

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

POINT REMOVE CREEK
STR. & APPRS. (S)

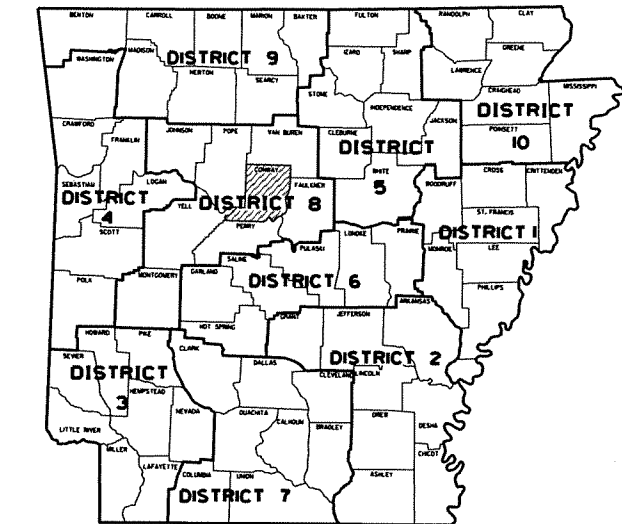
CONWAY COUNTY

ROUTE 124 SECTION 3

JOB 080383

FED. AID PROJ. BRN-0015(22)

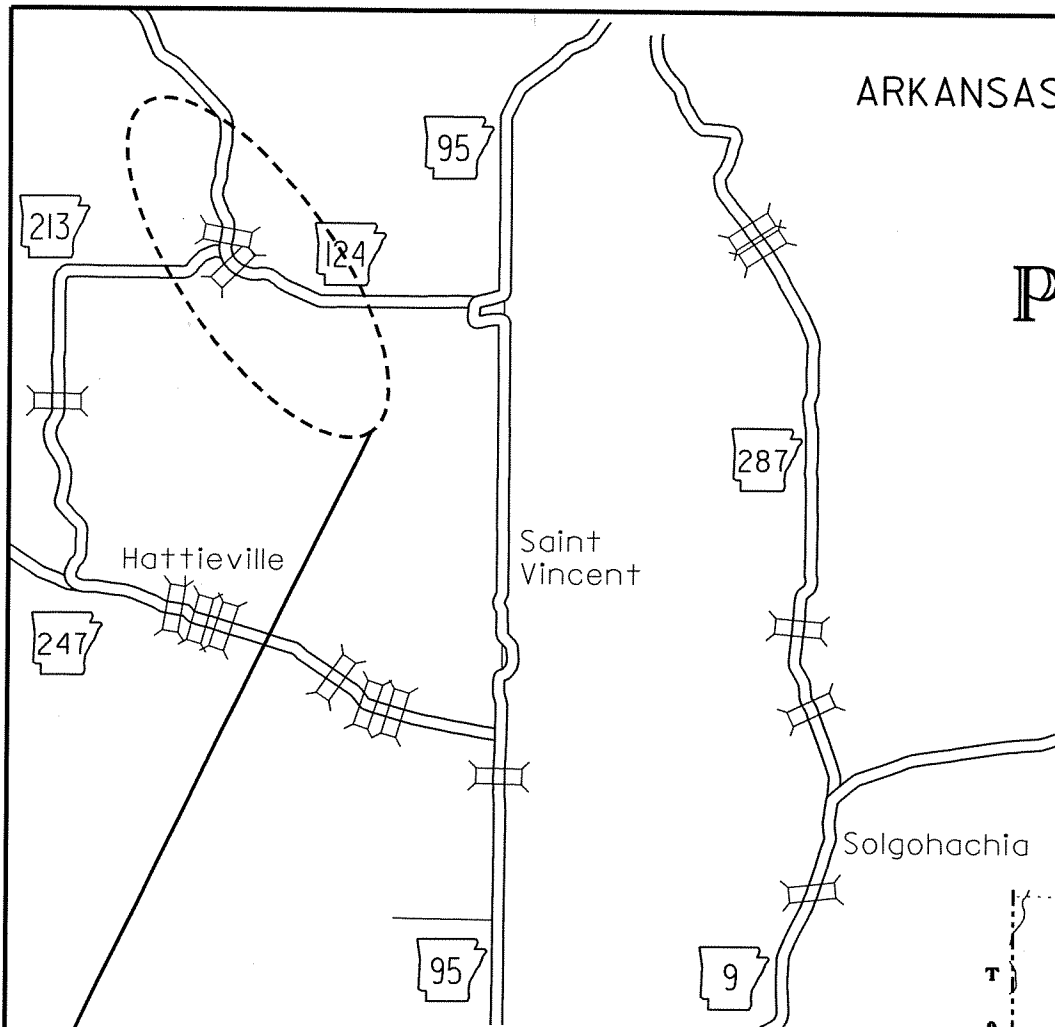
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080383	92	
				2		POINT REMOVE CREEK STR. & APPRS. (S)		



ARK. HWY. DIST. NO. 8

• DESIGN TRAFFIC DATA •

DESIGN YEAR ————— 2031
2011 ADT ————— 800
2031 ADT ————— 1000
2031 DHV ————— 110
TRUCKS ————— 17%
DESIGN SPEED ————— 50 MPH



PROJECT
LOCATION

VICINITY MAP

STA. 127+00.00
END JOB 080383
LOG MILE 7.24

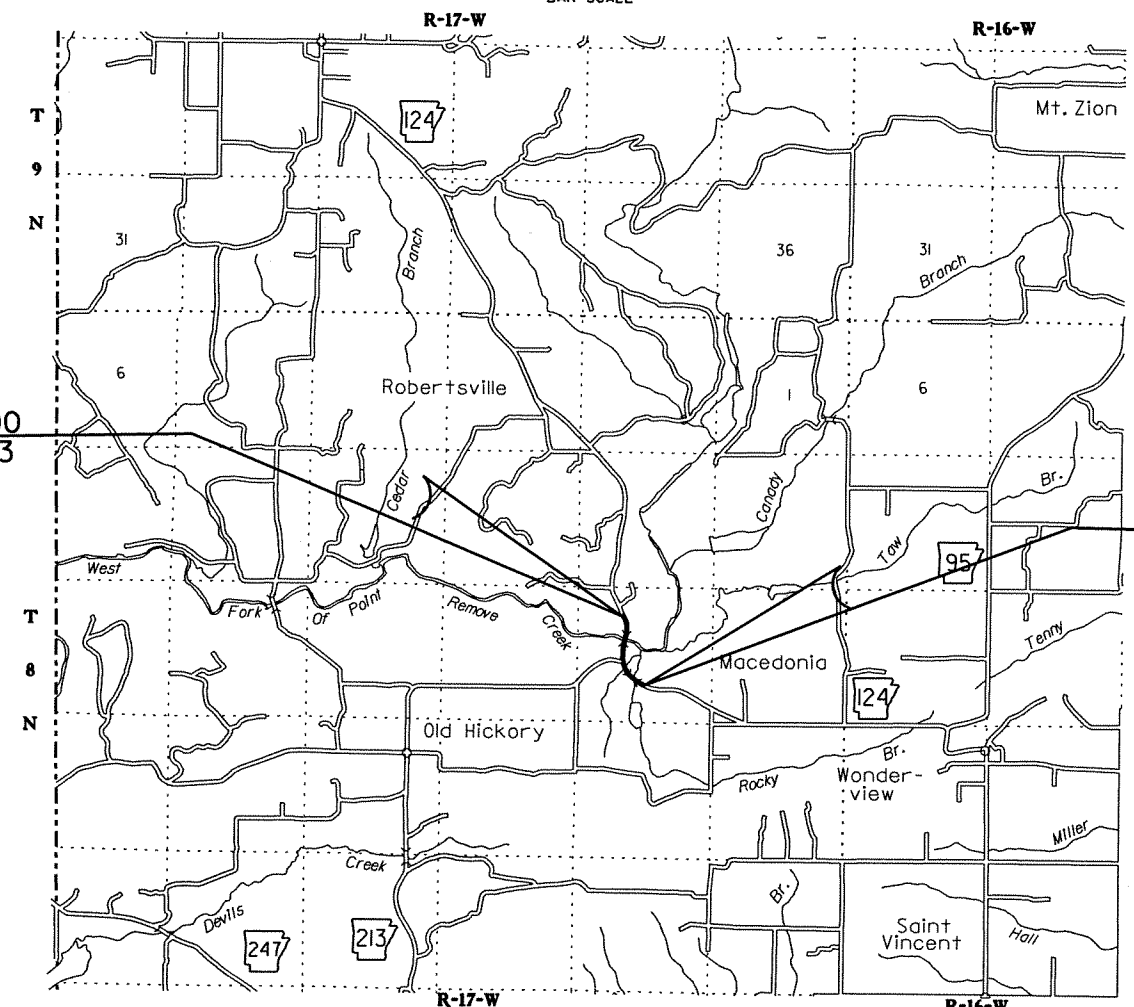
BRIDGE CONSTRUCTION DATA

- ① BR. END STA. 114+37.92
BRIDGE NO. 07216
263'-2" X 30' CLEAR ROADWAY
261' CONTINUOUS COMPOSITE PRESTRESSED
CONCRETE GIRDER UNIT TYPE IV (87', 87', 87')
BR. END STA. 117+01.08

BEGIN-POINT OF PROJECT
LAT. = N 35°20' 12"
LONG. = W 92°46' 40"

MID-POINT OF PROJECT
LAT. = N 35°20' 22"
LONG. = W 92°46' 42"

END-POINT OF PROJECT
LAT. = N 35°20' 35"
LONG. = W 92°46' 42"



STA. 103+00.00
BEGIN JOB 080383
LOG MILE 7.69

GROSS LENGTH OF PROJECT	2400.00	FEET	OR	0.455	MILES
NET " " ROADWAY	2136.84	"	"	0.405	"
NET " " BRIDGES	263.16	"	"	0.050	"
NET " " PROJECT	2400.00	"	"	0.455	"

PE JOB 080383
NON-PART.



APPROVED



7/20/11
DEPUTY DIRECTOR
AND CHIEF ENGINEER

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						JOB NO. 080383	2	92

INDEX OF SHEETS

GOVERNING SPECIFICATIONS

2 INDEX, GOVERNING SPECS. AND GEN. NOTES

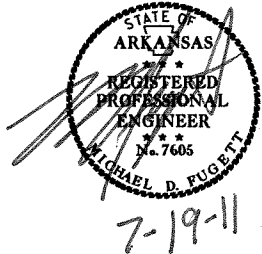
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ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	FHWA-1273 REVISIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1	ASPHALT CONCRETE COLD PLANT MIX
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
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JOB 080383	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080383	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 080383	EXTENSION FOR PIPE CULVERTS
JOB 080383	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080383	HIGH PERFORMANCE PAVEMENT MARKING
JOB 080383	INTERNET BIDDING
JOB 080383	NESTING SITES OF MIGRATORY BIRDS
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JOB 080383	SILICONE JOINT SEALANT
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JOB 080383	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080383	TEMPORARY IMPACT ATTENUATION BARRIER
JOB 080383	TEMPORARY SHORING
JOB 080383	UTILITY ADJUSTMENTS

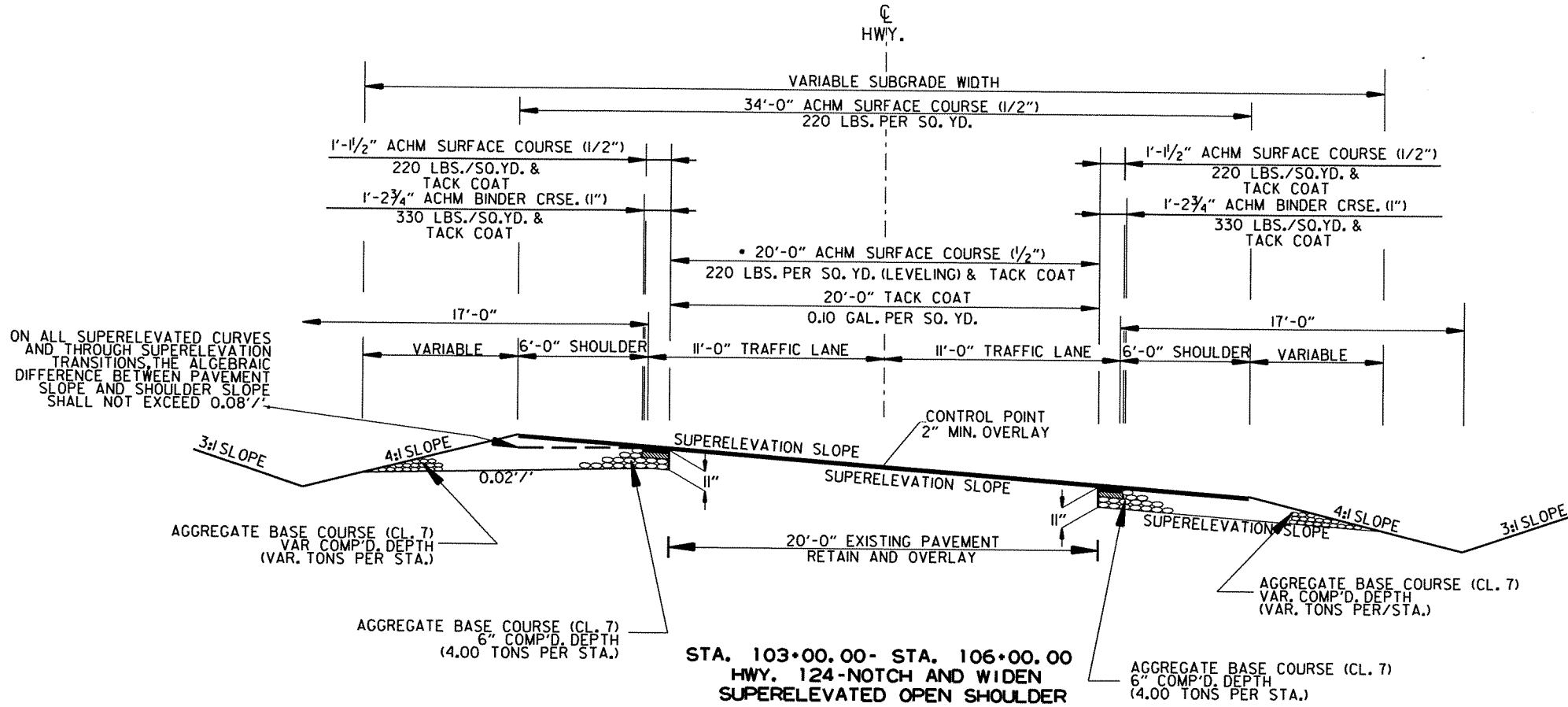
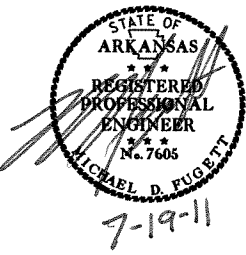
GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPERATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.



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2 TYPICAL SECTIONS OF IMPROVEMENTS



NOTES:

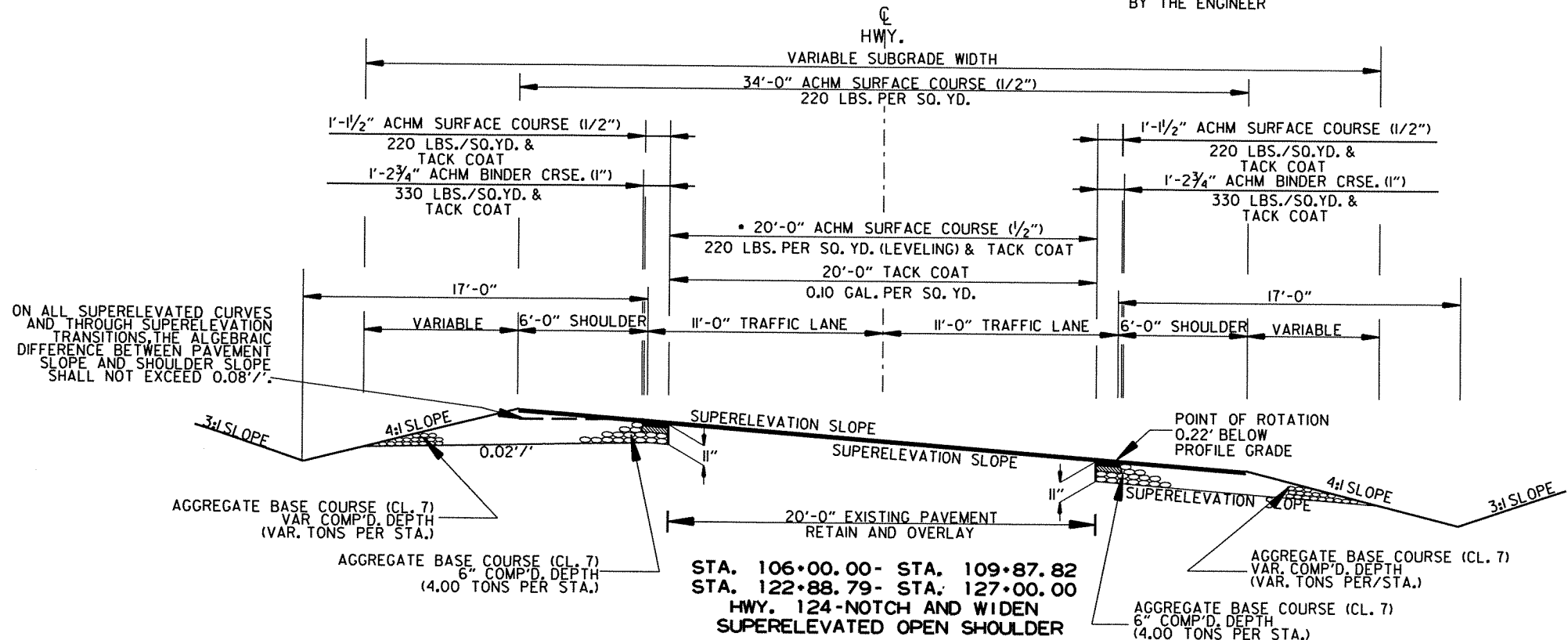
THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING.

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

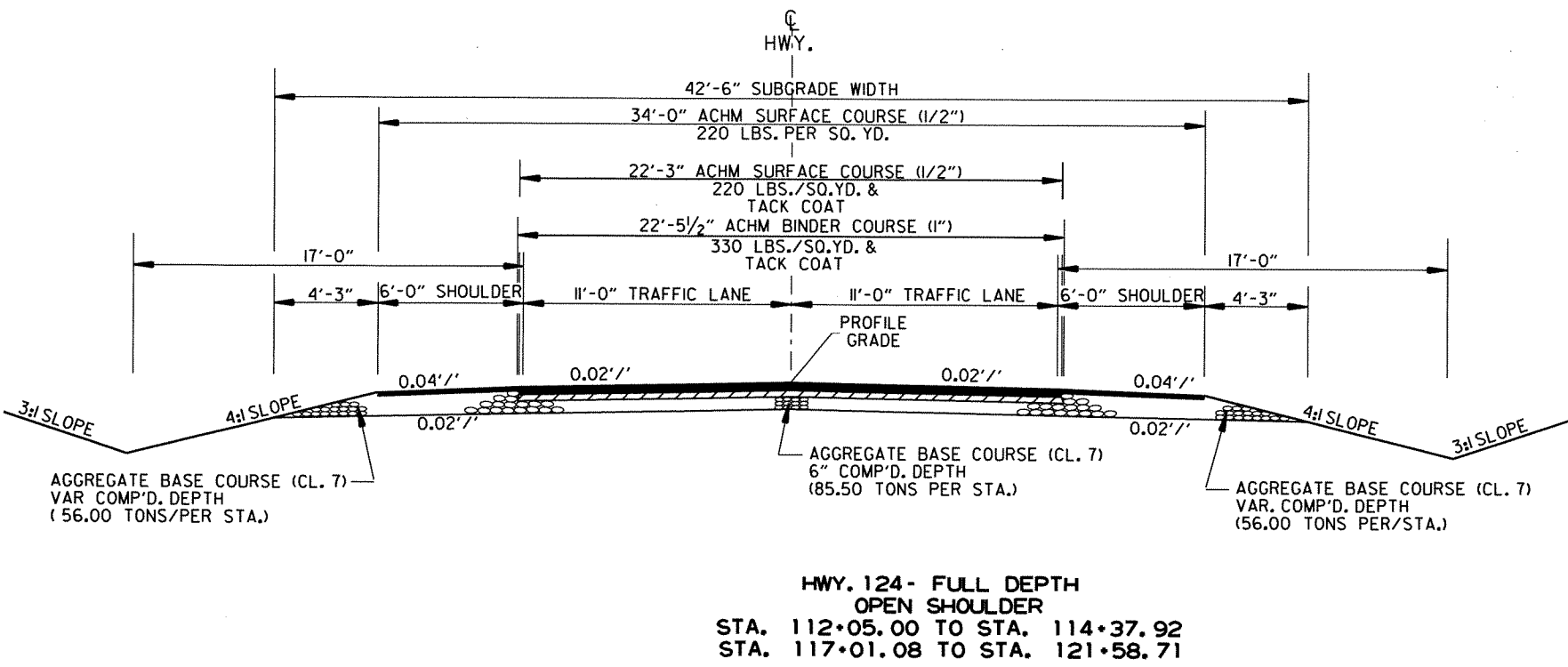
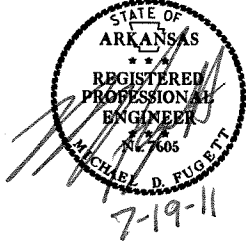
WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



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
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2 TYPICAL SECTIONS OF IMPROVEMENTS



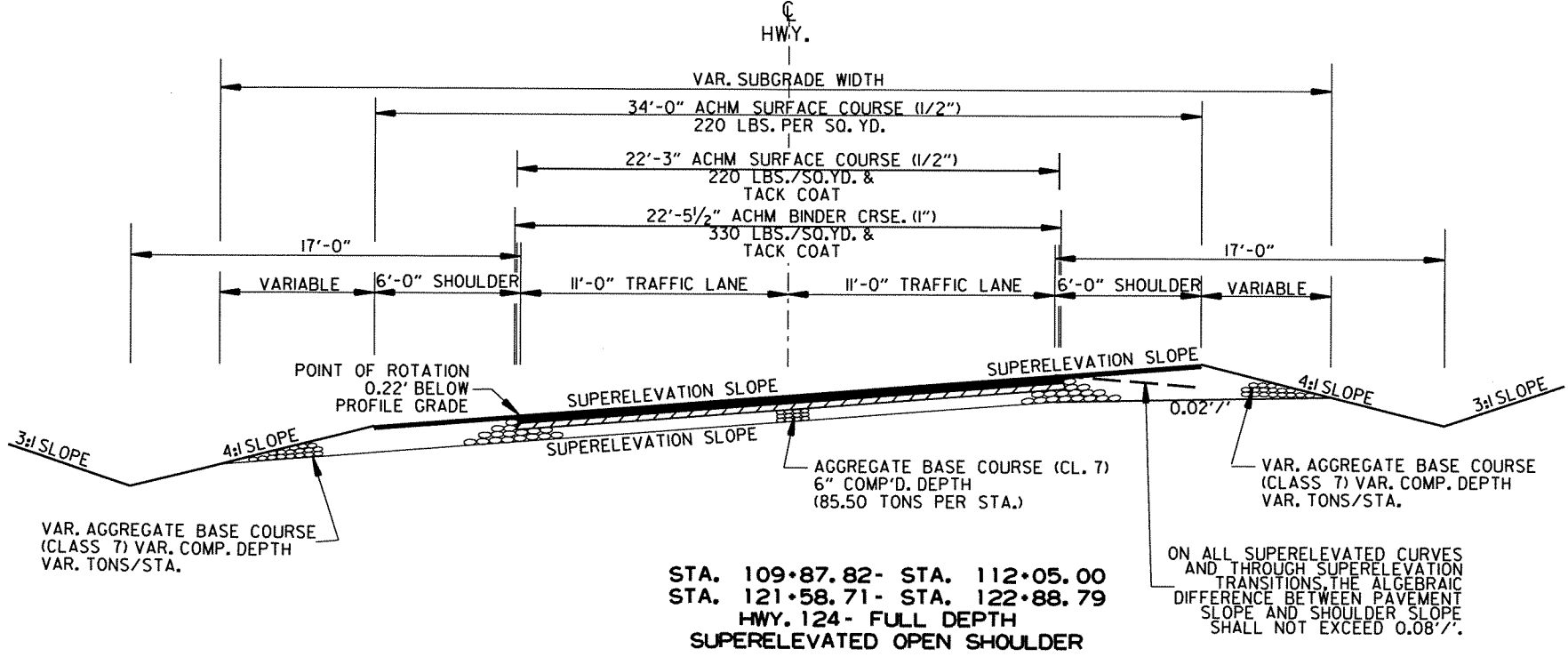
NOTES:

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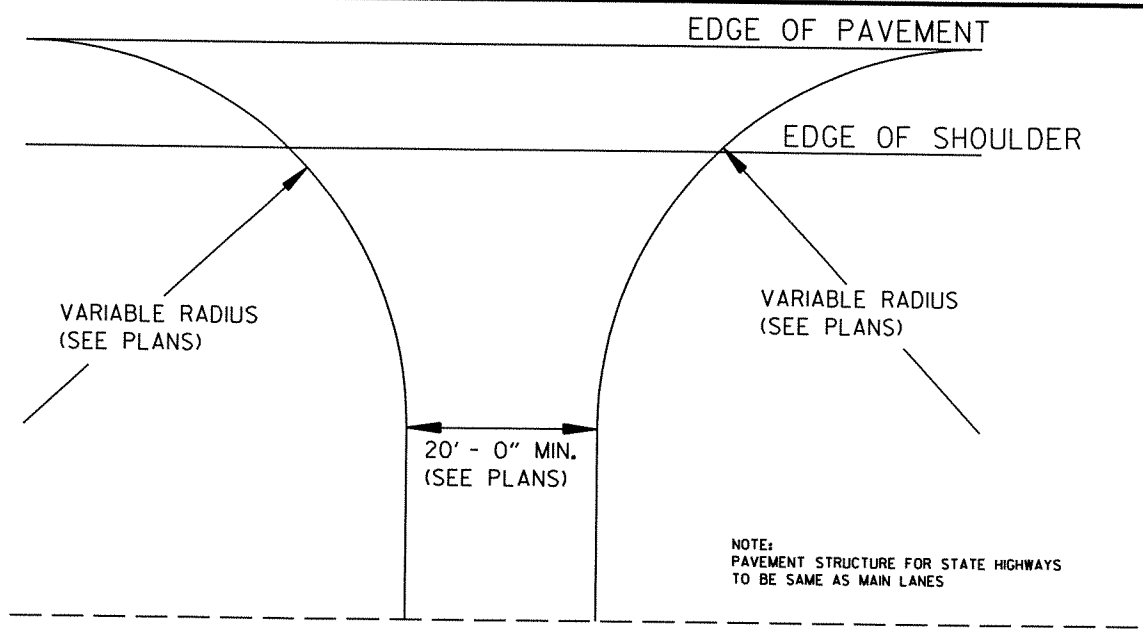
WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1 1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



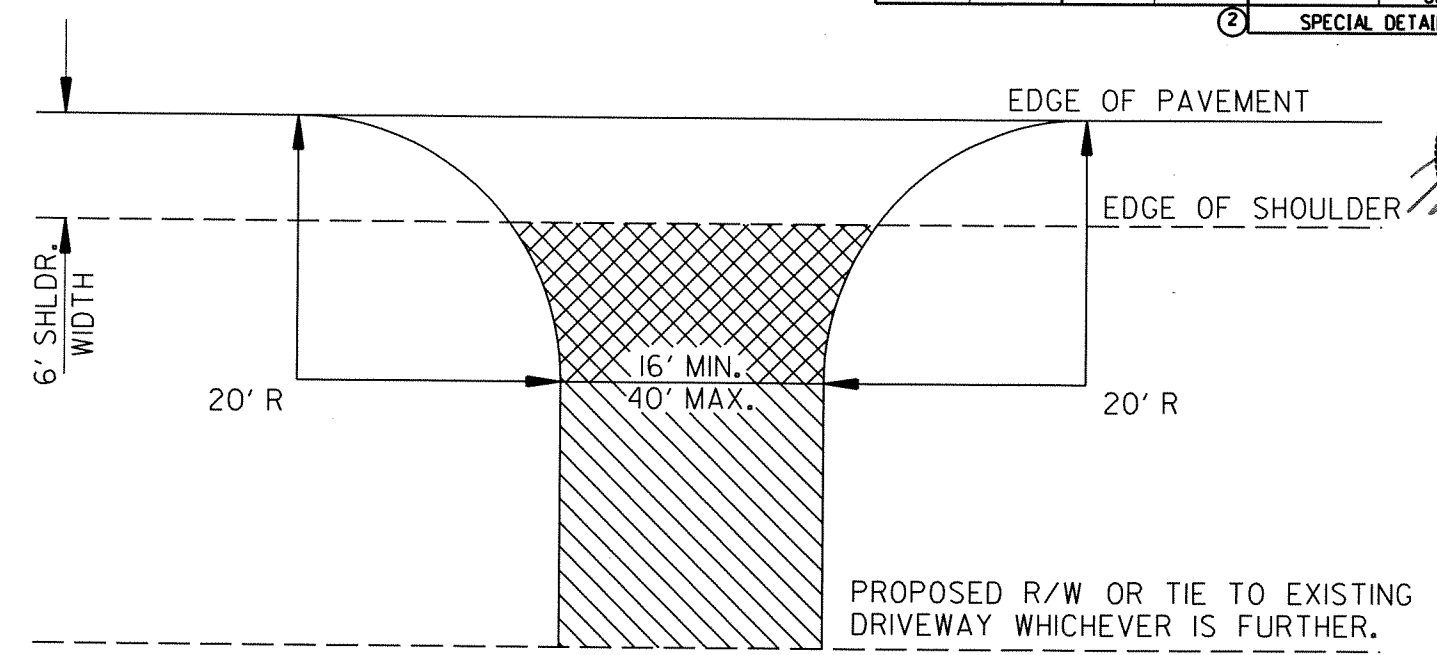
STA. 109+87.82- STA. 112+05.00
STA. 121+58.71- STA. 122+88.79
HWY. 124- FULL DEPTH
SUPERELEVATED OPEN SHOULDER

ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

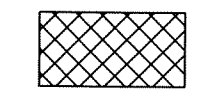
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SPECIAL DETAILS								



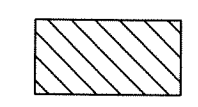
DETAIL OF TURNOUTS
STATE HIGHWAY TURNOUT



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

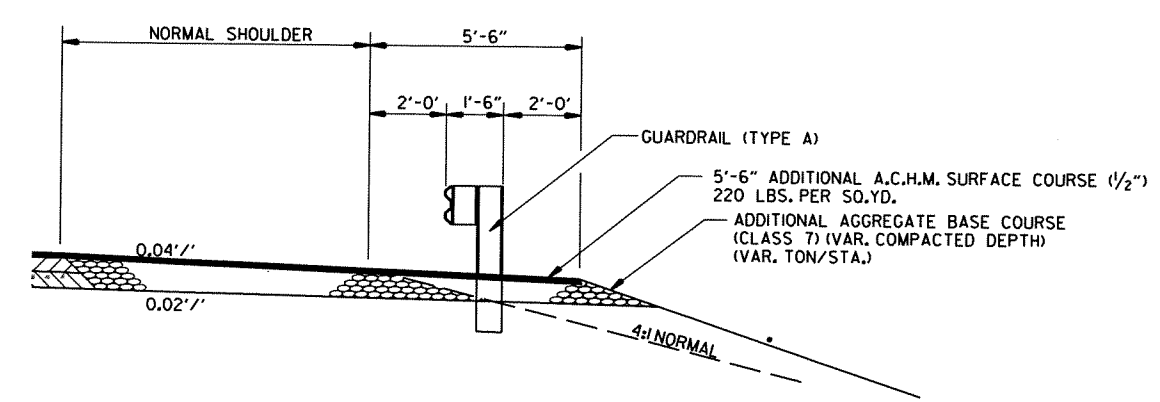


ASPHALT CONCRETE HOT MIX SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.)
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH



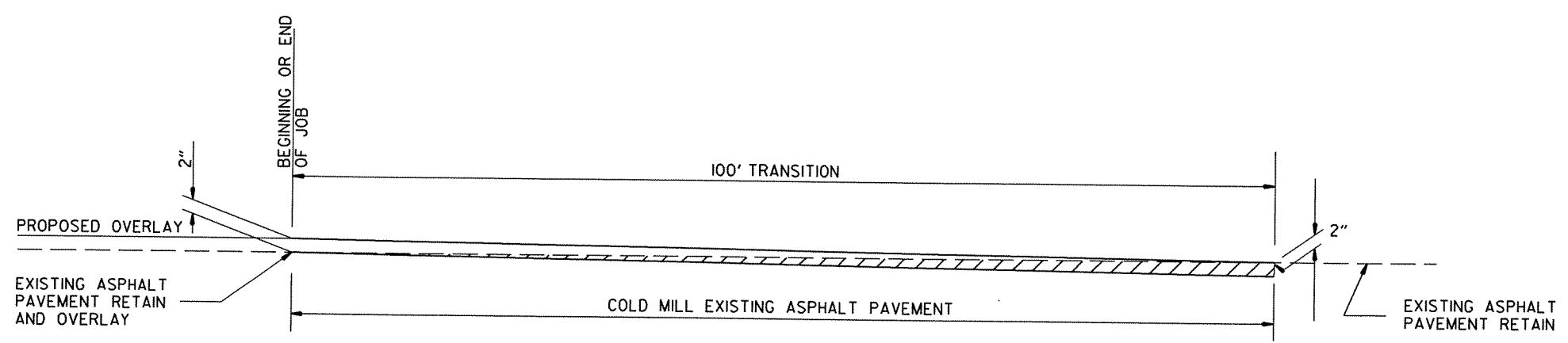
AGGREGATE BASE COURSE (CLASS 7)
9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY.

DETAIL FOR DRIVEWAY TURNOUTS

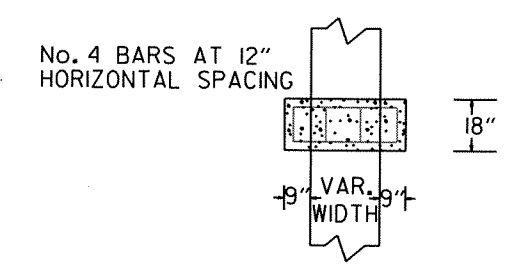


WIDENING FOR GUARDRAIL DETAIL

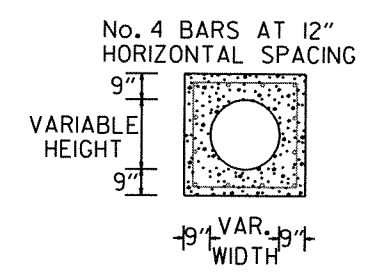
NOTE: REFER TO STD. DWG GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.



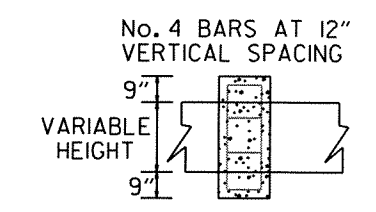
DETAIL FOR TRANSITIONS



TOP VIEW MIN. 3" COVER



FRONT VIEW

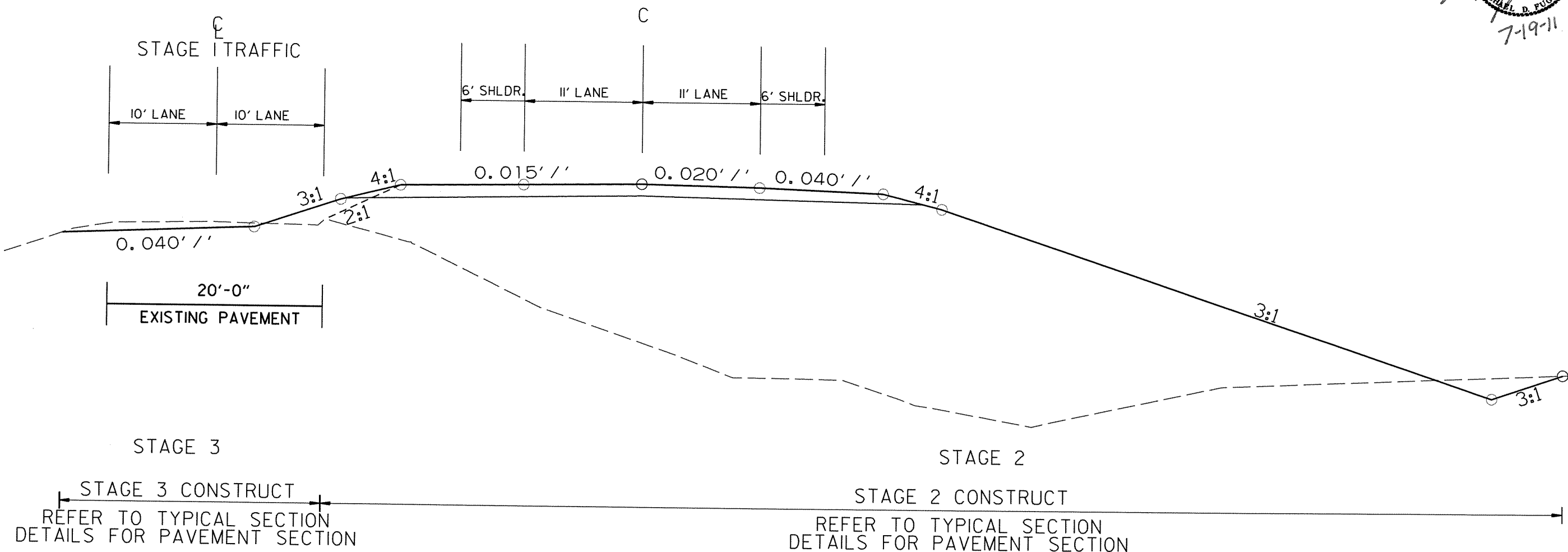
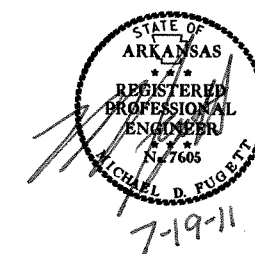


SIDE VIEW

PIPE EXTENSION
REINFORCED CONCRETE COLLAR DETAIL

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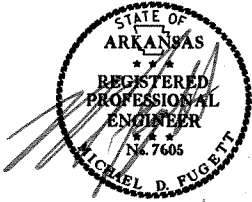
② SPECIAL DETAILS



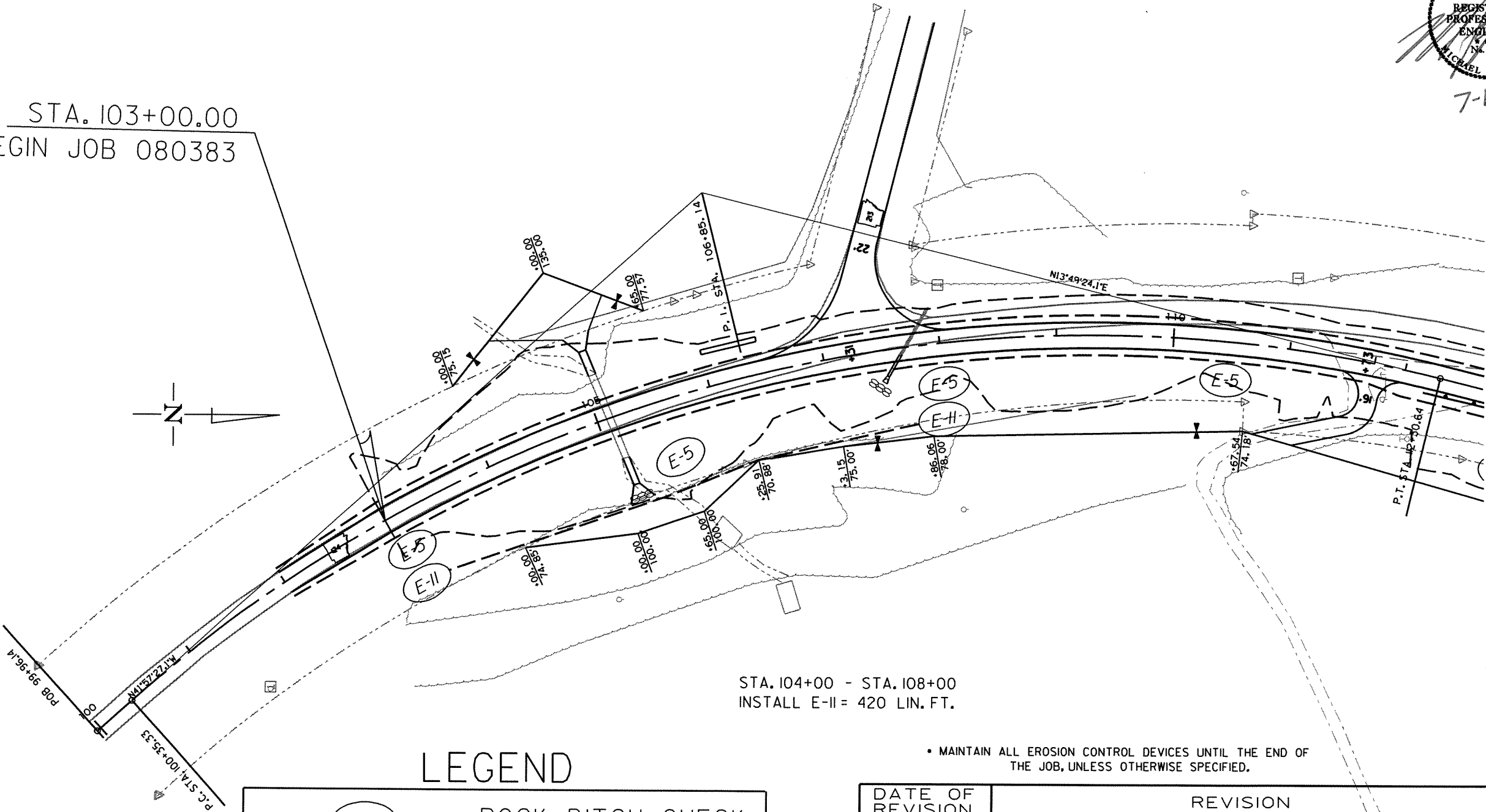
SPECIAL DETAILS

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2 TEMPORARY EROSION CONTROL DETAILS



STA. 103+00.00
BEGIN JOB 080383



LEGEND

	= ROCK DITCH CHECK
	= SILT FENCE
	= SAND BAG DITCH CHECK

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

DATE OF REVISION	REVISION

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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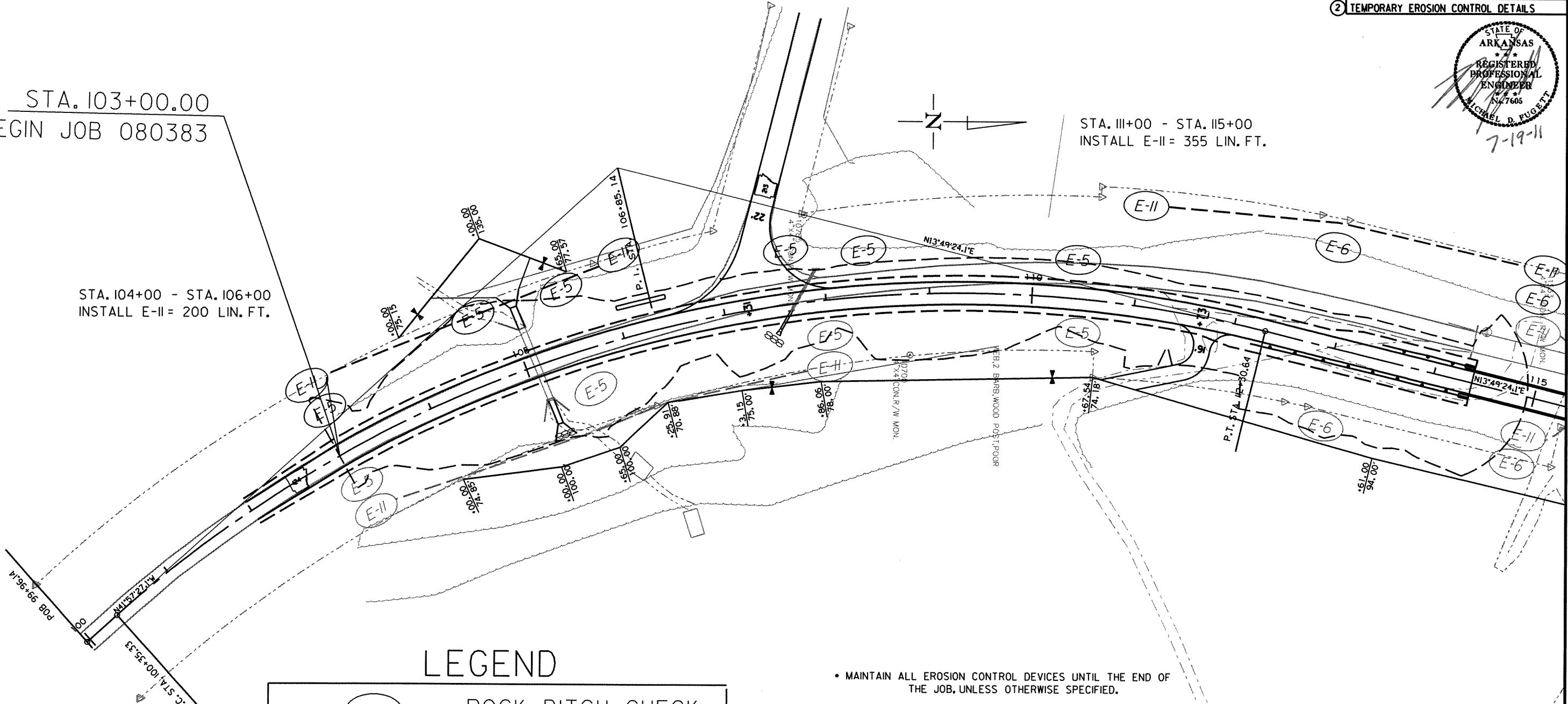
2 TEMPORARY EROSION CONTROL DETAILS



STA. 103+00.00
BEGIN JOB 080383

STA. 104+00 - STA. 106+00
INSTALL E-II = 200 LIN. FT.

STA. 111+00 - STA. 115+00
INSTALL E-II = 355 LIN. FT.



LEGEND

	= ROCK DITCH CHECK
	= SILT FENCE
	= SAND BAG DITCH CHECK

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

DATE OF REVISION	REVISION

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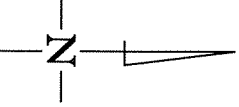
2 TEMPORARY EROSION CONTROL DETAILS



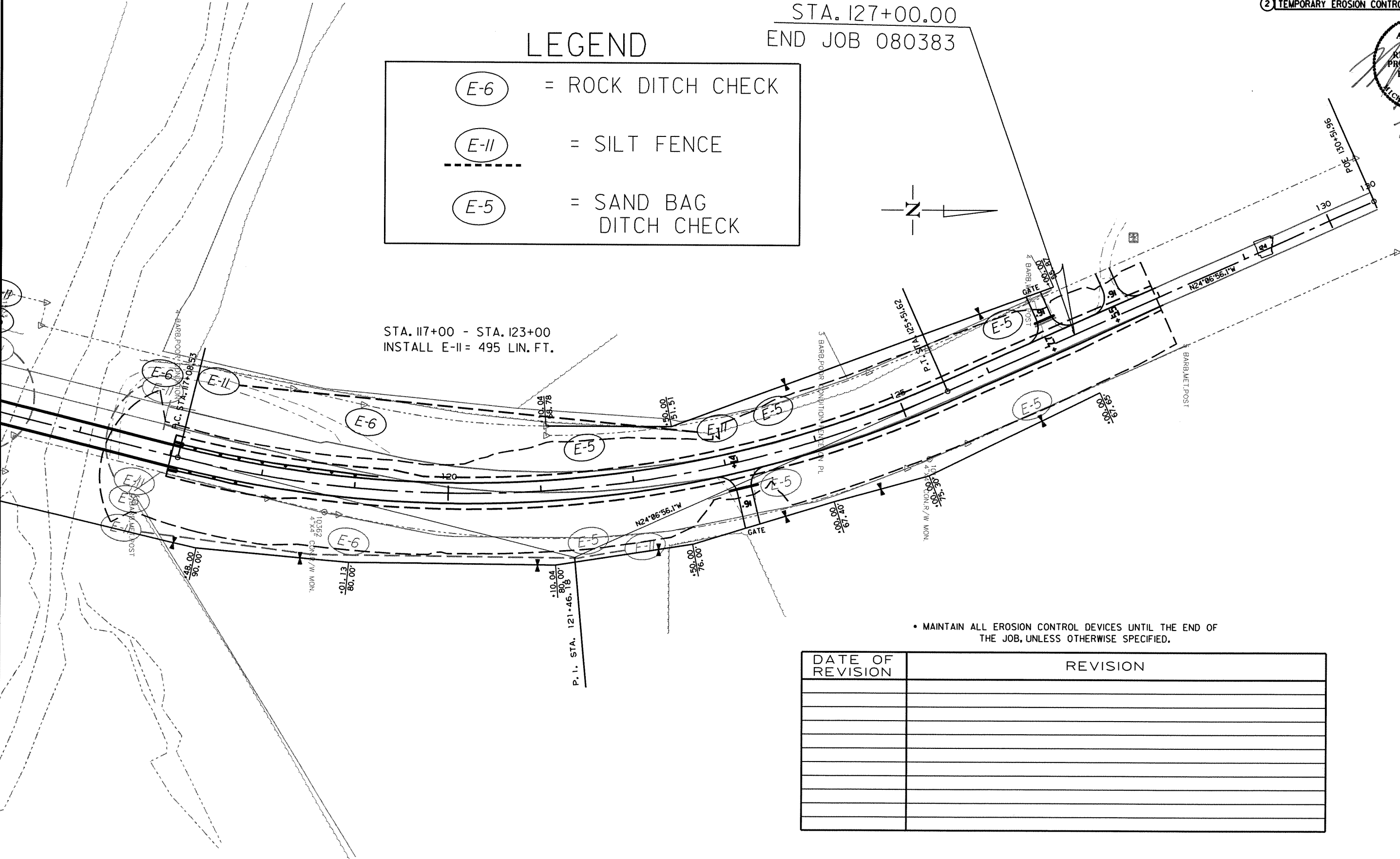
STA. 127+00.00
END JOB 080383

LEGEND

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



STA. 117+00 - STA. 123+00
INSTALL E-II = 495 LIN. FT.



• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

DATE OF REVISION	REVISION

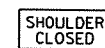
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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.	080383		12	92

② MAINTENANCE OF TRAFFIC DETAILS



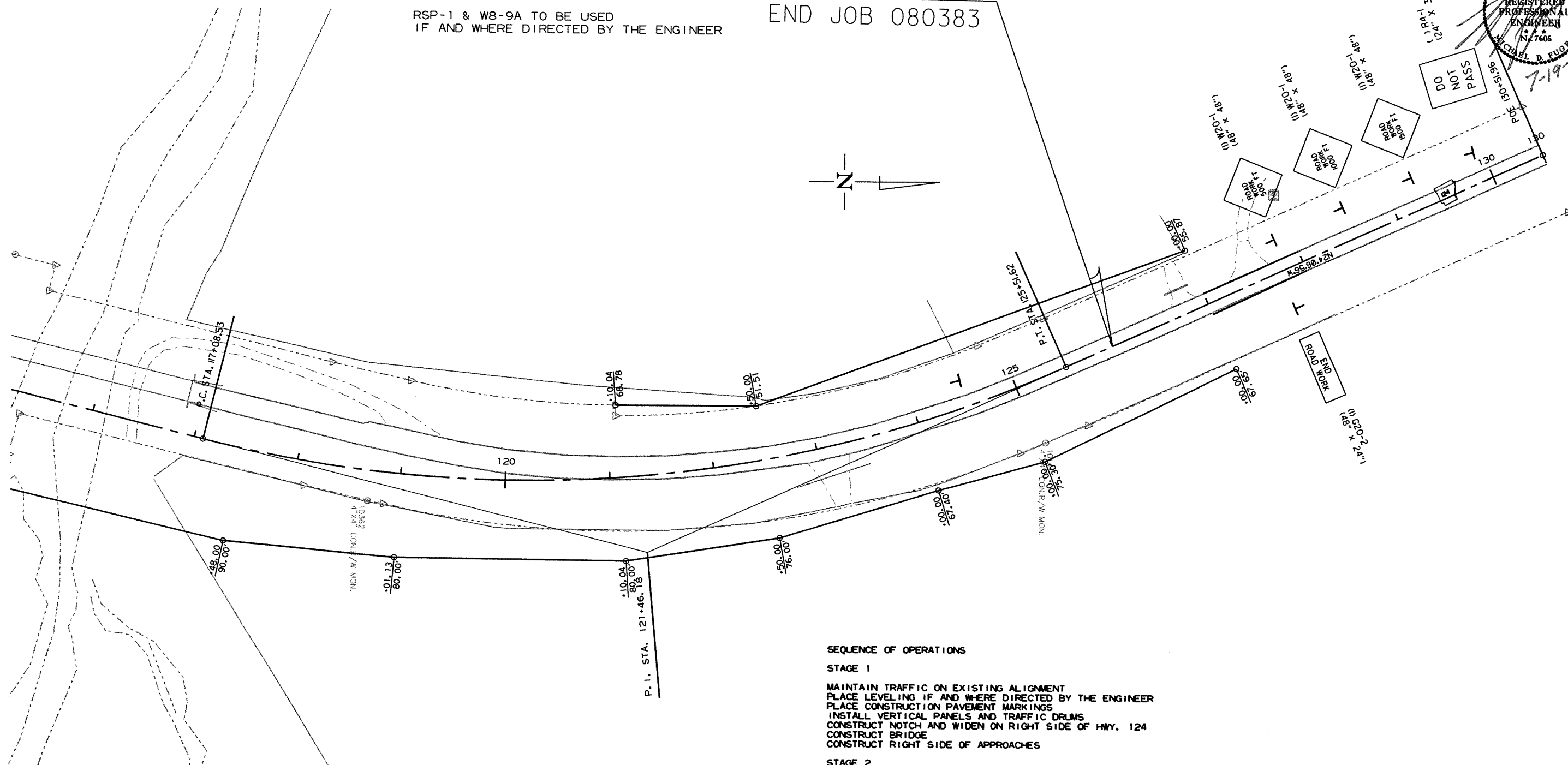
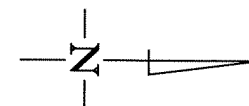
(2) W8-9A
(36" X 36")



(2) RSP-1
(48" X 30")

RSP-1 & W8-9A TO BE USED
IF AND WHERE DIRECTED BY THE ENGINEER

STA. 127+00.00
END JOB 080383



SEQUENCE OF OPERATIONS

STAGE 1

MAINTAIN TRAFFIC ON EXISTING ALIGNMENT
PLACE LEVELING IF AND WHERE DIRECTED BY THE ENGINEER
PLACE CONSTRUCTION PAVEMENT MARKINGS
INSTALL VERTICAL PANELS AND TRAFFIC DRUMS
CONSTRUCT NOTCH AND WIDEN ON RIGHT SIDE OF HWY. 124
CONSTRUCT BRIDGE
CONSTRUCT RIGHT SIDE OF APPROACHES

STAGE 2

SHIFT TRAFFIC TO CONST. ALIGNMENT
PLACE CONSTRUCTION PAVEMENT MARKINGS
INSTALL VERTICAL PANELS AND TRAFFIC DRUMS
CONSTRUCT NOTCH AND WIDEN ON LEFT SIDE OF HWY. 124
REMOVE OLD BRIDGE AND EXISTING HWY. 124 PAVEMENT

STAGE 3

MAINTAIN TRAFFIC ON FINAL ALIGNMENT
COLD MILL TRANSITIONS AT JOB ENDS
PLACE FINAL LIFT OF SURFACE
PLACE FINAL STRIPING

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

STA. 103+00.00 - STA. 110+50.00 LT.
VERTICAL PANELS (50' O.C.) = 16 EACH

STA. 111+00.00 - STA. 113+50.00 LT.
TRAFFIC DRUMS (50' O.C.) = 5 EACH

STA. 111+73 RT.
TRAFFIC DRUMS (6 PER DRIVE) = 6 EACH

STA. 117+00.00 - STA. 119+50.00 LT.
TRAFFIC DRUMS (50' O.C.) = 6 EACH

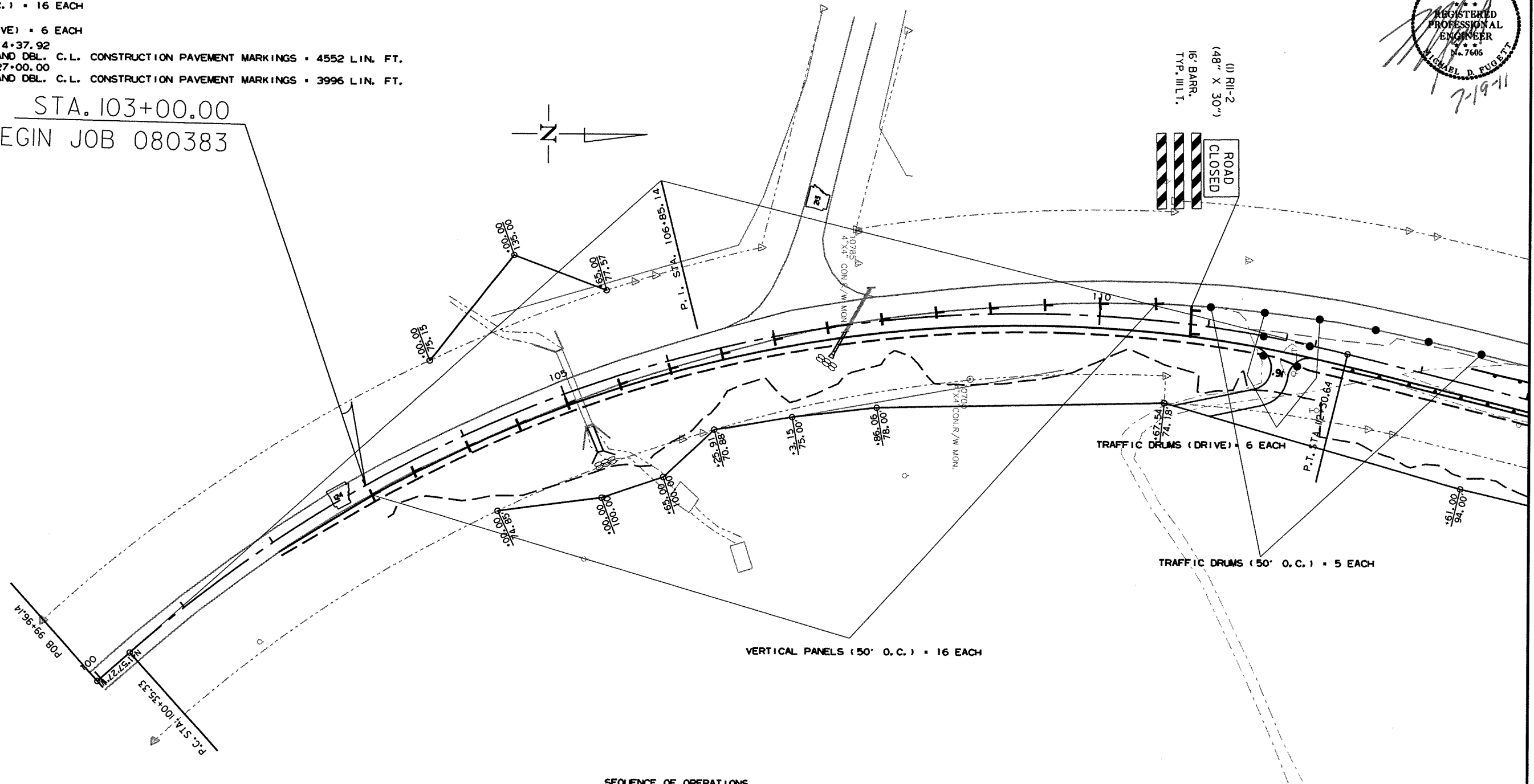
STA. 120+00.00 - STA. 127+50.00 RT.
VERTICAL PANELS (50' O.C.) = 16 EACH

STA. 123+14 RT.
TRAFFIC DRUMS (6 PER DRIVE) = 6 EACH

STA. 103+00.00 - STA. 114+37.92
LT. AND RT. EDGE LINES AND DBL. C.L. CONSTRUCTION PAVEMENT MARKINGS = 4552 LIN. FT.

STA. 117+01.08 - STA. 127+00.00
LT. AND RT. EDGE LINES AND DBL. C.L. CONSTRUCTION PAVEMENT MARKINGS = 3996 LIN. FT.

STA. 103+00.00
BEGIN JOB 080383



SEQUENCE OF OPERATIONS

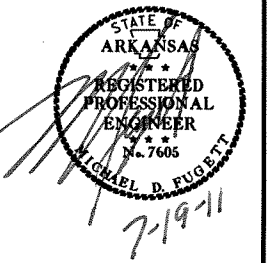
STAGE 1

MAINTAIN TRAFFIC ON EXISTING ALIGNMENT
PLACE LEVELING IF AND WHERE DIRECTED BY THE ENGINEER
PLACE CONSTRUCTION PAVEMENT MARKINGS
INSTALL VERTICAL PANELS AND TRAFFIC DRUMS
CONSTRUCT NOTCH AND WIDEN ON RIGHT SIDE OF HWY. 124
CONSTRUCT BRIDGE
CONSTRUCT AS MUCH OF APPROACHES AS POSSIBLE

STAGE 1
MAINTENANCE OF TRAFFIC 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.	080383		13	92

② MAINTENANCE OF TRAFFIC DETAILS

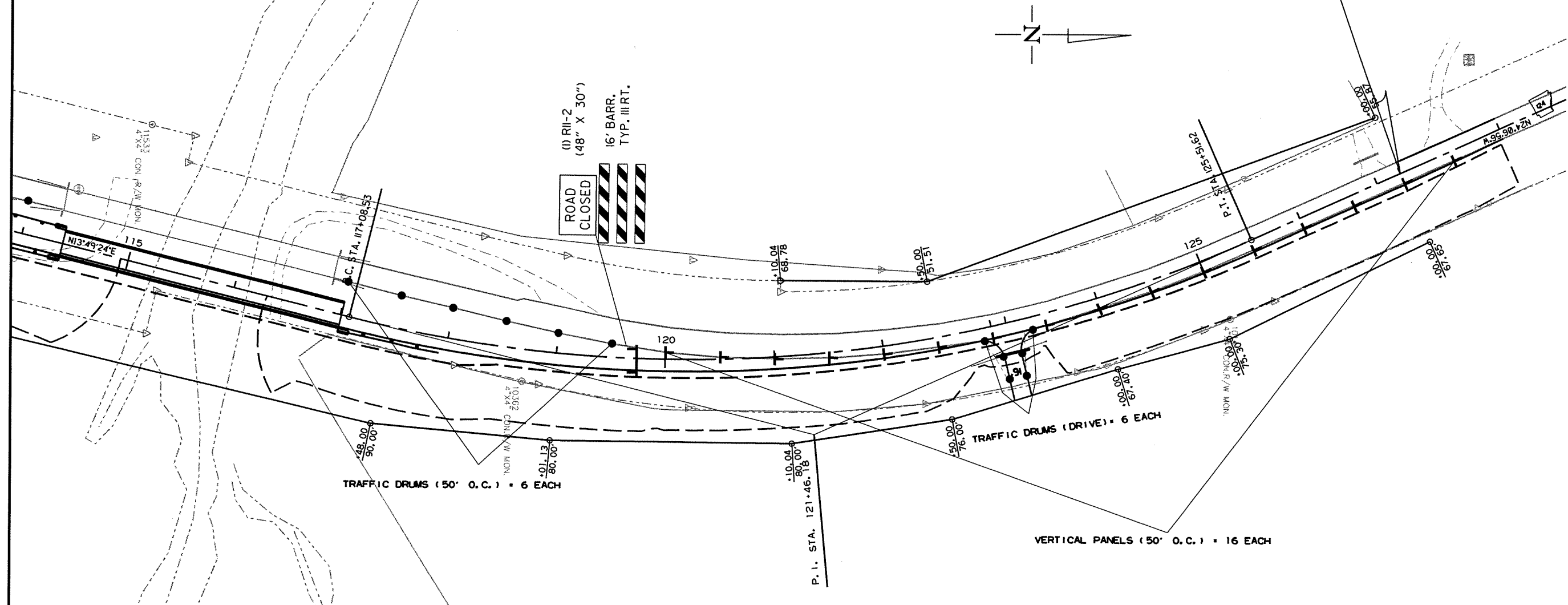
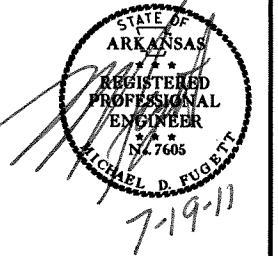


STA. 103+00.00 - STA. 110+50.00 LT.
 VERTICAL PANELS (50' O.C.) = 16 EACH
 STA. 111+00.00 - STA. 113+50.00 LT.
 TRAFFIC DRUMS (50' O.C.) = 5 EACH
 STA. 111+73 RT.
 TRAFFIC DRUMS (6 PER DRIVE) = 6 EACH
 STA. 117+00.00 - STA. 119+50.00 LT.
 TRAFFIC DRUMS (50' O.C.) = 6 EACH
 STA. 120+00.00 - STA. 127+50.00 RT.
 VERTICAL PANELS (50' O.C.) = 16 EACH
 STA. 123+14 RT.
 TRAFFIC DRUMS (6 PER DRIVE) = 6 EACH
 STA. 103+00.00 - STA. 114+37.92
 LT. AND RT. EDGE LINES AND DBL. C.L. CONSTRUCTION PAVEMENT MARKINGS = 4552 LIN. FT.
 STA. 117+01.08 - STA. 127+00.00
 LT. AND RT. EDGE LINES AND DBL. C.L. CONSTRUCTION PAVEMENT MARKINGS = 3996 LIN. FT.

STA. 127+00.00
 END JOB 080383

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. 080383	14	92

② MAINTENANCE OF TRAFFIC DETAILS



SEQUENCE OF OPERATIONS

STAGE 1

MAINTAIN TRAFFIC ON EXISTING ALIGNMENT
 PLACE LEVELING IF AND WHERE DIRECTED BY THE ENGINEER
 PLACE CONSTRUCTION PAVEMENT MARKINGS
 INSTALL VERTICAL PANELS AND TRAFFIC DRUMS
 CONSTRUCT NOTCH AND WIDEN ON RIGHT SIDE OF HWY. 124
 CONSTRUCT BRIDGE
 CONSTRUCT AS MUCH OF APPROACHES AS POSSIBLE

STAGES 1
 MAINTENANCE OF TRAFFIC DETAILS

STA. 103+00.00 - STA. 108+00.00 LT.
 TRAFFIC DRUMS (50' O.C.) = 8 EACH

STA. 107+31 LT.
 TRAFFIC DRUMS (6 PER DRIVE) = 6 EACH

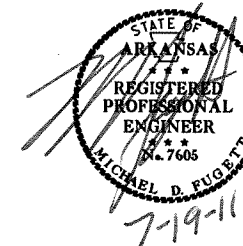
STA. 121+00.00 - STA. 127+50.00 LT.
 VERTICAL PANELS (50' O.C.) = 14 EACH

STA. 103+00.00 - STA. 114+37.92
 LT. AND RT. EDGE LINES AND DBL. C.L. CONSTRUCTION PAVEMENT MARKINGS = 4552 LIN. FT.

STA. 117+01.08 - STA. 127+00.00
 LT. AND RT. EDGE LINES AND DBL. C.L. CONSTRUCTION PAVEMENT MARKINGS = 3996 LIN. FT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080383		15	92

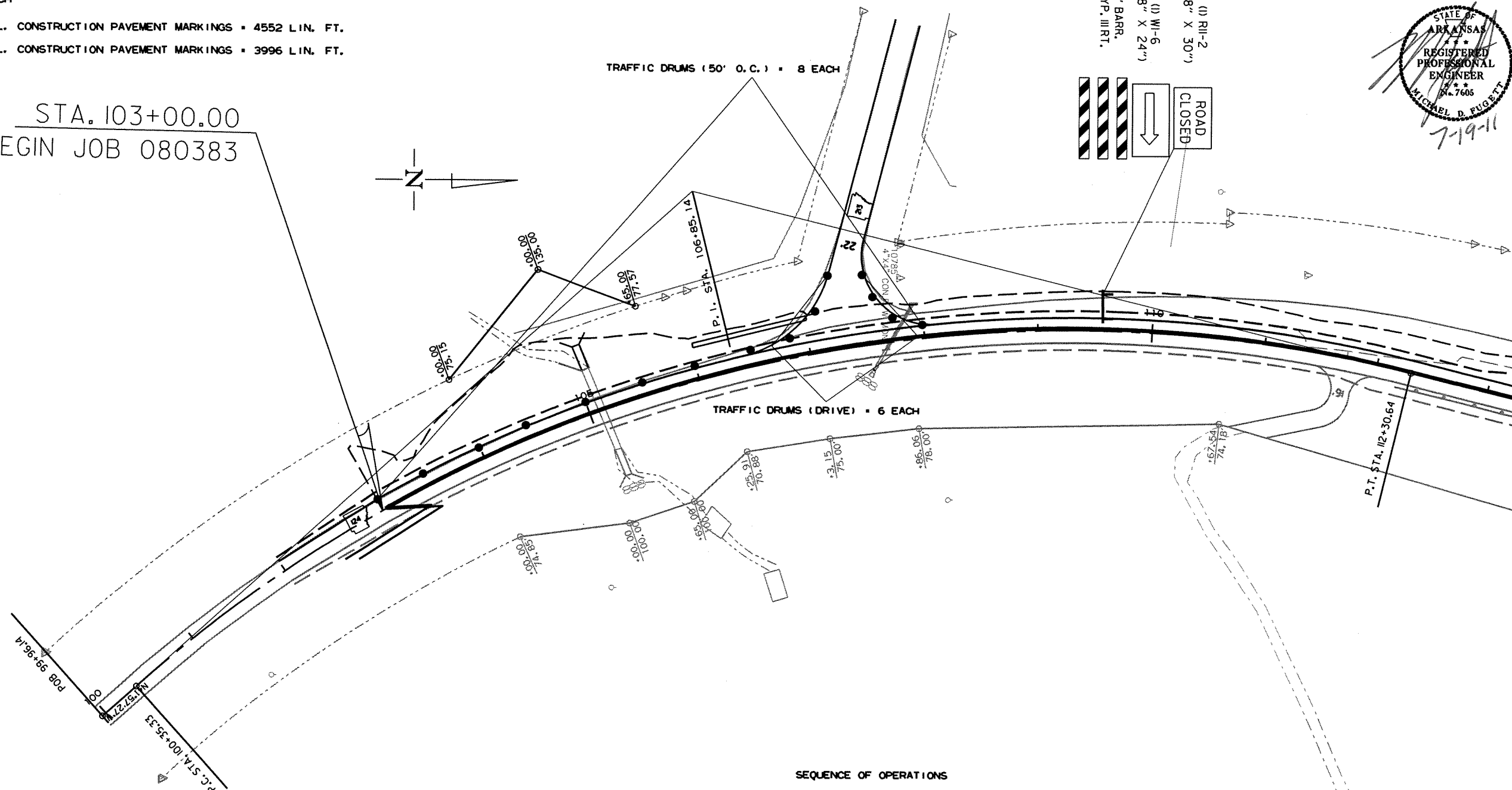
② MAINTENANCE OF TRAFFIC DETAILS



(1) RI-2
 (48" X 30")
 (1) W-6
 (48" X 24")
 16' BARR.
 TYP. III RT.

ROAD
 CLOSED

STA. 103+00.00
 BEGIN JOB 080383



SEQUENCE OF OPERATIONS

STAGE 2

SHIFT TRAFFIC TO CONST. ALIGNMENT
 PLACE CONSTRUCTION PAVEMENT MARKINGS
 INSTALL VERTICAL PANELS AND TRAFFIC DRUMS
 CONSTRUCT NOTCH AND WIDEN ON LEFT SIDE OF HWY. 124
 REMOVE OLD BRIDGE AND EXISTING HWY. 124 PAVEMENT

STAGE 2
 MAINTENANCE OF TRAFFIC DETAILS STAGE 2

STA. 103+00.00 - STA. 108+00.00 LT.
TRAFFIC DRUMS (50' O.C.) = 8 EACH
STA. 107+31 LT.
TRAFFIC DRUMS (6 PER DRIVE) = 6 EACH
STA. 121+00.00 - STA. 127+50.00 LT.
VERTICAL PANELS (50' O.C.) = 14 EACH

STA. 103+00.00 - STA. 114+37.92
LT. AND RT. EDGE LINES AND DBL. C.L. CONSTRUCTION PAVEMENT MARKINGS = 4552 LIN. FT.
STA. 117+01.08 - STA. 127+00.00
LT. AND RT. EDGE LINES AND DBL. C.L. CONSTRUCTION PAVEMENT MARKINGS = 3996 LIN. FT.

FINISHING & INSTALLING PRECAST CONCRETE BARRIER
STA. 117+10 - STA. 119+30 LT. HWY. 124 = 240 LIN. FT.

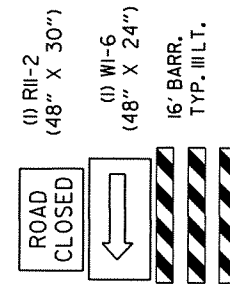
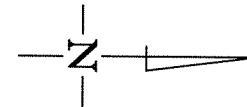
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080383	16	92

② MAINTENANCE OF TRAFFIC DETAILS



STA. 127+00.00
END JOB 080383

VERTICAL PANELS (50' O.C.) = 14 EACH



SEQUENCE OF OPERATIONS

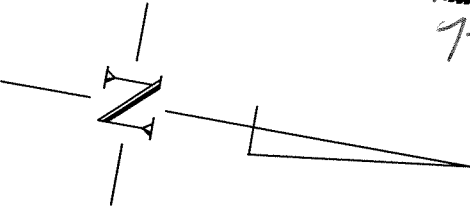
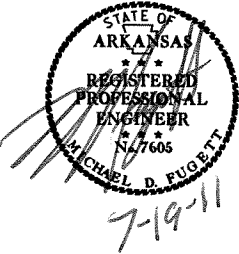
STAGE 2

SHIFT TRAFFIC TO CONST. ALIGNMENT
PLACE CONSTRUCTION PAVEMENT MARKINGS
INSTALL VERTICAL PANELS AND TRAFFIC DRUMS
CONSTRUCT NOTCH AND WIDEN ON LEFT SIDE OF HWY. 124
REMOVE OLD BRIDGE AND EXISTING HWY. 124 PAVEMENT

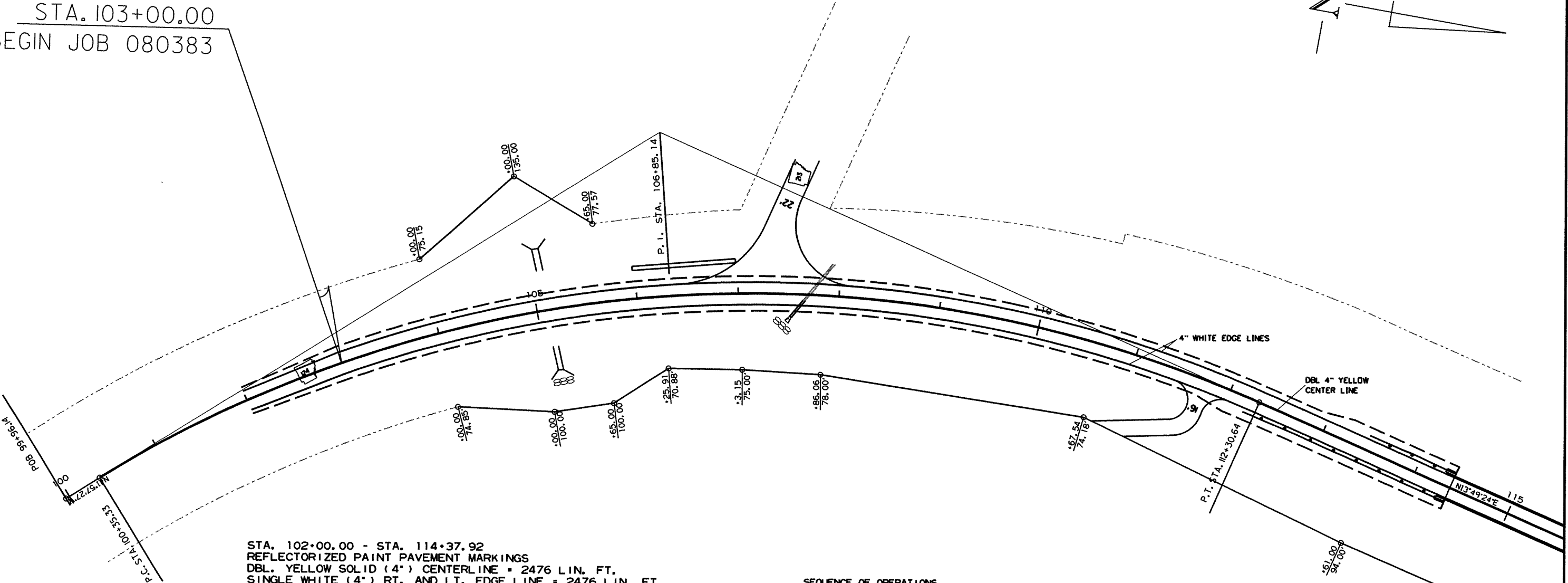
STAGES 2
MAINTENANCE OF TRAFFIC DETAILS

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. 080383	17	92

2 PERMANENT PAVEMENT MARKING DETAILS



STA. 103+00.00
BEGIN JOB 080383



STA. 102+00.00 - STA. 114+37.92
 REFLECTORIZED PAINT PAVEMENT MARKINGS
 DBL. YELLOW SOLID (4") CENTERLINE = 2476 LIN. FT.
 SINGLE WHITE (4") RT. AND LT. EDGE LINE = 2476 LIN. FT.

STA. 114+37.92 - STA. 117+01.08
 CONTRAST PAVEMENT MARKINGS
 DBL. YELLOW SOLID (4") CENTERLINE = 526 LIN. FT.
 REFLECTORIZED PAINT PAVEMENT MARKINGS
 SINGLE WHITE (4") RT. AND LT. EDGE LINE = 526 LIN. FT.

STA. 117+01.08 - STA. 128+00.00
 REFLECTORIZED PAINT PAVEMENT MARKINGS
 DBL. YELLOW SOLID (4") CENTERLINE = 2198 LIN. FT.
 SINGLE WHITE (4") RT. AND LT. EDGE LINE = 2198 LIN. FT.

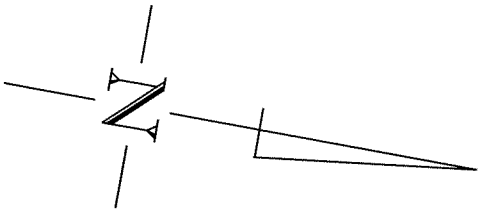
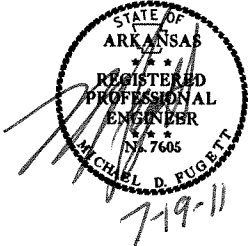
REMOVE PRECAST CONCRETE BARRIER
 STA. 117+10 - STA. 119+30 LT. HWY. 124 = 240 LIN. FT.

•NOTE:
CONTACT MAINTENANCE DIVISION TO DETERMINE NO PASSING ZONES.

SEQUENCE OF OPERATIONS
 STAGE 3
 MAINTAIN TRAFFIC ON FINAL ALIGNMENT
 COLD MILL TRANSITIONS AT JOB ENDS
 PLACE FINAL LIFT OF SURFACE
 PLACE FINAL STRIPING

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. 080383	18	92

2 PERMANENT PAVEMENT MARKING DETAILS



STA. 102+00.00 - STA. 114+37.92
REFLECTORIZED PAINT PAVEMENT MARKINGS
DBL. YELLOW SOLID (4") CENTERLINE = 2476 LIN. FT.
SINGLE WHITE (4") RT. AND LT. EDGE LINE = 2476 LIN. FT.

STA. 114+37.92 - STA. 117+01.08
CONTRAST PAVEMENT MARKINGS
DBL. YELLOW SOLID (4") CENTERLINE = 526 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKINGS
SINGLE WHITE (4") RT. AND LT. EDGE LINE = 526 LIN. FT.

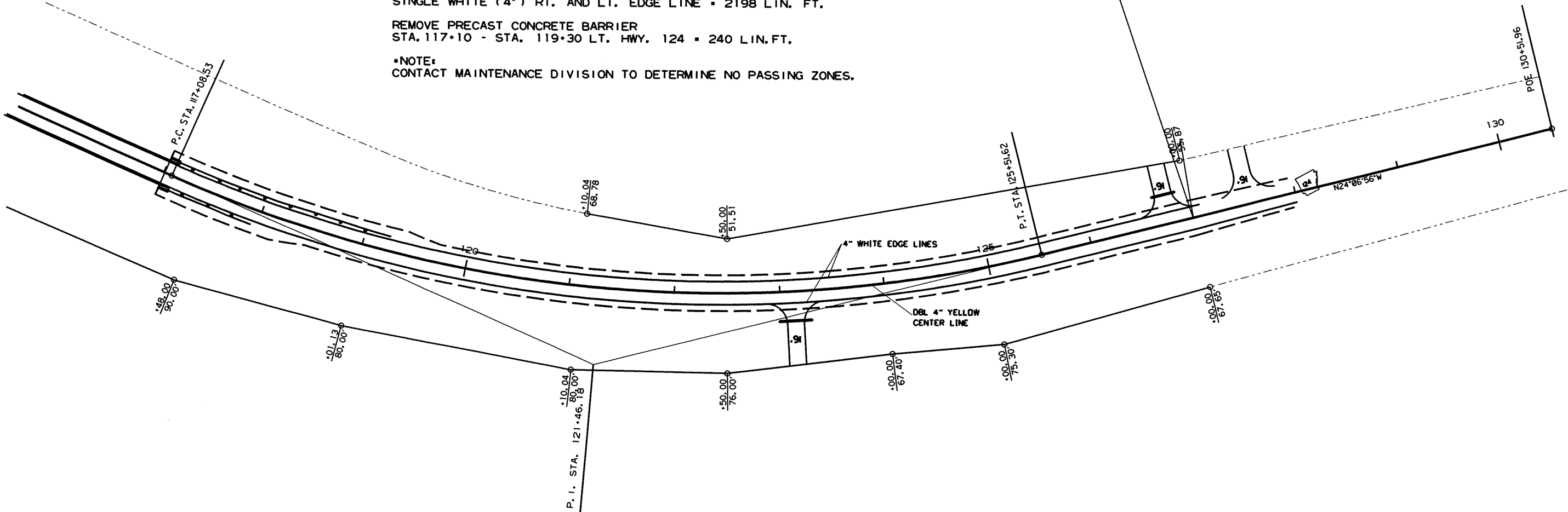
STA. 117+01.08 - STA. 128+00.00
REFLECTORIZED PAINT PAVEMENT MARKINGS
DBL. YELLOW SOLID (4") CENTERLINE = 2198 LIN. FT.
SINGLE WHITE (4") RT. AND LT. EDGE LINE = 2198 LIN. FT.

REMOVE PRECAST CONCRETE BARRIER
STA. 117+10 - STA. 119+30 LT. HWY. 124 = 240 LIN. FT.

*NOTE:
CONTACT MAINTENANCE DIVISION TO DETERMINE NO PASSING ZONES.

STA. 127+00.00
END JOB 080383

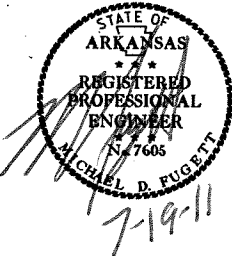
SEQUENCE OF OPERATIONS
STAGE 3
MAINTAIN TRAFFIC ON FINAL ALIGNMENT
COLD MILL TRANSITIONS AT JOB ENDS
PLACE FINAL LIFT OF SURFACE
PLACE FINAL STRIPING



R080383.DGN 6/24/11

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. 080383			19	92

2 QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES

ADVANCE WARNING SIGNS AND DEVICES															
SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
							NO.	SQ. FT.			RIGHT	LEFT			
			LIN.FT. - EACH				NO.	SQ. FT.	EACH		LIN.FT.			EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	3	3	3	3	3	48.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	3	3	3	3	3	48.0							
W20-1	ROAD WORK 500 FT.	48"x48"	3	3	3	3	3	48.0							
G20-2	END ROAD WORK	48"x24"	3	3	3	3	3	24.0							
R11-2	ROAD CLOSED	48"x30"	2	2	2	2	2	20.0							
W1-6	LARGE ARROW	48"x24"		2	2	2	2	16.0							
W8-9A	SHOULDER DROP-OFF	36"x36"	2	2	2	2	2	18.0							
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0							
RSP-1	SHOULDER CLOSED	48"x30"	2	2	2	2	2	20.0							
	VERTICAL PANELS		32	14	32	32			32						
	TRAFFIC DRUMS		23	14	23	23				23					
	TYPE III BARRICADE-RT. (8')														
	TYPE III BARRICADE-LT. (8')														
	TYPE III BARRICADE-RT. (16')		1	1	1	1					16				
	TYPE III BARRICADE-LT. (16')		1	1	1	1						16			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			220		220							220		
	TEMPORARY IMPACT ATTENUATION BARRIER			1		1								1	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			1		1									1
TOTALS:								252.0	32	23	16	16	220	1	1

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	REFLECTORIZED PAINT PAVEMENT MARKINGS		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
					4"		
					WHITE	YELLOW	
					LIN.FT. - EACH		LIN.FT.
CONSTRUCTION PAVEMENT MARKINGS	8548	8548		17096			
REFLECTORIZED PAINT PAVEMENT MARKINGS WHITE (4")			5200		5200		
REFLECTORIZED PAINT PAVEMENT MARKINGS YELLOW (4")			4674			4674	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			526				526
TOTALS:				17096	5200	4674	526

NOTE: THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

QUANTITIES

DUMPED RIPRAP AND FILTER BLANKET

STATION	DESCRIPTION	DUMPED RIPRAP (GROUTED)	FILTER BLANKET
		CU. YDS.	SQ. YDS.
105+13	OUTLET OF BOX CULVERT	14	28
107+81	OUTLET OF PIPE CULVERT	14	28
	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	15	30
TOTALS:		43	86

*NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
104+64	105+49	LT. MAIN LANES	85
107+50	109+69	RT. MAIN LANES	219
116+72		RT. MAIN LANES	94
116+95	127+00	RT. MAIN LANES	973
122+68	127+00	LT. MAIN LANES	435
TOTAL:			1806

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
114+37.92	BRIDGE END	1
105+13.00	R.C. BOX CULVERT	1
TOTAL:		2

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10	20
TOTALS:	10	20

NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

REMOVAL AND DISPOSAL OF PIPE CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
123+14	18 "X 73' PIPE CULV'T- RT. SIDE	1
126+77	18 "X 25' PIPE CULV'T- LT. SIDE	1
TOTAL:		2

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
103+00	108+00	MAIN LANES	5	5
111+00	117+00	MAIN LANES	6	6
121+00	127+00	MAIN LANES	6	6
TOTALS:			17	17

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.		080383	20	92

QUANTITIES



SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
105+00	35	20	13.10	92	46	40.80	5' RT	0-5	24	7	A-4(0)	BR/GR
105+00	35	20	13.10	92	46	40.80	22' RT	0-4.1Z	25	5	A-4(0)	BR/GR
113+00	35	20	20.70	92	46	41.60	CL	0-5	26	9	A-4(2)	GR/BR
118+00	35	20	26.10	92	46	40.40	5' LT	0-5	28	11	A-6(5)	RD/BR
123+00	35	20	30.90	92	46	40.50	5' LT	0-4.5Z	27	9	A-4(3)	RD/BR
123+00	35	20	30.90	92	46	40.50	11' LT	0-4.0Z	24	5	A-4(0)	RD/BR
123+00	35	20	31.00	92	46	40.60	25' LT	0-2.5Z	27	5	A-4(0)	RD/BR

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

APPROACH GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE B)	REINFORCING STEEL RDWY. (GR 60)
			CU. YD.	POUND
114+37.92	114+37.92	MAIN LANES	3.75	319
114+37.92	114+37.92	MAIN LANES	3.75	319
117+01.08	117+01.08	MAIN LANES	3.75	319
117+01.08	117+01.08	MAIN LANES	3.75	319
TOTALS:			15.00	1276

NOTE: USE T =13" FOR 6' SHOULDER.

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	MAIN LANES - STAGE 1	3154	21457	
ENTIRE	PROJECT	MAIN LANES - STAGE 2	3286	2666	
ENTIRE	PROJECT	APPROACHES	5	610	
114+37.92	117+01.08	BRIDGE ENDS	355		
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			50
TOTALS:			6800	24733	50

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

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

REMOVAL AND DISPOSAL OF GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
114+00	114+30	RT. MAIN LANES	30
114+00	114+30	LT. MAIN LANES	30
116+86	117+16	RT. MAIN LANES	30
116+86	117+16	LT. MAIN LANES	30
TOTAL:			120

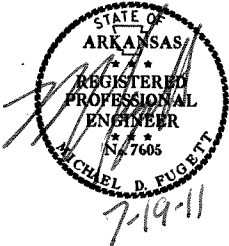
FENCING						
STATION	STATION	LOCATION	WIRE FENCE			* 16'-0" GATES
			(TYPE C)	(TYPE D)	(TYPE D-2)	
			LIN.FT.			
104+00	105+00	LT. MAIN LANES		66		
105+20	105+65	LT. MAIN LANES		40		
106+25	110+67	RT. MAIN LANES	442			
117+10	127+00	RT. MAIN LANES			973	1
122+68	127+00	LT. MAIN LANES		432		1
TOTALS:			442	538	973	2

* DENOTES ALTERNATE BID ITEM.

4" PIPE UNDERDRAIN				
STATION	STATION	LOCATIONS	22	4" PIPE UNDERDRAINS
			22	UNDERDRAIN OUTLET PROTECTORS
				LIN.FT.
				EACH
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			1000	6
TOTALS:			1000	6

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

2 QUANTITIES



STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	SEDIMENT BASIN	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	(E-5) BAG	(E-6) CU.YD.	(E-11) LIN.FT.	(E-9) CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1	3.67	7.34	3.67	374.3	3.67				154	9	1072			50
ENTIRE	PROJECT	STAGE 2	4.19	8.38	4.19	427.4	4.19				198	12	1050			52
																11
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.								9.10	9.10	185.6	176	9	500	266	266	285
TOTALS:			7.86	15.72	7.86	801.7	7.86	9.10	9.10	185.6	528	30	2622	266	266	398

BASIS OF ESTIMATE:
LIME 2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING.
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

CONCRETE DITCH PAVING							
STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING	SOLID SODDING	WATER
			LIN. FT.	FEET	(TYPE B) SQ. YD.		
106+00	106+50	RT. MAINLANES	50.00	4	22.22	22.22	0.28
TOTALS:					22.22	22.22	0.28
BASIS OF ESTIMATE:							

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

ACHM PATCHING OF EXISTING ROADWAY	
DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100
TOTAL:	100

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

SELECTED PIPE BEDDING & BACKFILL		
LOCATION	SELECTED PIPE BEDDING	SELECTED PIPE BACKFILL
	CU.YD.	
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10	20
TOTALS:	10	20

NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT	FLARED END SECTIONS FOR R.C. PIPE CULVERTS	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		(CLASS III)										
		24"	24"									
		LIN. FT.	EACH			LIN. FT.	CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
105+13	EXTEND 6'x8' R.C. BOX CULVERT			6	8	120	61.79	10046	35	21	0.26	W-X003-1, R-100X-X1, R-100X-X3, RCB- 1,2,3
107+81	EXTEND 24" R.C. PIPE CULVERT	14	1							8	0.10	FPC-9M, FES-1, FES-2, PCC-1
TOTALS:		14	1				61.79	10046	35	29	0.36	

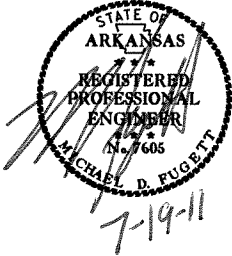
BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

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

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.		080383	22	92

2 QUANTITIES



BASE AND SURFACING																	
STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	TOTAL WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON
MAIN LANES																	
102+00.00	103+00.00	TRANSITION	100.0			20.0	222.2	0.10	22.2					20.0	222.2	220.0	24.4
103+00.00	109+87.82	NOTCH AND WIDEN SUPERELEVATED OPEN SHOULDER	687.8	120.00	825.4	4.8	366.8	0.03	11.0	2.5	191.1	330.0	31.5	36.3	2774.1	220.0	305.2
109+87.82	112+05.00	FULL DEPTH SUPERELEVATED OPEN SHOULDER	217.2	197.50	429.0	44.8	1081.2	0.03	32.4	22.5	543.0	330.0	89.6	57.3	1382.8	220.0	152.1
112+05.00	114+37.92	FULL DEPTH OPEN SHOULDER	232.9	197.50	460.0	44.8	1159.3	0.03	34.8	22.5	582.3	330.0	96.1	57.3	1482.8	220.0	163.1
117+01.08	121+58.71	FULL DEPTH OPEN SHOULDER	457.6	197.50	903.8	44.8	2277.8	0.03	68.3	22.5	1144.0	330.0	188.8	57.3	2913.4	220.0	320.5
121+58.71	122+88.79	FULL DEPTH SUPERELEVATED OPEN SHOULDER	130.1	197.50	256.9	44.8	647.6	0.03	19.4	22.5	325.3	330.0	53.7	57.3	828.3	220.0	91.1
122+88.79	127+00.00	NOTCH AND WIDEN SUPERELEVATED OPEN SHOULDER	411.2	120.00	493.4	4.8	219.3	0.03	6.6	2.5	114.2	330.0	18.8	36.3	1658.5	220.0	182.4
127+00.00	128+00.00	TRANSITION	100.0			20.0	222.2	0.10	22.2					20.0	222.2	220.0	24.4
ADDITIONAL																	
103+00.00	109+87.82	HWY. 124 - LEVELING	687.8			20.0	1528.4	0.10	152.8					20.0	VAR.	220.0	273.2
122+88.79	127+00.00	HWY. 124 - LEVELING	411.2			20.0	913.8	0.10	91.4					20.0	VAR.	220.0	801.9
107+31.00		HWY. 213 TURNOUT ON LT.					503.4	0.10	50.3						503.4	220.0	55.4
ADDITIONAL FOR GUARDRAIL																	
111+66.17	111+99.17	HWY. 124 RIGHT	33.0	14.50	4.8									2.8	10.3	220.0	1.1
111+99.17	114+27.92	HWY. 124 RIGHT	228.8	28.25	64.6									5.5	139.8	220.0	15.4
117+11.08	118+14.83	HWY. 124 RIGHT	103.8	28.25	29.3									5.5	63.4	220.0	7.0
118+14.83	118+47.83	HWY. 124 RIGHT	33.0	14.50	4.8									2.8	10.3	220.0	1.1
112+91.17	113+24.17	HWY. 124 LEFT	33.0	14.50	4.8									2.8	10.3	220.0	1.1
113+24.17	114+27.92	HWY. 124 LEFT	103.8	28.25	29.3									5.5	63.4	220.0	7.0
117+11.08	119+39.83	HWY. 124 LEFT	228.8	28.25	64.6									5.5	139.8	220.0	15.4
119+39.83	119+72.83	HWY. 124 LEFT	33.0	14.50	4.8									2.8	10.3	220.0	1.1
ADDITIONAL FOR SUPERELEVATION																	
103+00.00	104+15.38	TRANSITION	115.4	66.00	76.2												
104+15.38	111+85.00	MAX SUPER	769.6	132.00	1015.9												
111+85.00	114+35.00	TRANSITION	250.0	66.00	165.0												
115+21.03	117+71.03	TRANSITION	250.0	66.00	165.0												
117+71.03	124+89.12	MAX SUPER	718.1	132.00	947.9												
124+89.12	127+39.12	TRANSITION	250.0	66.00	165.0												
TOTALS:					6110.5				511.4				478.5				2442.9
BASIS OF ESTIMATE:																	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

DRIVEWAYS & TURNOUTS

STATION	SIDE	DESCRIPTION	WIDTH FEET	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG64-22)		AGGREGATE BASE COURSE (CLASS 7) TON	SIDE DRAINS 18" LIN. FT.
				SQ. YD.	TON		
111+73	RT	DRIVE	18	27.4	3.0	78.8	
123+14	RT	DRIVE	16	24.7	2.7	47.5	32
126+77	LT	DRIVE	16	24.7	2.7	33.4	28
127+55	LT	DRIVE	16	59.9	6.6	24.5	
* ENTIRE PROJECT TEMPORARY DRIVES							
TOTALS:					15.0	259.2	60

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT SQ. YD.
			FEET	
102+00	103+00	MAIN LANES	20	222.22
127+00	128+00	MAIN LANES	20	222.22
TOTAL:				444.44

NOTE: AVERAGE MILLING DEPTH 1".

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.		080383	23	92
				① 07216	QUANTITIES		51993	

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 080383

BRIDGE NO. CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	802	803	804	805	807	808	812	816	816	SP JOB 080383
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	UNCLASSIFIED EXCAVATION FOR STRUCTURES- BRIDGE	CLASS S CONCRETE- BRIDGE	CLASS S(AE) CONCRETE- BRIDGE	PRESTRESSED CONCRETE GIRDERS (TYPE IV)	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL- BRIDGE (GRADE 60)	② STEEL PILING (HP 14X73)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	SILICONE JOINT SEALANT
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	LIN. FT.	GAL.	LB.	LIN. FT.	LB.	CU. INCH	EACH	SQ. YD.	CU. YD.	LIN. FT.
07216	X081	POINT REMOVE CREEK	END BENT NO. 1			33.35			0.3	3,715	92	568	1,774.5		395	213	
			BENT 2		56	63.20				9,500			3,549.0				
			BENT 3		53	63.45				9,540			3,549.0				
			END BENT NO. 4			33.70			0.3	3,715	96	568	1,774.5		252	137	
			261'-0" CONT. PRESTRESSED CONCRETE GIRDER UNIT				300.50	1,032	21.5	67,680		4,654		1			66
			TOTALS FOR JOB NO. 080383	1	① 109	193.70	300.50	1,032	22.1	94,150	188	5,790	10,647.0	1	647	350	66

① INCLUDES APPROX. 84 CU. YDS. OF ROCK EXCAVATION.

② THESE STEEL PILES ARE REQUIRED TO BE GRADE 50 AND TO HAVE SPECIAL PILE TIPS WHICH WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM "STEEL PILING (HP 14X73)".

AILEEN SCHUBEL
DESIGN SECTION SUPERVISOR

SCHEDULE OF BRIDGE QUANTITIES
POINT REMOVE CREEK STR. & APPRS. (S)
CONWAY COUNTY

ROUTE 124 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 11/05/10 FILENAME: b080383.q1.dgn

CHECKED BY: JJP DATE: 4-12-11 SCALE: None

DESIGNED BY: DATE:

BRIDGE NO. 07216 DRAWING NO. 51993



BRIDGE ENGINEER

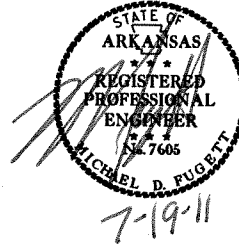
SUMMARY OF QUANTITIES

[illegible]

*ALTERNATE BID ITEMS

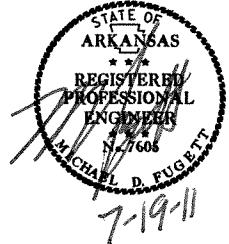
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080383	24	92
2 SUMMARY OF QUANTITIES AND REVISIONS								

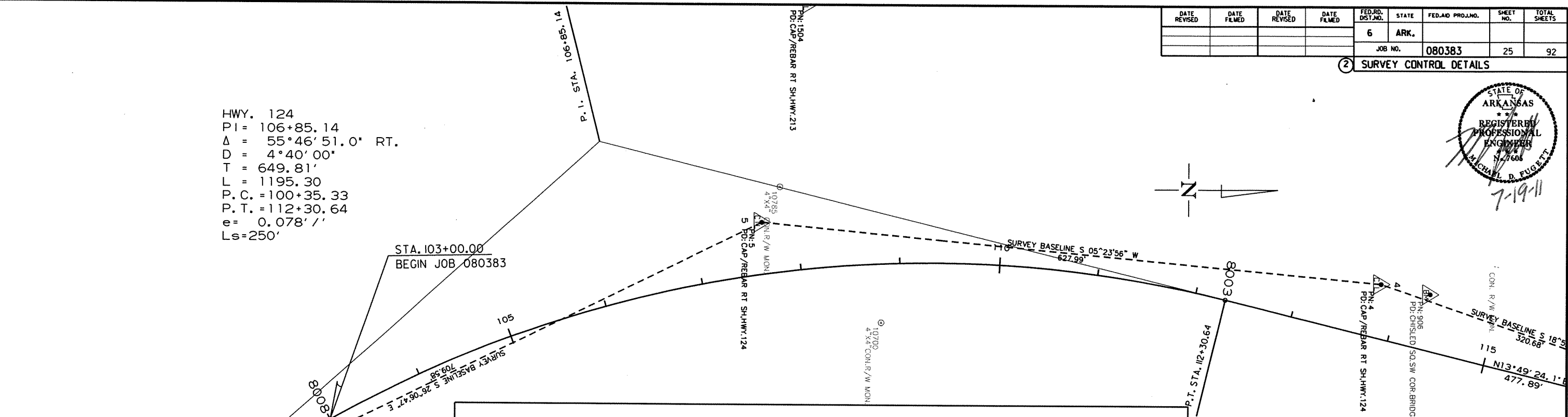


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080383		25	92

2 SURVEY CONTROL DETAILS



HWY. 124
PI = 106+85.14
Δ = 55°46'51.0" RT.
D = 4°40'00"
T = 649.81'
L = 1195.30
P.C. = 100+35.33
P.T. = 112+30.64
e = 0.078' /'
Ls = 250'



SURVEY CONTROL COORDINATES

Project Name: s080383
Date: 6/24/2010
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	368646.7259	1080151.2070	406.042	CTL	5/8" REBAR WITH 2" ALUMINUM CAP RT BANK, HWY. 124
2	367913.8669	1080463.1889	390.295	CTL	5/8" REBAR WITH 2" ALUMINUM CAP LT SH, HWY. 124
3	367465.8316	1080395.8462	385.654	CTL	5/8" REBAR WITH 2" ALUMINUM CAP LT SH, HWY. 124
4	367162.3965	1080292.0952	386.129	CTL	5/8" REBAR WITH 2" ALUMINUM CAP RT SH, HWY. 124
5	366537.1902	1080233.0074	403.174	CTL	5/8" REBAR WITH 2" ALUMINUM CAP RT SH, HWY. 124
6	365900.0397	1080545.3254	394.028	CTL	5/8" REBAR WITH 2" ALUMINUM CAP RT SH, HWY. 124
7	367211.8168	1080302.0796	386.805	BM	CHISELED SQ. SW COR. BRIDGE
8	365832.0168	1080668.9857	390.966	BM	CHISELED SQ. CNTR. OF CON. HW
100	368142.4726	1080459.0612	407.973	GPS	5/8" REBAR WITH 2" ALUMINUM CAP LT BANK, HWY. 124
101	369575.0295	1079836.6242	419.6580	GPS	GPS* 150007A
901	-99999.0000	-99999.0000	683.470	BM	
902	-99999.0000	-99999.0000	558.136	TBM	CHISELED SQ. HW, .0001, .0001, .0072
903	-99999.0000	-99999.0000	553.322	TBM	CHISELED SQ. HW, HWY. 124, .0001, .0001
904	-99999.0000	-99999.0000	535.433	TBM	CHISELED SQ. HW, HWY. 124, .0001, .0001
905	365804.9760	1080589.1070	390.993	BM	CHISELED SQ. CNTR. OF CON. HW, .0001, .0001
906	367184.6740	1080222.2280	386.836	BM	CHISELED SQ. SW COR. BRIDGE, 35.202262521
907	-99999.0000	-99999.0000	399.645	TBM	CHISELED SQ. HW, WEST SIDE, .0001, .0001
990	-99999.0000	-99999.0000	605.990	BM	NGS BRASS CAP SET IN CONCRETE, .0001
991	-99999.0000	-99999.0000	611.360	BM	NGS BRASS CAP SET IN CONCRETE, .0001
1501	367541.3506	1080662.5993	377.998	CTL	5/8" REBAR WITH 2" ALUMINUM CAP EDGE WOODS EAST OF HW
1502	367624.0925	1080798.0956	378.911	CTL	5/8" REBAR WITH 2" ALUMINUM CAP EDGE WOODS EAST OF HW
1503	367731.3551	1080986.2612	376.144	CTL	5/8" REBAR WITH 2" ALUMINUM CAP EDGE WOODS EAST OF HW
1504	366585.4042	1080013.3850	423.200	CTL	5/8" REBAR WITH 2" ALUMINUM CAP RT SH, HWY. 213
1505	366643.9405	1079755.5576	449.111	CTL	5/8" REBAR WITH 2" ALUMINUM CAP RT BANK, HWY. 213
1506	366614.7648	1079595.1820	458.553	CTL	5/8" REBAR WITH 2" ALUMINUM CAP RT BANK, HWY. 213

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999260840 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. s080383gi.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

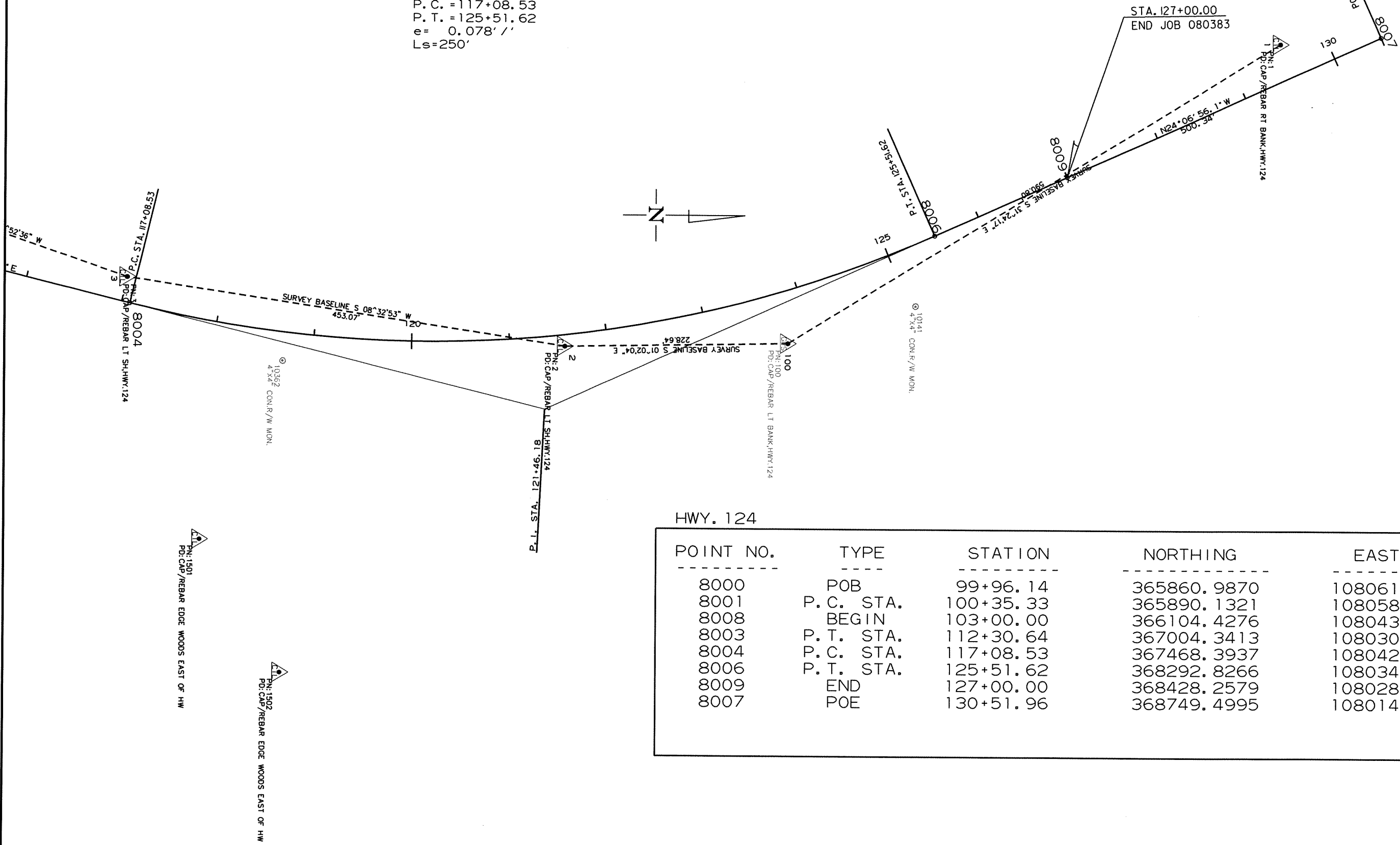
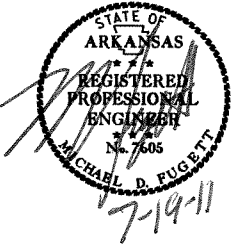
BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 150007-150007A
CONVERGENCE ANGLE: 0-54-03.6 RIGHT AT LT:035-20-22.1 LG:092-46-41.8
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

6/24/11 r080383.dgn survey control details

HWY. 124
PI= 121+46.18
Δ = 37°56' 20.0" LT.
D = 4°30' 00"
T = 437.65'
L = 843.09
P.C. =117+08.53
P.T. =125+51.62
e= 0.078' /'
Ls=250'

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. 080383							26	92

SURVEY CONTROL DETAILS



HWY. 124

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	99+96.14	365860.9870	1080613.7476
8001	P.C. STA.	100+35.33	365890.1321	1080587.5443
8008	BEGIN	103+00.00	366104.4276	1080433.0921
8003	P.T. STA.	112+30.64	367004.3413	1080308.3546
8004	P.C. STA.	117+08.53	367468.3937	1080422.5374
8006	P.T. STA.	125+51.62	368292.8266	1080348.2897
8009	END	127+00.00	368428.2579	1080287.6642
8007	POE	130+51.96	368749.4995	1080143.8609

STA.	STA.	LOCATION	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D)	WIRE FENCE (TYPE D-2)	16' GATE
104+00	105+00	LT. OF C.L. HWY. 124		66 LIN. FT.		
105+20	106+65	LT. OF C.L. HWY. 124		40 LIN. FT.		
106+25	110+67	RT. OF C.L. HWY. 124	442 LIN. FT.			
117+10	127+00	RT. OF C.L. HWY. 124			973 LIN. FT.	
122+68	127+00	LT. OF C.L. HWY. 124		432 LIN. FT.		

HWY. 124
 P.I. = 106+85.14
 Δ = 55°46'51.0" RT.
 D = 4°40'00"
 T = 649.81'
 L = 1195.30
 P.C. = 100+35.33
 P.T. = 112+30.64
 e = 0.078'/'
 Ls = 250'

STA. 105+13 IN PLACE
 6'x8'x76' R.C. BOX CULVERT
 RETAIN & EXTEND 22' LT. AND 22' RT.
 050= 872 CFS AND D.A.= 227 ACRES

STA. 107+31 CONSTRUCT
 APPR. ON LT. = 50 CU. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080383	27	92

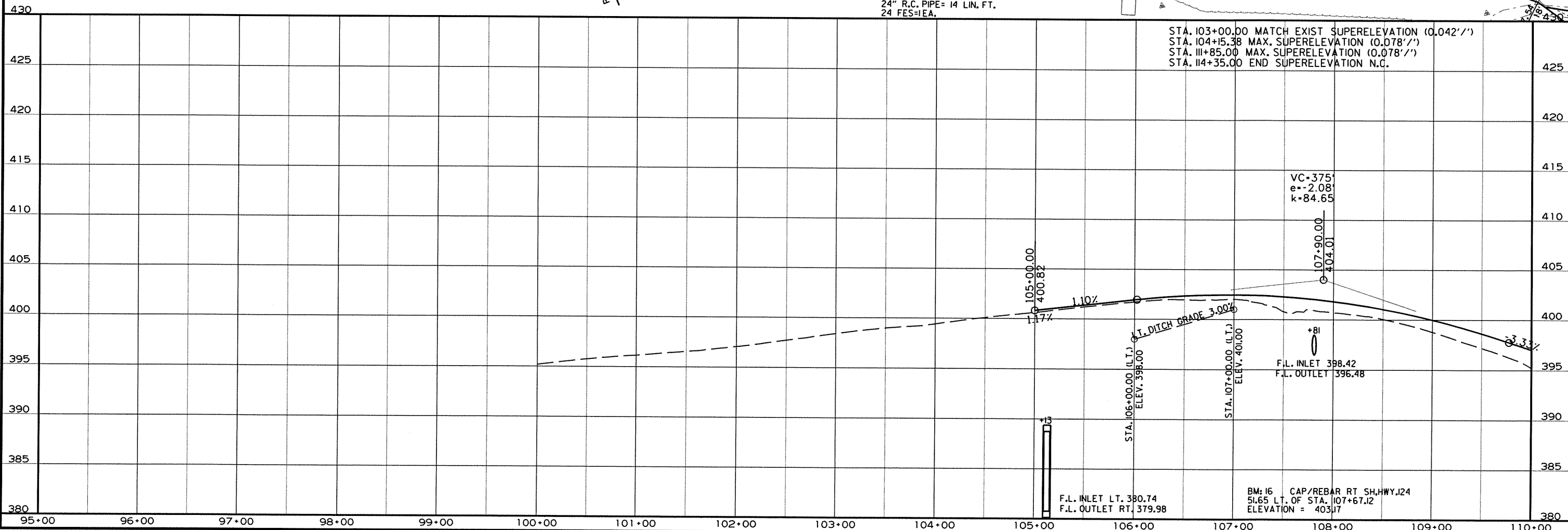
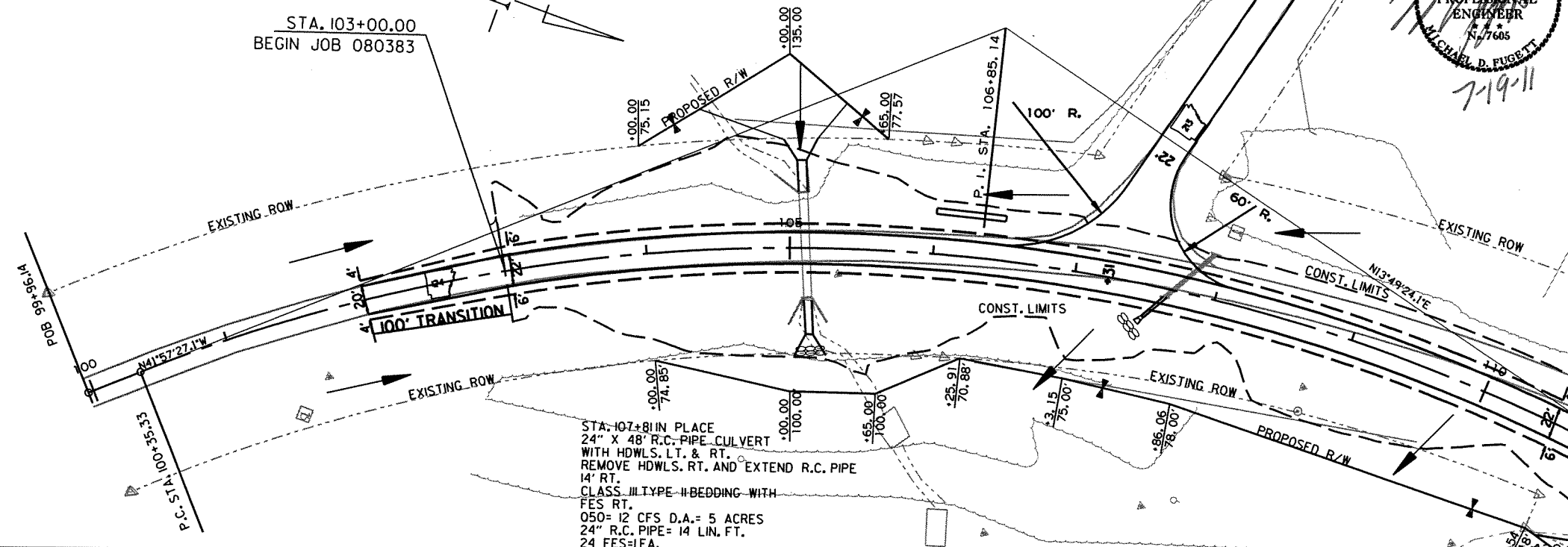
2 PLAN & PROFILE SHEETS



STA.	DESCRIPTION	DUMPED RIPRAP (GROUTED)	FILTER BLANKET
105+13	OUTLET OF BOX CULVERT	14 CU. YDS.	28 SQ. YDS.
107+81	OUTLET OF PIPE CULVERT	14 CU. YDS.	28 SQ. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
106+00	106+50	LT.	4'	22.22



STA. 114+37.92 TO STA. 117+01.08 CONSTRUCT
263'-2" X 30' CLEAR ROADWAY BRIDGE NO. 07216
261' CONTINUOUS COMPOSITE PRESTRESSED
CONCRETE GIRDER UNIT TYPE IV NW UNIT (87', 87', 87')

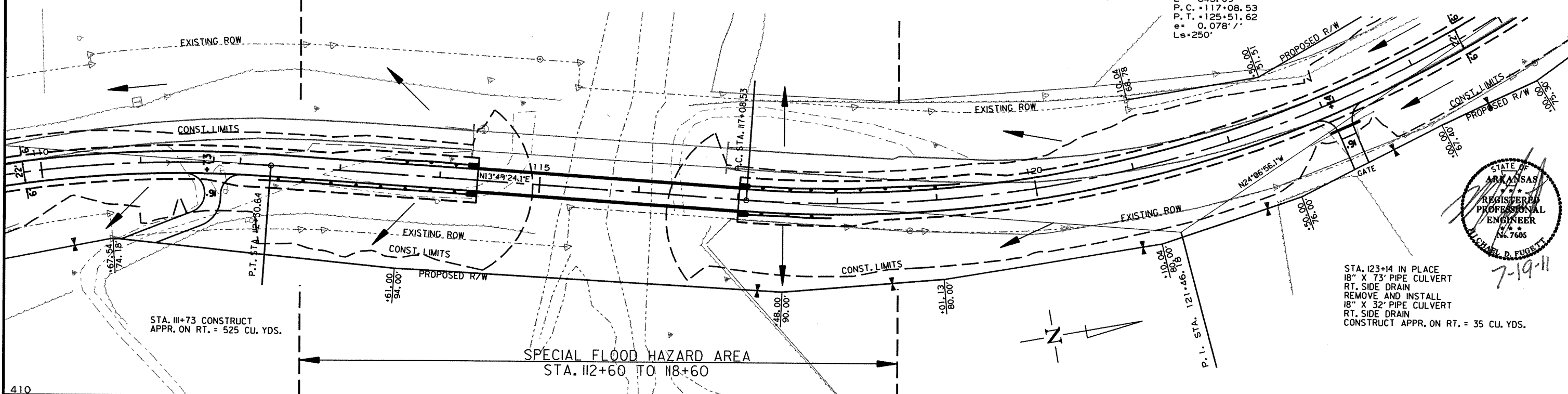
ST. 114+31.91 TO ST. 116+86.05 IN PLACE
256'-00" X 20.0' CLEAR ROADWAY BRIDGE NO. 03139
CONCRETE DECK SUPPORTED ON A 39' I-BEAM SPAN,
A 130' TRUSS MAIN SPAN, AND AN 80' LOW TRUSS SPAN
REMOVE AS EXISTING BRIDGE STRUCTURE = 1.00 LUMP SUM

STA.	STA.	LOCATION	GUARDRAIL (TYPE A)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE I)
112+09.17	114+27.92	RT. OF C.L. HWY. 124	200 LIN. FT.		
113+34.17	114+27.92	LT. OF C.L. HWY. 124	75 LIN. FT.		
117+11.08	118+04.83	RT. OF C.L. HWY. 124	75 LIN. FT.		
117+11.08	119+29.83	LT. OF C.L. HWY. 124	200 LIN. FT.		

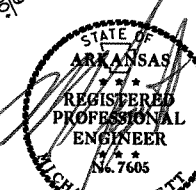
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				6	ARK.			
				JOB NO.	080383		28	92

2 PLAN & PROFILE SHEETS

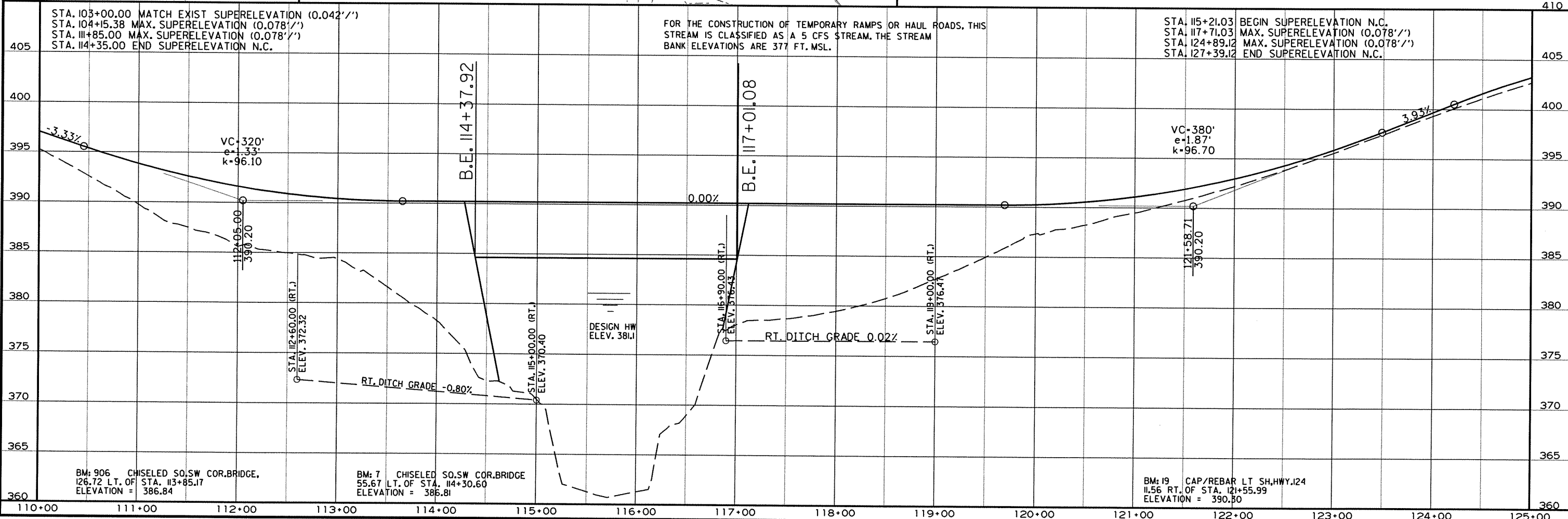
HWY. 124
PI = 121+46.18
Δ = 37°56'20.0" LT.
D = 4°30'00"
T = 437.65'
L = 843.09'
P.C. = 117+08.53
P.T. = 125+51.62
e = 0.078'/'
Ls = 250'



STA. 123+14 IN PLACE
18" X 73' PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. = 35 CU. YDS.



FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS
STREAM IS CLASSIFIED AS A 5 CFS STREAM. THE STREAM
BANK ELEVATIONS ARE 377 FT. MSL.



BM: 906 CHISELED SO. SW COR. BRIDGE,
126.72 LT. OF STA. 113+85.17
ELEVATION = 386.84

BM: 7 CHISELED SO. SW COR. BRIDGE
55.67 LT. OF STA. 114+30.60
ELEVATION = 386.81

BM: 19 CAP/REBAR LT. SH. HWY. 124
11.56 RT. OF STA. 121+55.99
ELEVATION = 390.50

STA. 126+77 IN PLACE
18" X 25' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPR. ON LT. = 25 CU. YDS.

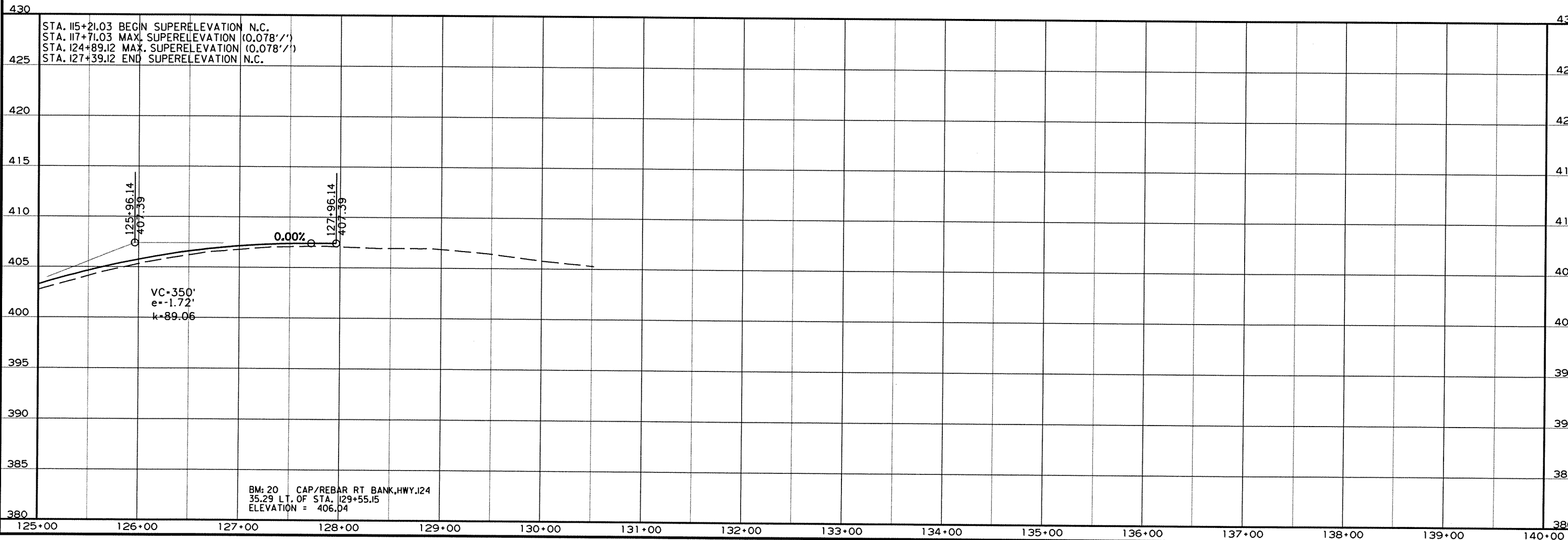
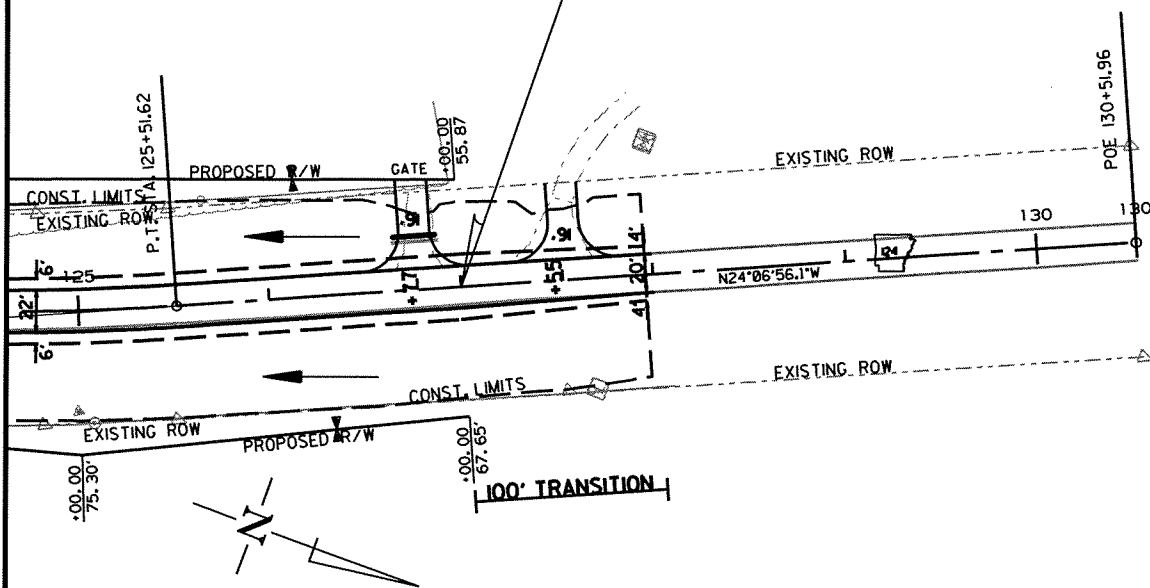
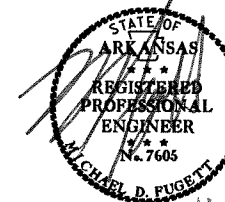
STA. 127+55 CONSTRUCT
APPR. ON LT. = 25 CU. YDS.

STA. 127+00.00
END JOB 080383

HWY. 124
PI = 121+46.18
 $\Delta = 37^\circ 56' 20.0''$ LT.
D = 4+30' 00"
T = 437.65'
L = 843.09'
P.C. = 117+08.53
P.T. = 125+51.62
e = 0.078' / '
Ls = 250'

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. 080383	29	92

2 PLAN & PROFILE SHEETS



6/24/11 080383.dgn plan & profile sheets

FOR R/W DATA, SEE RDWY. PLANS

Note: Type B Approach Gutters ("W" = 4'-0") shall be placed at both ends of the bridge. See Drwg. No. 2016B.

Note: The Contractor shall remove the existing approach embankment at Bent 4 as shown. Approx. 355 cubic yards of excavation.

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.		080383	30	92
				07216		LAYOUT		51994

GENERAL NOTES

BENCH MARK: BM #7, chiseled square cut in southwest corner of Bridge No. 03139, 55.67 Lt. of Sta. 114+30.60, Elev. = 386.81

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions. Section and subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition, 2010.

LIVE LOADING: HL93

SEISMIC PERFORMANCE ZONE: I

MATERIALS AND STRENGTHS

Class S (A/E) Concrete (superstructure) $f'_c = 4,000$ psi
Class S Concrete (substructure) $f'_c = 3,500$ psi
Class S Concrete (prestressed concrete girders) $f'_c = 6,000$ psi
Reinforcing Steel (AASHTO M31 or M53, Gr. 60) $f_y = 60,000$ psi
Structural Steel (AASHTO M270, Gr. 36) $F_y = 36,000$ psi
Structural Steel (AASHTO M270, Gr. 50W) $F_y = 50,000$ psi

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

STEEL PILING: Piling in End Bents 1 and 4 shall be HP 14x73 (Grade 50) and shall be driven with an approved air, steam or diesel hammer to a minimum safe bearing capacity of 133 tons per pile and into the material designated as sandstone on the boring legend. Length of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the Standard Specifications. Actual pile lengths to be determined in the field. Piles in end bents to be driven after embankment to bottom of cap is in place. The Contractor shall use approved steel H-pile driving points on all piles.

FOOTINGS: Footings shall be set a minimum of 2'-0" into material designated as sandstone on the boring legend, and shall have a minimum cover above the top of the footing of 2'-0". Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surface of rock. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

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:

End Bents
Int. Bents
Elastomeric Bearings
26'-0" Prestressed Concrete Girder Unit
Steel Piling
Type B Approach Gutters

DRAWING NO.
51996-51998
51999 & 52000
52001
52002-52007
14995A
2016B

EXISTING BRIDGE: The existing three-span bridge, no. 03139, (L.M. 7.43) is 211' wide and 256' long. The superstructure consists of a concrete deck supported on a 39' I-beam span, an 130' truss main span, and an 80' low truss span. The substructure consists of concrete pier walls.

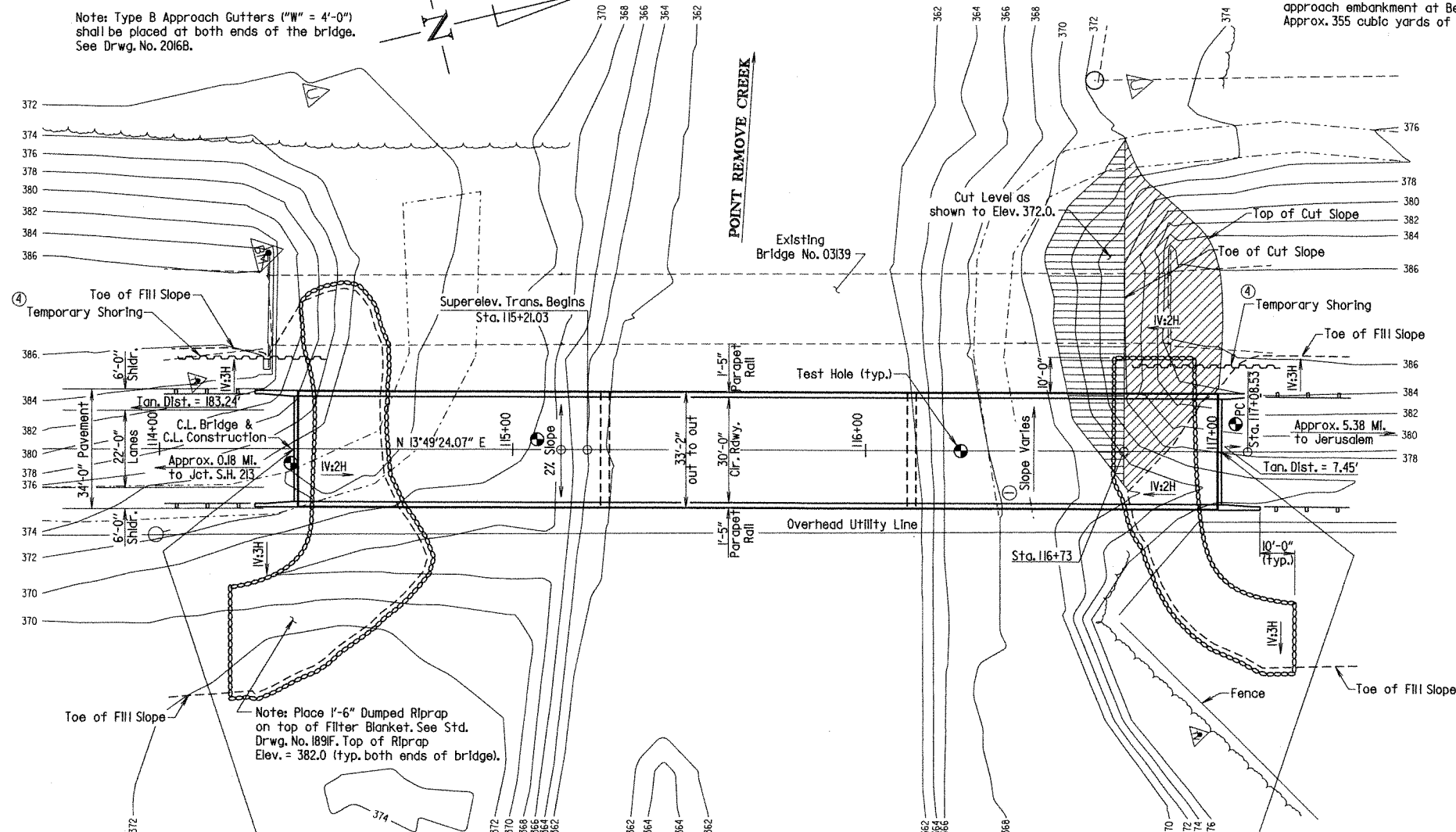
REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing Bridge No. 03139 shall become the property of the Contractor except the following which shall remain the property of the State:

All truss girder members
All truss upper lateral bracing and portal bracing
Four (4) truss bearings
Six (6) 39' long I-beams (22" deep) from the west end approach span
Bridge Name Plate

The Contractor shall notify the Department prior to removal to determine the specific pieces deemed salvageable. The Contractor shall provide 3 days notice prior to on site loading onto AHTD equipment. This work shall not be paid for directly, but shall be considered incidental to the item "Removal of Existing Bridge Structure".

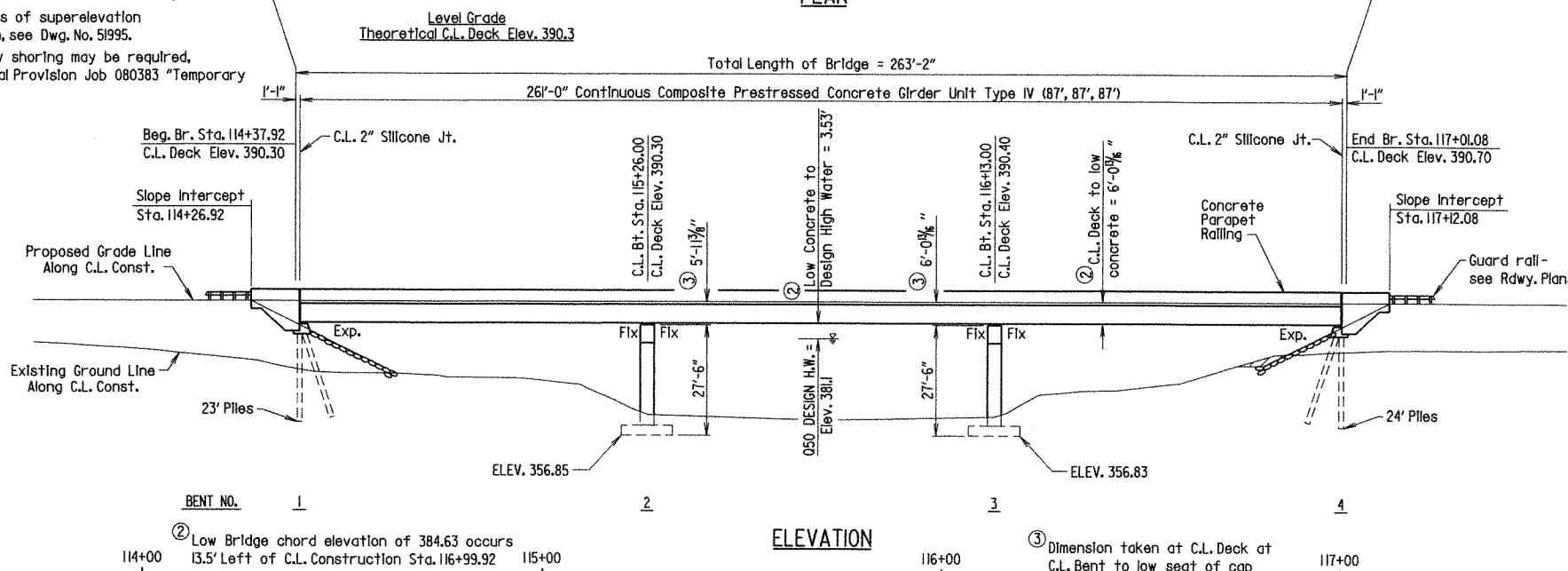
MAINTENANCE OF TRAFFIC: See Roadway Plans.

Note: For Layout of Soil Borings and Hydraulic Data, see Drwg. No. 51995.



PLAN

- Note:
All Stations and elevations are taken along C.L. Construction & C.L. Bridge
- For details of superelevation transition, see Dwg. No. 51995.
 - Temporary shoring may be required, see Special Provision Job 080383 "Temporary Shoring".



ELEVATION

BENT NO. 1

- Low Bridge chord elevation of 384.63 occurs 13.5' Left of C.L. Construction Sta. 116+99.92

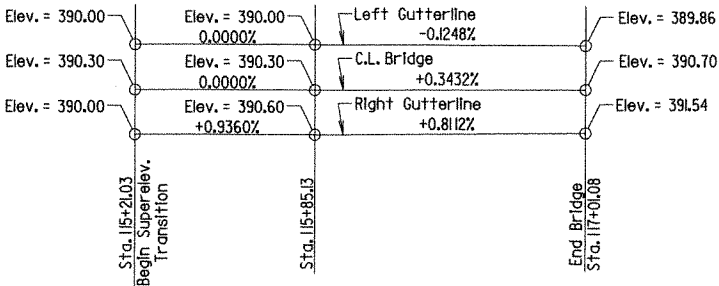
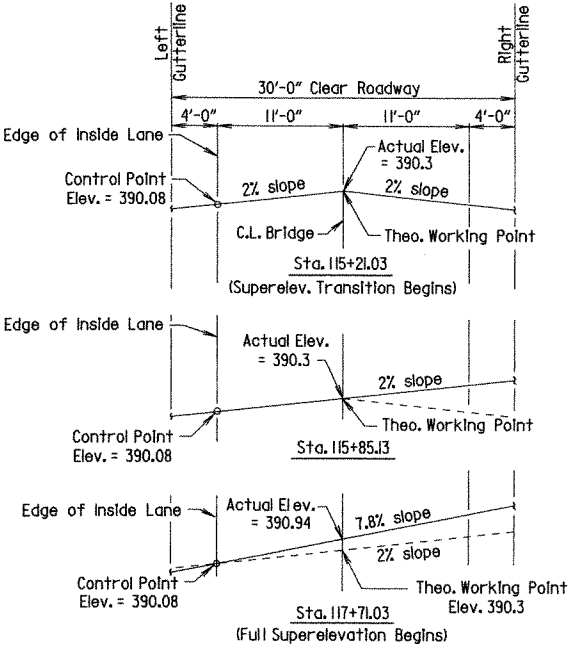
- Dimension taken at C.L. Deck at C.L. Bent to low seat of cap



BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER
POINT REMOVE CREEK
POINT REMOVE CREEK STR. & APPRS. (S)
CONWAY COUNTY
ROUTE 124 SEC. 3
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: JYP DATE: 7-28-10 FILENAME: b080383_1.dgn
CHECKED BY: PGT DATE: 7-10 SCALE: 1" = 20'
DESIGNED BY: JYP DATE: 7-10
BRIDGE NO. 07216 DRAWING NO. 51994

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.	080383		31	92
				07216	LAYOUT		51995	



HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	32,000	380.9	383.1
Base	100	37,000	381.9	384.6
Extreme	500	52,000	384.7	389.0
Overtopping	>500	-	-	-

*Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 385.6

Proposed Low Bridge Chord Elev. = 384.63

Drainage area = 117 square miles.

Historical H.W. Elev = 381.4

SUPERELEVATION TRANSITION

Looking Forward

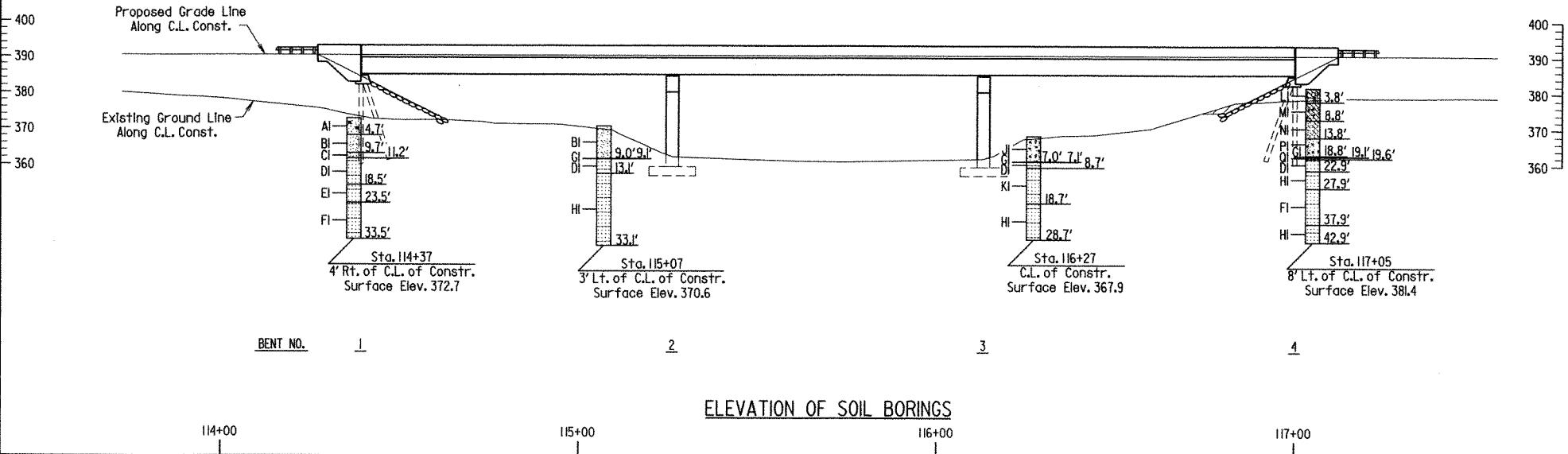
No Scale

"N" VALUES

- Sta. 114+37 - 4' Rt. of C.L. of Constr.
- 5.2- 6.2, N=3
- 10.2- 11.2, N=24
- Sta. 115+07 - 3' Lt. of C.L. of Constr.
- 4.5- 5.5, N=4
- 9.0- 9.1, N=15 (1')
- Sta. 116+27 - C.L. of Constr.
- 4.9- 5.9, N=6
- 7.0- 7.1, N=15 (1')
- Sta. 117+05 - 8' Lt. of C.L. of Constr.
- 4.3- 5.3, N=13
- 9.3- 10.3, N=10
- 14.3- 15.3, N=24
- 18.8- 19.1, N=36 (4')

BORING LEGEND

- AI-Molst, Very Loose, Dark Gray Sand with Organic Matter
- BI-Molst, Very Loose, Brown Sand with some Organic Matter
- CI-Molst, Medium Dense, Brown Sand
- DI-SANDSTONE WITH FREQUENT DARK GRAY SHALE SEAMS - Gray, Laminated, Slightly Weathered, Cemented, with Slight Dip
- EI-SANDSTONE WITH FREQUENT DARK GRAY SHALE AND OCCASIONAL CALCAREOUS SANDSTONE SEAMS - Gray, Laminated, Slightly Weathered, Well-Cemented
- FI-SANDSTONE WITH FREQUENT DARK GRAY SHALE SEAMS - Gray, Laminated, Slightly Weathered, Well-Cemented, with Slight Dip
- GI-SANDSTONE - Gray, Cemented
- HI-SANDSTONE WITH FREQUENT DARK GRAY SHALE AND OCCASIONAL CALCAREOUS SANDSTONE SEAMS - Gray, Laminated, Slightly Weathered, Well-Cement
- JL-Molst, Loose, Brown Sand with Gravel (Sandstone Fragments)
- KI-SANDSTONE WITH FREQUENT DARK GRAY SHALE SEAMS - Gray, Laminated, Slightly Weathered, Well-Cemented, with Slight Dip **
- LI-Molst, Stiff, Reddish Brown Clay with Sand, Gravel (Sandstone Fragments), Cobbles and Boulders and some Organic Matter
- MI-Molst, Stiff, Reddish Brown Clay with Sand, Gravel (Sandstone Fragments) and some Organic Matter
- NI-Molst, Loose, Reddish Brown Sand with Clay
- PI-Molst, Medium Dense, Brown Sand with Gravel (Sandstone Fragments)
- QI-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip



SHEET 2 OF 2

LAYOUT OF BRIDGE OVER

POINT REMOVE CREEK

POINT REMOVE CREEK STR. & APPRS. (S)

CONWAY COUNTY

ROUTE 124 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP

CHECKED BY: PGT

DESIGNED BY: JYP

DATE: 7-28-10

DATE: 7-10

DATE: 7-10

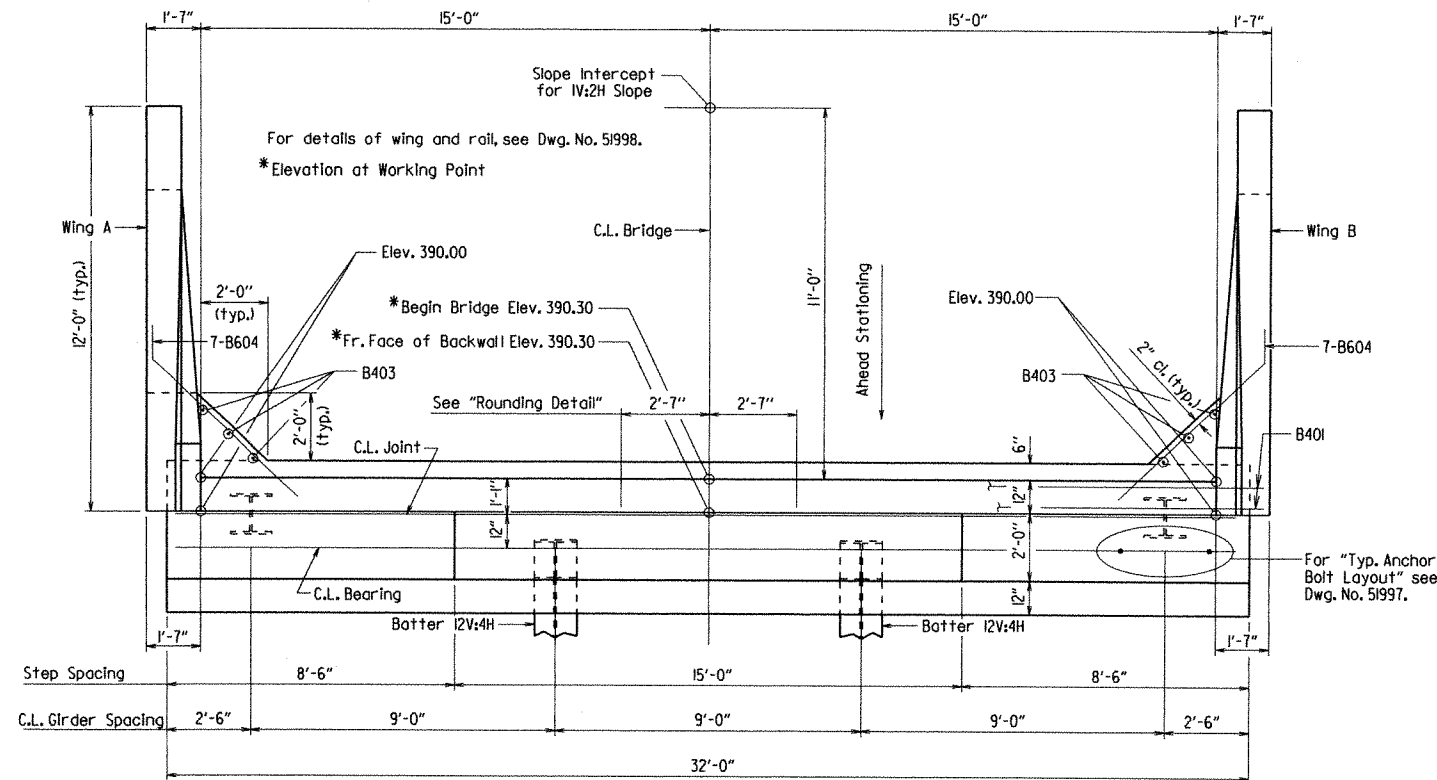
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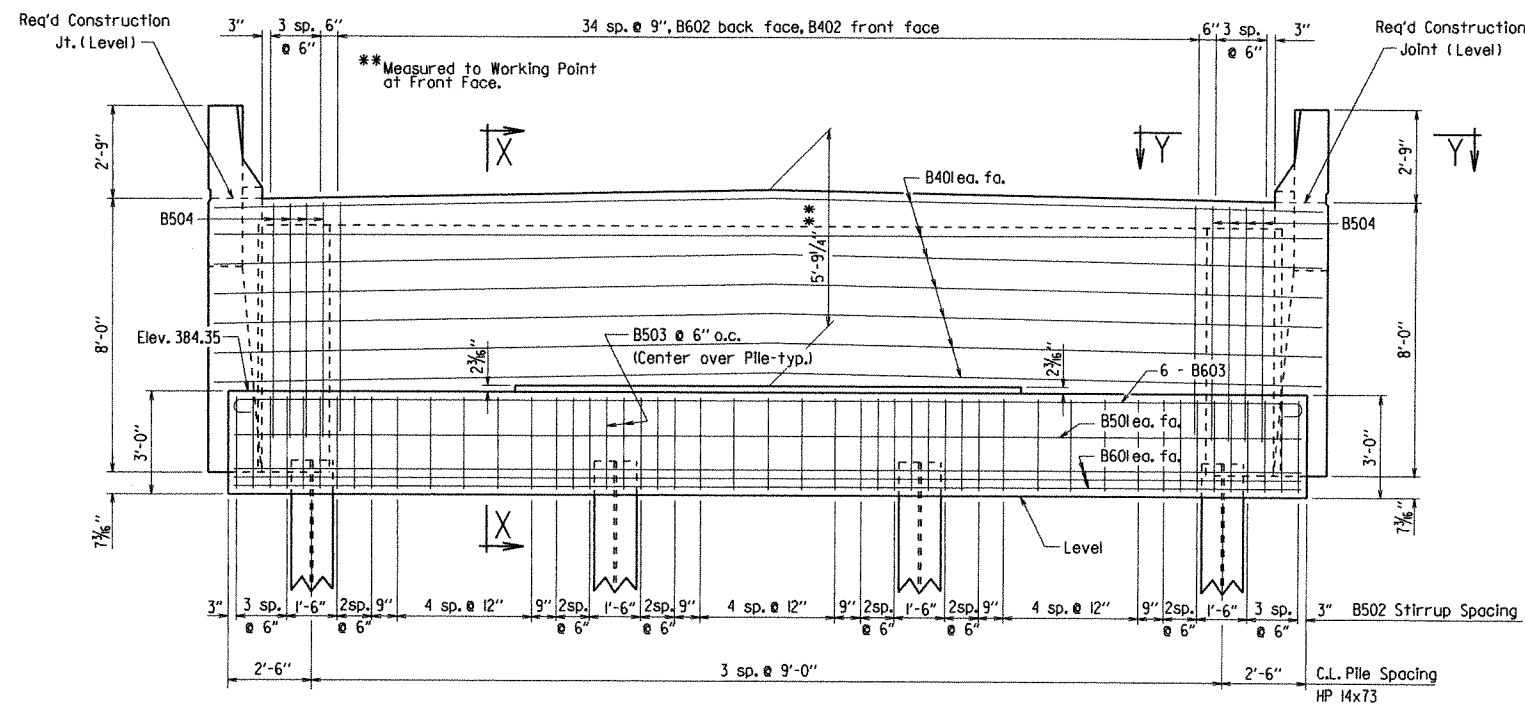
BRIDGE NO. 07216

DRAWING NO. 51995

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



PLAN - BENT 1
3/8" = 1'



ELEVATION - BENT 1
Looking Back
3/8" = 1'

Note: For Section "X-X" and Section "Y-Y" see Dwg. No. 51997.

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.		080383	32	92
				07216		END BENTS		51996

BAR LIST (PER BENT)

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	14	32'-10"	Str.	
B402	35	9'-3"	2"	
B403	6	6'-10"	Str.	
B501	2	3'-8"	Str.	
B502	41	13'-4"	2 1/2"	
B503	8	8'-6"	2 1/2"	
B504	8	14'-2"	2 1/2"	
B601	6	3'-8"	Str.	
B602	35	6'-3"	Str.	
B603	6	33'-0"	4 1/2"	
B604	14	6'-11"	4 1/2"	
R401	12	3'-11"	2"	
R402	8	4'-0"	2"	
R403	12	1'-8"	Str.	
R601	16	4'-5"	Str.	
R602	6	5'-0"	Str.	
W401	8	9'-3"	2"	
W402	8	10'-5"	Str.	
W403-W408	2 each	Var. 3'-5" to 8'-5"	2"	
W409-W414	2 each	Var. 4'-7" to 9'-7"	Str.	
W415	6	4'-11"	2"	
W701	12	1'-8"	Str.	
W702	4	8'-7"	Str.	
W703	4	7'-10"	Str.	
W704	4	7'-1"	Str.	
W705	4	6'-4"	Str.	
W706	4	5'-7"	Str.	
W707	4	4'-0"	Str.	
W708	4	4'-1"	Str.	
W709	4	13'-3"	5 1/4"	

Dimensions are out to out of bars.

GENERAL NOTES:

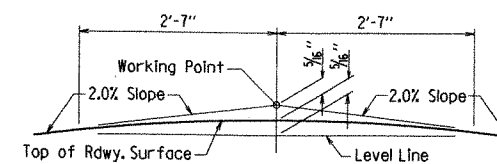
All concrete shall be Class "S" with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53. Grade 60 (yield strength = 60,000 psi.)

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

All Piling shall be Grade 50.

For additional information, see Layout.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

SHEET 1 OF 3

DETAILS OF END BENTS 1 AND 4 POINT REMOVE CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

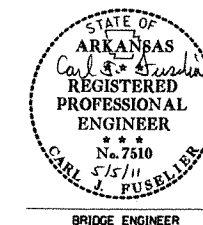
LITTLE ROCK, ARK.

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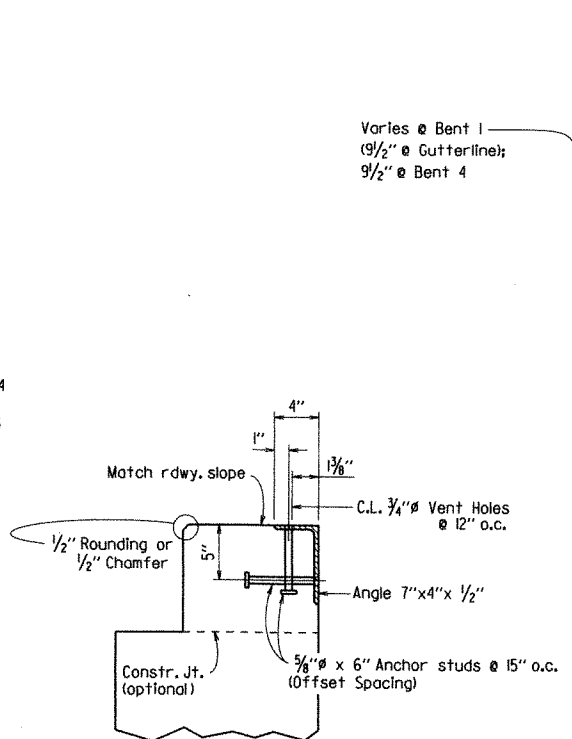
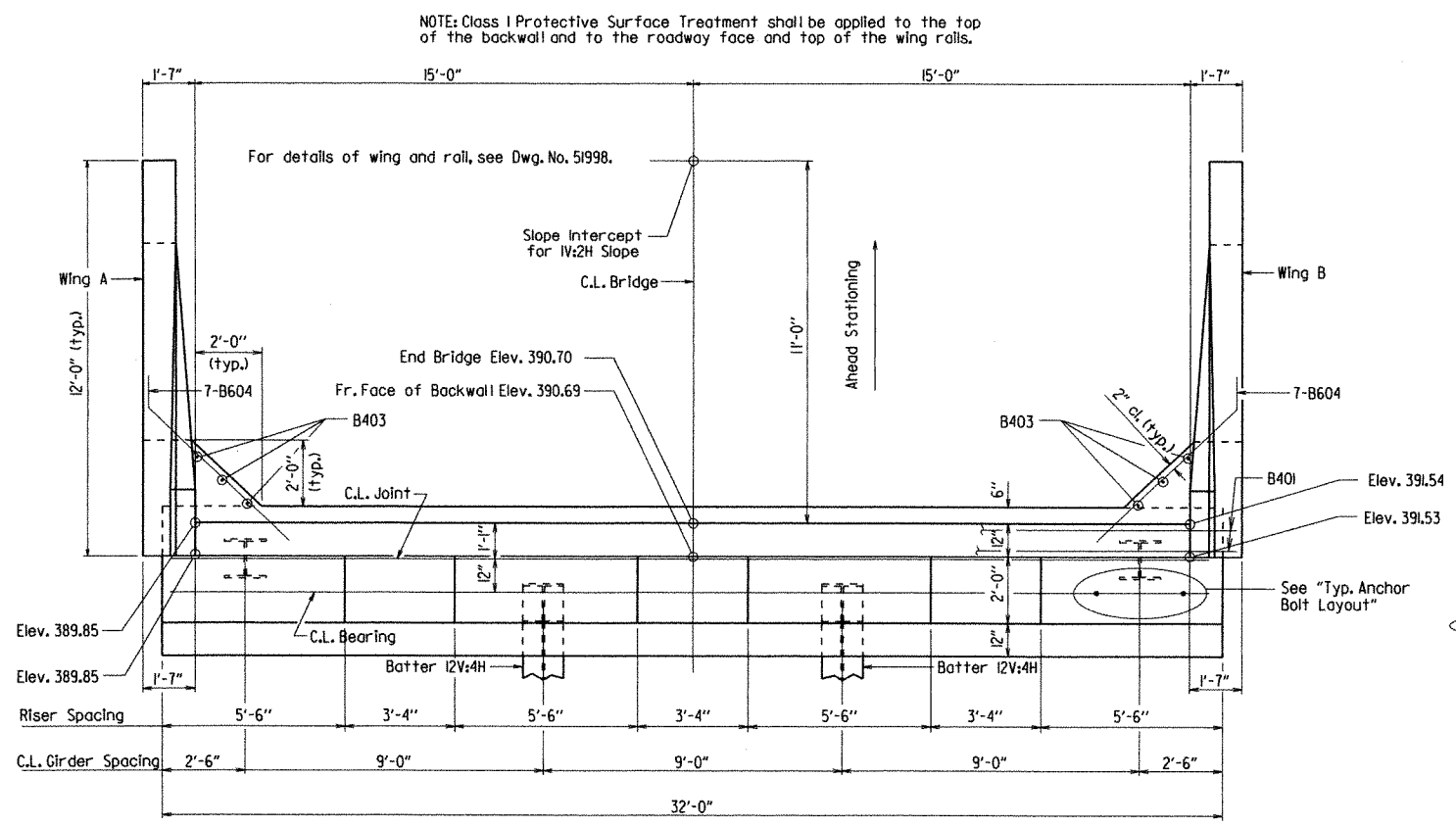
CHECKED BY: KMY DATE: 5-4-11 SCALE: as noted

DESIGNED BY: JJP DATE: 8-10

BRIDGE NO. 07216 DRAWING NO. 51996



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.		080383	33	92
				07216	END BENTS		51997	

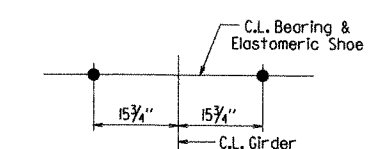
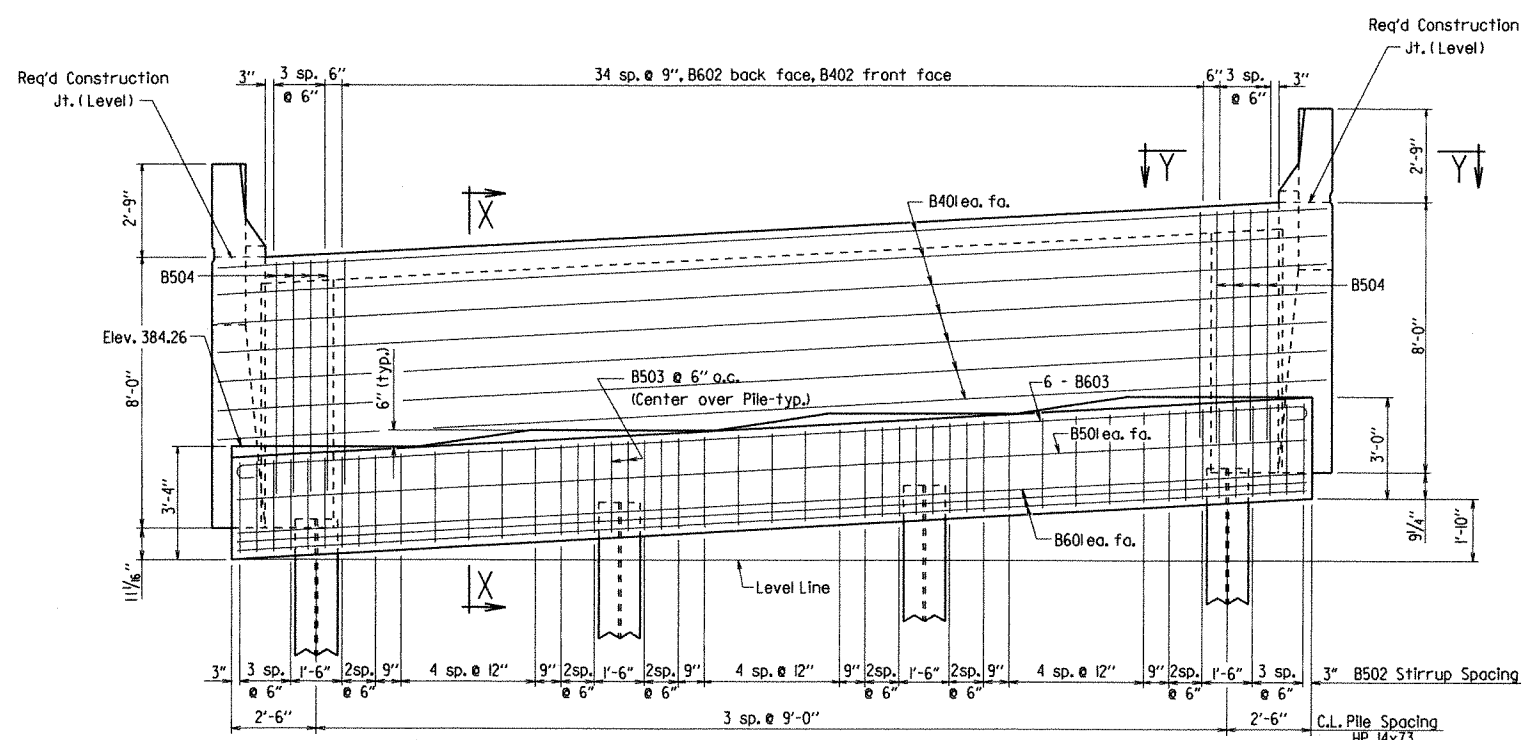


NOTES: For additional joint details, see Dwg. No. 52007.

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

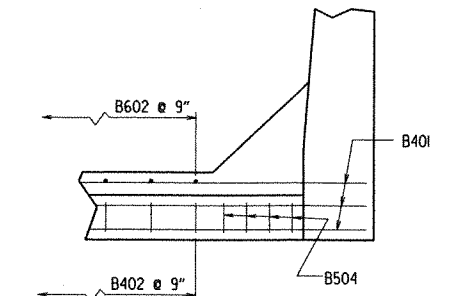
DETAIL Z

No Scale



TYP. ANCHOR BOLT LAYOUT

No Scale



STATE OF ARKANSAS
Carl J. Fubeller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/15/11
CARL J. FUBELLER
BRIDGE ENGINEER

SHEET 2 OF 3

DETAILS OF END BENTS 1 AND 4

POINT REMOVE CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACW DATE: 01-27-11 FILENAME: b080383.bl.b4.dgn

CHECKED BY: LMY DATE: 5-4-11 SCALE: as noted

DESIGNED BY: JJP DATE: 8-10

BRIDGE NO. 07216 DRAWING NO. 51997

Note: For General Notes, see Drawing No. 51996.

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.		080383	34	92
				07216		END BENTS		51998

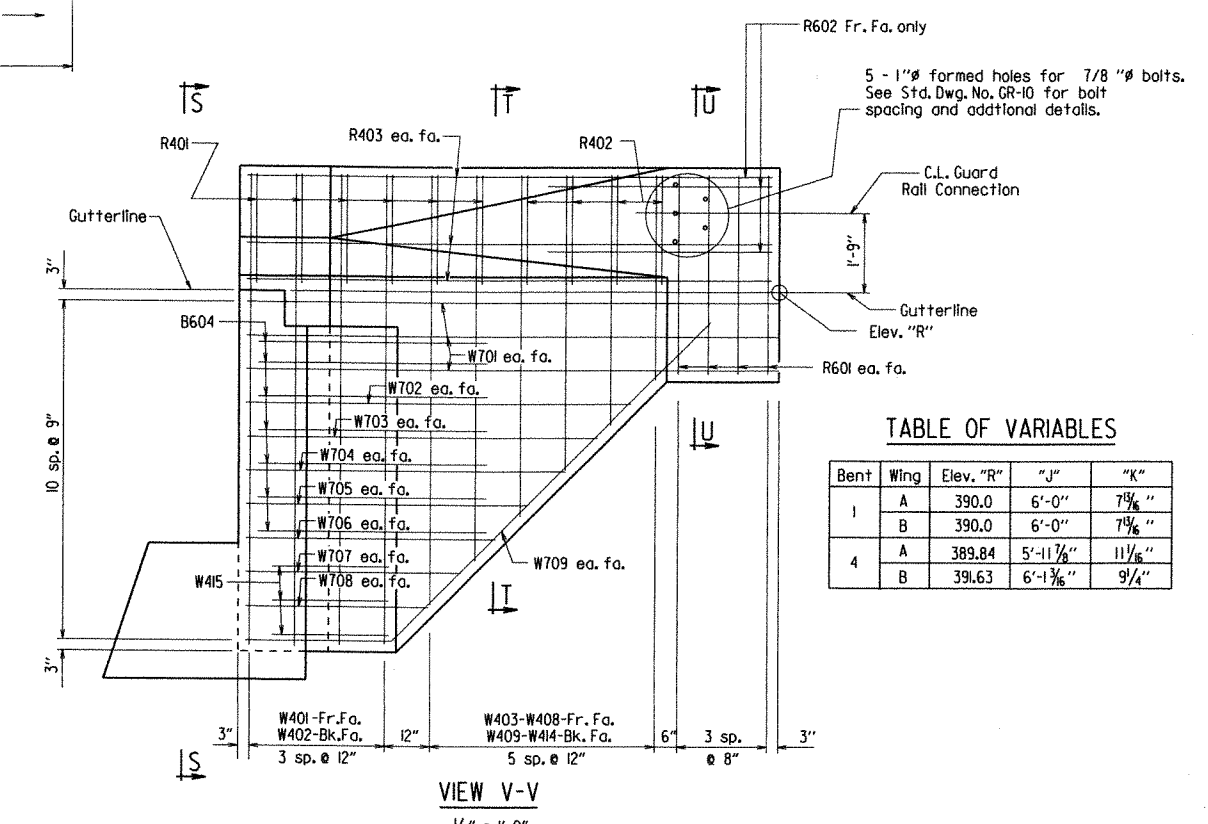
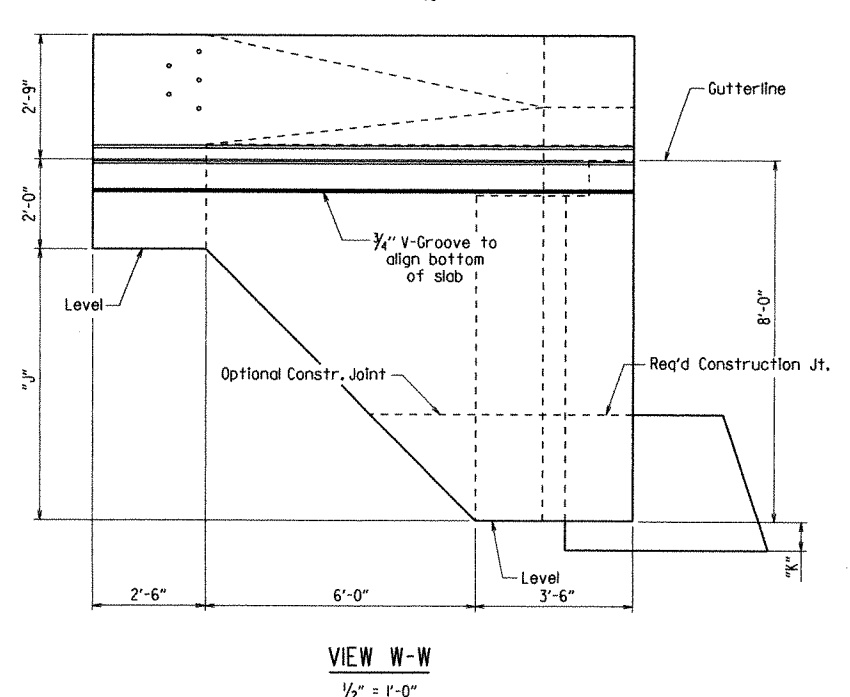
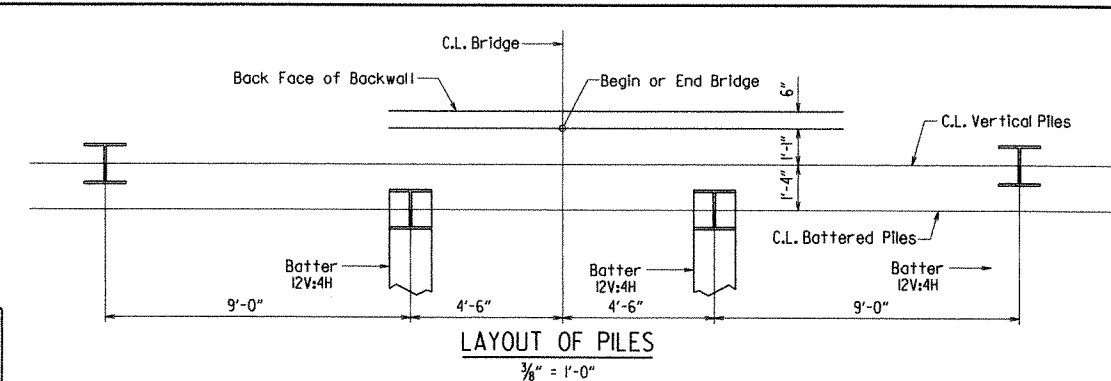
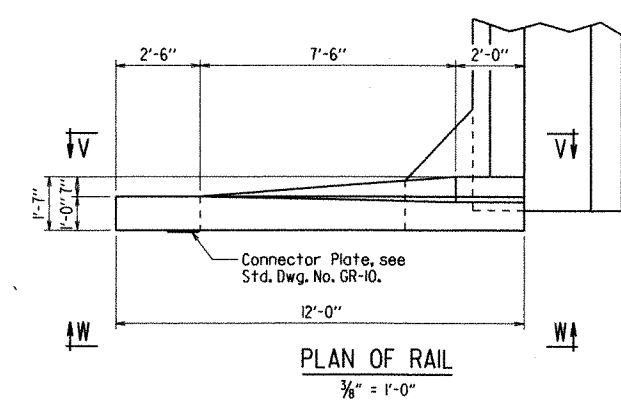
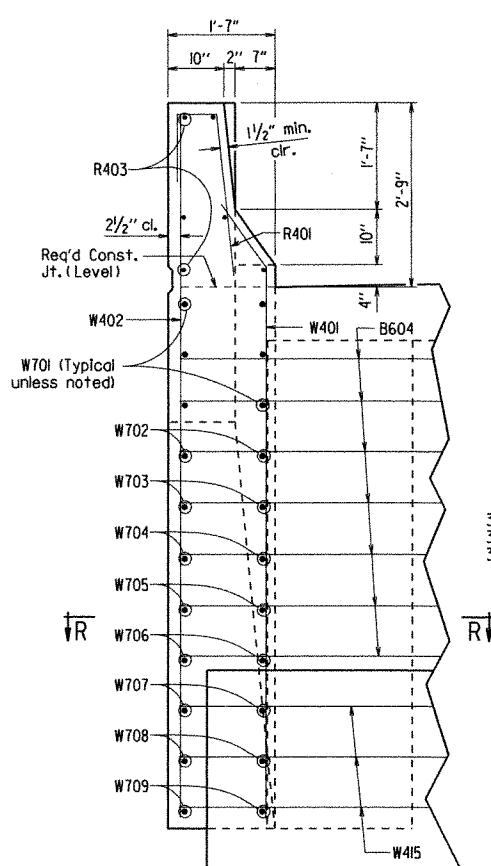
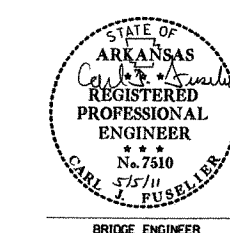
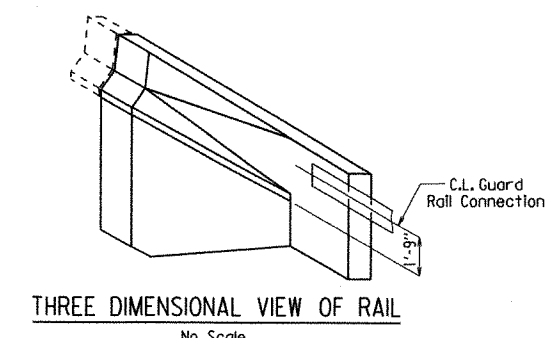
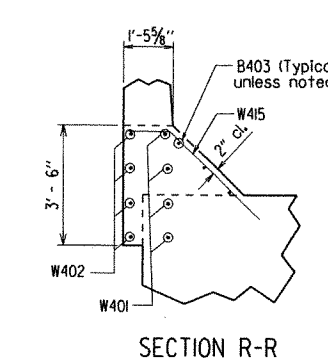
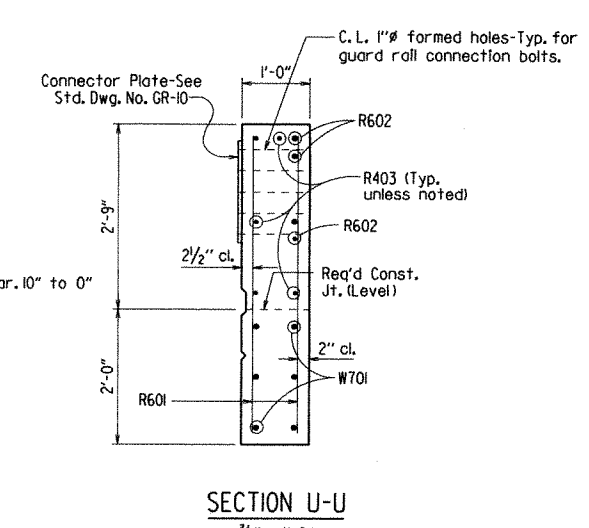
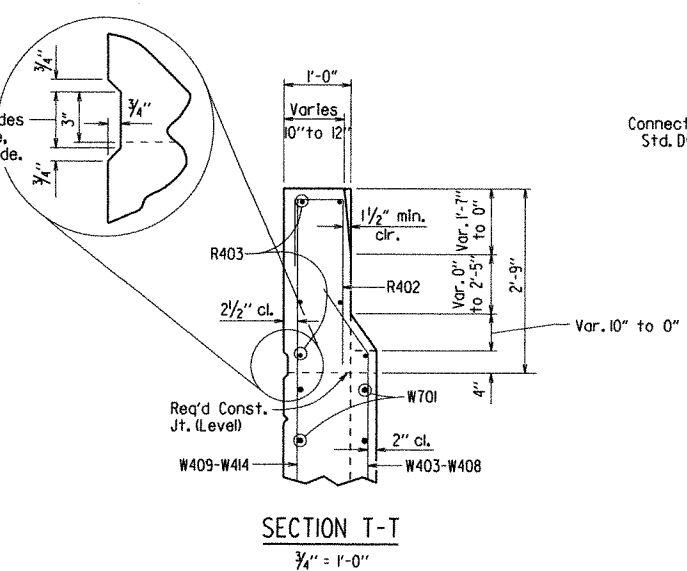


TABLE OF VARIABLES

Bent	Wing	Elev. "R"	"J"	"K"
1	A	390.0	6'-0"	7 3/4"
	B	390.0	6'-0"	7 3/4"
4	A	389.84	5'-11 7/8"	11 1/8"
	B	391.63	6'-1 3/8"	9 1/4"

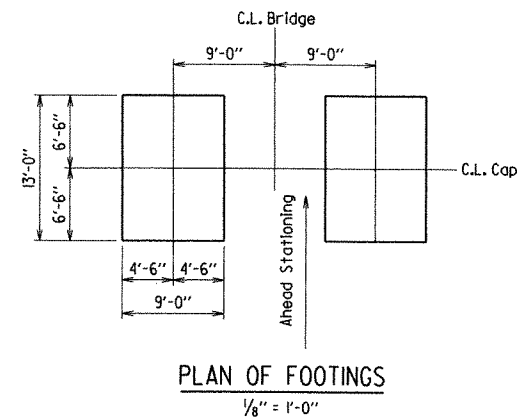
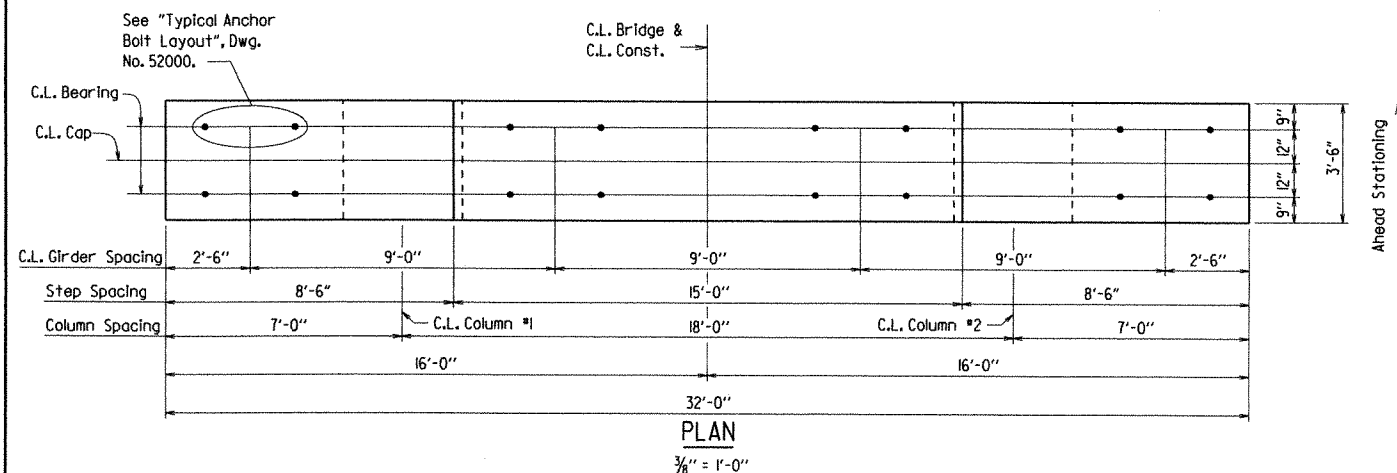


3 3/8" @ Bent 1 both sides
3" @ Bent 4 high side,
3 3/8" @ Bent 4 low side.



SHEET 3 OF 3
DETAILS OF END BENTS 1 AND 4
POINT REMOVE CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: ACW DATE: 01-27-11 FILENAME: b080383.bl.b4.dgn
CHECKED BY: LwY DATE: 5-4-11 SCALE: as noted
DESIGNED BY: JWP DATE: 8-10
BRIDGE NO. 07216 DRAWING NO. 51998

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
					ARK.			
						080383	35	92
						07216	INT. BENT	51999



BAR LIST

BENDING DIAGRAMS	MARK	NO.	REQ'D.	LENGTH	"A"	"B"	P.D.
	B40I	8	3'-8"		3'-2"	4'-2"	Str.
	B50I	5	15'-2"	3'-2"	4'-2"	2 1/2"	
	B502	72	12'-10"	2'-0"	4'-2"	2 1/2"	
	B503	4	11'-4"			2 1/2"	
	B70I	10	3'-8"			8"	Str.
	B80I	9	33'-6"	3'-8"	8"	6"	
	C40I	48	12'-10"	3'-1"	5"	3"	
	C90I	32	23'-9"				Str.
	F50I	18	12'-6"				Str.
	F502	26	8'-6"				Str.
	F60I	50	9'-10"	8'-6"	6"	4 1/4"	
	F80I	34	14'-4"	12'-6"	8"	6"	
	F90I	32	11'-10"			9"	

Dimensions are out to out of bars.

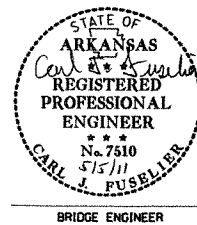
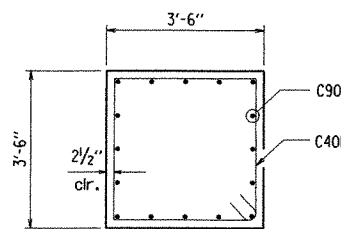
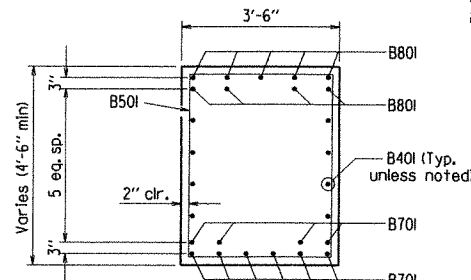
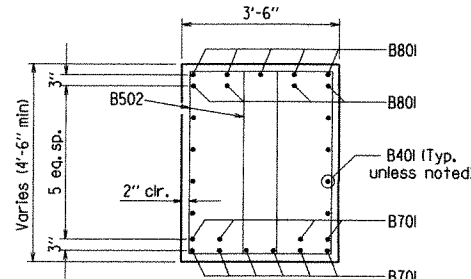
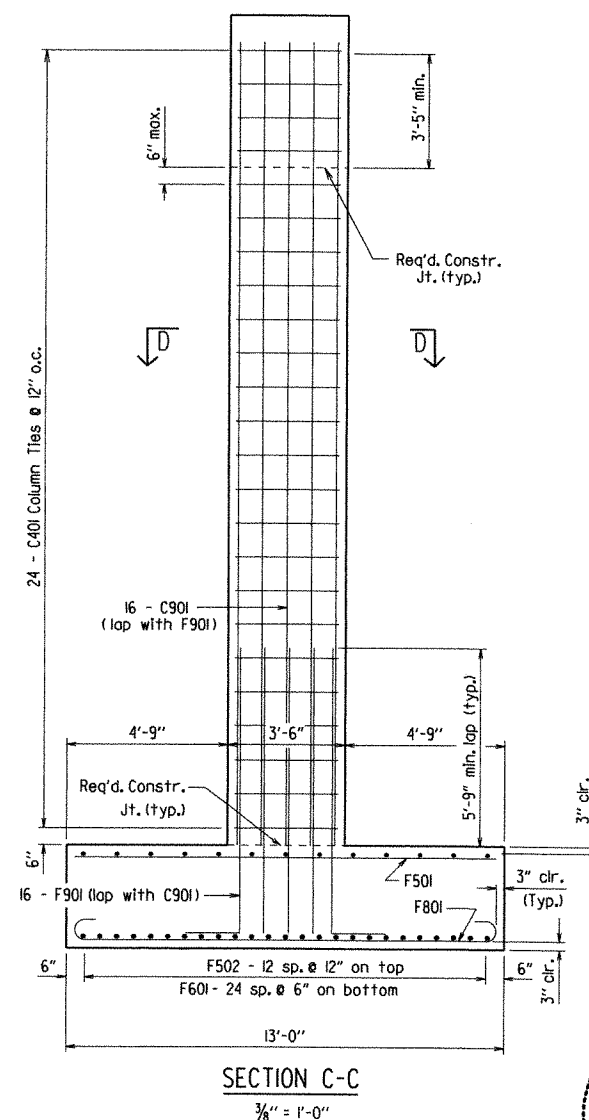
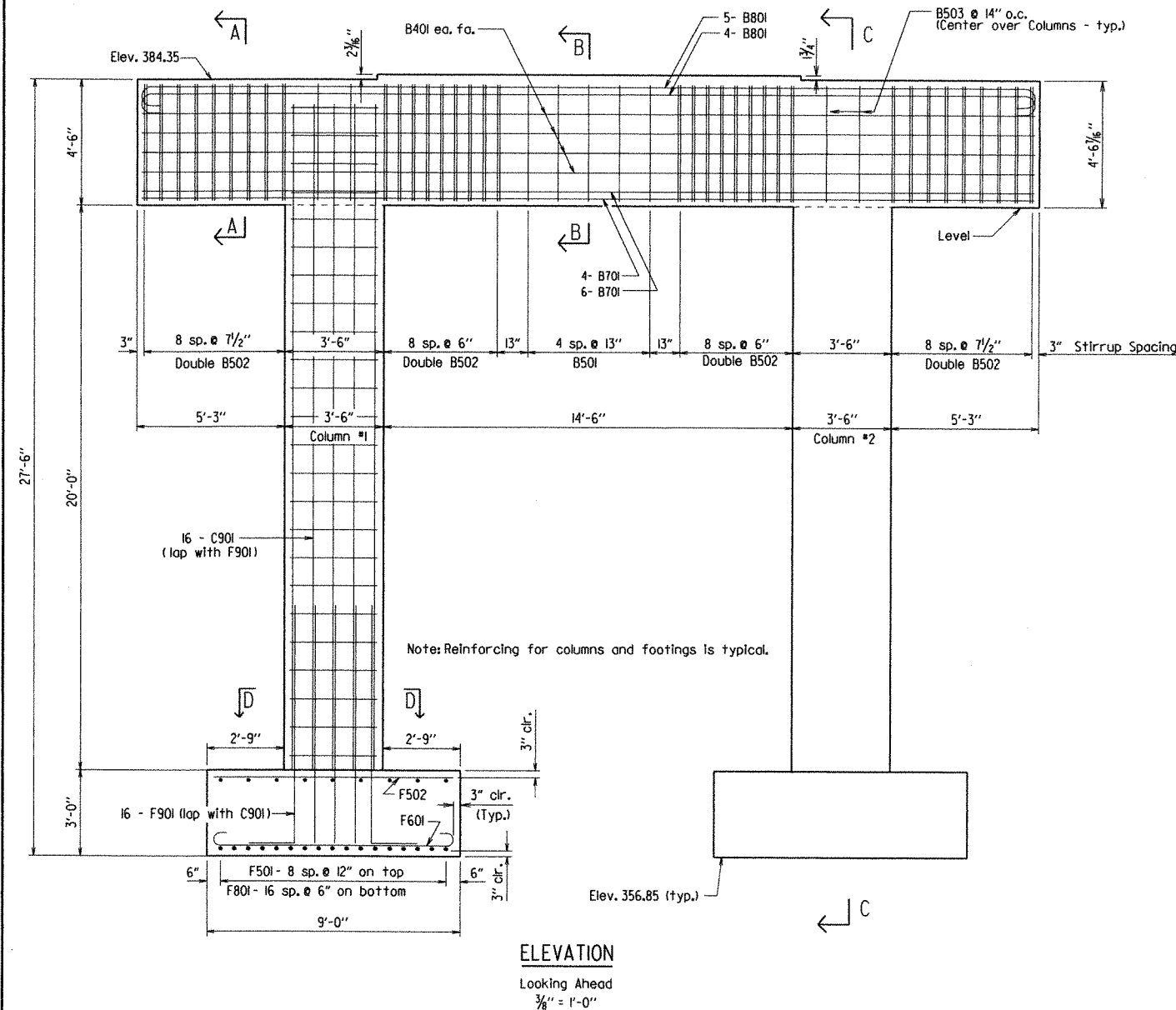
GENERAL NOTES:

All concrete shall be Class "S" with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi).

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

For additional information, see Layout.



DETAILS OF INT. BENT NO. 2 POINT REMOVE CREEK ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

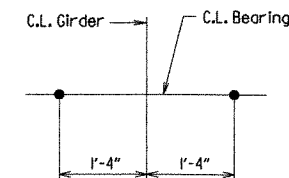
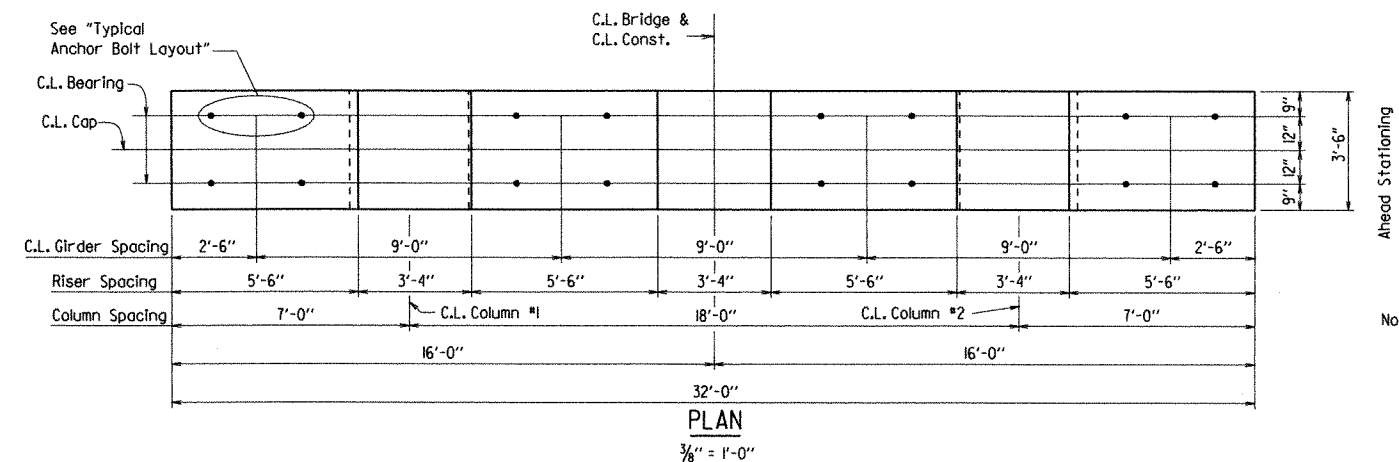
DRAWN BY: A.C.W. DATE: 01/27/11 FILENAME: b080383.bl.b4.dgn

CHECKED BY: JWP DATE: 5-4-11 SCALE: as noted

DESIGNED BY: JWP DATE: 8-10

BRIDGE NO. 07216 DRAWING NO. 51999

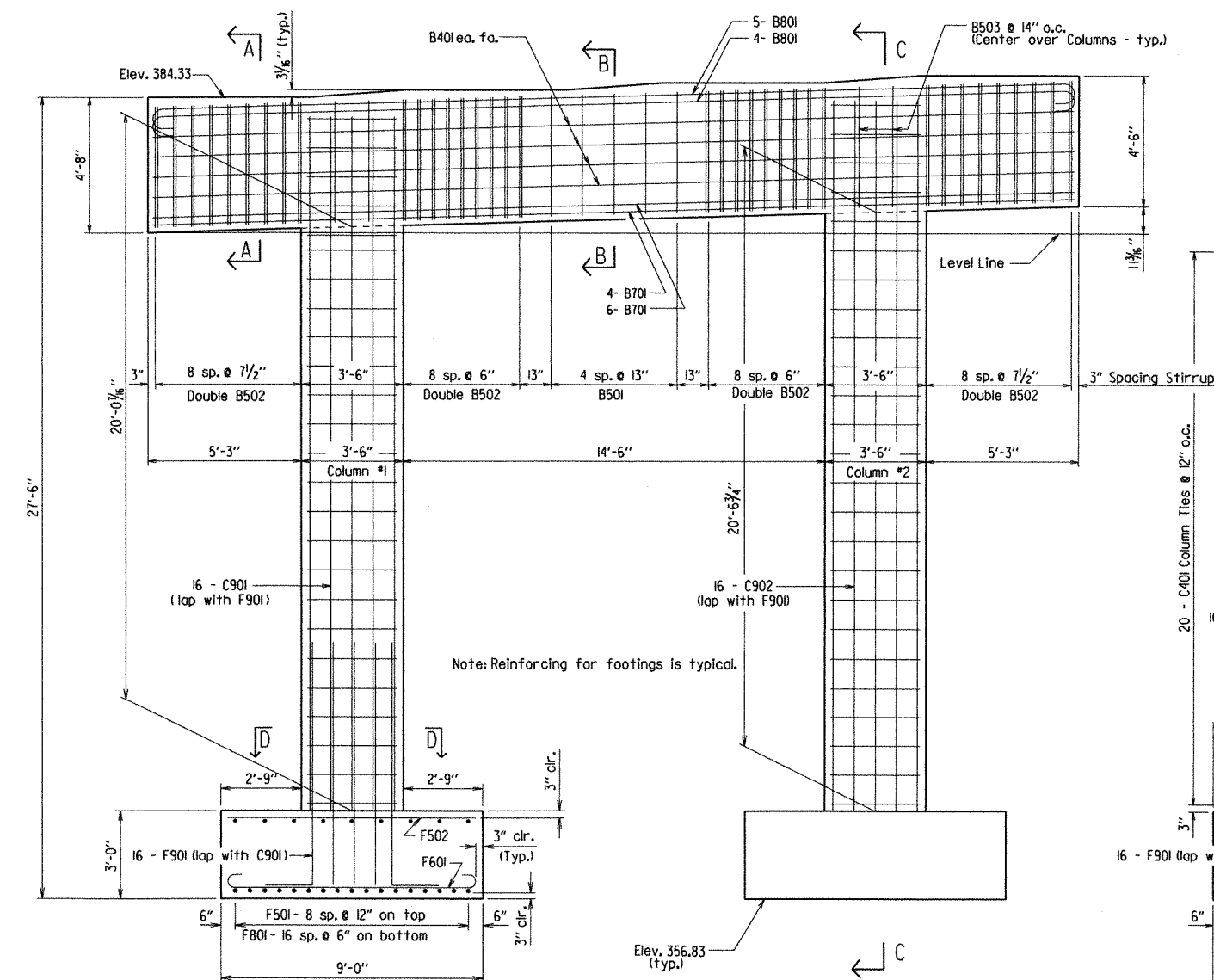
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
					ARK.			
				JOB NO.		080383	36	92
				07216		INT. BENT	52000	



Note: See Drwg. No. 5200I, For Details of Elastomeric Bearings.

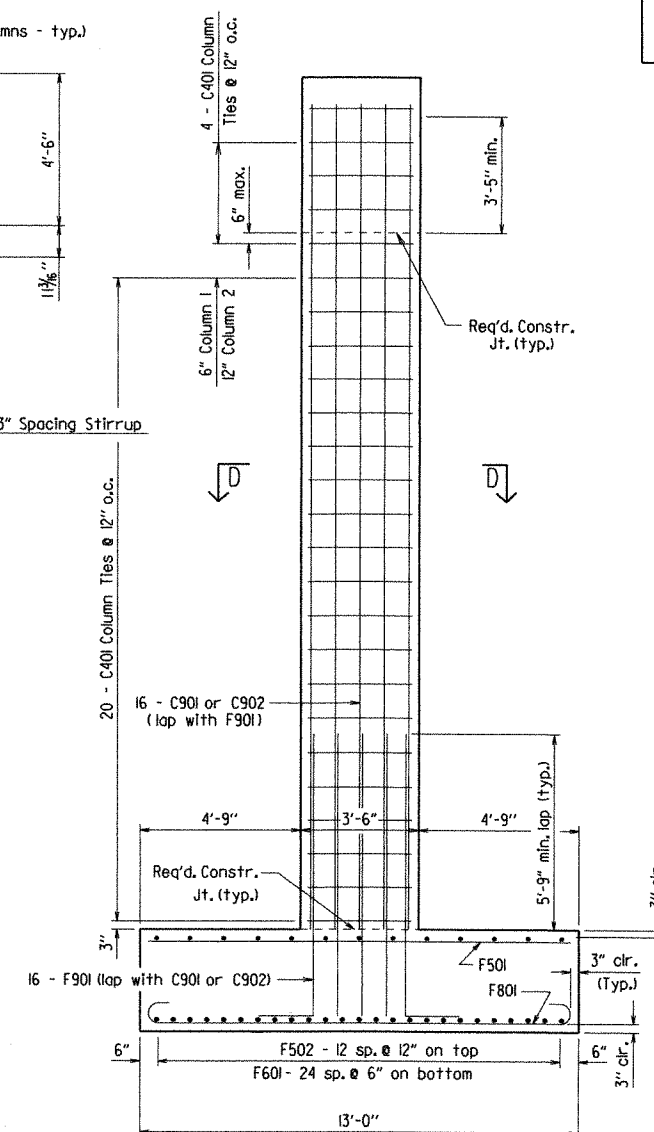
TYPICAL ANCHOR BOLT LAYOUT

No Scale

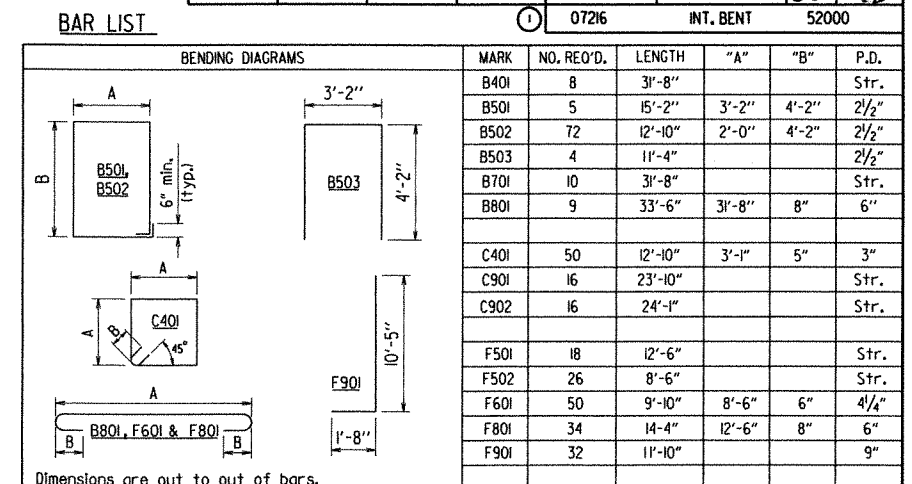


ELEVATION

Looking Ahead
 $\frac{3}{8}'' = 1'-0''$



SECTION C-C

$$\frac{3}{8}'' = 1'-0''$$


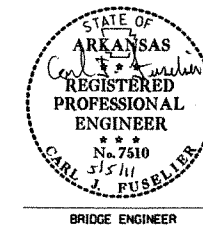
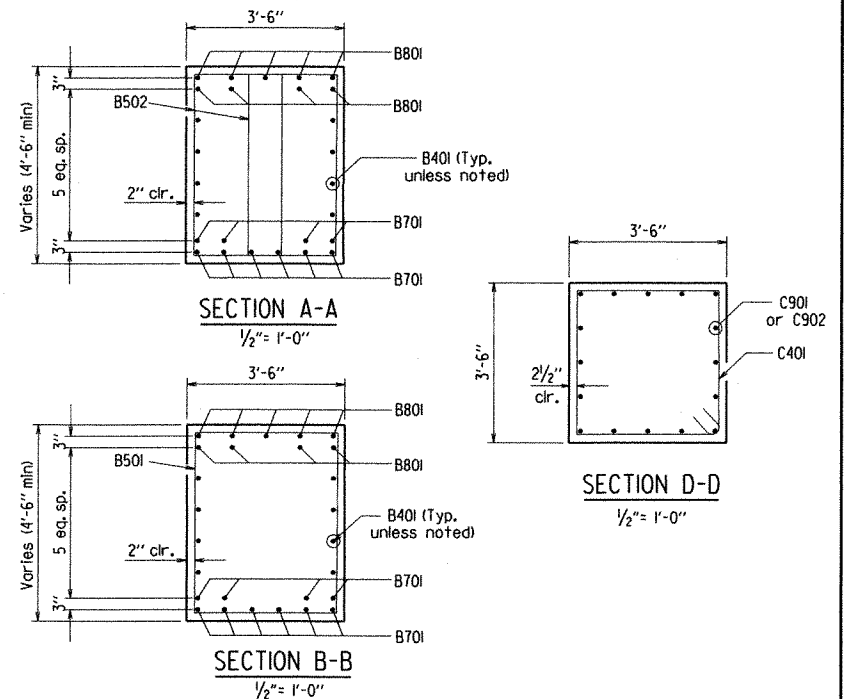
GENERAL NOTES:

All concrete shall be Class "S" with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners to be chamfered $\frac{3}{4}$ " unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (yield strength = 60,000 psi.)

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

For additional information, see Layout.



DETAILS OF INT. BENT NO. 3
POINT REMOVE CREEK
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

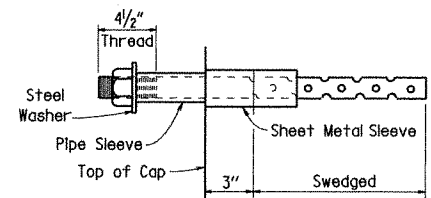
LITTLE ROCK, ARK.

DRAWN BY: A.C.W. DATE: 01-27-11 FILENAME: b080383.bl_b4.dgn

CHECKED BY: KWY DATE: 5-4-11 SCALE: as noted

DESIGNED BY: JAP DATE: 8-10

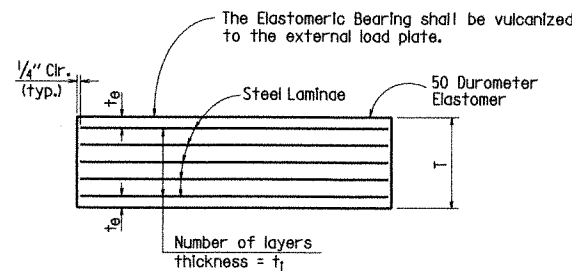
BRIDGE NO. 07216 DRAWING NO. 52000



FRONT VIEW

-
- Diagram illustrating a butt joint with an insert plate. The diagram shows two main plates of thickness $C/2$ joined by a weld. An insert plate of thickness F is positioned between the two main plates. The weld is shown as a dashed line. The distance from the centerline of the main plates to the centerline of the insert plate is labeled L . The end of the insert plate is labeled "End of Insert Plate". The slot or hole in the plate is labeled "Slot or Hole In Plate".

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

TABLE OF FABRICATOR VARIABLES

GENERAL NOTES

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

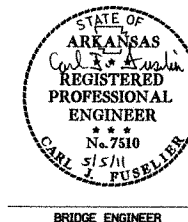
External load plates shall conform to AASHTO M 270, Grade 50W and will not be paid for separately, but will be included in the unit price bid for "Elastomeric Bearings". Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates shall be completely fabricated (including bevel, bolt holes and all shop welding) 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 of the Standard Specifications. 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)".

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.



DETAILS OF ELASTOMERIC BEARINGS POINT REMOVE CREEK

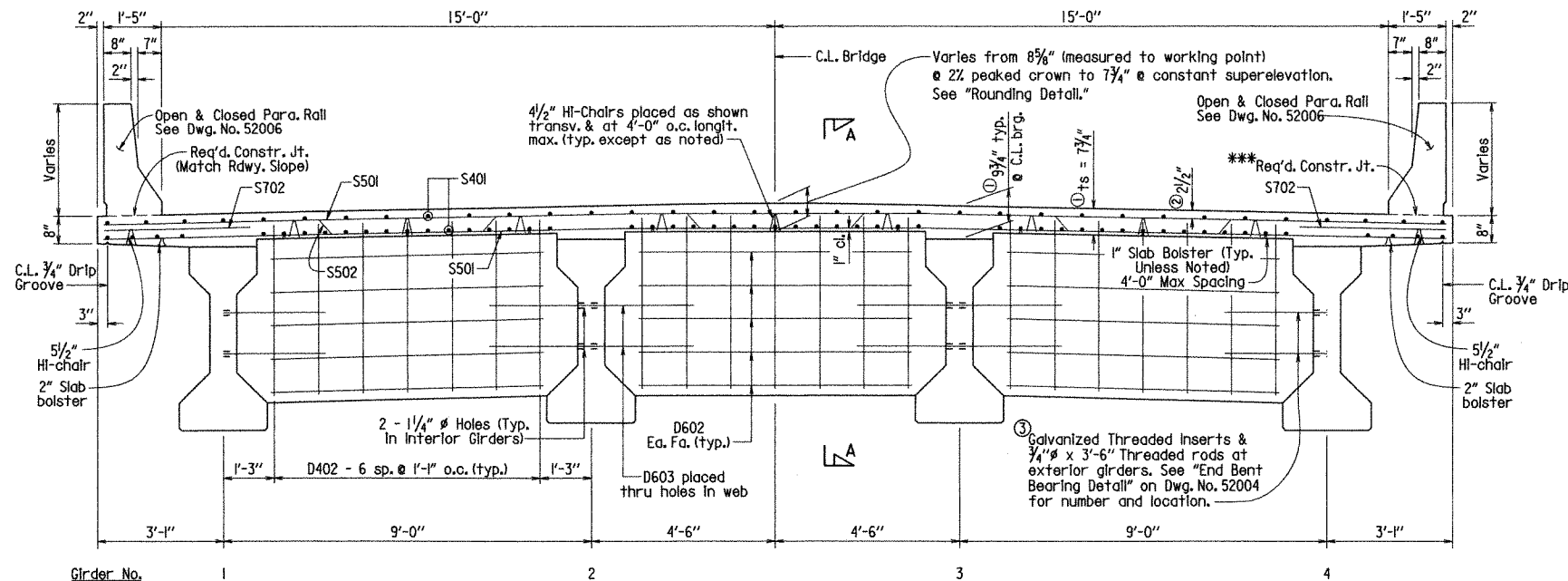
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 11/16/10 FILENAME: b080383.el.dgn
 CHECKED BY: Kwy DATE: 5-4-11 SCALE: No Scale
 DESIGNED BY: JJP DATE: 11-10
 BRIDGE NO. 07216 DRAWING NO. 52001

Note: Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Wall

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

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.		080383	38	92
				07216		SPAN DETAILS	52002	



TYPICAL SECTION AT MID-SPAN DIAPHRAGMS

Looking Ahead (2% Peaked Crown shown, actual Cross-Slope will vary)
Scale: 1/2" = 1'-0"

SLAB REINFORCING:

LONGITUDINAL: S401 in top & bott. (Place as shown) — Alternate
S701 placed Over Interior Bents. —
For placement, see "Typical Section at Intermediate Bents", Dwg. No. 52003

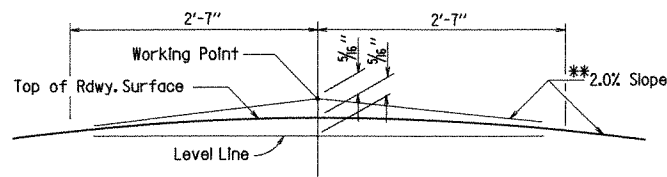
TRANSVERSE: S501 @ 15" ctrs. (Top & Bottom)
S502 @ 15" ctrs. bent up over girders
S702 @ 15" ctrs. (Top of slab at Gutter)

① See "Adjustment for Slab Thickness Tolerance"

② Tolerances: Minus = 1/4";
Plus = Equal to the amount of
slab thickening used to meet slab
thickness tolerance. See "Adjustment
for Slab Thickness Tolerance".

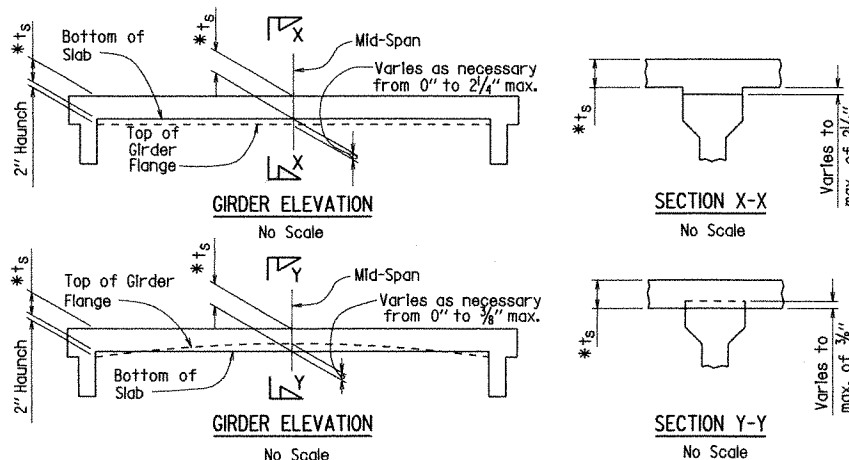
③ Galvanized Threaded Inserts shall be Dayton-Richmond F-42
Loop Ferule Inserts or approved equal. 3/4" # Galvanized
Threaded Rods shall be AASHTO M 270, Grade 36 or AASHTO
M 31 or M 53, Grade 60. Galvanizing shall be in accordance
with AASHTO M 232, Class C or AASHTO M 298, Class 50. These
Items will not be paid for directly, but shall be considered
subsidiary to the Item "Prestressed Concrete Girders (Type IV)".

**Values shown are for 2% Peaked Crown. Dimension for
Working Point to Top of Roadway Surface Varies from
5/8" at Sta. 115+21.03 to 0" at Sta. 115+85.13.



ROUNDING DETAIL

No Scale



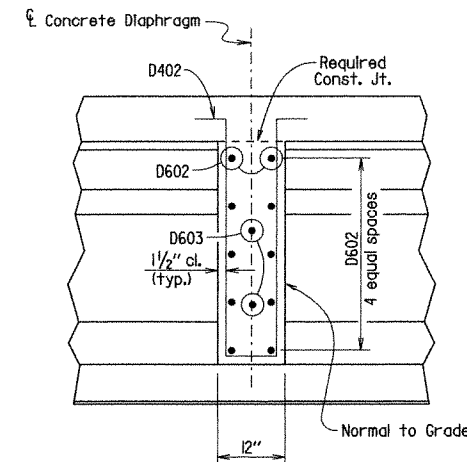
Note: ts = slab thickness as shown on superstructure details - See "Typical
Section at Mid-Span Diaphragms".

*Tolerance when removable deck forming is used is + 1/2" - 1/4". Haunch forming is
required and shall be adjusted to maintain slab thickness tolerance. See Dwg. No.
M991 for tolerances when permanent steel deck forms are used.

"Girder Elevation" sketches show the range of acceptability of the top of the
girder relative to bottom of slab after the placement of the slab. When the top
of the girder projects more than 3/8" into the slab, a raise in grade will be
necessary. Girders shall be set in a sufficient number of spans so when
adjustment is necessary the Profile Grade can be adjusted over suitable
increments so the revised grade line will produce a smooth riding surface.
Variation of haunch height will be at the Contractor's expense.

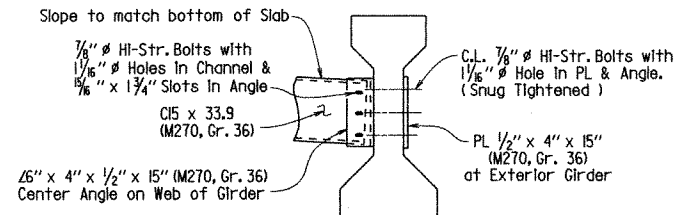
ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

*** Match roadway slope to Sta. 115+53.08.
Construct level after Sta. 115+53.08.



SECTION A-A

Midspan Diaphragms
3/4" = 1'-0"

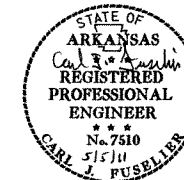


Note: A standard washer shall be supplied under
both the nut and the head for the 7/8" H.S. Bolt.
An additional plate washer shall cover the angle slots.

DETAILS OF ALTERNATE MID-SPAN DIAPHRAGM

No Scale

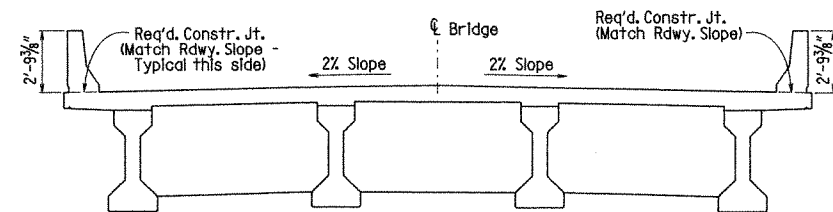
Note: Galvanized Steel Diaphragms may be used in place of
Concrete at Mid-Span Diaphragms only. All components
of the Alternate Steel Diaphragms shall be Galvanized.
Payment will be based on concrete diaphragms.



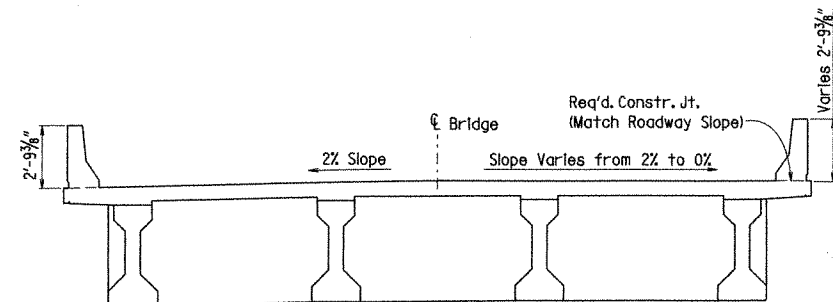
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 261'-0"
CONTINUOUS PRESTRESSED
CONCRETE GIRDER UNIT
POINT REMOVE CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: JYP DATE: 09-01-10 FILENAME: b080383.sl.dgn
CHECKED BY: KMY DATE: 5-4-11 SCALE: AS NOTED
DESIGNED BY: JHP DATE: 8-10
BRIDGE NO. 07216 DRAWING NO. 52002

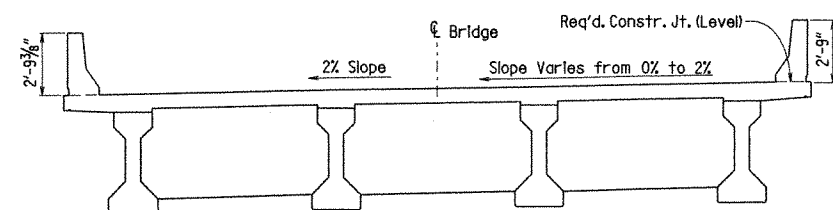
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080383	39	92
				07216		SPAN DETAILS	52003	



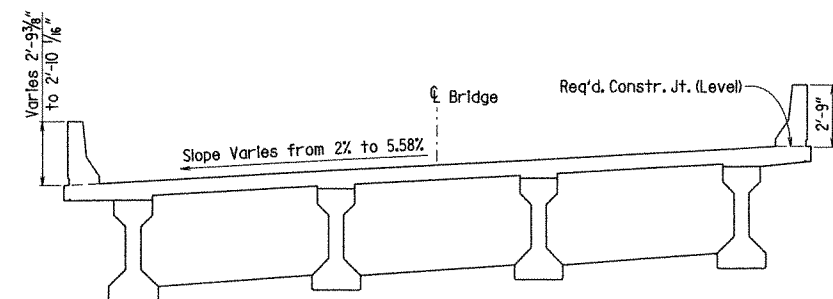
STA. 114+39.00 TO STA. 115+21.03



STA. 115+21.03 TO STA. 115+53.08



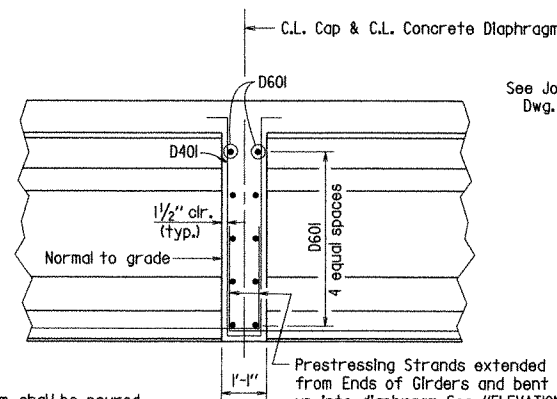
STA. 115+53.08 TO STA. 115+85.13



STA. 115+85.13 TO STA. 117+00.00

ROADWAY CROSS - SLOPE TRANSITION (LOOKING AHEAD)

No Scale

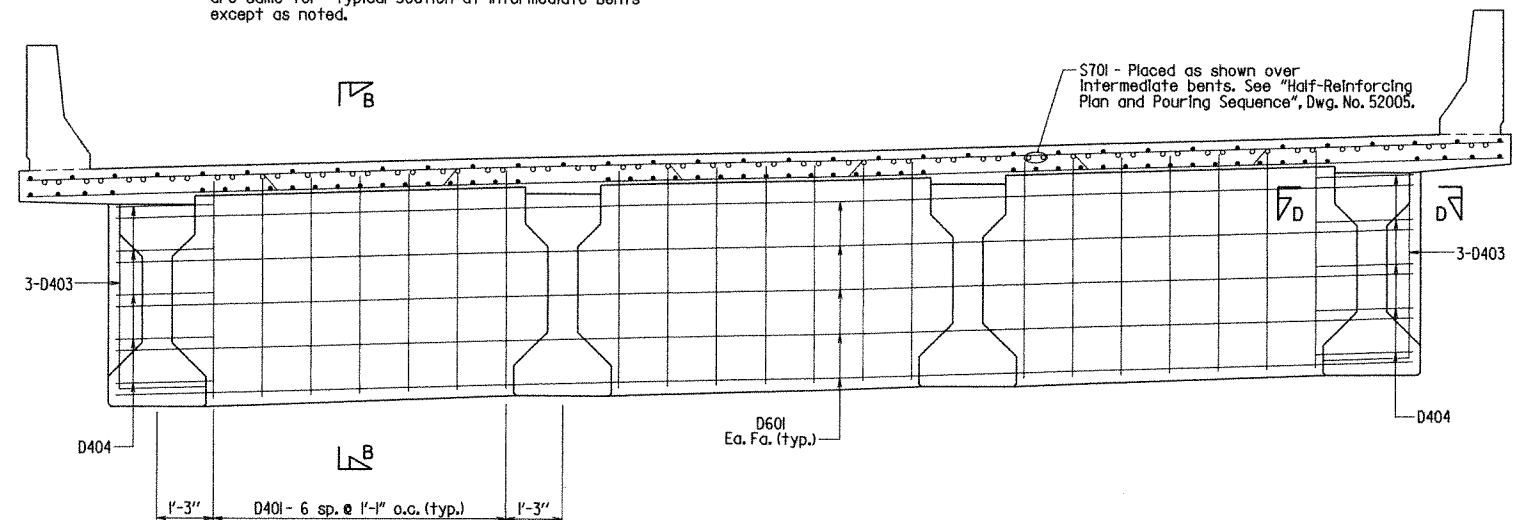


SECTION B-B

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

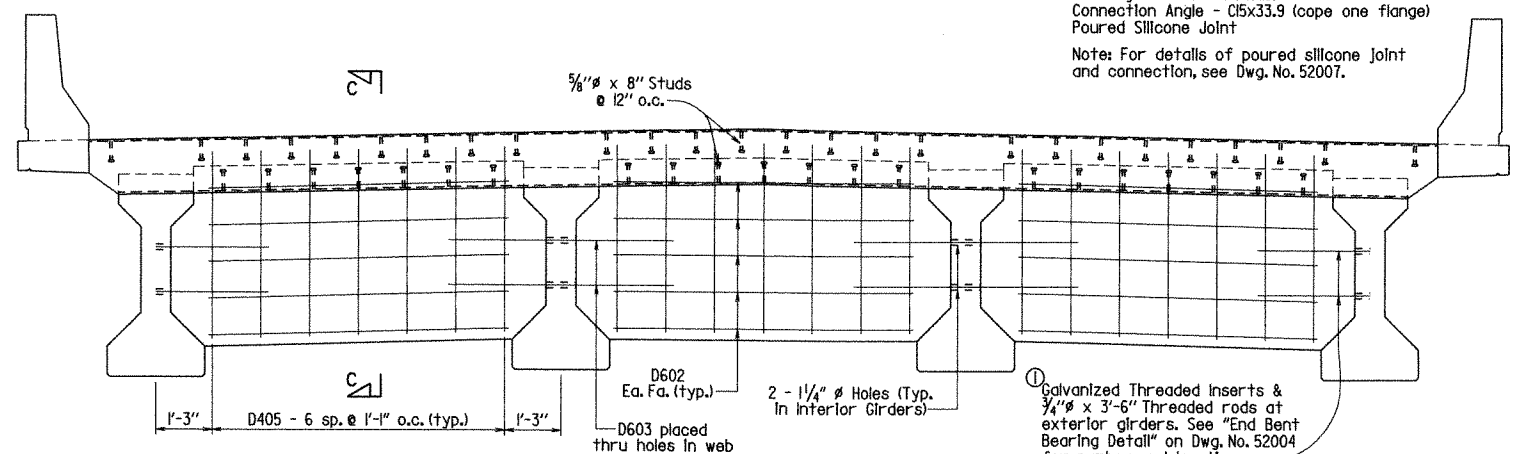
Diaphragm shall be poured monolithically with the deck.

Note: Reinforcing steel details and dimensions shown in "Typical Section at Mid-Span Diaphragms", Dwg. No. 52002, are same for "Typical Section at Intermediate Bents" except as noted.



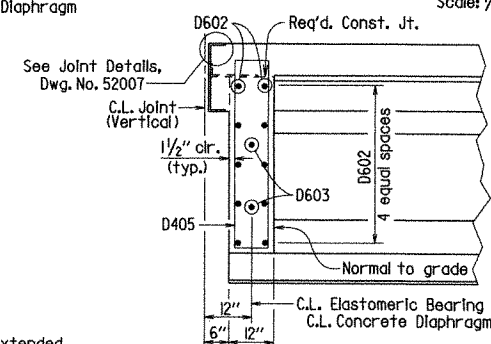
TYPICAL SECTION AT INTERMEDIATE BENTS

Looking Ahead (Bent 3 Shown, Bent 2 Similar)
Scale: 1/2" = 1'-0"



TYPICAL SECTION THRU JOINT

Looking Ahead (Bent 1 Shown, Bent 4 Similar)
Scale: 1/2" = 1'-0"



SECTION C-C

End of Unit Diaphragm
Scale: 1/2" = 1'-0"



BRIDGE ENGINEER

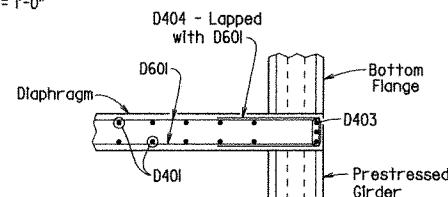


BRIDGE ENGINEER

EXPANSION DEVICE:
Roadway Channel - C15x33.9
Connection Angle - C15x33.9 (cope one flange)
Poured Silicone Joint
Note: For details of poured silicone joint and connection, see Dwg. No. 52007.

Note: Galvanized Threaded Inserts shall be Dayton-Richmond F-42 Loop Ferule Inserts or approved equal. 3/4" x 3'-6" Threaded Rods shall be AASHTO M 270, Grade 36 or AASHTO M 31 or M 53, Grade 60. Galvanizing shall be in accordance with AASHTO M 232, Class C or AASHTO M 298, Class 50. These items will not be paid for directly, but shall be considered subsidiary to the item "Prestressed Concrete Girders (Type IV)".

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

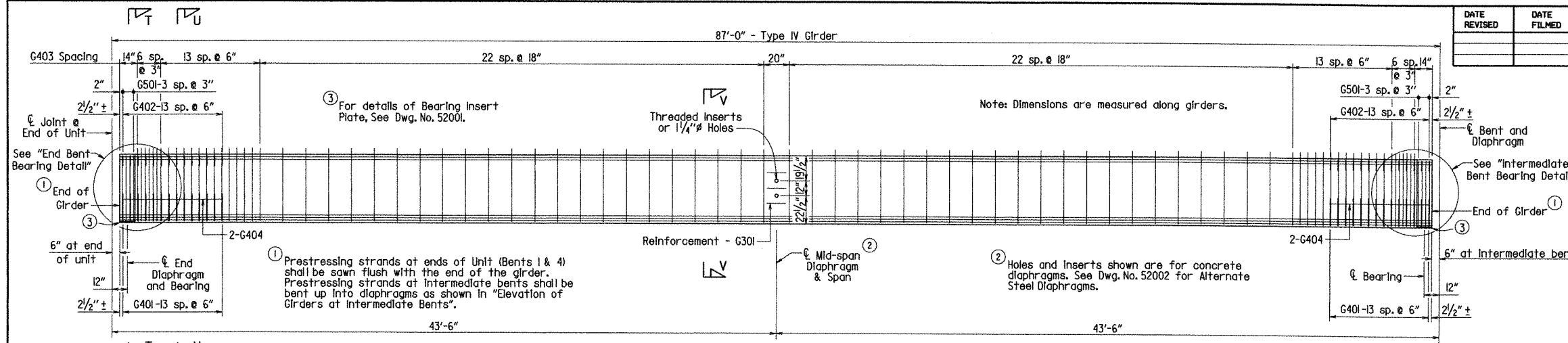


SHEET 2 OF 6
DETAILS OF 26'-0"
CONTINUOUS PRESTRESSED
CONCRETE GIRDER UNIT
POINT REMOVE CREEK

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 09-01-10 FILENAME: b080383.sldgn
CHECKED BY: KMY DATE: 5-4-11 SCALE: AS NOTED
DESIGNED BY: JYP DATE: 8-10
BRIDGE NO. 07216 DRAWING NO. 52003

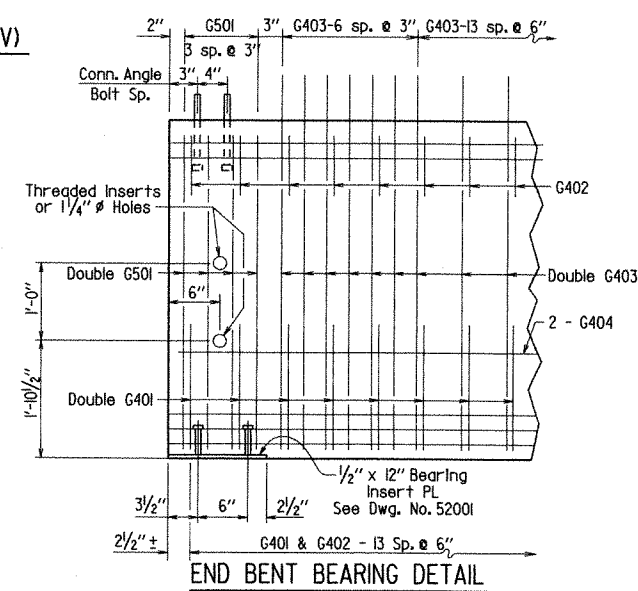
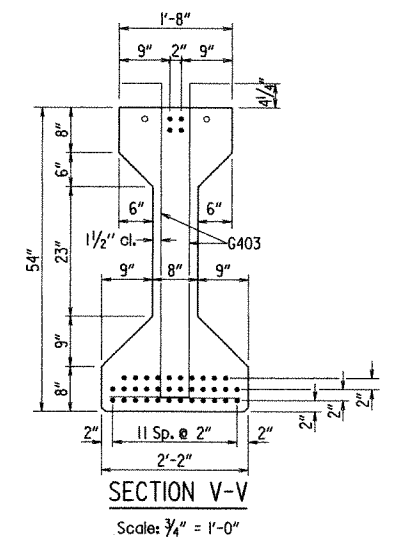
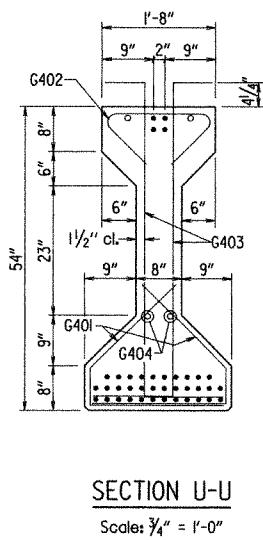
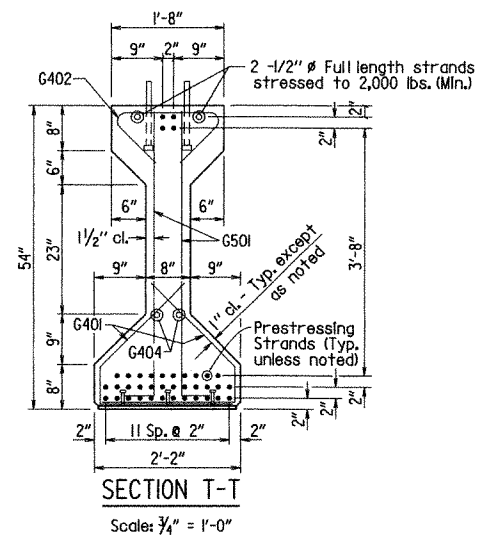
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080383	40	92
				07216	SPAN DETAILS		52004	



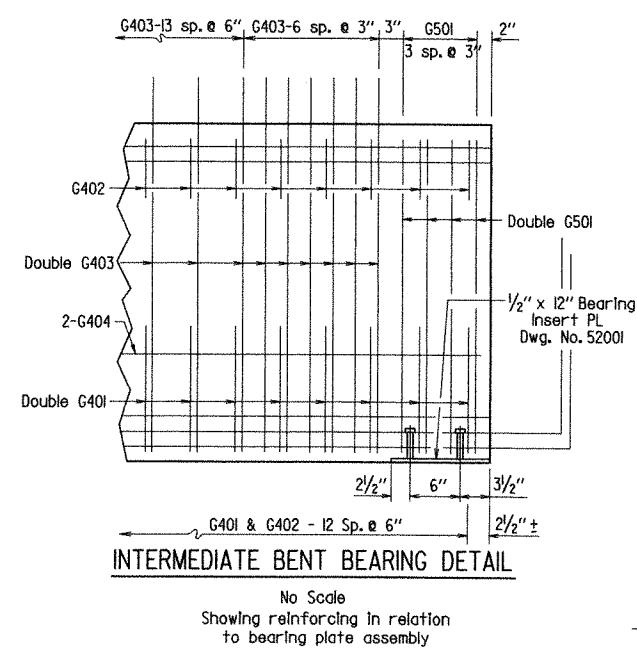
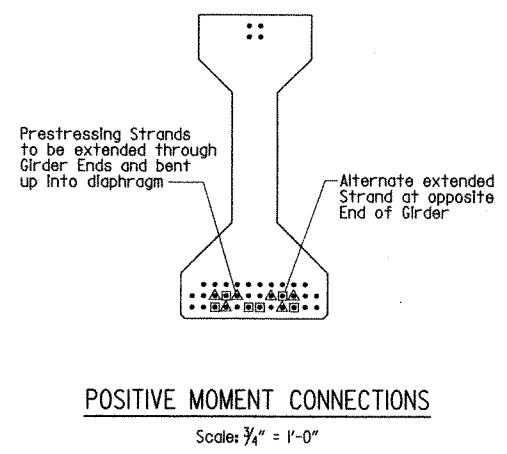
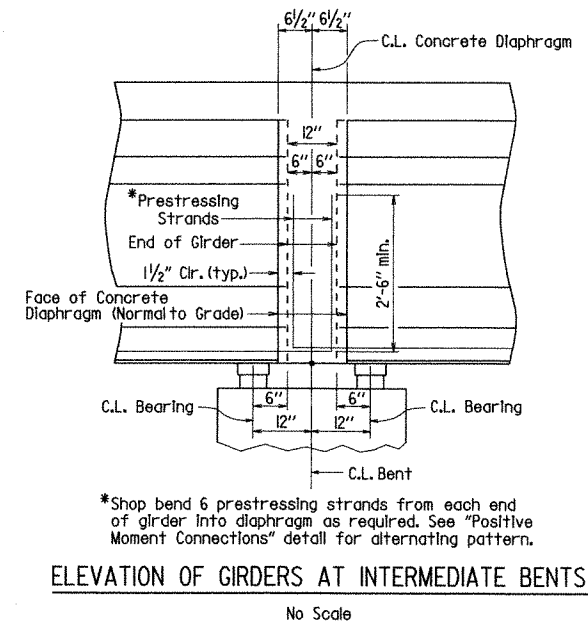
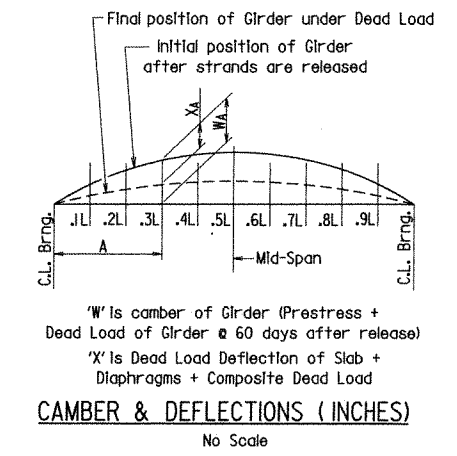
BAR LIST PER GIRDER				BENDING DIAGRAMS	
MARK	NO. REQ'D.	LENGTH	P.D.		
G301	6	1'-3"	Str.		
G401	56	4'-1"	2"		
G402	28	3'-1"	3"		
G403	168	6'-3"	2"		
G404	4	6'-7"	Str.		
G501	16	4'-6"	2 1/2"		

Dimensions are out to out of bars.

TYPICAL GIRDER ELEVATION (TYPE IV)
Scale: 1/4" = 1'-0"



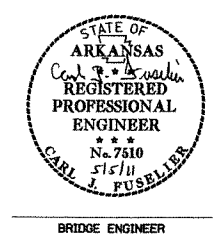
Span Pt.	Inches	
	W _A	X _A
0.00	0.000	0.000
0.10	0.866	0.310
0.20	1.435	0.608
0.30	1.836	0.844
0.40	2.064	0.955
0.50	2.138	1.045
0.60	2.064	0.995
0.70	1.836	0.844
0.80	1.435	0.608
0.90	0.866	0.310
1.00	0.000	0.000



STRAND DESIGNATION		VARIABLES OF BONDING/DEBONDING		
ROW	LINE	"A"	"B"	"C"
1	B,E,H,L	—	8'	70'
1	A,C,D,F,G,J,K,M	86'	—	—
2	F,G	—	6'	74'
2	A,B,C,D,E,H,J,K,L,M	86'	—	—
3	B,C,D,E,F,G,H,J,K,L	86'	—	—
4	F,G	86'	—	—
5	F,G	86'	—	—

BONDING/DEBONDING DIAGRAM

STRAND LOCATION

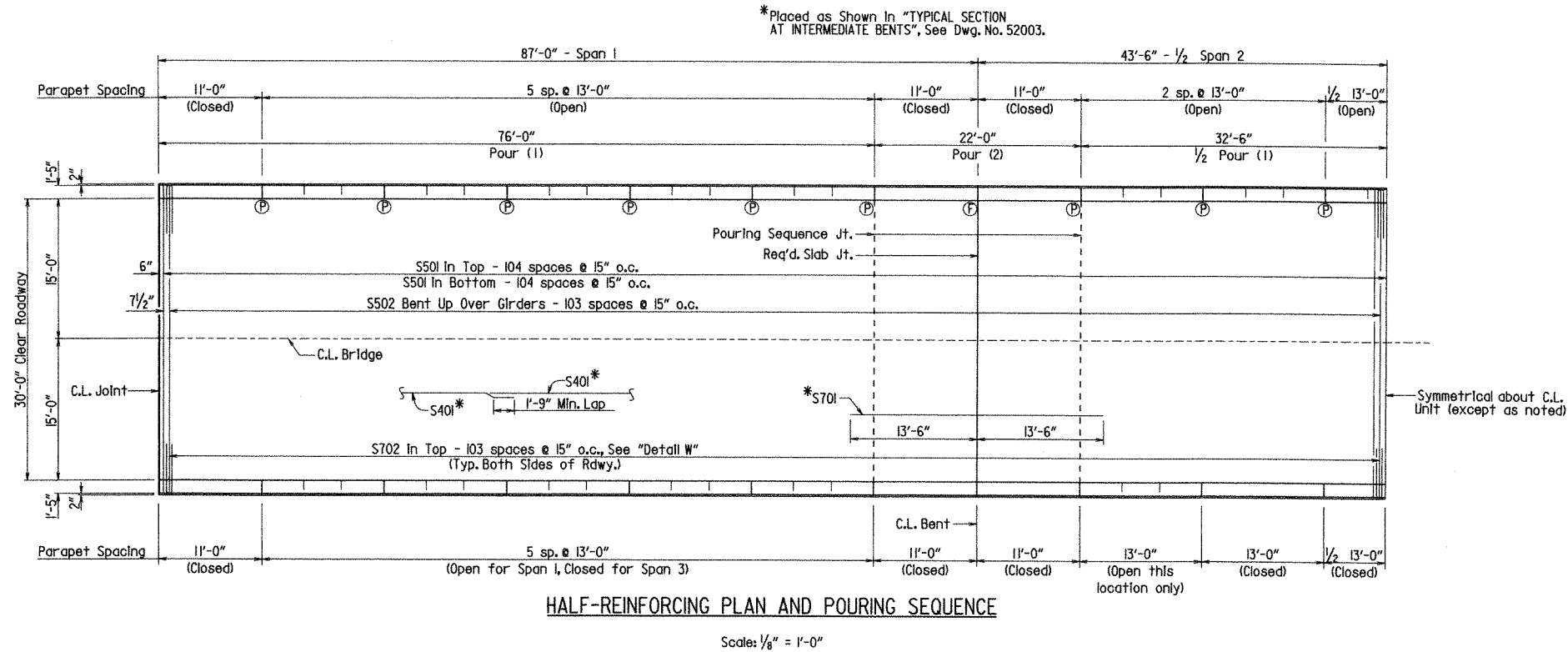


SHEET 3 OF 6
DETAILS OF 261'-0"
CONTINUOUS PRESTRESSED
CONCRETE GIRDER UNIT
POINT REMOVE CREEK

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

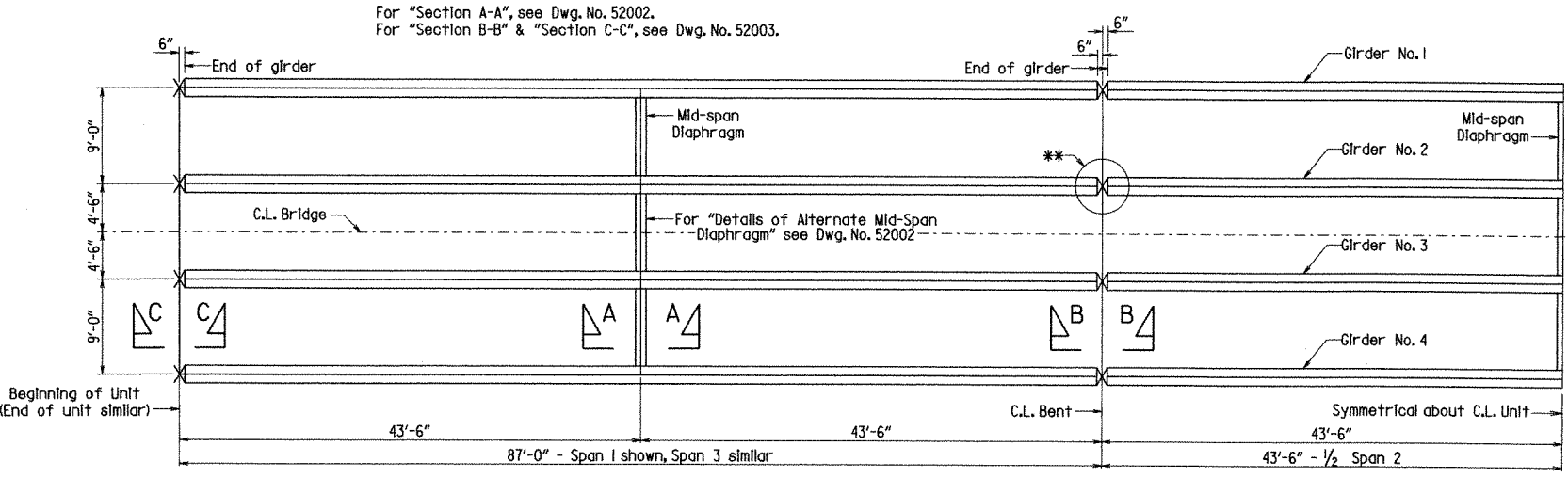
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CHECKED BY: Kwy DATE: 5-4-11 SCALE: AS NOTED
DESIGNED BY: JYP DATE: 9-16
BRIDGE NO. 07216 DRAWING NO. 52004

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.		080383	41	92
						07216	SPAN DETAILS	52005



BAR LIST

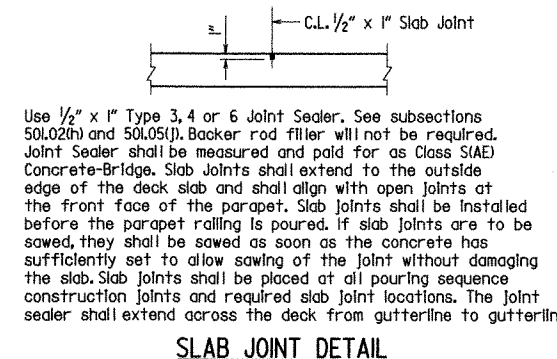
Mark	No. Req'd.	Length	Pln Dia.	Bending Diagrams (Dimensions are out to out of bars.)
S401	609	38'-10"	Str.	
S501	418	32'-10"	Str.	
S502	208	33'-4"	3"	
S701	132	27'-0"	Str.	
S702	416	10'-0"	6"	
P401	876	5'-6"	2"	
P402	168	4'-10"	2"	
P403	144	3'-10"	Str.	
P404	84	10'-8"	Str.	
P405	210	12'-8"	Str.	
P501	876	4'-9"	3 3/4"	
D401	42	11'-2"	2"	
D402	63	9'-9"	2"	
D403	12	6'-3"	2"	
D404	20	6'-7"	2"	
D405	42	10'-2"	2"	
D601	20	28'-10"	Str.	
D602	150	6'-10"	Str.	
D603	20	5'-0"	Str.	



HALF-FRAMING PLAN

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

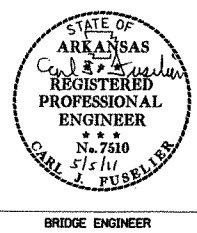
**Note: After erection, the ends of girders at all bents shall be blocked using temporary blocking to maintain proper location on bent caps until all bearings are welded and diaphragms are poured.



Notes:
Required slab joints and pouring sequence construction joints shall align with parapet joints at gutterline.
Location of full and partial depth parapet joints are similar for both sides of roadway.
ⓔ Full depth parapet joint at this location
ⓔ Partial depth parapet joint at this location

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

Diaphragm Pours: End of unit diaphragms and mid-span diaphragms shall be poured at least 48 hours prior to deck pours. Diaphragms at interior bents shall be poured monolithically with the slab but shall not be poured until 90 days after girders are cast.



SHEET 4 OF 6
DETAILS OF 261'-0"
CONTINUOUS PRESTRESSED
CONCRETE GIRDER UNIT
POINT REMOVE CREEK

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 09-01-10 FILENAME: b080383_sl.dgn
CHECKED BY: LMY DATE: 5-4-11 SCALE: AS NOTED
DESIGNED BY: JYP DATE: 8-10
BRIDGE NO. 07216 DRAWING NO. 52005

PRESTRESSED GIRDERS GENERAL NOTES

Pretensioning steel shall be 1/2" dia. Low Relaxation strands with a minimum ultimate strength of 270 ksi, and shall conform to AASHTO M 203.

Distances from the forms and spacing of the Prestressing Steel shall be maintained by stays, ties, hangers, spacers, or other approved supports which shall be shown on the Shop Drawings.

Strands requiring debonding shall be blanketed over the regions shown with sheathing. Sheathing shall be either split plastic or solid plastic with a minimum wall thickness of 0.025 inch. To prevent concrete from contacting the strands within the debonded length, sheathing shall be thoroughly taped at each end. Split sheathing shall be additionally sealed along its entire length by thorough taping.

All girders shall be Type IV as noted on the details and shall be the standard prestressed sections adopted by the Joint Committee of AASHTO and the Prestressed Concrete Institute. All girders shall be cast in concrete floored pallets and in metal forms. All work and materials shall be as specified in subsection 802.22.

Concrete shall be Class S and shall have a minimum 28 day compressive strength, f'c = 6,000 psi. The initial tensile force applied to each 1/2" dia. strand shall be 31,000 lbs. except as noted. Transfer of this tensioning load to the girder shall not be done until the compressive strength of the concrete is 5,000 psi.

Dimensions shown are to the center of the strands.

The Contractor shall submit the method and sequence for release of strands to the Engineer for approval prior to casting of the girders.

The first 16" along the tops of the Girders at beginning and the end of unit shall have a smooth surface. The tops of the remaining length of the girders shall be rough floated at approximately the time of set. This portion of the tops of girders shall be scrubbed transversely with a coarse wire brush to remove all laitance and to produce a roughened surface for bonding the slab.

Extreme care shall be exercised in handling and moving precast prestressed concrete girders. Girders must be maintained in an upright position at all times and must be placed up from points near the girder ends. Disregard of this requirement may lead to collapse of the girder. The Contractor's proposed lifting details shall be submitted on shop drawings to the Engineer for approval. The use of holes for lifting purposes will not be permitted.

The points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its final position.

Reinforcing steel shall be AASHTO M31 or M53, Gr. 60 (Fy = 60,000 psi).

The Contractor may submit alternate strand patterns with design calculations for review and approval.

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

SUPERSTRUCTURE GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2003 edition, with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications Fifth Edition (2010).

LIVE LOADING: HL-93

REINFORCING STEEL: Reinforcing Steel shall conform to AASHTO M31 or M53, Grade 60 (Fy = 60,000 psi). Reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports sufficient in size and number 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 of "Reinforcing Steel".

CONCRETE: Concrete in Slab, Parapet, and Diaphragms shall be Class S (AE) with a minimum 28 day compressive strength, f'c = 4,000 psi and shall be poured in the dry. All end of unit and midspan diaphragms shall be cast in place and poured a minimum of 48 hours before the slab is poured. Interior bent diaphragms shall be cast monolithically with the slab. Removable forms shall be used when pouring diaphragms. The slab and intermediate bent diaphragms for the Prestressed Concrete Girder Units shall not be poured until at least 90 days after the release of the Prestressing Strands.

All exposed corners to be chamfered 3/4" unless otherwise noted.

The superstructure details shown are for when removable deck forming is used and are the basis for measurement of Class S (AE) Concrete. See Std. Dwg. No. 14991 for allowable modifications and for tolerances when permanent steel bridge deck forms are used.

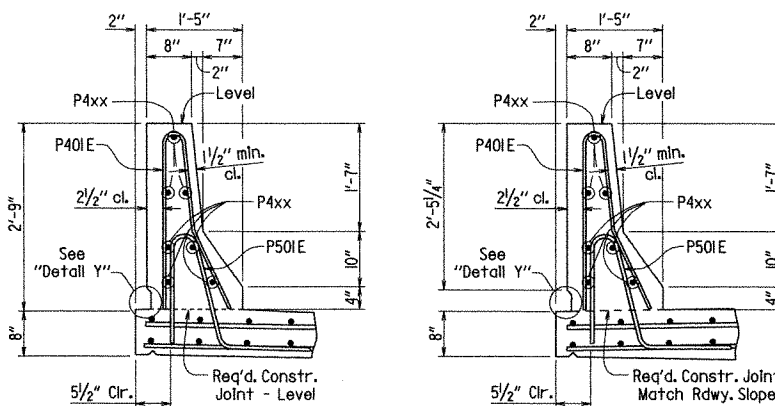
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The concrete bridge deck shall be given a fine finish as specified for final finishing in subsection 802.19 for a Class 5 tined bridge roadway surface finish. Movement of the finishing machine across the 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 girder.

STRUCTURAL STEEL: All Structural Steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W). All exposed surfaces to be cleaned in accordance with subsection 807.84(e) of the Standard Specifications.

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

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval. All welding shall conform to subsection 807.26.

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

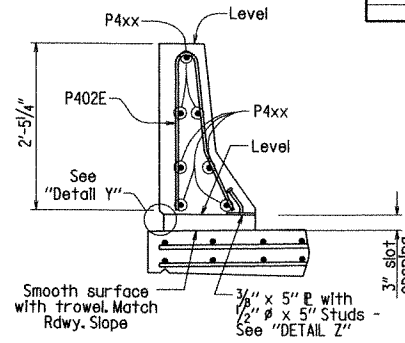


SECTION A-A

(High Side)
Scale: 3/4" = 1'-0"

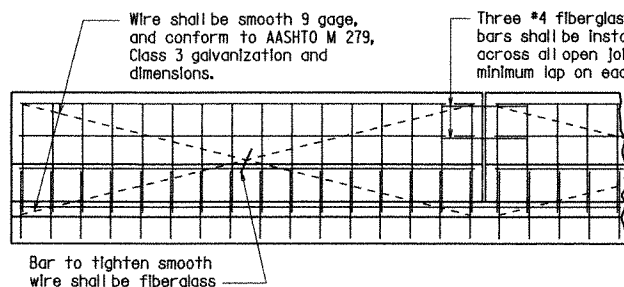
SECTION A-A

(Low Side)
Scale: 3/4" = 1'-0"



SECTION B-B

(Low Side)
Scale: 3/4" = 1'-0"

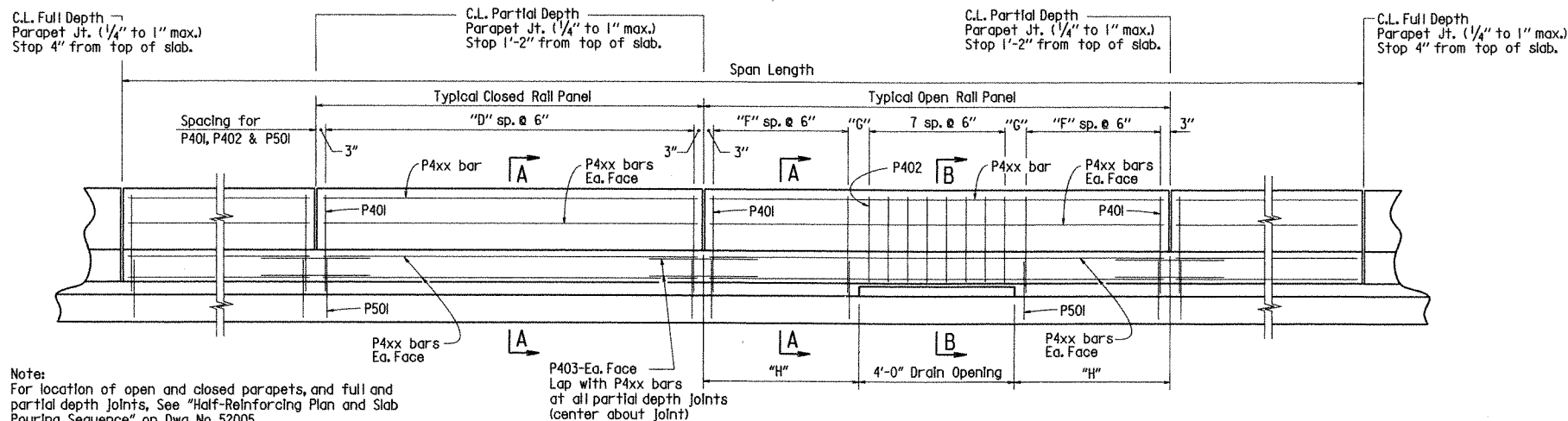


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

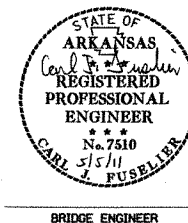


ELEVATION - CONCRETE PARAPET RAIL

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

TABLE OF PARAPET RAIL VARIABLES

Closed Parapet	"D"	P4xx Bar	Open Parapet	"E"	"G"	"H"	P4xx Bar
11'-0"	21	P404	13'-0"	8	6"	4'-6"	P405
13'-0"	25	P405					

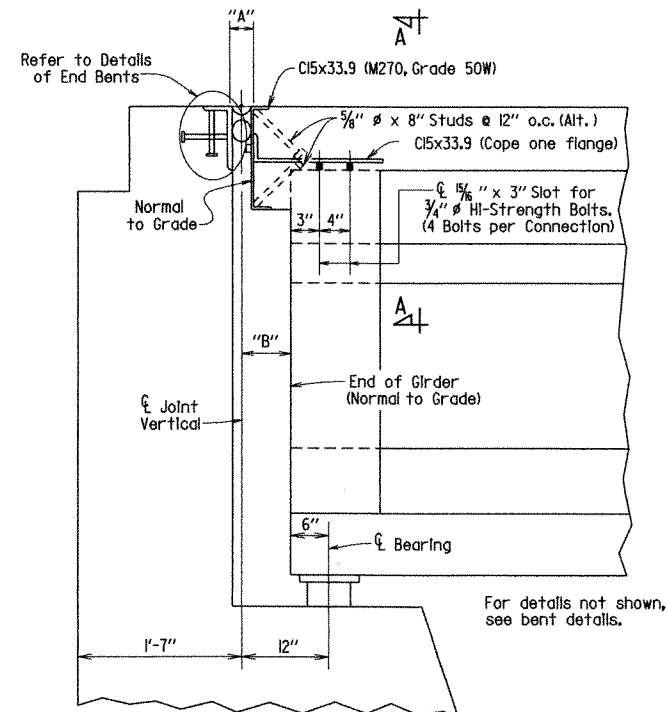


SHEET 5 OF 6 DETAILS OF 261'-0" CONTINUOUS PRESTRESSED CONCRETE GIRDER UNIT POINT REMOVE CREEK

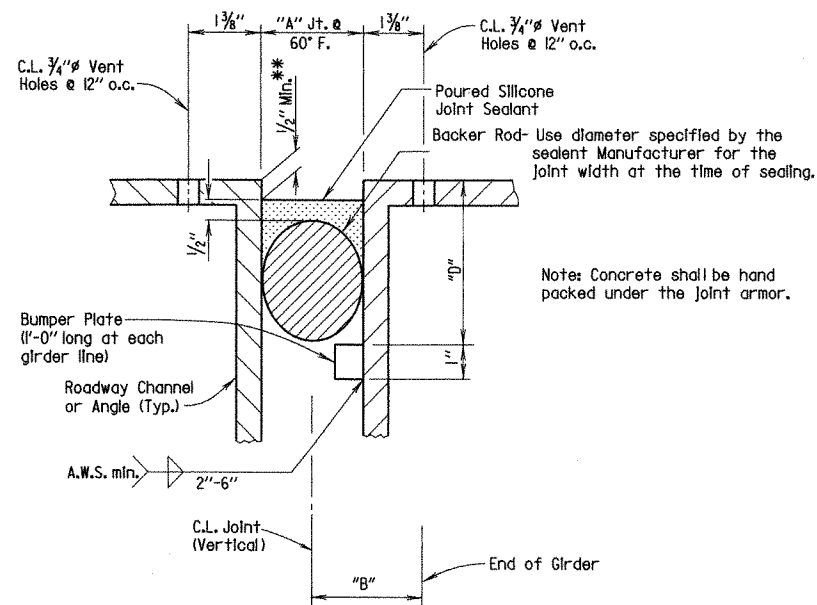
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: JYP DATE: 5-4-11 SCALE: AS NOTED
DESIGNED BY: JYP DATE: 8-10
BRIDGE NO. 07216 DRAWING NO. 52006

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.		080383	43	92
				07216		SPAN DETAILS	52007	

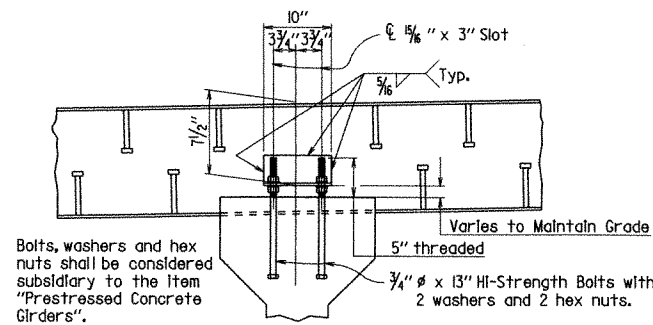


DETAIL OF JOINT AT END BENTS

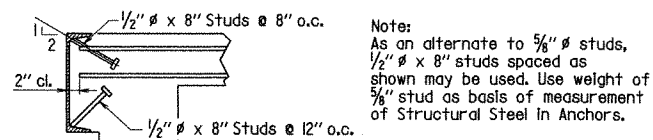


DETAIL OF POURED SILICONE JOINT

** Recess depth as recommended by the sealant manufacturer.



SECTION A-A



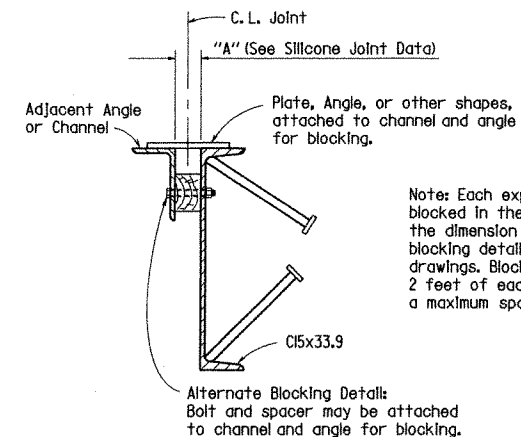
DETAILS OF ALTERNATE ANCHORS

SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of:			"B" Perpendicular to Joint at 24 Hour Average Temp. of 60°F	"D"	Bumper Plate Size
40°F	60°F	80°F			
2 3/16"	2"	1 1/8"	6" ±	4 1/2"	1" x 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.

Note: The temperature limitations recommended by the sealant Manufacturer shall be observed.

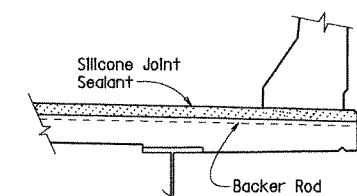


DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

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



JOINT SEAL PLACEMENT AT CURB



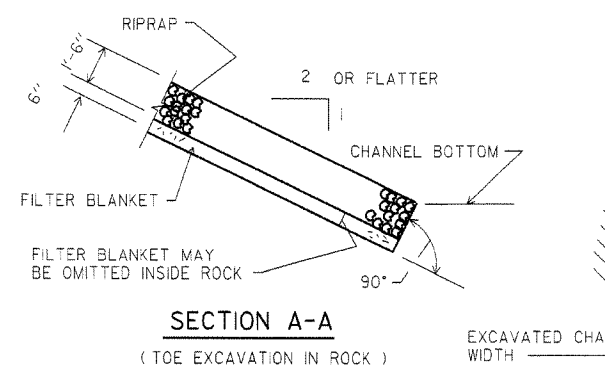
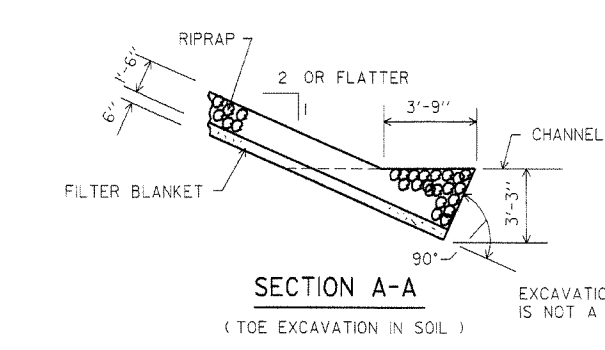
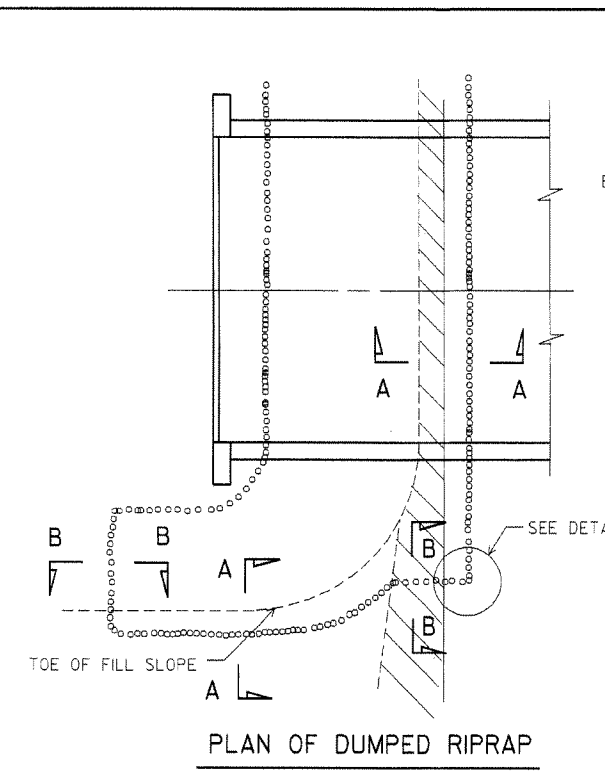
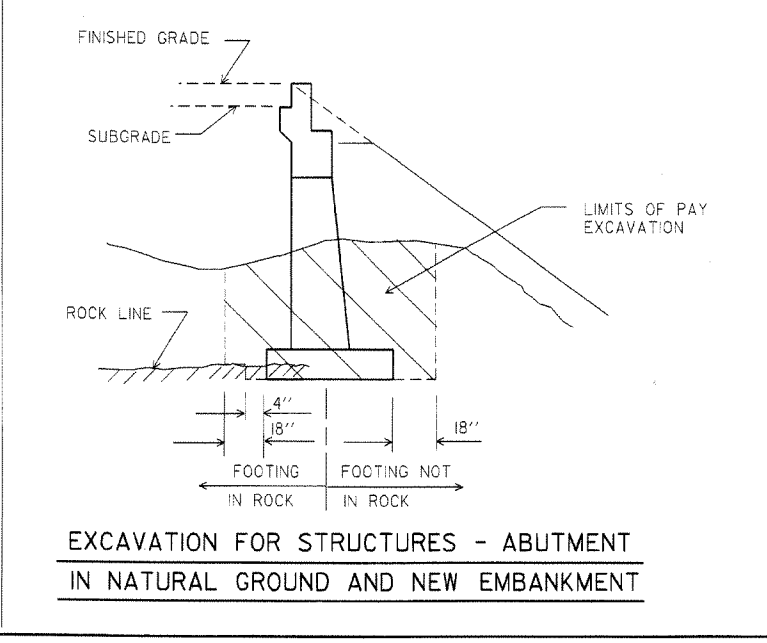
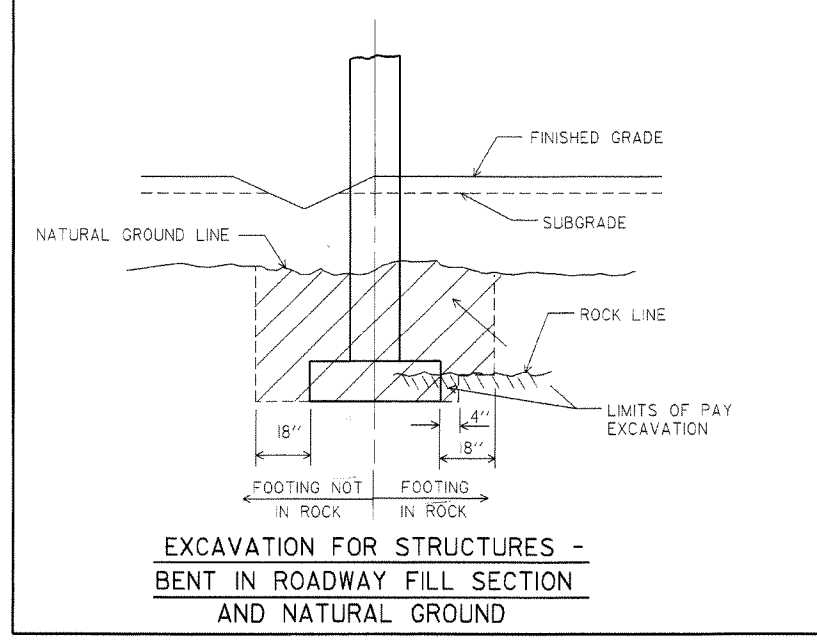
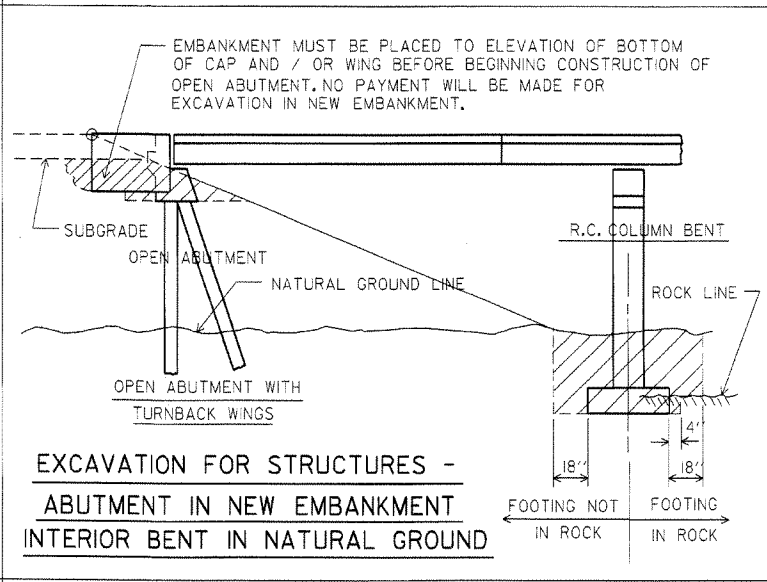
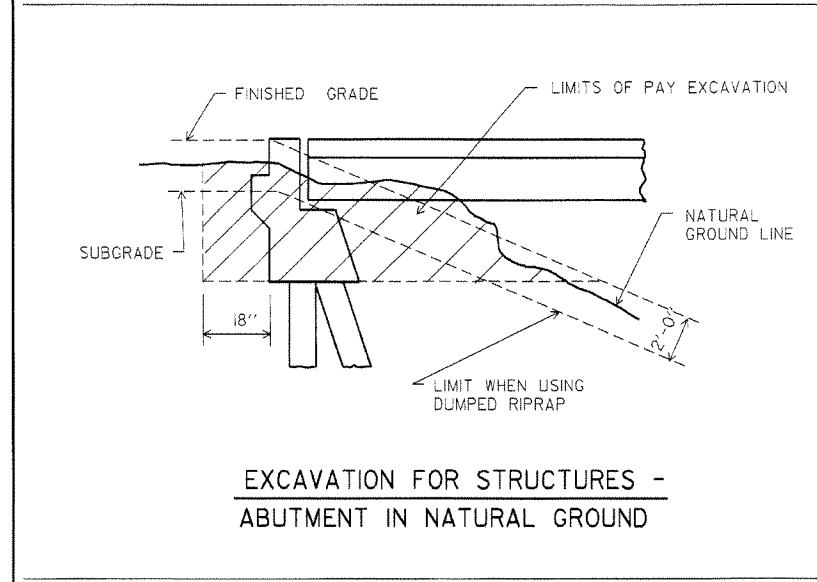
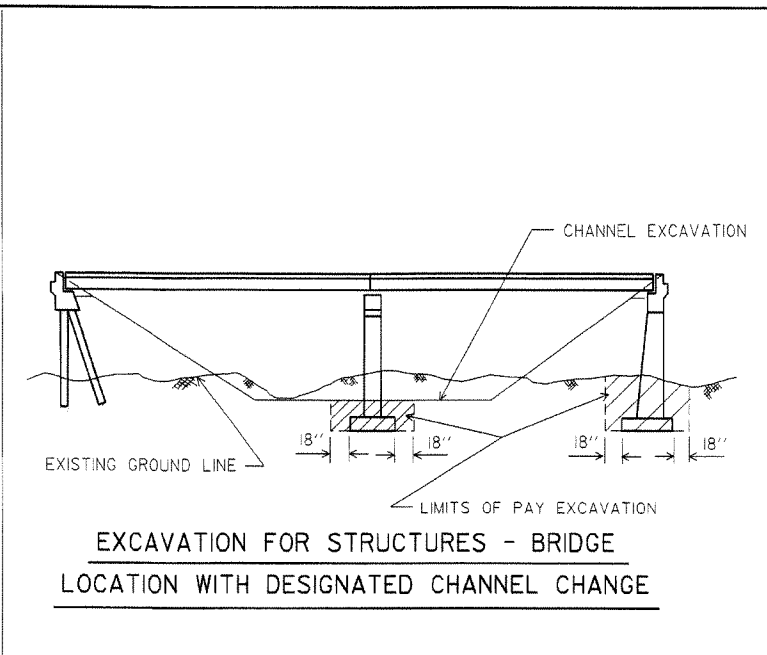
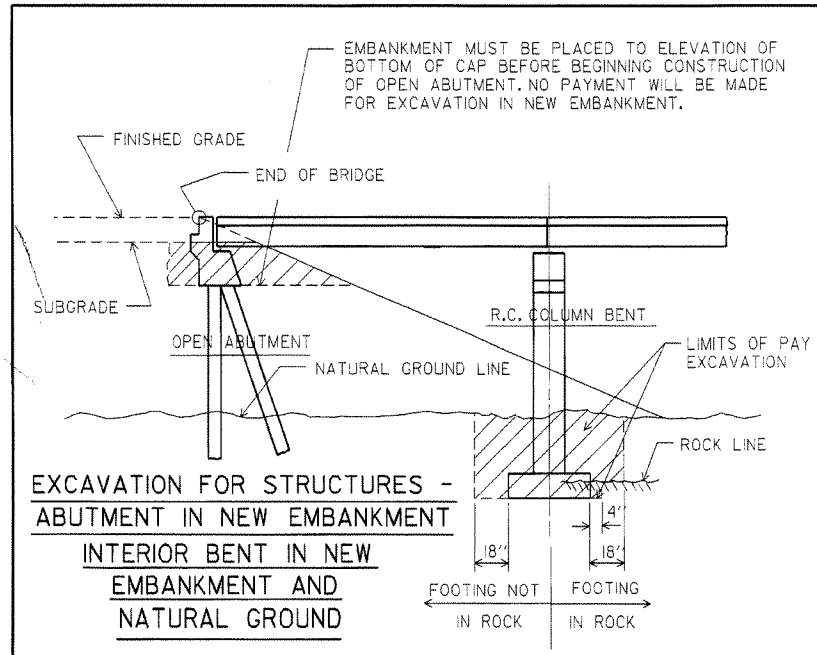
BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 261'-0"
CONTINUOUS PRESTRESSED
CONCRETE GIRDER UNIT
POINT REMOVE CREEK

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 09-01-10 FILENAME: b080383_sl.dgn
CHECKED BY: KMY DATE: 5-4-11 SCALE: NONE
DESIGNED BY: JHP DATE: 8-10
BRIDGE NO. 07216 DRAWING NO. 52007

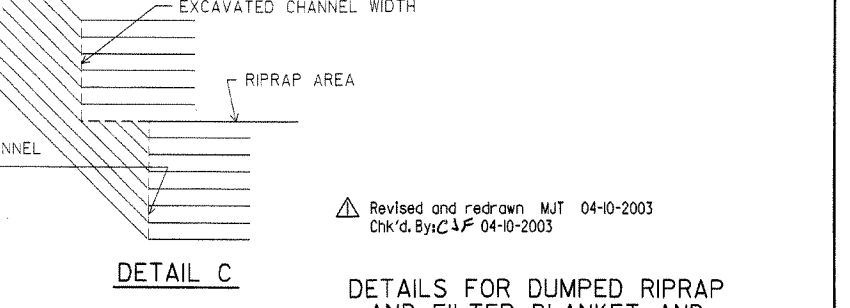
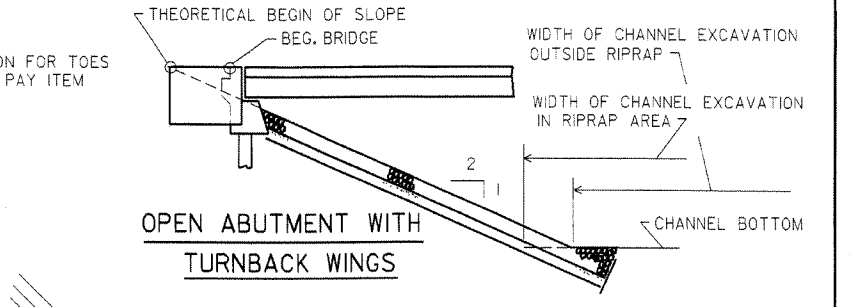
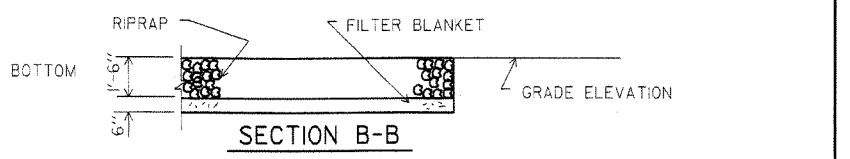
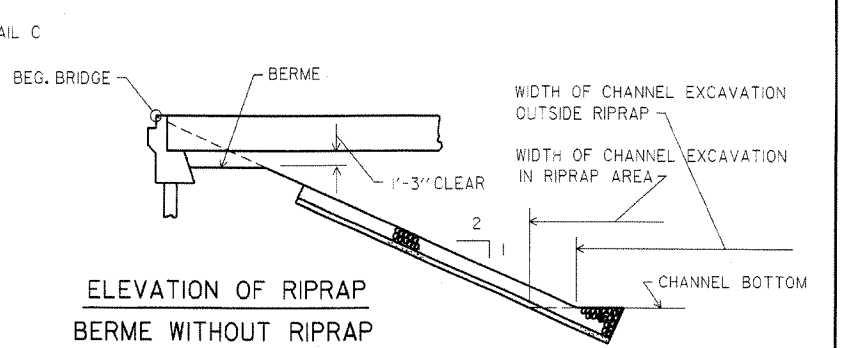
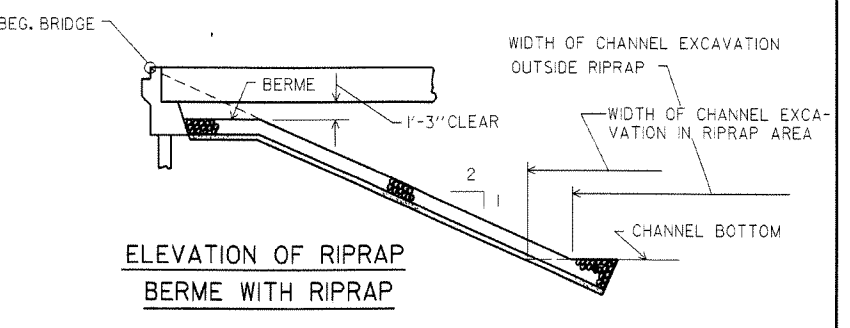
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04-10-2003				6	ARK.		45	
				JOB NO.				
				RIP. & EXCAV.			1891F	



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(a) 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.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND
BRIDGE ENGINEER

Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

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

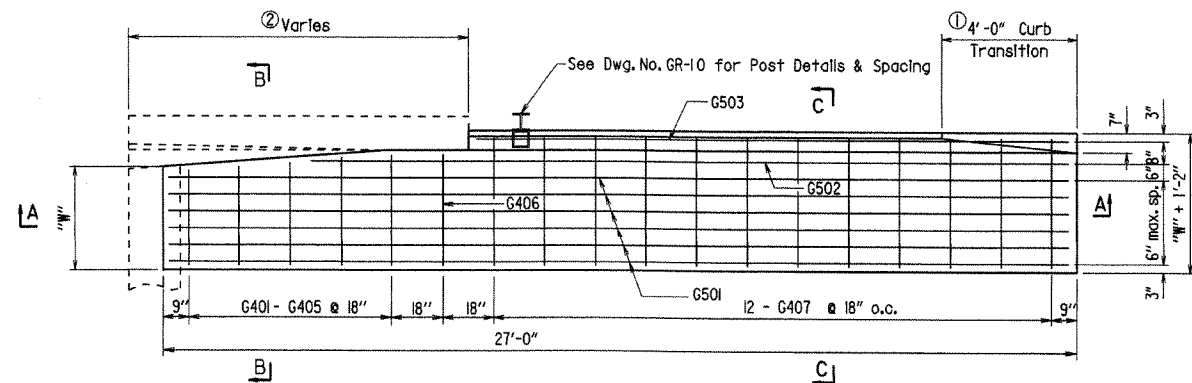
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MJT
CHECKED BY: CJF
DESIGNED BY: STD.
BRIDGE NO.

DATE: 04-10-2003
DATE: 04-10-2003
DATE:

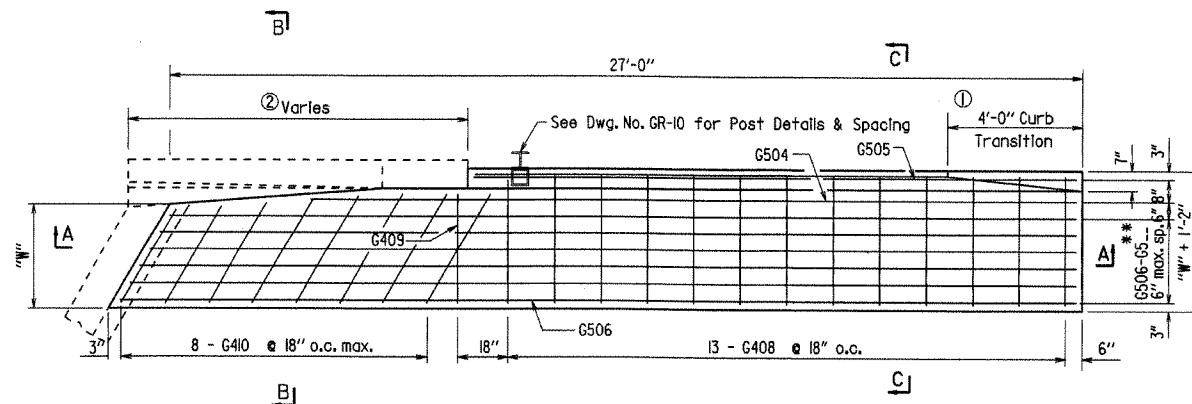
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SCALE: NO SCALE
DRAWING NO. 1891F

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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07-14-2010								
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						2016B		



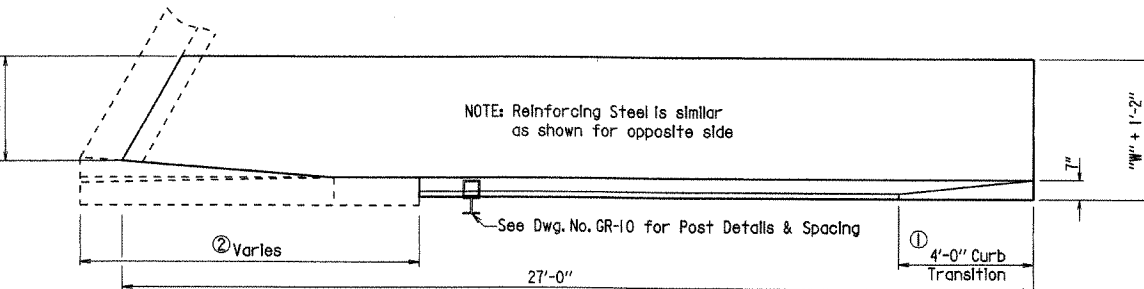
HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

② Length varies. See End Bent details for actual length. Quantities shown are for 10'-0" Transition Rail.



PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

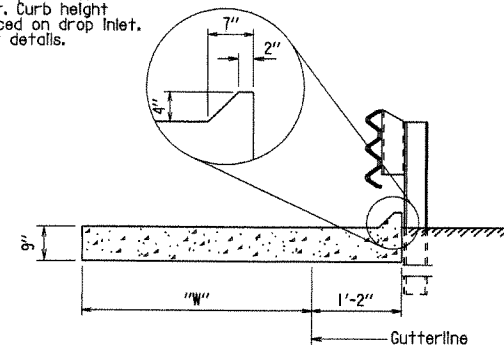
NOTE: Reinforcing Steel is similar as shown for opposite side



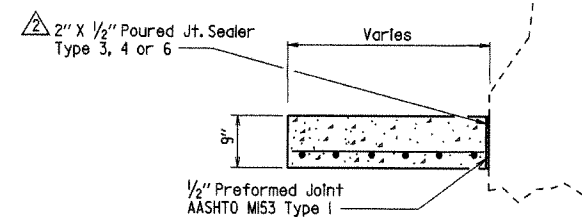
SECTION A - A

Slab Depth Varies - See Span and Bent Details

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 C - C
N.T.S.



SECTION B - B
N.T.S.

*** BAR LIST ②
TYPE B GUTTER

Mark	No. Required for Width "W"				Length	Square or Skewed
	3'-0"	4'-0"	6'-0"	8'-0"		
G401-G405	1 each	1 each	1 each	1 each	"W" - 3" to "W" + 3"	Square
G406	1	1	1	1	"W" + 3"	Square
G407	12	12	12	12	"W" + 10"	Square
G408	13	13	13	13	"W" + 10"	Skewed
G409	1	1	1	1	"W" + 3"	Skewed
G410	8	8	8	8	*	Skewed
G501	6	8	12	16	26'-8"	Square
G502	1	1	1	1	22'-2"	Square
G503	1	1	1	1	17'-8"	Square
G504	1	1	1	1	*	Skewed
G505	1	1	1	1	*	Skewed
G506-G508	1 each	1 each	1 each	1 each	*	Skewed

* Bar Lengths vary with Skew.
** G512 for "W" = 3'
G514 for "W" = 4'
G516 for "W" = 6'
G522 for "W" = 8'

*** Special bar list required when skew angle exceeds 40° for W = 8'; 50° for W = 6'; or 60° for W = 4'.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

"W" Width (ft.)	Reinforcing Steel (lbs.)	Concrete (cubic yards)
3	252	3.00
4	319	3.75
6	459	5.25
8	590	6.75

GENERAL NOTES

Concrete shall be Class S or Class (S/AE) or mixture used for Portland Cement Concrete Pavement.

Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Approach Gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

△ Revised and redrawn 4-10-2003. By KDH. Ck. By: CJF 4-10-2003

△ Added joint sealer type & revised transition rail length 07-14-2010 by MJT. Checked by: CJF 07-14-2010

DETAILS OF STANDARD TYPE B APPROACH GUTTERS

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-10-2003 FILENAME: B2016B.STD
CHECKED BY: CJF DATE: 4-10-2003 SCALE: 3/8" = 1'-0"
DESIGNED BY: STD DATE: BRIDGE NO. DRAWING NO. 2016B



BRIDGE ENGINEER

DATE	DATE	DATE	DATE	FED. ROAD	STATE	FED. AID PROJ. NO.	SHEET	TOTAL
REVISED	FILMED	REVISED	FILMED	CONTRACT NO.			NO.	SHEETS
4-17-07		01-08-09		6	ARK.		47	
8-16-07		11-23-10		JOB NO.				
12-10-08		01-25-11						

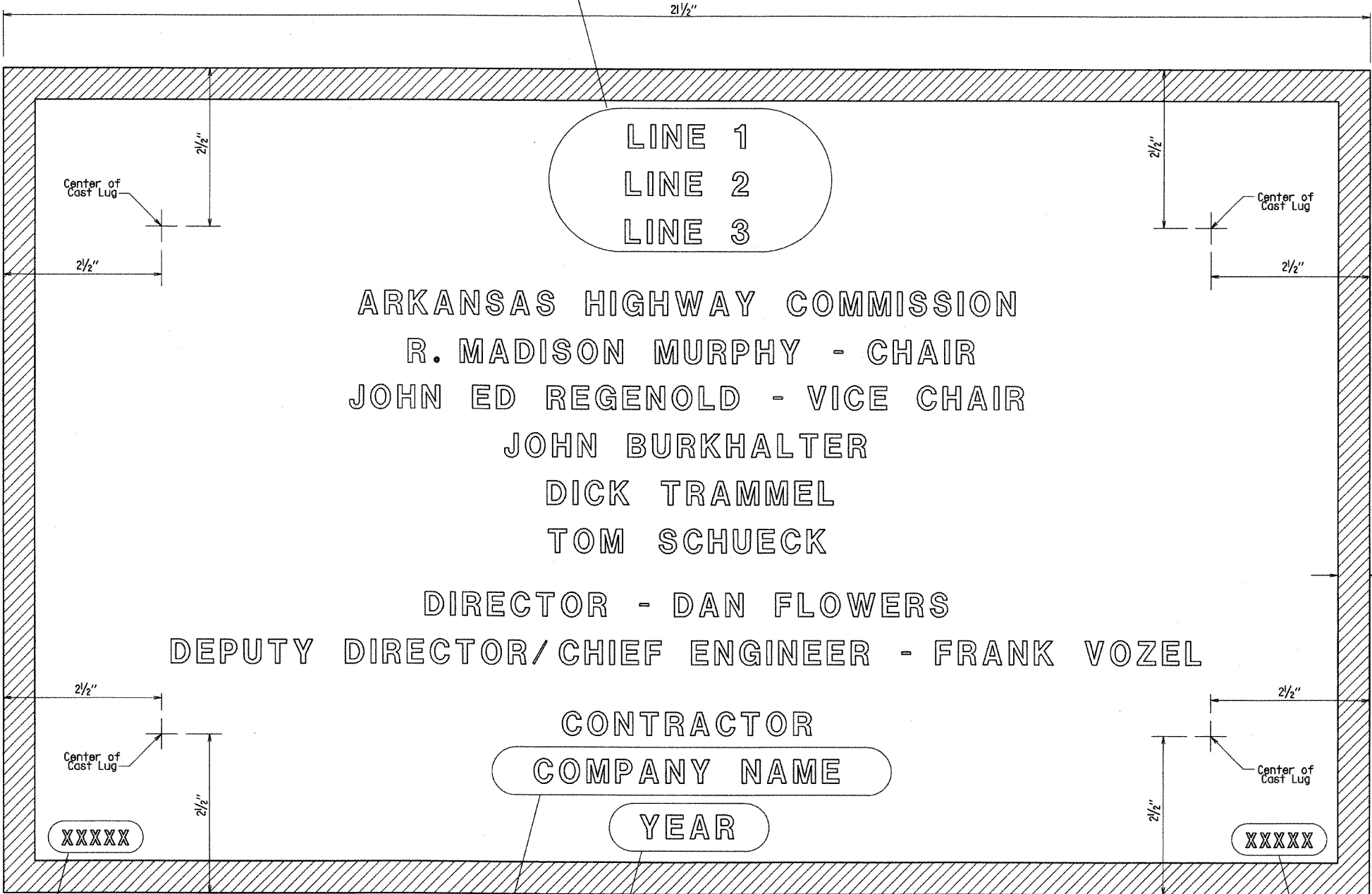
1

NAME PLATE

2387

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

Line	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	Highway 5
Line 2	Relief	Railroad	River	
Line 3		Overpass	Relief	



Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples: HS 20 HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example: 2001

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example: ABCD CONSTRUCTION, INC.

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples: A1234 05432

TYPICAL BRIDGE NAME PLATE

Alternate attachments may be used provided such attachments are submitted and approved before fabrication is begun.

GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2003 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 of the Standard Specifications.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 1/2" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square out 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.

- 6 Revised Commission Names 01-25-11 MJT Checked By: C-J-F Date: 01-25-11
- 5 Revised Commission Names 11-23-10 MJT Checked By: C-J-F Date: 11-23-10
- 4 Revised Commission Names 01-08-09 MJT Checked By: C-J-F Date: 01-08-09
- 3 Revised Commission Names 12-10-08 MJT Checked By: C-J-F Date: 12-10-08
- Added Dimension 8-16-07 KDH Checked By: SWP Date: 8-16-07
- Revised and Redrawn 4-17-07 KDH Checked By: C-J-F



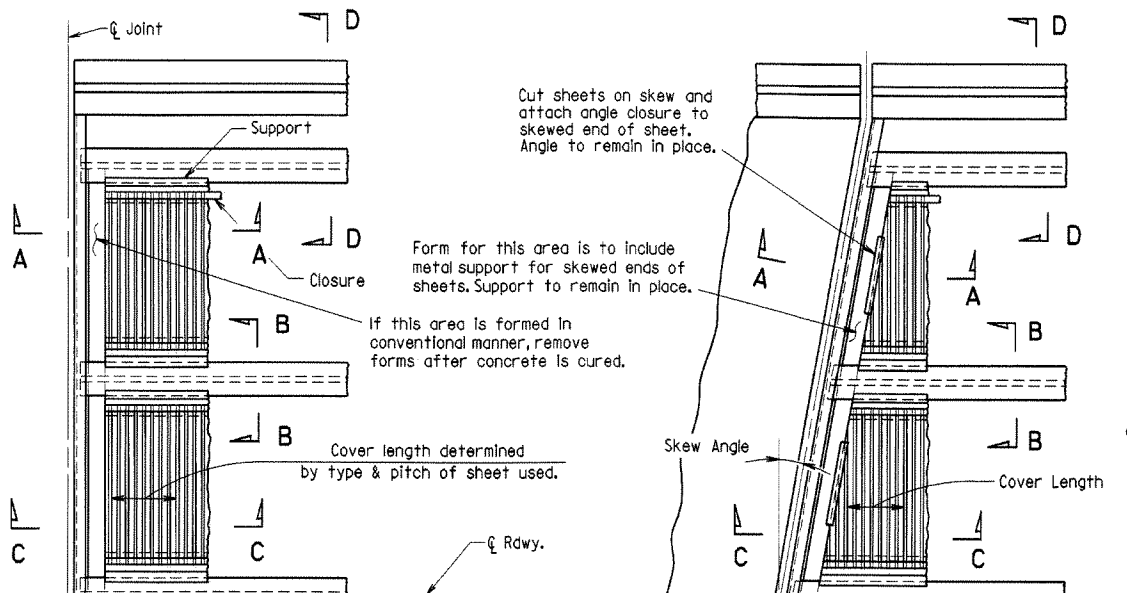
**DETAILS OF STANDARD TYPE D
BRIDGE NAME PLATE**

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-17-07 FILENAME: B2387.STD
CHECKED BY: C-J-F DATE: 4-17-07 SCALE: 1"=0' OR AS NOTED
DESIGNED BY: STD. DATE: BRIDGE NO. DRAWING NO. 2387

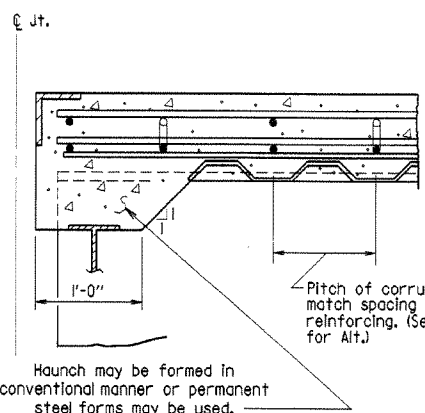
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-27-96	04-10-2003					6	ARK.		48	
JOB NO.										

BR. DECK FORMS 14991

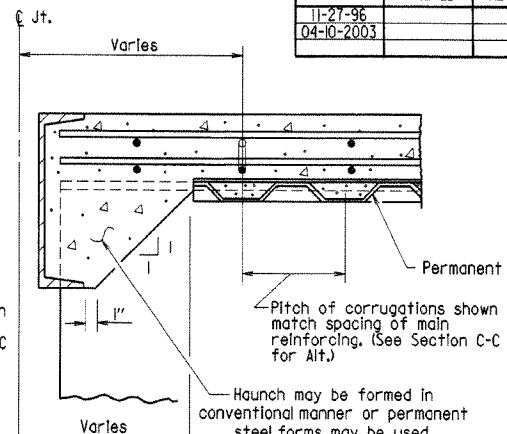


PART PLAN - SQUARE SPAN
3/8" = 1'-0"

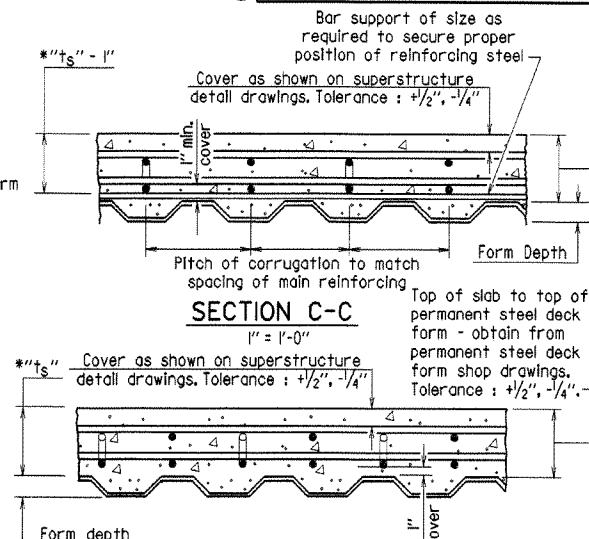
PART PLAN - SKEWED SPAN
3/8" = 1'-0"



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

*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) of the Standard Specifications. Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Bridge 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 L supports to the flange must be approved by the Bridge Engineer.

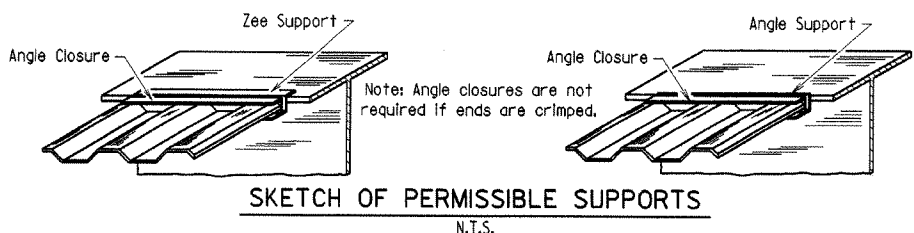
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Bridge Engineer.

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.

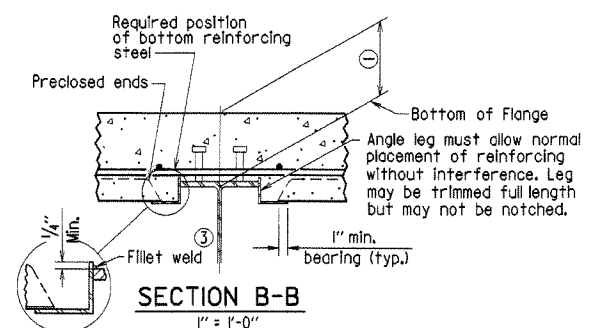
Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

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 (2003 Edition), with applicable supplemental specifications and special provisions.

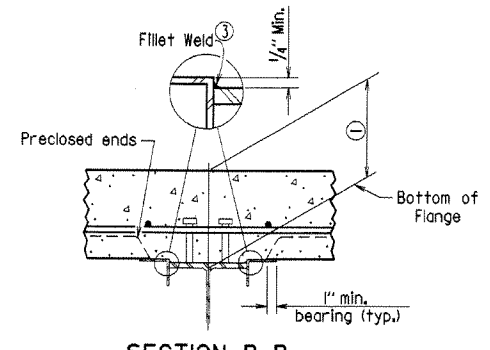


SKETCH OF PERMISSIBLE SUPPORTS
N.T.S.



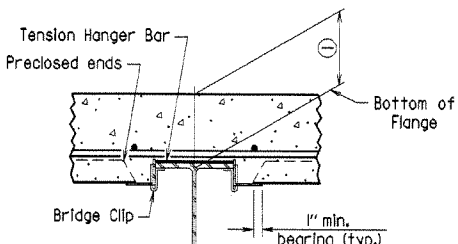
SECTION B-B
1" = 1'-0"

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



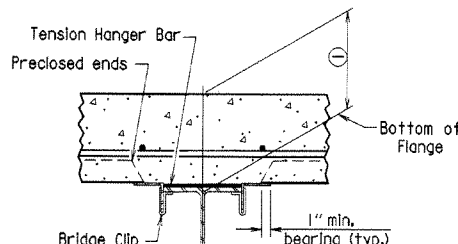
SECTION B-B
1" = 1'-0"

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



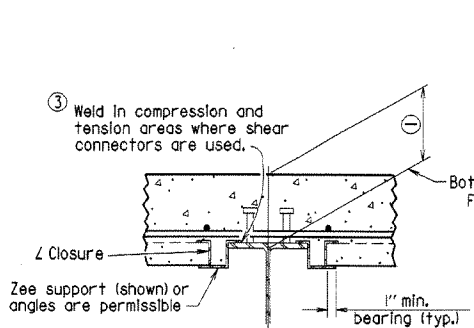
SECTION B-B
1" = 1'-0"

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



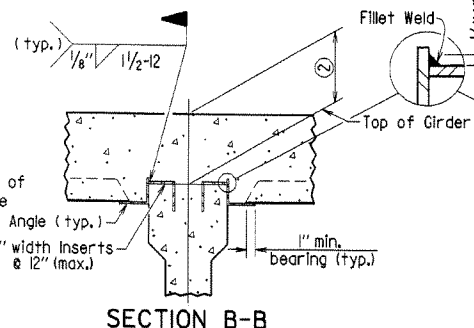
SECTION B-B
1" = 1'-0"

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



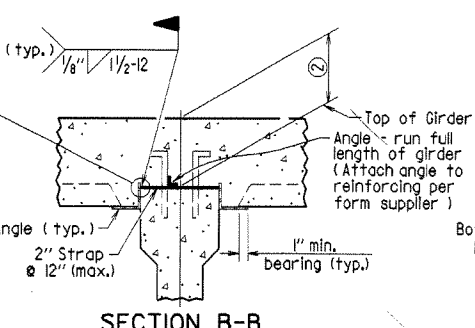
SECTION B-B
1" = 1'-0"

(Showing Z Closure)



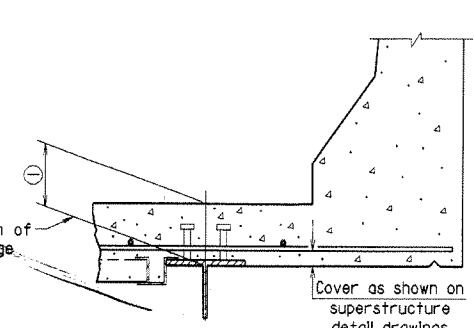
SECTION B-B (FOR CONCRETE GIRDERS)
1" = 1'-0"

(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 + 1/4" + 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 for 2003 AHTD Construction Specifications and CPB Seal. MJT 04-10-2003
Chk'd. By: C&F 04-10-2003

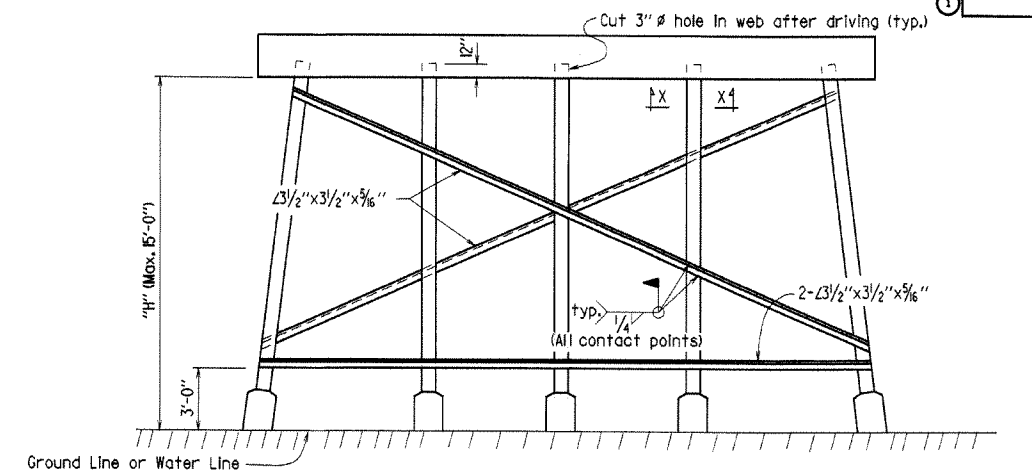
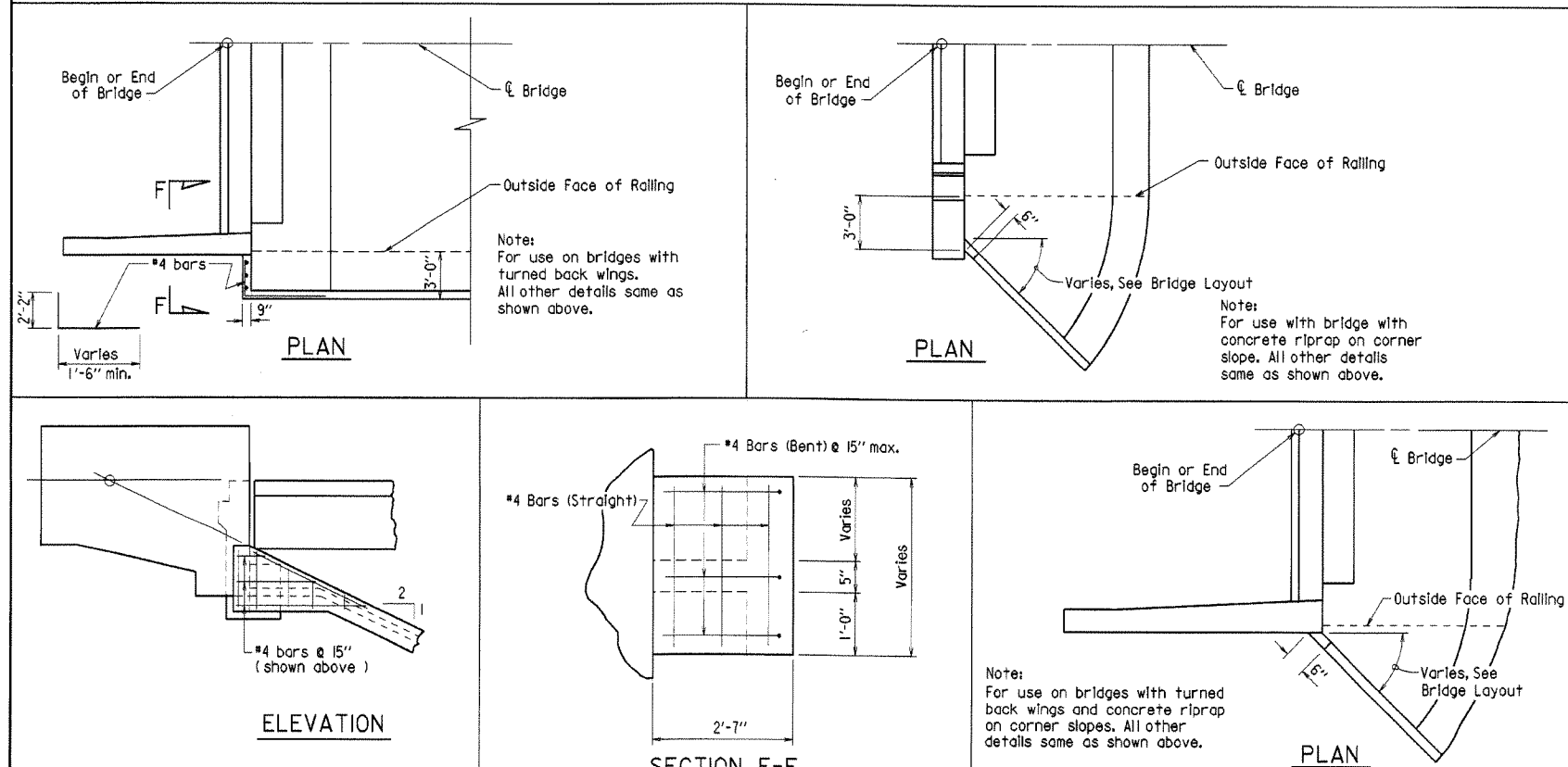
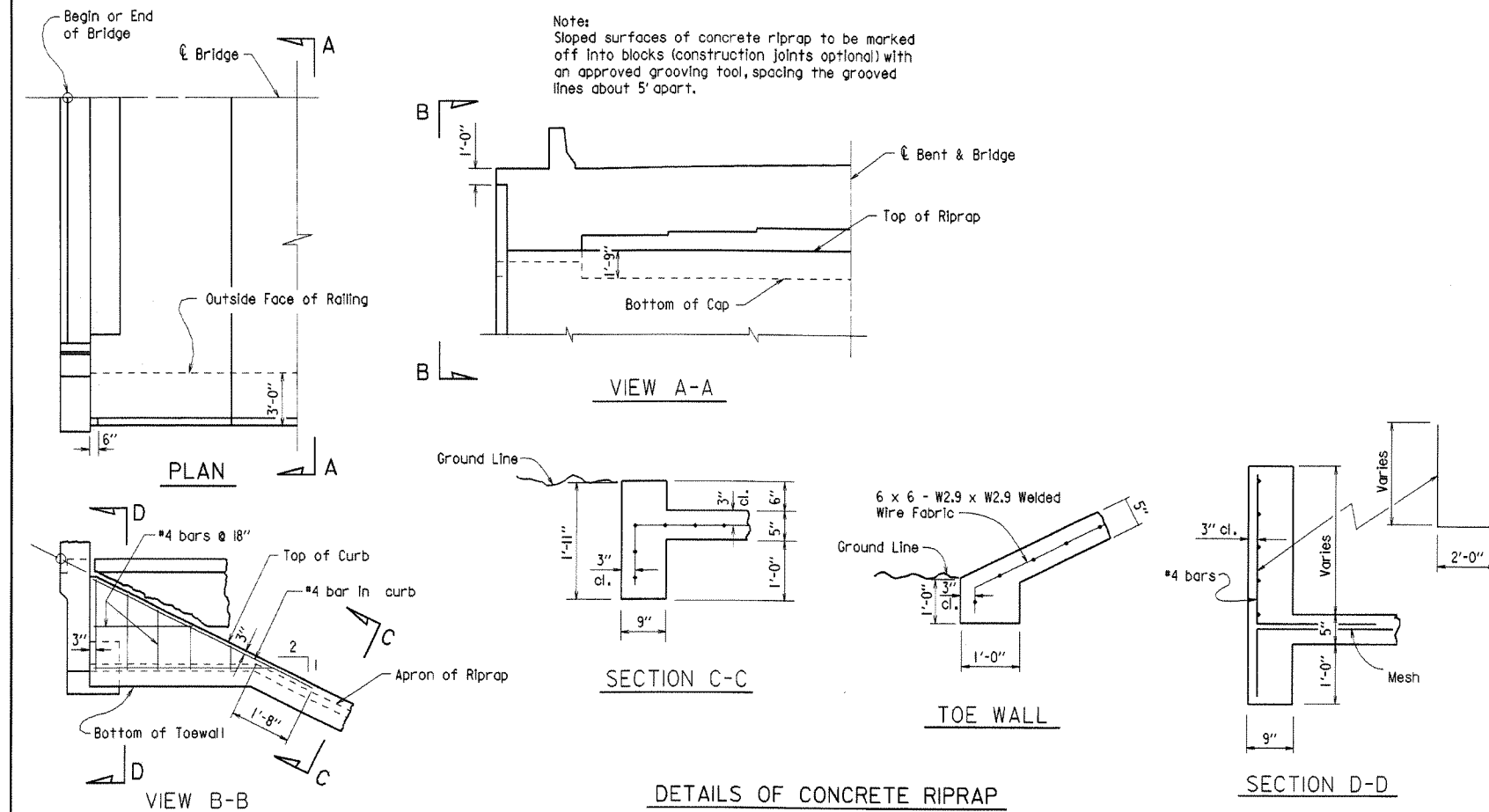
Redrawn and revised 11/27/96; MJT



**DETAILS OF PERMISSIBLE TYPE
PERMANENT STEEL BRIDGE DECK FORMS
FOR STEEL & CONCRETE GIRDER SPANS**
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 10-17-96
CHECKED BY: CPB DATE: 10-17-96
DESIGNED BY: STD. DATE: —
BRIDGE NO. DRAWING NO. 14991

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		49	
				JOB NO.				



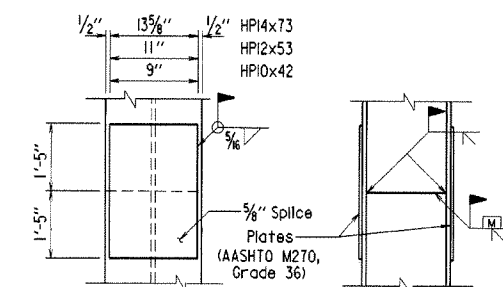
Note:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Omit bottom bracing where "H" is less than 10 ft. Omit all bracing where "H" is less than

Note:
Where required by the bridge layout sheet, pile encasements shall be constructed.

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

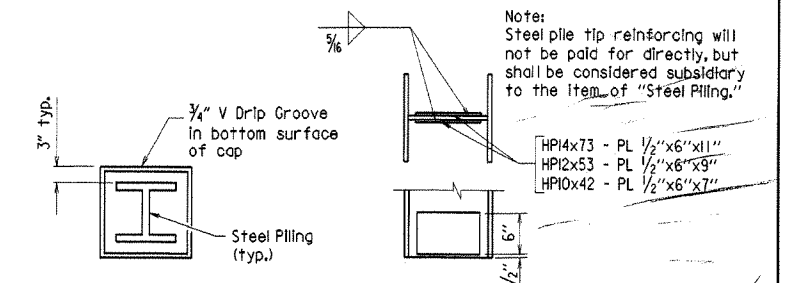
TYPICAL BRACING FOR INT. STEEL PILE BENTS



Note:
The contractor may for his own convenience and at this own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft.

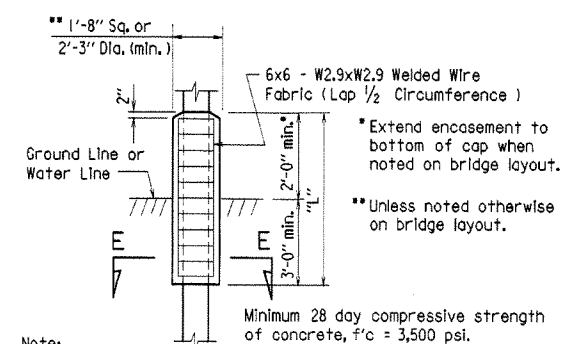
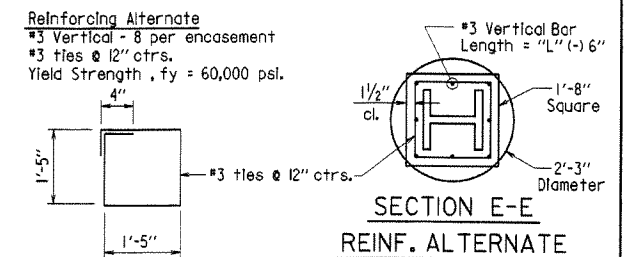
PILE SPLICE DETAIL

Scale : 1" = 1'-0"



REINFORCING DETAIL FOR
STEEL PILE TIP

Scale : 1" = 1'-0"



Note:  of concrete, $f'c = 3,500$
If concrete cannot be placed in the dry,
seal concrete may be deposited under water.
Concrete & welded wire fabric or reinforcing
in encasements shall be paid for at the contract
unit price per linear foot bid for "Pile
Encasement."

PILE ENCASEMENT DETAIL

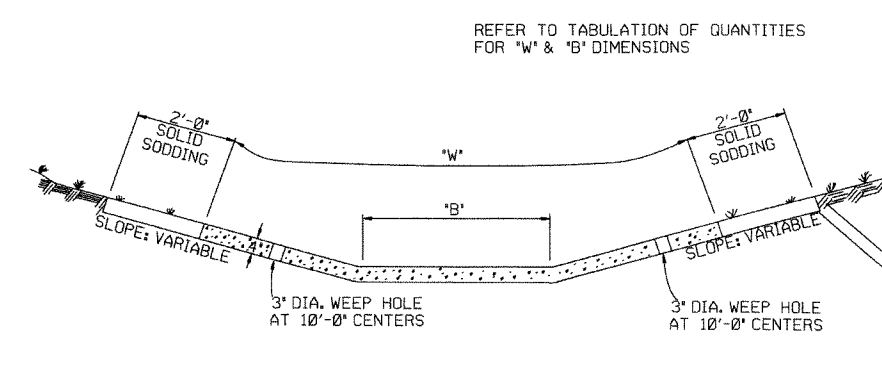


BRIDGE ENGINEER

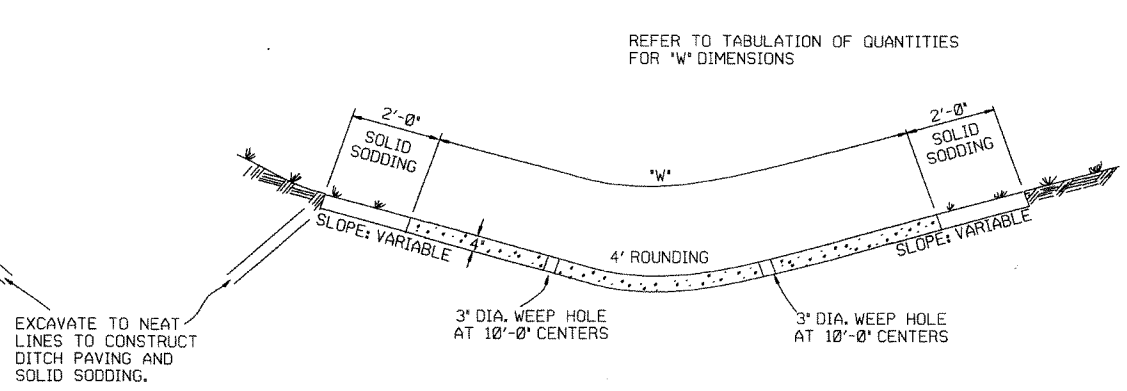
DETAILS OF CONCRETE RIPRAP
AND MISC. DETAILS OF STEEL PILING

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: BJ4995A.STD
 CHECKED BY: CJF DATE: 04-10-2003 SCALE: No Scale or As Noted
 DESIGNED BY: STD. DATE: —
 BRIDGE NO. DRAWING NO. 14995A



TYPE A

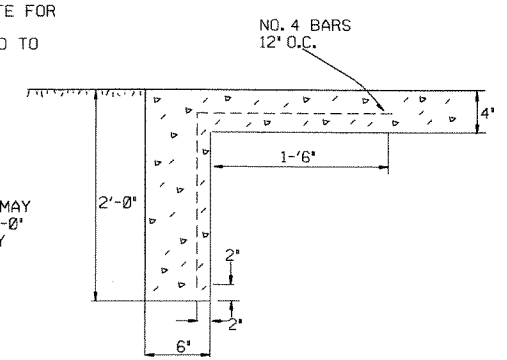


TYPE B

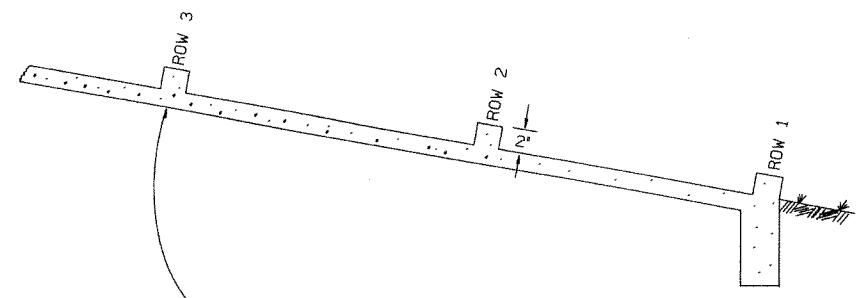
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

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

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

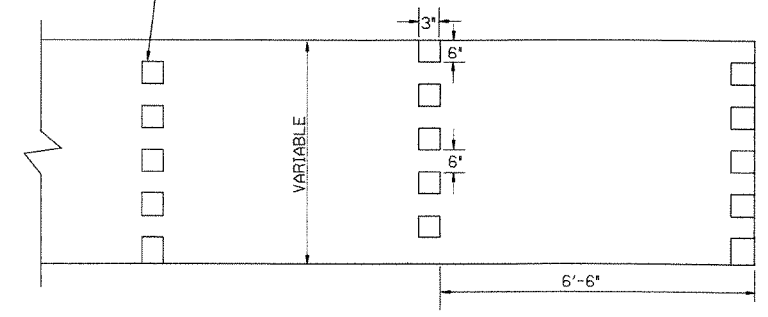


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.
TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

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

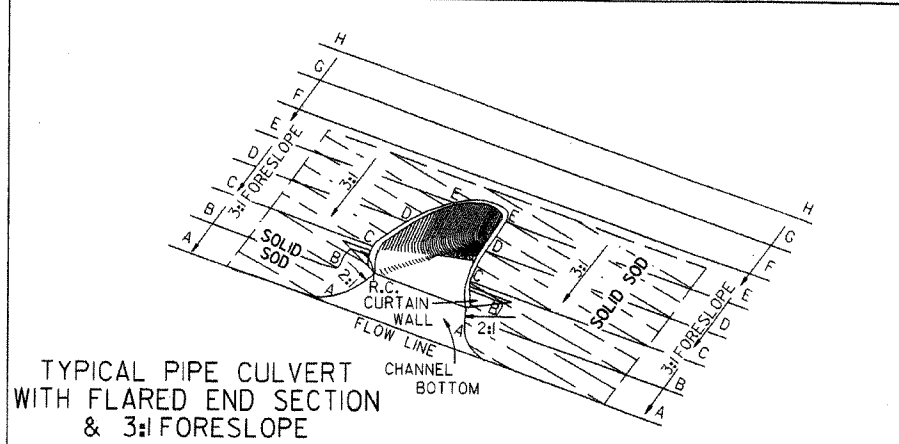
1' WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	11-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS	508-11-1-84
11-1-84	ADDED	
11-1-84	EXCAVATION DETAILS ADDED	
10-2-72	TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72
DATE	REVISION	DATE FILM'D

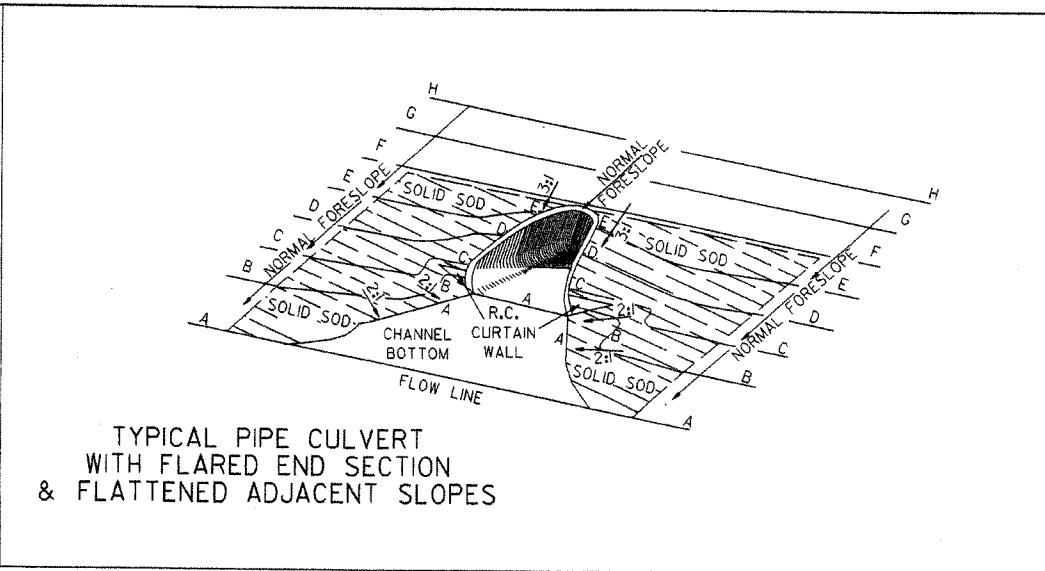
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

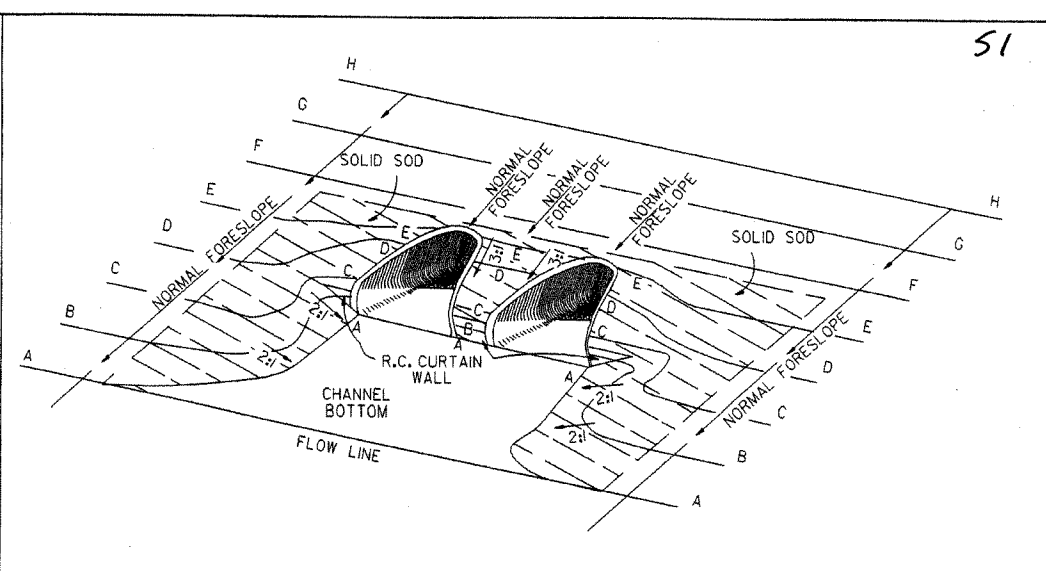
STANDARD DRAWING CDP-1



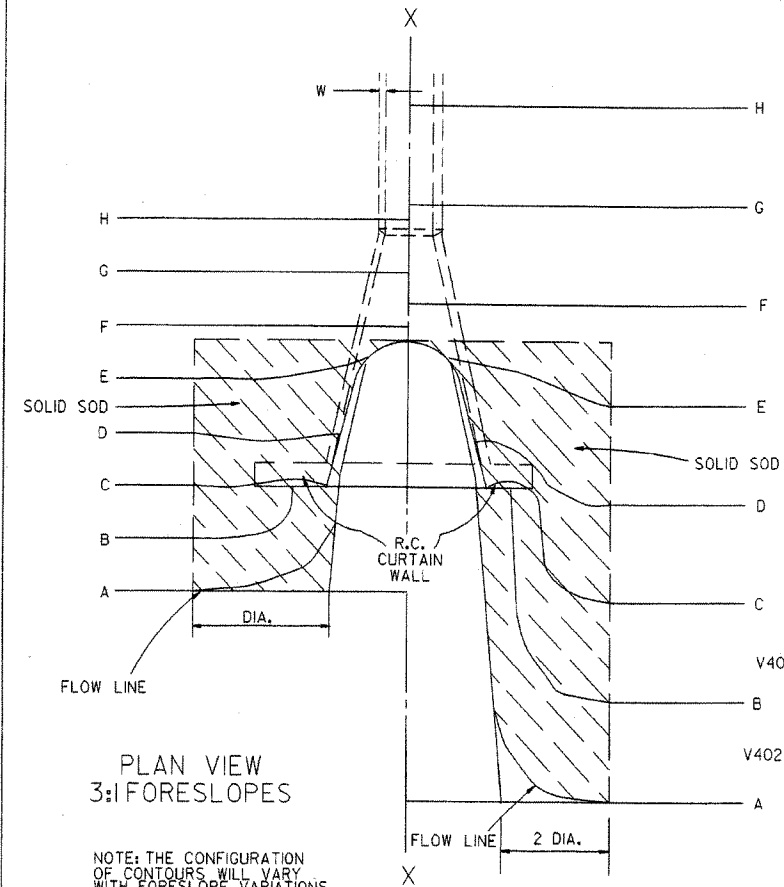
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES



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



PLAN VIEW 3:1 FORESLOPES

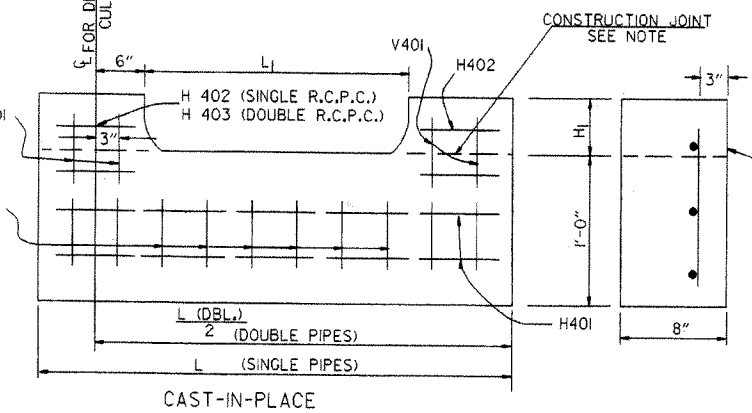
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

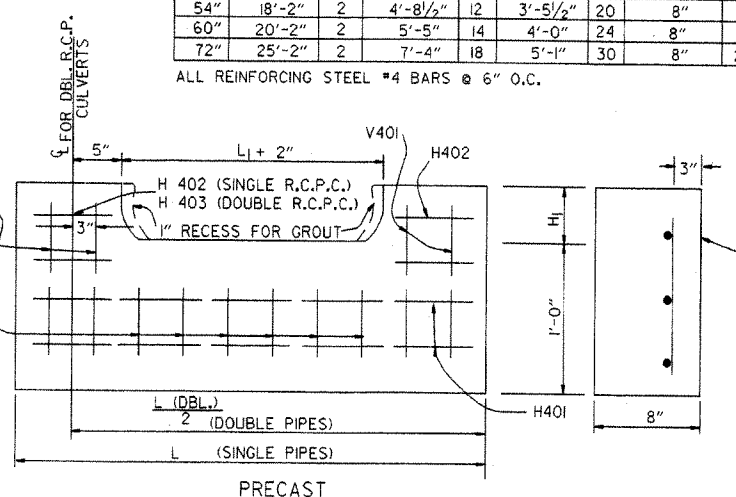
PIPE DIA.	H ₁	L ₁	L	L (DBL.) 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"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

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



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

R.C. CURTAIN WALL DETAILS



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

REINFORCING STEEL SCHEDULE

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

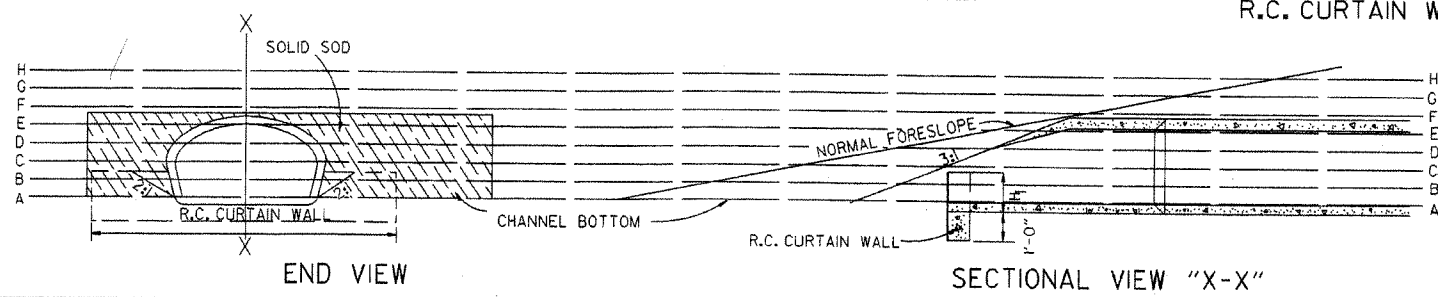
ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

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

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

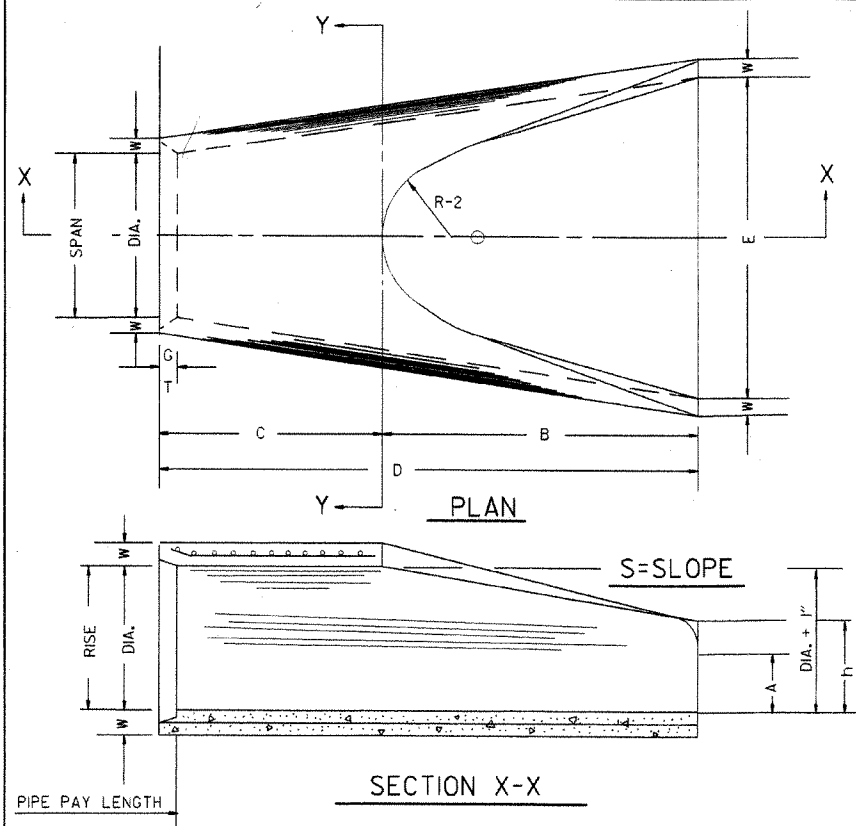
- GENERAL NOTES
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL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



END VIEW

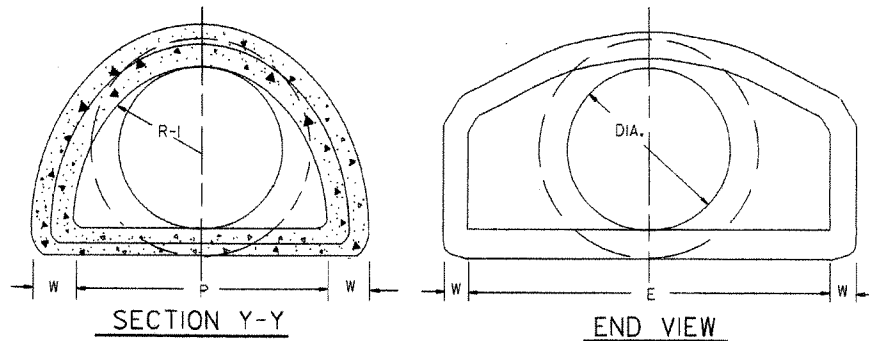
SECTIONAL VIEW "X-X"

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



END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

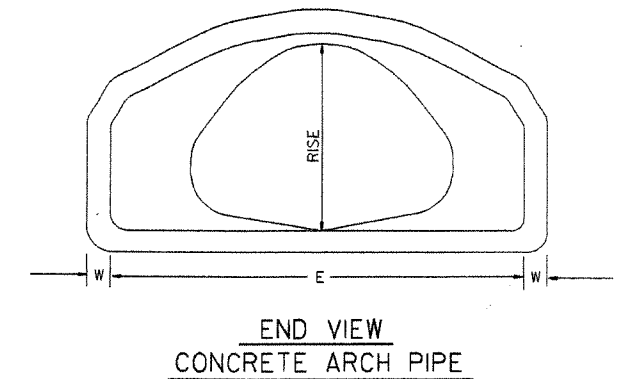
DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/8"	16 3/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"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



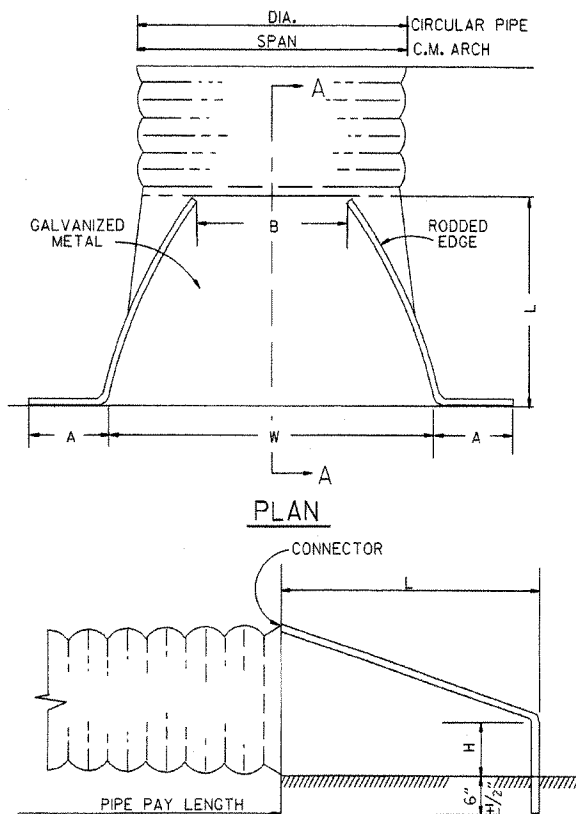
SECTION Y-Y
END VIEW

EQUIV. DIA.	• SPAN		• RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2"
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2"
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2 1/2"	2 1/2"
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/8"	15"	2 1/2"	2 1/2"
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 1/8"	20"	3"	2 1/2"
36	43 3/4	44	26 3/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-5 1/4"	6'-6"	54 1/8"	22"	3 1/2"	2 1/2"
42	51 1/8	51	31 1/8	31	4 1/2"	11 1/2"	4'-7"	1'-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2"
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 3/8"	24"	4 1/4"	2 1/2"
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/8"	24"	4 3/4"	2 1/2"
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/8"	24"	5"	2 1/2"

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



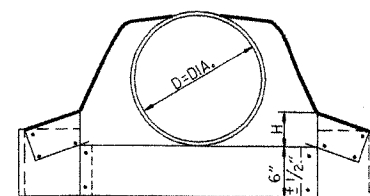
END VIEW
CONCRETE ARCH PIPE



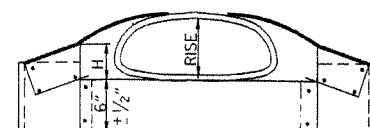
SECTION A-A

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



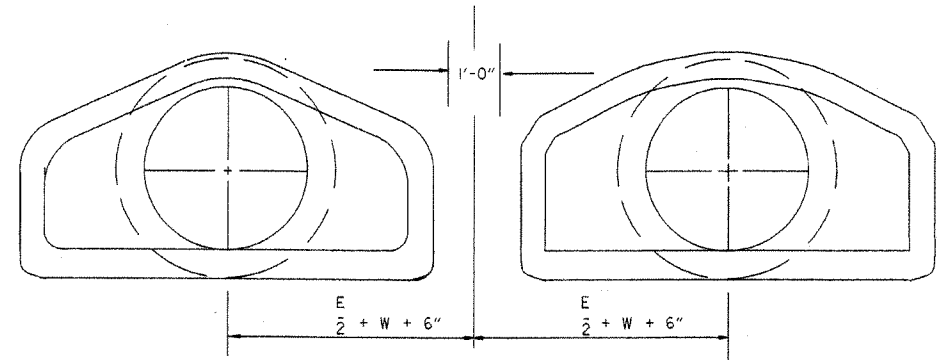
CIRCULAR PIPE



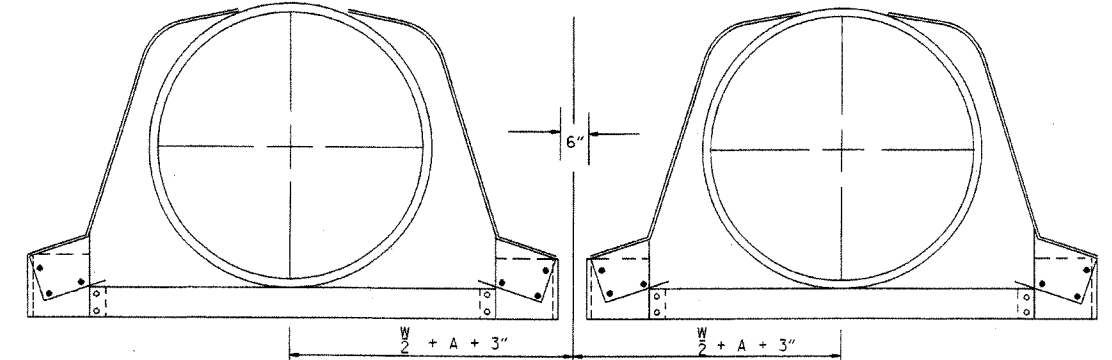
C.M. ARCH PIPE

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

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



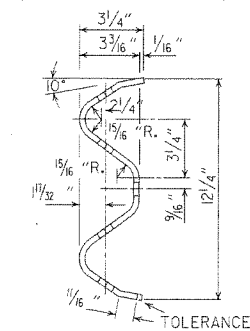
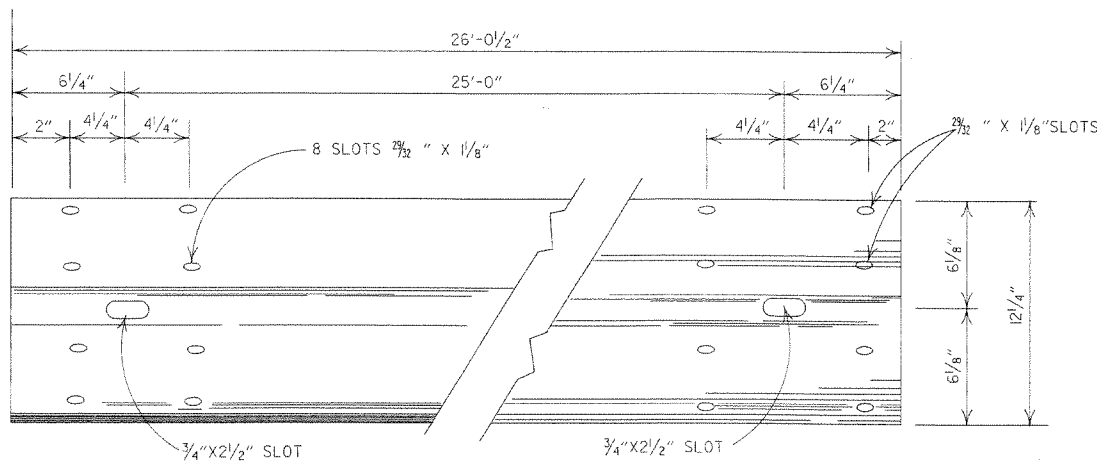
MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

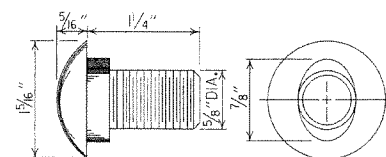
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96	ARKANSAS STATE HIGHWAY COMMISSION
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80	
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78	
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75	
12-5-74	REMOVED NOTE RE REINF. FOR R.C.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

FLARED END SECTION
STANDARD DRAWING FES-2

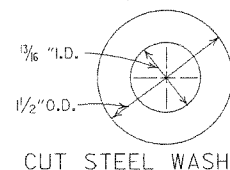


DETAILS OF W-BEAM GUARD RAIL

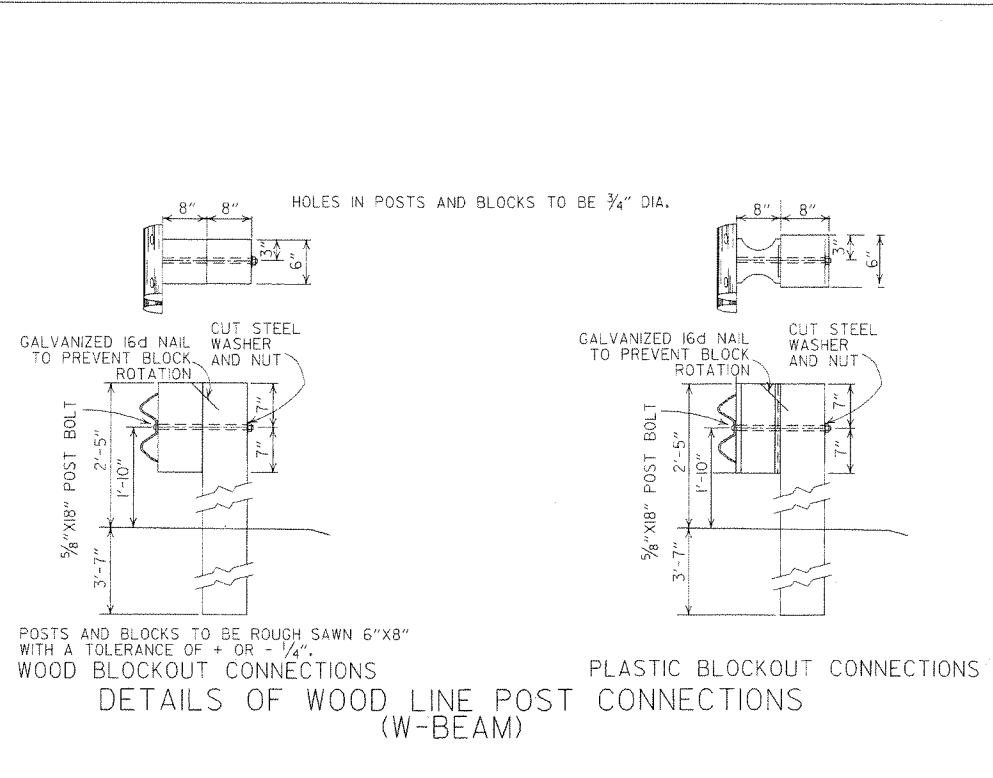
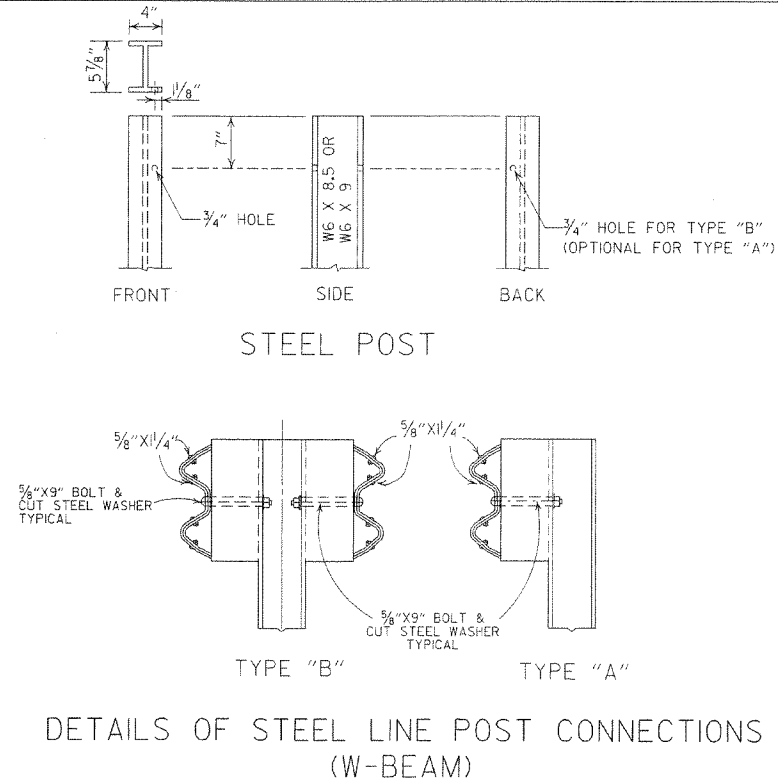
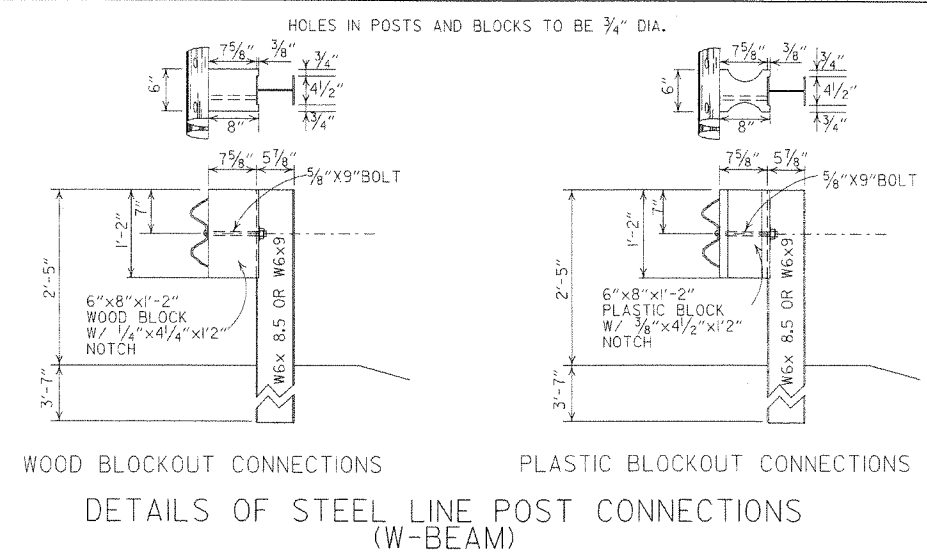
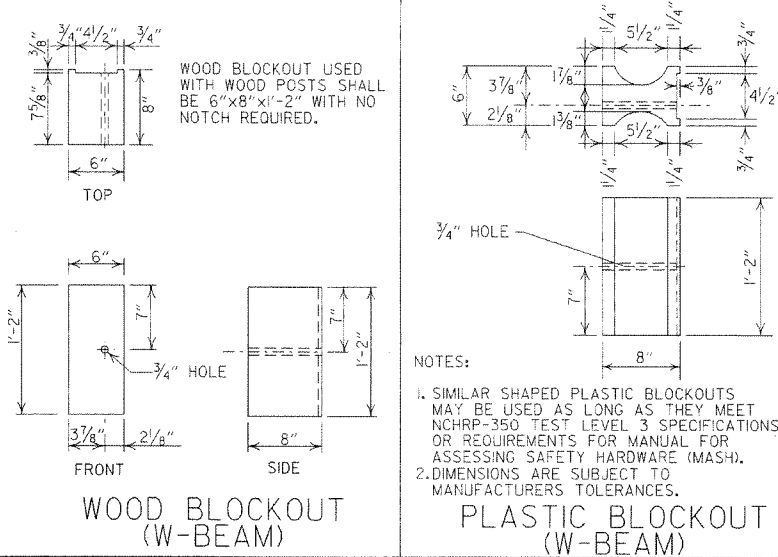
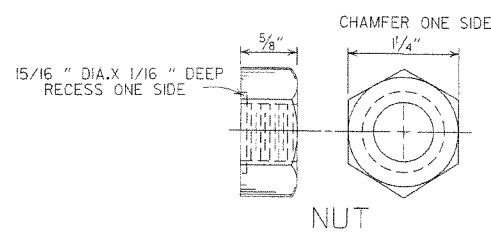
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



SPLICE BOLT POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER



-GENERAL NOTES-

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

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

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

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

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

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 350 f SOUTHERN PINE.

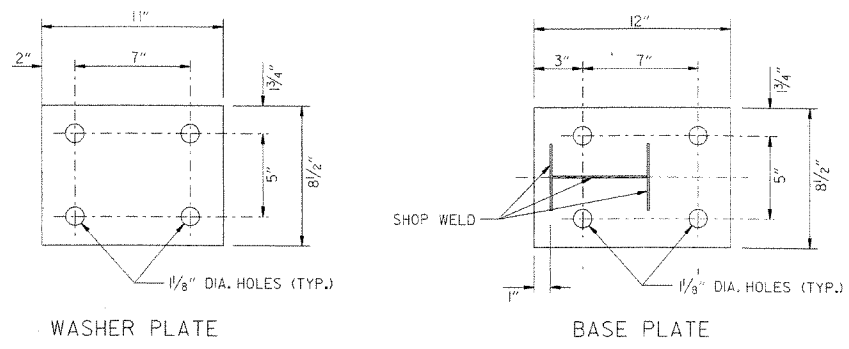
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

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

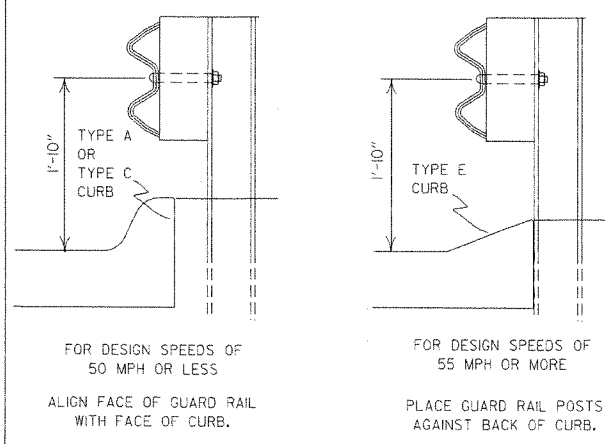
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

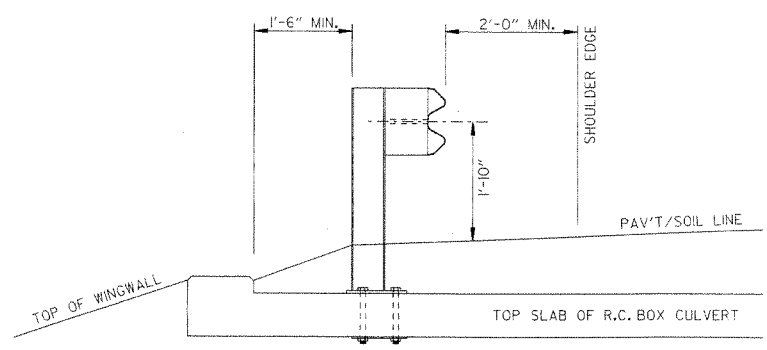


Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

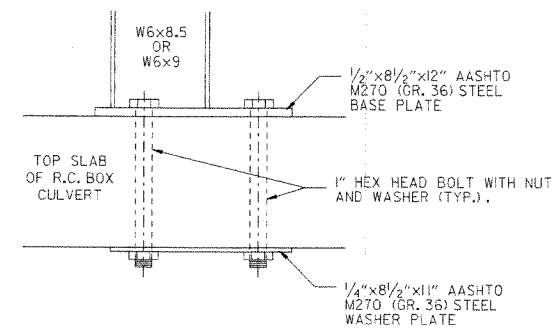


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

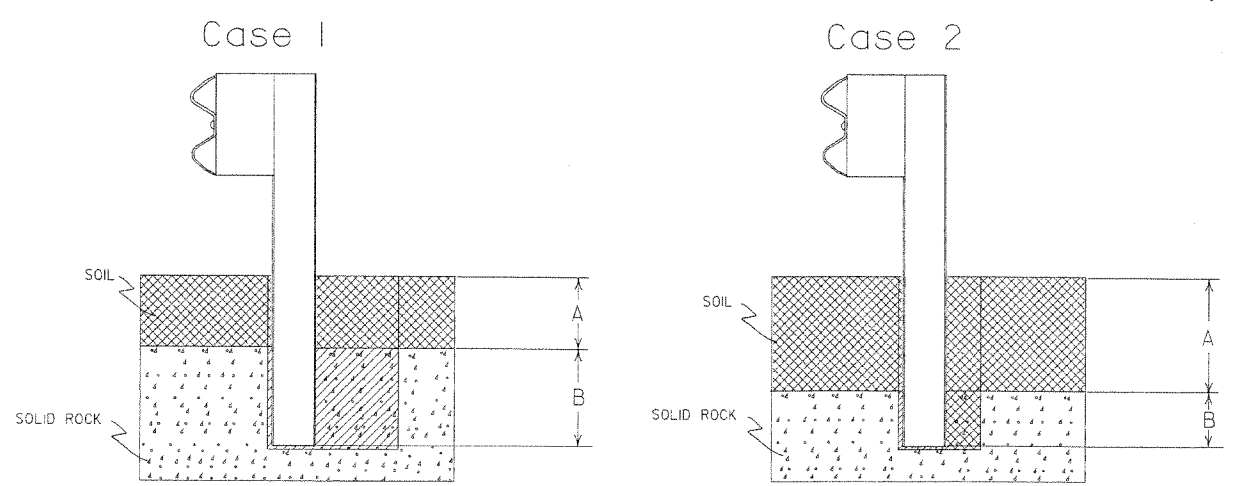
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A



DETAIL OF CONNECTION



Plan View Steel Posts: Either hole configuration acceptable.

Plan View Wood Posts: Either hole configuration acceptable.

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

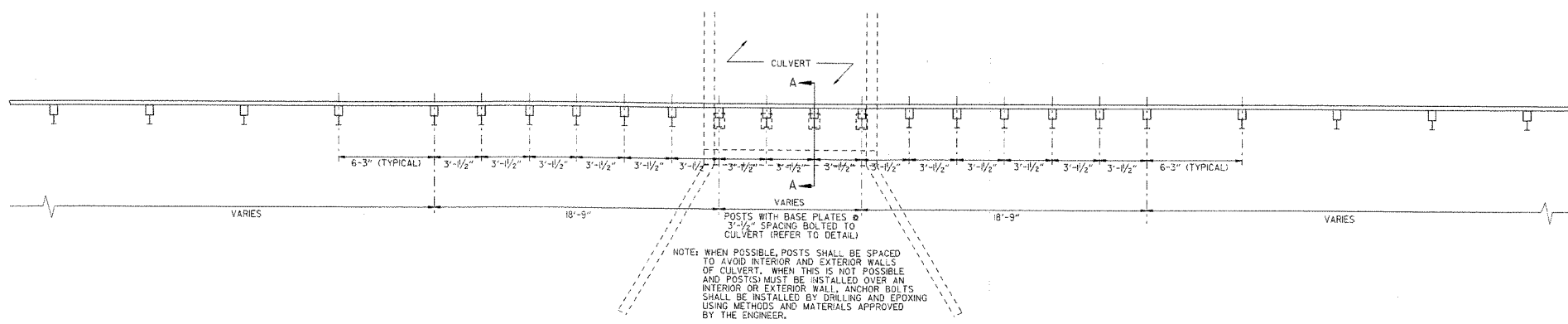
Zone A: Backfill according to Section 617.03(a).

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

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

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

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



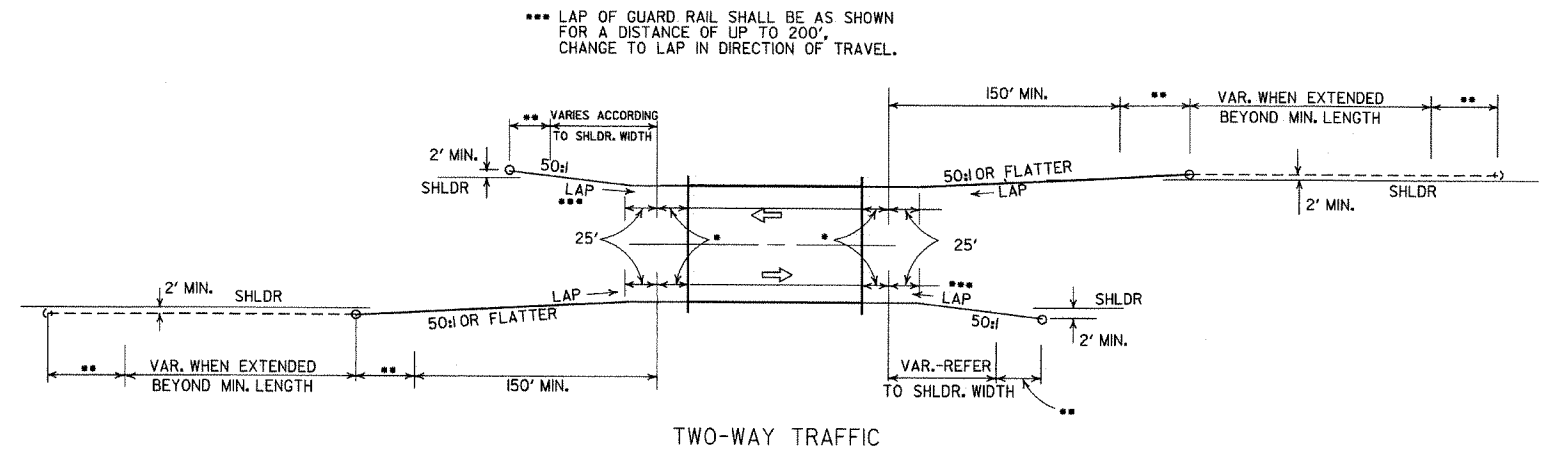
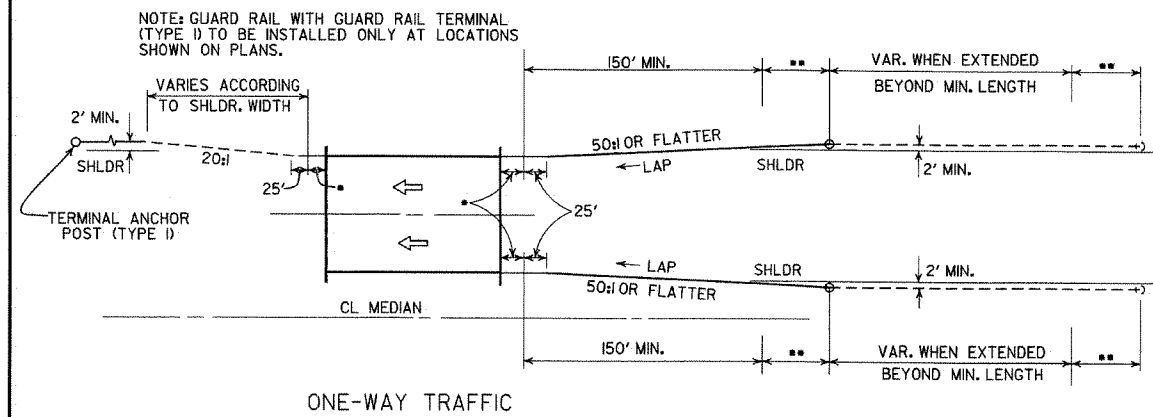
PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DRWG. GR-8A.

7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULVERT. DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	7-2-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	5-47-10-30-87
10-9-87	REDRAWN & REVISED	8-03-10-9-87
DATE	REVISION	DATE FILM

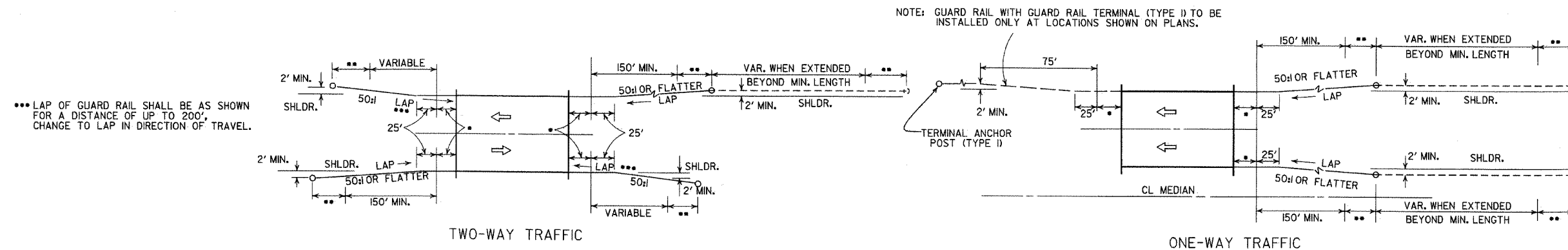
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

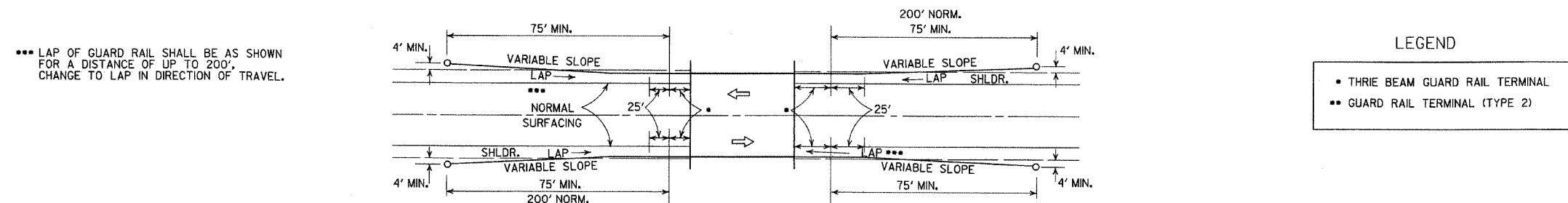
STANDARD DRAWING GR-8A



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

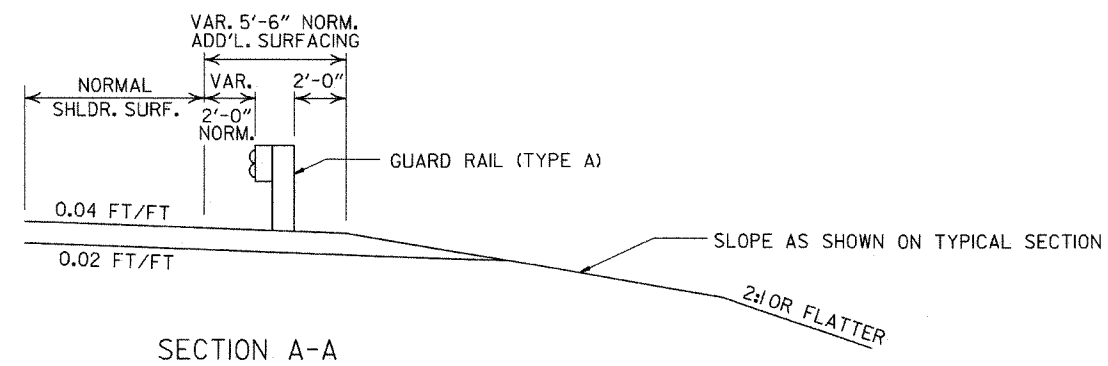
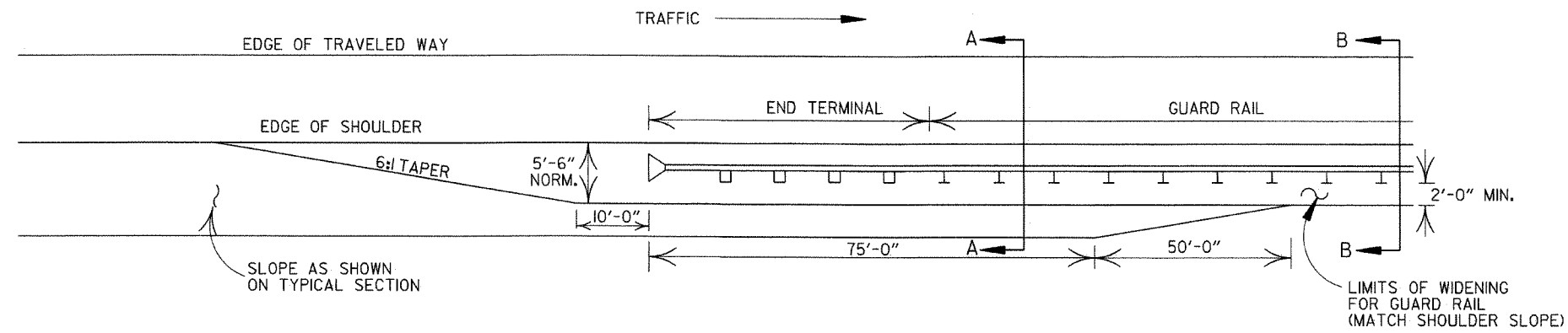


METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

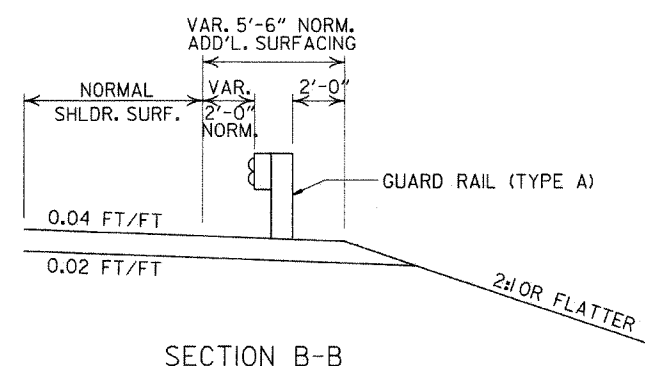


METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

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

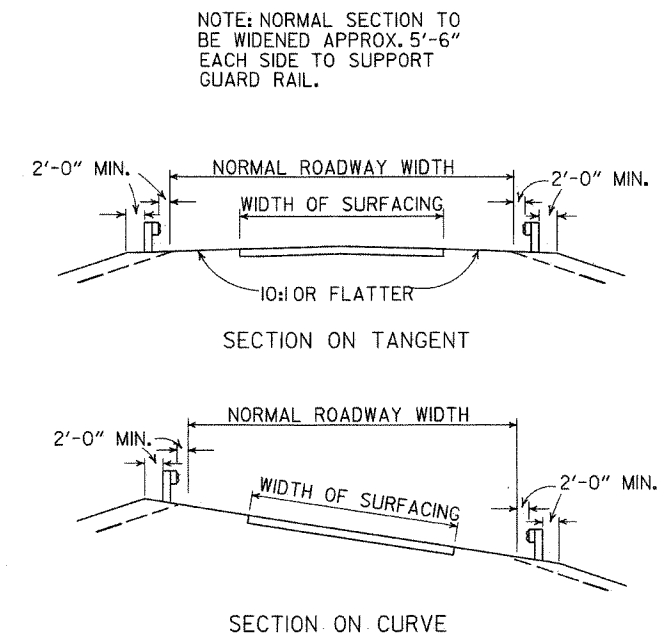


SECTION A-A

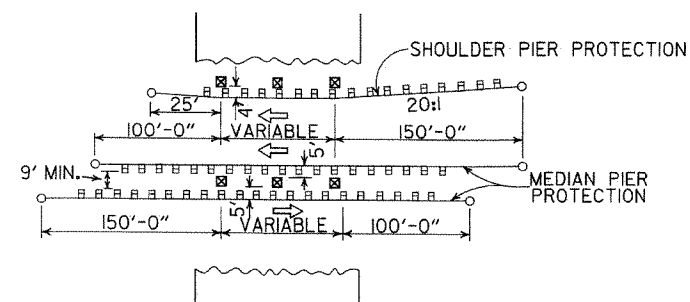


SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

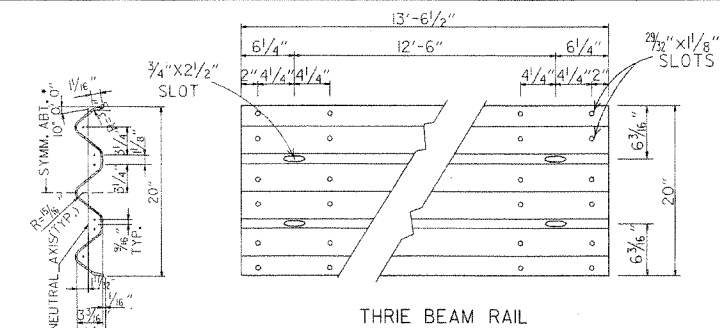


DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

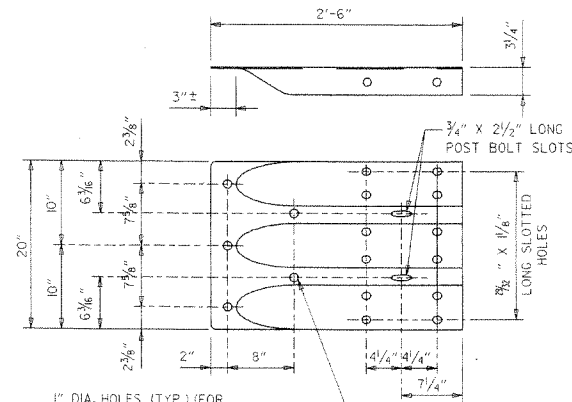


METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

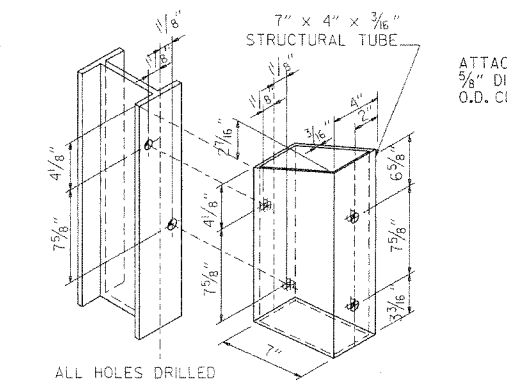
ARKANSAS STATE HIGHWAY COMMISSION			
GUARD RAIL DETAILS			
STANDARD DRAWING GR-9A			
4-17-08	MINOR REVISION		
11-10-05	DRAWN		
DATE	REVISION	DATE	FILM



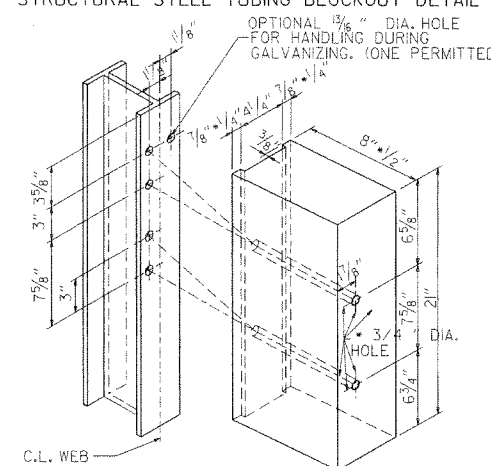
SECTION THRU THRIE BEAM RAIL



SPECIAL END SHOE



STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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

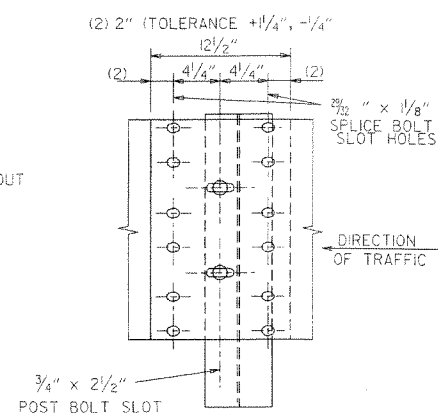
ATTACH BLOCKOUT TO POST USING 5/8\"/>

1\"/>

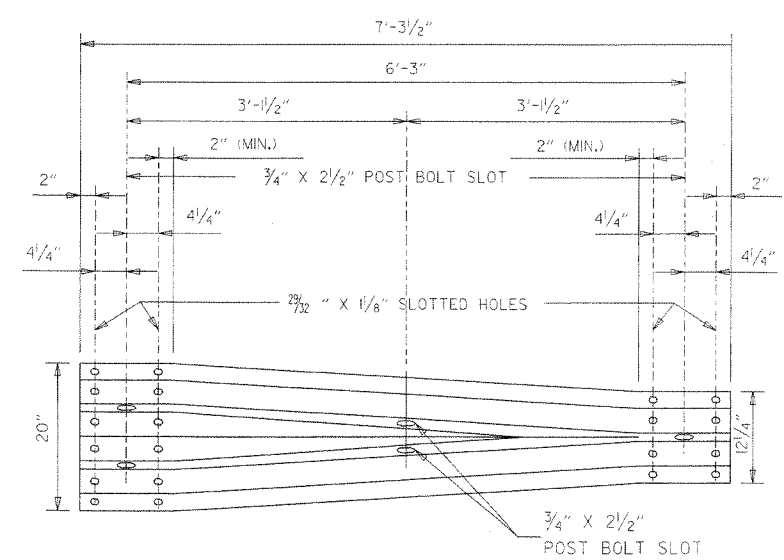
NOTE: SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

CONNECTOR PLATE

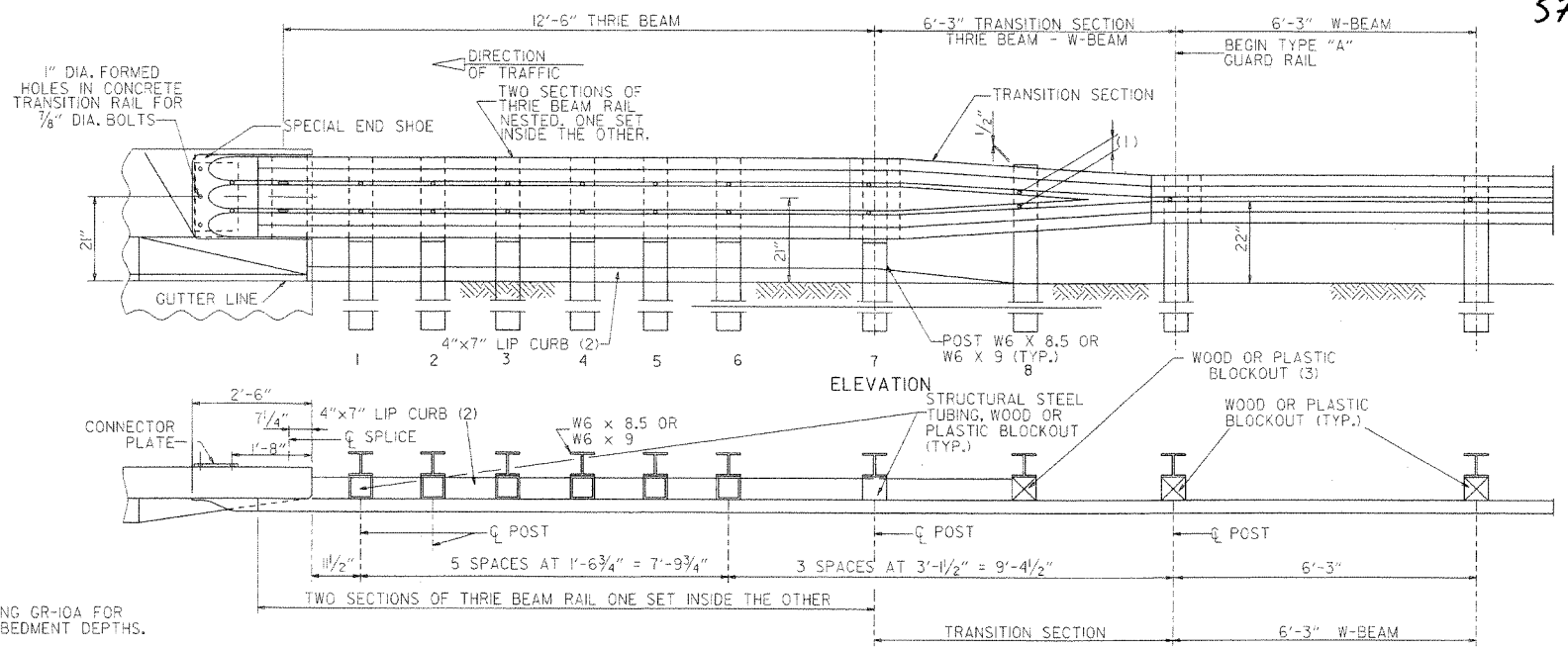
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 5/8\"/>



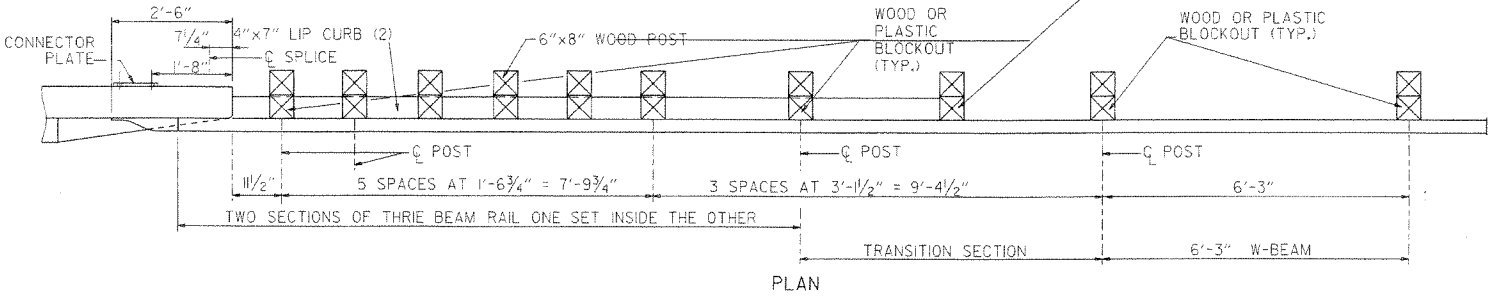
THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION



ELEVATION



PLAN

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

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

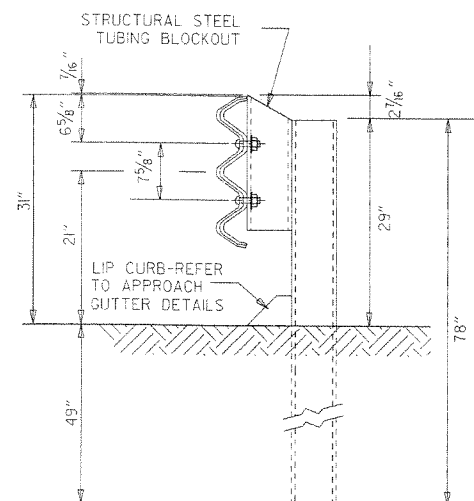
GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I. RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION. ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4\"/>

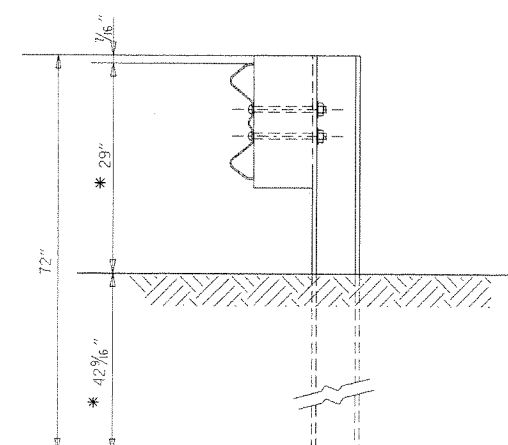
7-14-10	RAISED HEIGHT OF W-BEAM 1"		ARKANSAS STATE HIGHWAY COMMISSION
11-29-07	ADDED PLASTIC BLOCKOUTS		
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT		
11-18-04	REVISED GENERAL NOTES		
10-9-03	REVISED GENERAL NOTES		
4-10-03	REVISED GENERAL NOTES		
8-22-02	REVISED NOTE (2)		
6-29-00	MOVED DIMENSION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

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

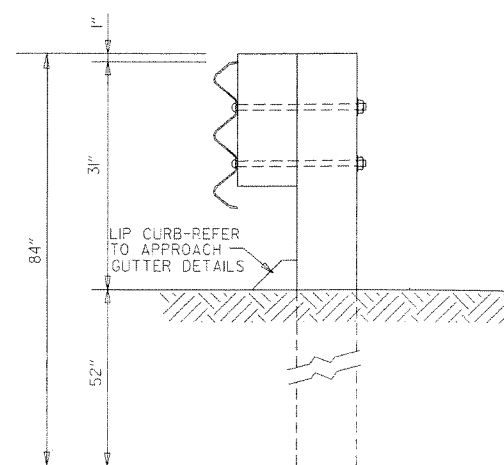


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

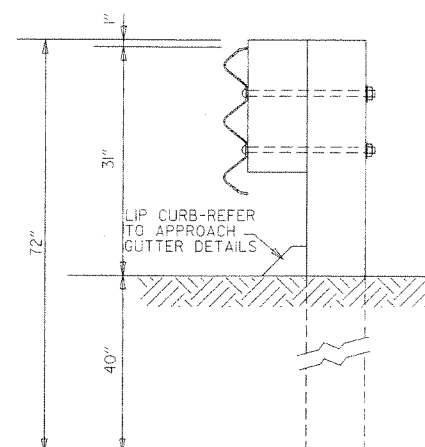


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

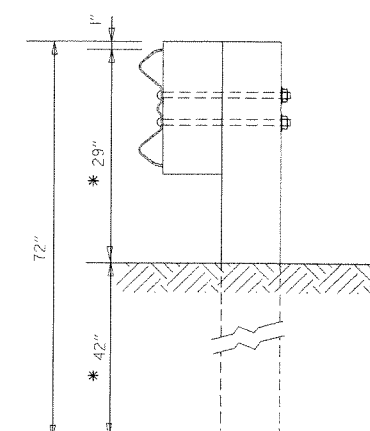
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED
IN THE FIELD TO MAKE THE TRANSITION FROM
21" MID POINT OF THRIE BEAM TO 22" MID POINT
OF W-BEAM.



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



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



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

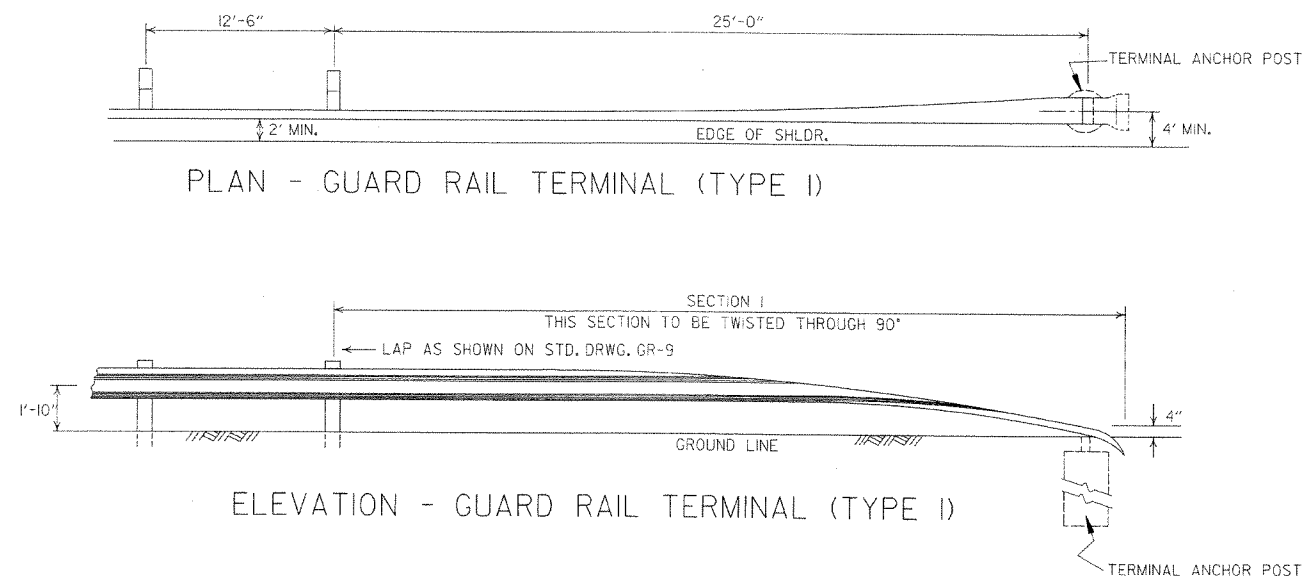
GENERAL NOTES:
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND
VERTICALLY IN CROSS SECTION.
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR
BETTER 9.7f (1400 f) OR NO. 1 (1350 f) SOUTHERN PINE.

ARKANSAS STATE HIGHWAY COMMISSION

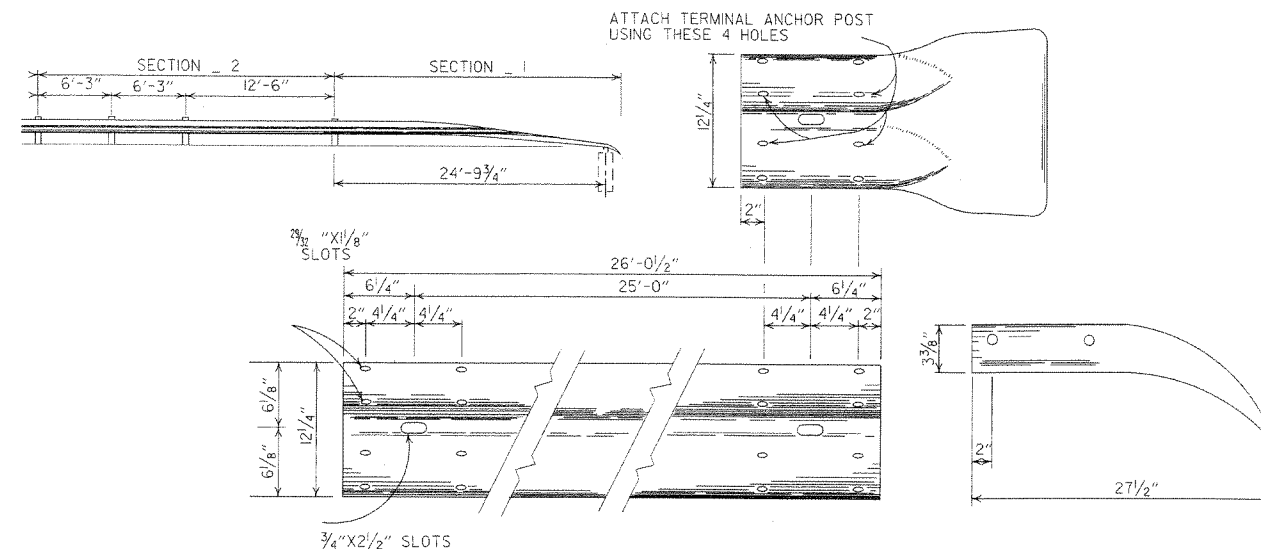
GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

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

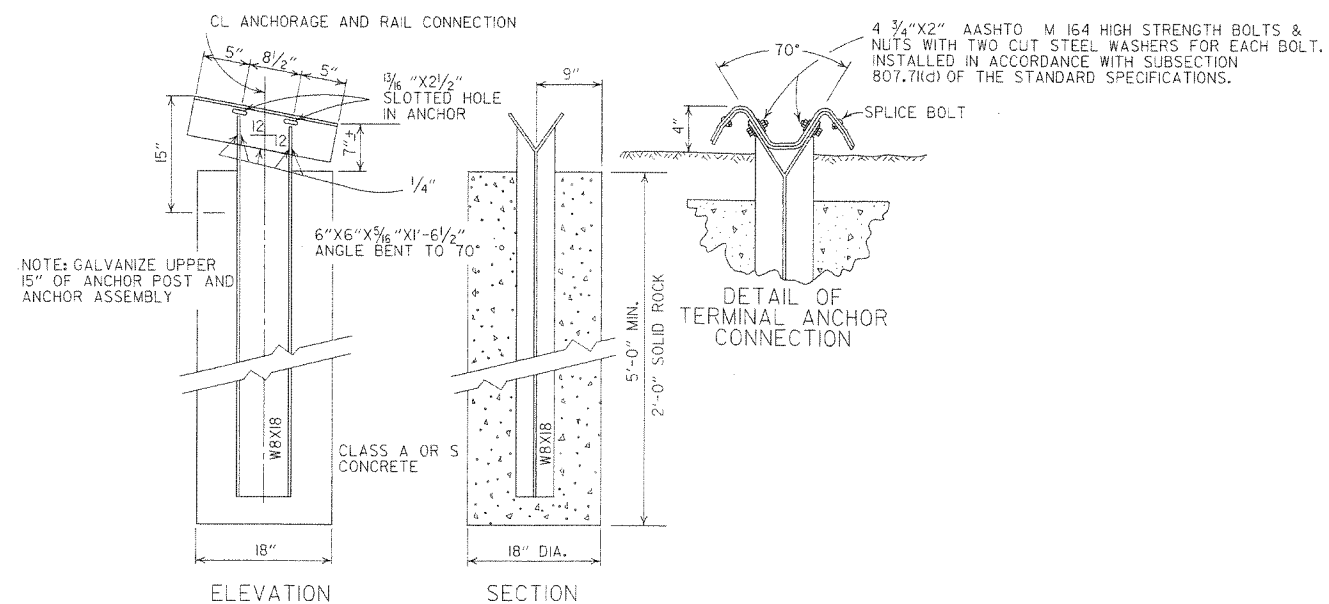


NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL
SHALL BE PAID FOR AT THE PRICE BID PER
LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



NOTE: GALVANIZE UPPER
15" OF ANCHOR POST AND
ANCHOR ASSEMBLY

4 3/4" X 2" AASHTO M 164 HIGH STRENGTH BOLTS &
NUTS WITH TWO CUT STEEL WASHERS FOR EACH BOLT.
INSTALLED IN ACCORDANCE WITH SUBSECTION
807.7(Rd) OF THE STANDARD SPECIFICATIONS.

SPLICE BOLT

DETAIL OF
TERMINAL ANCHOR
CONNECTION

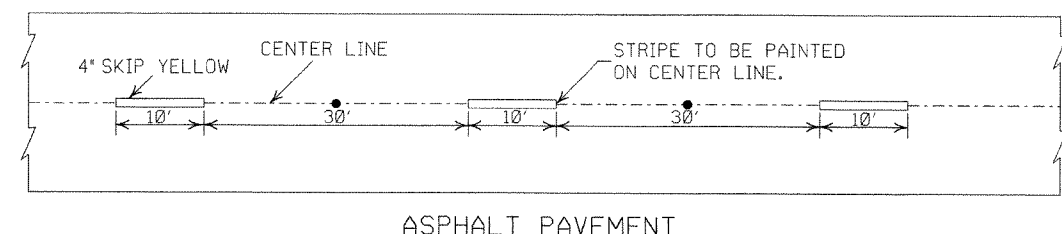
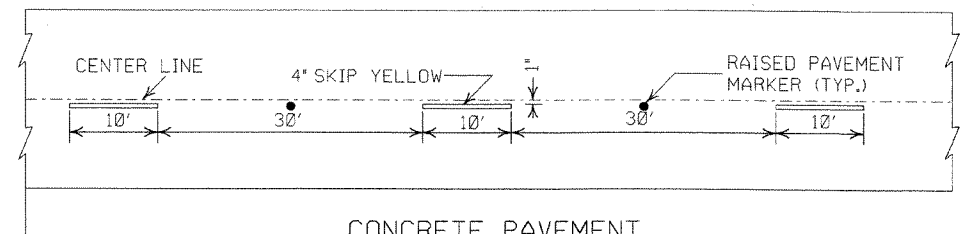
NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO
ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE
AROUND 8 W/ 17 POST IF CONTRACTOR SO DESIRES.

DETAIL OF TERMINAL
ANCHOR POST (TYPE I)

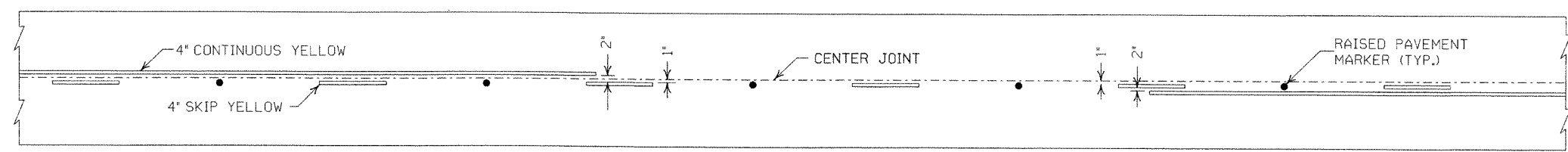
ARKANSAS STATE HIGHWAY COMMISSION		
GUARD RAIL DETAILS		
STANDARD DRAWING GRT-1		
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
6-26-97	REVISED LAP NOTE	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-3-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92
DATE	REVISION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

NOTES:

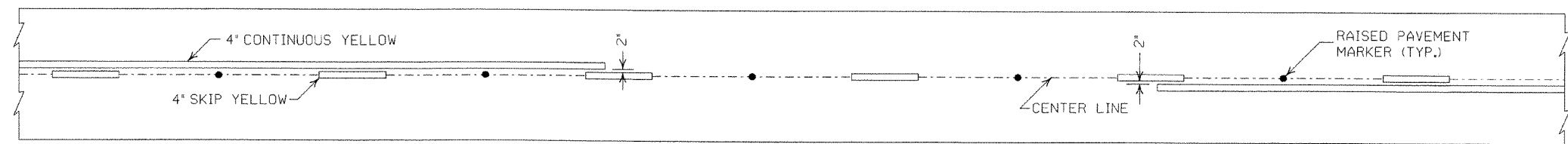
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.'
4. RAISED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



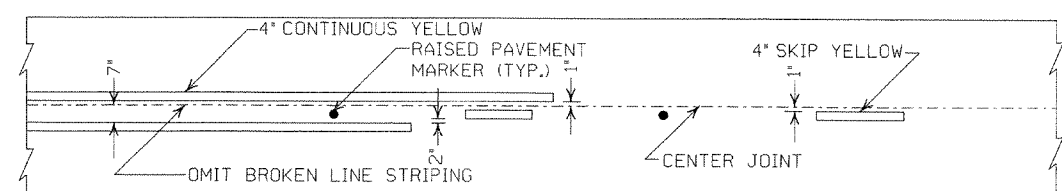
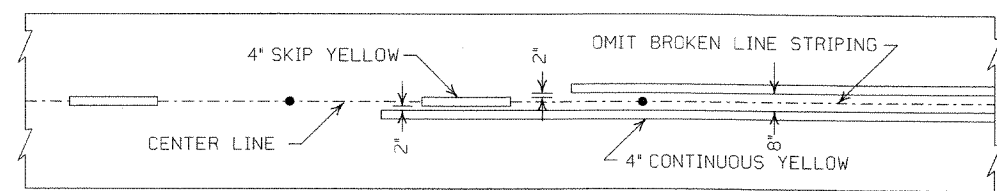
BROKEN LINE STRIPING



SOLID LINE STRIPING ON CONCRETE PAVEMENT



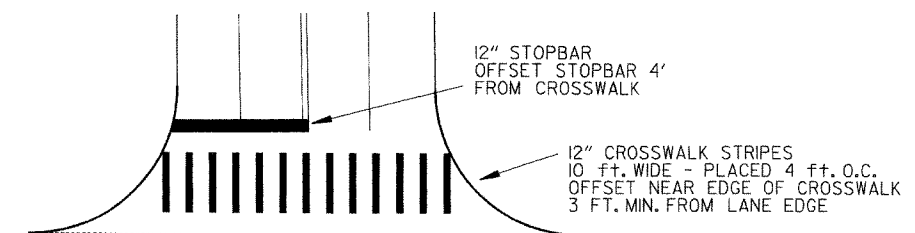
SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT

CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



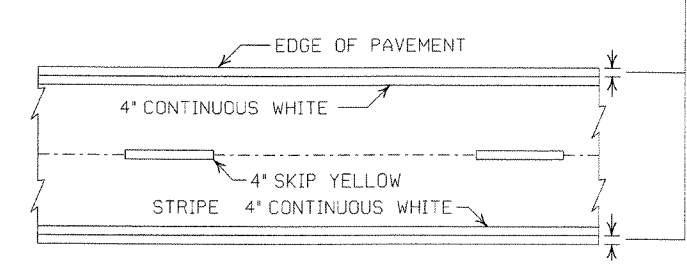
CROSSWALK AND STOPBAR DETAILS

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

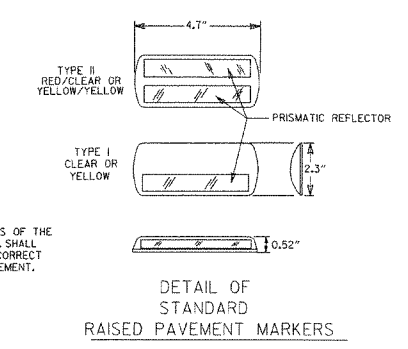
THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES', LATEST REVISION.

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

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



PAVEMENT EDGE LINE MARKING

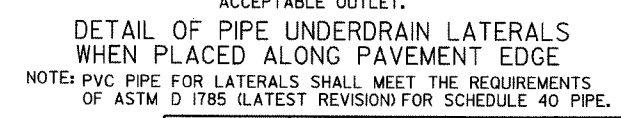
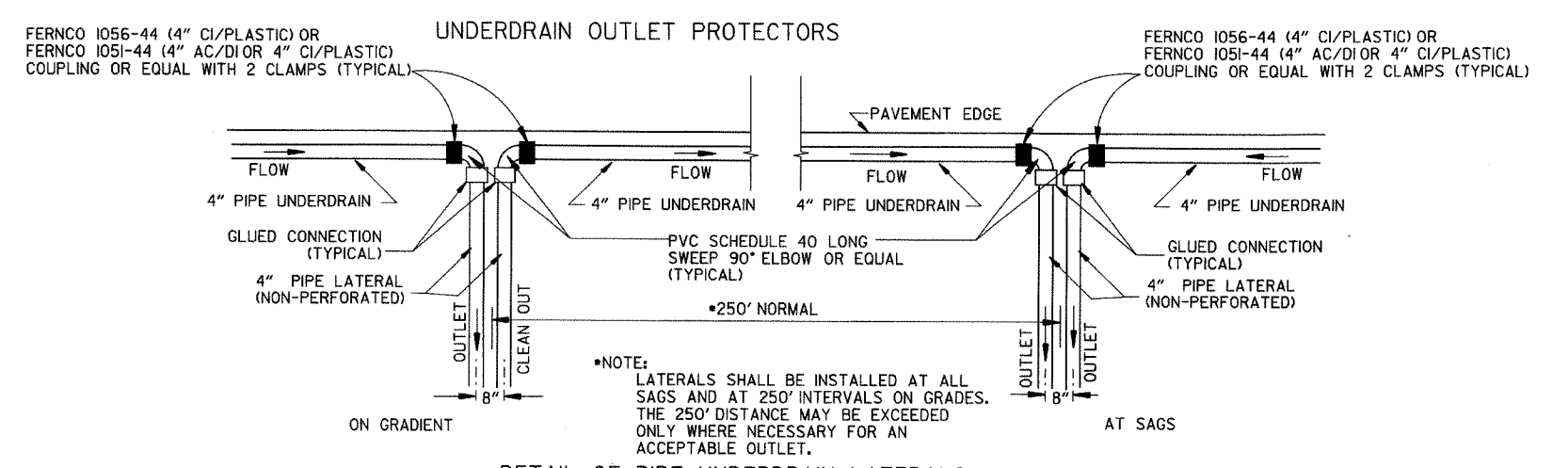
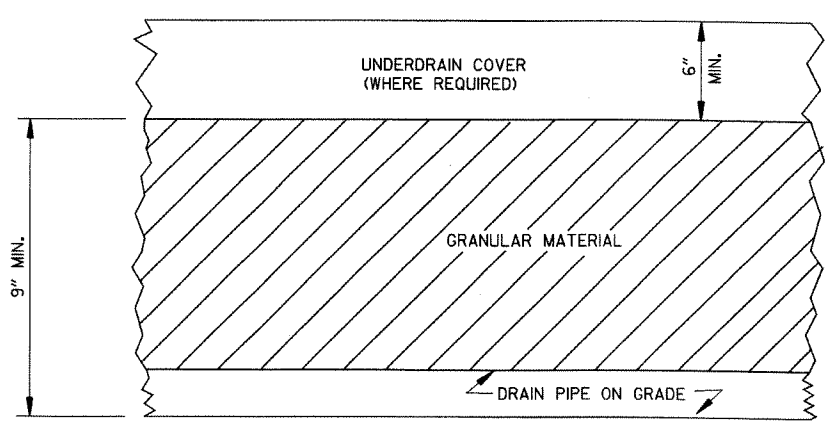
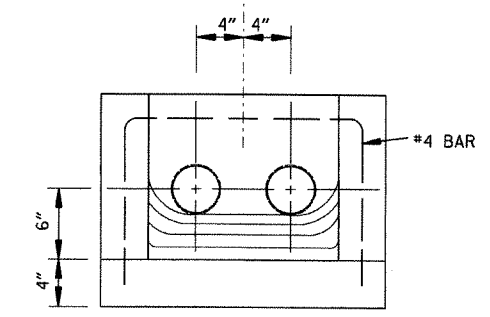
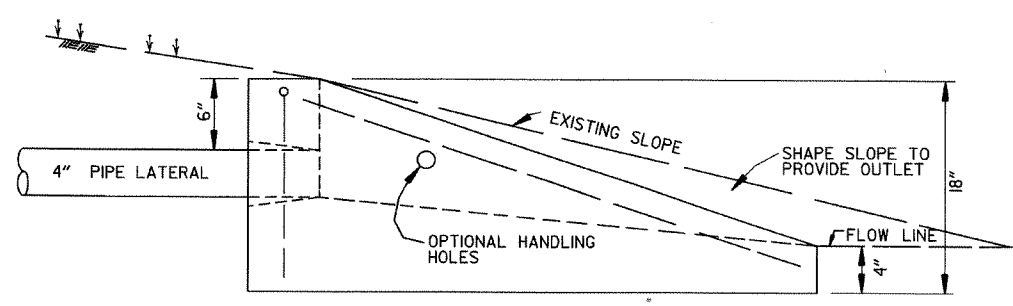
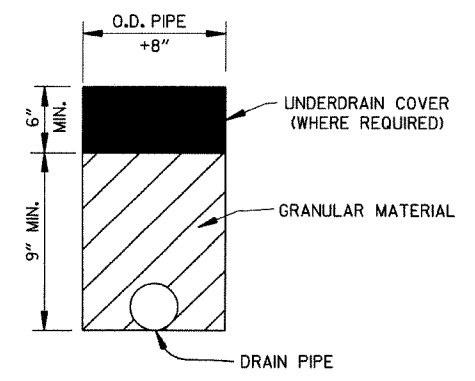
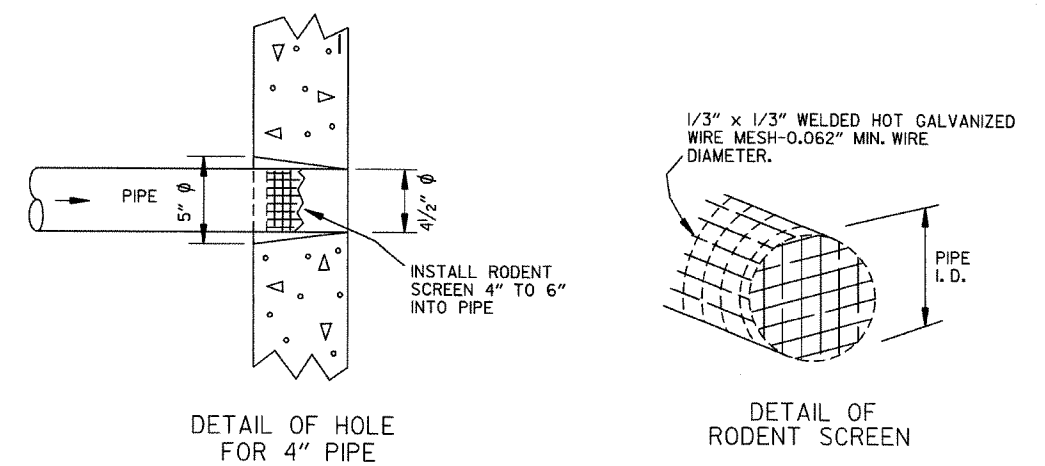
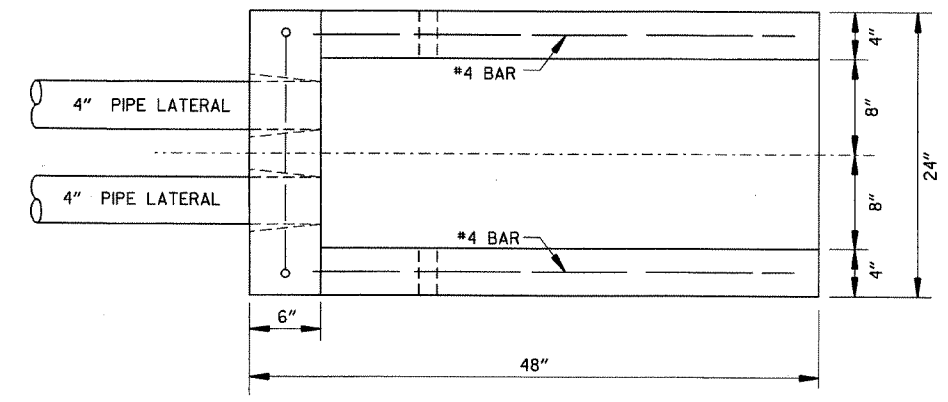


DATE	REVISION	FILMED
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION
PAVEMENT MARKING DETAILS
STANDARD DRAWING PM-1

NOTE:

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

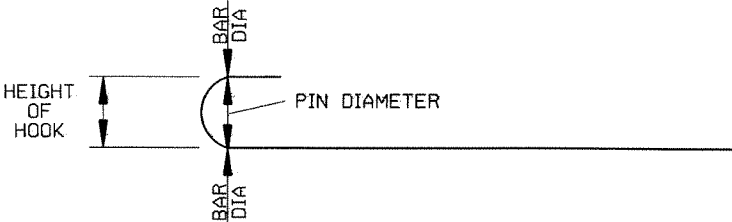


4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYETHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88
DATE	REVISION	DATE FILMED

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

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

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



OVERALL HEIGHT OF HOOKED BAR DIAGRAM

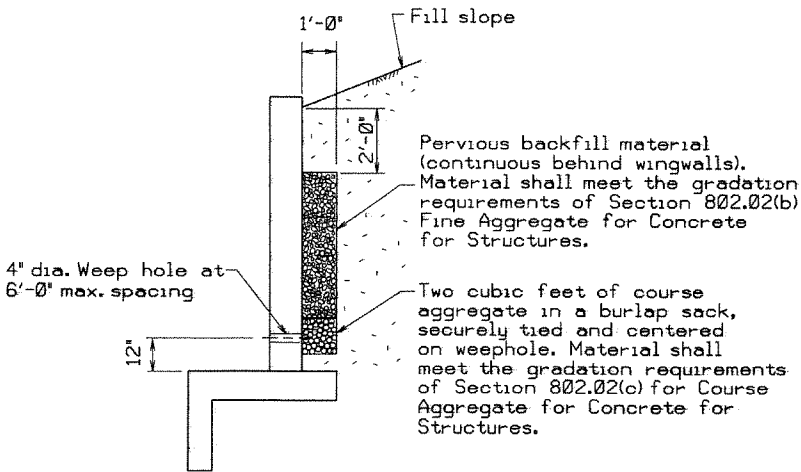
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.
REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

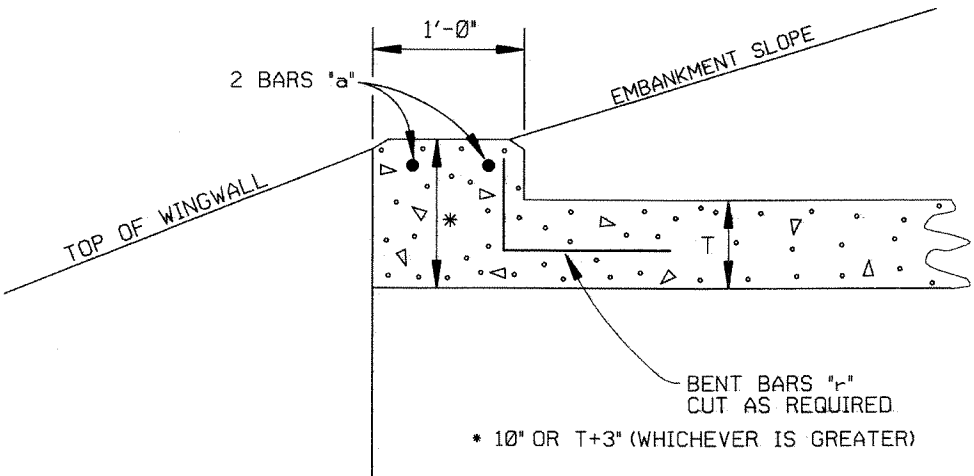
MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

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

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS 1/2 INCH.

WEEP HOLES IN WINGWALLS: THE MAXIMUM HORIZONTAL SPACING OF WEEP HOLES IN WINGWALLS SHALL BE 6'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND PLACED 12" ABOVE TOP OF WINGWALL FOOTING.

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



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

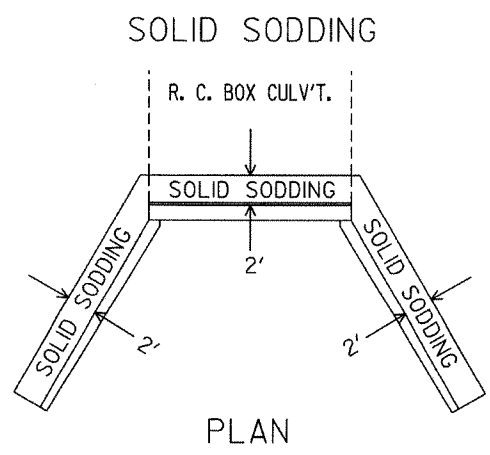
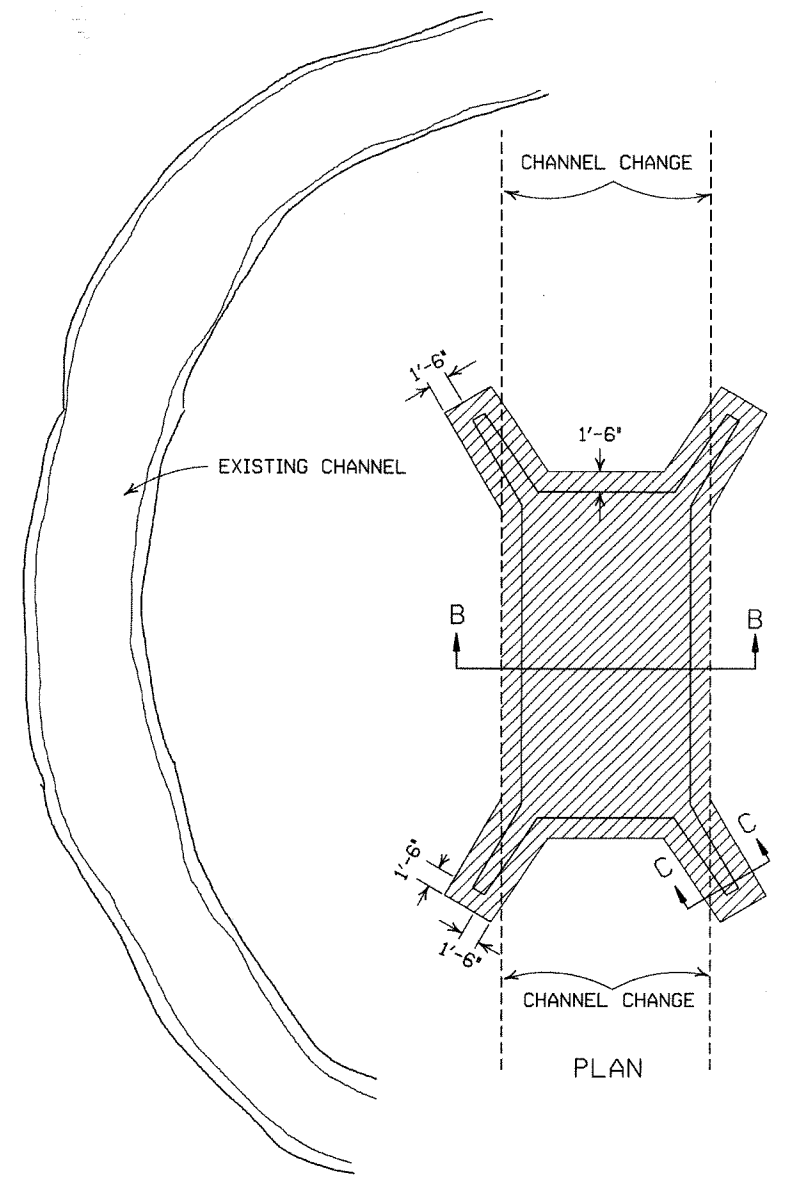
R.C. BOX CULVERT HEADWALL MODIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX
CULVERT DETAILS

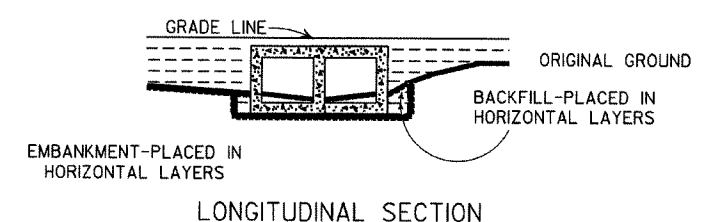
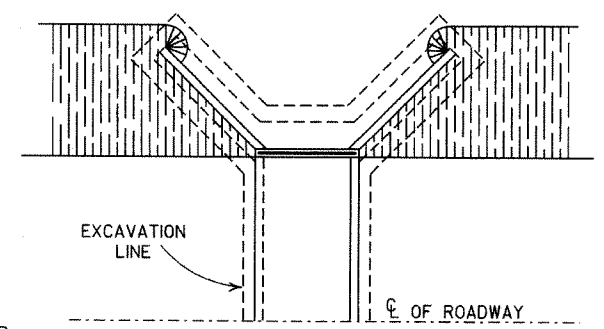
STANDARD DRAWING RCB-1

DATE	REVISION	DATE FILMED
05-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES, BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

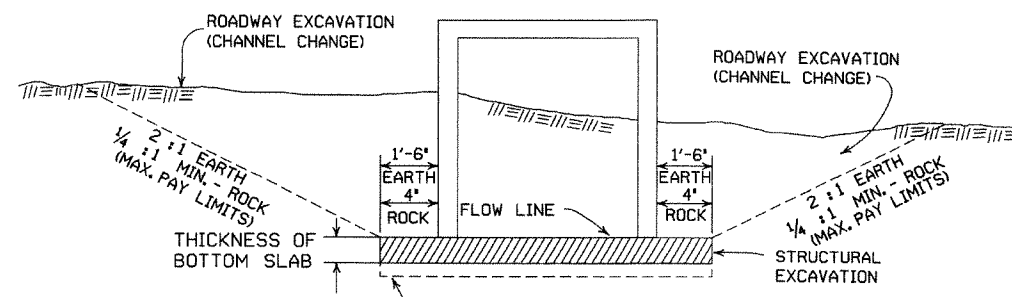
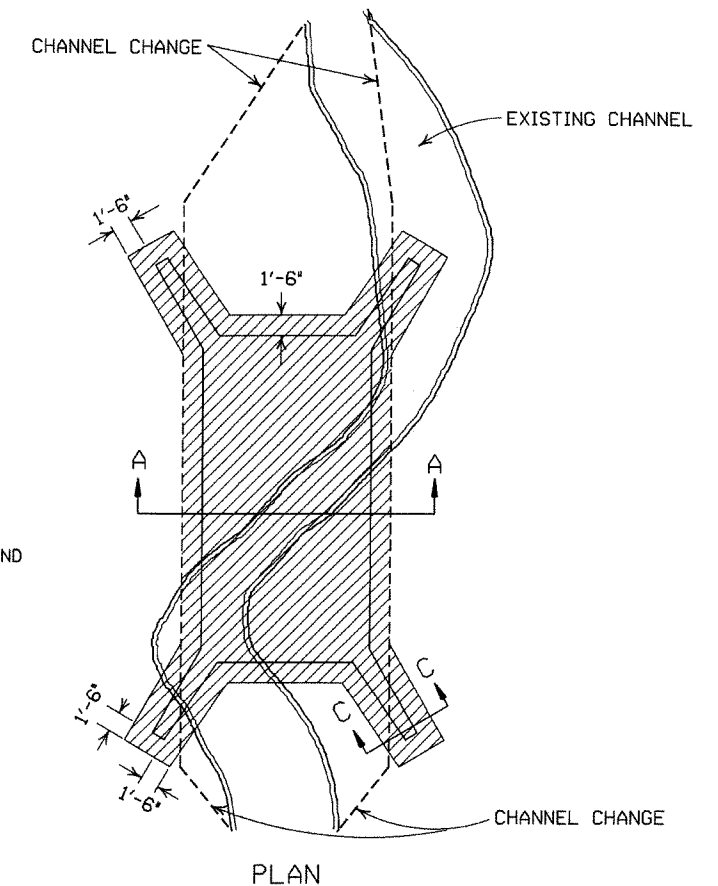


PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

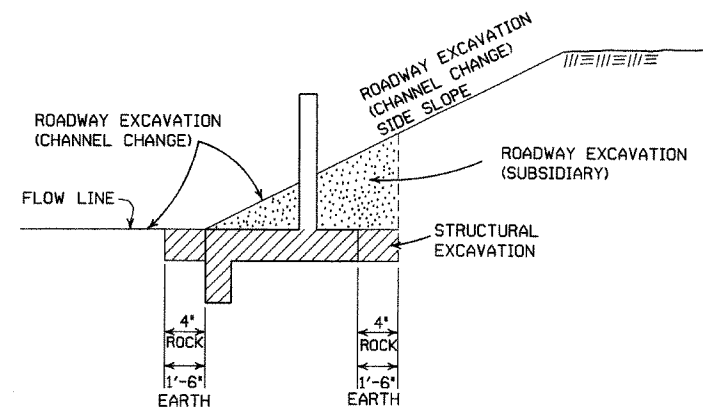
NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.



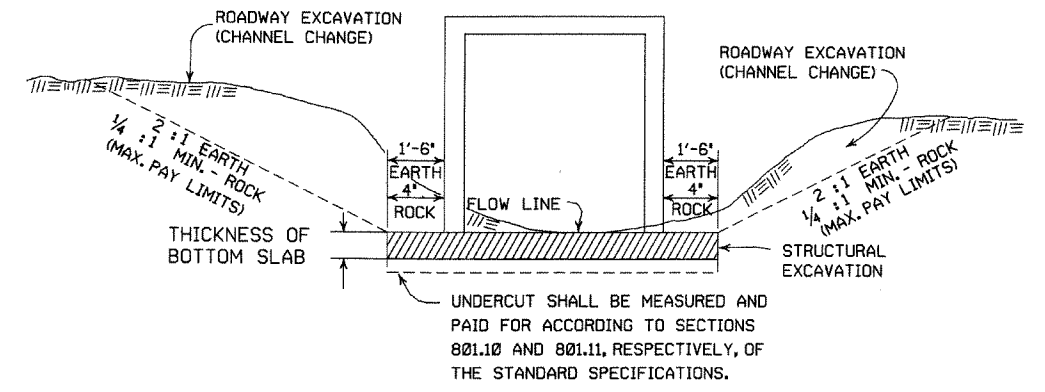
BACKFILL DETAILS FOR BOX CULVERT



SECTION B-B
DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A
DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

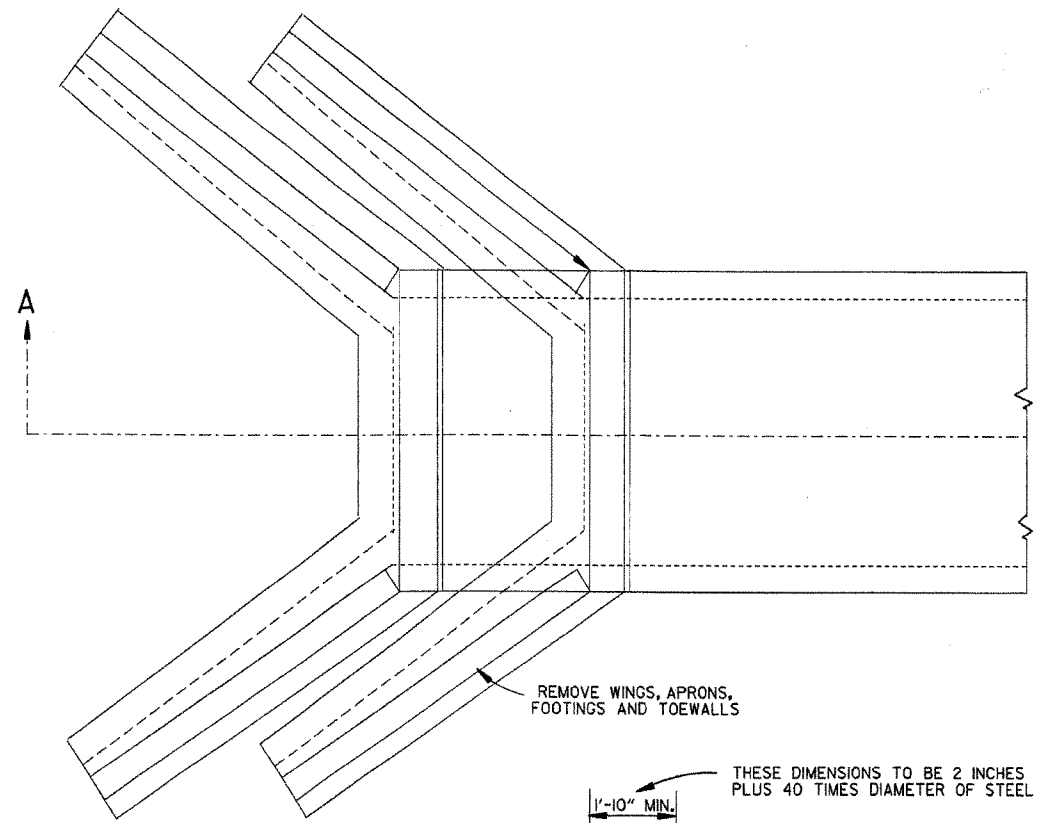
ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

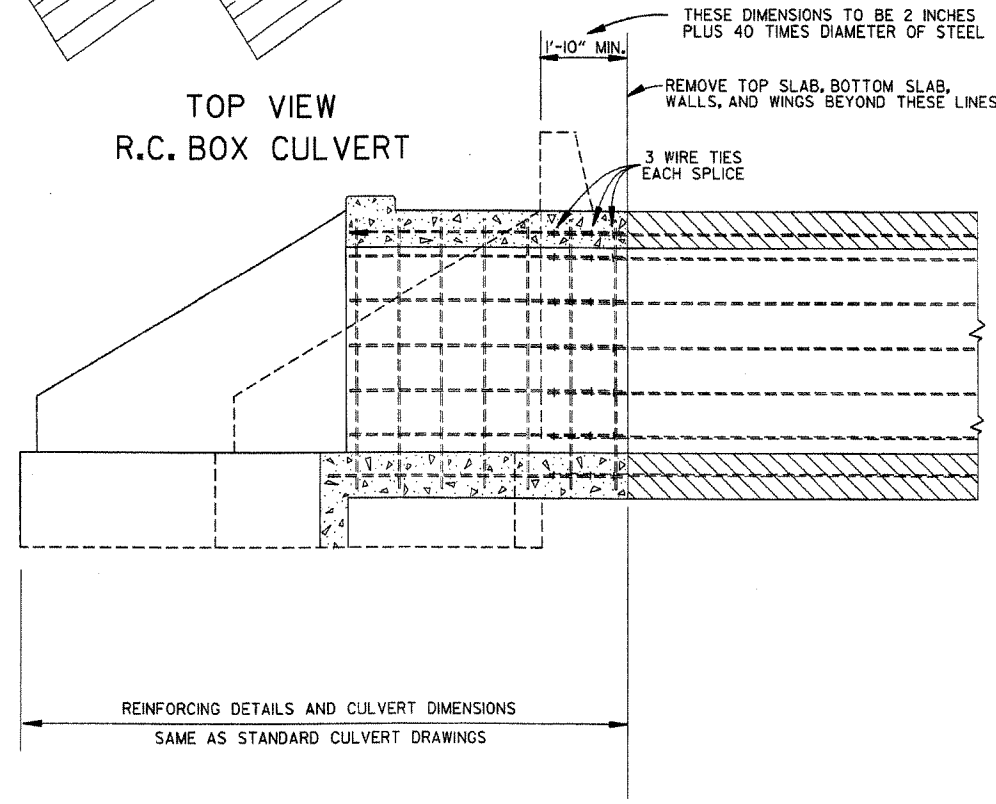
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY LIMIT NOTES	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

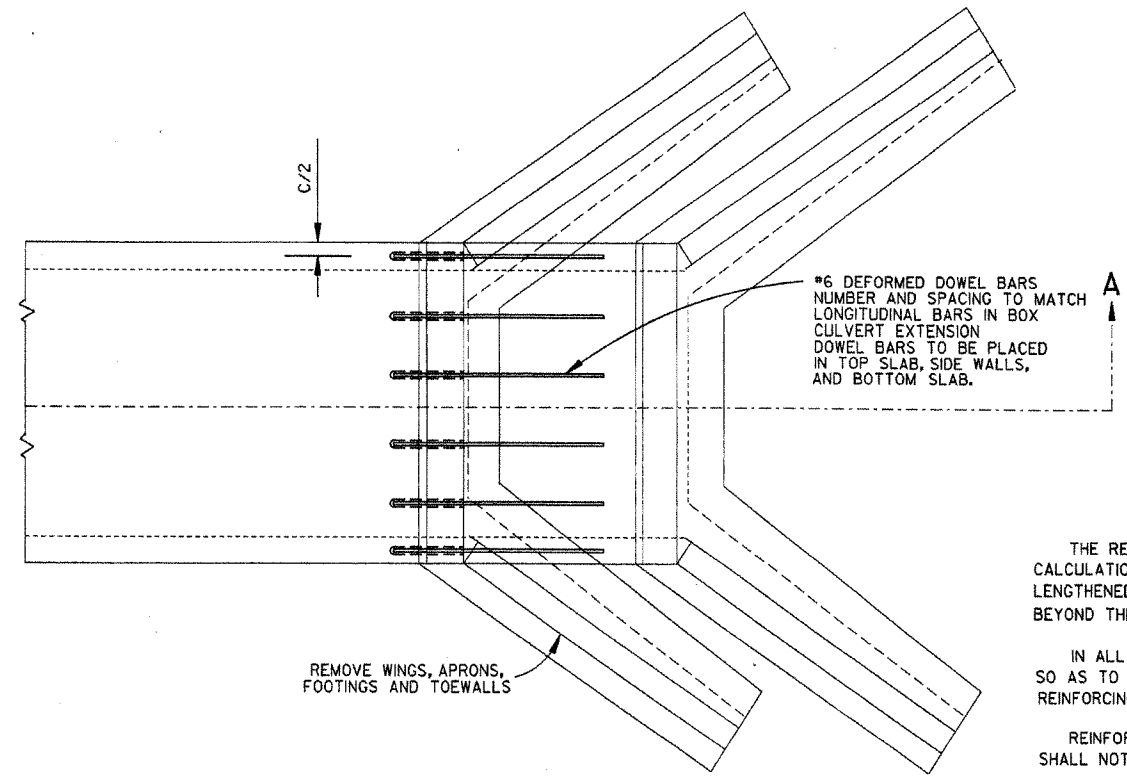
ARKANSAS STATE HIGHWAY COMMISSION
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS
STANDARD DRAWING RCB-2



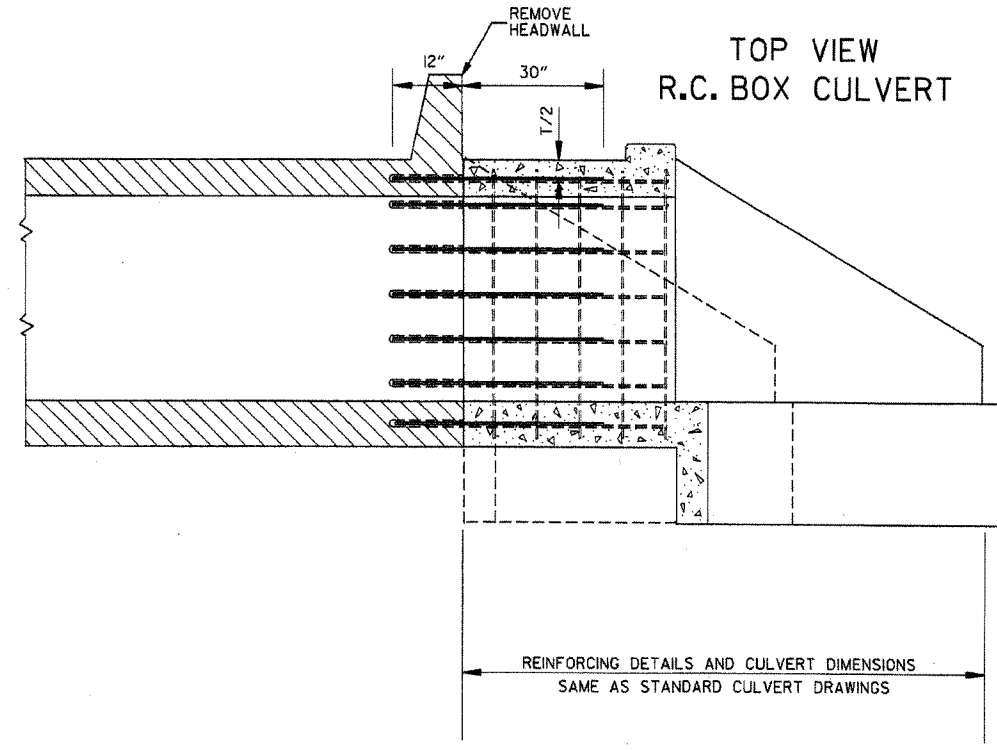
TOP VIEW
R.C. BOX CULVERT



SECTION A-A
METHOD 1



TOP VIEW
R.C. BOX CULVERT



SECTION A-A
METHOD 2

- GENERAL NOTES
- THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.
- IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.
- REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.
- ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON, THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.
- DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER, AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.
- THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2, REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.

USE FOR
METHOD

1

1

1&2

1&2

2

2

1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.
SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

ARKANSAS STATE HIGHWAY COMMISSION		
METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS		
STANDARD DRAWING RCB-3		
10-12-95	CHANGED DRAWING * FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	
DATE	REVISION	DATE FILM

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)	
	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
3° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
3° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
3° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
3° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
4° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
4° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
4° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
4° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
5° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
5° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
5° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
5° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
6° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
6° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
6° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
6° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
7° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
7° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
7° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
7° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
8° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
8° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
8° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
8° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
9° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
9° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
9° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
9° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
10° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
10° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
10° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
10° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
11° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
11° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
11° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
11° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
12° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
12° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
12° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
12° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
13° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
13° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
13° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
13° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
14° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
14° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
14° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
14° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
15° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
15° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
15° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
15° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
16° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
16° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
16° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
16° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
17° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
17° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
17° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
17° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
18° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
18° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
18° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
18° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
19° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
19° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
19° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
19° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
20° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
20° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
20° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
20° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
21° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
21° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
21° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
21° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
22° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
22° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
22° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
22° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
23° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
23° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
23° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
23° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
24° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	

ABBREVIATIONS

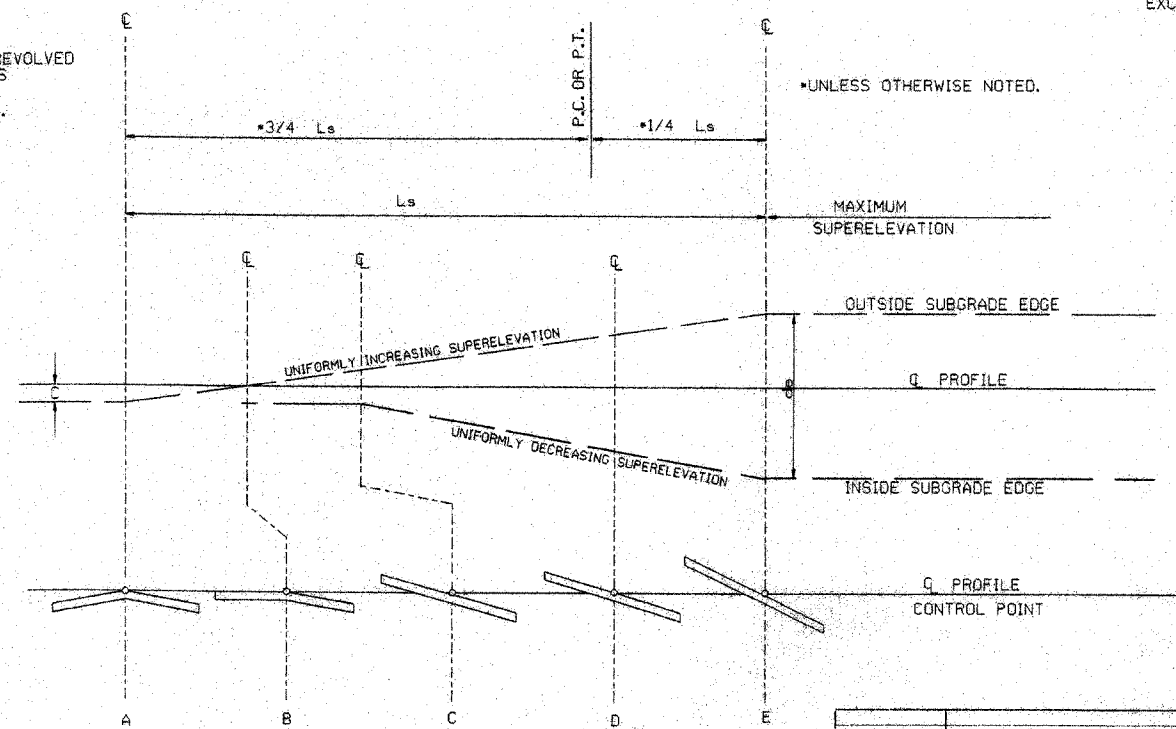
- NC - NORMAL CROWN
- RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
- e - RATE OF SUPERELEVATION (FT. PER FT.)
- L - LENGTH OF SUPERELEVATION TRANSITION (FT.)
- Ls - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
- d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)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

GENERAL NOTES

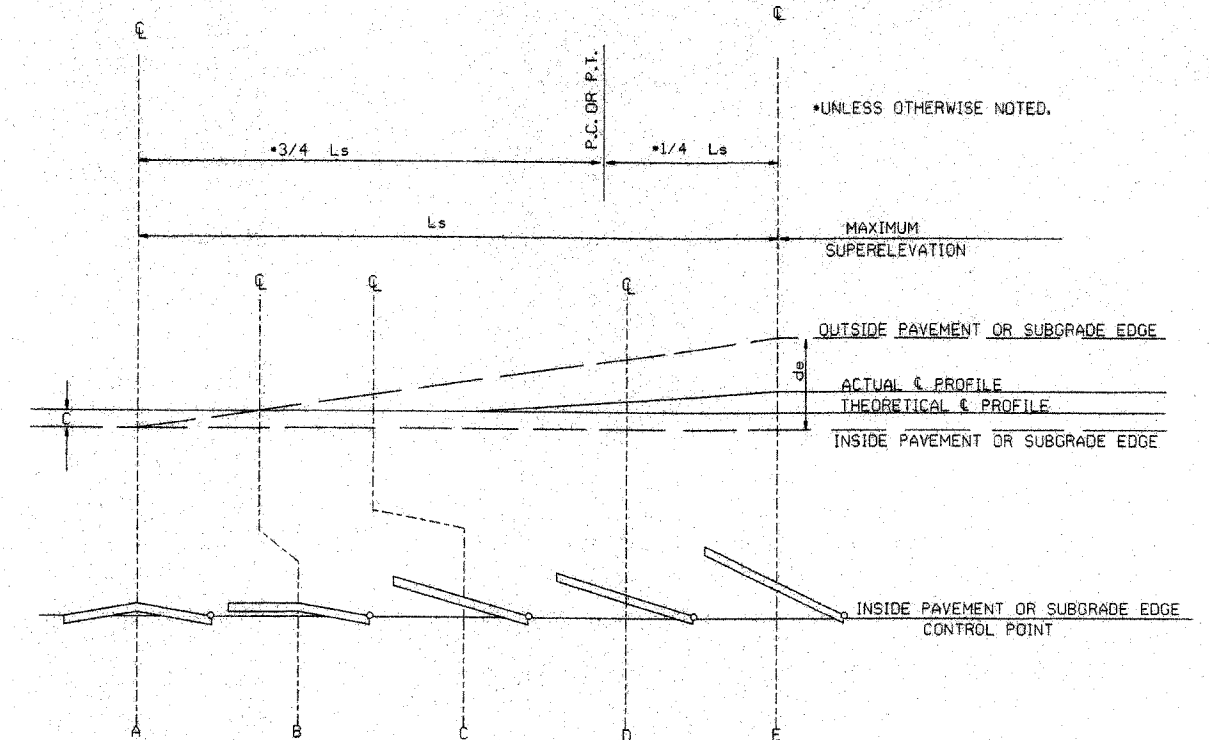
- ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
- SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
- LENGTHS FOR L MAY BE ROUNDED IN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

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

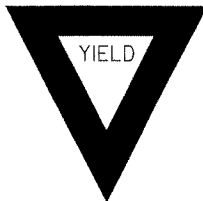
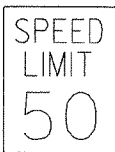
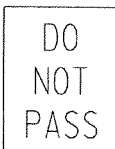
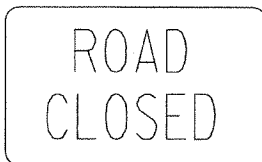
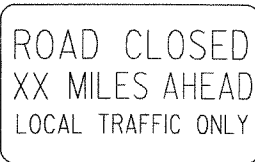
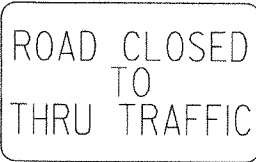
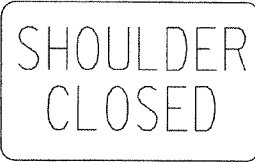
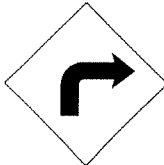
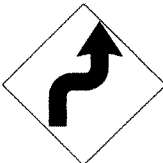
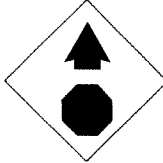
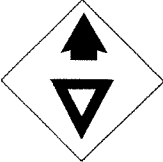
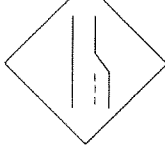
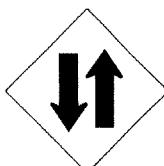
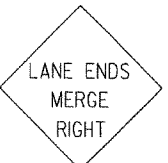
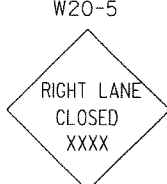
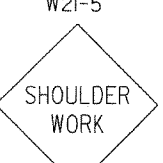
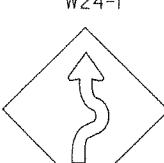
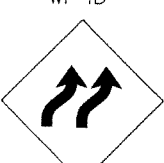
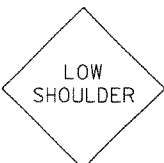
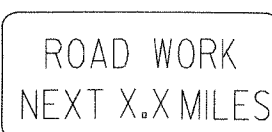
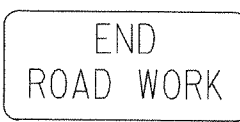
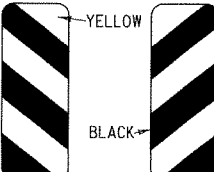
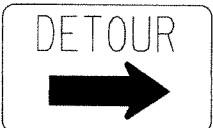
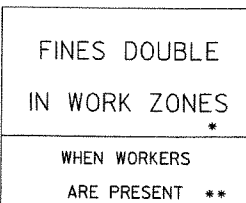
SUPERELEVATION FORMULA = $\frac{Lds}{Ls}$

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

ARKANSAS STATE HIGHWAY COMMISSION

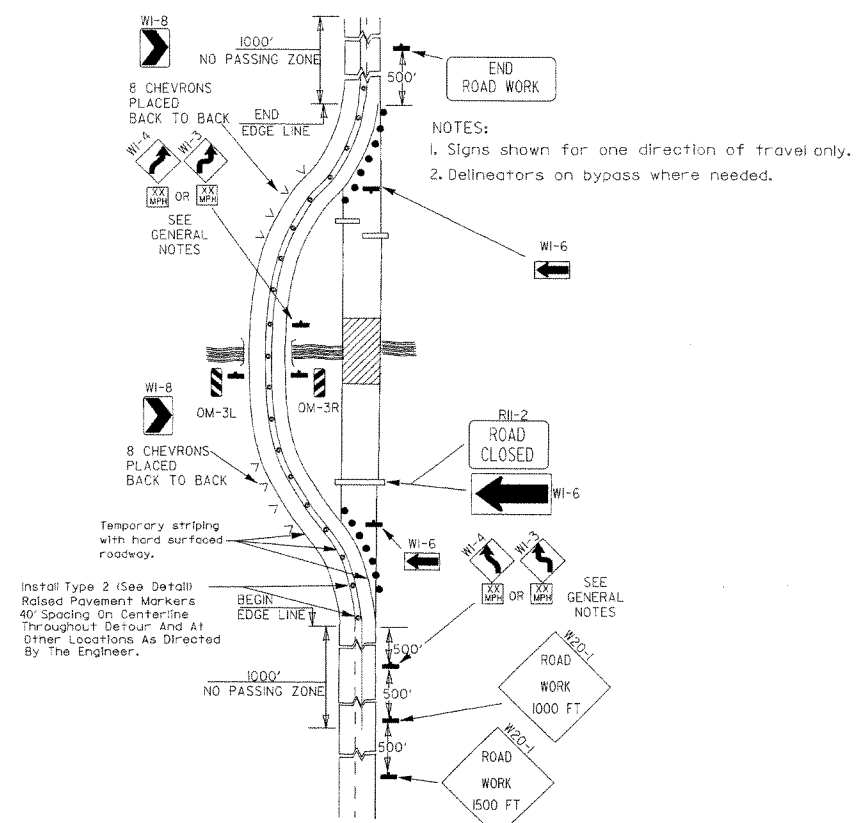
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

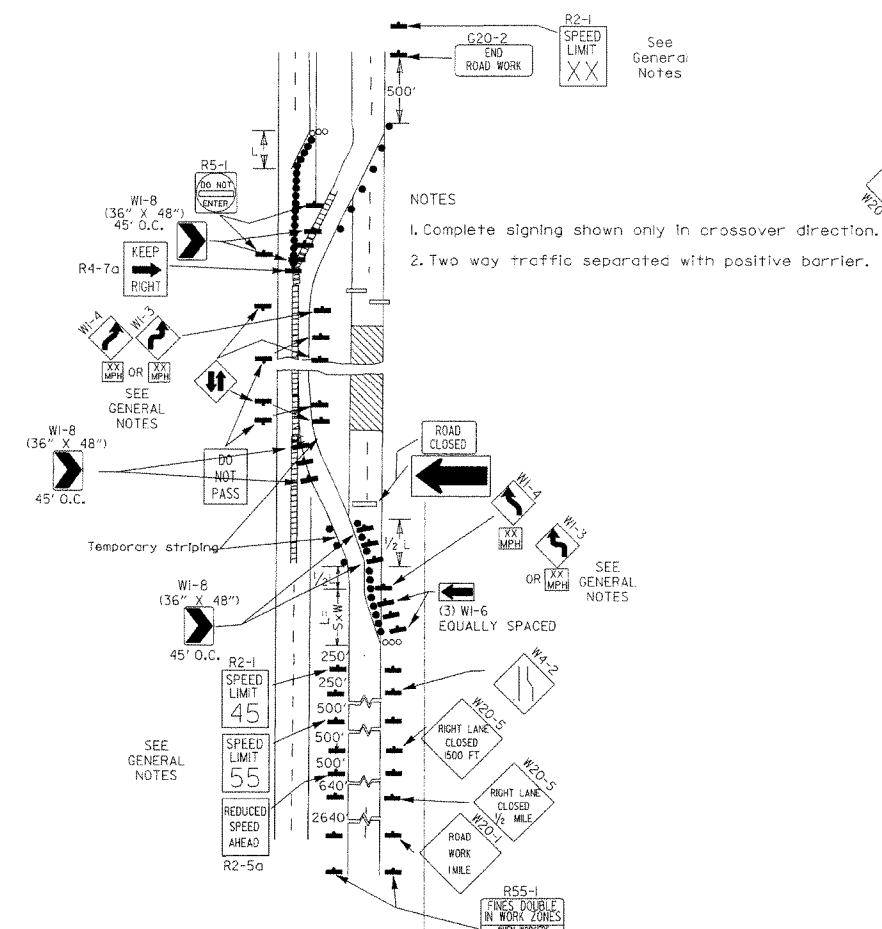
RI-1  STANDARD 30"X30" EXPRESSWAY 36"X36" SPECIAL 48"X48"	RI-2  STD. 36"X36"X36" EXPWY. 48"X48"X48" FWY. 60"X60"X60"	R2-1  STD. 24"X30" EXPWY. 36"X48" FWY. 48"X60"	R2-5A  STD. 24"X30" EXPWY. 36"X48" FWY. 48"X60"	R2-5C  STD. 24"X30" EXPWY. 36"X48" FWY. 48"X60"	R4-1  STD. 24"X30" EXPWY. 36"X48" FWY. 48"X60"	R4-2  STD. 24"X30" EXPWY. 36"X48" FWY. 48"X60"	ADVANCE DISTANCES (XXXX) 500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD GENERAL NOTES: 1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. 2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. 3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN, WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. 6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. 7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. 8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. 10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN. * NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.
R5-1  STD. 30"X30" EXPWY. 36"X36" SPECIAL 48"X48"	R11-2  48"X30"	R11-3A  60"X30"	R11-4  60"X30"	RSP-1  48"X30"	W1-1  STD. 36"X36" FWY. 48"X48"	W1-2  STD. 36"X36" FWY. 48"X48"	
W1-3  STD. 48"X48"	W1-4  STD. 48"X48"	W1-6  STD. 48"X24" SPECIAL 60"X30"	W1-8  STD. 18"X24" SPECIAL 24"X30" EXPWY. 30"X36" FWY. 36"X48"	W3-1  STD. 36"X36" SPECIAL 48"X48"	W3-2  STD. 36"X36" SPECIAL 48"X48"	W4-2  STD. 36"X36" FWY. 48"X48"	
W5-1  STD. 36"X36" SPECIAL 48"X48"	W6-3  EXPWY. 36"X36" SPECIAL 48"X48"	W8-7  EXPWY. 36"X36" FWY. 48"X48"	W9-2  STD. 36"X36" FWY. 48"X48"	W13-1  STD. 24"X24"	W20-1  STD. 48"X48"	W20-2  STD. 48"X48"	
W20-4  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"	W1-4b  STD. 48"X48"	
R56-1  STD. 18"X18"							
W8-11  STD. 36"X36" FWY. 48"X48"	W8-9  STD. 36"X36" FWY. 48"X48"	G20-1  60"X24"	G20-2  48"X24"	OM-3L OM-3R  12"X36"	M4-9  STD. 30"X24" SPECIAL 48"X36" SPECIAL 60"X48"	M4-10  48"X18"	
R55-1  36"X60" * USE 6" C LETTERS ** USE 4" D LETTERS							

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	
8-5-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

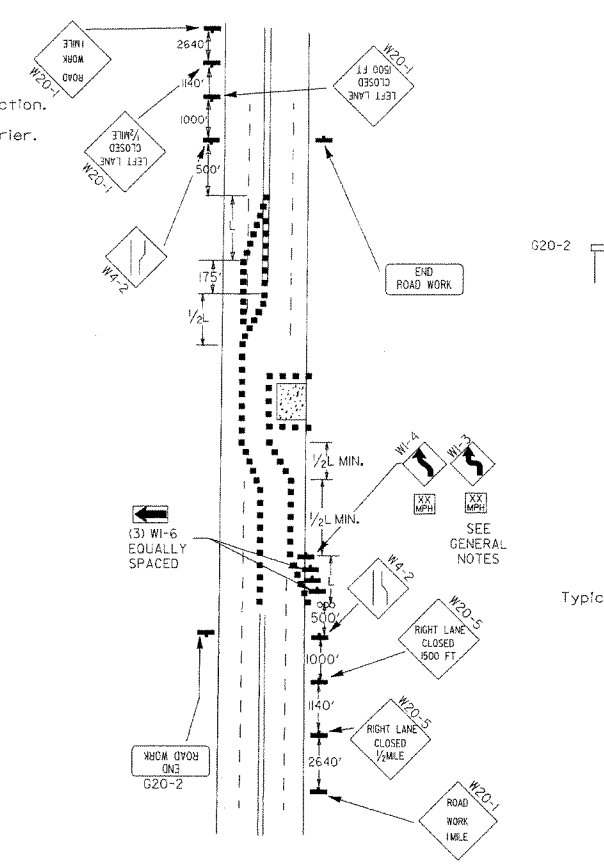
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



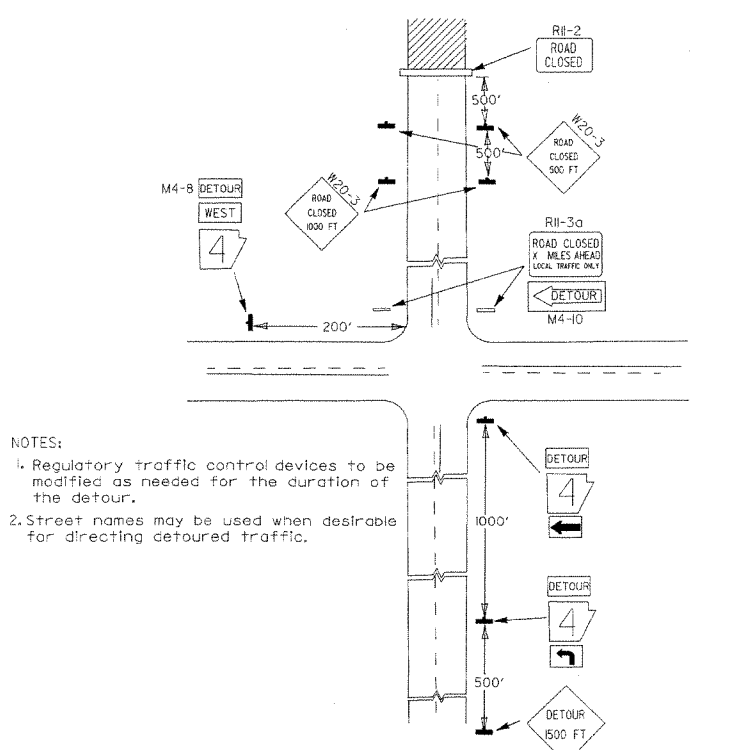
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



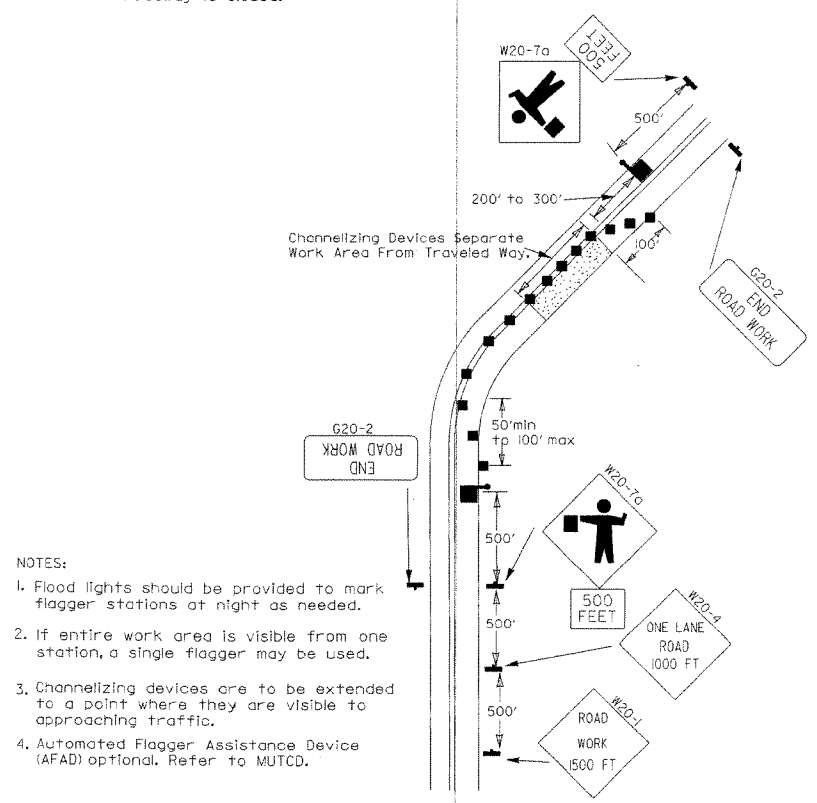
(B) Typical application - 4-lane divided roadway where one roadway is closed.



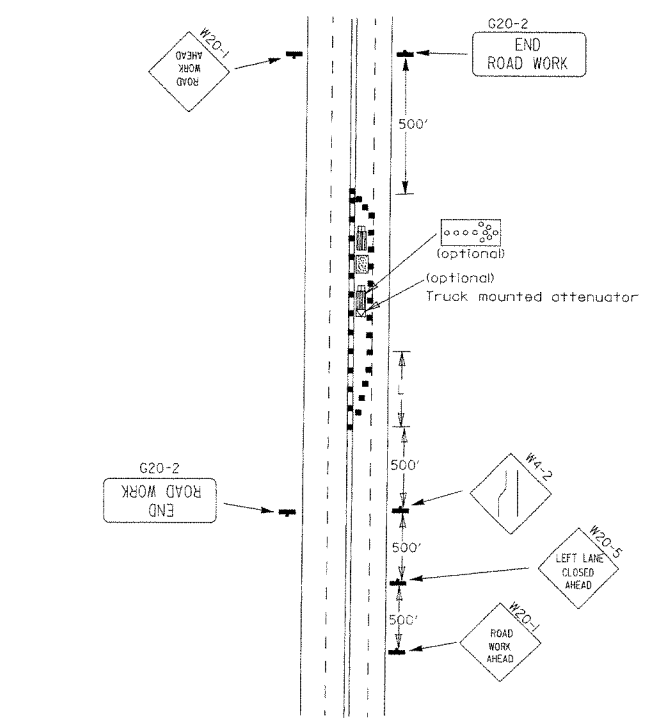
(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.



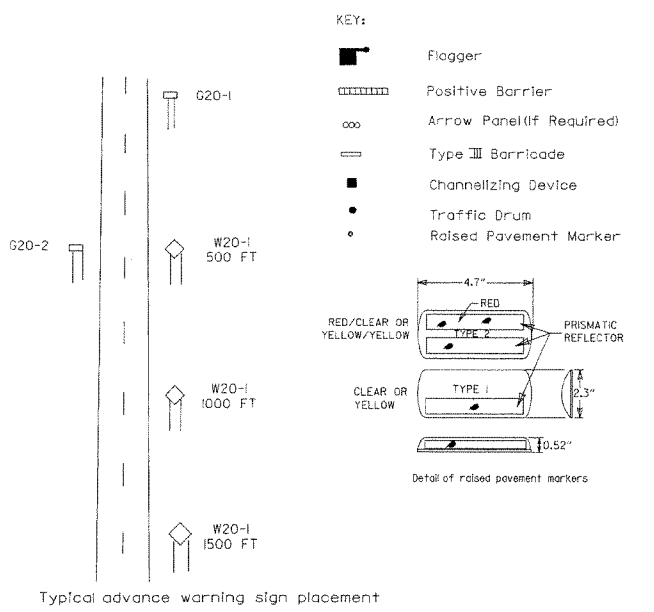
(D) Typical application - roadway closed beyond detour point.



(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



(F) Typical application - 4-lane undivided roadway with inside lane closed.

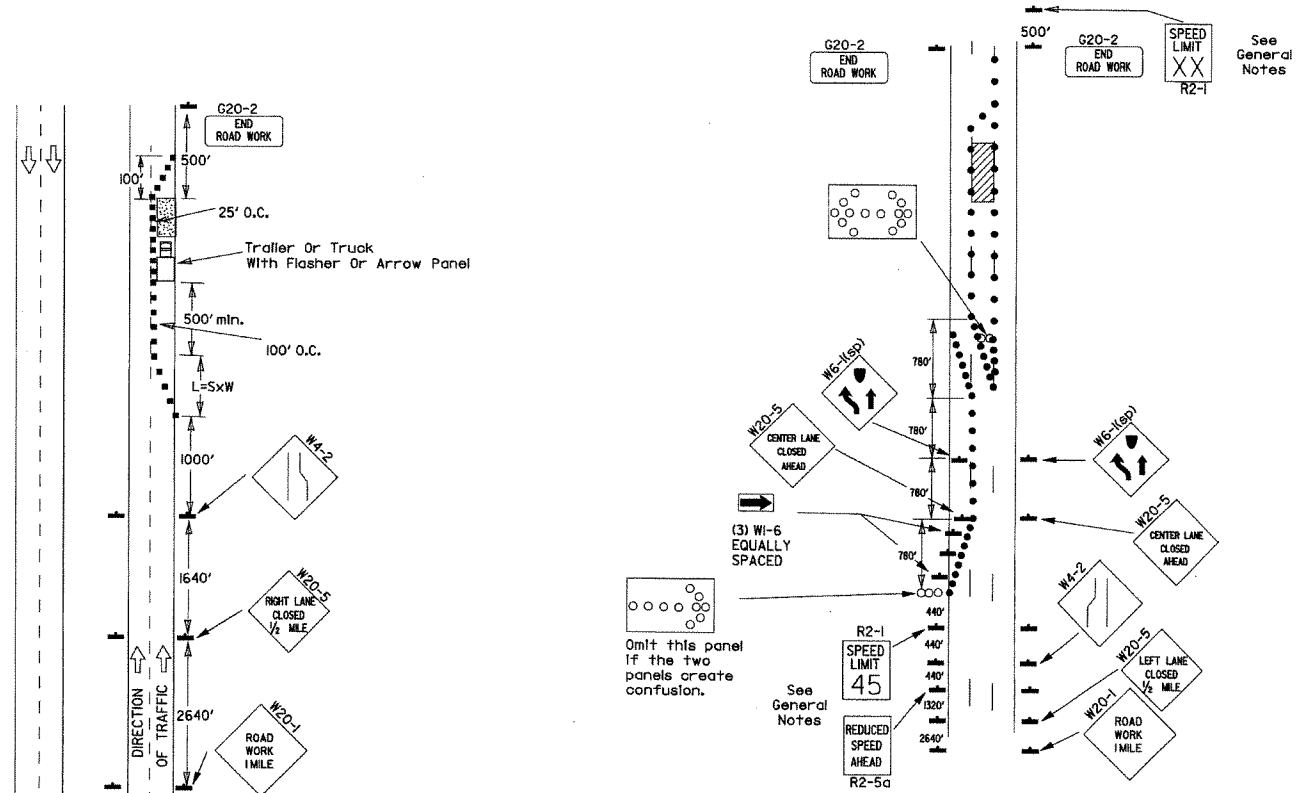


Taper formulae:
 $L = S \times W$ for speeds of 45mph or more.
 $L = \frac{WS^2}{60}$ for speeds of 40mph or less.
Where:
L = Minimum length of taper.
S = Numerical value of posted speed limit prior to work or 85th percentile speed.
W = Width of offset.

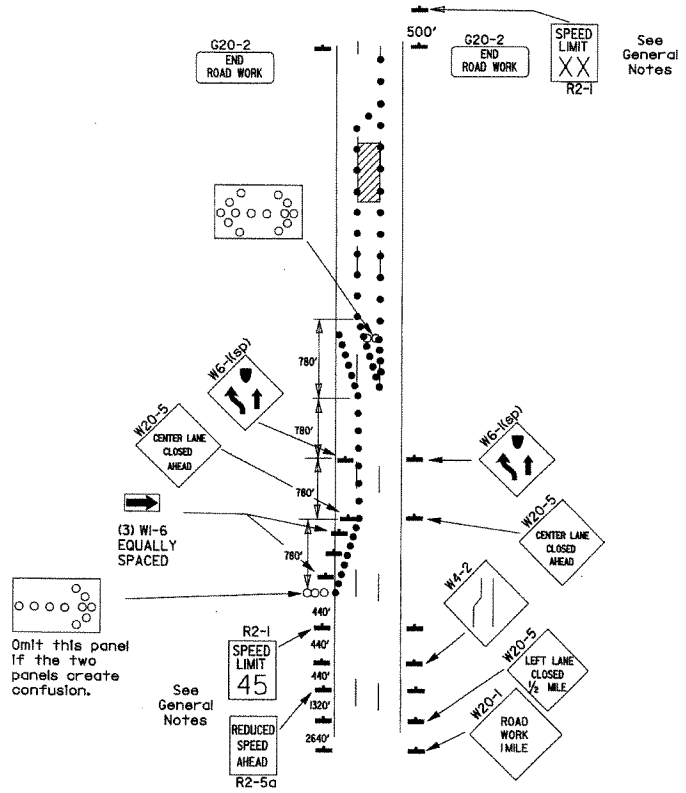
- GENERAL NOTES:
- Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
 - When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(45) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1(45) speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(45) shall be installed to match original speed limit.
 - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1(55) speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(55) shall be installed to match original speed limit.
 - The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
 - Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
 - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
 - 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.

3-11-10	ADDED (AFAD)	
1-20-08	REVISED SIGN DESIGNATIONS	
1-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

Channelizing devices



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

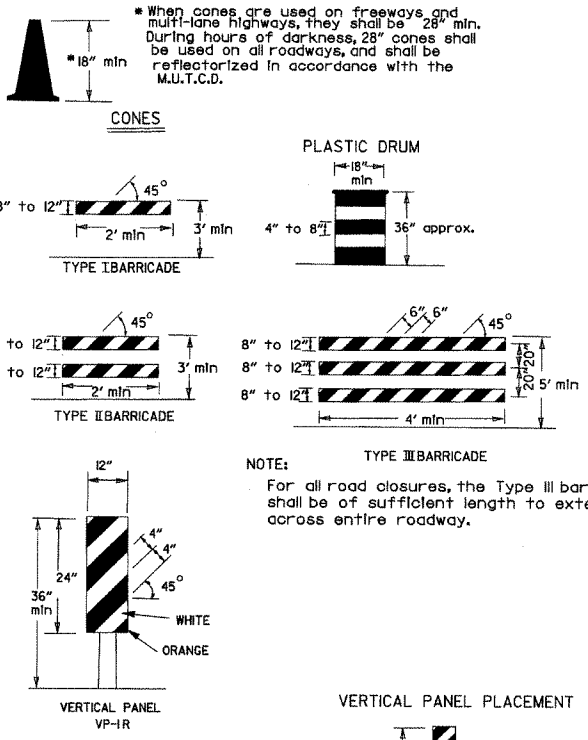


(B) Typical application - 3-lane oneway roadway where center lane is closed.

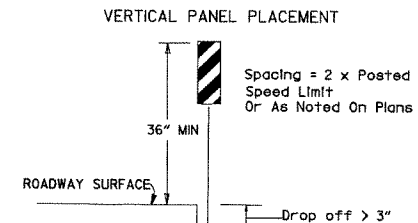
- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

GENERAL NOTES:

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

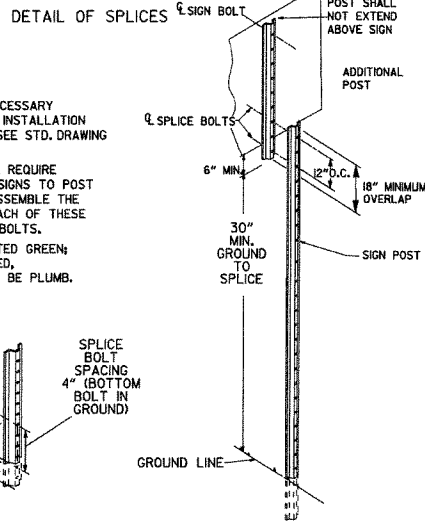
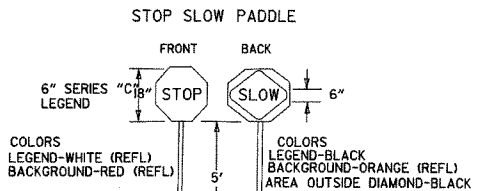
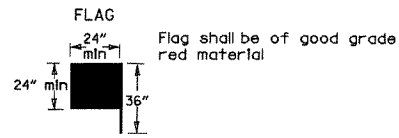


NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

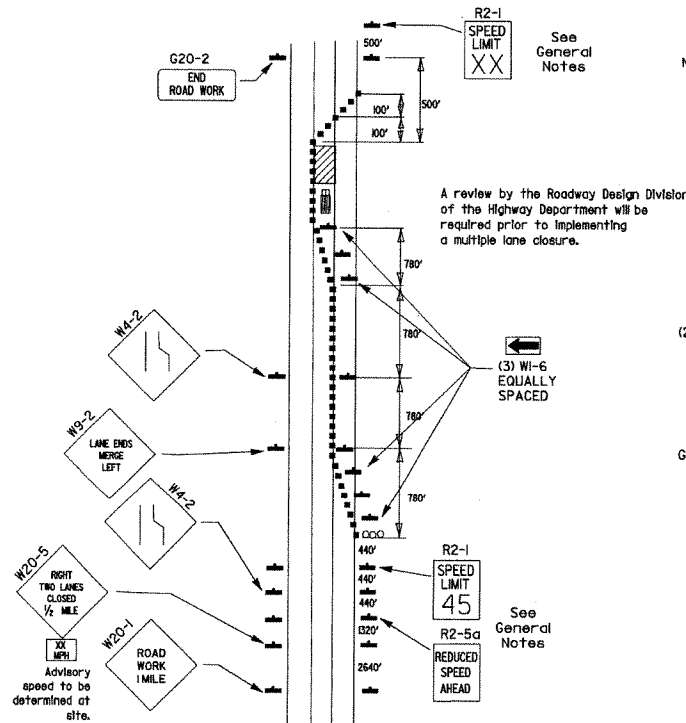


TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS		
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels,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

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



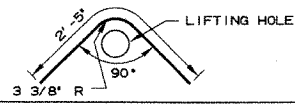
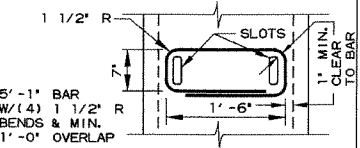
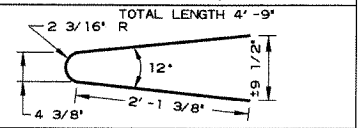
NOTES:
USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)
NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE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

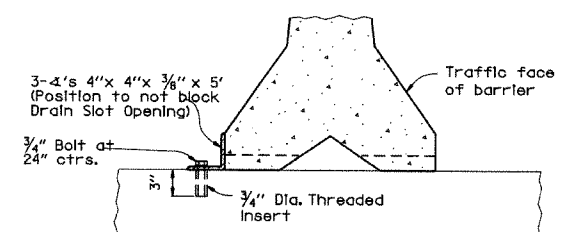
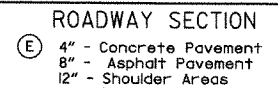
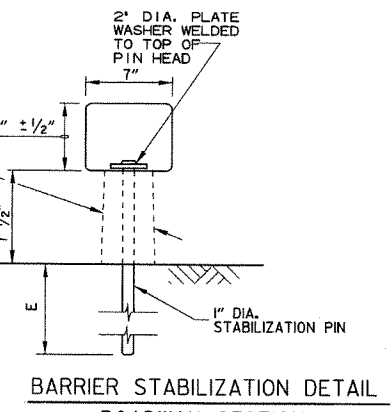
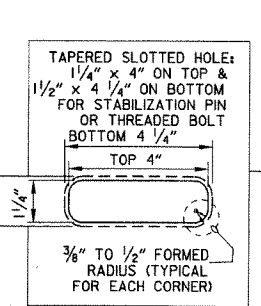
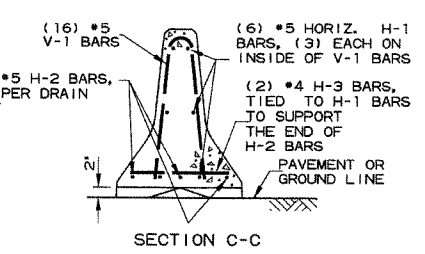
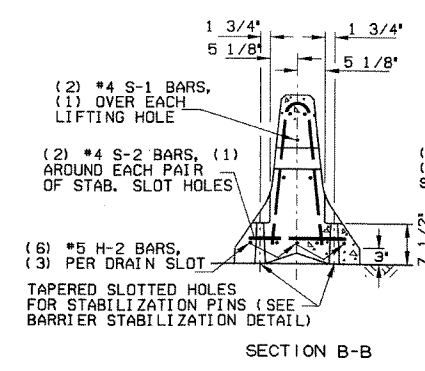
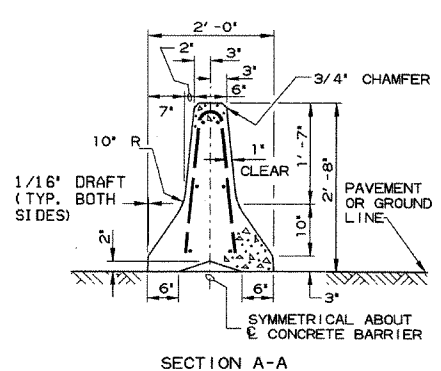
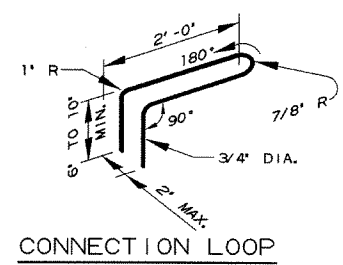
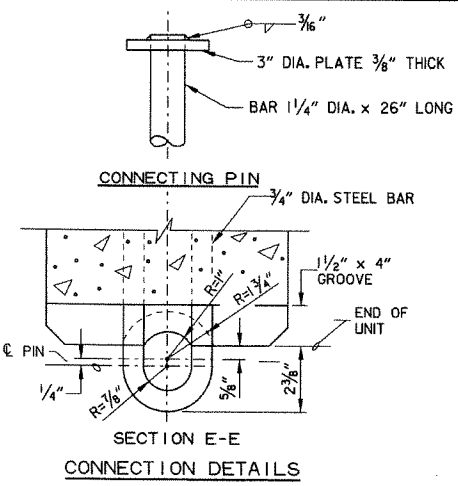


(D) Typical application - closing multiple lanes of a multi-lane highway.

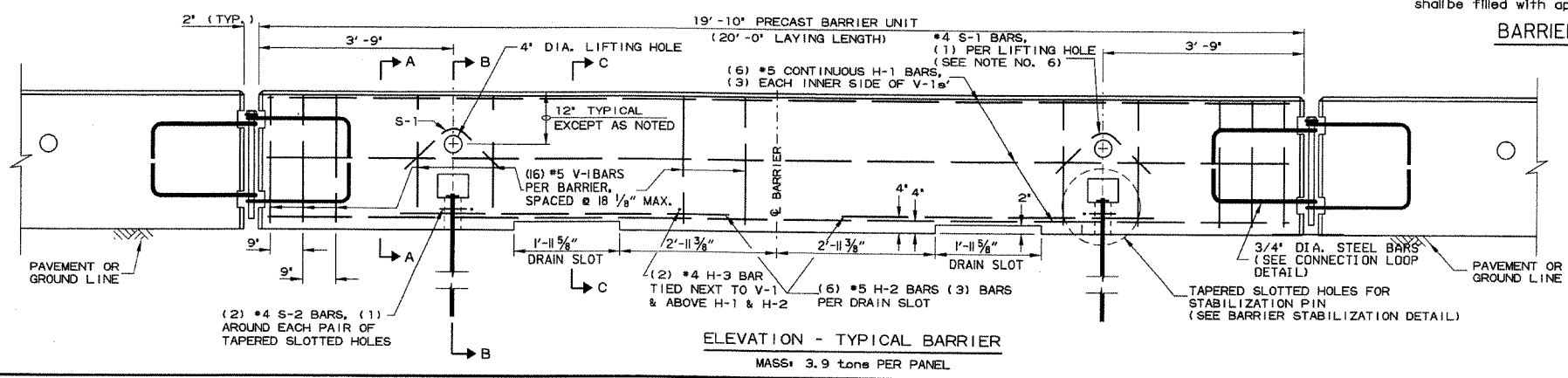
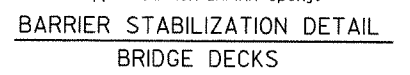
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

DATE	REVISION	FILMED
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 SPICE	
6-8-95	REVISED SPICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

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



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.



- General Notes
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
Structural Steel: AASHTO M 270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin. Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.
 - In applications where barrier walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers. Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices. Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.
 - Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.
 - Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.
 - Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
 - A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

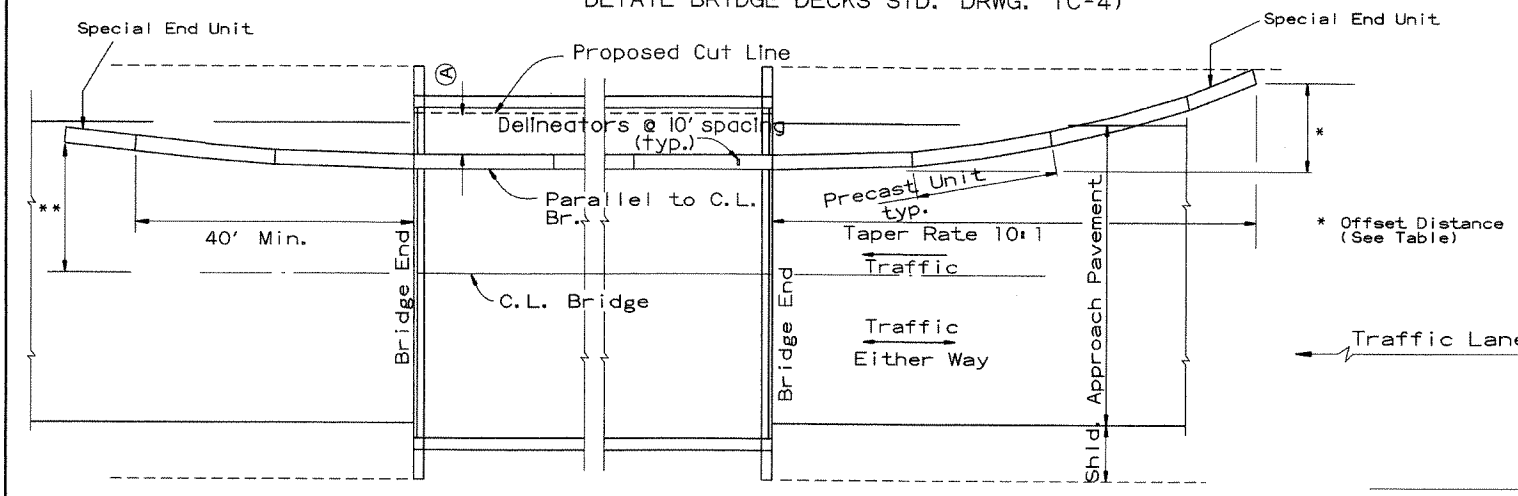
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	
DATE	REVISION	FILED

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

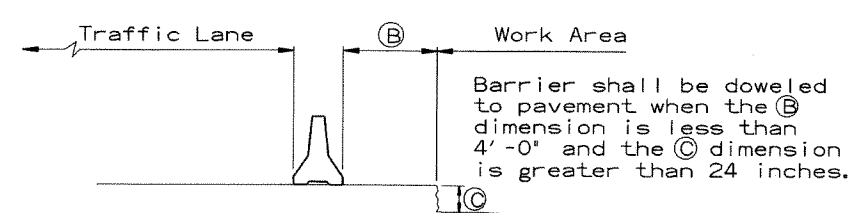
STANDARD DRAWING TC-4

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

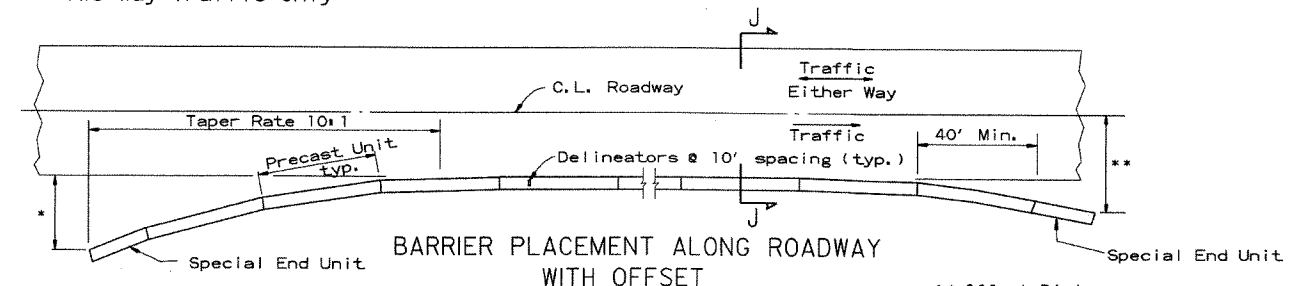


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

** Offset Distance for Two Way Traffic Only
No Scale



SECTION J-J
No Scale

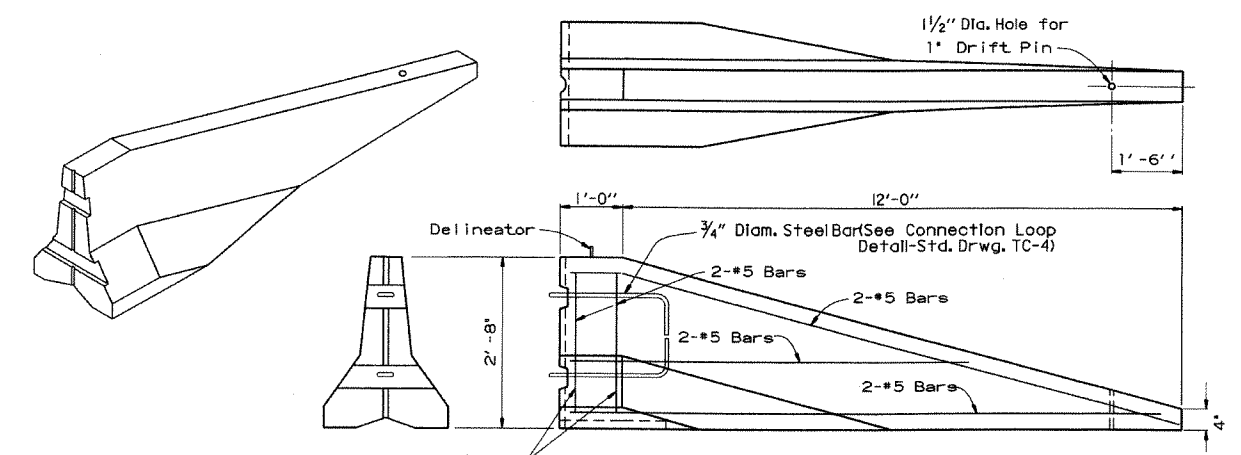


BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

* Offset Distance (See Table)
** Offset Distance For Two Way Traffic Only
No Scale

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

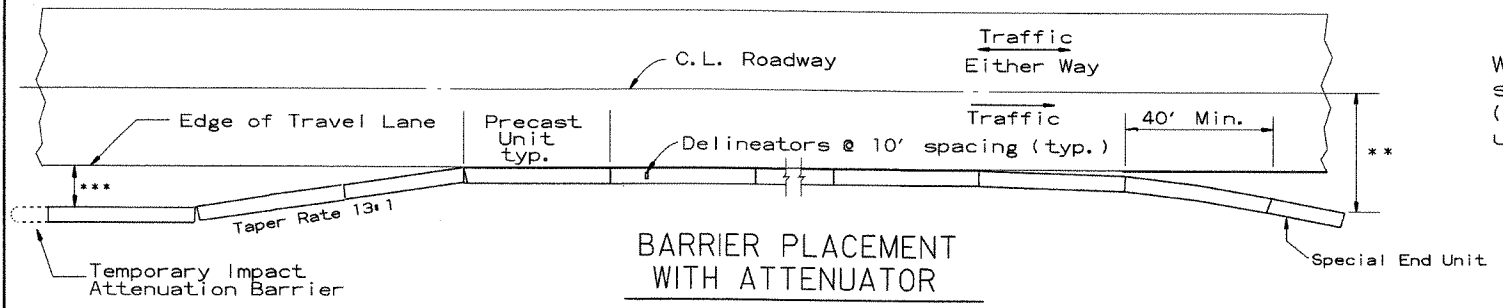
If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.



SPECIAL END UNIT
No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."



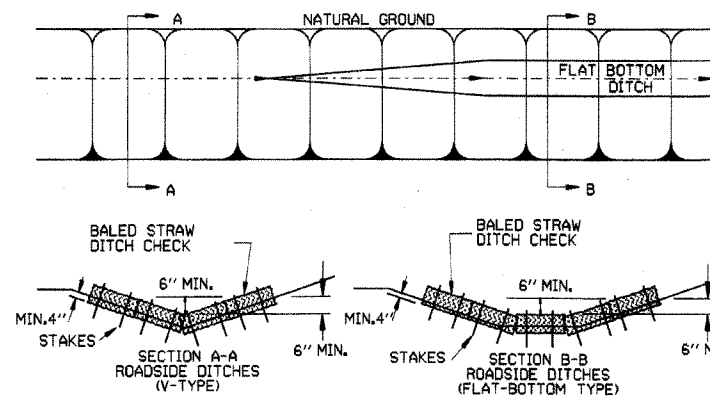
BARRIER PLACEMENT WITH ATTENUATOR

***Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator
** Offset Distance For Two Way Traffic Only
No Scale

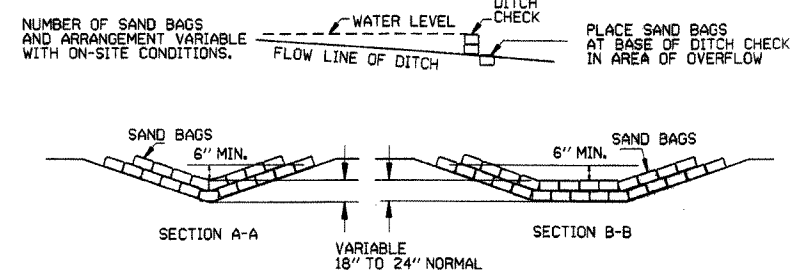
			ARKANSAS STATE HIGHWAY COMMISSION	
			STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	
			STANDARD DRAWING TC-5	
10-15-09	ADDED REFERENCE TO MASH			
5-25-06	REVISED BARRIER PLACEMENT			
8-22-02	ISSUED NEW DRAWING			
DATE	REVISION	FILMED		

GENERAL NOTES

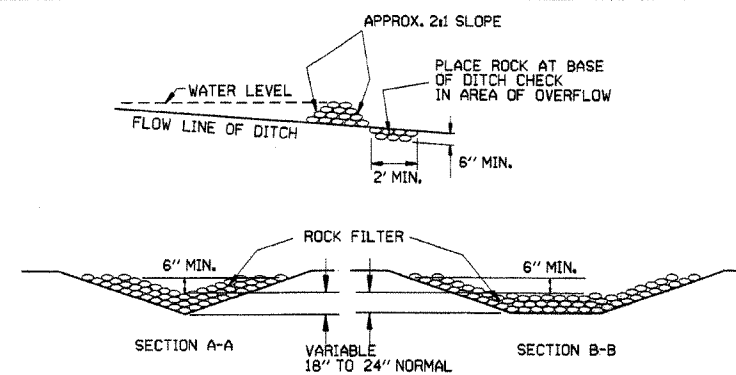
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. STRAW BALES SHALL BE KEYED INTO SOIL A MINIMUM OF 4' AND NO GAPS SHALL BE LEFT BETWEEN BALES.



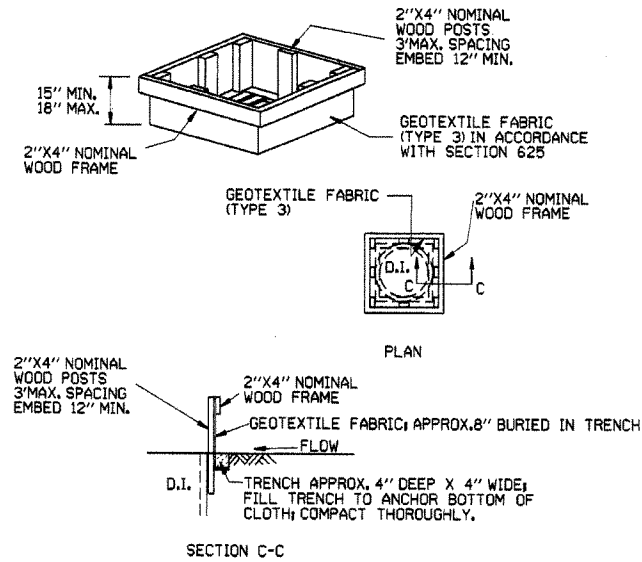
BALED STRAW DITCH CHECK (E-1)



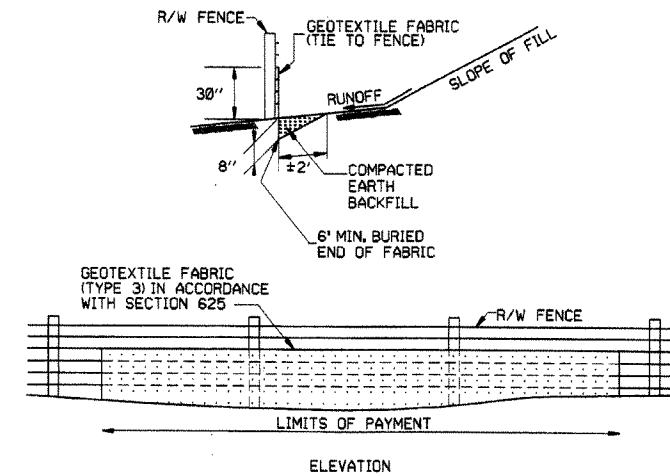
SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)

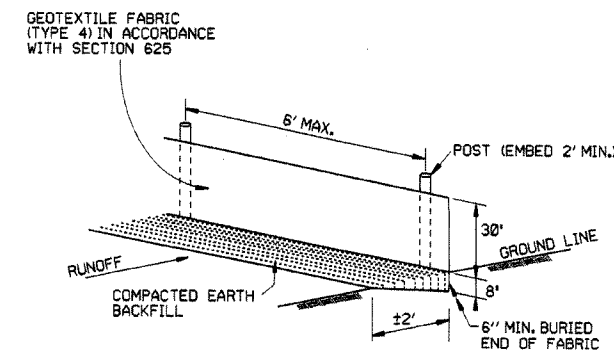


DROP INLET SILT FENCE (E-7)



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

- GENERAL NOTES
- GEOTEXTILE FABRIC SHALL BE SPICED 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.

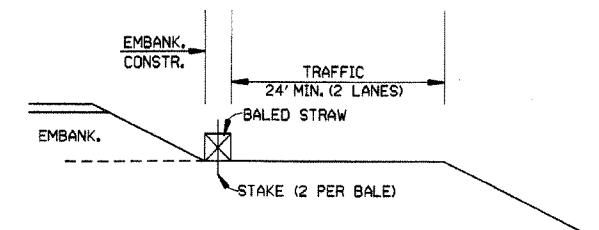


SILT FENCE (E-11)

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

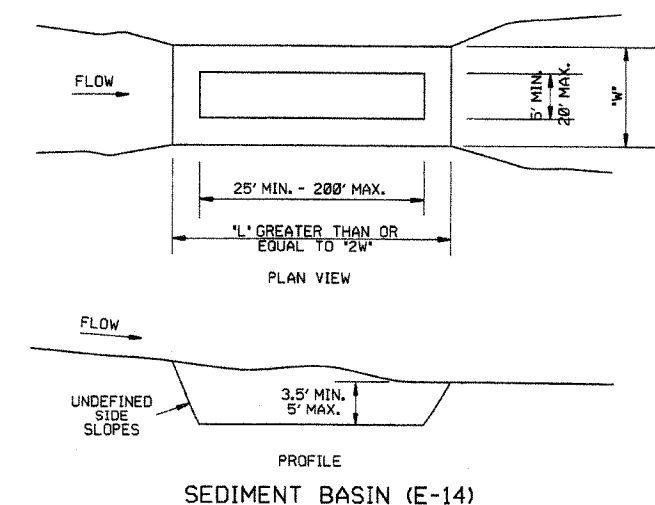
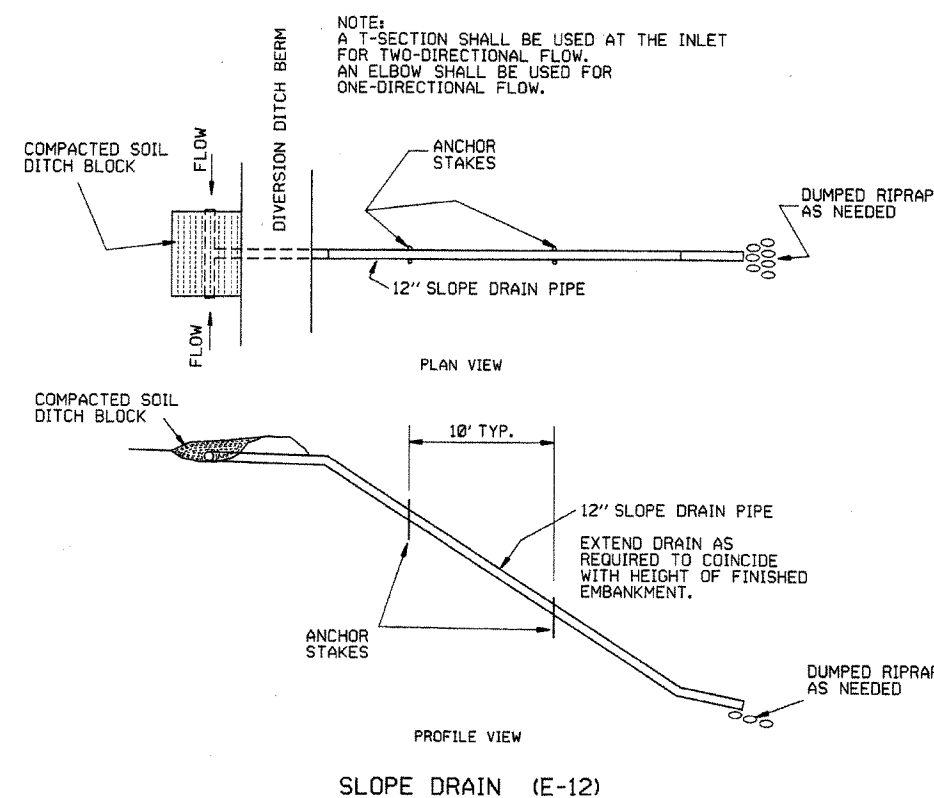
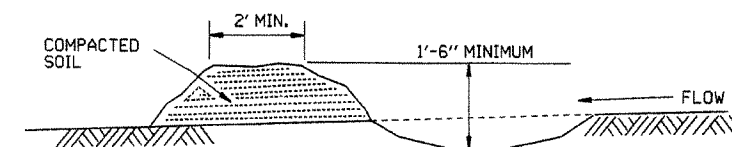
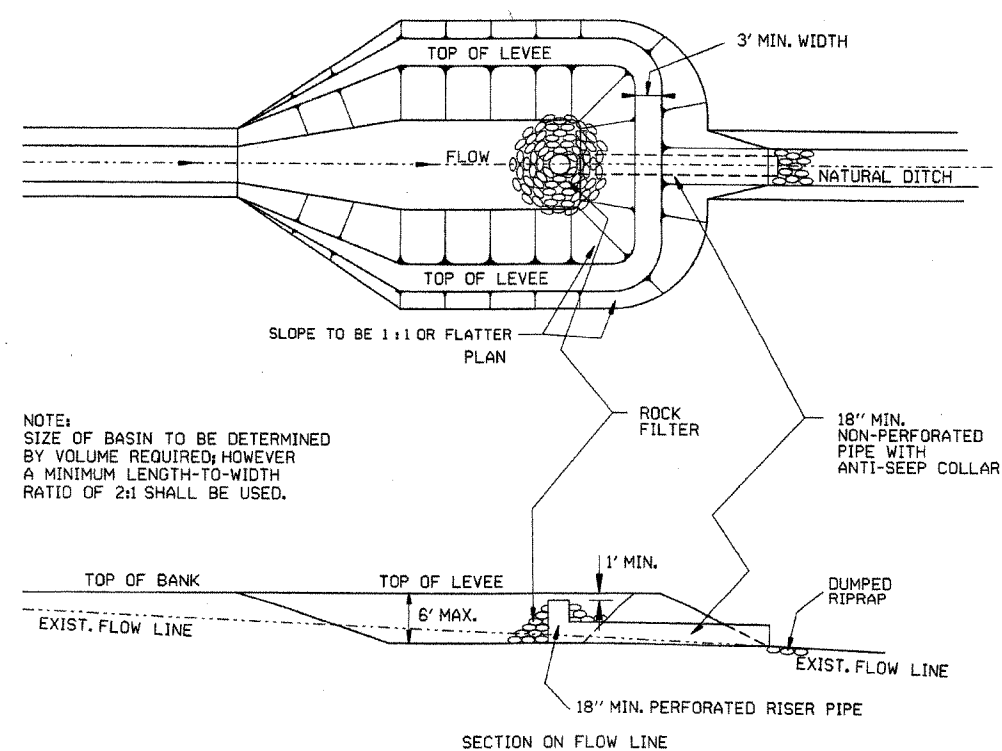
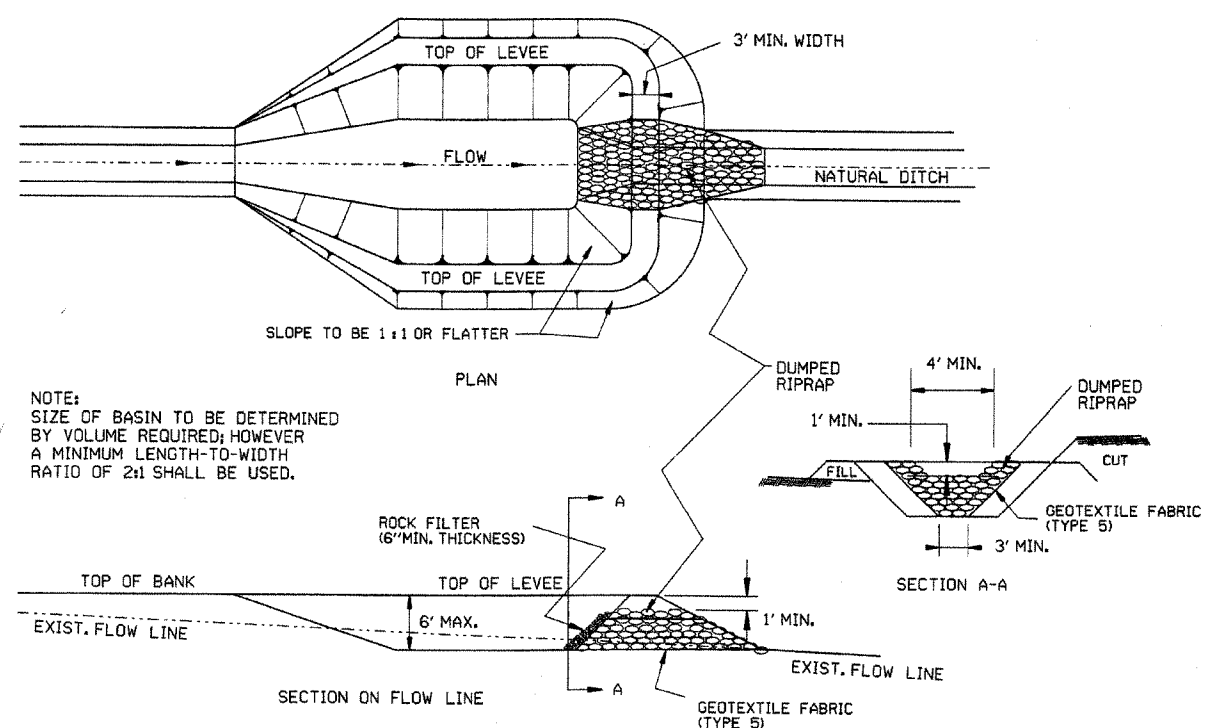
GENERAL NOTES

1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)

11-18-98	ADDED NOTES	11-18-98	ARKANSAS STATE HIGHWAY COMMISSION
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	7-20-95	TEMPORARY EROSION CONTROL DEVICES
7-20-95	REVISED SILT FENCE E-4 AND E-11	6-2-94	STANDARD DRAWING TEC-1
7-15-94	Rev. E-4 & E-11 Min. 13' Buried End of Fabric		
6-2-94	Redrawn		
4-1-93	Redrawn		
10-1-92	Redrawn		
8-2-76	ISSUED R.D.M.	298-7-28-76	
DATE	REVISION	FILMED	

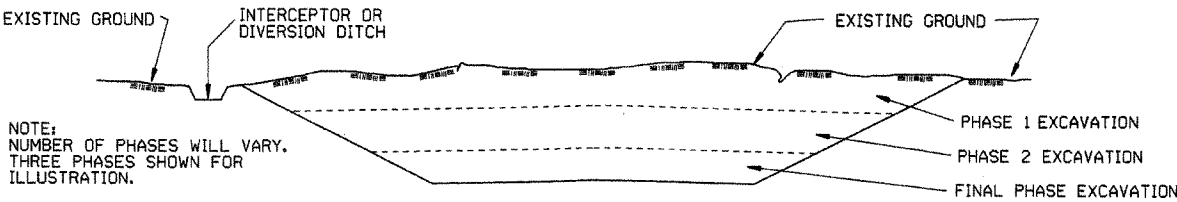


ARKANSAS STATE HIGHWAY COMMISSION			
TEMPORARY EROSION CONTROL DEVICES			
STANDARD DRAWING TEC-2			
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

CLEARING AND GRUBBING

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

EXCAVATION

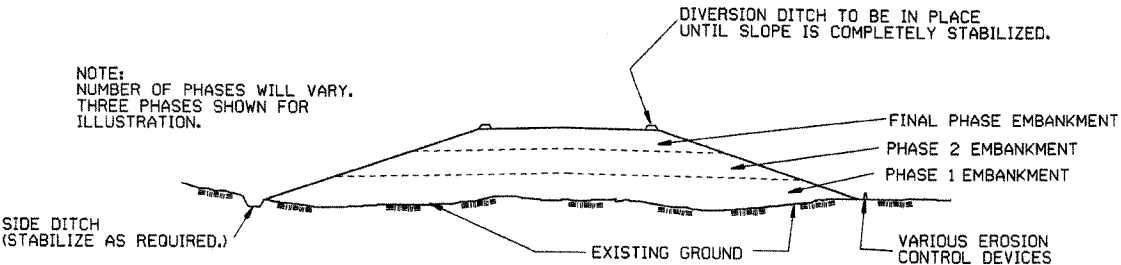


GENERAL NOTE

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

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

EMBANKMENT

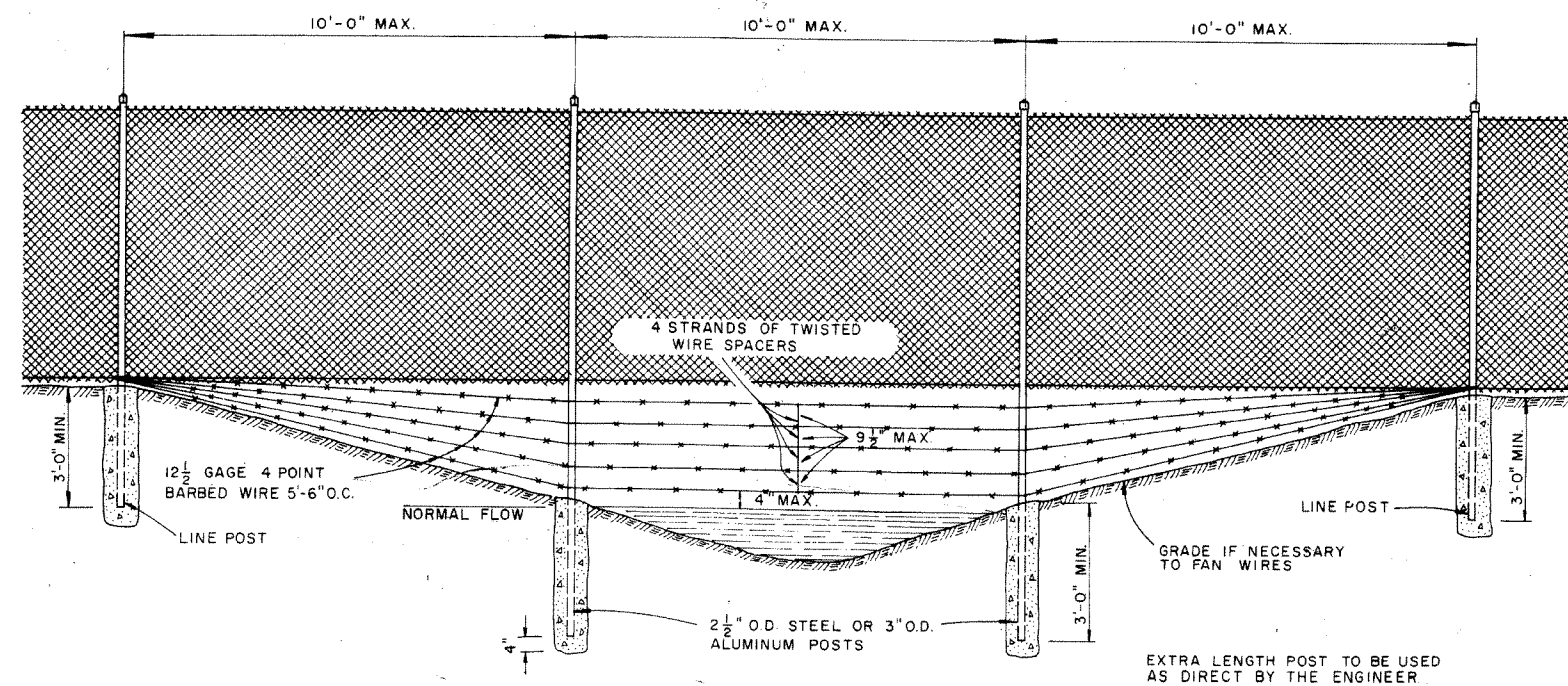
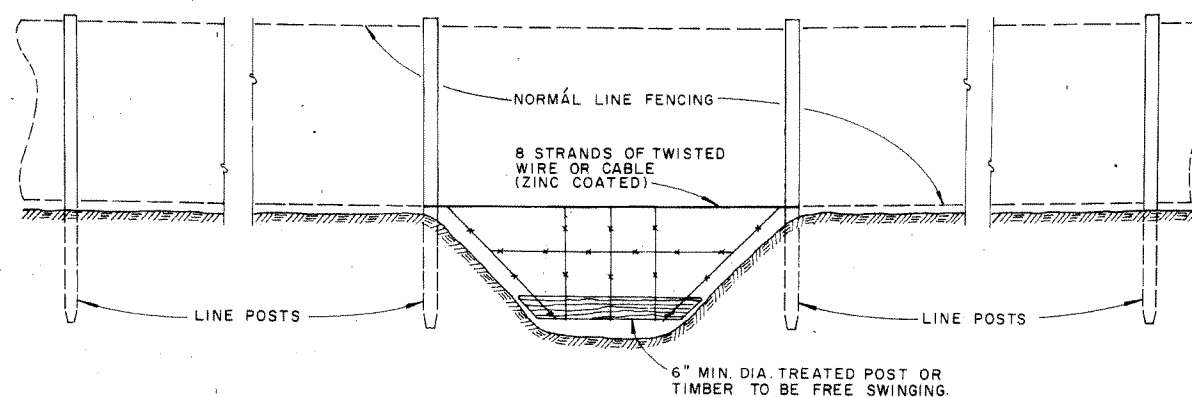
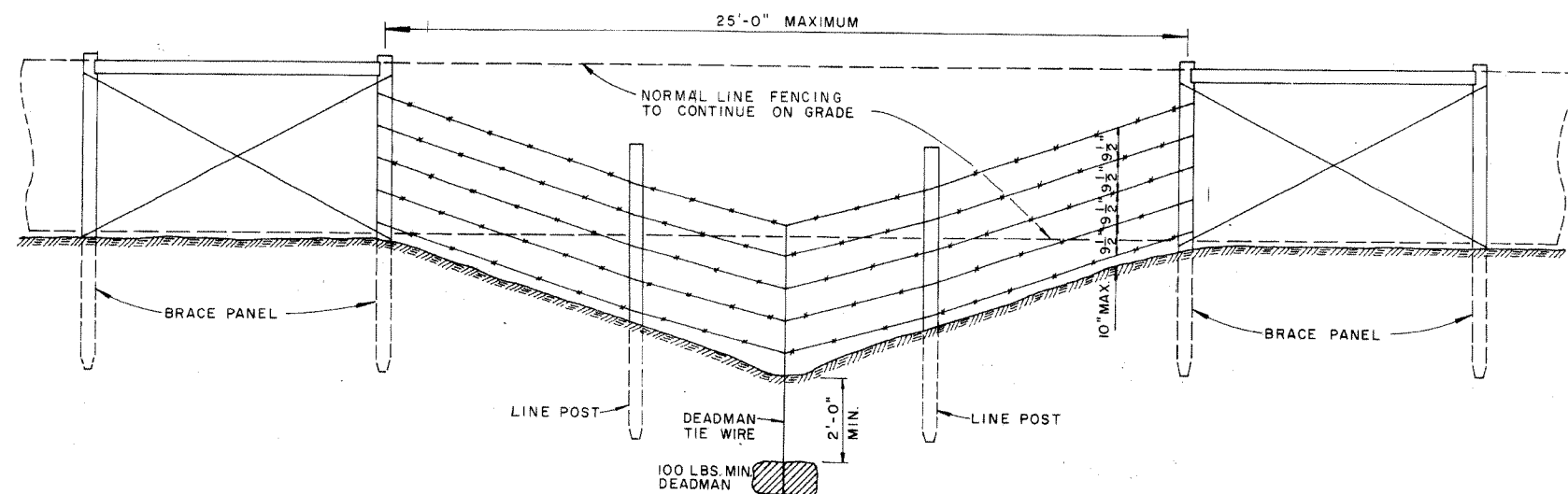


GENERAL NOTE

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

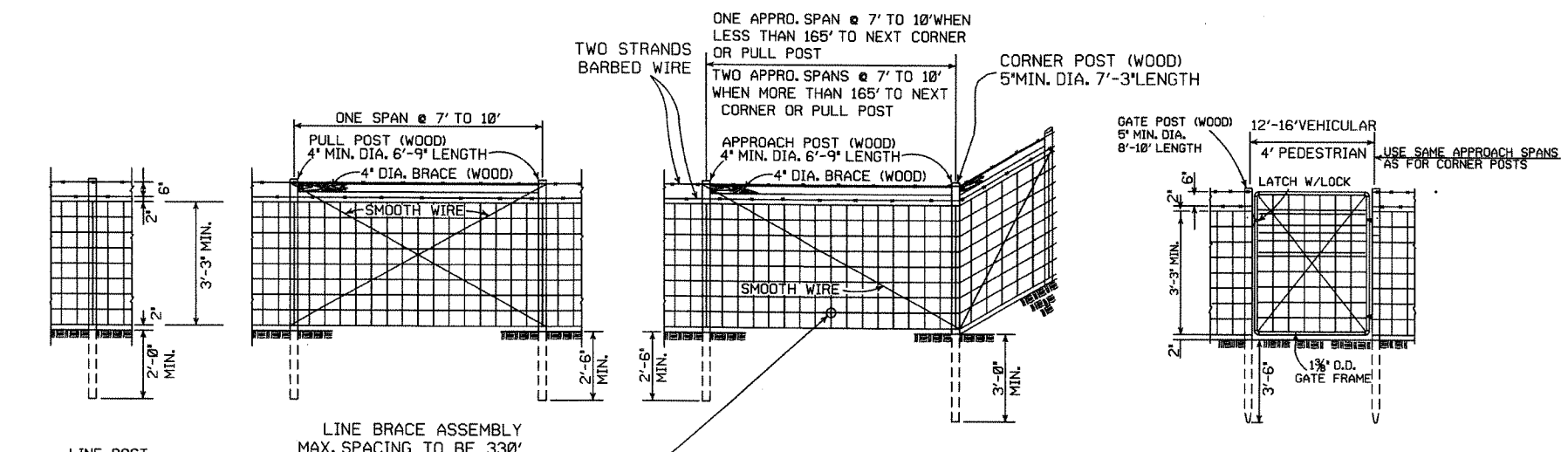
- CONSTRUCTION SEQUENCE
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
 2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY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

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

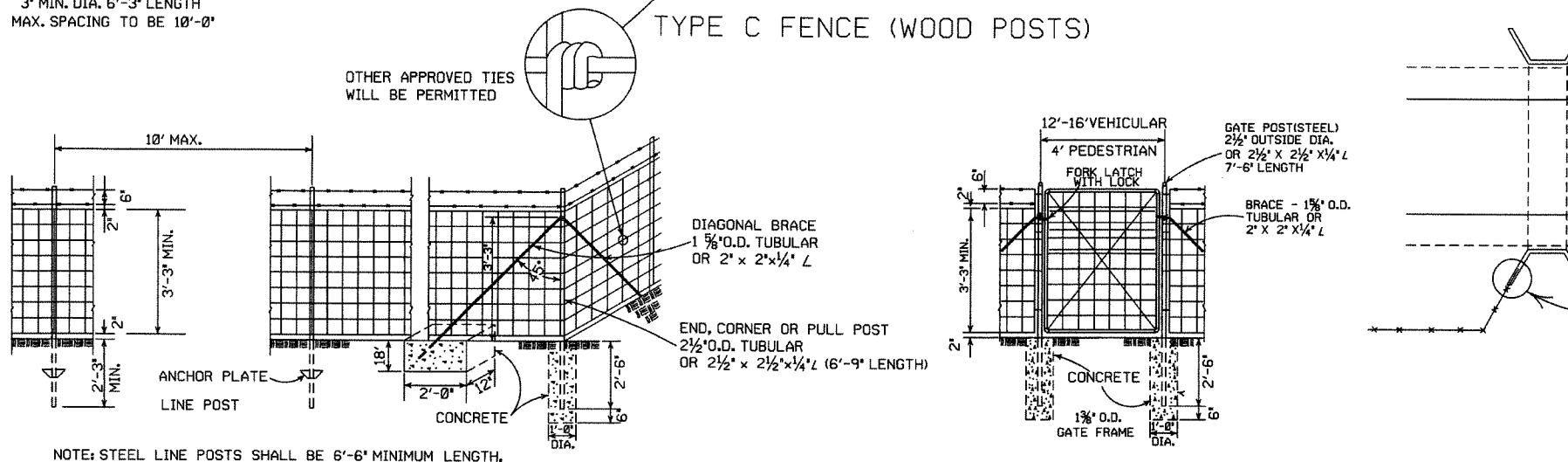


GENERAL NOTES:
 THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.
 WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.
 IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.
 PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

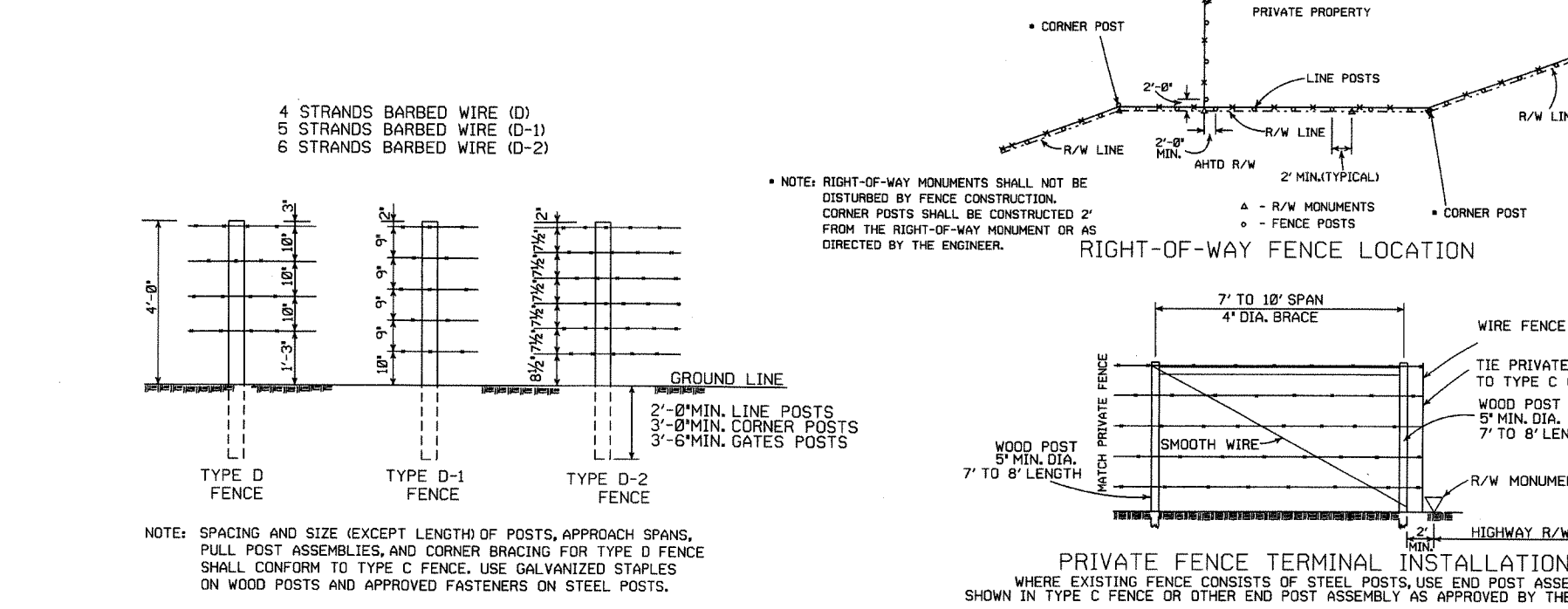
ARKANSAS STATE HIGHWAY COMMISSION		
WIRE FENCE WATER GAPS		
STANDARD DRAWING		
WF-2		
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529-10-2-72
DATE	REVISION	DATE FILMD



TYPE C FENCE (WOOD POSTS)



TYPE C FENCE (STEEL POSTS)



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.

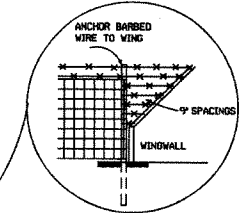
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED 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.

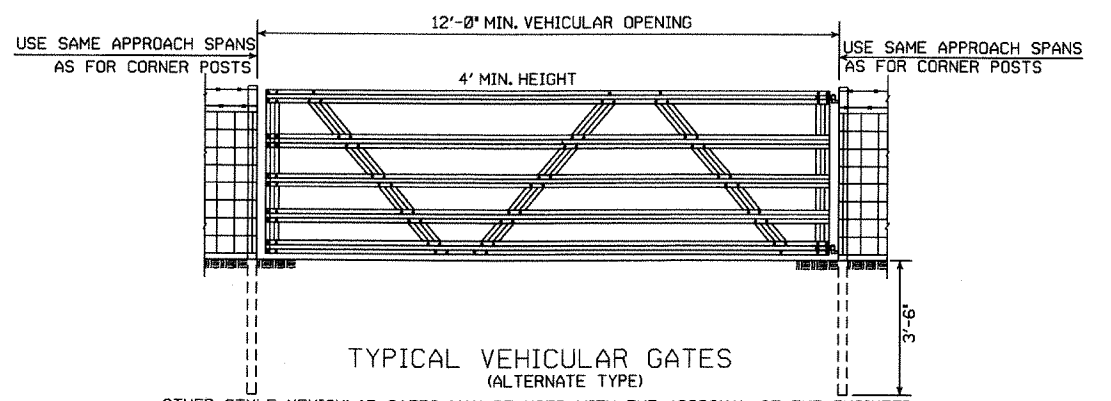
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE 'WESTERN UNION METHOD' AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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

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

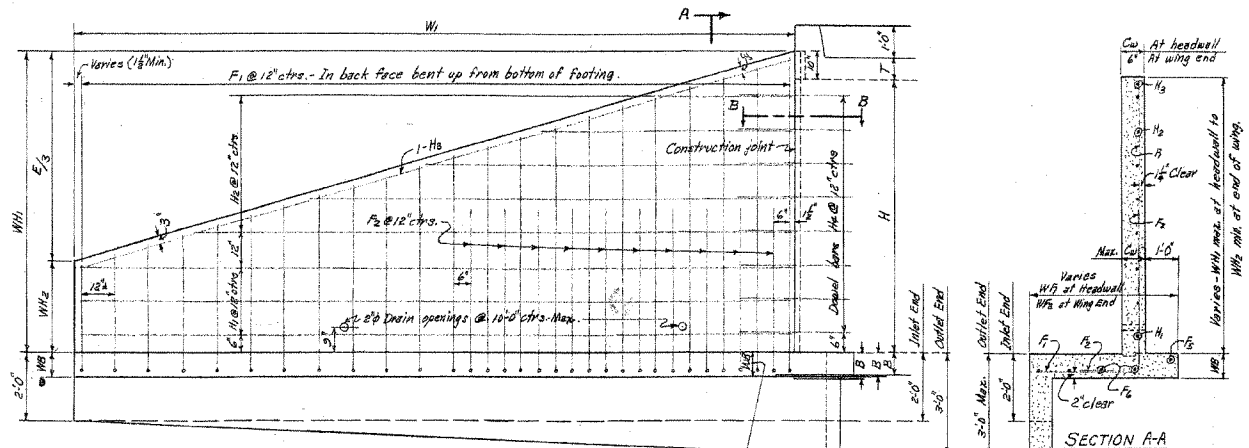


DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

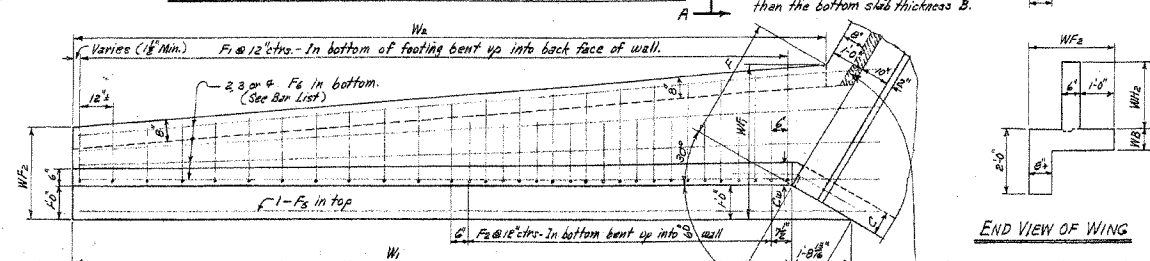


8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	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
DATE	REVISION	FILMED

REV.	DATE	BY	CHKD.	APP.	TOTAL
1	1-31-63	W.C.H.	W.C.H.	W.C.H.	77
2	5-10-66	W.C.H.	W.C.H.	W.C.H.	



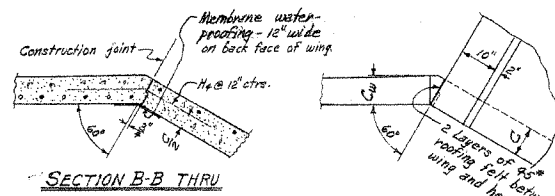
REAR ELEVATION OF WING - SHOWING BACK FACE REINF.



PLAN OF WING - SHOWING FOOTING REINF.

WING DIMENSIONS													
CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL	WING WALL HEIGHTS	WIDTH OF WING FOOTINGS	WIDTH OF WING AT HEADWALL	PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HEADWALL TO END OF WING	INSIDE FOOTING DIMENSION	CLASS S CONCRETE	* QUANTITY PER WING			
										INLET END	OUTLET END	C.U.Y.D.	C.U.Y.D.
H	WB	CU	WH	WF	W ₂	F	E	W ₁	W ₂	C.U.Y.D.	C.U.Y.D.		
2'	7"	6"	2'-0"	0'-8"	2'-4"	2'-0"	0'-11"	6'-6"	7'-0"	7'-11"	0.889	0.996	
3'	7"	6"	3'-0"	1'-0"	2'-8"	2'-4"	1'-4"	8'-6"	9'-0"	9'-7"	1.338	1.466	
4'	7"	6"	4'-0"	1'-4"	3'-0"	2'-8"	1'-8"	10'-6"	12'-0"	12'-11"	1.888	2.027	
5'	7"	6"	5'-0"	1'-8"	3'-4"	2'-8"	2'-2"	12'-6"	14'-0"	14'-7"	2.438	2.648	
6'	7"	6"	6'-0"	2'-0"	3'-8"	2'-8"	2'-6"	14'-6"	16'-0"	17'-1"	3.440	3.661	
7'	7"	6"	7'-0"	2'-4"	4'-2"	2'-8"	3'-0"	16'-6"	18'-0"	19'-8"	4.597	4.851	
8'	7"	6"	8'-0"	2'-8"	4'-6"	2'-8"	3'-4"	18'-6"	20'-0"	22'-4"	5.761	6.047	

* Quantity per wing does not include headwall or that portion of apron or headwall for the length W_2 .

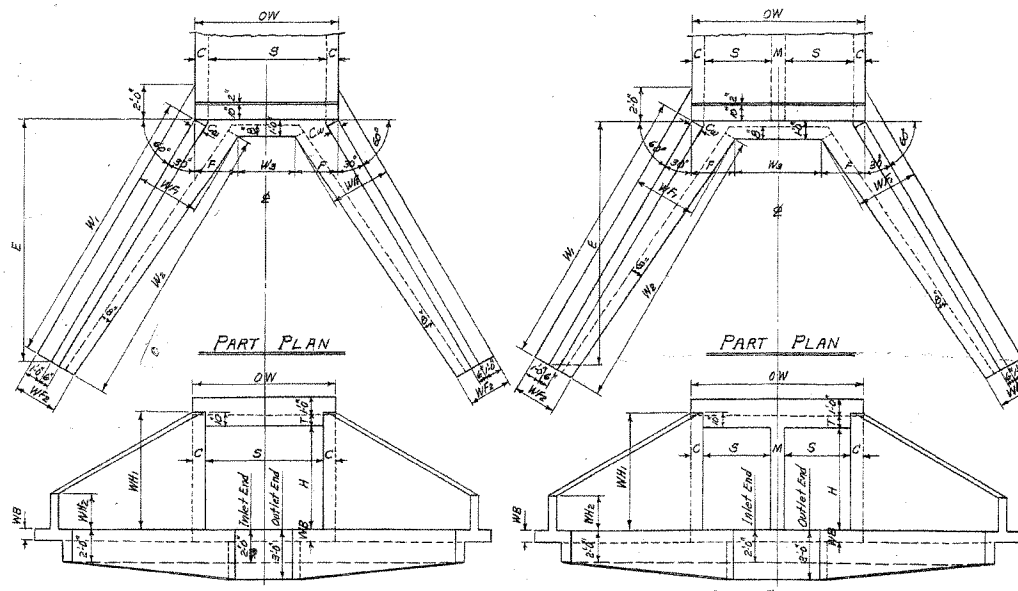


END VIEW OF WING

SECTION B-B THRU CONSTRUCTION JOINT

DETAIL AT TOP OF WING

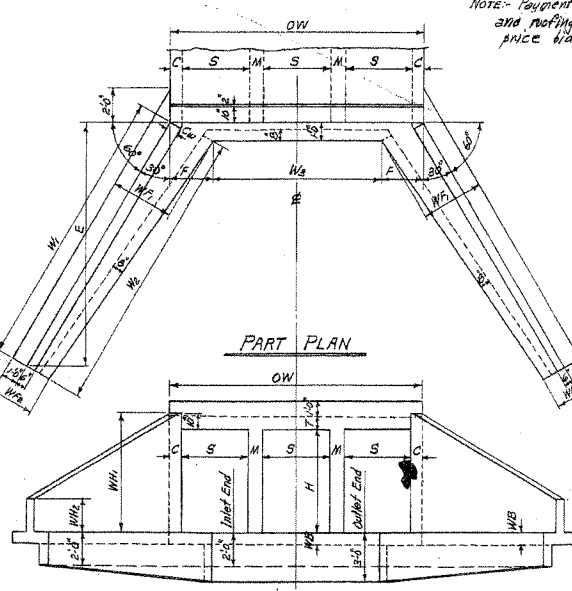
NOTE: Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



END ELEVATION SINGLE BARREL CULVERT

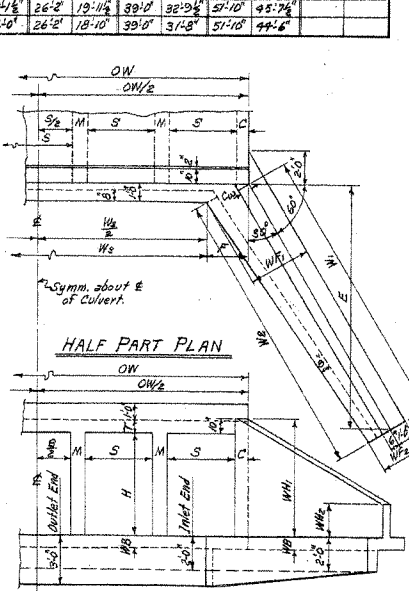
END ELEVATION DOUBLE BARREL CULVERT

NOTE: Plans and Elevations are not to scale.



END ELEVATION TRIPLE BARREL CULVERT

HALF END ELEVATION QUADRUPLE BARREL CULVERT



HALF END ELEVATION QUINTUPLE BARREL CULVERT

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F ₁										F ₂					F ₃		F ₄		H ₁		H ₂				H ₃		H ₄				QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS								
	BENT										BENT					STRAIGHT				STRAIGHT		STRAIGHT				BENT															
	In bottom of footing, bent up into back face of wing. One bar of each length.										In bottom of footing, bent up into back face of wing. Alt. with F ₁ bars.					Longitudinal in top of wing footing heel.				Longitudinal in bottom of wing footing toe.		Horizontal in back face of wing.		Horizontal in back face of wing. One bar of each length.				In back face of wing at top-on slope.		Dowels thru construction joint at headwall.											
	LENGTHS VARY		X		Y		SIZE		SPACING		No. REQ'D		LENGTH		X		Y		SIZE		SPACING		No. REQ'D		LENGTH		X		Y		SIZE			SPACING		No. REQ'D		LENGTH		X	
H	SIZE	SPACING	No. REQ'D	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	SIZE	SPACING	No. REQ'D	LENGTH	X	Y	SIZE	No. REQ'D	LENGTH	SIZE	No. REQ'D	LENGTH	SIZE	SPACING	No. REQ'D	LENGTH	SIZE	SPACING	No. REQ'D	LENGTH	SIZE	SPACING	No. REQ'D	LENGTH	SIZE	SPACING	No. REQ'D	LENGTH	X	LB.
2'	#3	12"	8	1'-6"	3'-0"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—	—	—	#3	1	3'-8"	#3	2	6'-6"	#3	12"	1	7'-2"	#3	12"	1	—	9'-0"	#3	1	7'-6"	#3	12"	2	2'-8"	1'-4"	27.0
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-8"	1'-5"	4'-0"	—	—	—	—	—	—	—	—	#3	1	12'-8"	#3	2	11'-8"	#3	12"	1	3'-6"	#3	12"	2	7'-6"	4'-0"	#3	1	9'-9"	#3	12"	3	2'-8"	1'-4"	41.1
3'	#3	12"	13	2'-4"	6'-6"	0'-11"	1'-11"	1'-6"	5'-0"	—	—	—	—	—	—	—	—	#3	1	14'-4"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-4"	63.7
5'	#3	12"	15	2'-11"	7'-10"	1'-0"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-11"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-4"	89.5		
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-9"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-9"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-4"	#3	12"	4	14'-4"	4'-0"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-4"	145.8		
7'	#4	12"	20	3'-9"	10'-5"	1'-3"	2'-9"	2'-7"	8'-4"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	24'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	286.7		
8'	#4	12"	22	4'-6"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-0"	#4	1	23'-8"	#4	4	28'-9"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"	#4	1	21'-0"	#4	12"	8	3'-6"	1'-9"	356.4		

NOTE: Dimensions are to bar centers.

FED. ROAD NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.			78	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	BAR LIST									
					STRAIGHT					BENT - See Diagram at Right				
					In Top and Bottom Slabs of Barrel					In Top and Bottom Slabs of Barrel				
					SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE	NUMBER REQ'D	LENGTH	SIZE
SECTION A & BAR GROUP A	4:1 = 32'-0"	1'-0"	10'-0"	1'-0"	3"	4	4'-0"	3"	4	4'-0"	3"	4	4'-0"	3"
					4"	4	4'-0"	4"	4	4'-0"	4"	4	4'-0"	4"
					5"	4	4'-0"	5"	4	4'-0"	5"	4	4'-0"	5"
					6"	4	4'-0"	6"	4	4'-0"	6"	4	4'-0"	6"
					7"	4	4'-0"	7"	4	4'-0"	7"	4	4'-0"	7"
					8"	4	4'-0"	8"	4	4'-0"	8"	4	4'-0"	8"
					9"	4	4'-0"	9"	4	4'-0"	9"	4	4'-0"	9"
					10"	4	4'-0"	10"	4	4'-0"	10"	4	4'-0"	10"
					11"	4	4'-0"	11"	4	4'-0"	11"	4	4'-0"	11"
					12"	4	4'-0"	12"	4	4'-0"	12"	4	4'-0"	12"
SECTION B & BAR GROUP B	4:1 = 32'-0"	1'-0"	10'-0"	1'-0"	3"	4	4'-0"	3"	4	4'-0"	3"	4	4'-0"	3"
					4"	4	4'-0"	4"	4	4'-0"	4"	4	4'-0"	4"
					5"	4	4'-0"	5"	4	4'-0"	5"	4	4'-0"	5"
					6"	4	4'-0"	6"	4	4'-0"	6"	4	4'-0"	6"
					7"	4	4'-0"	7"	4	4'-0"	7"	4	4'-0"	7"
					8"	4	4'-0"	8"	4	4'-0"	8"	4	4'-0"	8"
					9"	4	4'-0"	9"	4	4'-0"	9"	4	4'-0"	9"
					10"	4	4'-0"	10"	4	4'-0"	10"	4	4'-0"	10"
					11"	4	4'-0"	11"	4	4'-0"	11"	4	4'-0"	11"
					12"	4	4'-0"	12"	4	4'-0"	12"	4	4'-0"	12"

DIMENSIONS QUANTITIES

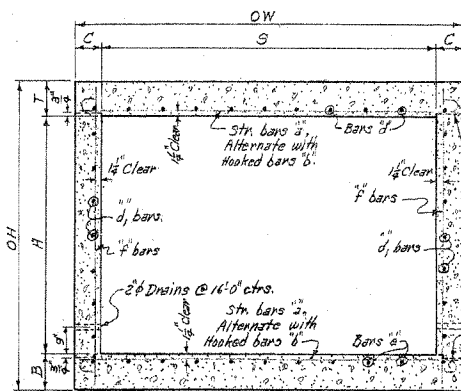
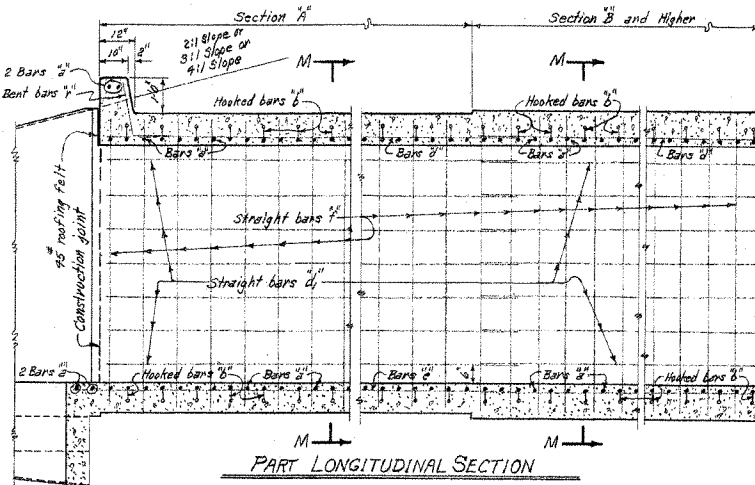
SECTION	MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS										UNIT QUANTITIES			
		CLEAR SPAN	CLEAR HEIGHT	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	CLASS CONCRETE	PER LIN. FT. OF BARREL	PER LAP	REINFORCING STEEL	PER LIN. FT. OF BARREL	PER LAP	TWO HEADWALLS & ARROWS
SECTION A - 10'-0"	1'-0"	3'	12'	5'-0"	6"	6"	6"	4'-11"	0.312	29.62	13.36	51.44	0.312	29.62	13.36
		4'	16'	5'-0"	6"	6"	6"	5'-11"	0.349	32.29	15.03	51.44	0.349	32.29	15.03
		5'	20'	5'-0"	6"	6"	6"	6'-11"	0.386	34.96	16.70	51.44	0.386	34.96	16.70
		6'	24'	5'-0"	6"	6"	6"	7'-11"	0.423	37.63	18.37	51.44	0.423	37.63	18.37
		7'	28'	5'-0"	6"	6"	6"	8'-11"	0.460	40.30	20.04	51.44	0.460	40.30	20.04
		8'	32'	5'-0"	6"	6"	6"	9'-11"	0.497	42.97	21.71	51.44	0.497	42.97	21.71
		9'	36'	5'-0"	6"	6"	6"	10'-11"	0.534	45.64	23.38	51.44	0.534	45.64	23.38
		10'	40'	5'-0"	6"	6"	6"	11'-11"	0.571	48.31	25.05	51.44	0.571	48.31	25.05
		11'	44'	5'-0"	6"	6"	6"	12'-11"	0.608	50.98	26.72	51.44	0.608	50.98	26.72
		12'	48'	5'-0"	6"	6"	6"	13'-11"	0.645	53.65	28.39	51.44	0.645	53.65	28.39

BAR SIZE	PIN DIA.	K	ADD FOR 2 HOOKS	Bars "b"
#4	2"	4"	0'-10"	
#5	2 1/2"	4 1/2"	0'-11"	
#6	3"	5"	1'-2"	
#7	3 1/2"	5 1/2"	1'-4"	

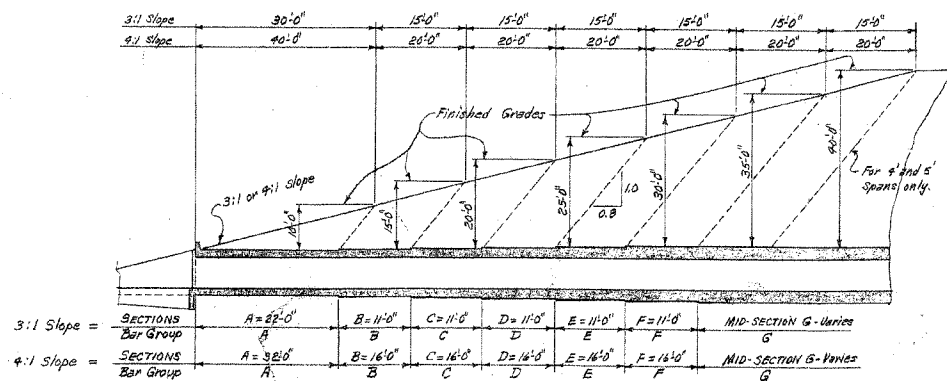
NOTE: Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X	Bars "b"
4'	#4	11"	12	2'-5"	1'-2 1/4"	
5'	#4	11 1/2"	14	2'-6"	1'-3"	
6'	#4	12"	16	2'-7"	1'-3 1/4"	



TYPICAL SECTION M-M



TYPICAL LONGITUDINAL SECTION-SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTH OF COVER	SECTION A	SECTION B	SECTION C	SECTION D	SECTION E	SECTION F	SECTION G
5.0' to 8.5'							A
10.0' to 14.5'							B
15.0' to 19.5'							C
20.0' to 24.5'							D
25.0' to 29.5'							E
30.0' to 34.5'							F
35.0' to 44.0'							G

LENGTH OF SECTIONS FOR SKEWED CULVERTS

SKEW ANGLE	SEC. OF SKEW ANGLE	3:1 SLOPES	4:1 SLOPES
0°	1.0	22.0'	32.0'
15°	1.0333	22.776'	33.129'
30°	1.1547	25.403'	36.950'
45°	1.4142	31.115'	45.255'

NOTE: This drawing to be used in conjunction with Standard Drawing Nos. W-X002-1, W-X003-1 and W-X004-1.

DESIGN LIVE LOAD H20-S16 LOADING A.A.S.H.O. 1961

SPECIAL MILITARY LOADING Two 28,000 Lb. Axles @ 9'-0" Ctrs.

UNIT STRESSES: Class 5 Concrete (n=10) 1200 psi Reinforcing Steel 20,000 psi

CLASS 5 CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS

FOR REINFORCED CONCRETE BOX CULVERTS

4, 5 & 6' SPANS 3:1 OR 4:1 SLOPES

SINGLES OVER 5'-0" COVER

STANDARD DRAWING NO. R-100X-X1

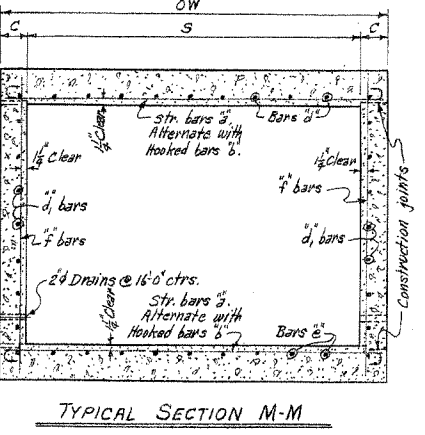
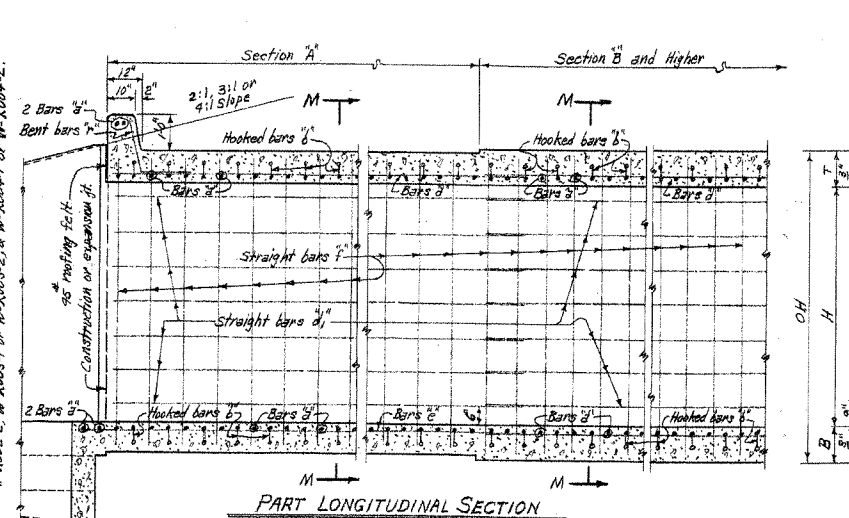
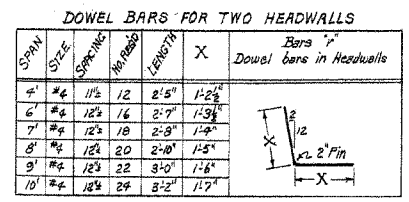
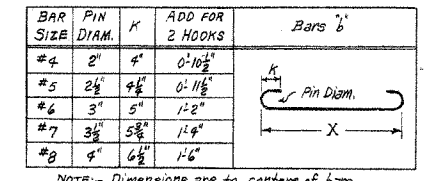
Designed By: M.C.H. 9-5-62 Checked By: R.H.S. 11-8-62
Drawn By: M.C.H. 10-10-62 Checked By: J.S.M. 11-12-62
Quantity By: M.C.H. 11-7-62 Checked By: J.N. 11-16-62

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	BARS											
					STRAIGHT				BENT - See Diagram at Right				STRAIGHT			
					In Top and Bottom Slabs of Barrel - Hooked. 2 Add'l in Arrow and Headwall - Each.				In Top and Bottom Slabs of Barrel - Hooked. Alternate with 2' bars.				Longitudinal in Top Slab of Barrel			
D	S	H	SIZE	SPACING	NO. REQ'D	LENGTH	X	SIZE	SPACING	NO. REQ'D	LENGTH	X	SIZE	SPACING	NO. REQ'D	LENGTH
SECTION A - 10' TO 10'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION B - 10' TO 15'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION C - 15'0" TO 20'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION D - 20'0" TO 25'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION E - 25'0" TO 30'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION F - 30'0" TO 35'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION G - 35'0" TO 40'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION H - 40'0" TO 45'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION I - 45'0" TO 50'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION J - 50'0" TO 55'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION K - 55'0" TO 60'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION L - 60'0" TO 65'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION M - 65'0" TO 70'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION N - 70'0" TO 75'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION O - 75'0" TO 80'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION P - 80'0" TO 85'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION Q - 85'0" TO 90'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION R - 90'0" TO 95'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION S - 95'0" TO 100'0"																
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

DIMENSIONS QUANTITIES

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS										UNIT QUANTITIES		
	CLEAR SPAN										REINFORCING STEEL		
	D	S	H	A	OW	T	C	B	OH	CUYD	LB.	LB.	LB.
SECTION A - 10'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION B - 15'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION C - 20'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION D - 25'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION E - 30'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION F - 35'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION G - 40'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION H - 45'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION I - 50'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION J - 55'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION K - 60'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION L - 65'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION M - 70'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION N - 75'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION O - 80'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION P - 85'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION Q - 90'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION R - 95'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10
SECTION S - 100'0"													
10	10	10	10	10	10	10	10	10	10	10	10	10	10



2:1 Slope	20'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
3:1 Slope	30'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
4:1 Slope	40'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"

Finished Grades

2:1, 3:1, on 4:1 Slopes

15'-0"

20'-0"

30'-0"

40'-0"

50'-0"

60'-0"

70'-0"

80'-0"

90'-0"

100'-0"

110'-0"

120'-0"

130'-0"

140'-0"

150'-0"

160'-0"

170'-0"

180'-0"

190'-0"

200'-0"

210'-0"

220'-0"

230'-0"

240'-0"

250'-0"

260'-0"

270'-0"

280'-0"

290'-0"

300'-0"

310'-0"

320'-0"

330'-0"

340'-0"

350'-0"

360'-0"

370'-0"

380'-0"

390'-0"

400'-0"

410'-0"

420'-0"

430'-0"

440'-0"

450'-0"

460'-0"

470'-0"

480'-0"

490'-0"

500'-0"

510'-0"

520'-0"

530'-0"

540'-0"

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710'-0"

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730'-0"

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760'-0"

770'-0"

780'-0"

790'-0"

800'-0"

810'-0"

820'-0"

830'-0"

840'-0"

850'-0"

860'-0"

870'-0"

880'-0"

890'-0"

900'-0"

910'-0"

920'-0"

930'-0"

940'-0"

950'-0"

960'-0"

970'-0"

980'-0"

990'-0"

1000'-0"

1010'-0"

1020'-0"

1030'-0"

1040'-0"

1050'-0"

1060'-0"

1070'-0"

1080'-0"

1090'-0"

1100'-0"

1110'-0"

1120'-0"

1130'-0"

1140'-0"

1150'-0"

1160'-0"

1170'-0"

1180'-0"

1190'-0"

1200'-0"

1210'-0"

1220'-0"

1230'-0"

1240'-0"

1250'-0"

1260'-0"

1270'-0"

1280'-0"

1290'-0"

1300'-0"

1310'-0"

1320'-0"

1330'-0"

1340'-0"

1350'-0"

1360'-0"

1370'-0"

1380'-0"

1390'-0"

1400'-0"

1410'-0"

1420'-0"

1430'-0"

1440'-0"

1450'-0"

1460'-0"

1470'-0"

1480'-0"

1490'-0"

1500'-0"

1510'-0"

1520'-0"

1530'-0"

1540'-0"

1550'-0"

1560'-0"

1570'-0"

1580'-0"

1590'-0"

1600'-0"

1610'-0"

1620'-0"

1630'-0"

1640'-0"

1650'-0"

1660'-0"

1670'-0"

1680'-0"

1690'-0"

1700'-0"

1710'-0"

1720'-0"

1730'-0"

1740'-0"

1750'-0"

1760'-0"

1770'-0"

1780'-0"

1790'-0"

1800'-0"

1810'-0"

1820'-0"

1830'-0"

1840'-0"

1850'-0"

1860'-0"

1870'-0"

1880'-0"

1890'-0"

1900'-0"

1910'-0"

1920'-0"

1930'-0"

1940'-0"

1950'-0"

1960'-0"

1970'-0"

1980'-0"

1990'-0"

2000'-0"

2010'-0"

2020'-0"

2030'-0"

2040'-0"

2050'-0"

2060'-0"

2070'-0"

2080'-0"

2090'-0"

2100'-0"

2110'-0"

2120'-0"

2130'-0"

2140'-0"

2150'-0"

2160'-0"

2170'-0"

2180'-0"

2190'-0"

2200'-0"

2210'-0"

2220'-0"

2230'-0"

2240'-0"

2250'-0"

2260'-0"

2270'-0"

2280'-0"

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10060'-0"

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10080'-0"

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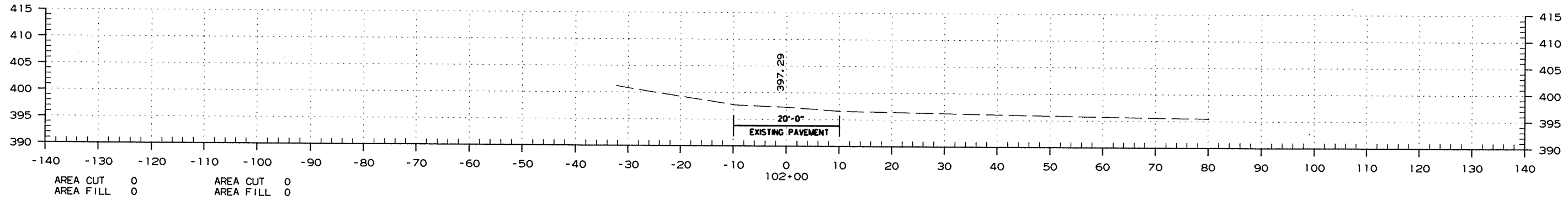
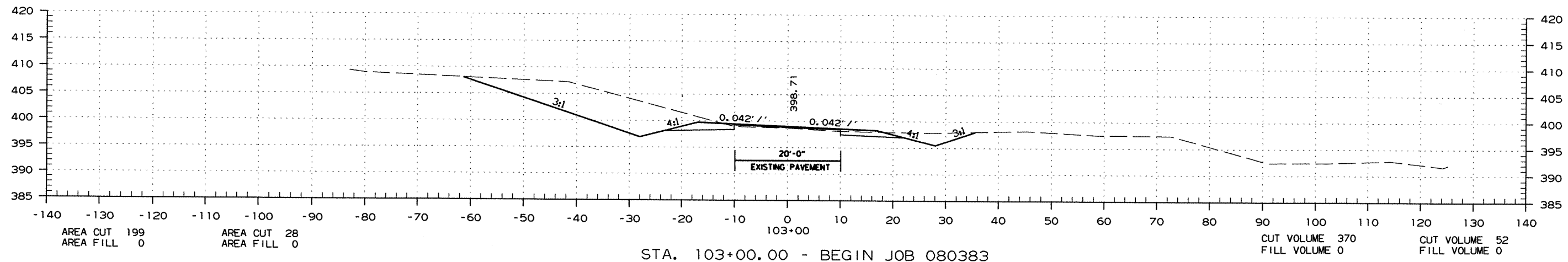
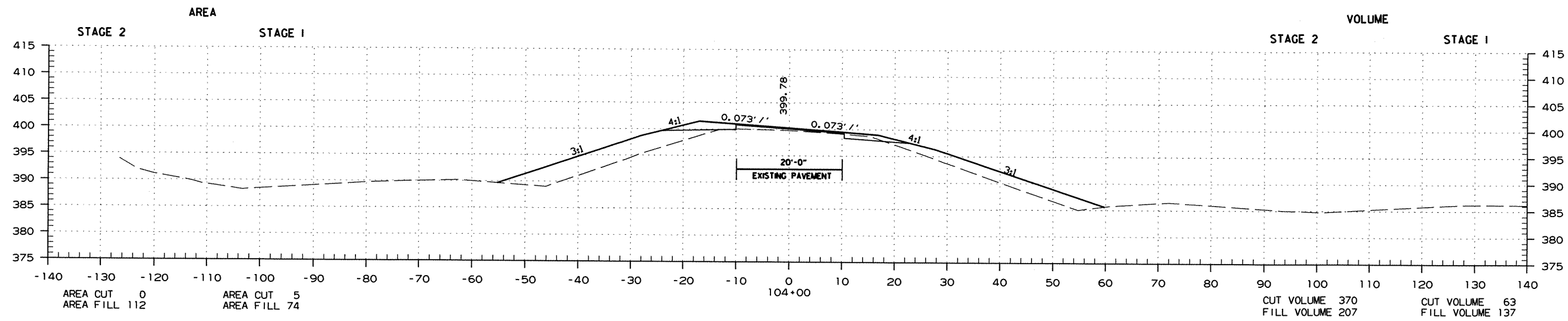
10130'-0"

10140'-0"

101

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. 080383			80	92

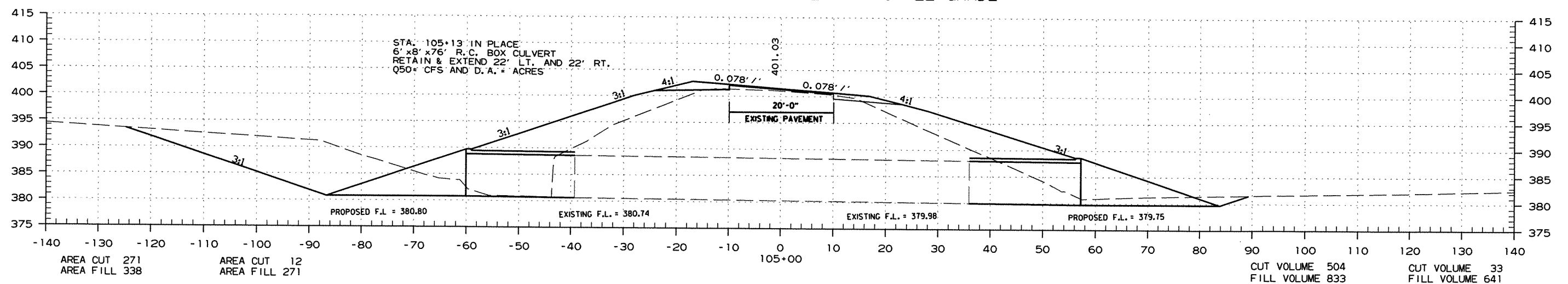
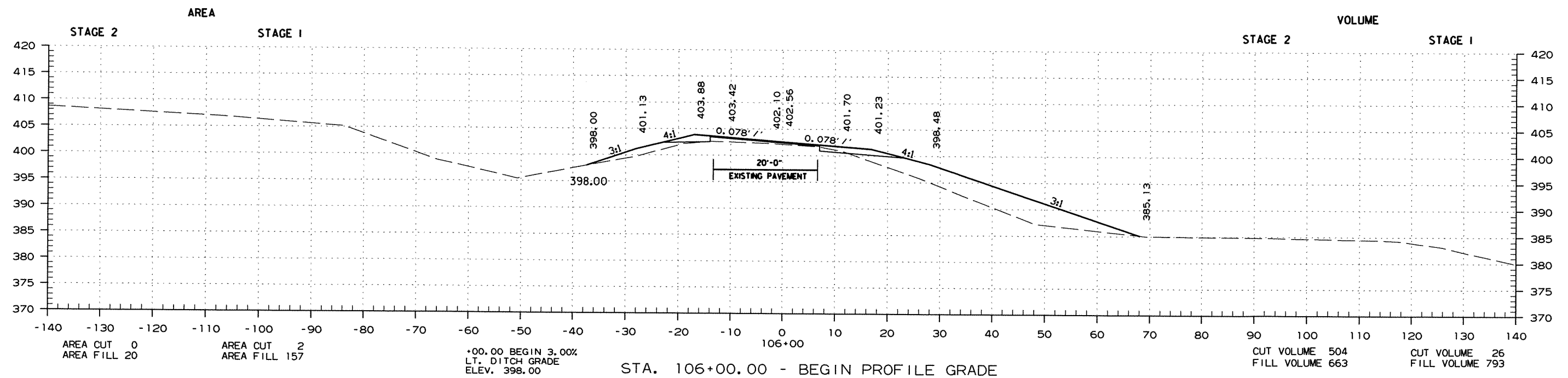
2 CROSS SECTIONS



STA. 102+00 TO STA. 104+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 080383			81	92

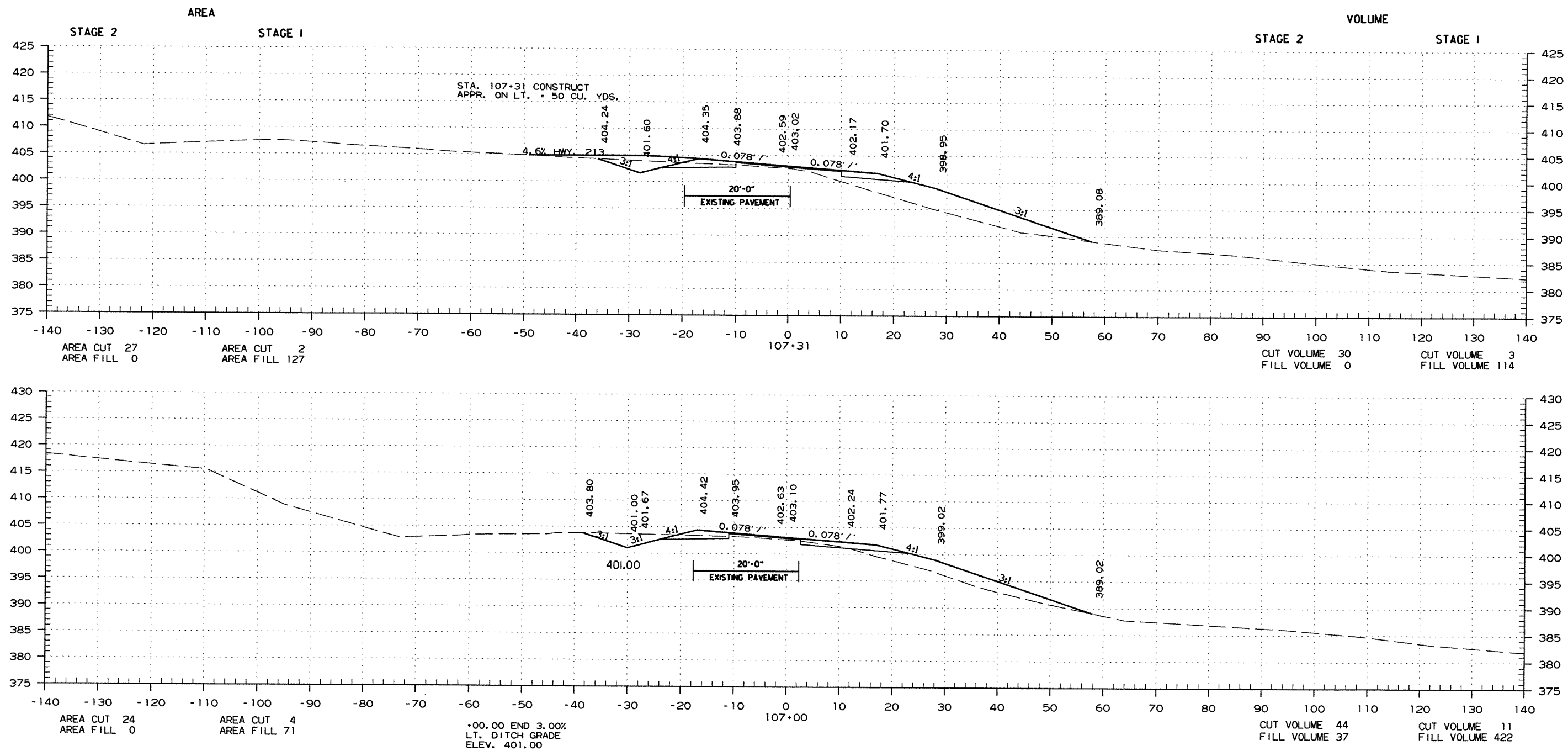
2 CROSS SECTIONS



STA. 105+00 TO STA. 106+00

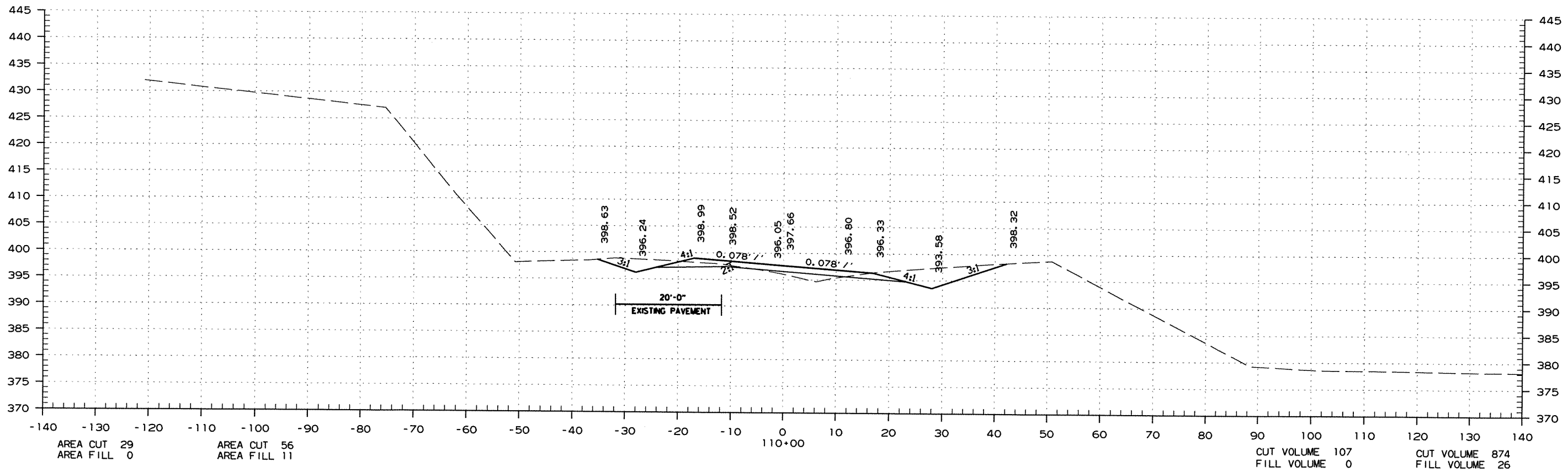
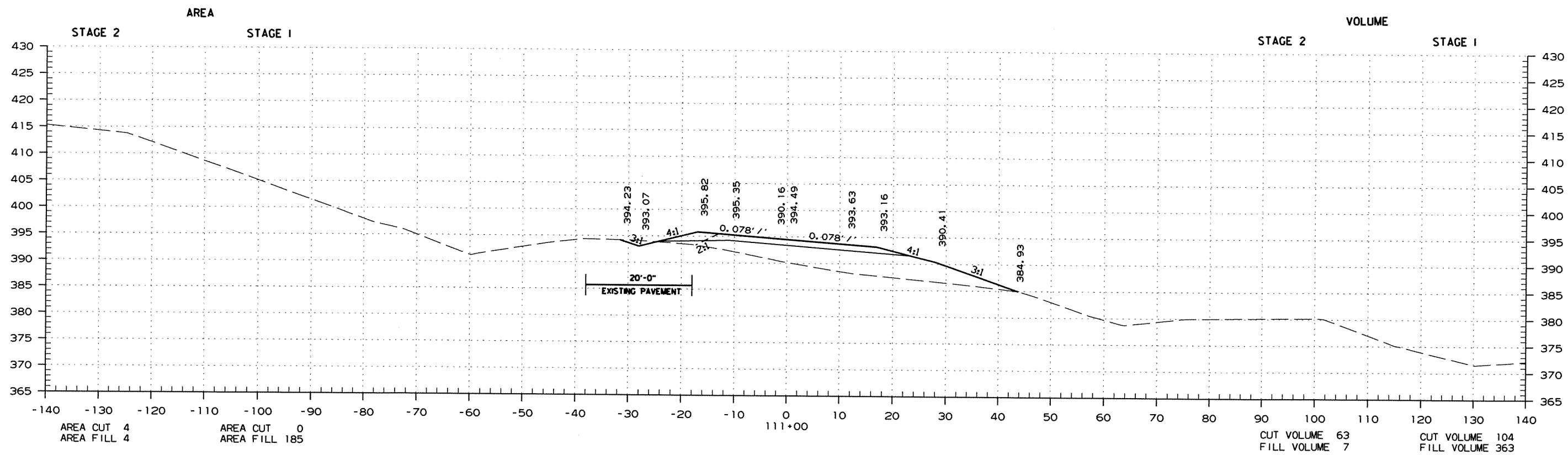
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 080383			82	92

2 CROSS SECTIONS



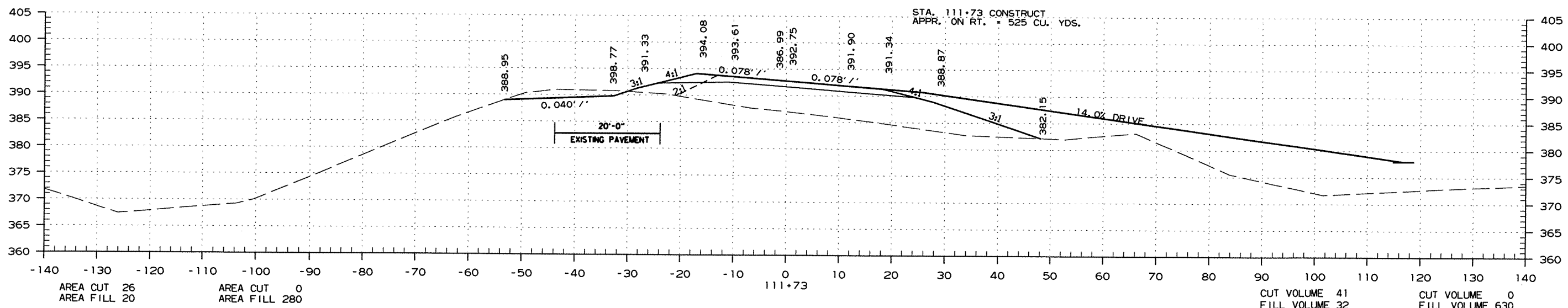
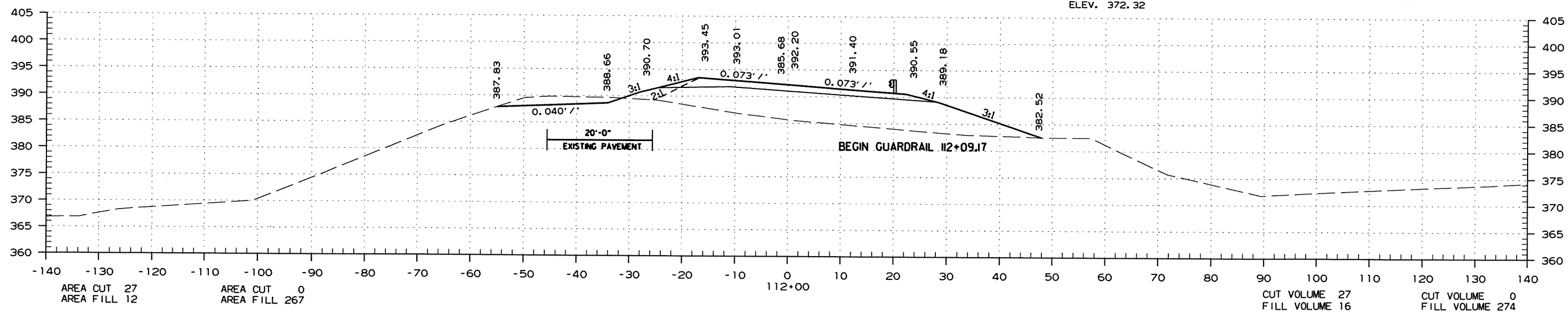
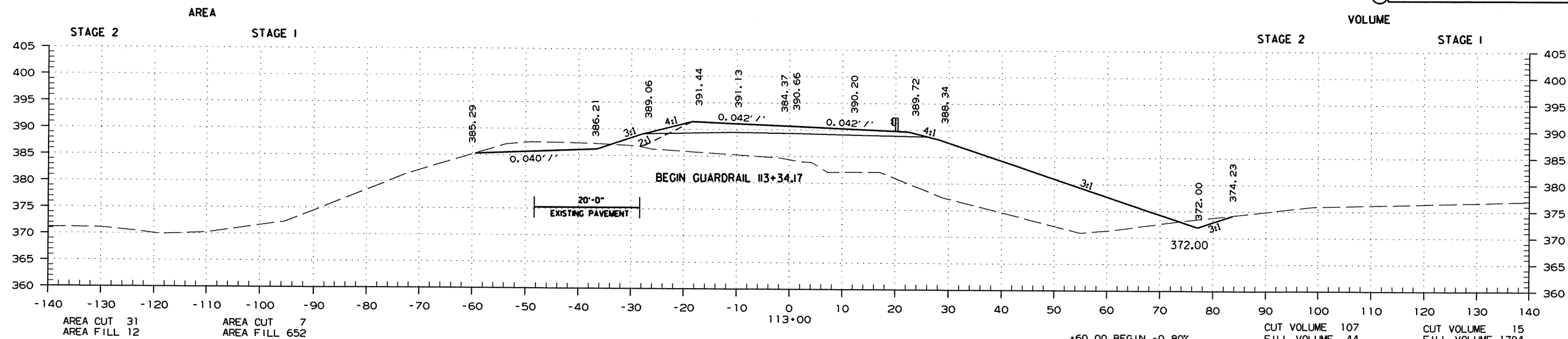
STA. 107+00 TO STA. 107+31

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.		080383	84	92
② CROSS SECTIONS								



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080383	85	92

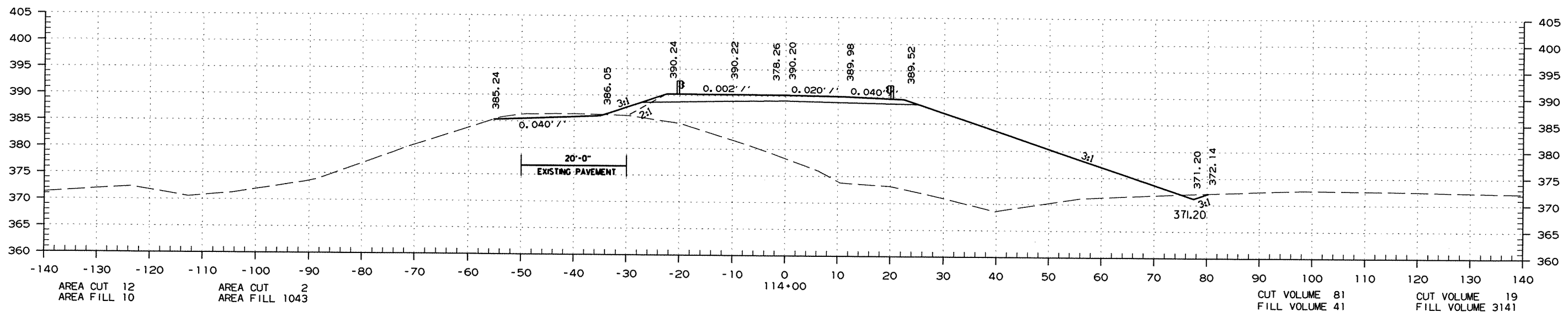
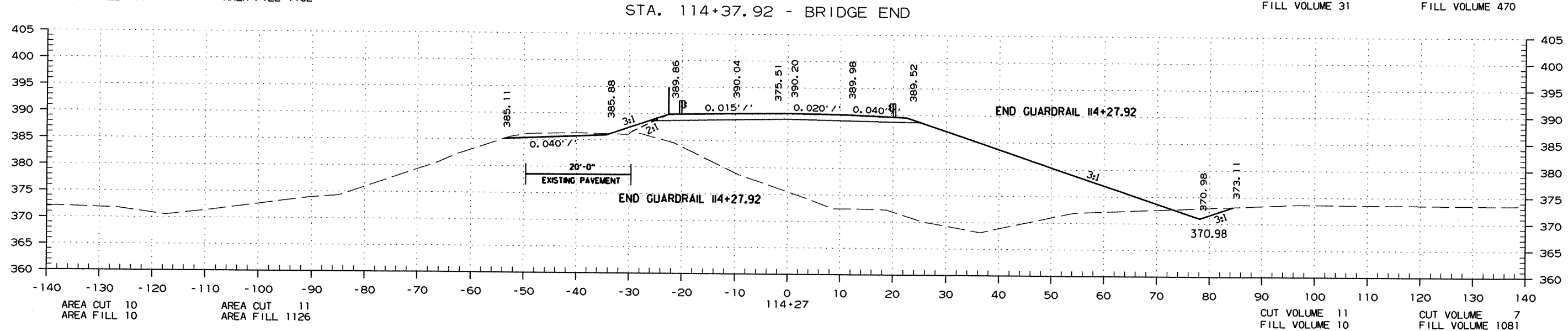
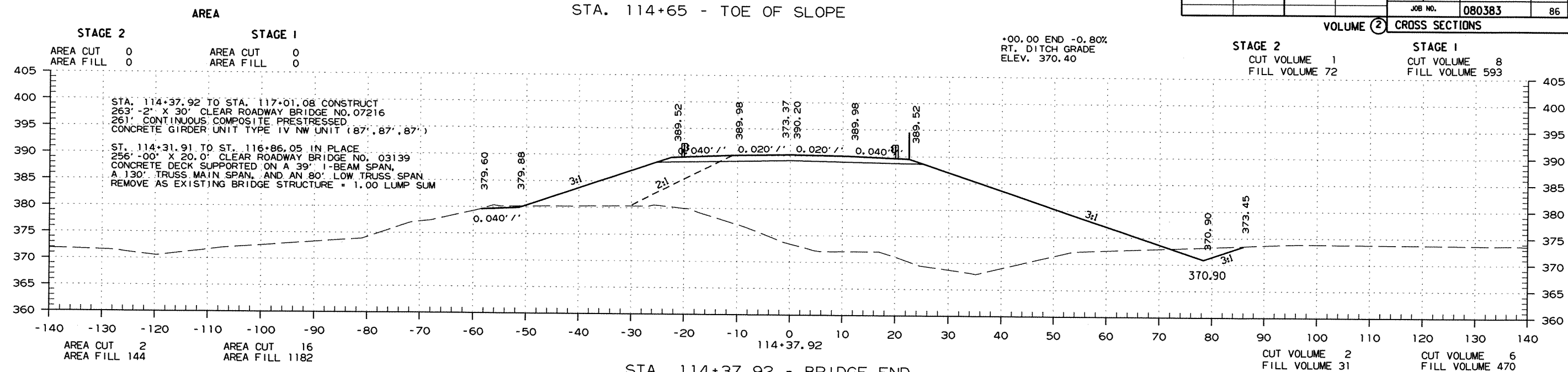
② CROSS SECTIONS



STA. 111+73 TO STA. 113+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080383	86	92

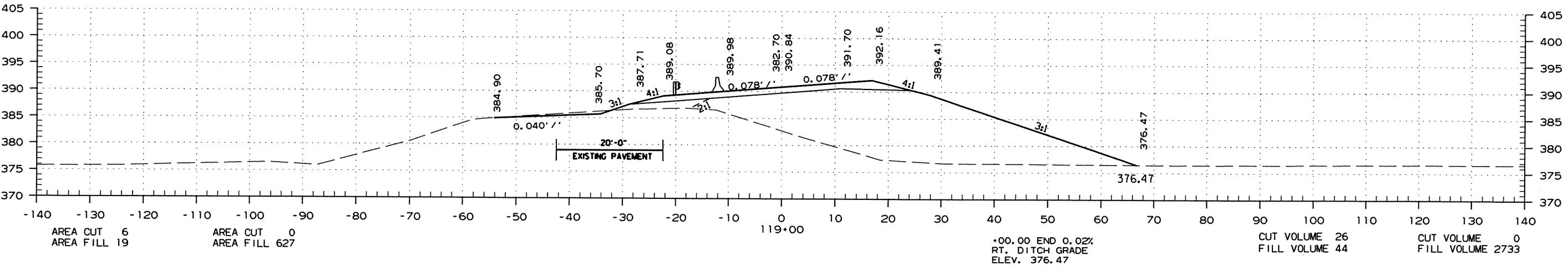
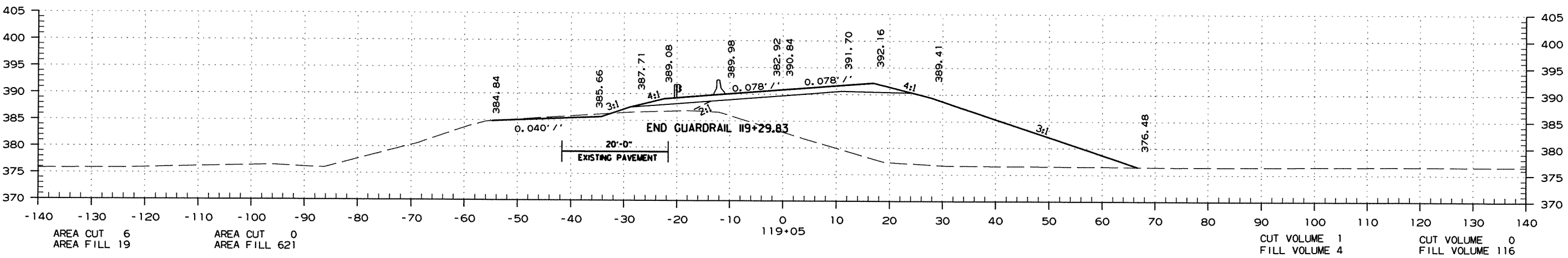
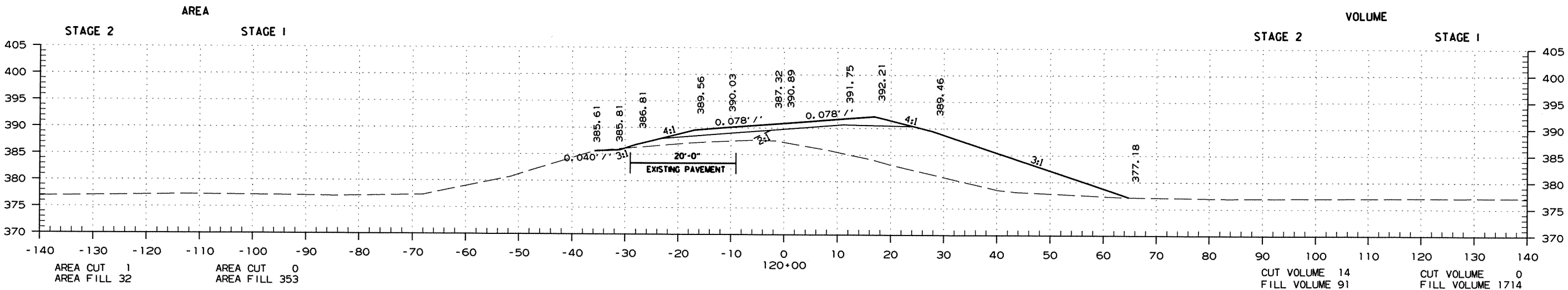
VOLUME (2) CROSS SECTIONS



STA. 114+00 TO STA. 114+38

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. 080383	88	92

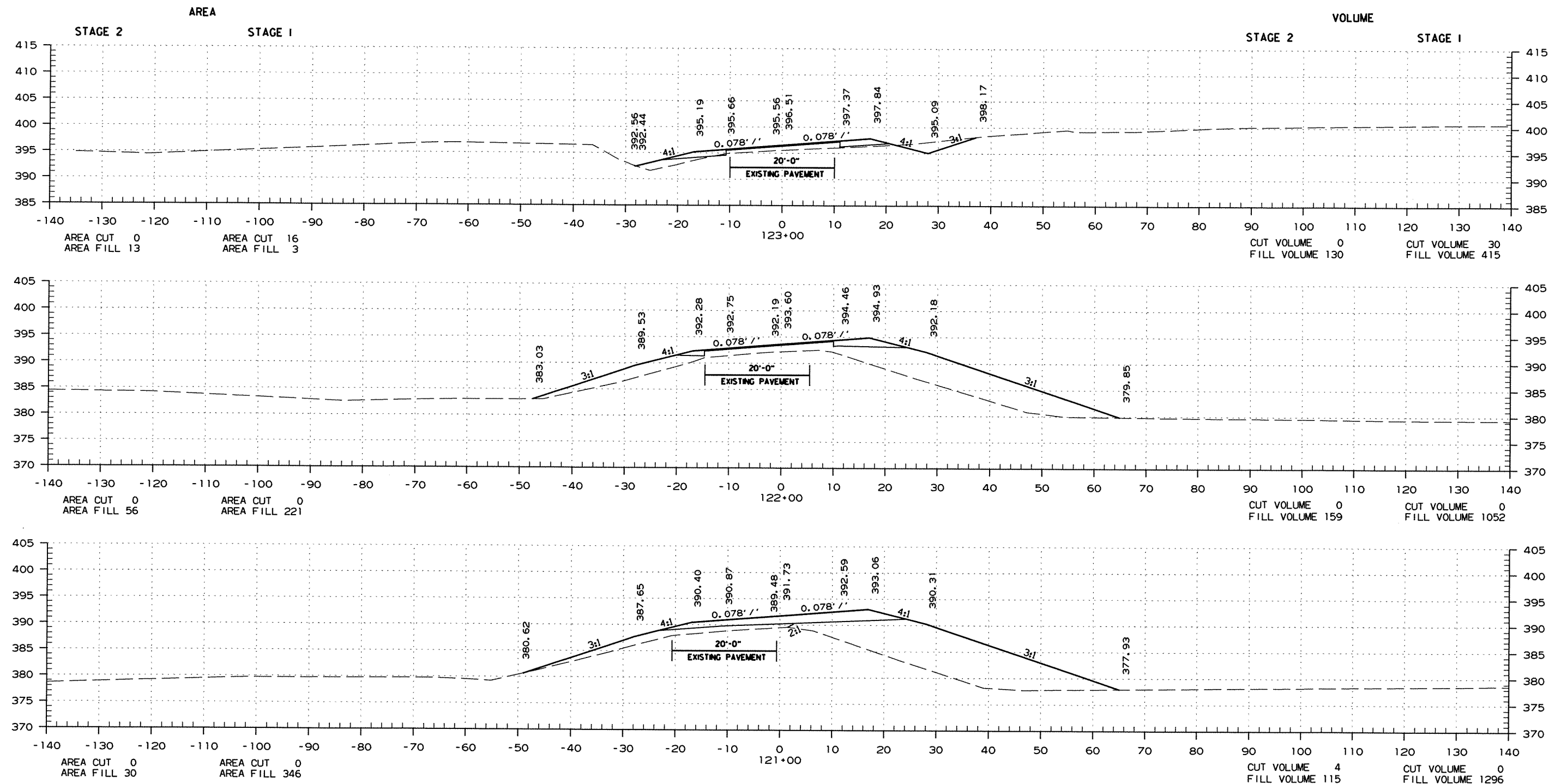
2 CROSS SECTIONS



STA. 119+00 TO STA. 120+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 080383			89	92

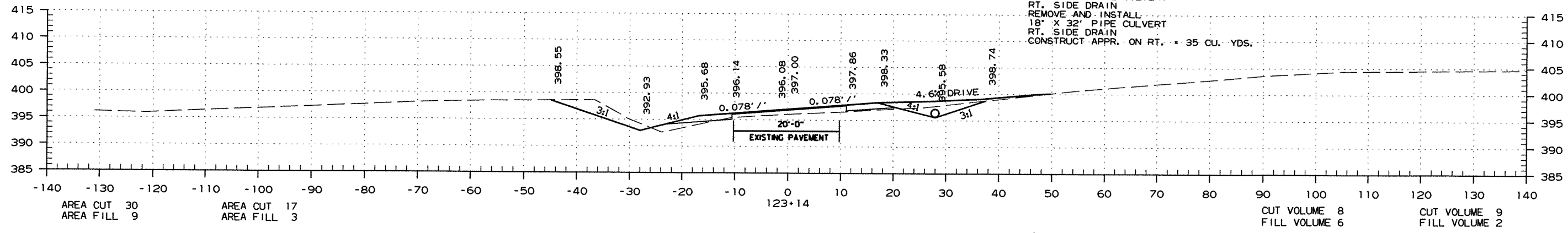
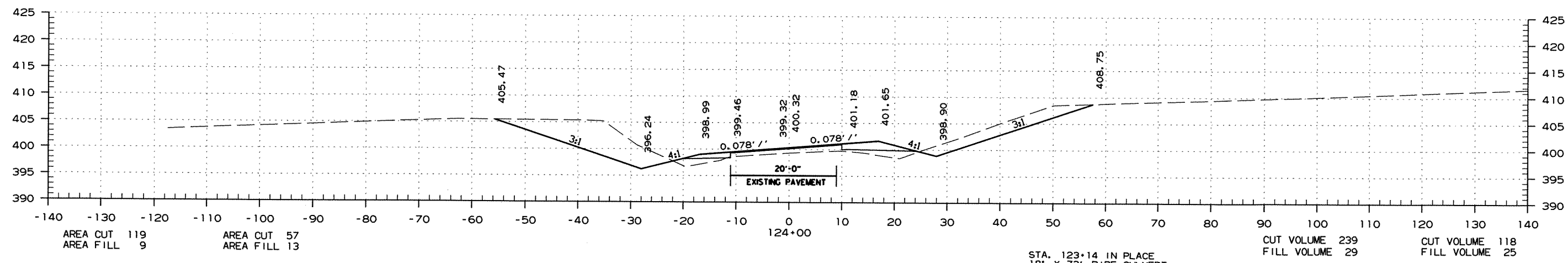
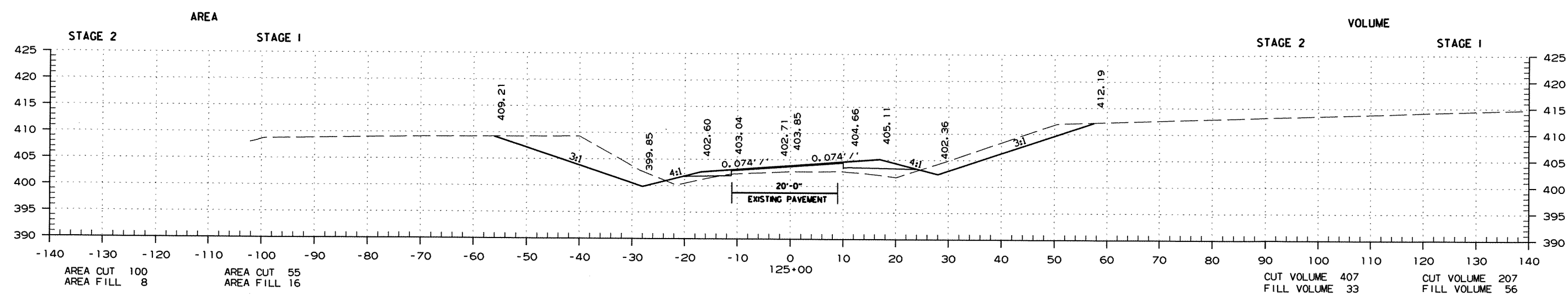
② CROSS SECTIONS



STA. 121+00 TO STA. 123+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 080383			90	92

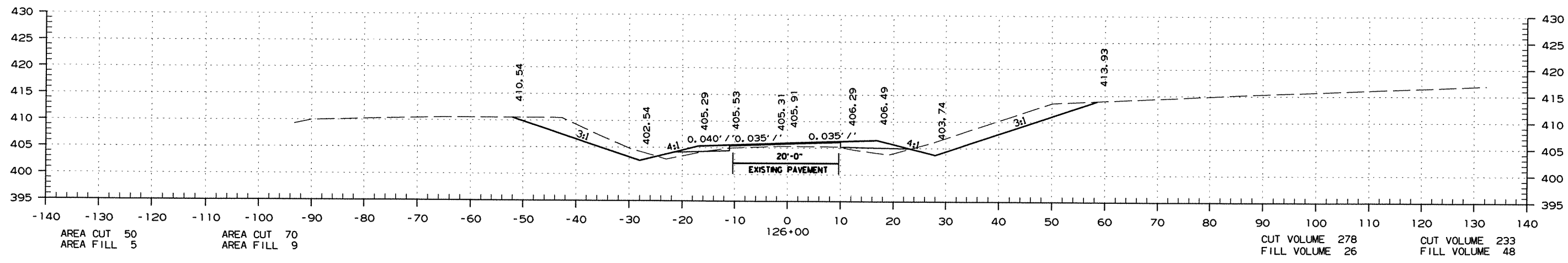
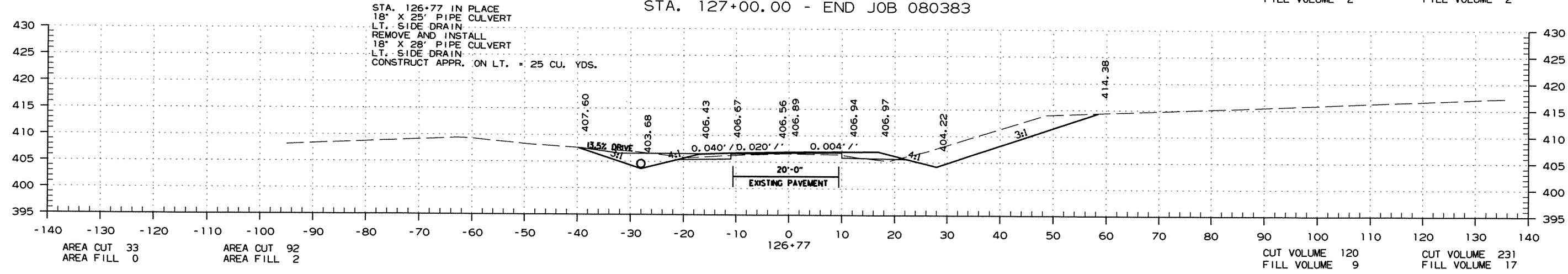
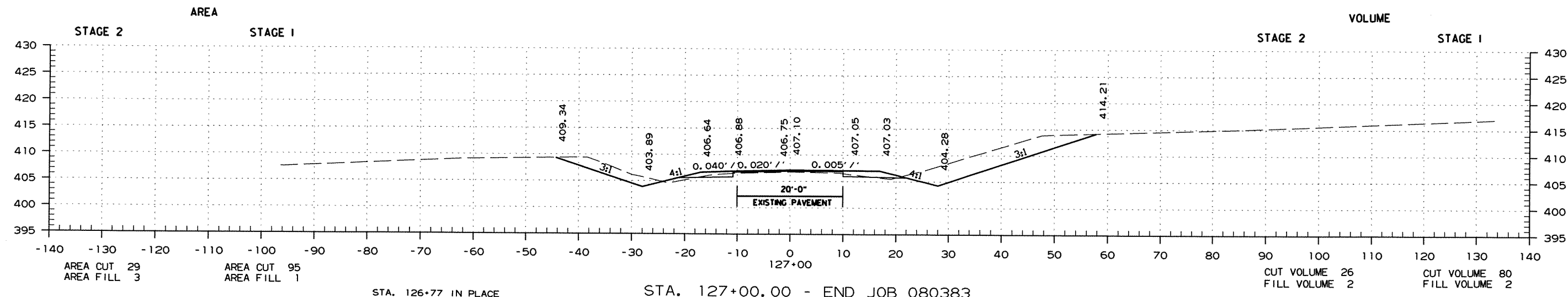
2 CROSS SECTIONS



STA. 123+14 IN PLACE
18" X 73" PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32" PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPR. ON RT. - 35 CU. YDS.

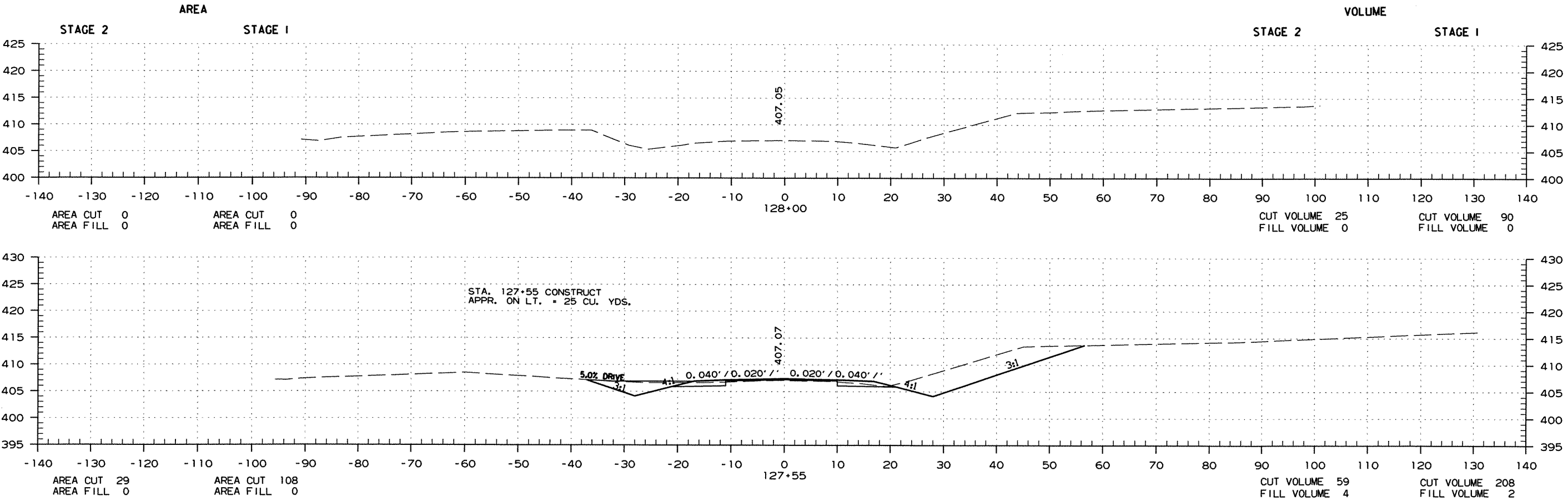
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080383		91	92

2 CROSS SECTIONS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO. 080383			92	92

2 CROSS SECTIONS



STA. 127+55 TO STA. 128+00