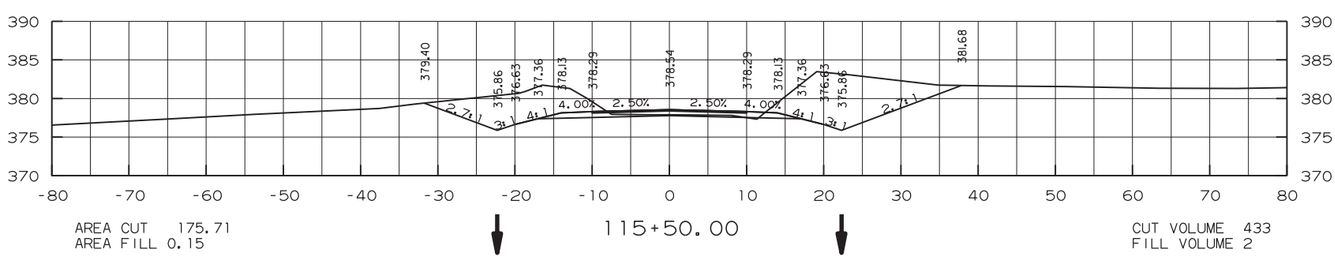
CUT VOLUME 66
FILL VOLUME 0



AREA CUT 93.84
AREA FILL 0.00

116+00.00

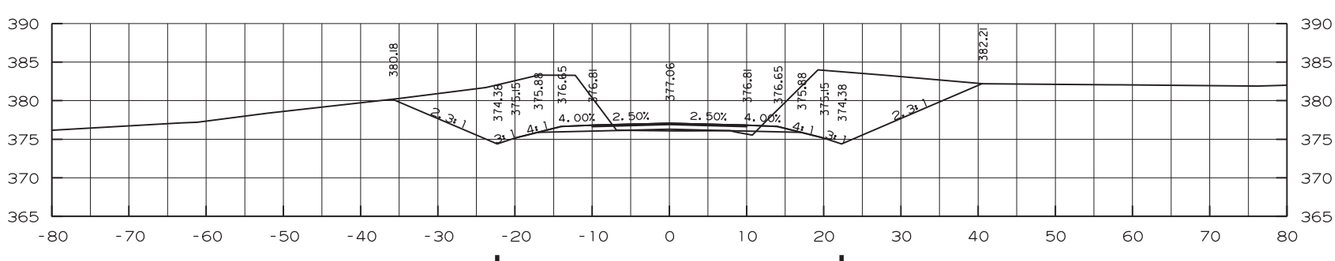
CUT VOLUME 250
FILL VOLUME 0



AREA CUT 175.71
AREA FILL 0.15

115+50.00

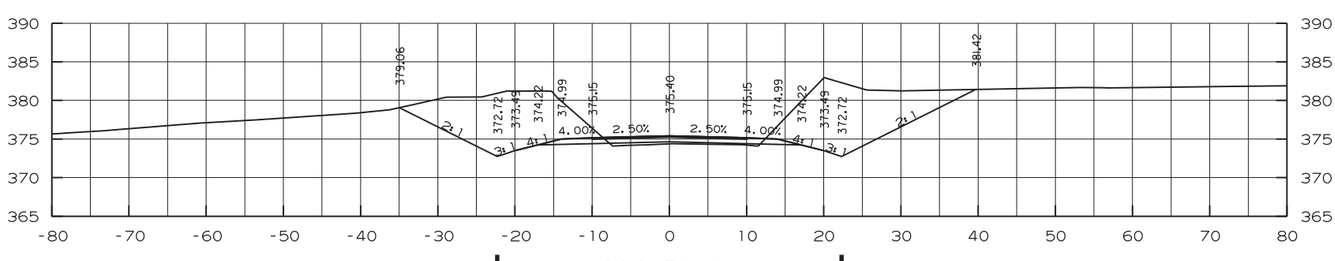
CUT VOLUME 433
FILL VOLUME 2



AREA CUT 291.95
AREA FILL 2.50

115+00.00

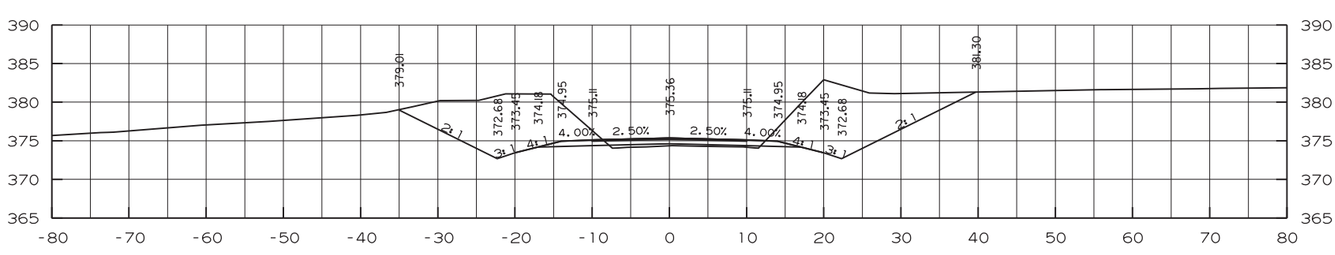
CUT VOLUME 517
FILL VOLUME 7



AREA CUT 266.31
AREA FILL 4.84

114+50.00

CUT VOLUME 11
FILL VOLUME 0



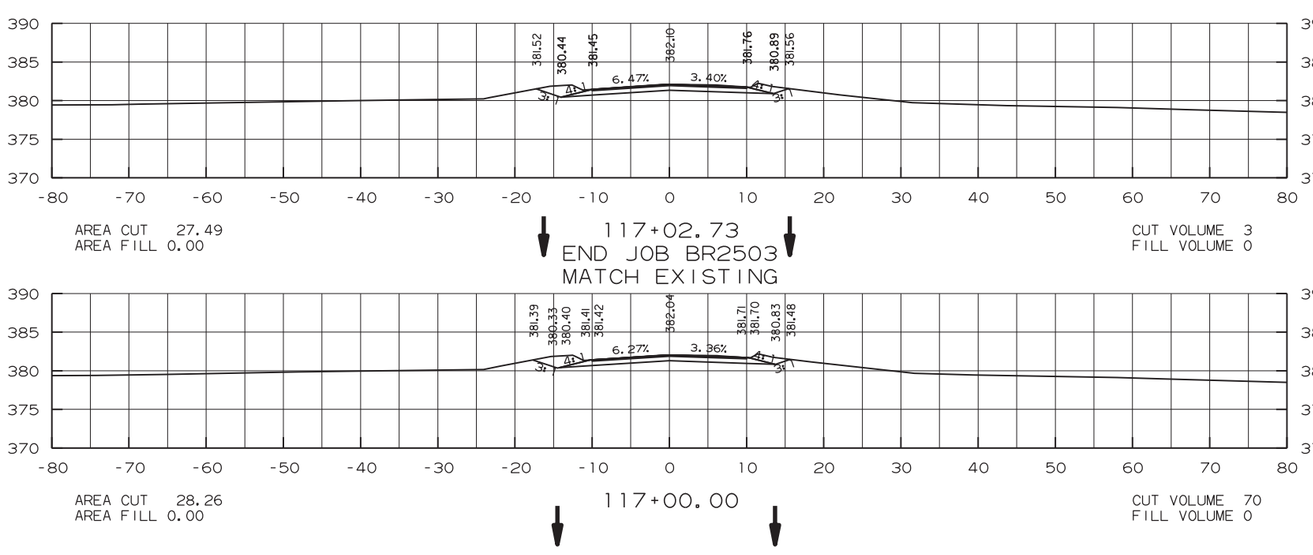
AREA CUT 263.90
AREA FILL 4.83

114+48.92
END SUPERELEVATION

CUT VOLUME 51
FILL VOLUME 1

4 CROSS SECTIONS STA. 114+48.92 TO 116+50.00

PART REVISED	
DATE PLANED	
DATE REVISED	
PART PLANED	
FED.RDS. DIST.NO.	6
STATE	ARK.
JOB NO.	
FED.AID PROJ.NO.	BR2503
SHEET NO.	63
TOTAL SHEETS	64

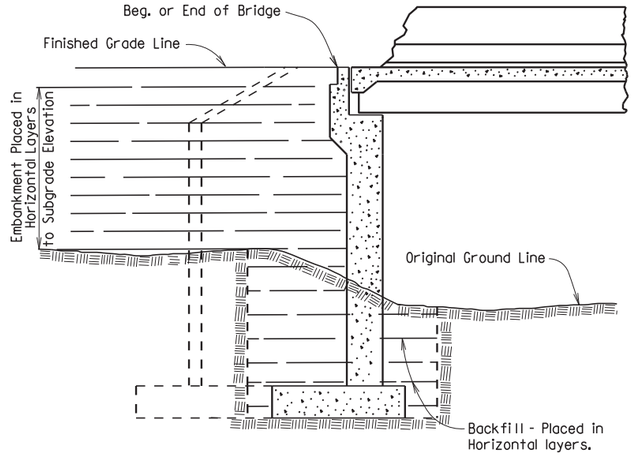


4 CROSS SECTIONS STA. 117+00.00 TO 117+02.73

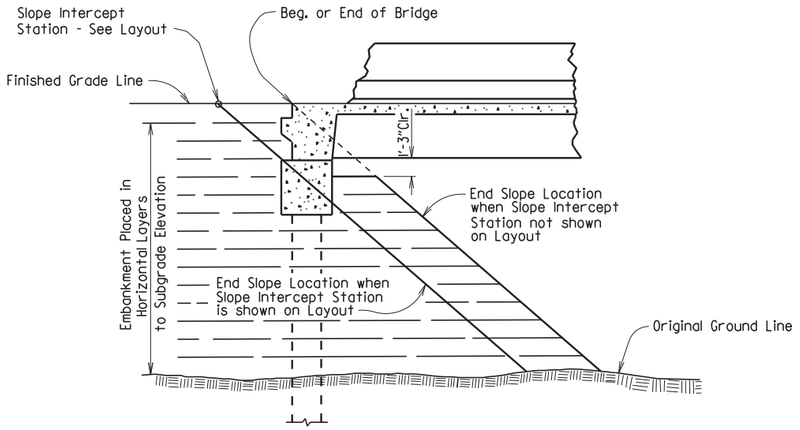
JOB NO.	6
STATE	ARK.
FED.AID PROJ.NO.	BR2503
SHEET NO.	64
TOTAL SHEETS	64

DATE REVISED / DATE PLANED
DATE REVISED / DATE PLANED
DATE REVISED / DATE PLANED
FED.REG. DES.NO.

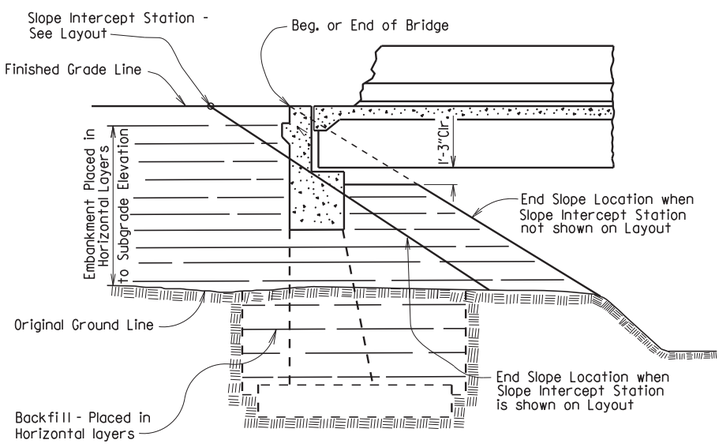
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				(1) EMBANKMENT & BACKFILL 55000				



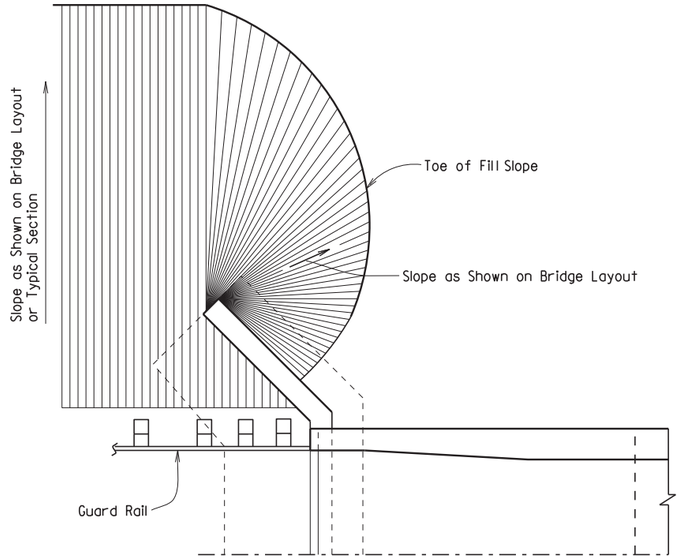
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



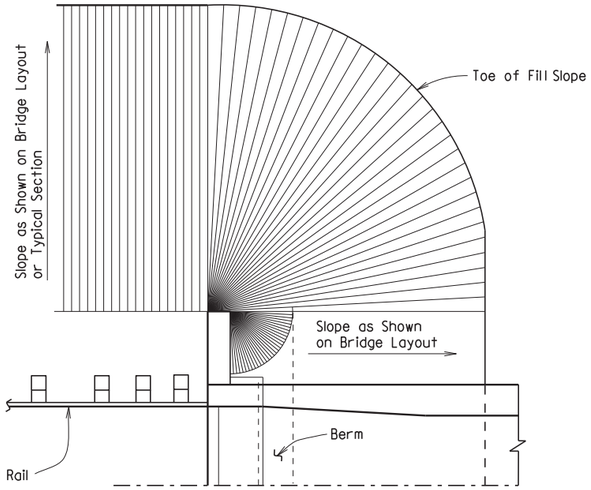
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



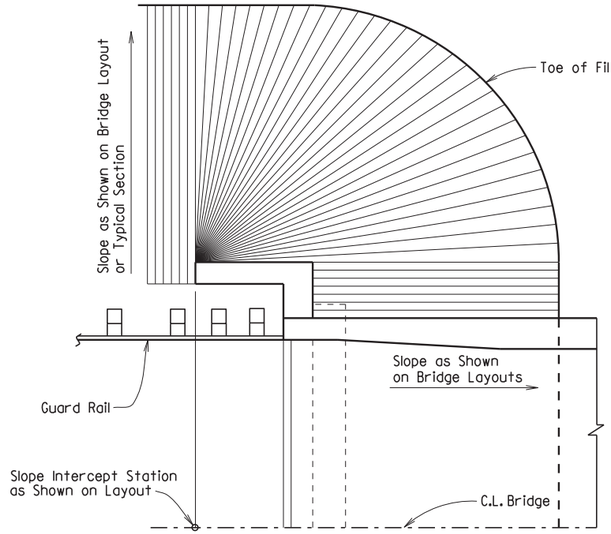
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



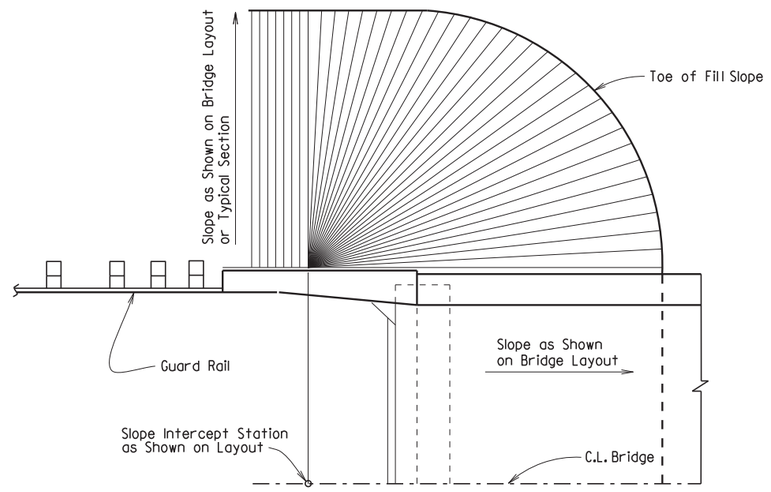
VERTICAL WALL ABUTMENTS



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

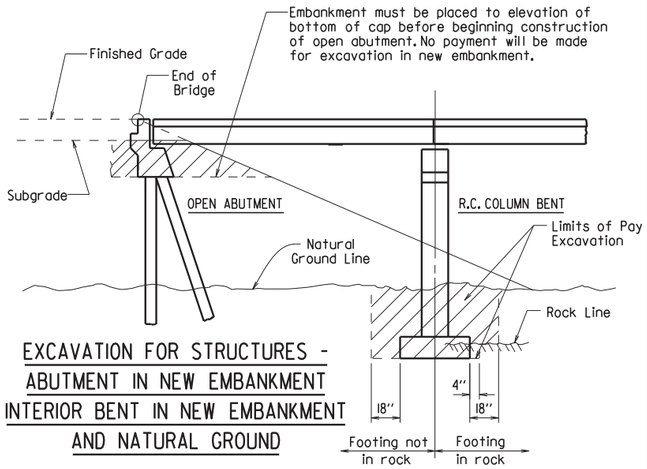
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

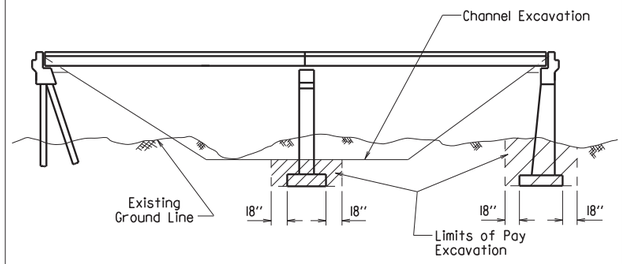
DRAWING NO. 55000

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

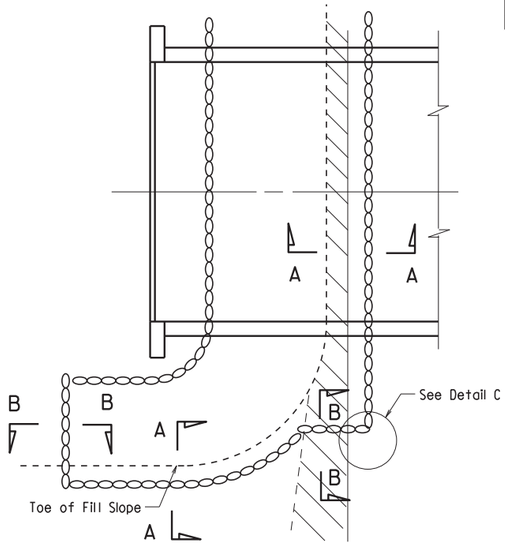
1 RIPRAP & EXCAV. 55001



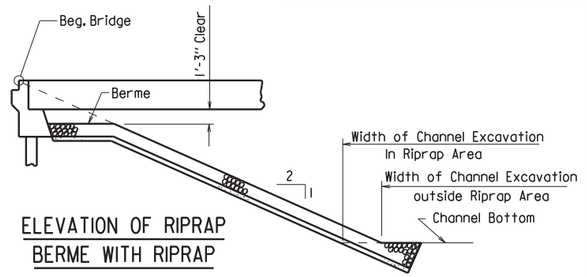
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



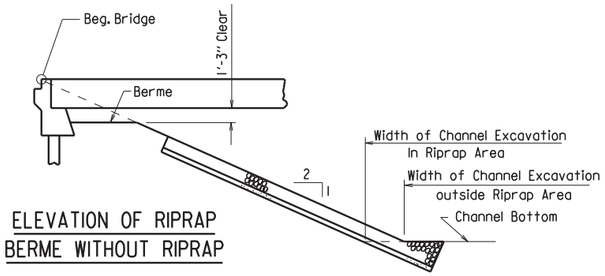
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



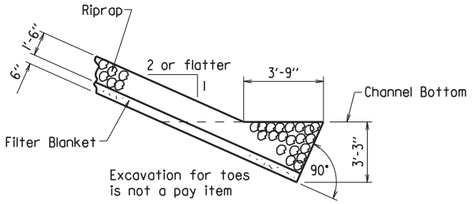
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP

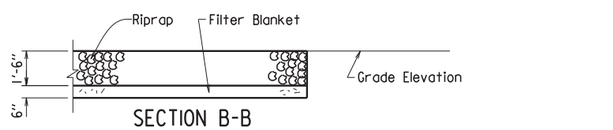


ELEVATION OF RIPRAP BERME WITHOUT RIPRAP

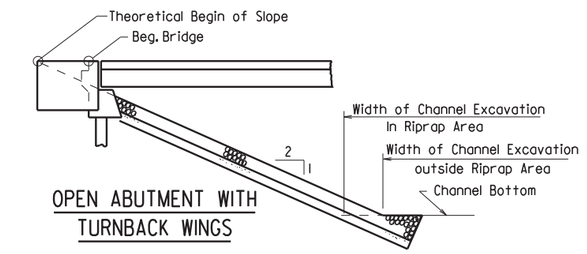


SECTION A-A

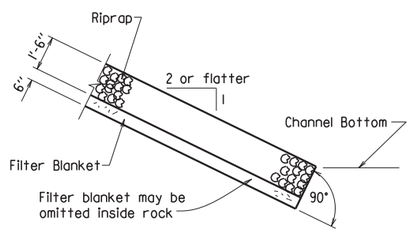
(Toe Excavation in Soil)



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



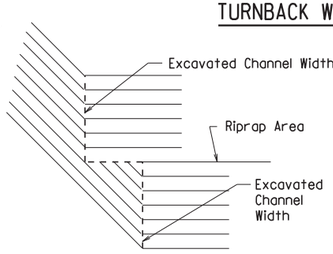
SECTION A-A

(Toe Excavation in Rock)

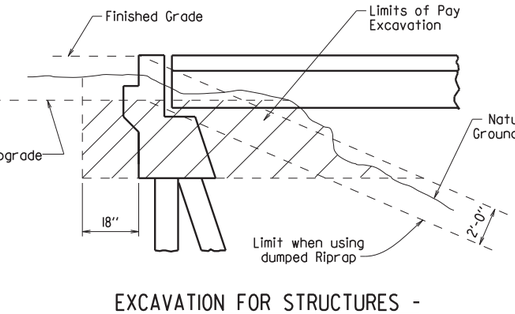
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

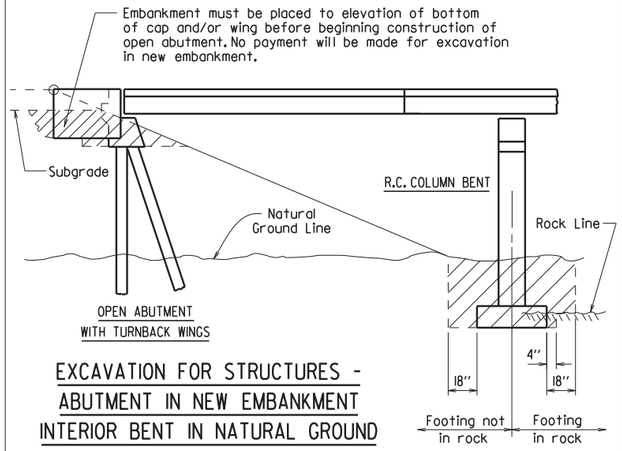
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



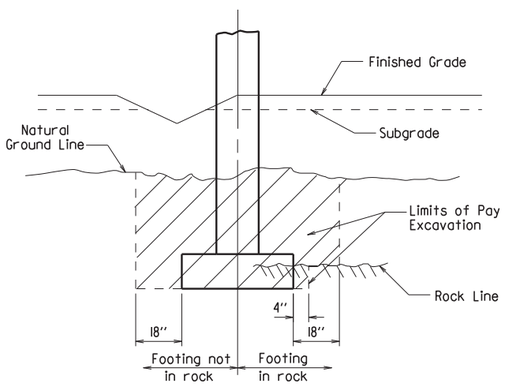
DETAIL C



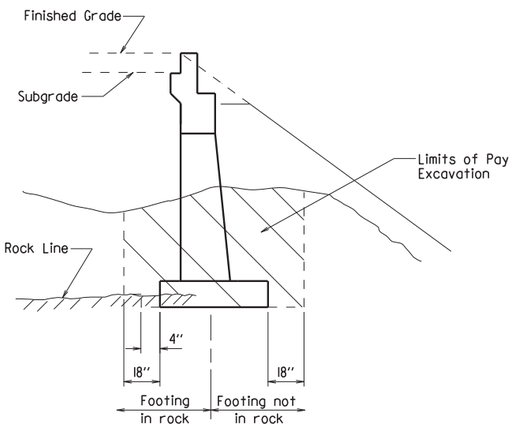
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

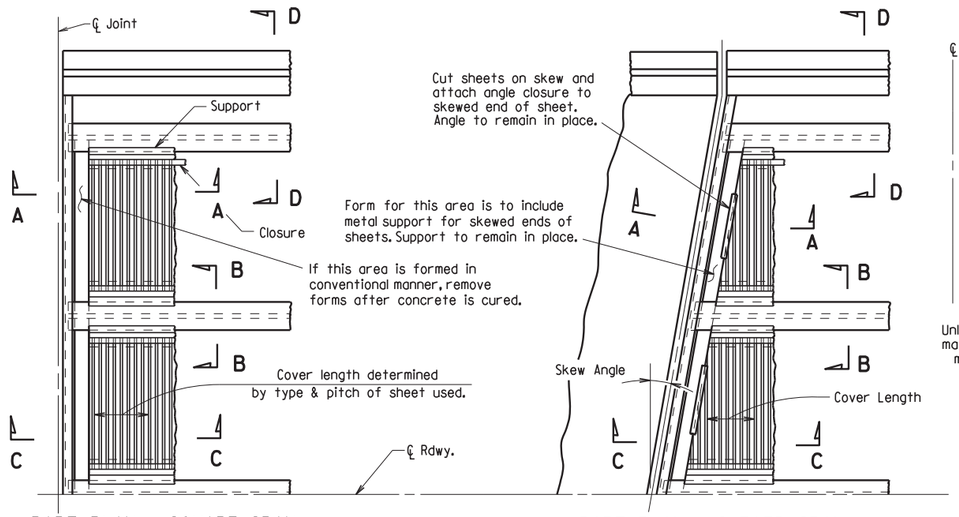
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

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.			
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

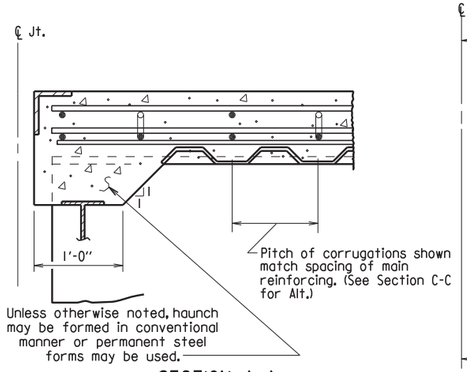


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

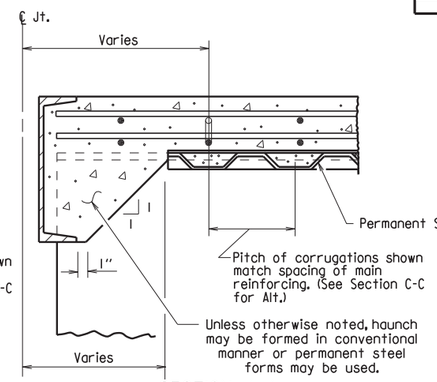
PART PLAN - SKEWED SPAN

3/8" = 1'-0"



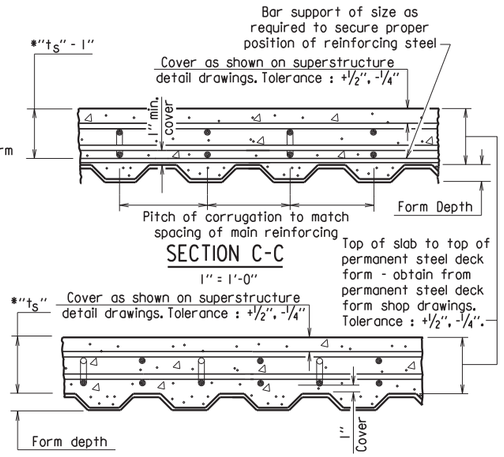
SECTION A-A

N.T.S.
(Angle at end of span)



SECTION A-A

N.T.S.
(Channel at end of span)

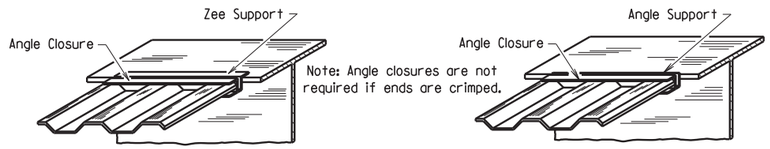


SECTION C-C

1" = 1'-0"

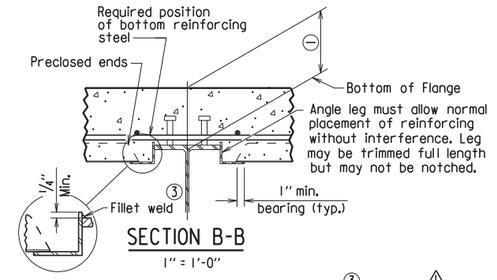
SECTION C-C - ALTERNATE

1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

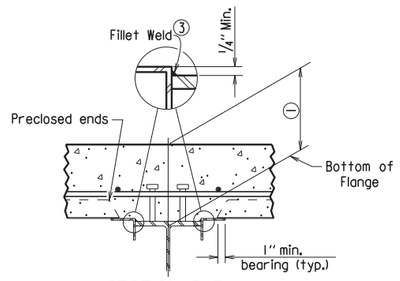
N.T.S.



SECTION B-B

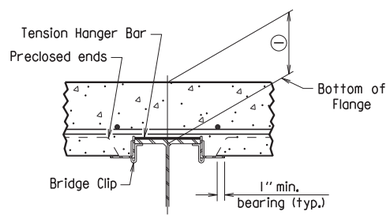
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

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



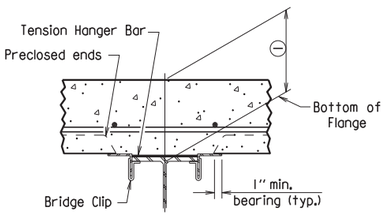
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



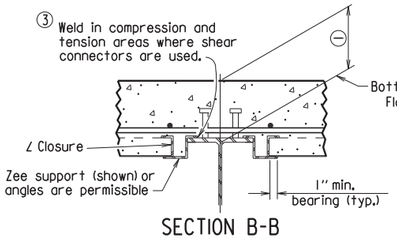
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



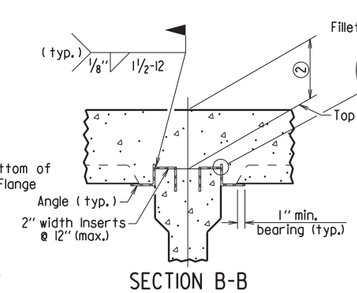
SECTION B-B

1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



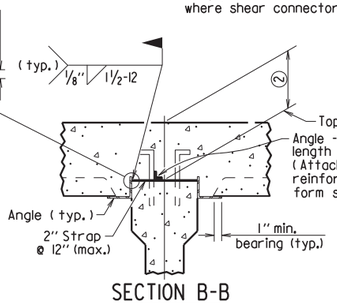
SECTION B-B

1" = 1'-0"
(Showing ∠ Closure)



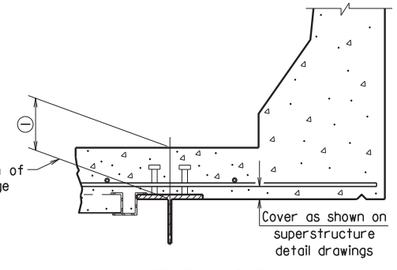
SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"
(Showing support by Strap)



SECTION D-D

1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

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

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

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

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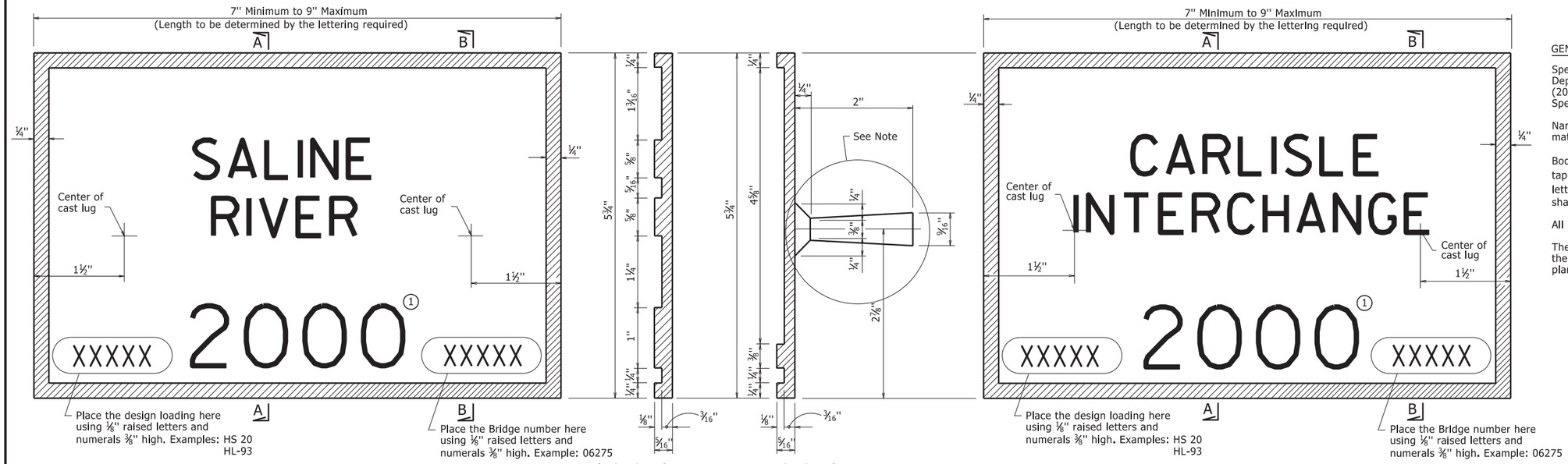
2/27/2020				6	ARK.			
				JOB NO.				
				①	TYPE C NAME PLATE	55011		



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

⚠1 SECTION A-A

SECTION B-B

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

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

GENERAL NOTES

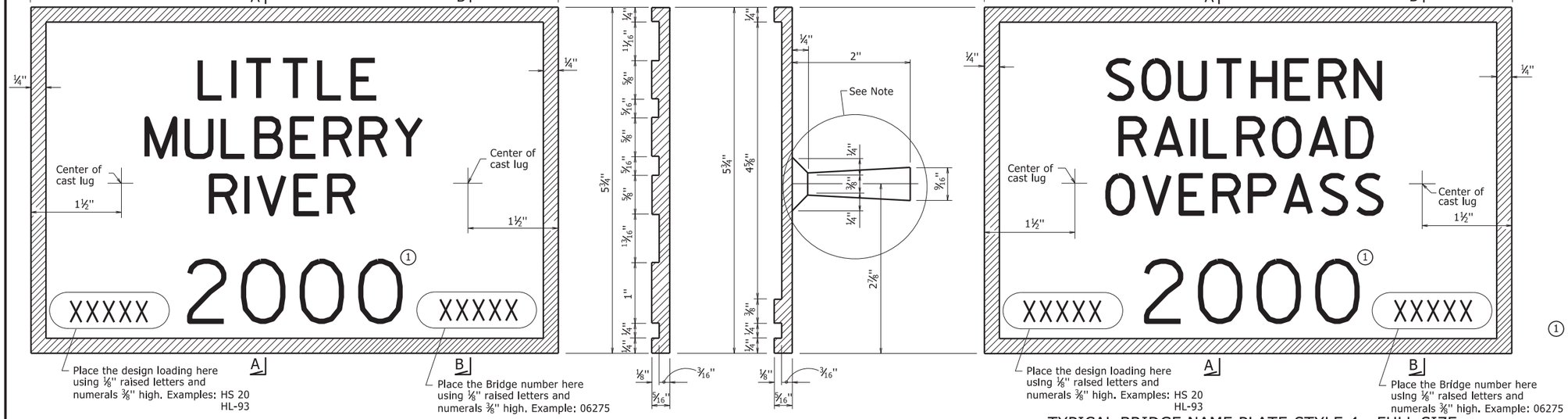
Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

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

Body of plate shall be 3⁄16" thick and shall include two tapering cone lugs 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.



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

⚠1 Corrected error in detail showing three lines of text for feature intersected instead of two.
By: KWY, Checked by: WAC; 2/27/2020.

① 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.			
				JOB NO.				
				①		STEEL H-PILES		55020

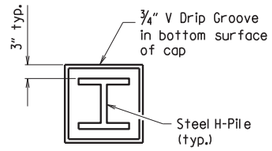
GENERAL NOTES FOR STEEL H-PILES:

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

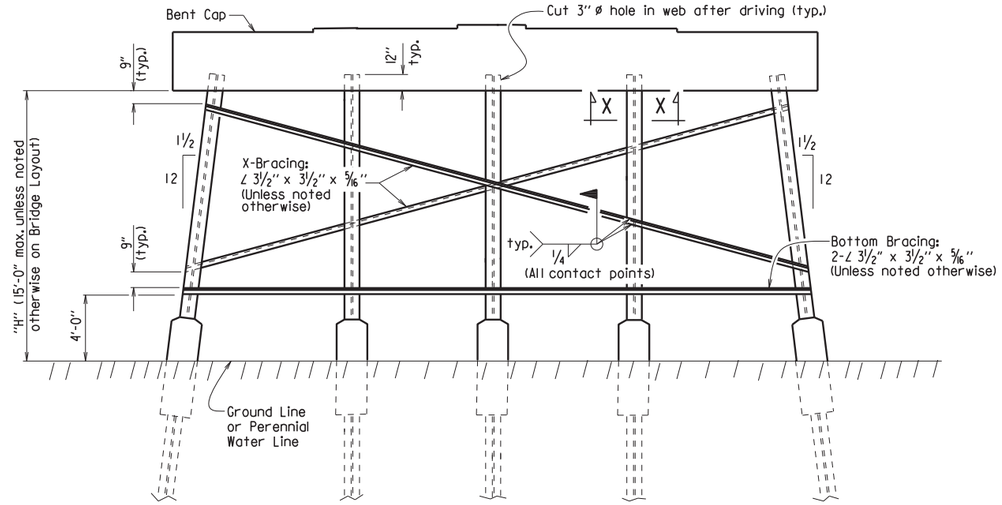
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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.

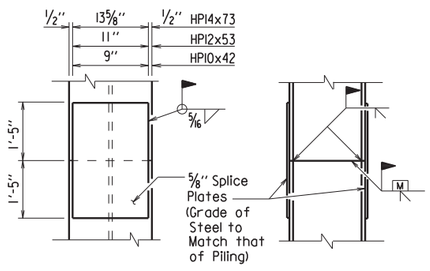
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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)



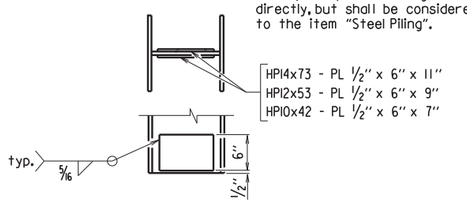
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

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 Specifcations 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:

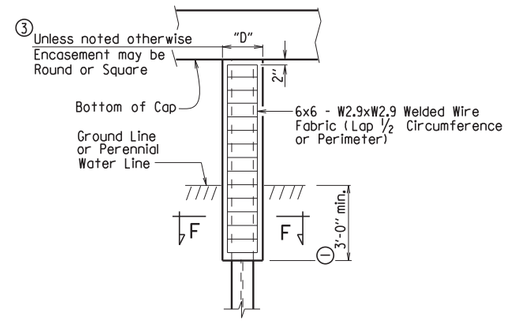
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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.

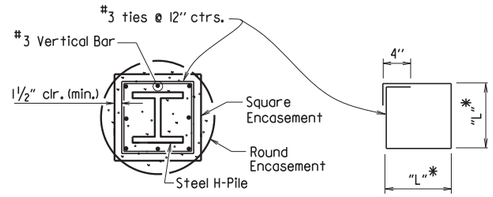
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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)

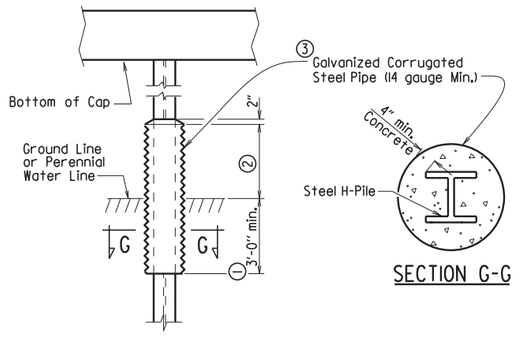


SECTION F-F

*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

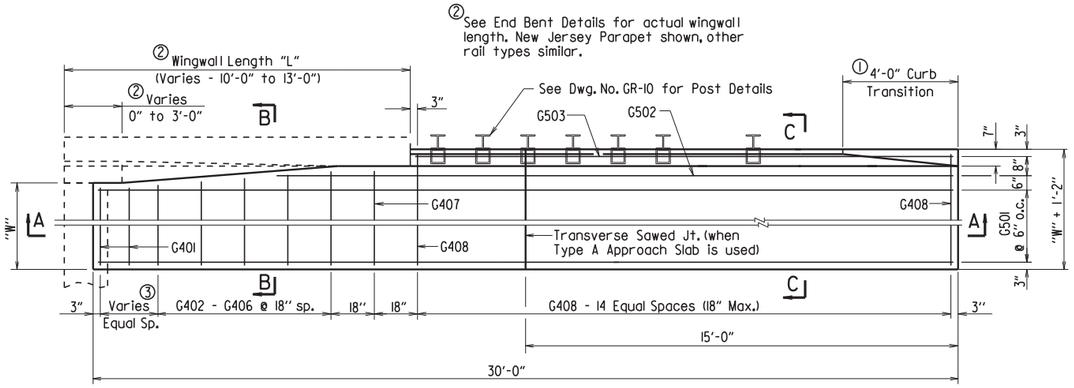
ARKANSAS STATE HIGHWAY COMMISSION

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: —

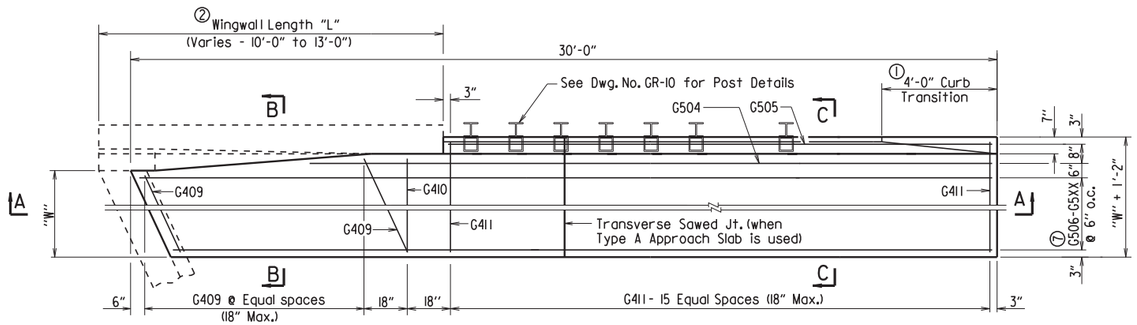
DRAWING NO. 55020

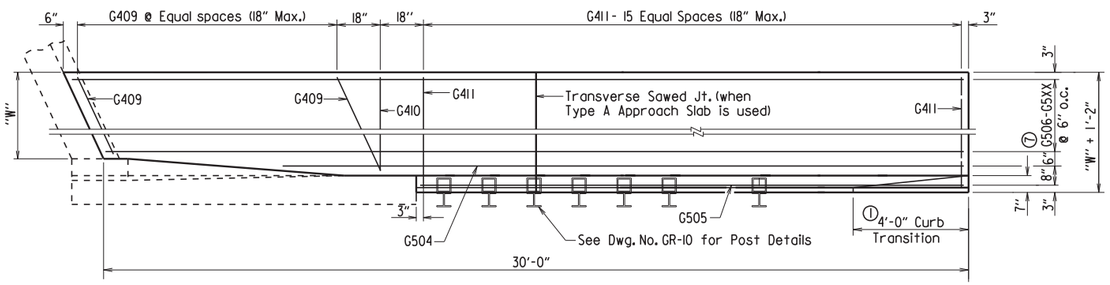
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.			
				JOB NO.				
				①	TYPE A GUTTERS		55030A	



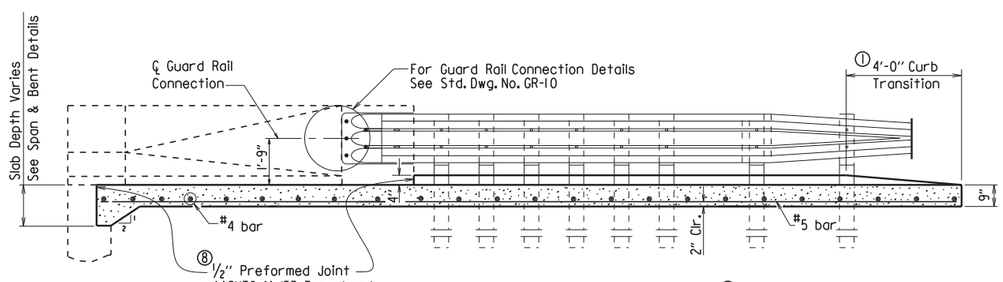
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

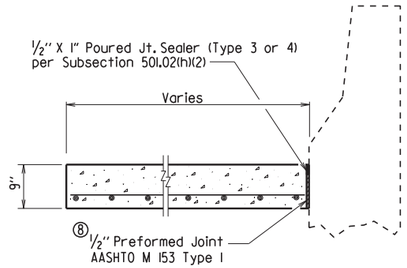


SECTION A-A

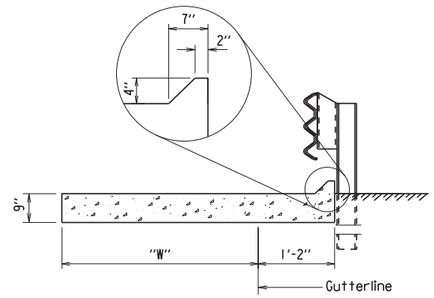
⑧ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

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

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



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

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

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".

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

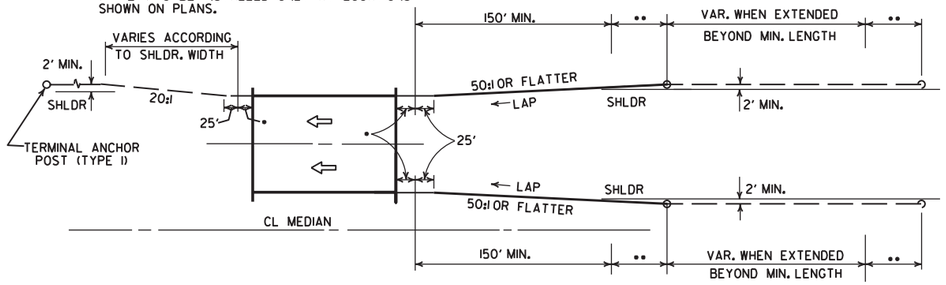
ARKANSAS STATE HIGHWAY COMMISSION

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:

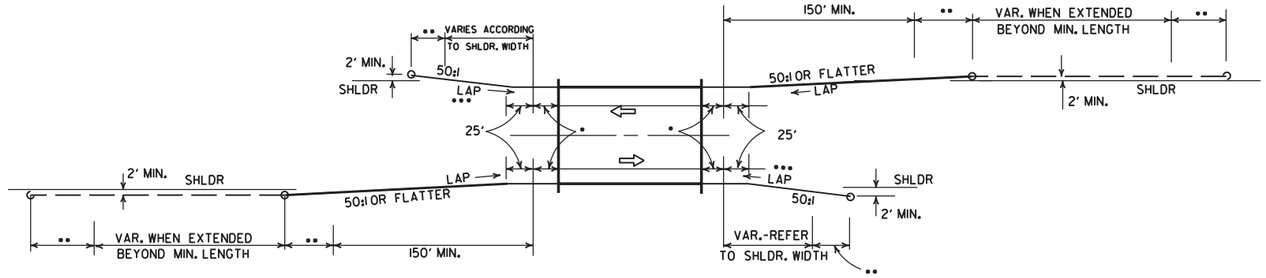
DRAWING NO. 55030A

NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

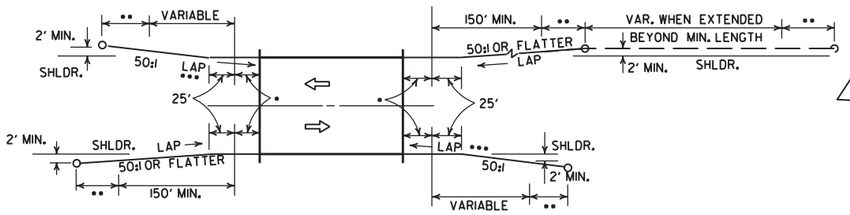
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

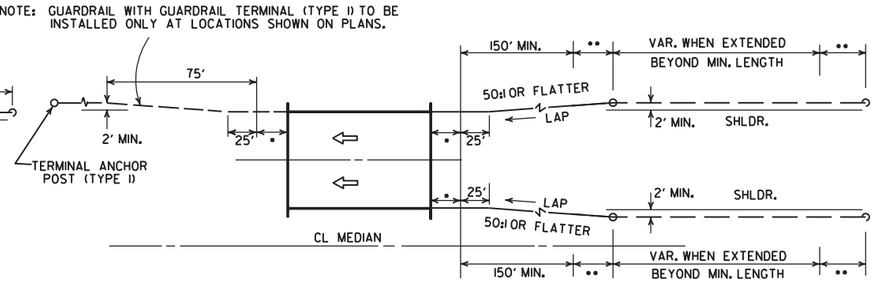
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

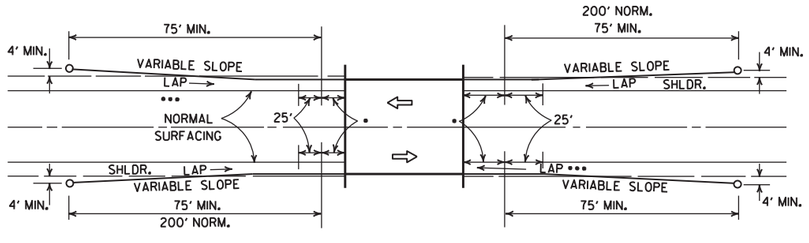
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



LEGEND

- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

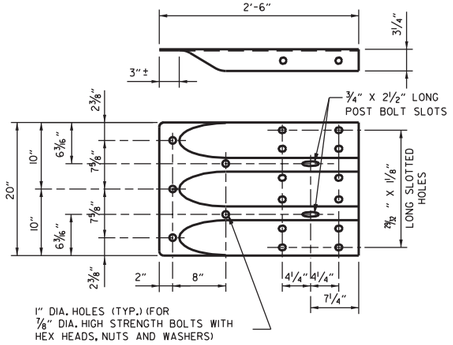
METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
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	

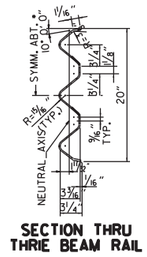
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

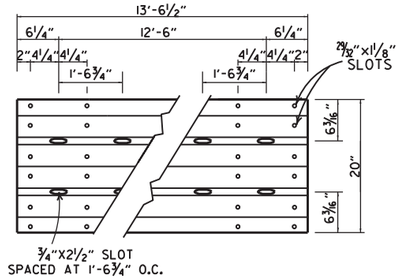
STANDARD DRAWING GR-8



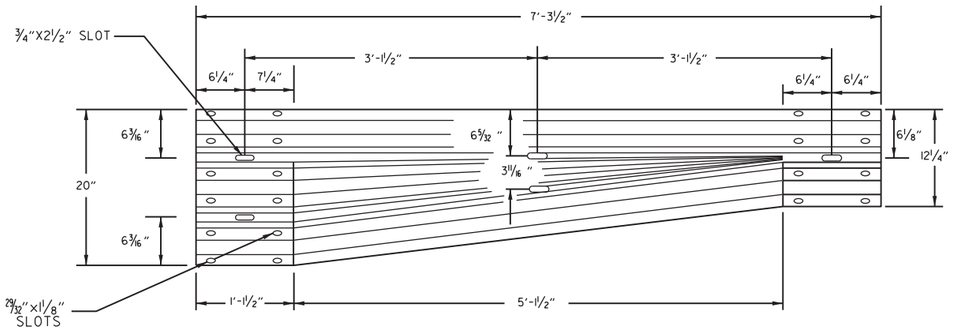
SPECIAL END SHOE



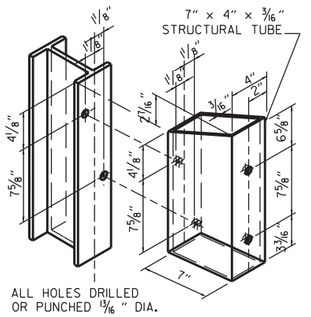
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL



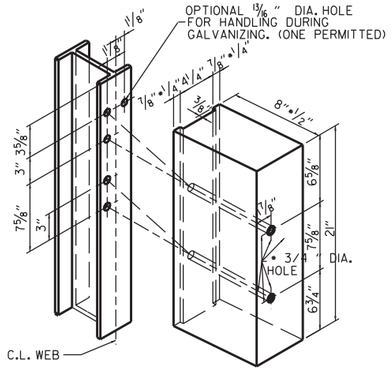
TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING 5/8" DIA. HEX HEAD BOLTS WITH 1 1/2" O.D. CUT STEEL WASHERS AND NUT.

ALL HOLES DRILLED OR PUNCHED 13/16" DIA.

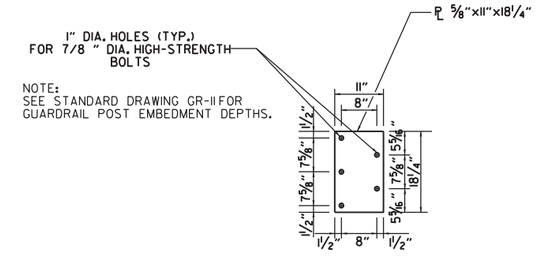
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

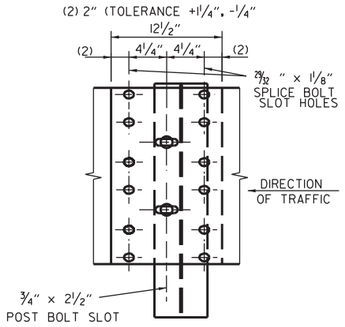
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 7/8" 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.



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

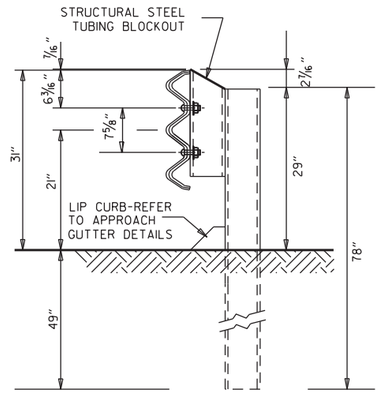
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED AND REVISED REFERENCES	
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGES ENDS TO STD. DRWG. GR-12	
07-14-10	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	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED NOTE (2)	
06-29-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	

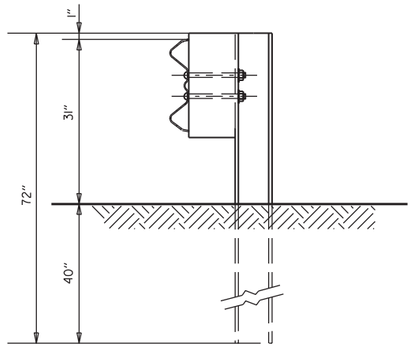
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

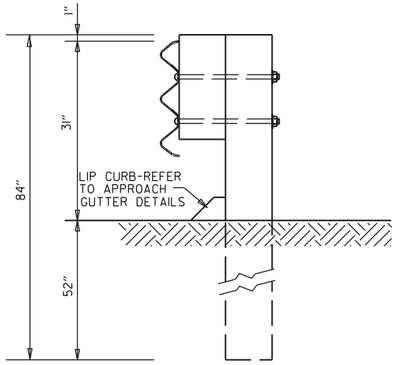
STANDARD DRAWING GR-10



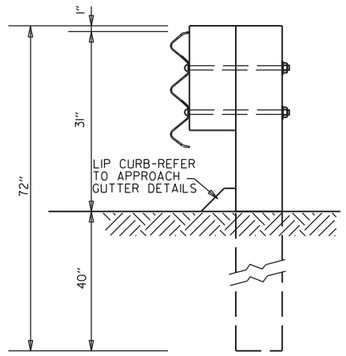
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



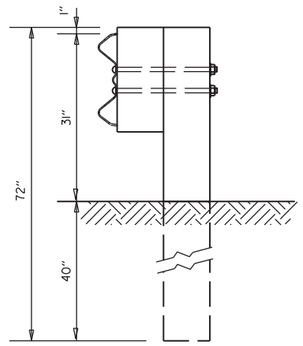
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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.

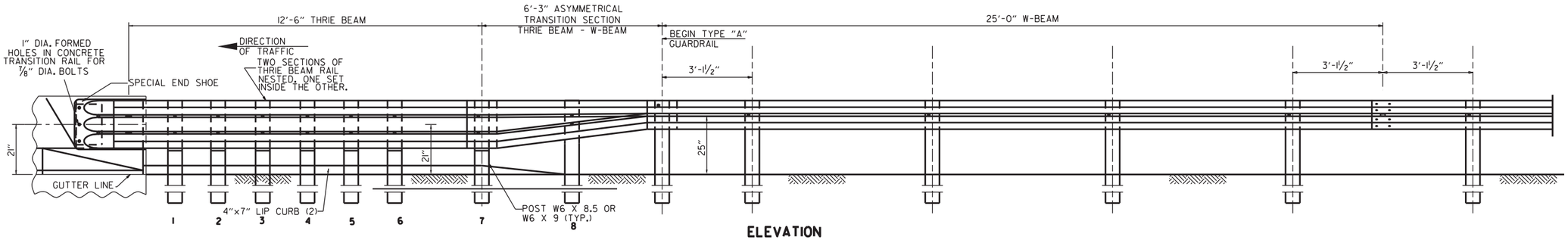
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-07-19	RENAMED	
11-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-11	
07-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
08-22-02	REVISED LIP CURB NOTE	
03-30-00	DRAWN & ISSUED	

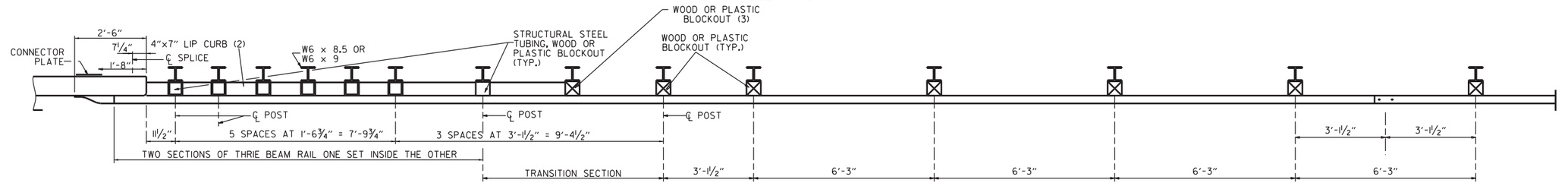
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

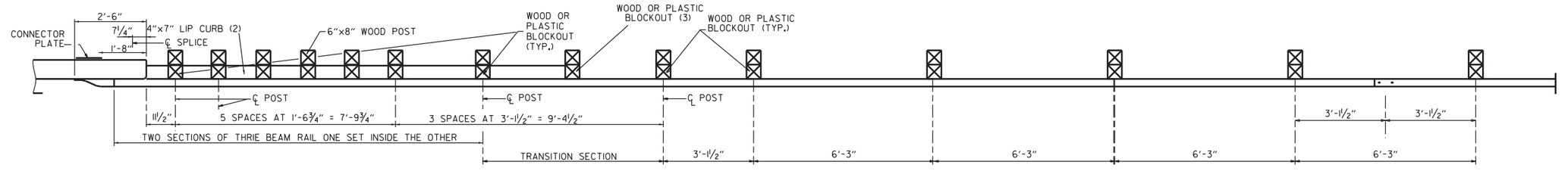
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-8 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

POSTS SHALL NOT BE PLACED AT SPLICE LOCATIONS ALONG W-BEAM RAILS.

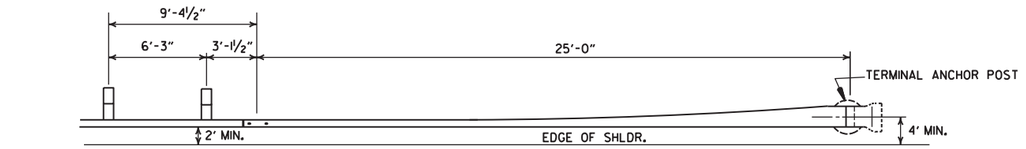
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
05-14-20	REVISED NOTES	
11-07-19	RENAMED & REVISED REFERENCES	
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

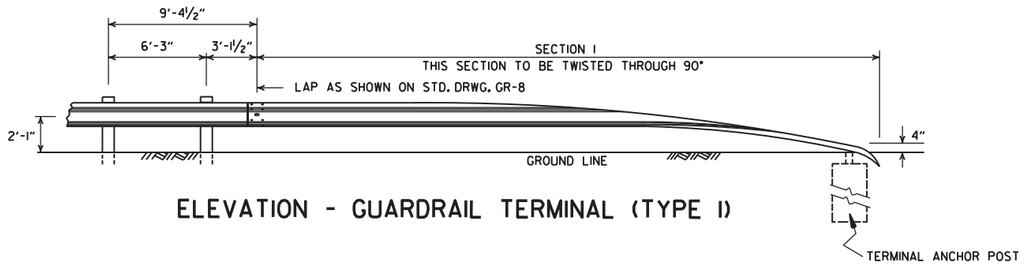
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-12

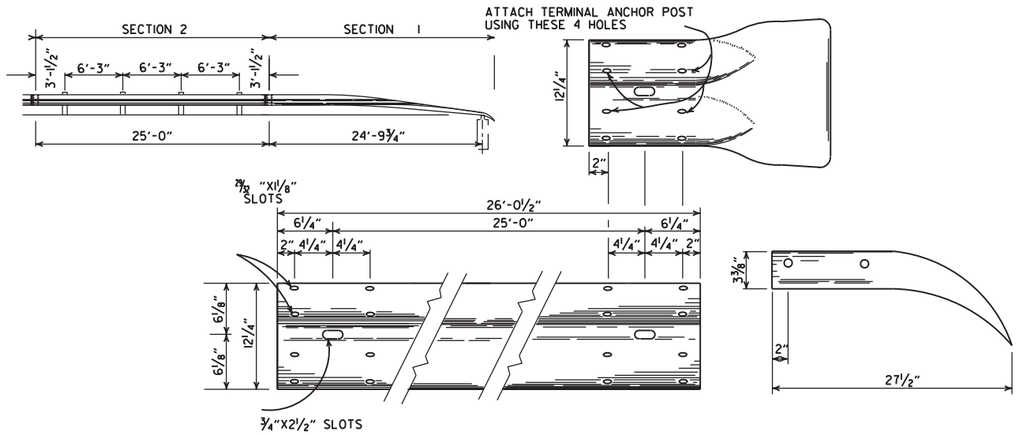


PLAN - GUARDRAIL TERMINAL (TYPE I)



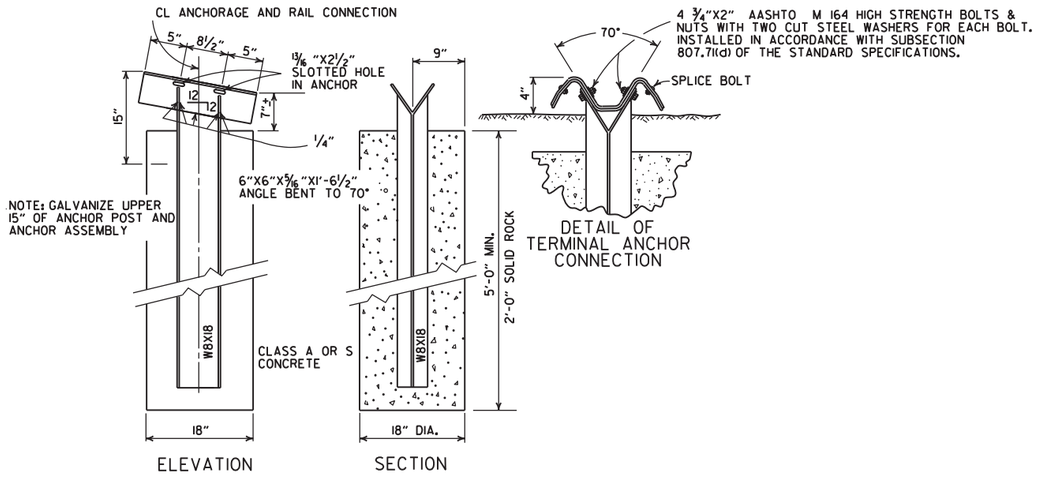
ELEVATION - GUARDRAIL TERMINAL (TYPE I)

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



SECTION I

TERMINAL SECTION



ELEVATION 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	FILMED
11-07-19	RENAMED & REVISED REFERENCE.	
11-16-17	REVISED GUARDRAIL HEIGHT AND LOCATION OF POSTS	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
06-26-97	REVISED LAP NOTE	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-03-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-01-92	DRAWN & ISSUED	10-1-92

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GRT-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

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

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

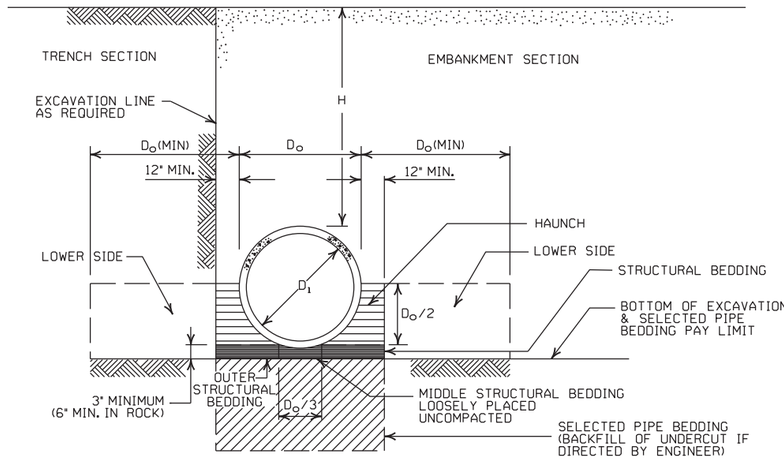
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

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

CONSTRUCTION SEQUENCE

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

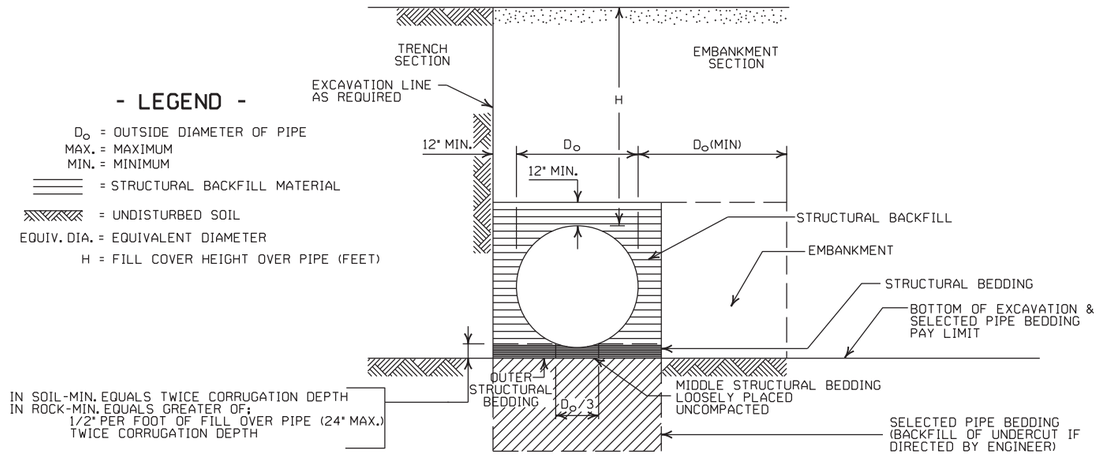
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

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"

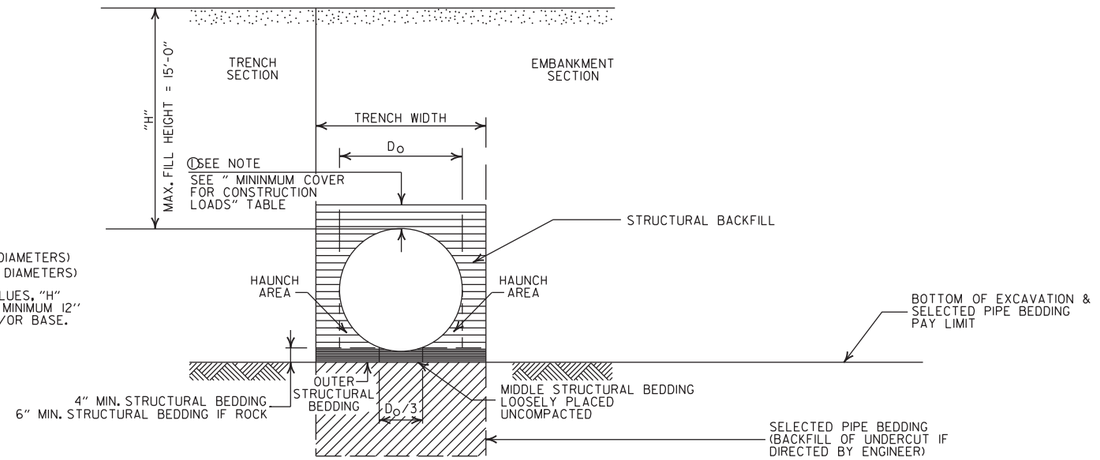
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

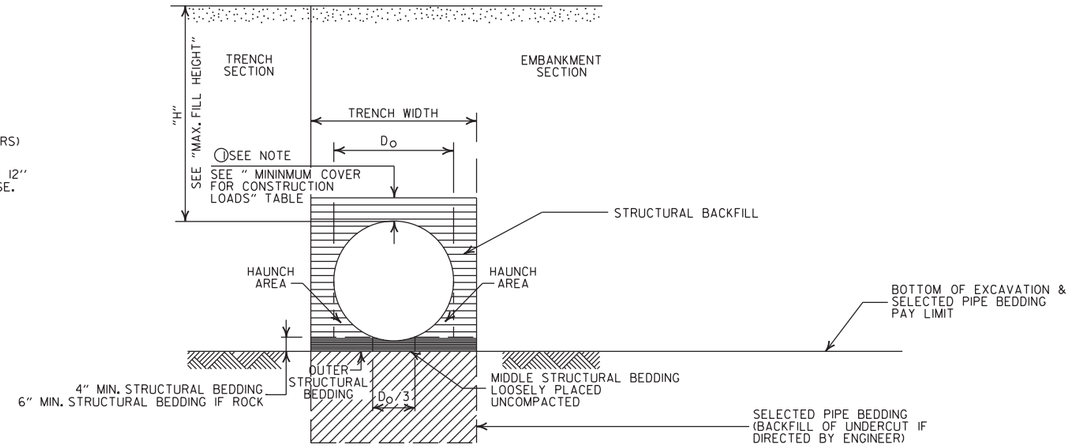
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

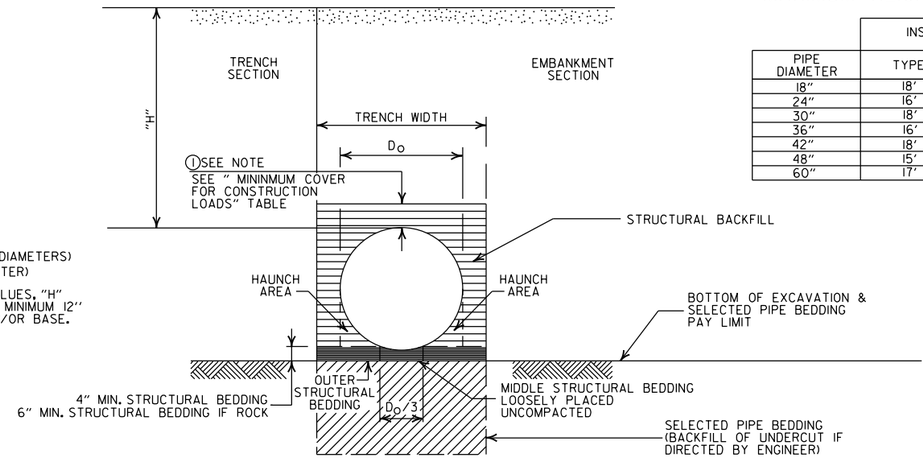
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

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

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

MAXIMUM HEIGHT OF FILL "H"

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



MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

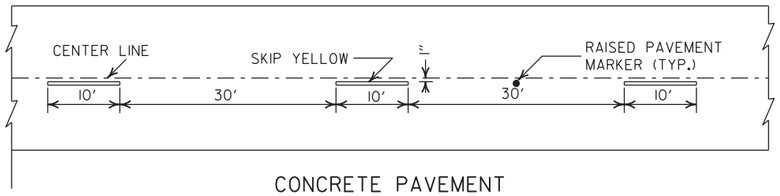
DATE	REVISION	DATE FILMED
02-27-20	REVISED	
11-07-19	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

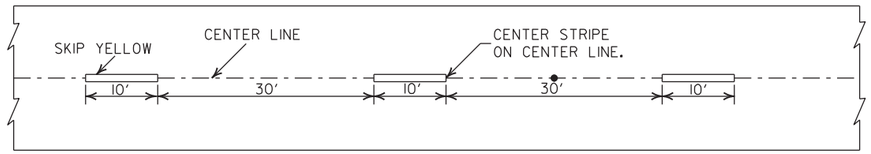
PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

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

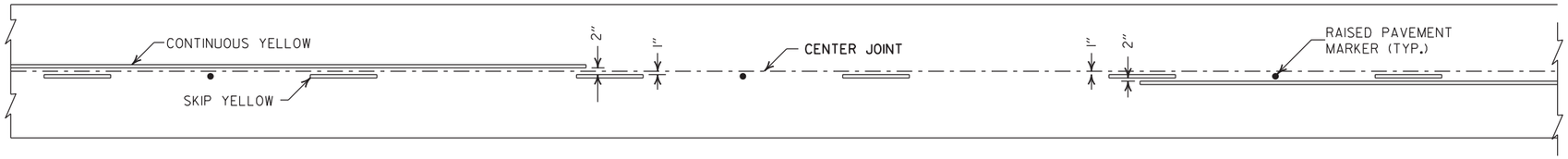


CONCRETE PAVEMENT

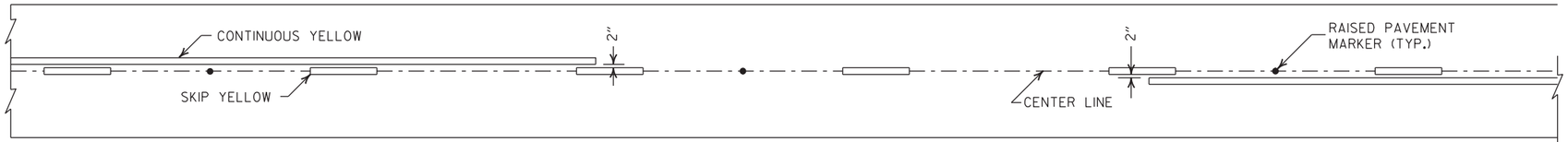


ASPHALT PAVEMENT

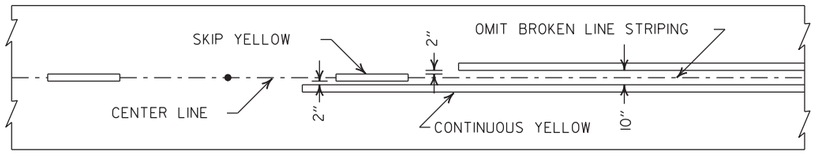
BROKEN LINE STRIPING



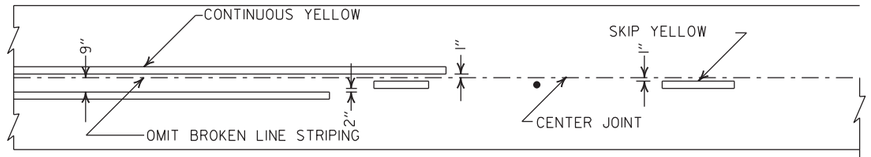
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

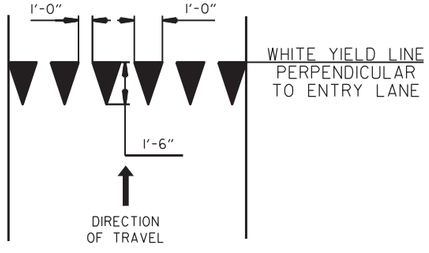


ASPHALT PAVEMENT

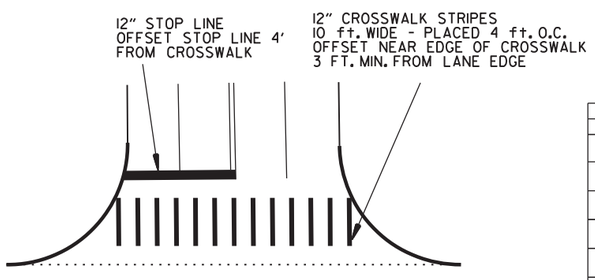


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

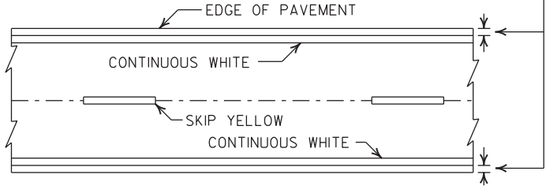


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

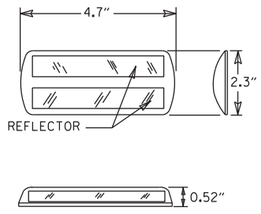
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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

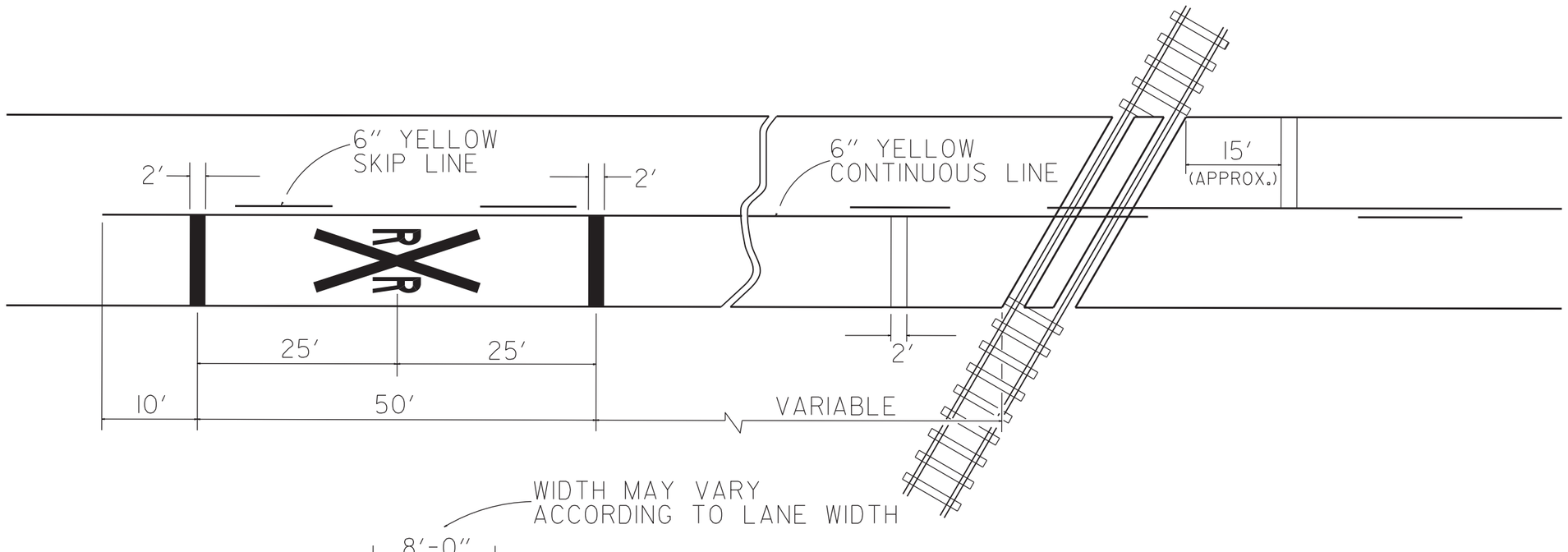
DETAIL OF STANDARD RAISED PAVEMENT MARKERS

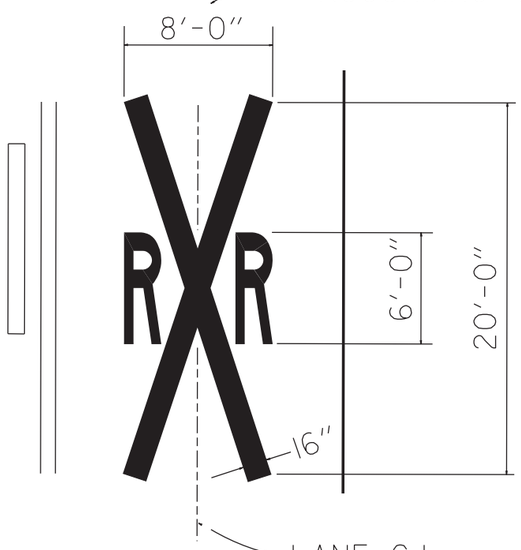
DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02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

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1





DETAIL OF PAVEMENT MARKINGS FOR RAILROAD CROSSING

PAVEMENT MARKING TO BE
SYMMETRICAL ABOUT RAILROAD

NOTES:
THE DISTANCE FROM THE RAILROAD CROSSING MARKING TO THE NEAREST TRACK WILL VARY ACCORDING TO THE APPROACH SPEED AND THE SIGHT DISTANCE OF THE VEHICULAR TRAFFIC APPROACHING, BUT PROBABLY SHOULD BE NOT LESS THAN 50 FEET.

A THREE LANE ROADWAY SHOULD BE MARKED WITH A CENTERLANE FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A CROSSING.

ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL RXR SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.

REFER TO STANDARD ALPHABET FOR HIGHWAY SIGNS AND MARKINGS FOR RXR SYMBOLS DETAILS.

DATE	REVISION	DATE FILMED
12-8-16	REVISED CENTERLINE LABELS	
11-20-08	CORRECTED SPELLING	
4-10-03	REVISED NOTES	
3-2-81	DELETED LETTER & ADDED NOTE	684-3-2-81
7-20-79	STOP LINE CHGD. TO PERP.	636-8-30-79
4-23-75	SHEET RENUMBER	697-4-20-79
4-23-75	REDRAWN	860-4-23-75

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING
FOR RAILROAD CROSSING

STANDARD DRAWING RRS-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139		0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158	300	0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168		0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178		0.062	197		0.070	216		0.078	235		0.088	259	350
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187	300	0.068	211		0.076	230		0.086	254	350	0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187		0.068	211		0.078	235		0.088	259		0.098	283		D MAX = 2° 45'		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139		0.056	171		0.066	206		0.076	230		0.086	254		0.096	278		D MAX = 3° 30'					
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274		0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254		0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259		0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278	300	D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257	300	D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																		
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																			
11° 00'	0.070	162		0.084	203		0.096	244																					
12° 00'	0.074	169		0.088	211	250	0.098	248																					
13° 00'	0.076	173		0.090	215		0.100	252	300																				
14° 00'	0.080	180		0.094	222		D MAX = 13° 45'																						
15° 00'	0.082	184		0.096	226																								
16° 00'	0.086	191		0.098	230																								
17° 00'	0.088	194		0.100	234																								
18° 00'	0.090	198	250	D MAX = 19° 30'																									
19° 00'	0.092	202																											
20° 00'	0.094	205																											
21° 00'	0.096	209																											
22° 00'	0.096	209																											
23° 00'	0.098	212																											
24° 00'	0.098	212																											
25° 00'	0.100	216																											
D MAX = 28° 30'																													

GENERAL NOTES

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

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

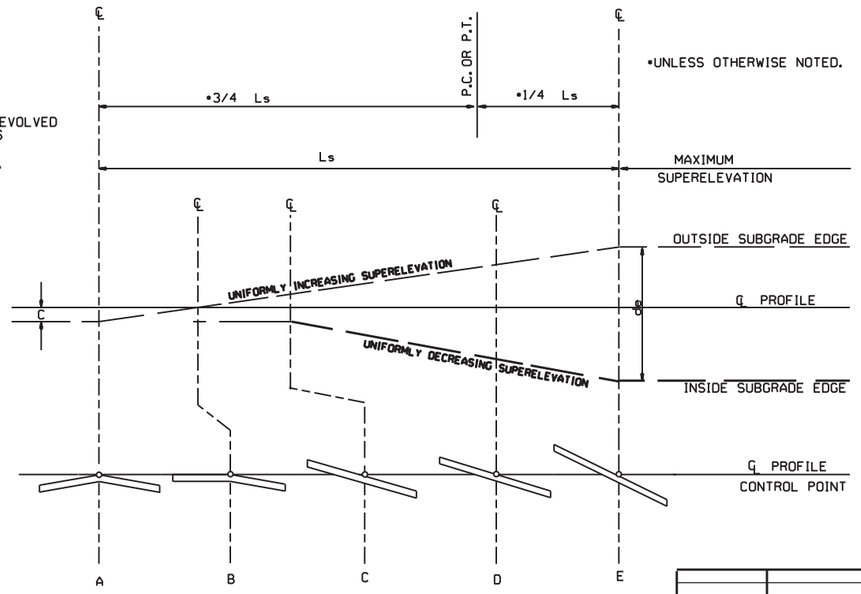
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

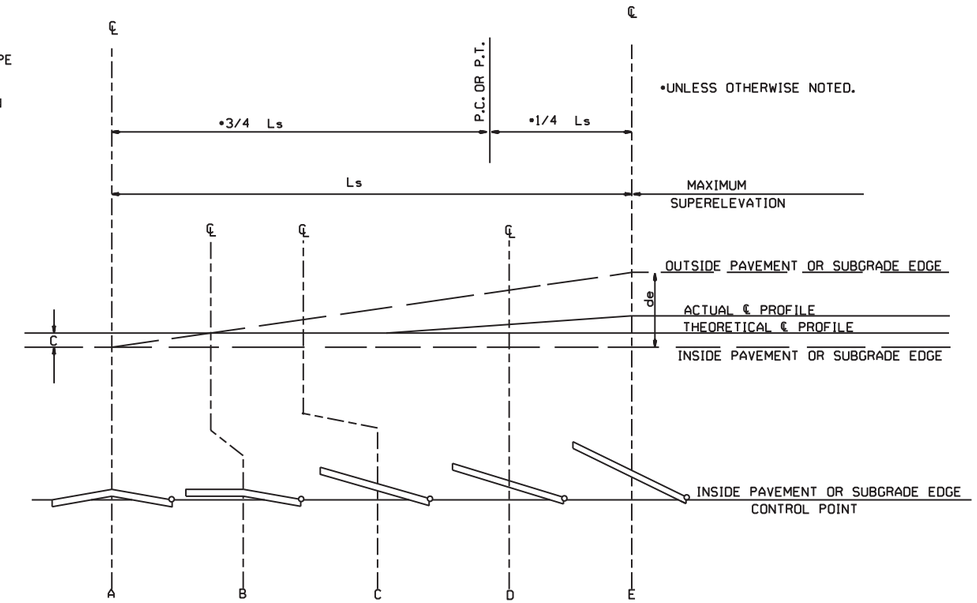
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ABBREVIATIONS

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

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.)

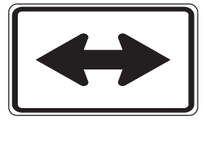
W2-1
30"X30"

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"

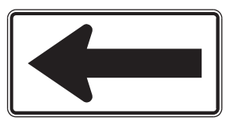
W5-2
36"X36"

W8-3
36"X36"

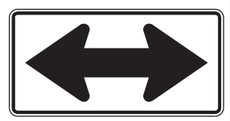
R1-3P
18"X6"

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"

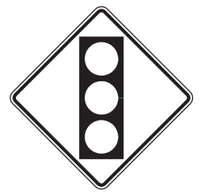
NOTE: ALL M6 SIGNS TO BE MADE WITH REFLECTORIZED YELLOW ARROW & BORDER WITH BLUE BACKGROUND.

M6-6
21"X15"

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

W2-4
30"X30"

W10-1
36" DIAMETER

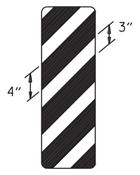


W3-3
36"X36"

M6-2
21"X15"

S4-3P
24"X8"

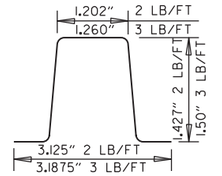
S4-2P
24"X10"



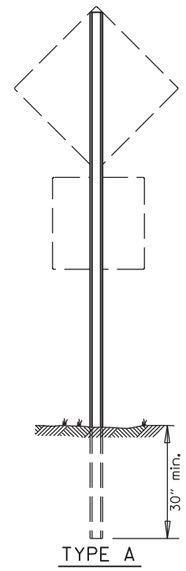
OM-3
12"X36"
(LT. or RT.)

MINIMUM DIMENSIONS SHOWN

SUPPORT SECTION

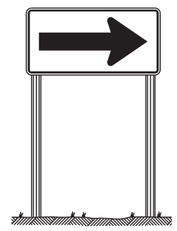


(U-CHANNEL)
STANDARD SUPPORT
ASSEMBLIES



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

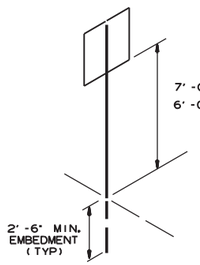
DATE	REVISION	DATE FILMED
9-12-13	DELETED JOB NO. BLOCK; REVISED RI-3 TO RI-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1 & W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3; ADDED WI-8	
1-5-81	REDRAWN	960-1-15-81
9-15-78	ADDED WI4-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2#-3#; ADDED S4-2 & S4-3	504-5-3-76
8-12-74	REV. HT. TYPE "C" ASSEMBLY	500-8-21-74
12-21-72	ADDED M6-2,3,4,5,6	500-12-21-72
12-1-72	ISSUED	562-12-1-72

SUPPORT ASSEMBLIES

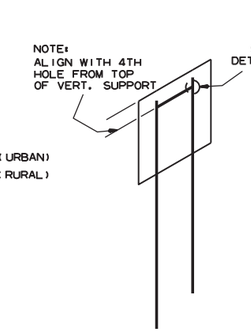
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD HIGHWAY SIGNS
AND SUPPORT ASSEMBLIES

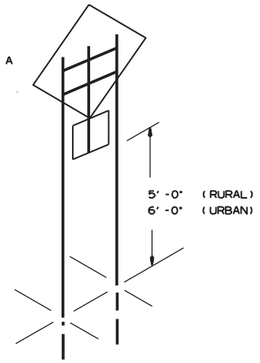
STANDARD DRAWING SHS-1



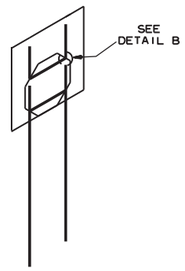
U-1



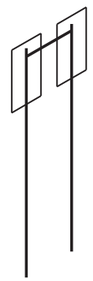
U-2



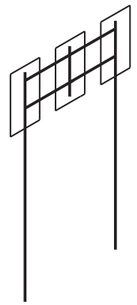
U-2 (A)



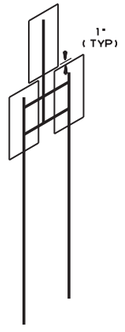
U-2 (B)



U-2 (1)



U-2 (2)



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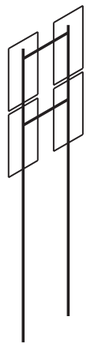

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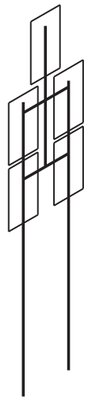

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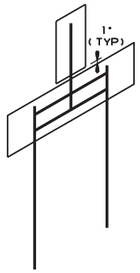
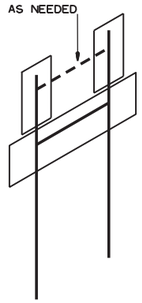
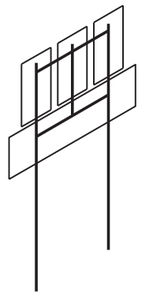


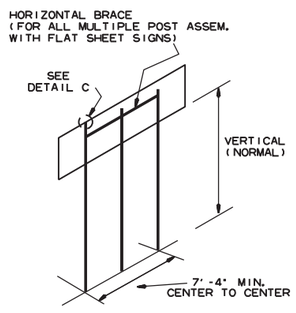
U-2 (6)



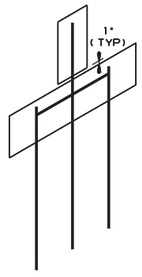
U-2 (7)



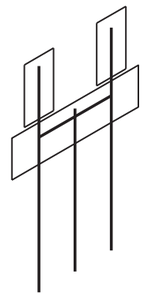
U-2 (8)



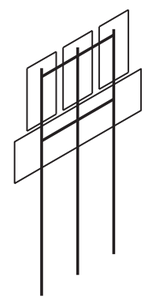
U-3



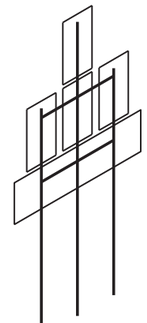
U-3 (1)



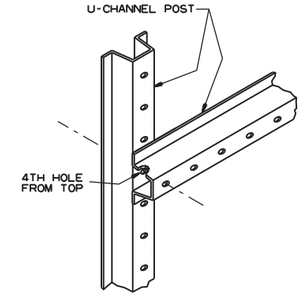
U-3 (2)



U-3 (3)

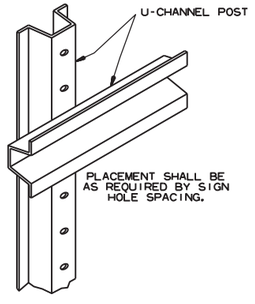


U-3 (4)



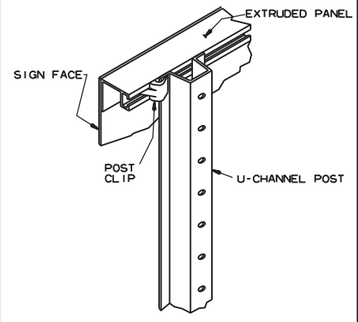
DETAIL A

SHOWING HORIZONTAL BRACE



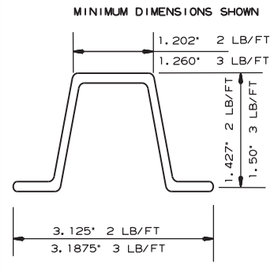
DETAIL B

SHOWING BACK-TO-BACK INSTALLATION



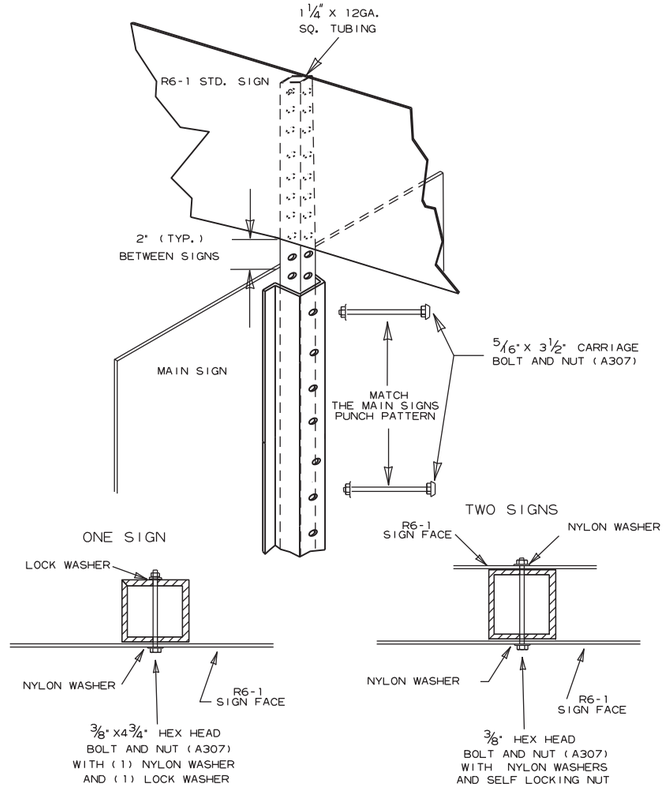
DETAIL C

SHOWING GUIDE SIGN MOUNTING WITH EXTRUDED PANELS



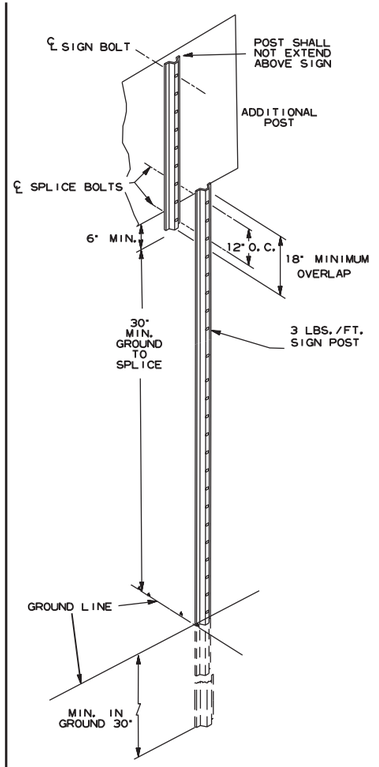
DETAIL C

U-CHANNEL POST



DETAIL E

R6-1 EXTENSION FOR U-CHANNEL POST



DETAIL F

DETAIL OF SPLICES

NOTES:

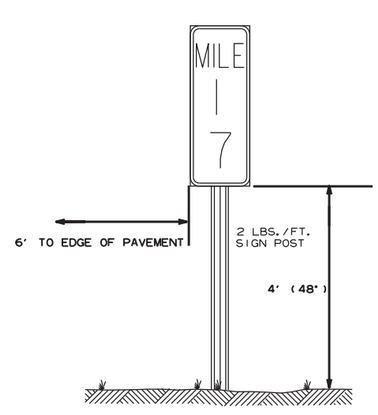
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

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

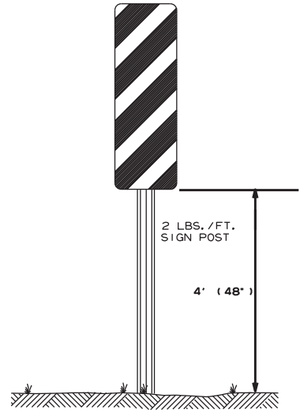
NORMAL INSTALLATIONS WILL REQUIRE 5/16" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

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



TYPICAL MILE MARKER INSTALLATION



TYPICAL OM-3 INSTALLATION AT EDGE OF OBSTRUCTION

DATE	REVISION	FILMED
7-25-19	REVISED CARRIAGE BOLT WITH MATERIAL REQUIREMENT	
2-27-14	REVISED NOTES.	
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"

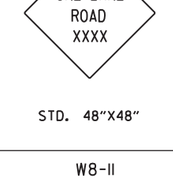
R4-1

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

R4-2

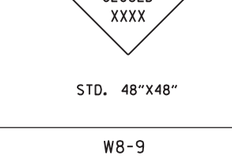
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



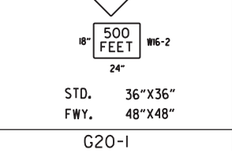
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



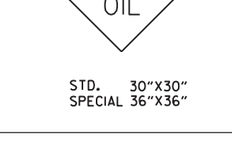
48"X30"

RII-3A



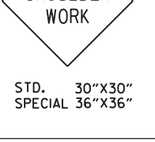
60"X30"

RII-4



60"X30"

W21-5a

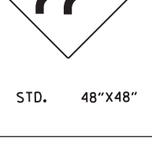


STD. 36"X36"
FWY. 48"X48"

WI-1

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

WI-2

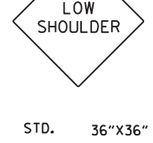


STD. 36"X36"
FWY. 48"X48"

WI-3

STD. 48"X48"

WI-4



STD. 48"X48"

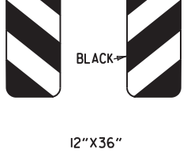
WI-6

STD. 48"X24"
SPECIAL 60"X30"

WI-8

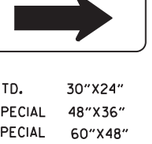
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



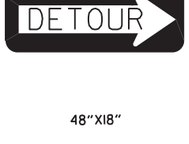
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

W8-9

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

G20-1

60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

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

M4-10

48"X18"

R55-1

36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

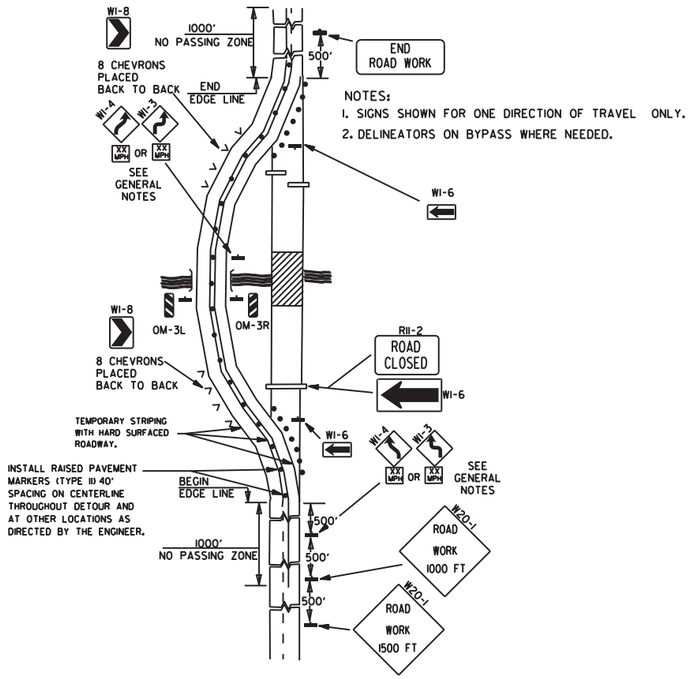
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

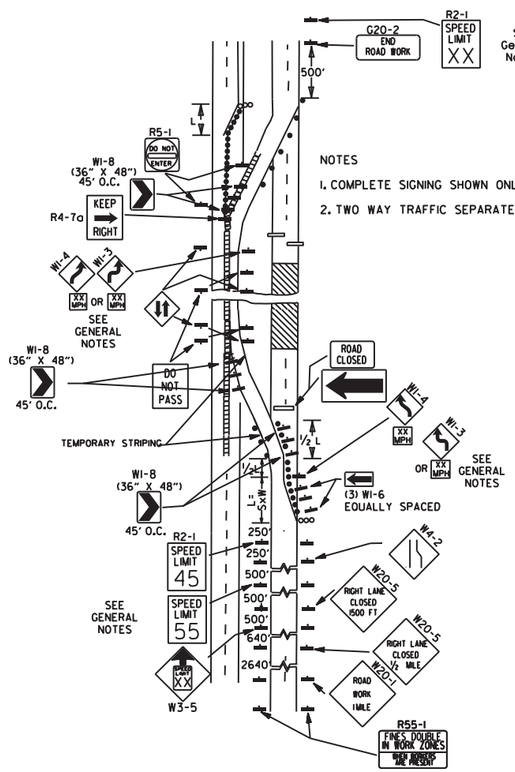
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



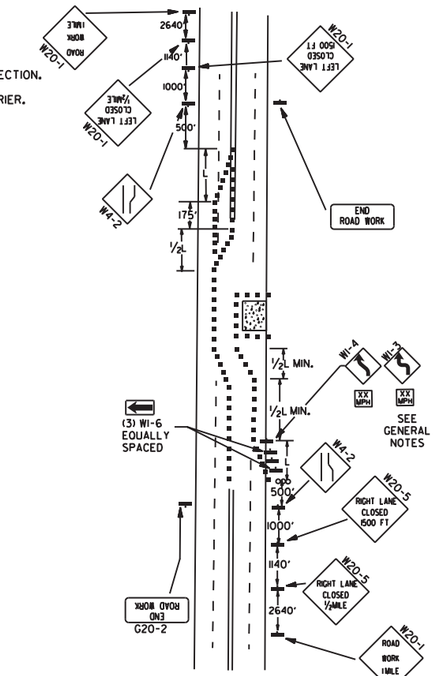
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

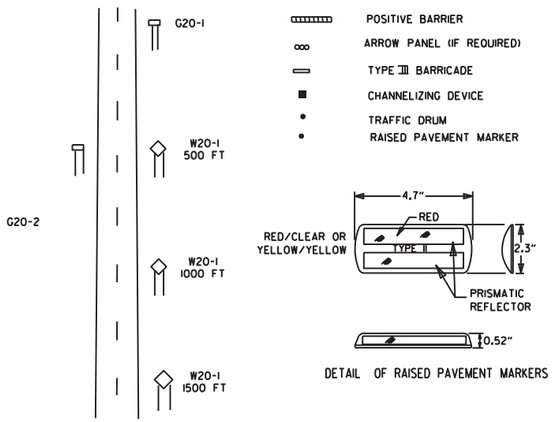


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

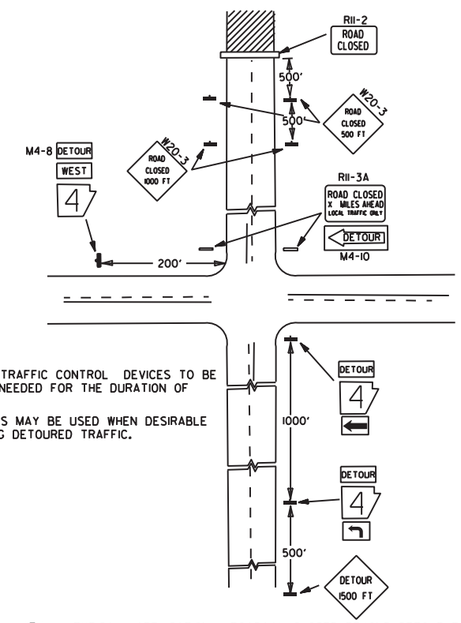
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

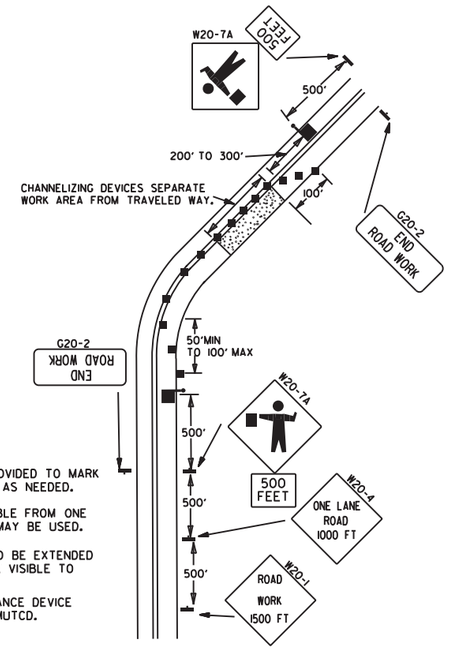
GENERAL NOTES:

1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



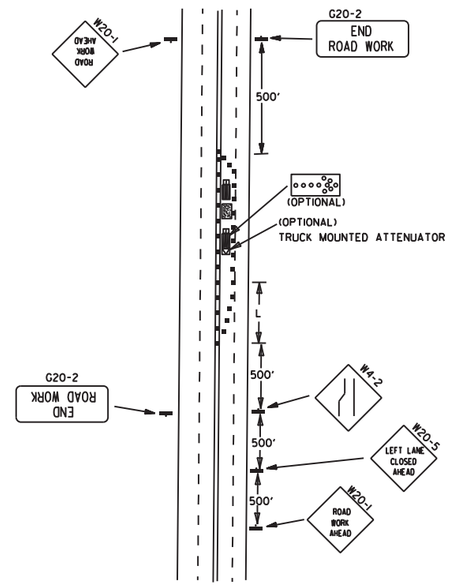
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



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

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



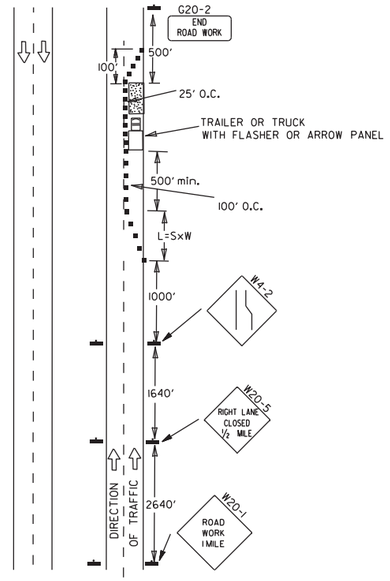
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (o) 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	
DATE	REVISION	FILMED

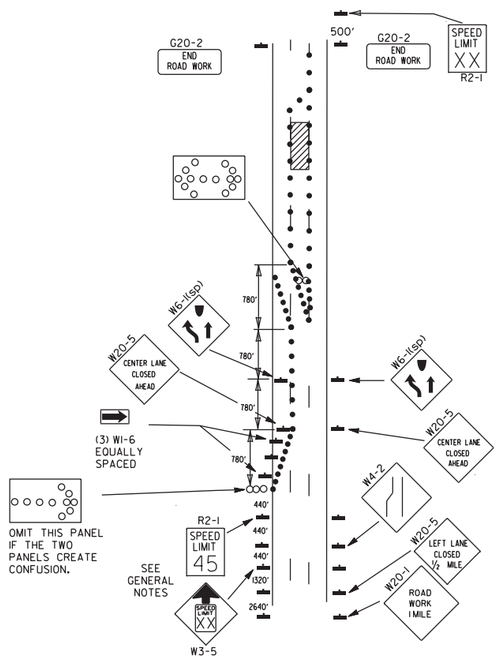
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



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



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

KEY:

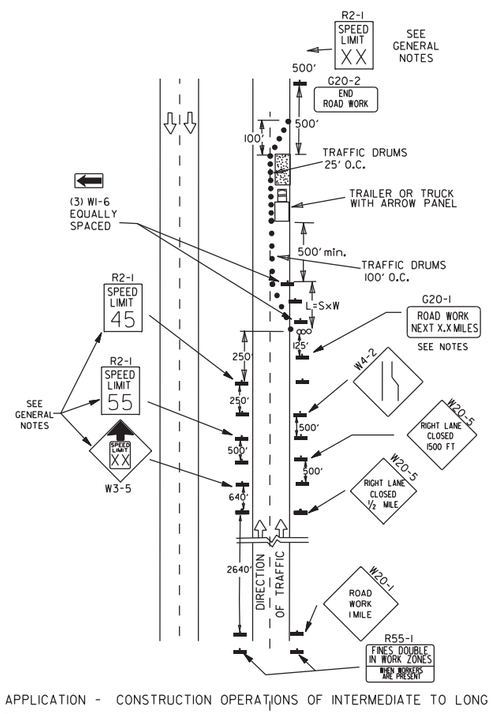
ooo ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

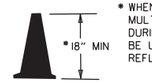
GENERAL NOTES:

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 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.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



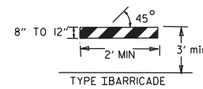
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES



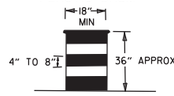
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS. 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

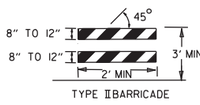
CONES



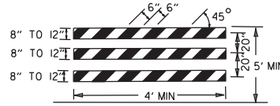
TYPE I BARRICADE

PLASTIC DRUM



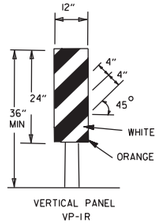


TYPE II BARRICADE



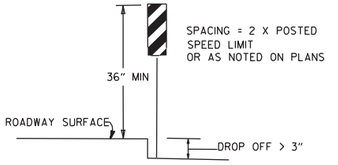
TYPE III BARRICADE

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

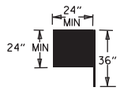


VERTICAL PANEL
VP-1R

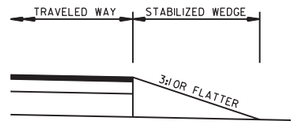
VERTICAL PANEL PLACEMENT



FLAG

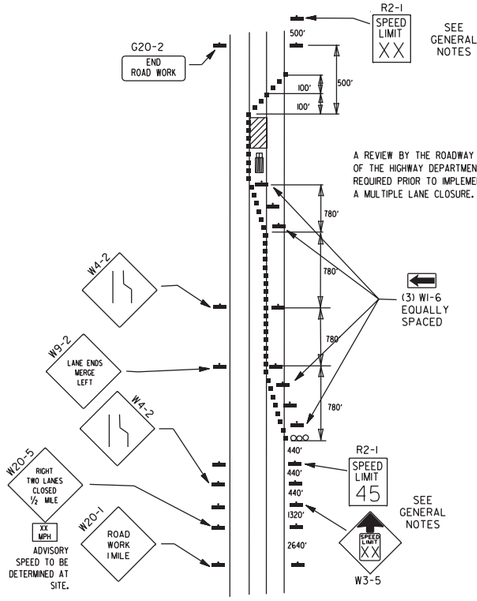


FLAG SHALL BE OF GOOD GRADE RED MATERIAL



STABILIZED WEDGE

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



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

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

TRAFFIC CONTROL DEVICES

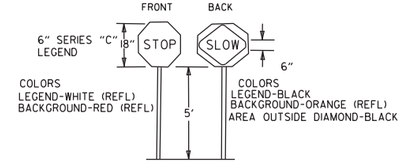
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 18" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS(3)
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER(4) & EDGE LINES	PRECAST CONCRETE BARRIER(4) & EDGE LINES

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

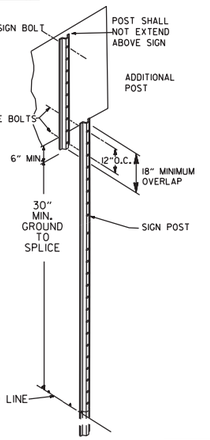
INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

GENERAL NOTES:
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.

STOP SLOW PADDLE



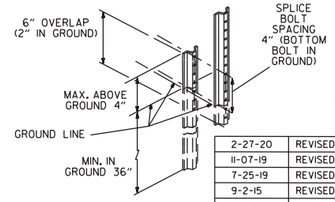
DETAIL OF SPLICES



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

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DATE	REVISION	FILMED
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

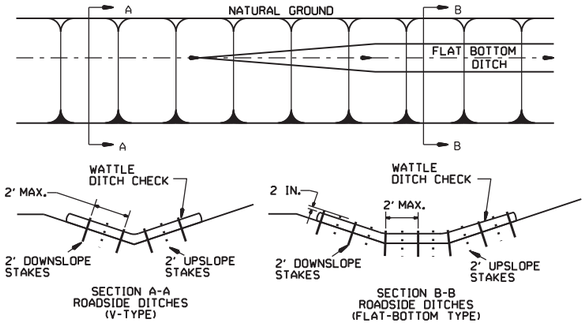
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

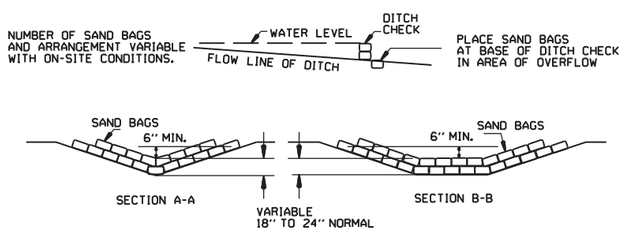
STANDARD DRAWING TC-3

GENERAL NOTES

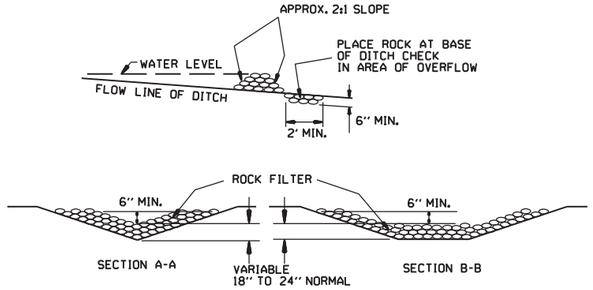
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

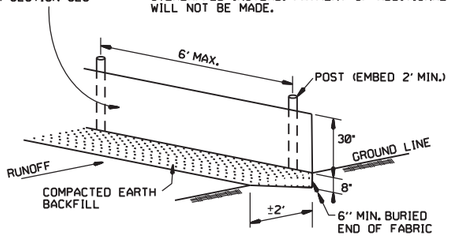


ROCK DITCH CHECK (E-6)

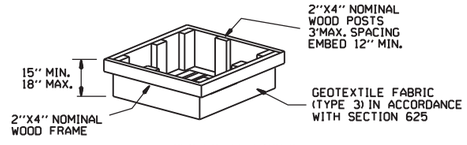
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

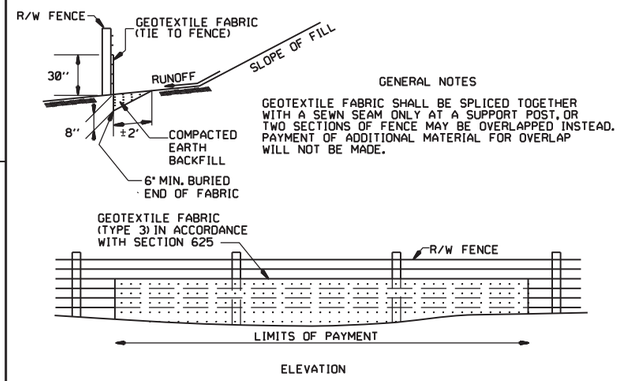
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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

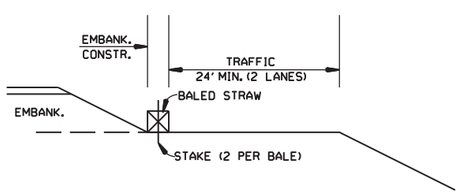
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

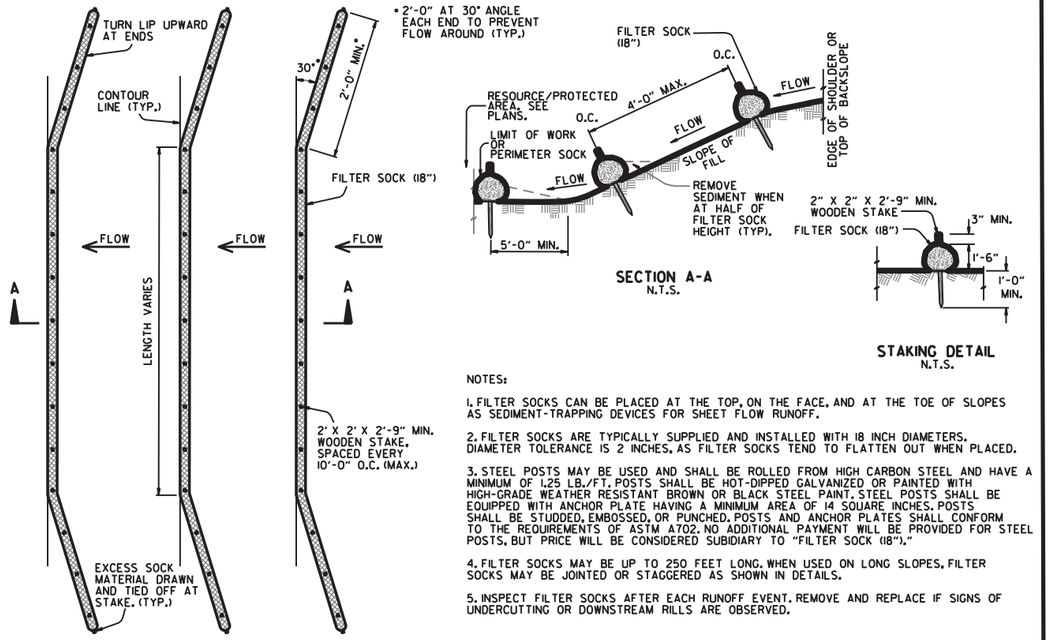
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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



BALED STRAW FILTER BARRIER (E-2)



NOTES:

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

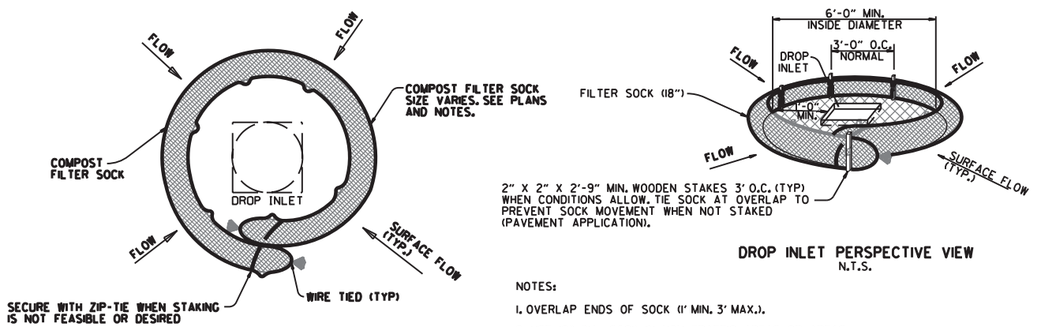
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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

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

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

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

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

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

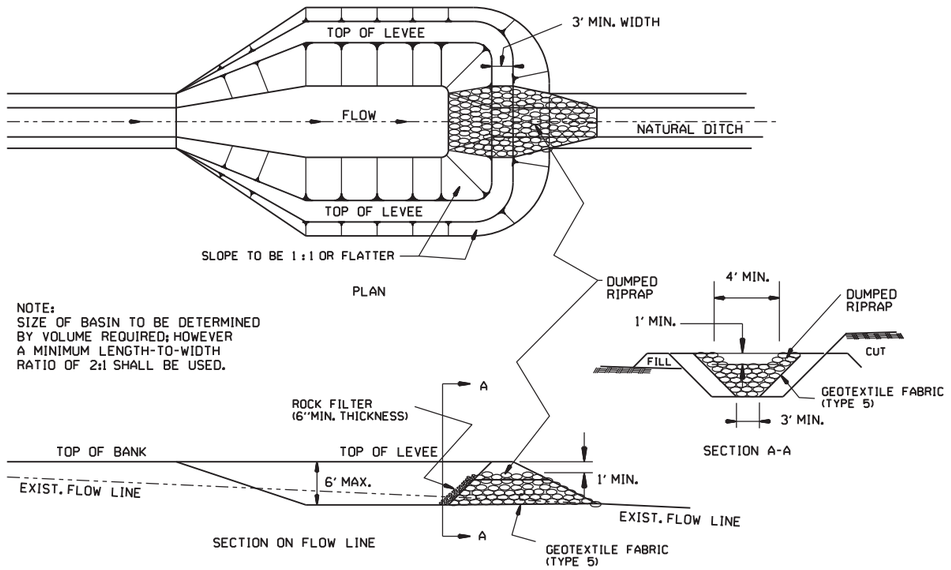
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

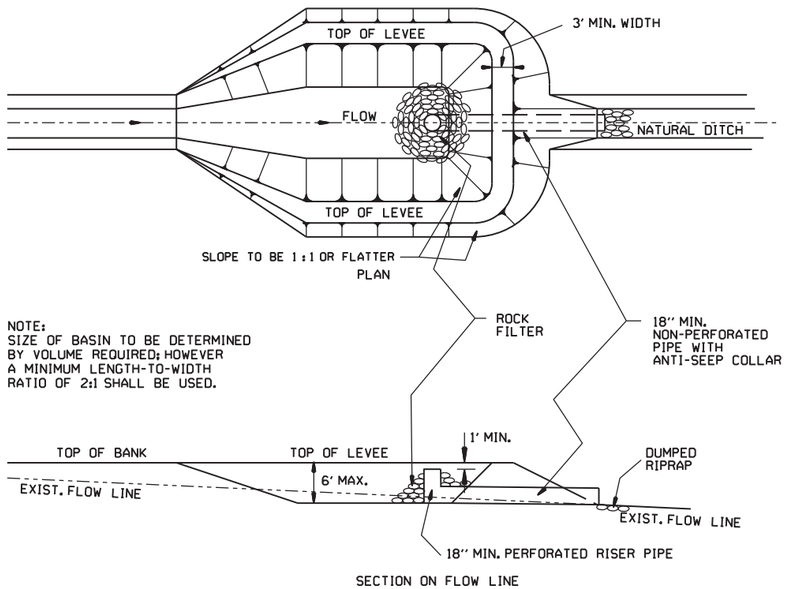
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

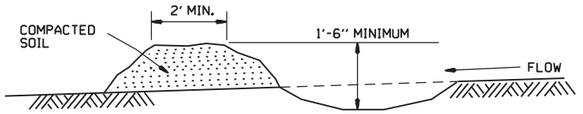
STANDARD DRAWING TEC-1



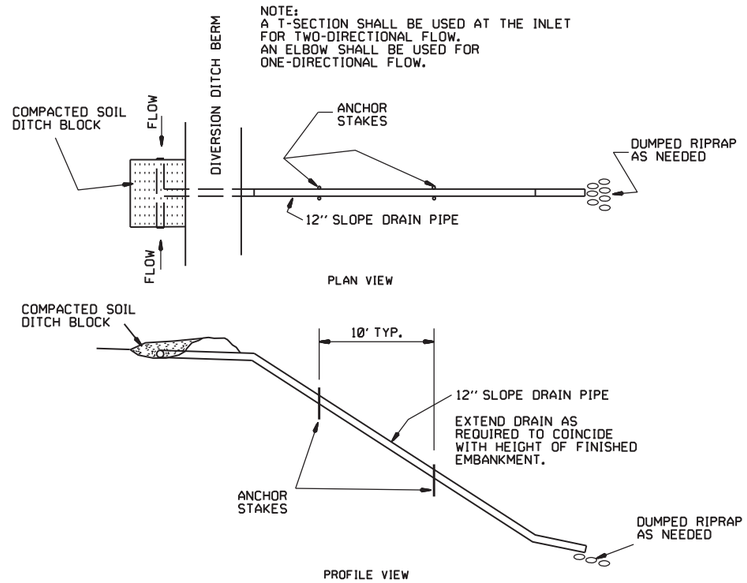
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



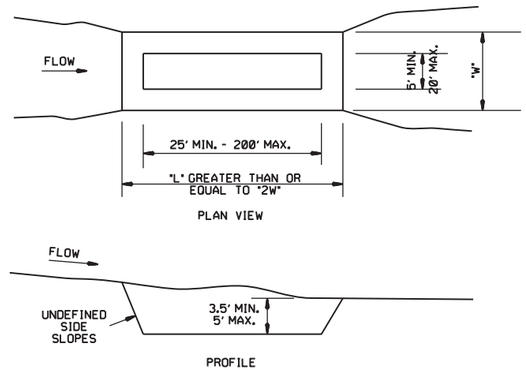
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-2

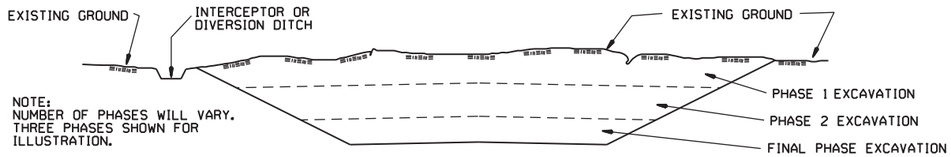
CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

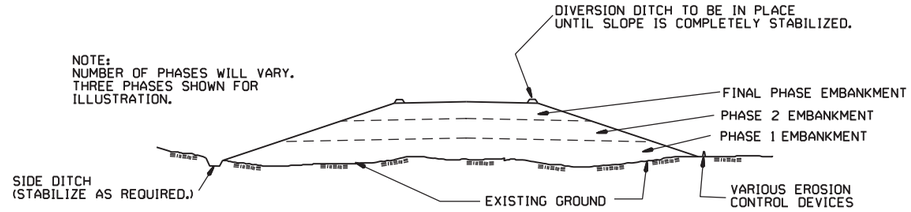
1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.

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

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

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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

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

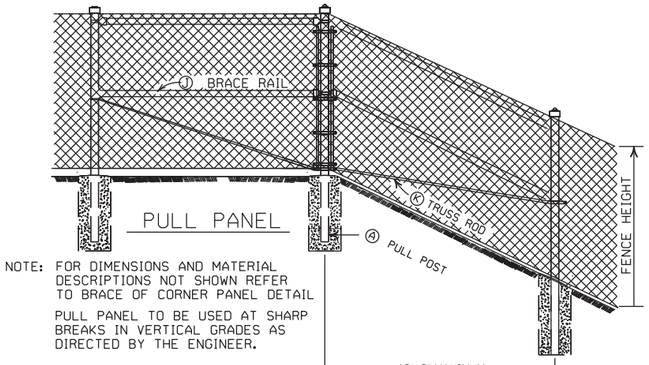
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

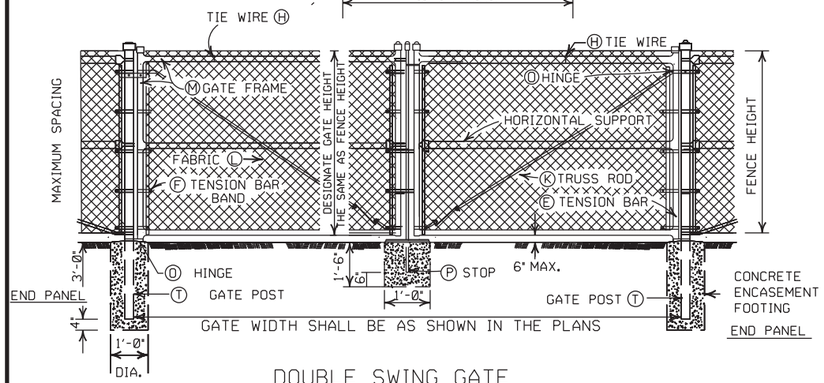
STANDARD DRAWING TEC-3



PULL PANEL

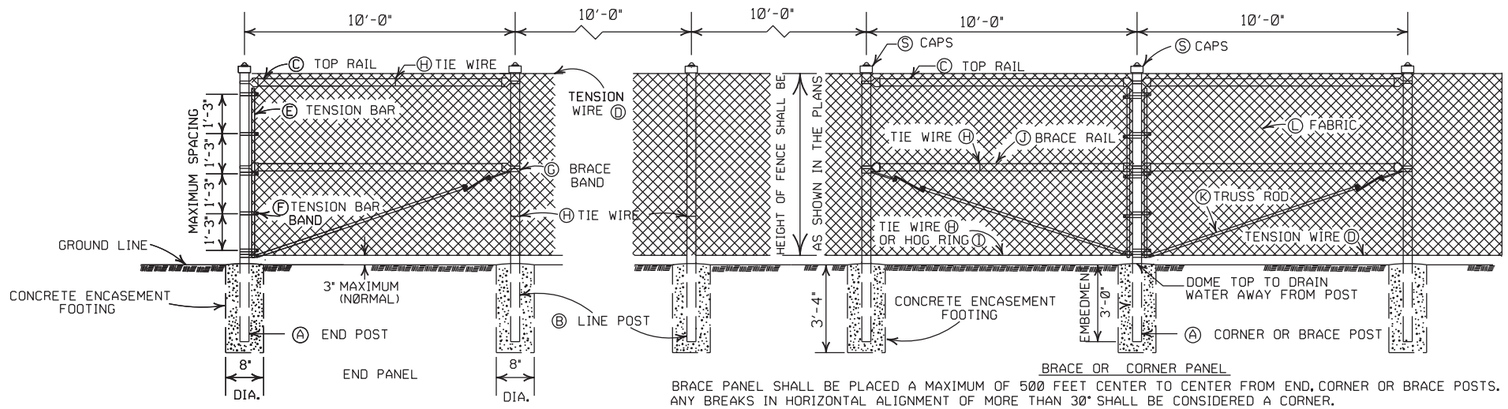
NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.



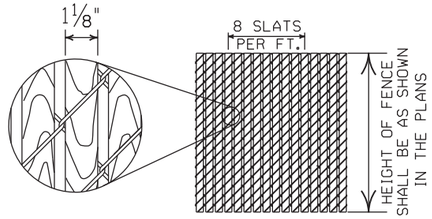
DOUBLE SWING GATE

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

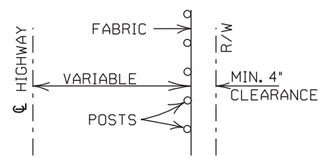
HEIGHT OF FENCE FABRIC	(A)	(B)		(C)			(D)		(E)		(F)			(G)	
	END, PULL, CORNER OR BRACE POST	LINE POSTS		TOP RAIL			TENSION WIRE		TENSION BAR		TENSION BAR BAND			BRACE BAND	
		SIZE	TIE SPACING	SIZE	TIE SPACING	MIN. LENGTH	SIZE	TIE SPACING	SIZE	LENGTH	SIZE	BOLT SIZE	SPACING	SIZE	BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H)	(I)	(J)		(K)	(L)			(M)		(N)		(O)	(T)	
	TIE WIRE	HOG RING	BRACE RAIL		TRUSS ROD	FABRIC			GATE FRAME		HORIZONTAL SUPPORT		HINGE TYPE	GATE POST	
			SIZE	TIE SPACING		SIZE	MESH	SELVAGE	SIZE	TIE SPACING	SIZE	TIE SPACING	180° SWING	GATE WIDTH 12' AND LESS	GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅝" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS. 9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY				GRADE 2		
	O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

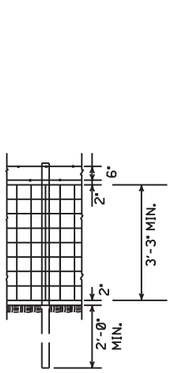
EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

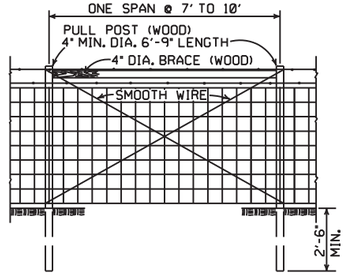
ARKANSAS STATE HIGHWAY COMMISSION

CHAIN LINK FENCE

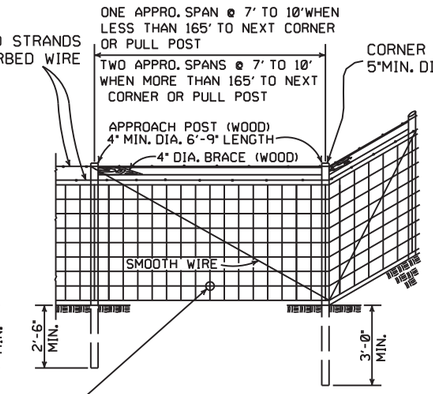
STANDARD DRAWING WF-3

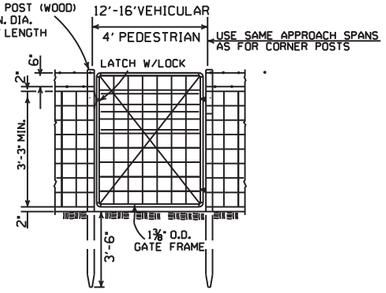


LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"



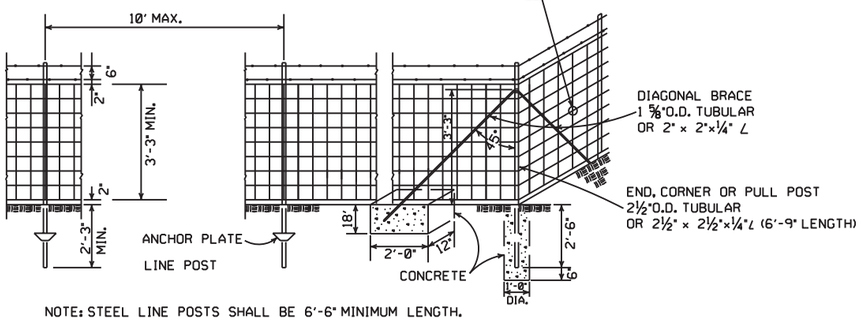
LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

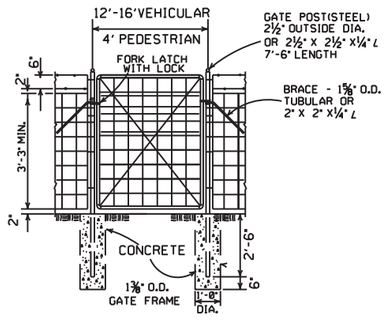


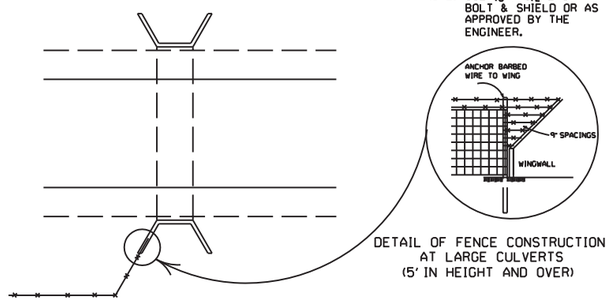


TYPE C FENCE (WOOD POSTS)

OTHER APPROVED TIES
WILL BE PERMITTED





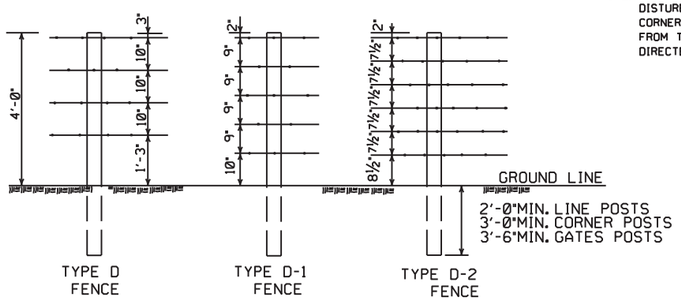


DETAIL OF FENCE CONSTRUCTION
AT LARGE CULVERTS
(5' IN HEIGHT AND OVER)

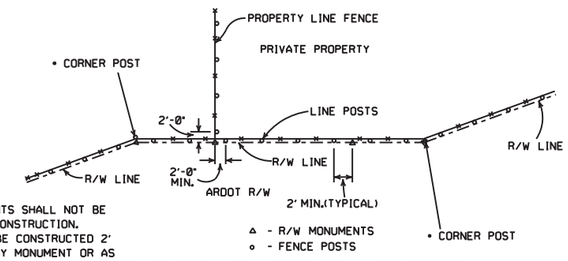
NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

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

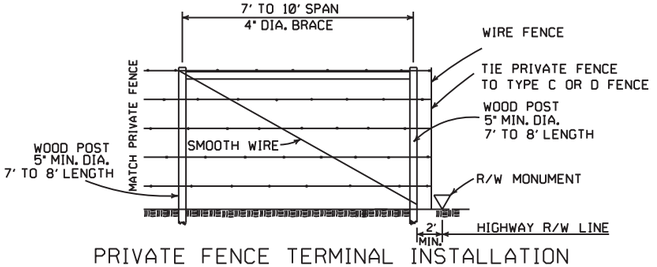


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



• 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.

GENERAL NOTES:

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

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

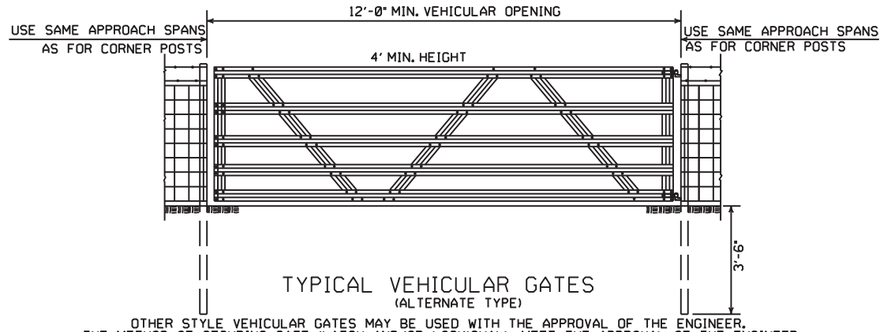
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED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

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

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

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

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



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