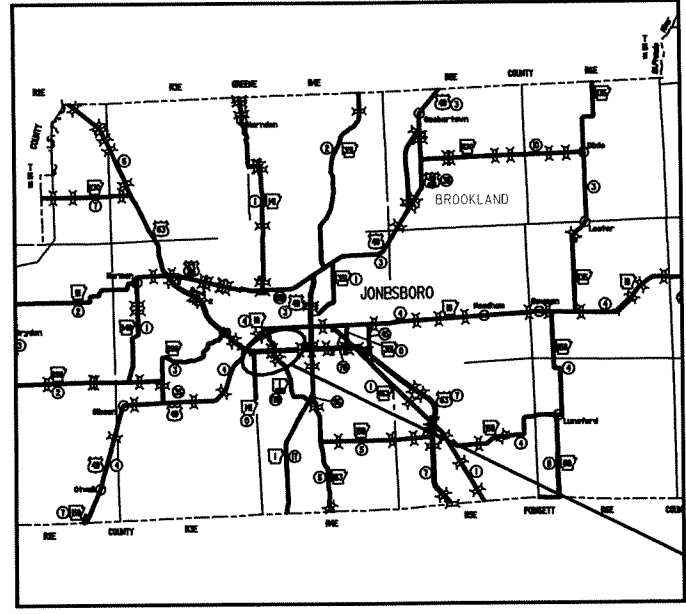
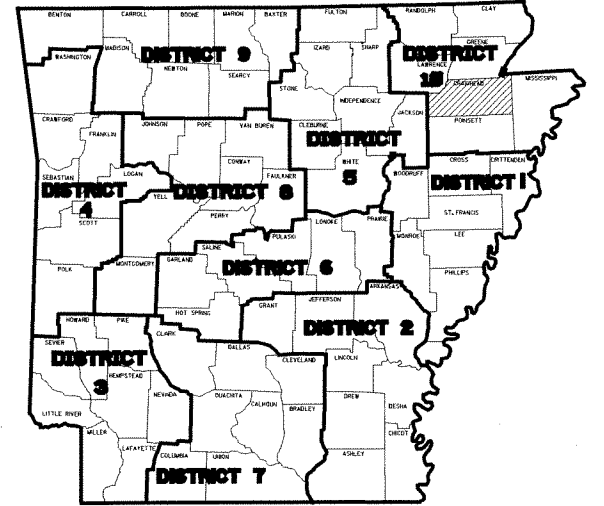


"A FULLY CONTROLLED ACCESS FACILITY"
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738		1	69



HWYS. 1B/63/PARKER RD. TRAFFIC OPS.
IMPVTS. (JONESBORO) (S)
CRAIGHEAD COUNTY
ROUTE 63 SECTIONS 6 & 7
FAP STPP-A144(3)
JOB 100738



ARK. HWY. DIST. NO. 10

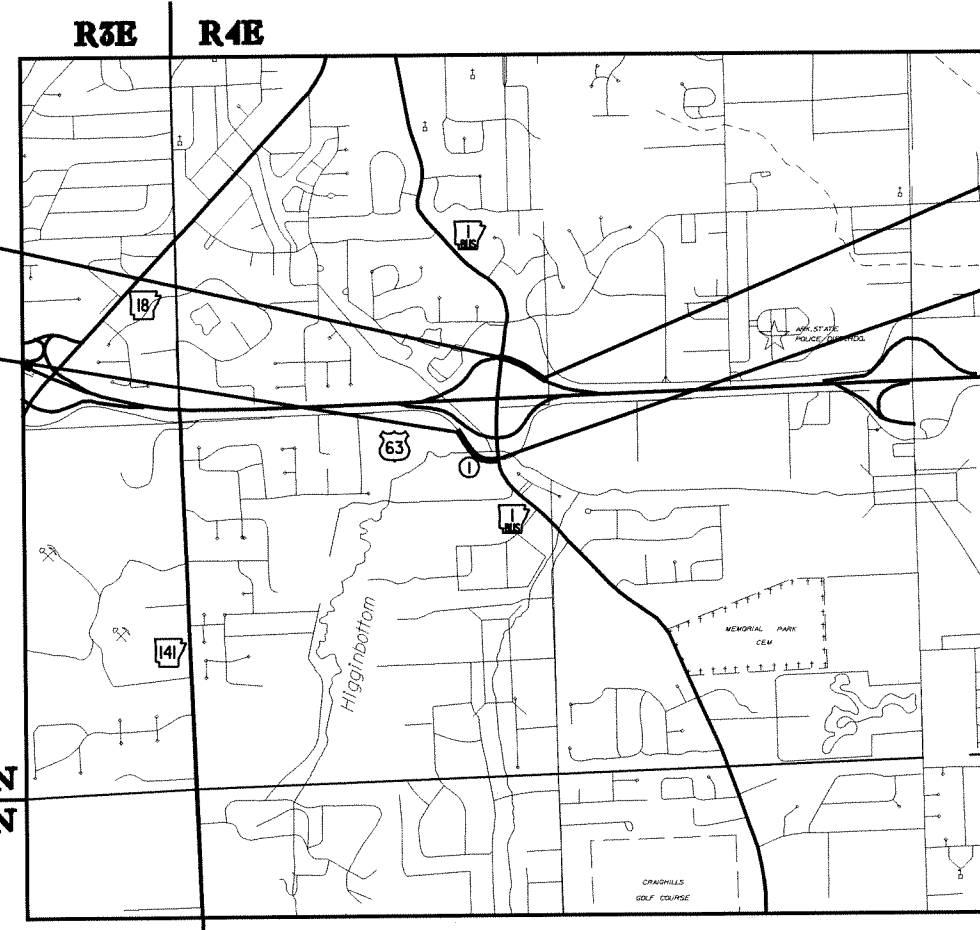
PROJECT LOCATION

NOT TO SCALE

VICINITY MAP

STA. 40+30.00 @ HWY. 63 NB EXIT RAMP
BEGIN CONSTRUCTION - JOB 100738

STA. 14+40.00 @ PARKER RD.
BEGIN CONSTRUCTION - JOB 100738



STA. 46+40.50 @ HWY. 63 NB EXIT RAMP
END CONSTRUCTION - JOB 100738

STA. 19+65.00 @ PARKER RD.
END CONSTRUCTION - JOB 100738

STRUCTURES OVER 20'-0" SPAN

- ① STA. 16+01.70 - PARKER ROAD IN PLACE TRP. 9'X9'X130' R.C. BOX CULVERT (45° LT. FWD. SKEW) RETAIN & EXTEND 12' RT. EXTEND R.C. BOX BY CUTTING BOX CULVERT PARALLEL TO EXISTING HEADWALL & USING REINFORCING BARS OF EQUAL LENGTH FOR EXTENSION. USE 2:1 WINGS SPAN = 42.90'

DESIGN TRAFFIC DATA - HWY. 63

DESIGN YEAR	-----	2031
2011 ADT	-----	22,700
2031 ADT	-----	41,000
2031 DHV	-----	4,510
DIRECTIONAL DISTRIBUTION	-----	0.60
TRUCKS	-----	10%
DESIGN SPEED - EXIT RAMP	-----	50 MPH

DESIGN TRAFFIC DATA - PARKER RD.

DESIGN YEAR	-----	2031
2011 ADT	-----	6,050
2031 ADT	-----	10,950
2031 DHV	-----	1,204
DIRECTIONAL DISTRIBUTION	-----	0.60
TRUCKS	-----	5%
DESIGN SPEED	-----	40 MPH

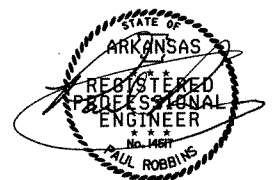
BEGIN-POINT OF PROJECT
 LAT. 35°48'19"N
 LONG. 90°42'00"W

MID-POINT OF PROJECT
 LAT. 35°48'26"N
 LONG. 90°41'55"W

END-POINT OF PROJECT
 LAT. 35°48'29"N
 LONG. 90°41'49"W

LENGTH COMPUTED ALONG C.L. OF PARKER RD. & C.L. OF HWY. 63 NB EXIT RAMP

GROSS LENGTH OF PROJECT	1165.50 FEET OR 0.221 MILES
NET LENGTH OF ROADWAY	1122.60 FEET OR 0.213 MILES
NET LENGTH OF BRIDGES	42.90 FEET OR 0.008 MILES
NET LENGTH OF PROJECT	1165.50 FEET OR 0.221 MILES



P.E. 100738
 F.A.P. 56C0-A144-003

12-7-11

JOB 100738

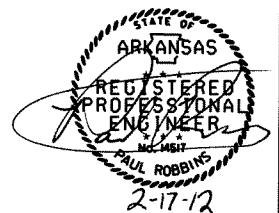
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 100738	2	69
② INDEX OF SHEETS AND GOVERNING SPECIFICATIONS								

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

INDEX OF SHEETS

SHEET NO.	TITLE	DRWG. NO.	DATE
1	TITLE SHEET		
2	INDEX OF SHEETS AND GOVERNING SPECIFICATIONS		
3	GENERAL AND TRAFFIC SIGNAL NOTES		
4-5	TYPICAL SECTIONS OF IMPROVEMENT		
6	SPECIAL DETAILS		
7-8	TEMPORARY EROSION CONTROL DETAILS		
9-10	MAINTENANCE OF TRAFFIC DETAILS		
11-12	PERMANENT PAVEMENT MARKINGS		
13-14	QUANTITIES		
15	SUMMARY OF QUANTITIES AND REVISIONS		
16	SURVEY CONTROL DETAILS		
17-20	PLAN AND PROFILE SHEETS		
21	CULVERT DIAGRAM		
22	SYSTEM MAP		
22A	SUMMARY OF TRAFFIC SIGNAL QUANTITIES		
23-31	SIGNALIZATION PLAN SHEETS		
32-37	SIGNALIZATION DETAILS		
38	CONCRETE DITCH PAVING	CDP-1	11-17-10
39	CURBING DETAILS	CG-1	11-29-07
40	TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)	CPTJ-6A	5-25-06
41	FLARED END SECTION	FES-1	10-18-96
42	FLARED END SECTION	FES-2	10-18-96
43	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1	12-15-11
44	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1	12-15-11
45	PAVEMENT MARKING DETAILS	PM-1	11-17-10
46	REINFORCED CONCRETE BOX CULVERT DETAILS	RCB-1	12-15-11
47	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	RCB-2	11-20-03
48	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	RCB-3	10-12-95
49	TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC	SE-1	1-9-87
50	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2	10-18-96
51	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	12-15-11
52	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	3-11-10
53	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	10-15-09
54	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-4	10-15-09
55	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-5	10-15-09
56	TEMPORARY EROSION CONTROL DEVICES	TEC-1	12-15-11
57	TEMPORARY EROSION CONTROL DEVICES	TEC-3	11-3-94
58	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	R-300X-X3	3-28-63
59	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS - 45° SKEW	W-X45	6-15-64
60	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS - 45° SKEW	W-X452-2	6-4-64
61	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS - 45° SKEW	R-345X-2	8-28-64
62-69	CROSS SECTIONS		

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)
102-1	BIDDING REQUIREMENTS AND CONDITIONS
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
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
501-1	INSTALLATION OF TIE BARS
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
711-1	CONCRETE PULL BOX
714-1	DESIGN AND MATERIAL REQUIREMENTS FOR TRAFFIC SIGNAL MAST ARMS AND POLES
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2	THERMOPLASTIC PAVEMENT MARKING MATERIAL
804-1	INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 100738	ANTENNA SUPPORT
JOB 100738	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100738	CABINET DRAWER ASSEMBLY
JOB 100738	EDGE CARD VIDEO PROCESSOR
JOB 100738	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 100738	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 100738	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100738	HIGH PERFORMANCE PAVEMENT MARKING
JOB 100738	INTERNET BIDDING
JOB 100738	LED TRAFFIC SIGNAL HEAD
JOB 100738	LUMINAIRE ASSEMBLY (CUTOFF TYPE)
JOB 100738	RELOCATION OF TRAFFIC SIGNAL HEAD
JOB 100738	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB 100738	STORM WATER POLLUTION PREVENTION PLAN
JOB 100738	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100738	SYSTEM LOCAL CONTROLLER
JOB 100738	UTILITY ADJUSTMENTS
JOB 100738	VIDEO DETECTOR (COLOR)
JOB 100738	VIDEO DETECTOR ROTATION
JOB 100738	WARM MIX ASPHALT



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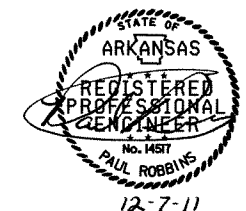
2 GENERAL AND TRAFFIC SIGNAL NOTES

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.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- THIS PROJECT IS COVERED UNDER A NATIONWIDE 14 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.
- THE CONTRACTOR SHALL CONTACT ALL FIBER OPTIC COMPANIES INVOLVED ON THIS PROJECT AT LEAST FIVE (5) WORKING DAYS BEFORE CONSTRUCTION, INCLUDING REMOVING AND INSTALLING ANY FENCING, AND TAKE EVERY PRECAUTION NECESSARY TO AVOID CONFLICT WITH THE FIBER OPTIC CABLES. THE CONTRACTOR SHALL TELEPHONE ARKANSAS ONE-CALL SYSTEM AT 1-800-482-8998 TO DETERMINE THE LOCATION OF THE BURIED FIBER OPTIC CABLES.
- THE EXISTING ASPHALT OR CONCRETE PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED 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 OR CONCRETE PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

TRAFFIC SIGNAL NOTES

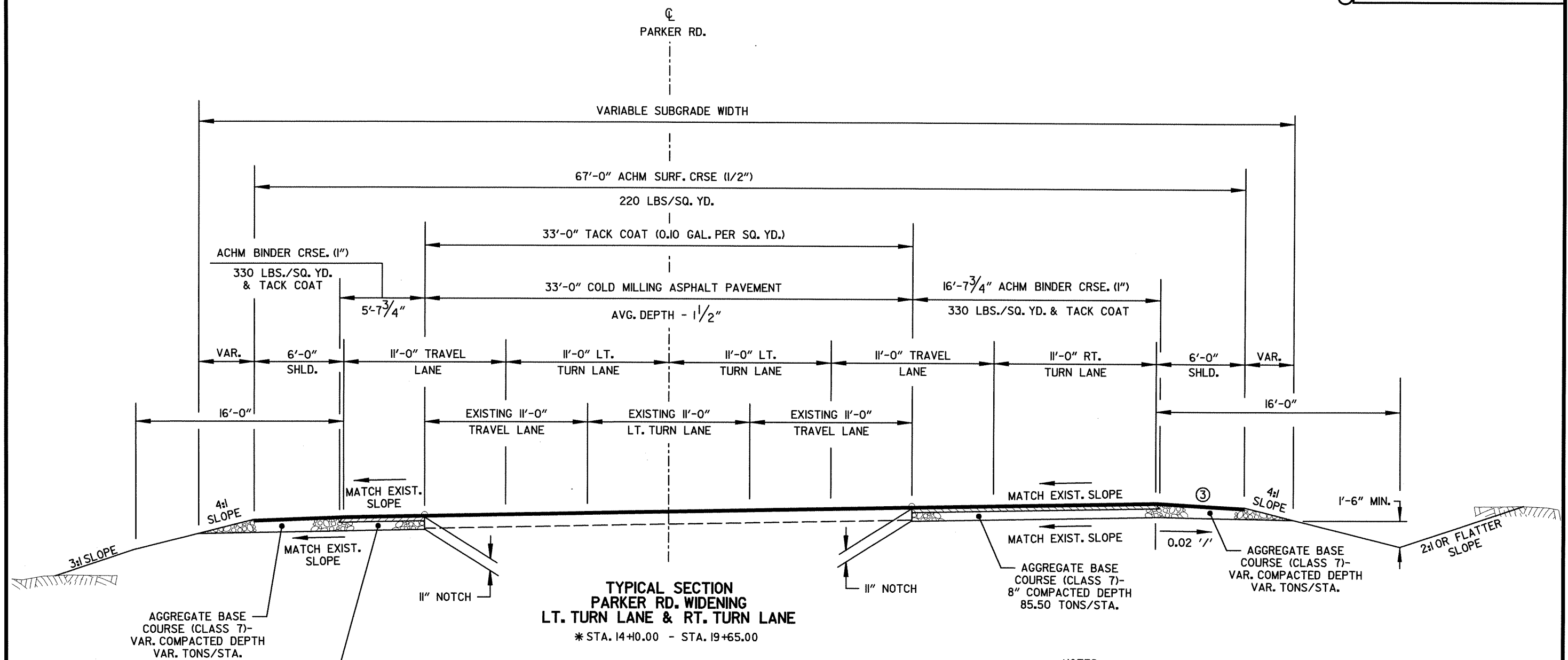
- PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2002) NATIONAL ELECTRICAL CODE, NFPA 101 (2000) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.
- EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.
- ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY TO A SERVICE POLE WITH EXTERNAL RAIN-TIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.
- CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.
- TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.
- CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.
- ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH AASHTO, THE ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS AND DETAILS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.
- CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE DETAILS MAY BE USED.
- TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.
- FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- ALL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.
- CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.
- HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.
- TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.
- THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.
- AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.
- CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT THE POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714-TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.
- CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.
- ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.
- TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.
- ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4th EDITION (2001) WITH 2003 AND 2006 INTERIMS.
- CONTRACTOR SHALL PROVIDE CONTROLLER AND LOCAL RADIO TO THE DEPARTMENT'S TRAFFIC ENGINEERING STAFF AT THE MAINTENANCE DIVISION, FOR SETUP AND TIMING BEFORE IT IS PLACED INTO OPERATION.
- TRAFFIC SIGNAL CONTROLLER AND RADIO SHALL BE COMPATIBLE WITH THE CITY OF JONESBORO'S EXISTING EAGLE/SIEMENS MARC 300 CLOSED LOOP TRAFFIC SYSTEM UTILIZING TRANSNET 900 RADIOS.



12-7-11

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② TYPICAL SECTIONS OF IMPROVEMENT



**TYPICAL SECTION
PARKER RD. WIDENING
LT. TURN LANE & RT. TURN LANE**
* STA. 14+00.00 - STA. 19+65.00

* NOTE: STA. 14+00.00 - STA. 16+50.00
240' TAPER FROM EXISTING 3-11'
LANES WITH 6' SHOULDERS TO 5-11'
LANES WITH 6' SHOULDERS. SEE
HWY. 18/PARKER RD. EB TURN LANE
PLAN SHEET FOR ADDITIONAL DETAILS.

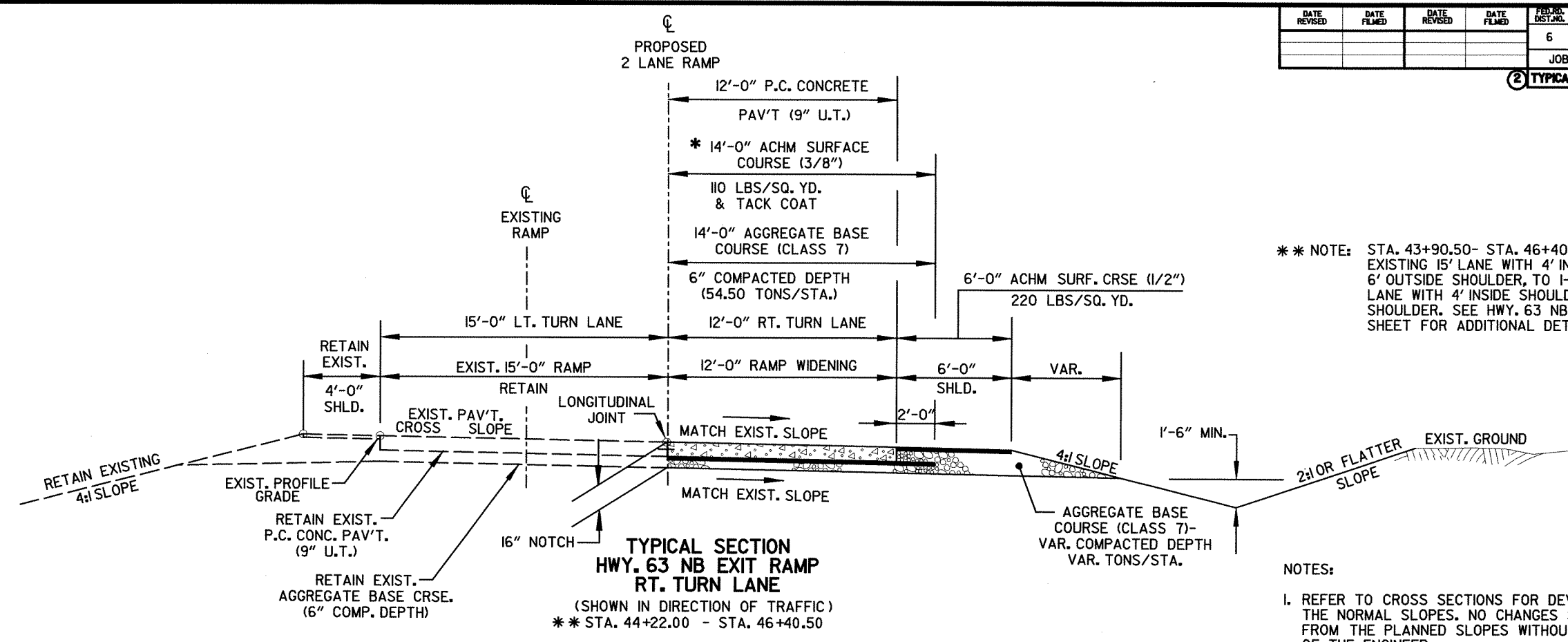
NOTES:

1. 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.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATED TRANSITIONS (LS), ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08 %.



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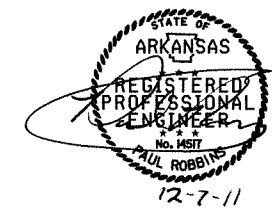
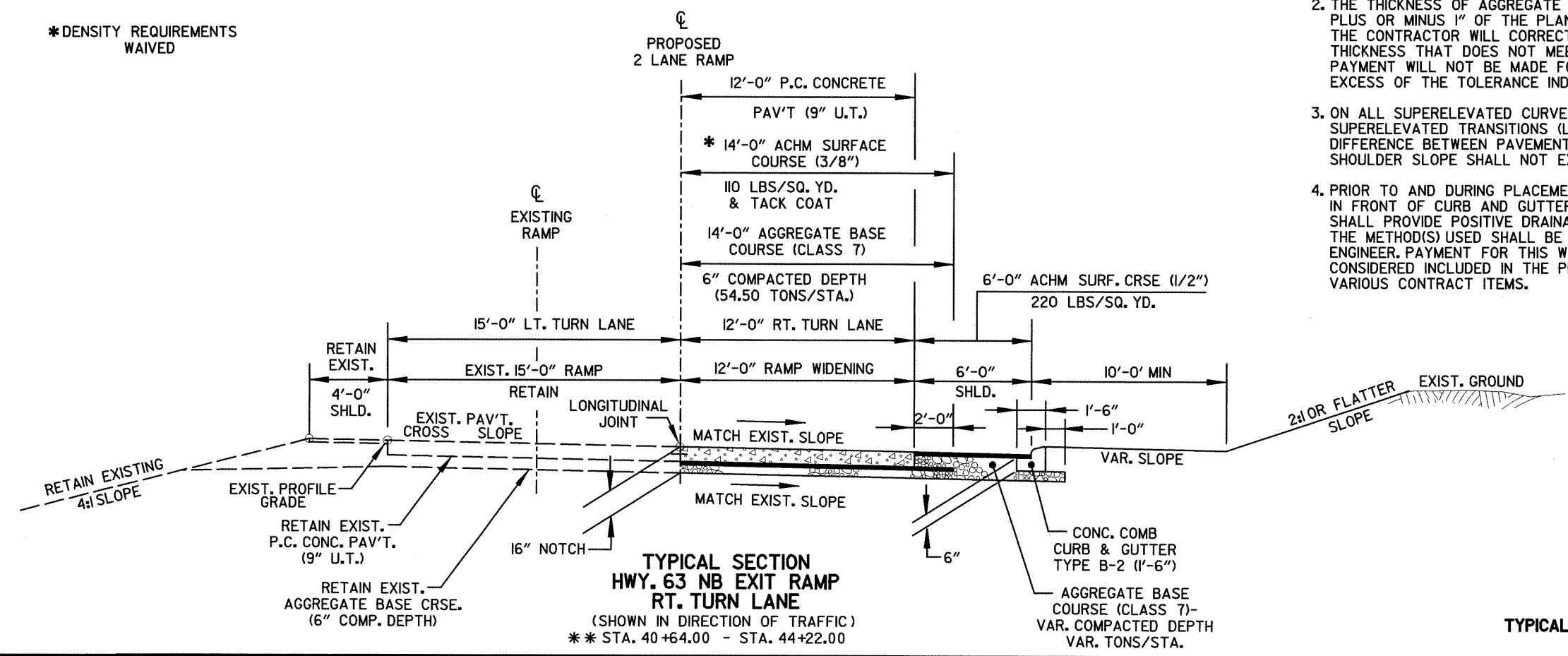
2 TYPICAL SECTIONS OF IMPROVEMENT



** NOTE: STA. 43+90.50- STA. 46+40.50 250' TAPER FROM EXISTING 15' LANE WITH 4' INSIDE SHOULDER AND 6' OUTSIDE SHOULDER, TO 1-15' LANE AND 1-12' LANE WITH 4' INSIDE SHOULDER AND 6' OUTSIDE SHOULDER. SEE HWY. 63 NB EXIT RAMP PLAN SHEET FOR ADDITIONAL DETAILS.

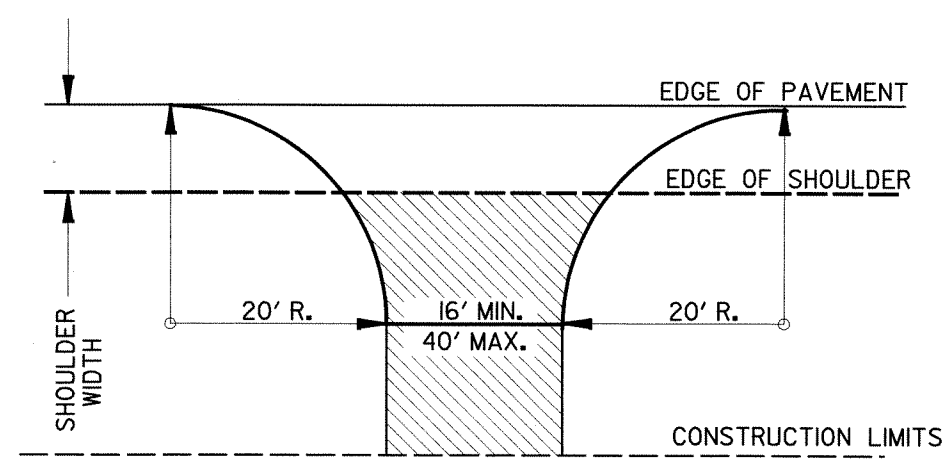
- NOTES:
- REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
 - THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
 - ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATED TRANSITIONS (LS), ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.
 - PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.


* DENSITY REQUIREMENTS WAIVED



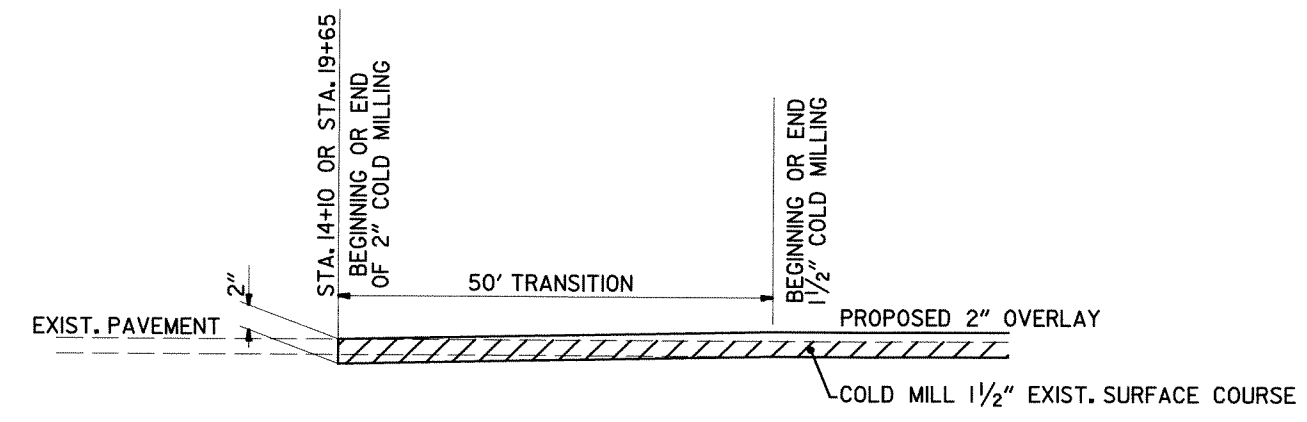
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				JOB NO.	I00738		6	69

2 SPECIAL DETAILS



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

DETAIL FOR DRIVEWAY TURNOUTS



DETAIL FOR COLD MILLING

STA. 14+10 - STA. 19+65

PARKER ROAD



12-7-11

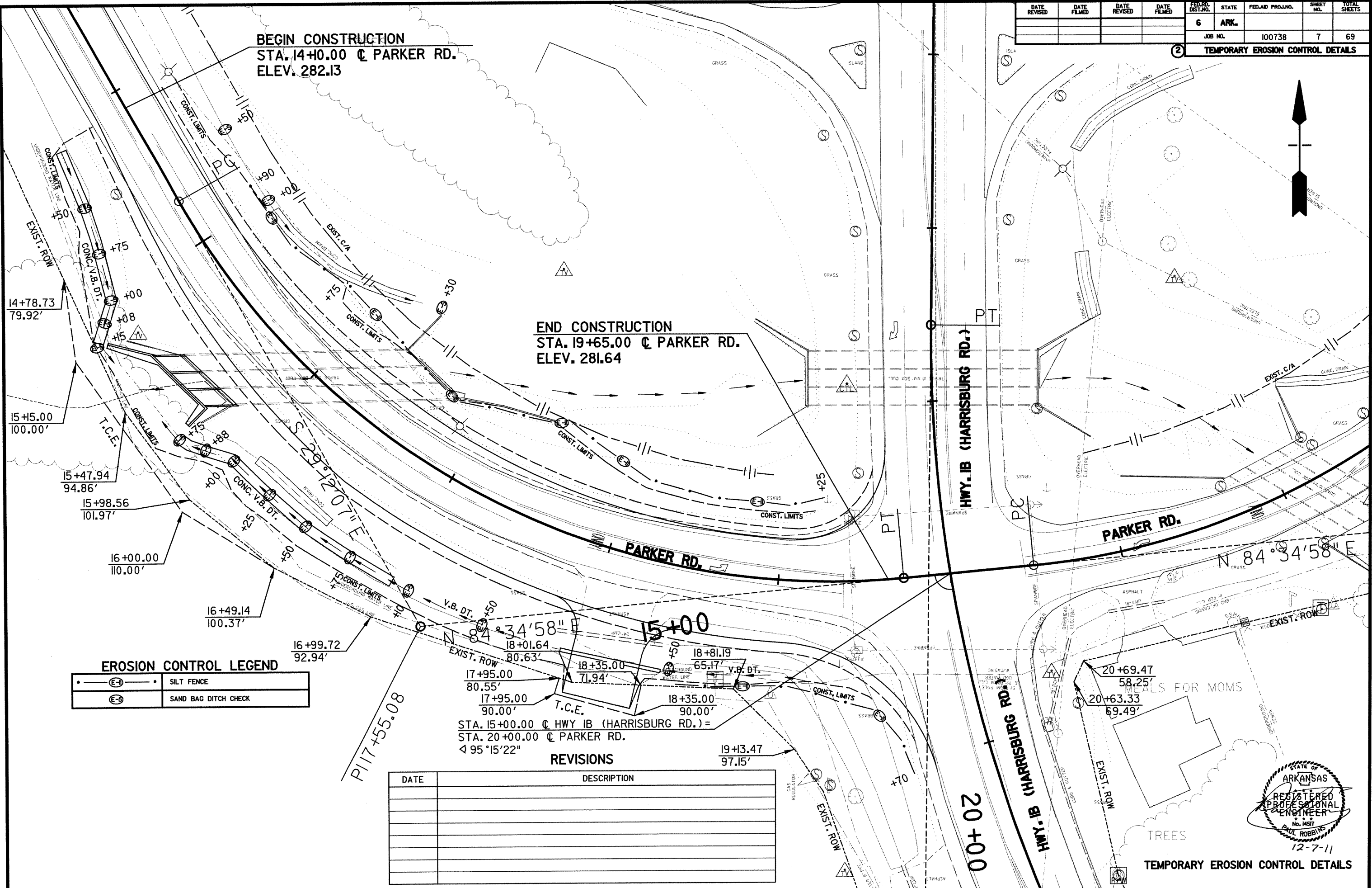
SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738		7	69

② TEMPORARY EROSION CONTROL DETAILS

BEGIN CONSTRUCTION
STA. 14+00.00 @ PARKER RD.
ELEV. 282.13

END CONSTRUCTION
STA. 19+65.00 @ PARKER RD.
ELEV. 281.64



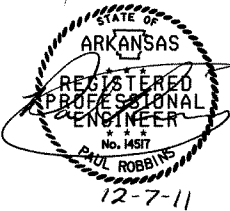
EROSION CONTROL LEGEND

	SILT FENCE
	SAND BAG DITCH CHECK

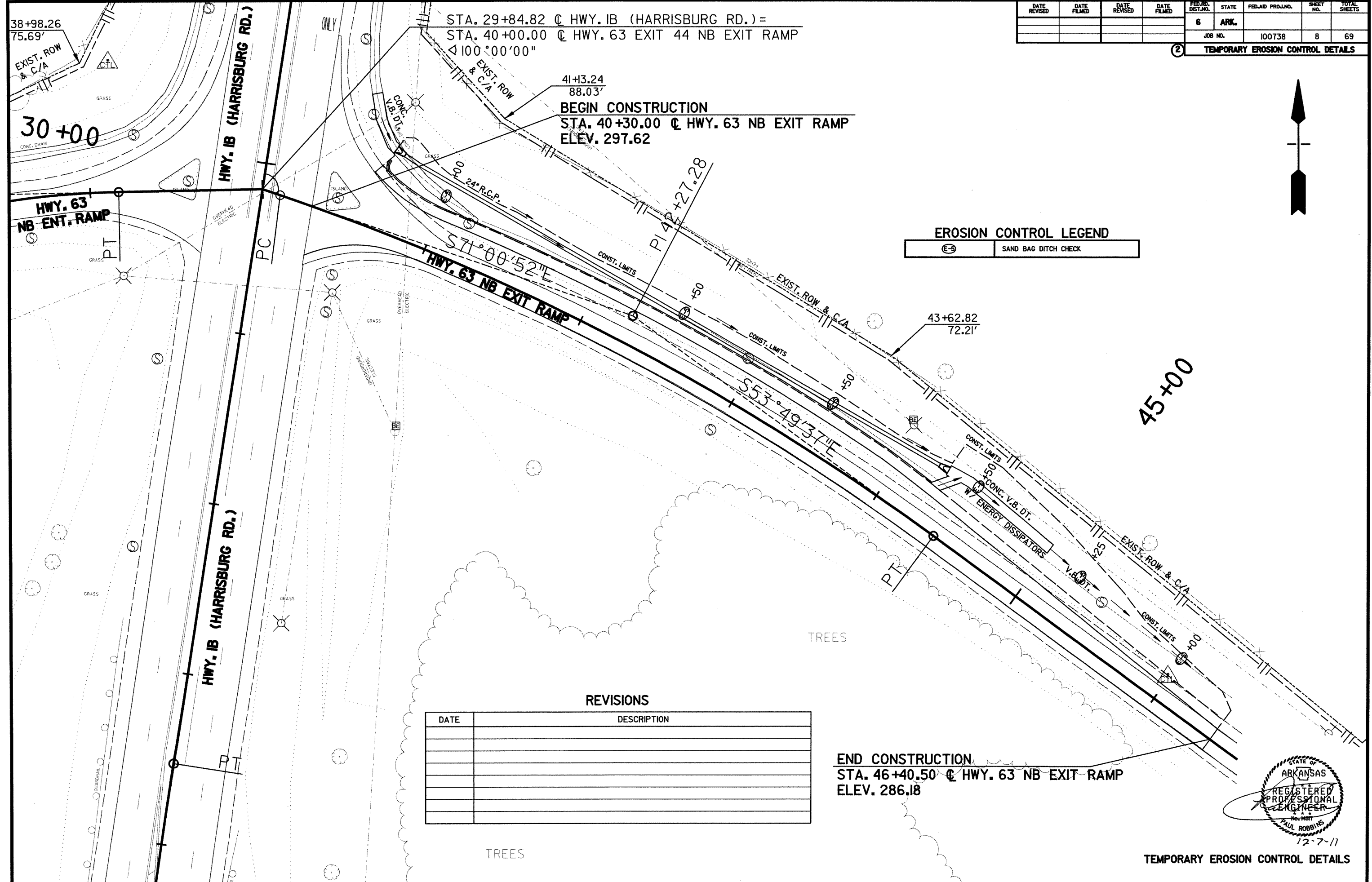
STA. 15+00.00 @ HWY IB (HARRISBURG RD.) =
STA. 20+00.00 @ PARKER RD.
∠ 95° 15' 22"

REVISIONS

DATE	DESCRIPTION



TEMPORARY EROSION CONTROL DETAILS



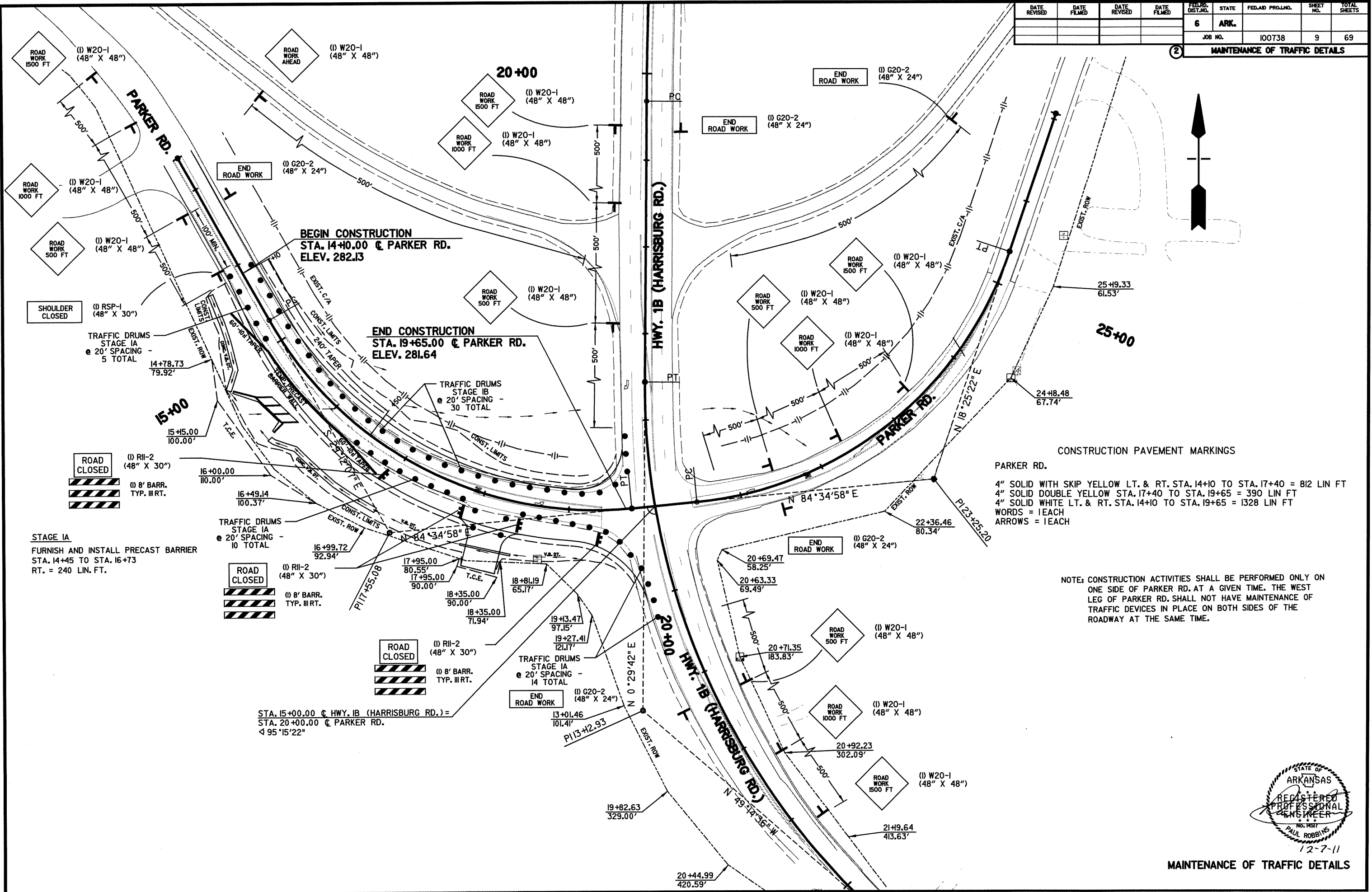
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				6	ARK.			
							8	69

JOB NO. 100738
 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. 100738		9		69

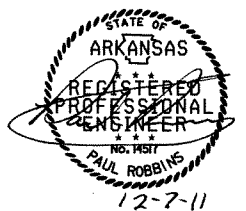
2 MAINTENANCE OF TRAFFIC DETAILS



CONSTRUCTION PAVEMENT MARKINGS

PARKER RD.
 4" SOLID WITH SKIP YELLOW LT. & RT. STA. 14+10 TO STA. 17+40 = 812 LIN FT
 4" SOLID DOUBLE YELLOW STA. 17+40 TO STA. 19+65 = 390 LIN FT
 4" SOLID WHITE LT. & RT. STA. 14+10 TO STA. 19+65 = 1328 LIN FT
 WORDS = 1 EACH
 ARROWS = 1 EACH

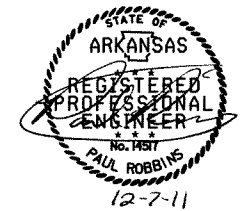
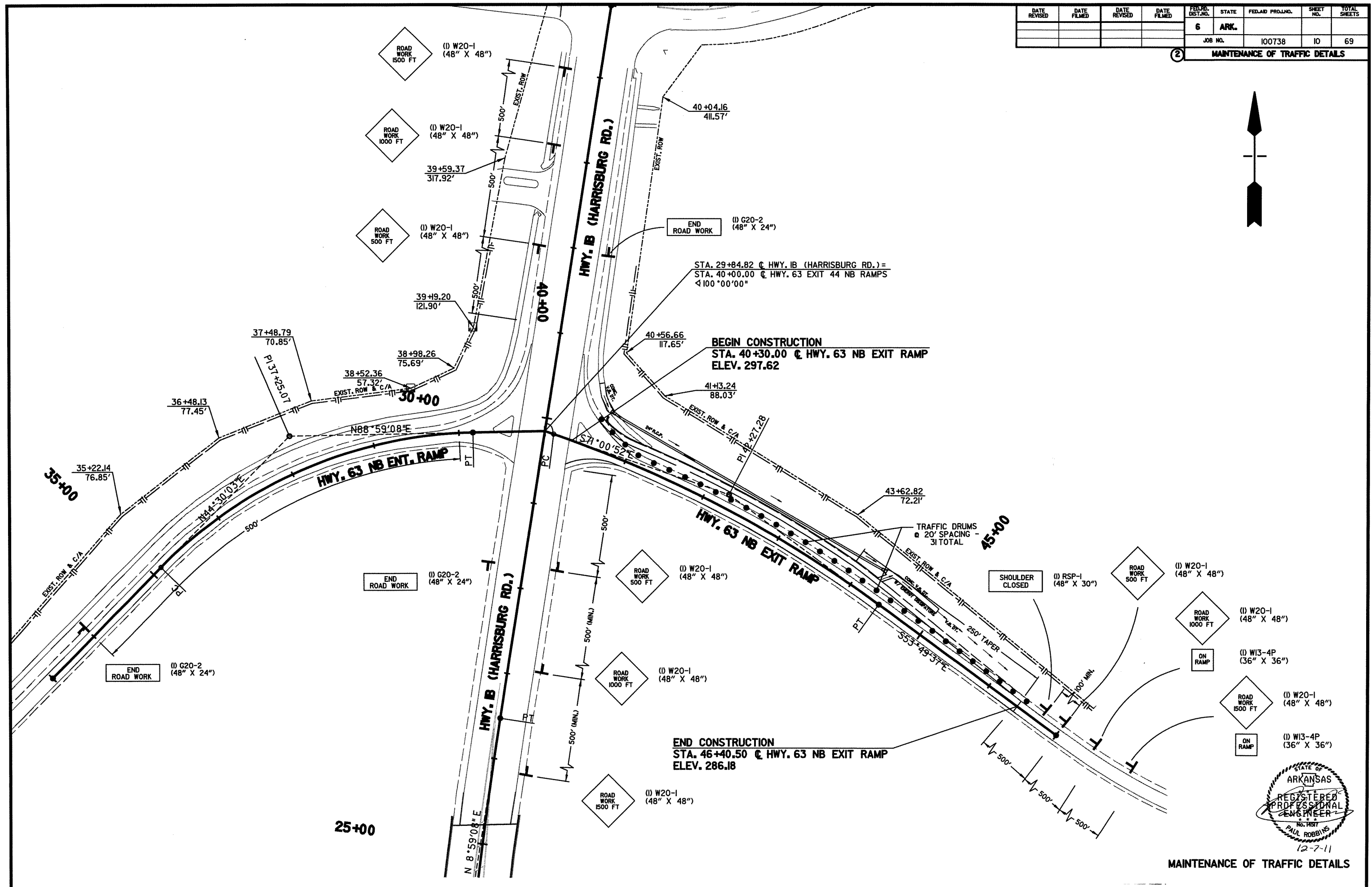
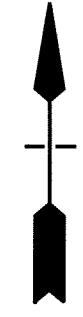
NOTE: CONSTRUCTION ACTIVITIES SHALL BE PERFORMED ONLY ON ONE SIDE OF PARKER RD. AT A GIVEN TIME. THE WEST LEG OF PARKER RD. SHALL NOT HAVE MAINTENANCE OF TRAFFIC DEVICES IN PLACE ON BOTH SIDES OF THE ROADWAY AT THE SAME TIME.



12-7-11

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.	100738		10	69

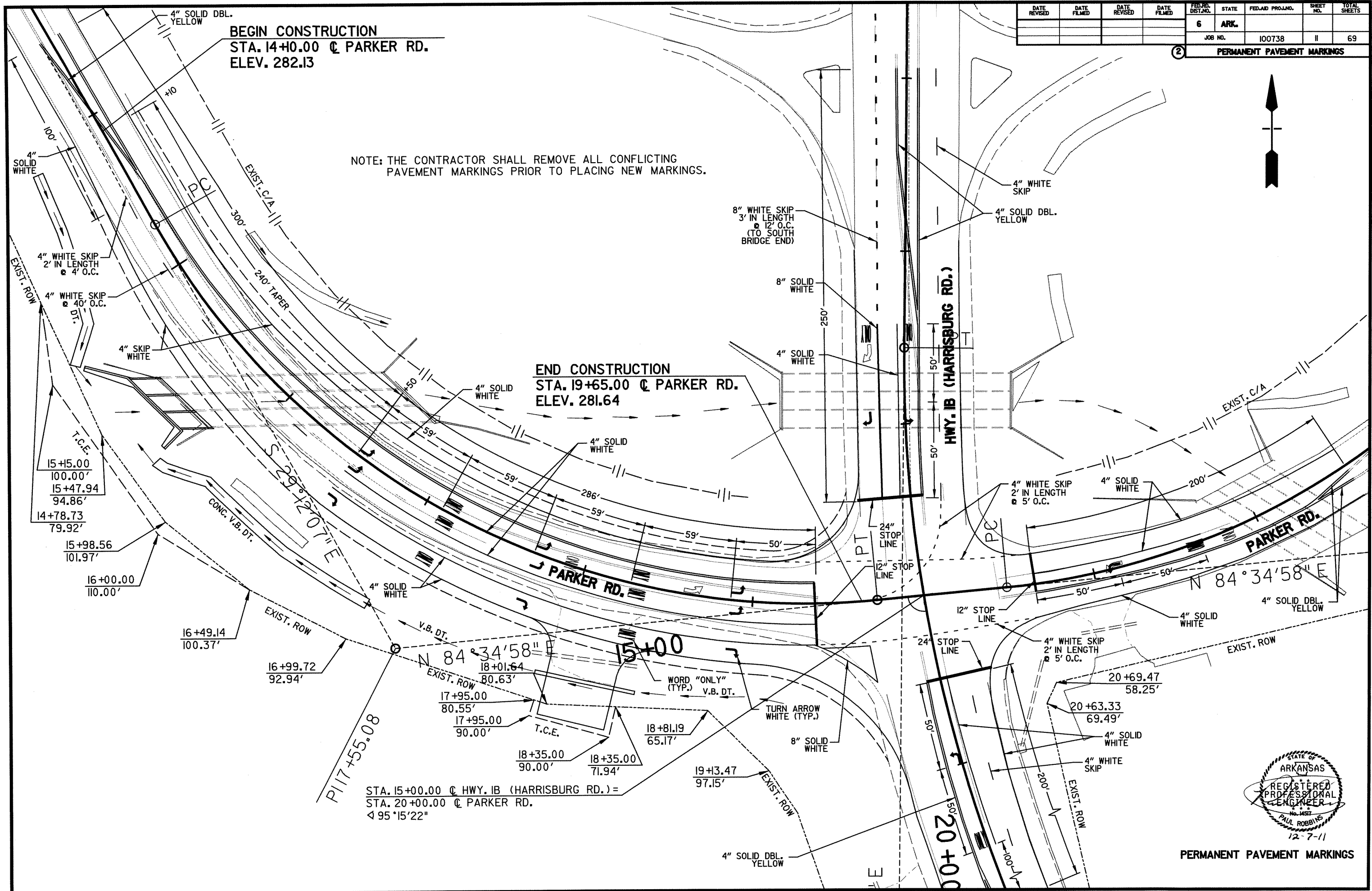
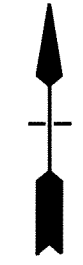
② MAINTENANCE OF TRAFFIC DETAILS



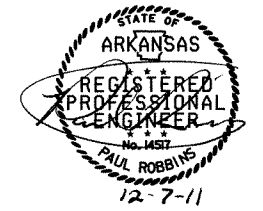
MAINTENANCE OF TRAFFIC DETAILS

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.	100738		II	69

PERMANENT PAVEMENT MARKINGS

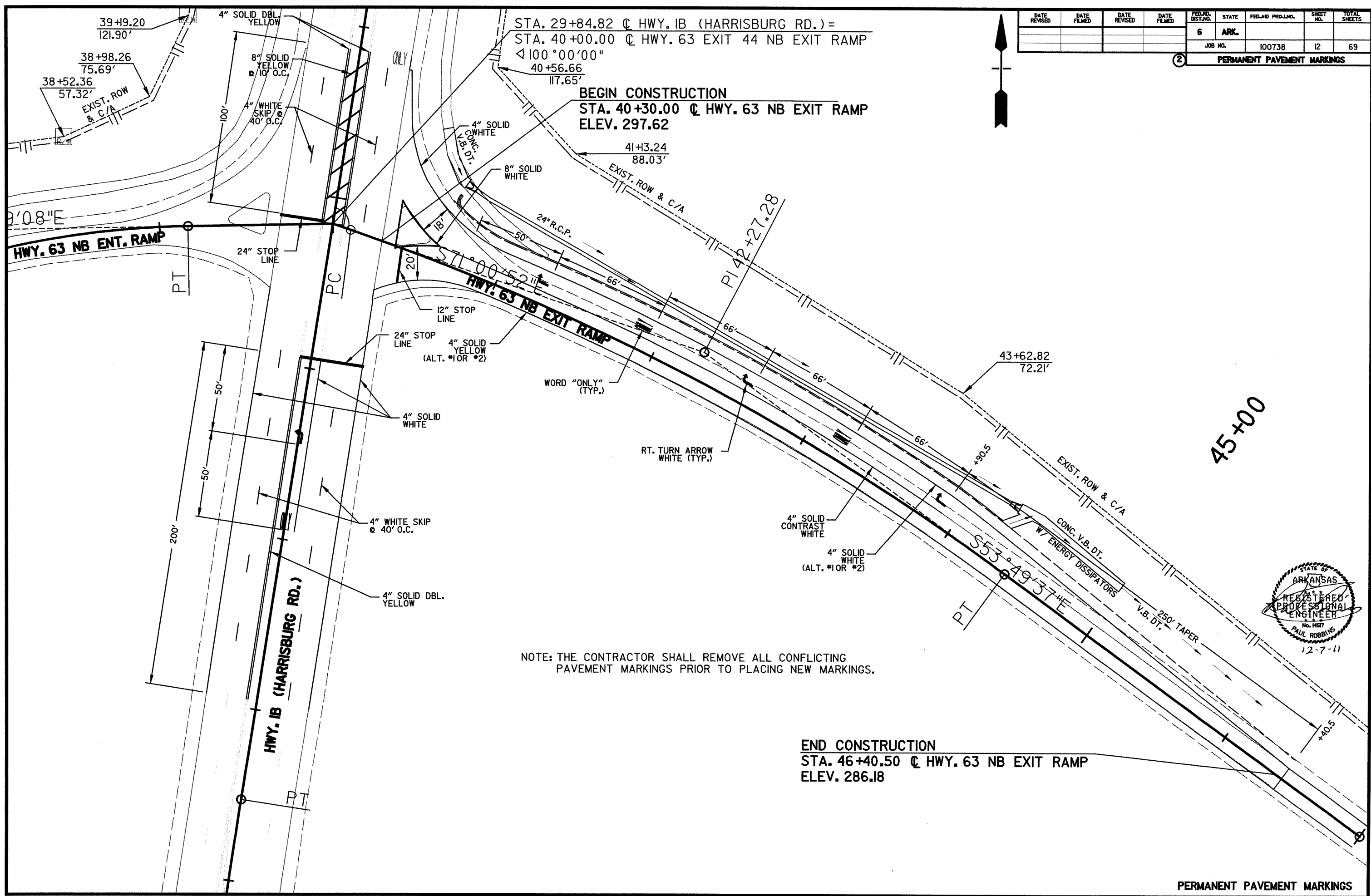


NOTE: THE CONTRACTOR SHALL REMOVE ALL CONFLICTING PAVEMENT MARKINGS PRIOR TO PLACING NEW MARKINGS.

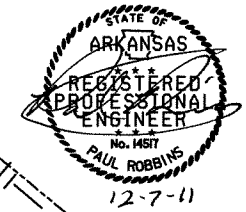


PERMANENT PAVEMENT MARKINGS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		12	69
JOB NO. 100738							PERMANENT PAVEMENT MARKINGS	



NOTE: THE CONTRACTOR SHALL REMOVE ALL CONFLICTING PAVEMENT MARKINGS PRIOR TO PLACING NEW MARKINGS.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738	13	69	

2 QUANTITIES

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL					*SEDIMENT REMOVAL & DISPOSAL
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	SILT FENCE	
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	(E-8) BAG	(E-11) LIN.FT.	
14+10	19+65	HWY. 1B/PARKER RD. EB TURN LANE	0.80	1.60	0.80	81.6	0.80	0.80	16.3	418	568	40	
40+30	46+41	HWY. 63 NB EXIT RAMP	0.40	0.80	0.40	40.8	0.40	0.40	8.2	132		6	
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.20	0.40	0.20	20.4	0.20	0.20	4.1	50	50	2	
TOTALS:			1.40	2.80	1.40	142.8	1.40	1.40	28.6	600	618	48	

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.

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 OF 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 COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE B-2 (1' 6")
			LIN. FT.
40+64	44+22	HWY. 63 NB EXIT RAMP LT.	369
TOTAL:			369

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	REMOVAL OF PERMANENT PAVEMENT MARKINGS	REMOVAL OF PERMANENT PAVEMENT MARKINGS		CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS		THERMOPLASTIC PAVEMENT MARKINGS					HIGH PERFORMANCE PAVEMENT MARKINGS		HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS			
		WORDS	ARROWS		WORDS	ARROWS	4" WHITE	4" YELLOW	8" WHITE	8" YELLOW	12" WHITE	24" WHITE	WORDS	ARROWS	4" WHITE	4" YELLOW	
		LIN.FT.	EACH		LIN.FT.	EACH	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	1600																
REMOVAL OF PERMANENT PAVEMENT MARKINGS (WORDS)		1															
REMOVAL OF PERMANENT PAVEMENT MARKINGS (ARROWS)			1														
CONSTRUCTION PAVEMENT MARKINGS				2530													
CONSTRUCTION PAVEMENT MARKINGS (WORDS)					1												
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)						1											
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")							5063										
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")								4744									
THERMOPLASTIC PAVEMENT MARKINGS WHITE (8")									445								
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (8")										119							
THERMOPLASTIC PAVEMENT MARKINGS WHITE (12")											77						
THERMOPLASTIC PAVEMENT MARKINGS WHITE (24")												132					
THERMOPLASTIC PAVEMENT MARKINGS WORDS												13					
THERMOPLASTIC PAVEMENT MARKINGS ARROWS													17				
HIGH PERFORMANCE PAVEMENT MARKINGS WHITE (4")													704				
HIGH PERFORMANCE PAVEMENT MARKINGS YELLOW (4")														664			
HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS WHITE (4")																	329
TOTALS:	1600	1	1	2530	1	1	5063	4744	445	119	77	132	13	17	704	664	329

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

ADVANCE WARNING SIGNS AND DEVICES

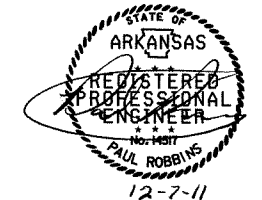
SIGN NUMBER	DESCRIPTION	SIGN SIZE	PARKER RD.		HWY. 63 NB EXIT RAMP	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)	FURNISHING & INSTALLING PRECAST CONC. BARRIER	
			STAGE 1A	STAGE 1B	STAGE 1		NO.	SQ. FT.				
			LIN.FT. - EACH	LIN.FT. - EACH	LIN.FT. - EACH							
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	3	4	4	64				
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	3	4	4	64				
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	3	4	4	64				
W20-1	ROAD WORK AHEAD	48"x48"	1	1	0	1	1	16				
G20-2	END ROAD WORK	48"x24"	5	5	3	5	5	40				
R11-2	ROAD CLOSED	48"x30"	4	0	0	4	4	40				
RSP-1	SHOULDER CLOSED	48"x30"	1	0	1	1	1	10				
W13-4P	ON RAMP	36"x36"	0	0	2	2	2	18				
	TYPE III BARRICADE-RT. (8')		32	0	0	32			32			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		240	0	0	240				240		
	TRAFFIC DRUMS		29	30	31	31			31			
TOTALS:									316	31	32	240

ABOVE QUANTITIES ARE BASED ON THE INDIVIDUAL CONSTRUCTION OF PARKER RD. AND HWY. 63 NB EXIT RAMP

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
14+10	19+65	HWY. 1B/PARKER RD. EB TURN LANE	737	2180
40+30	46+41	HWY. 63 NB EXIT RAMP	382	357
18+15		DRIVE ON RT. - PARKER RD.		140
TOTALS:			1119	2677

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



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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	100738
							SHEET NO.	14
							TOTAL SHEETS	69

② QUANTITIES

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH		CONC. DITCH PAVING (TYPE B) SQ. YD.	SOLID SODDING SQ. YD.	WATER M. GAL.
			LIN. FT.	"W" FEET			
14+15	15+15	HWY. 1B/PARKER RD. EB TURN LANE - RT.	100	6	66.7	44.4	0.6
15+75	17+00	HWY. 1B/PARKER RD. EB TURN LANE - RT.	125	6	83.3	55.6	0.7
40+44	40+64	HWY. 63 NB EXIT RAMP - LT.	35	6	23.3	15.6	0.2
44+22	45+00	HWY. 63 NB EXIT RAMP - LT.	87	6	58.0	38.7	0.5
TOTALS:					231.3	154.3	2.0

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	DESCRIPTION	CONCRETE DITCH PAVING SQ. YD.	PIPE CULVERTS EACH
16+07	16+57	HWY. 1B/PARKER RD. EB TURN LANE - RT.	EXIST. CONCRETE DITCH PAVING	33.3	
18+15		HWY. 1B/PARKER RD. EB TURN LANE - RT.	24" X 62' C.M. PIPE CULVERT RT. SIDE DRAIN		1
40+41	41+22	HWY. 63 NB EXIT RAMP - LT.	EXIST. CONCRETE DITCH PAVING	64.9	
TOTALS:				98.2	1

DRIVEWAYS

STATION	SIDE	LOCATION	WIDTH FEET	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 70-22)		AGGREGATE BASE COURSE (CLASS 7) TON	SIDE DRAINS 24" LIN. FT.
				SQ. YD.	TON		
18+15	RT.	HWY. 1B/PARKER RD. EB TURN LANE	40	223.3	24.6	91.2	60
TOTALS:					24.6	91.2	60

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

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 FEET	COLD MILLING ASPHALT PAVEMENT SQ. YD.
14+10	19+65	HWY. 1B/PARKER RD. EB TURN LANE	33	2035
TOTAL:				2035

NOTE: AVERAGE MILLING DEPTH 1.5".

SELECTED PIPE BEDDING & BACKFILL

LOCATION	SELECTED PIPE BEDDING CU.YD.	SELECTED PIPE BACKFILL CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	40	40
TOTALS:	40	40

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		PORTLAND CEMENT CONCRETE PAVEMENT		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")				ACHM SURFACE COURSE (3/8")				
				TON / STATION	TON	AVG. WID. FEET	9" U.T. SQ. YD.	TOTAL WID. FEET	SQ. YD.	GALLONS / SQ. YD.	GALLON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 70-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON	PG 70-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON
14+10	16+50	HWY. 1B/PARKER RD. EB TURN LANE - LT. & RT. TAPER	240.0	VAR.	459.0	11.1	296.0	0.03	8.9	11.1	296.0	330.0	48.8	23.1	616.0	220.0								
16+50	19+65	HWY. 1B/PARKER RD. EB TURN LANE - LT. & RT.	315.0	VAR.	782.0	22.2	777.0	0.03	23.3	22.2	777.0	330.0	128.2	34.0	1190.0	220.0								
14+10	19+65	HWY. 1B/PARKER RD. EB TURN LANE - OVERLAY ONLY	555.0			33.0	2035.0	0.10	203.5					33.0	2035.0	220.0								
40+64	43+90.50	HWY. 63 NB EXIT RAMP - CURB AND GUTTER	326.5	VAR.	346.1	12.0	435.3	14.0	507.9	0.03	15.2			6.0	217.7	220.0	23.9		14.0	507.9	110.0	27.9		
43+90.50	44+22	HWY. 63 NB EXIT RAMP - TAPER - CURB AND GUTTER	31.5	VAR.	32.4	11.25	39.4	13.25	46.4	0.03	1.4			6.0	21.0	220.0	2.3		13.25	46.4	110.0	2.6		
44+22	46+40.50	HWY. 63 NB EXIT RAMP - TAPER - OPEN SHOULDER	218.5	VAR.	283.0	5.25	127.5	7.25	176.0	0.03	5.3			6.0	145.7	220.0	16.0		7.25	176.0	110.0	9.7		
TOTALS:					1902.5		602.2		267.6				177.0				42.2	422.6					40.2	

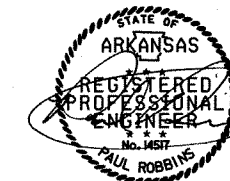
BASIS OF ESTIMATE:
ACHM SURFACE COURSE (3/8").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE (CLASS III)	FLARED END SECTIONS FOR R.C. PIPE CULVERTS	SPAN	HEIGHT	LENGTH	CLASS 5 CONCRETE ROADWAY	REINF. STEEL ROADWAY (GRADE 60)	UNCL. EXC. FOR STR. ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		24" LIN. FT.	24" EACH					CU. YD.				
40+64.40 TO 44+25.00	CONSTRUCT R.C. PIPE CULVERT ON LT. WITH FES BOTH SIDES	360	2									FES-1, FES-2
16+01.70	SOLID SODDING FOR TRP. R.C. BOX CULVERT											RCB-2
TOTALS:		360	2							35.1	0.44	
STRUCTURES OVER 20' - 0" SPAN												
16+01.70	EXTEND TRP. R.C. BOX CULVERT (SPAN = 42.90')			9.00	9.00	13.83	57.30	6982.00	25.80			R300X-X3, R-345X-2, RCB-1, RCB-2, RCB-3, W-X45, W-X452-2
TOTALS:							57.30	6982.00	25.80			

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.



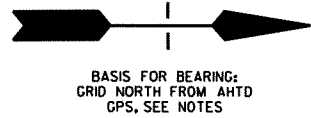
12-7-11

QUANTITIES

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100738	16	69

2 SURVEY CONTROL DETAILS

CURVE NUMBER	LOCATION	P.I.	NORTHING	EASTING	Δ	D	R	T	L	E	P.C.	P.T.
1	HWY. 1B (HARRISBURG RD.)	13+12.93	537924.9845	1698304.4854	49°44'18" Right	7°00'00"	818.51'	379.40'	710.55'	83.66'	9+33.53	16+44.07
2	HWY. 1B (HARRISBURG RD.)	23+08.43	538968.7117	1698313.5012	8°29'26" Right	1°15'00"	4583.66'	340.25'	679.25'	12.61'	19+68.19	26+47.44
3	PARKER RD.	17+55.08	538131.7561	1698011.4233	66°12'55" Left	13°15'00"	432.42'	281.97'	499.74'	83.81'	14+73.11	19+72.85
4	PARKER RD.	23+24.01	538191.6425	1698642.9209	66°09'36" Left	13°30'00"	424.41'	276.46'	490.07'	82.10'	20+47.55	25+37.62
5	HWY. 63 NB RAMP	37+25.07	539632.7791	1698122.8319	44°29'05" Right	11°00'00"	520.87'	213.01'	404.41'	41.87'	35+12.06	39+16.46
6	HWY. 63 NB RAMP	42+27.28	539564.0893	1698634.2518	17°11'15" Right	4°00'00"	1432.40'	216.47'	429.69'	16.26'	40+10.81	44+40.50

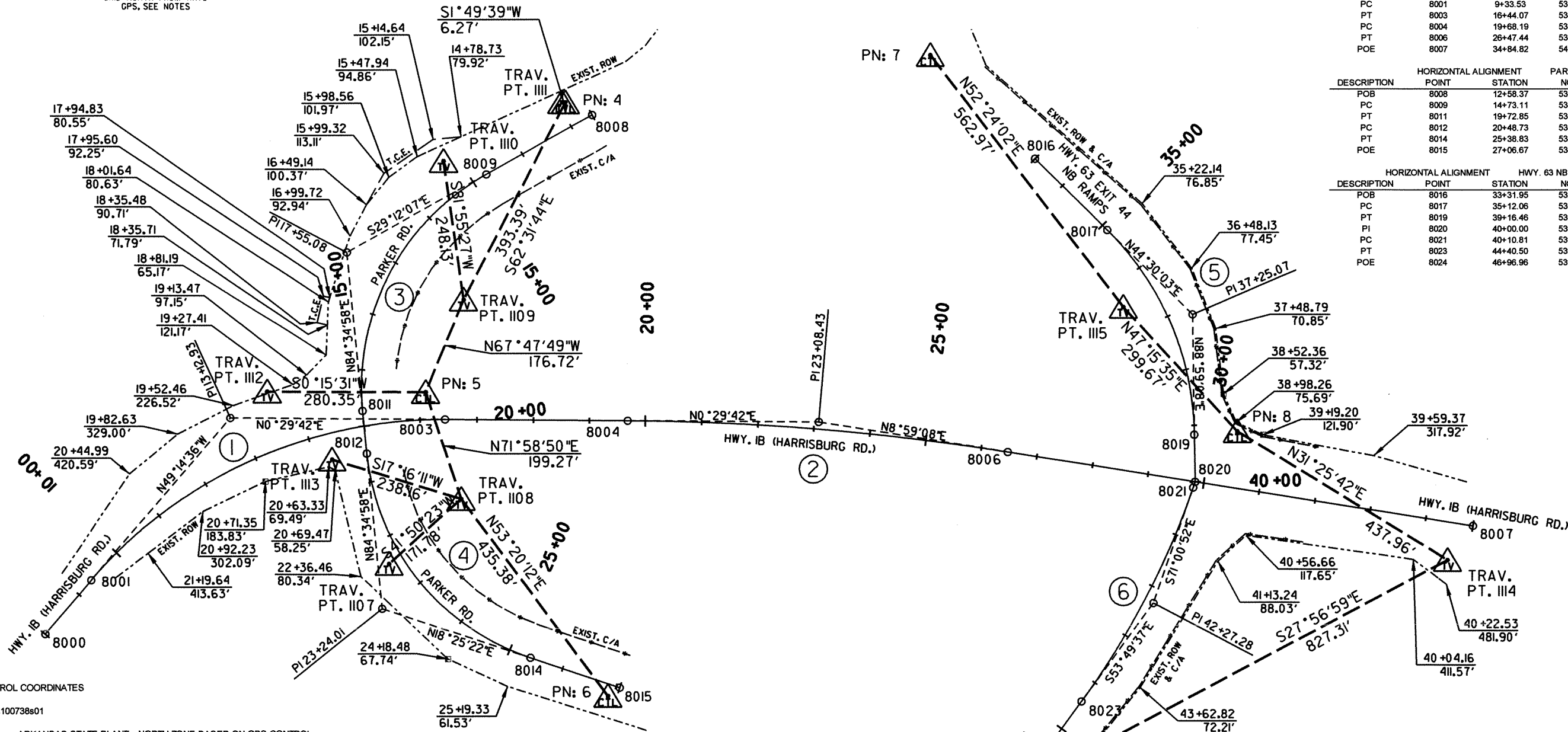


CONSTRUCTION C.L.

HORIZONTAL ALIGNMENT		HWY. 1B (HARRISBURG RD.)			
DESCRIPTION	POINT	STATION	NORTHING	EASTING	
POB	8000	8+07.87	537595.2571	1698687.0623	
PC	8001	9+33.53	537677.2912	1698591.8796	
PT	8003	16+44.07	538304.3743	1698307.7626	
PC	8004	19+68.19	538628.4768	1698310.5623	
PT	8006	26+47.44	539304.7837	1698366.6428	
POE	8007	34+84.82	540131.8934	1698497.4299	

HORIZONTAL ALIGNMENT		PARKER RD.			
DESCRIPTION	POINT	STATION	NORTHING	EASTING	
POB	8008	12+58.37	538565.3404	1697769.0817	
PC	8009	14+73.11	538377.8929	1697873.8510	
PT	8011	19+72.85	538158.3769	1698292.1380	
PC	8012	20+48.73	538165.5411	1698367.6840	
PT	8014	25+38.83	538453.9452	1698730.2933	
POE	8015	27+06.67	538613.1855	1698783.3358	

HORIZONTAL ALIGNMENT		HWY. 63 NB EXIT/RAMP			
DESCRIPTION	POINT	STATION	NORTHING	EASTING	
POB	8016	33+31.95	539352.3902	1697847.2855	
PC	8017	35+12.06	539480.8505	1697973.5272	
PT	8019	39+16.46	539636.5505	1698335.8107	
PI	8020	40+00.00	539638.0295	1698419.3374	
PC	8021	40+10.81	539634.5134	1698429.5575	
PT	8023	44+40.50	539436.3229	1698808.9947	
POE	8024	46+96.96	539284.9529	1699016.0197	



SURVEY CONTROL COORDINATES

Project Name: s100738s01
 Date: 7/22/2011
 Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
 Units: U.S. SURVEY FOOT

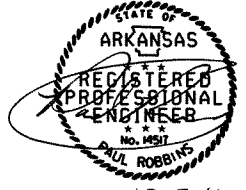
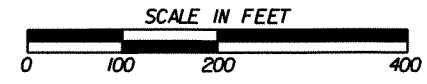
POINT NAME	NORTHING	EASTING	ELEVATION	FEATURE	DESCRIPTION
4	538518.7720	1697746.6368	282.60	CTL	5/8" REBAR W/2" AHTD CAP *
5	538270.5165	1698259.2922	280.68	CTL	5/8" REBAR W/2" AHTD CAP *
6	538592.1303	1698798.0329	279.50	CTL	5/8" REBAR W/2" AHTD CAP *
7	539166.2552	1697663.6651	283.69	CTL	5/8" REBAR W/2" AHTD CAP *
8	539713.1262	1698329.7949	302.99	CTL	5/8" REBAR W/2" AHTD CAP *
9	539356.0211	1698945.9220	286.59	CTL	5/8" REBAR W/2" AHTD CAP *
906	538931.3065	1698359.9456	302.06	TBM	BRASS CAP, SE CORN BR 6273
907	538920.5558	1698284.1396	305.69	TBM	ALUM DISK, SW CORN BR 6273
921	538275.2820	1698236.6206	276.85	TBM	CHS SQ CENTER HW. 36" W OF EP
922	539585.8021	1698340.0819	294.69	TBM	CPS IN PP, 34" N OF EP PARKER RD, IN LP
1107	538204.1792	1698563.3737	279.26	TV	8" SPIKE
1108	538332.1582	1698448.7871	277.05	TV	8" SPIKE
1109	538337.2986	1698095.6733	279.91	TV	8" SPIKE
1110	538302.4401	1697850.0015	273.14	TV	8" SPIKE
1111	538512.5037	1697746.4368	282.09	TV	8" SPIKE
1112	537990.1726	1698258.0267	278.23	TV	8" SPIKE
1113	538104.7366	1698378.0855	278.29	TV	8" SPIKE
1114	540086.8367	1698558.1636	315.42	TV	8" SPIKE
1115	539509.7472	1698109.7067	300.17	TV	8" SPIKE

SURVEY CONTROL NOTES:

* AHTD CAPS ARE STAMPED AS FOLLOWS:
 LINE 1 - ARKANSAS HWY. & TRANS. DEPT.
 LINE 2 - JOB 100672
 LINE 3 - POINT NUMBER

ALL DISTANCES ARE GROUND.
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
 A PROJECT CAF OF 0.9999349540 HAS BEEN USED TO COMPUTE THE GROUND COORDINATES ABOVE.
 THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
 GRID DISTANCE = GROUND DISTANCE X CAF.
 GRID COORDINATES ARE STORED UNDER FILE NAME: s100672g.ctl
 HORIZONTAL DATUM: NAD 83 (1997)
 VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

BASIS OF BEARINGS:
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: AHTD GPS PN: 180012 (Prj CTL #102), NGS PID: HC 65+19
 CONVERGENCE ANGLE: 0-45-30 RIGHT AT PN: 6
 LT: 35-48-21.4 LG: 090-41-49.2
 NORTHING 538557.0933 EASTING 1698687.5309
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.



12-7-11 SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738		17	69

HWY. IB/PARKER RD. EB TURN LANE PLAN

BEGIN CONSTRUCTION
 STA. 14+00.00 @ PARKER RD.
 ELEV. 282.13

REMOVING & REINSTALLING SIGNS (BY AHTD)
 STA. 14+50.69 PARKER RD. RT. = IEACH
 STA. 19+47.68 PARKER RD. LT. = IEACH

REMOVING & REINSTALLING STREET LIGHTS (BY CITY)
 STA. 16+86.82 PARKER RD. LT. = IEACH

STA. 16+01.70 - PARKER ROAD
 IN PLACE TRP. 9'X9'X130' R.C.
 BOX CULVERT (45° LT. FWD. SKEW)
 RETAIN & EXTEND 12' RT.
 EXTEND R.C. BOX BY CUTTING BOX
 CULVERT PARALLEL TO EXISTING
 HEADWALL & USING REINFORCING
 BARS OF EQUAL LENGTH FOR
 EXTENSION.
 NOTED
 USE 2:1 WINGS
 SPAN = 42.90'

STA. 16+13.00 - HWY. IB
 IN PLACE TRIPLE 10'X10'X132'
 R.C. BOX CULVERT
 RETAIN

END CONSTRUCTION
 STA. 19+65.00 @ PARKER RD.
 ELEV. 281.64

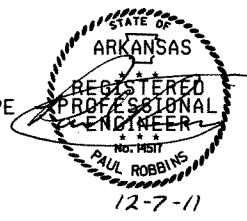
EXIST. CONC.
 DITCH PAVING
 RETAIN

PARKER RD.
 P.I. = 23+24.01
 N = 538191.6425
 E = 1698642.9209
 DELTA = 66°09'36" LT.
 DOC = 13°30'00"
 T = 276.46'
 L = 490.07'
 E = 82.10'
 P.C. = 20+47.55
 P.T. = 25+37.62

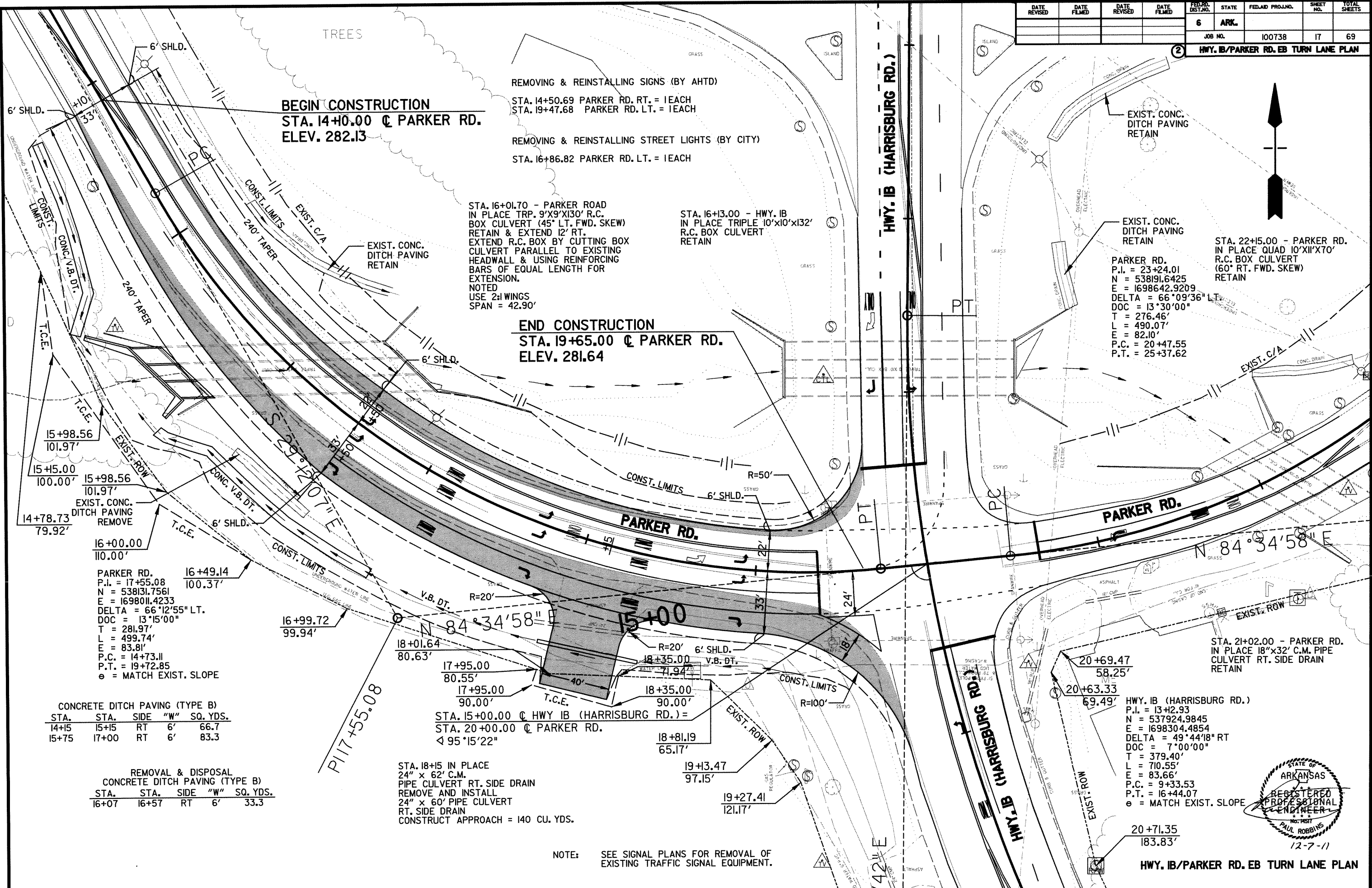
STA. 22+15.00 - PARKER RD.
 IN PLACE QUAD 10'X11'X70'
 R.C. BOX CULVERT
 (60° RT. FWD. SKEW)
 RETAIN

STA. 21+02.00 - PARKER RD.
 IN PLACE 18"X32' C.M. PIPE
 CULVERT RT. SIDE DRAIN
 RETAIN

HWY. IB (HARRISBURG RD.)
 P.I. = 13+12.93
 N = 537924.9845
 E = 1698304.4854
 DELTA = 49°44'18" RT
 DOC = 7°00'00"
 T = 379.40'
 L = 710.55'
 E = 83.66'
 P.C. = 9+33.53
 P.T. = 16+44.07
 e = MATCH EXIST. SLOPE



HWY. IB/PARKER RD. EB TURN LANE PLAN



CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
14+15	15+15	RT	6'	66.7
15+75	17+00	RT	6'	83.3

REMOVAL & DISPOSAL
 CONCRETE DITCH PAVING (TYPE B)

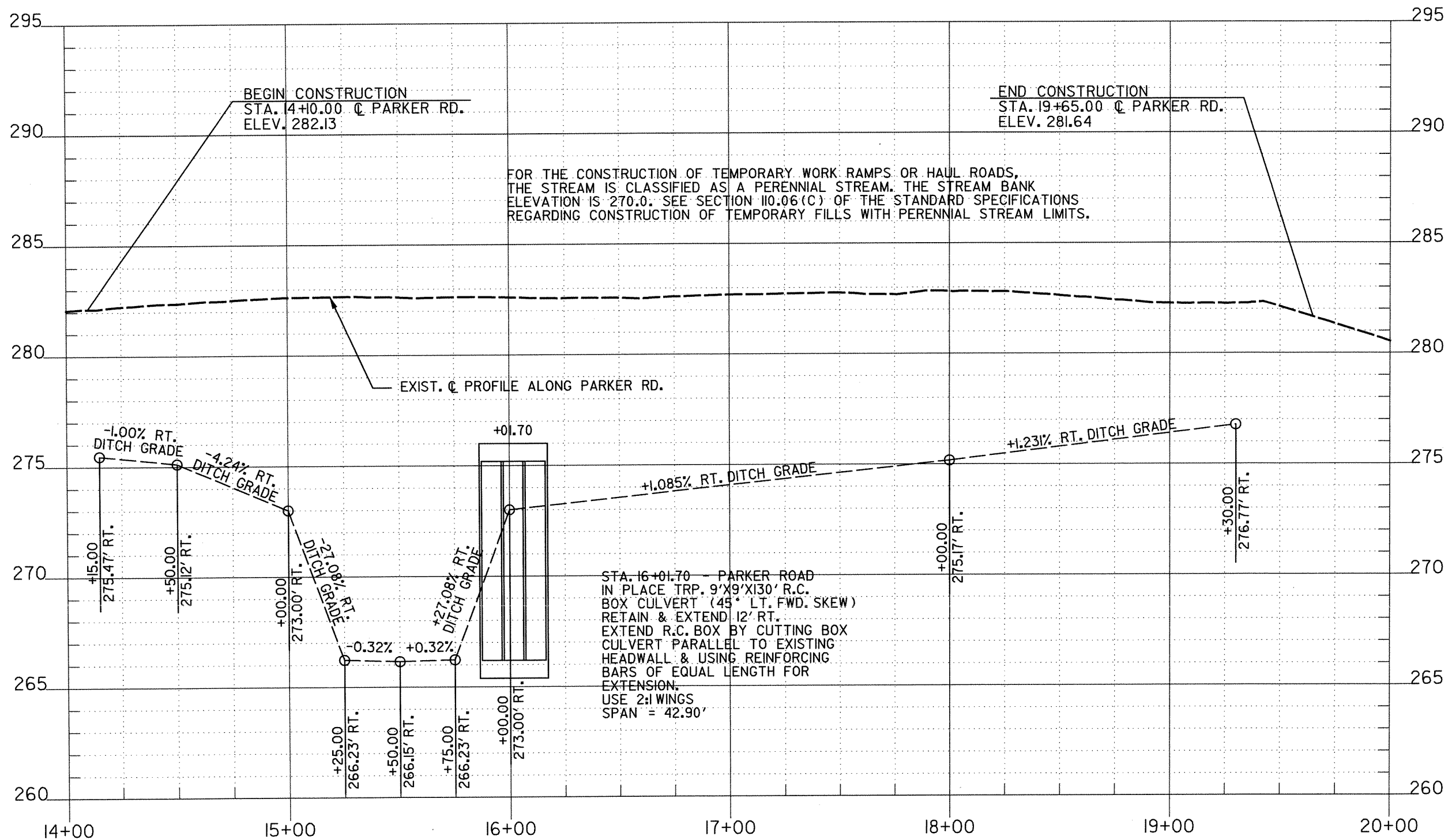
STA.	STA.	SIDE	"W"	SQ. YDS.
16+07	16+57	RT	6'	33.3

STA. 18+15 IN PLACE
 24" x 62" C.M.
 PIPE CULVERT RT. SIDE DRAIN
 REMOVE AND INSTALL
 24" x 60" PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH = 140 CU. YDS.

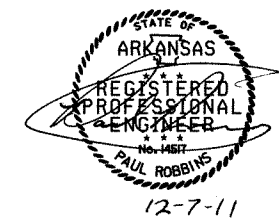
NOTE: SEE SIGNAL PLANS FOR REMOVAL OF EXISTING TRAFFIC SIGNAL EQUIPMENT.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						100738	18	69

2 HWY. B/PARKER RD. EB TURN LANE PROFILE



NOTE: THE FINISHED GRADE OF PARKER RD. EB TURN LANE WILL BE AN EXTENSION OF THE EXIST. C PROFILE GRADE. SEE TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

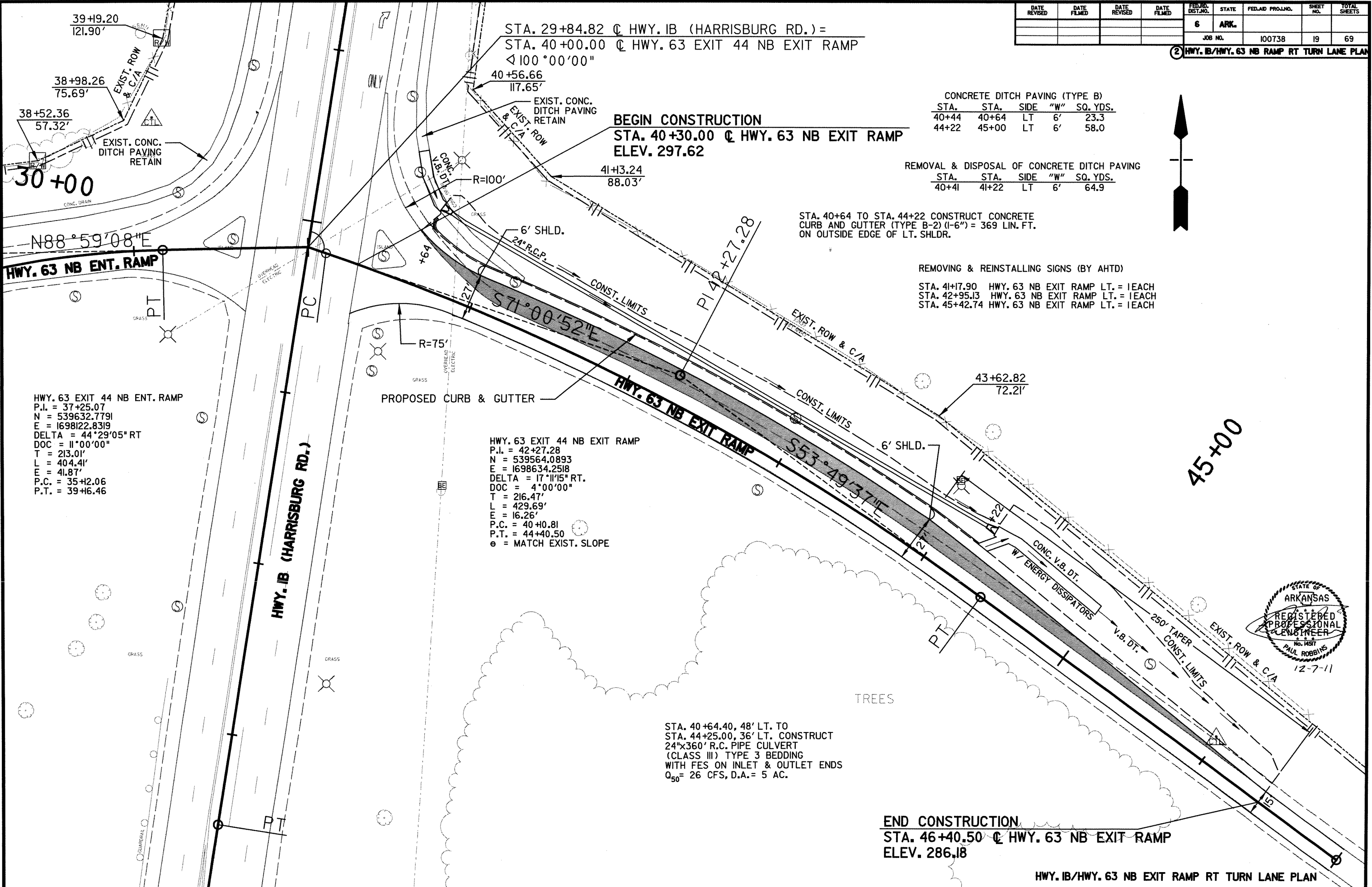


12-7-11

HWY. B/PARKER RD. EB TURN LANE PROFILE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. NO. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738		19	69

2 HWY. IB/HWY. 63 NB RAMP RT TURN LANE PLAN



BEGIN CONSTRUCTION
 STA. 40+30.00 Q HWY. 63 NB EXIT RAMP
 ELEV. 297.62

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
40+44	40+64	LT	6'	23.3
44+22	45+00	LT	6'	58.0

REMOVAL & DISPOSAL OF CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	SQ. YDS.
40+41	41+22	LT	6'	64.9

STA. 40+64 TO STA. 44+22 CONSTRUCT CONCRETE CURB AND GUTTER (TYPE B-2) (I-6") = 369 LIN. FT. ON OUTSIDE EDGE OF LT. SHLDR.

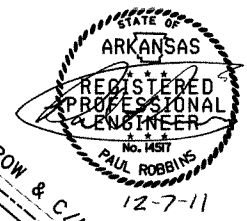
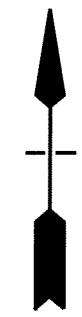
REMOVING & REINSTALLING SIGNS (BY AHTD)
 STA. 41+17.90 HWY. 63 NB EXIT RAMP LT. = 1 EACH
 STA. 42+95.13 HWY. 63 NB EXIT RAMP LT. = 1 EACH
 STA. 45+42.74 HWY. 63 NB EXIT RAMP LT. = 1 EACH

HWY. 63 EXIT 44 NB ENT. RAMP
 P.I. = 37+25.07
 N = 539632.7791
 E = 1698122.8319
 DELTA = 44°29'05" RT
 DOC = 11°00'00"
 T = 213.01'
 L = 404.41'
 E = 41.87'
 P.C. = 35+42.06
 P.T. = 39+46.46

HWY. 63 EXIT 44 NB EXIT RAMP
 P.I. = 42+27.28
 N = 539564.0893
 E = 1698634.2518
 DELTA = 17°11'15" RT.
 DOC = 4°00'00"
 T = 216.47'
 L = 429.69'
 E = 16.26'
 P.C. = 40+40.81
 P.T. = 44+40.50
 e = MATCH EXIST. SLOPE

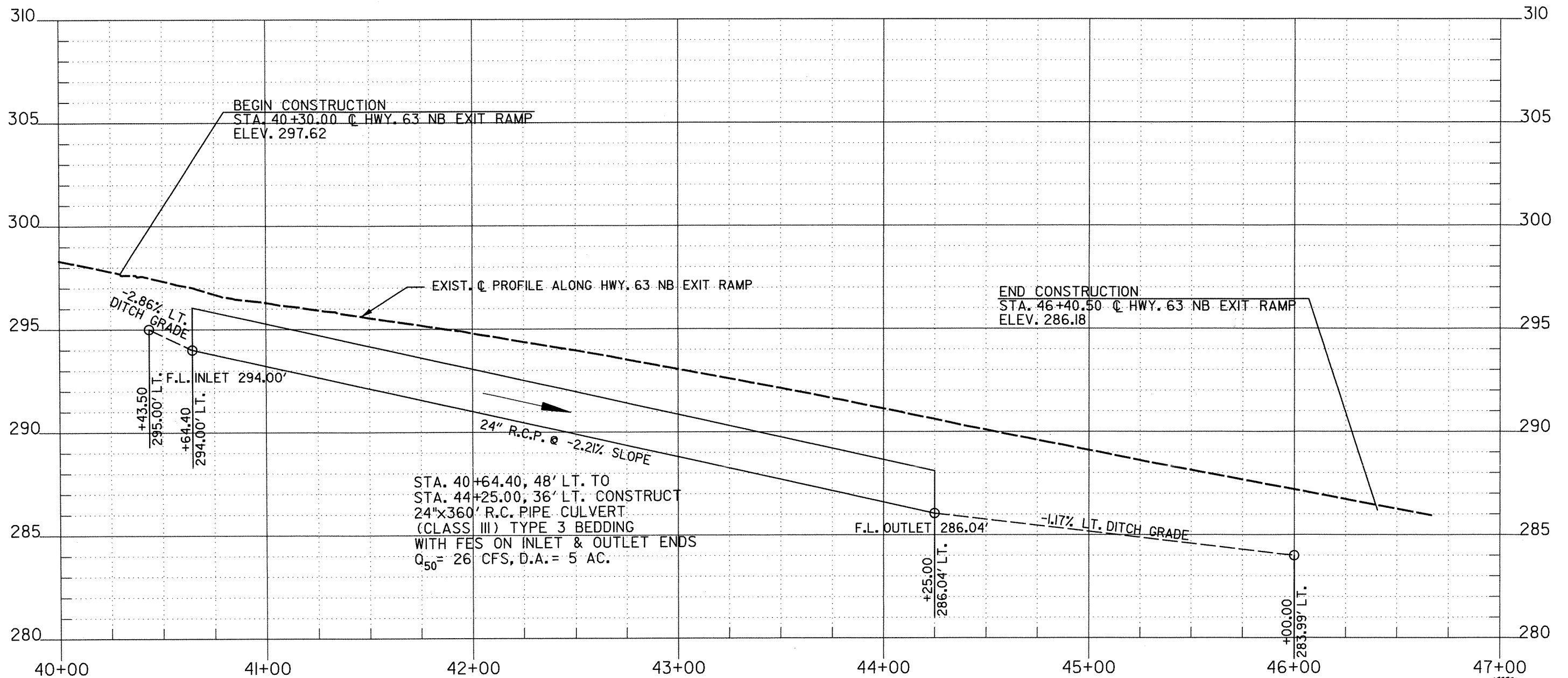
STA. 40+64.40, 48' LT. TO
 STA. 44+25.00, 36' LT. CONSTRUCT
 24"x360' R.C. PIPE CULVERT
 (CLASS III) TYPE 3 BEDDING
 WITH FES ON INLET & OUTLET ENDS
 Q₅₀ = 26 CFS, D.A. = 5 AC.

END CONSTRUCTION
 STA. 46+40.50 Q HWY. 63 NB EXIT RAMP
 ELEV. 286.18



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738	20	69	

② HWY. 18/HWY. 63 NB RAMP RT TURN LANE PROFILE



NOTE: THE FINISHED GRADE OF HWY. 63 NB EXIT RAMP RIGHT TURN LANE WILL BE AN EXTENSION OF THE EXIST. C. PROFILE GRADE. SEE TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.



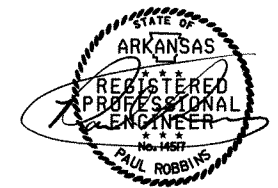
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738		21	69

2 CULVERT DIAGRAM

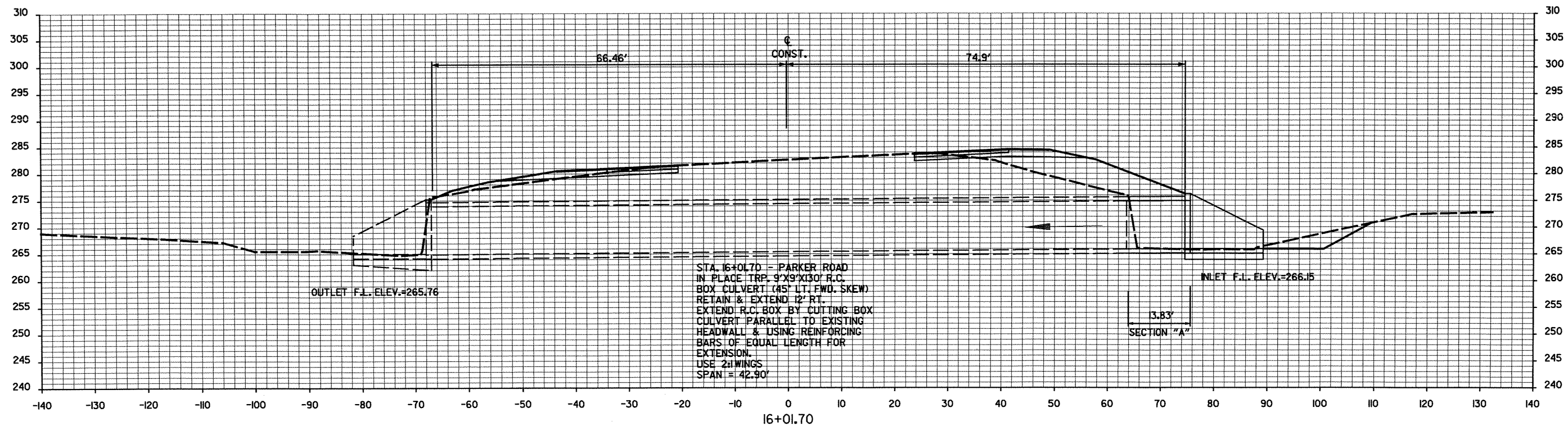
QUANTITIES FOR RC BOX CULVERT EXTENSION AT STA. 16+01.70 RT. PARKER RD.

SECTION/ LOCATION	LENGTH	CLASS S CONCRETE - ROADWAY		REINFORCING STEEL - ROADWAY (GRADE 60)		UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER	STANDARD DRAWING NO.
		PER LINEAR FOOT-BARREL	TOTAL	PER LINEAR FOOT-BARREL	TOTAL				
		FEET	CU. YDS.	POUNDS	CU. YDS.				
SECTION "A" (RT.)	13.83	2.89	39.97	434.31	6007.00	25.80			R300X-X3, R-345X-2, RCB-3
TWO WINGS			17.33		975.00		19.10	0.24	W-X45, W-X452-2, RCB-1, RCB-2
TOTAL			57.30		6982.00	25.80	19.10	0.24	

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



12-7-11



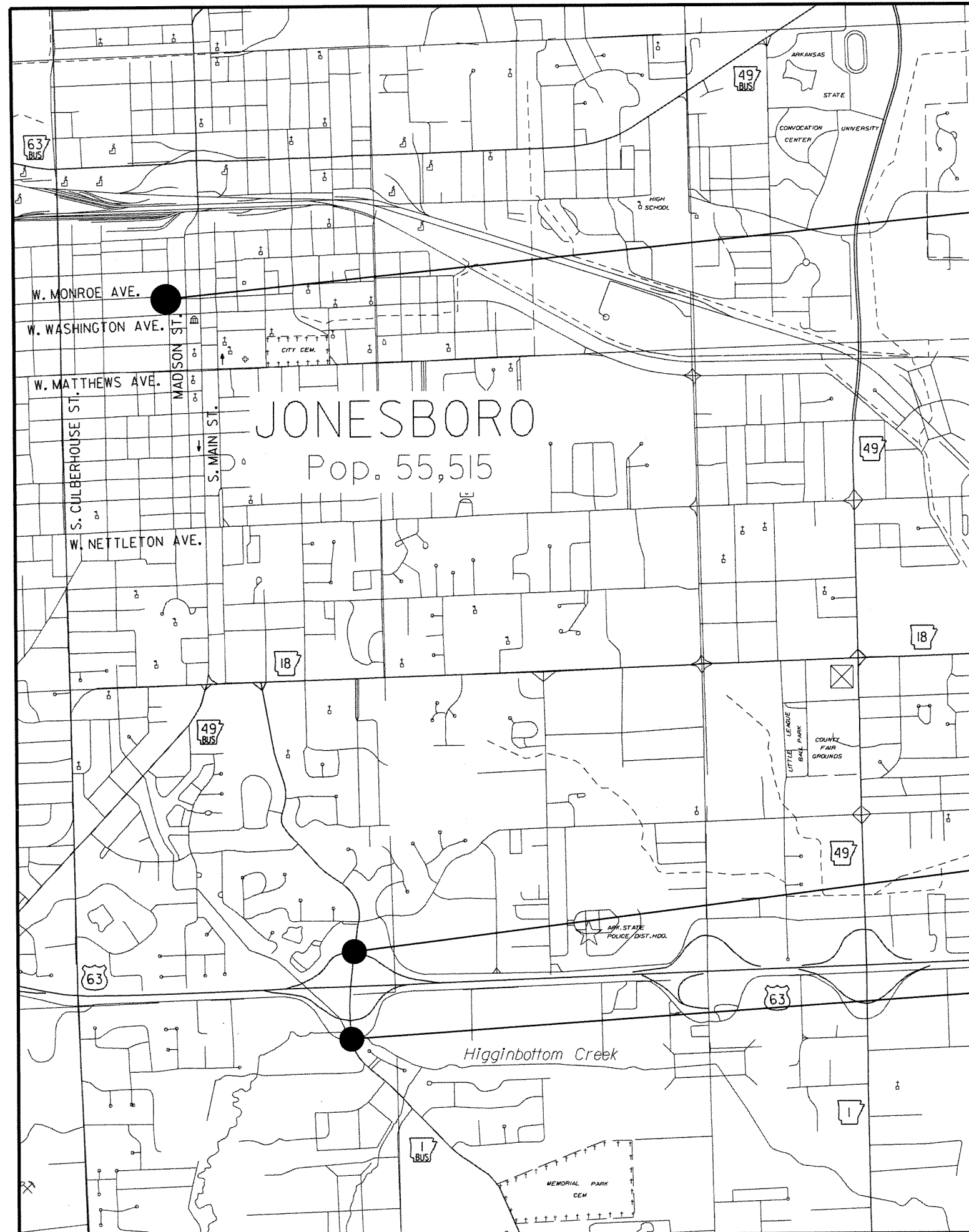
STA. 16+01.70 - PARKER ROAD
 IN PLACE TRP. 9'X9'X130' R.C.
 BOX CULVERT (45° LT. FWD. SKEW)
 RETAIN & EXTEND 12' RT.
 EXTEND R.C. BOX BY CUTTING BOX
 CULVERT PARALLEL TO EXISTING
 HEADWALL & USING REINFORCING
 BARS OF EQUAL LENGTH FOR
 EXTENSION.
 USE 2-WINGS
 SPAN = 42.90'

CULVERT DIAGRAM

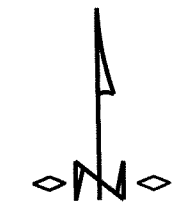
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738		22	69

② SYSTEM MAP

SYSTEM MAP

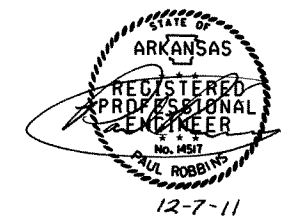


MADISON STREET / WEST MONROE AVENUE
(MASTER CONTROLLER)



HWY. 18 (HARRISBURG RD.) & HWY. 63 NB RAMP
(TRAFFIC SIGNAL)

HWY. 18 (HARRISBURG RD.) & PARKER ROAD
(TRAFFIC SIGNAL)



DATE: 8/5/11 FILE NAME: e100738.SYS

LOCATION: HWY. 18/63 INTERSECTION & PARKER RD. SIGNALS
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10
 DRAWN BY: F&H

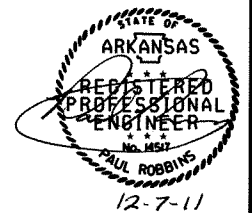
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						100738	22A	69

2 SUMMARY OF TRAFFIC SIGNAL QUANTITIES

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	HWY. 1B & HWY. 63 NB RAMP SIGNAL SUBTOTAL	HWY. 1B & PARKER RD. SIGNAL			TOTAL	UNIT
			STAGE 1	STAGE 2	SUBTOTAL		
SP & 701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	1		1	2	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	14	1	15	23	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	1	2		2	3	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	574	1006		1006	1580	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	99	94		94	193	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)	557	0		0	557	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	0	671		671	671	LIN. FT.
710	NON-METALLIC CONDUIT (2")	31	33		33	64	LIN. FT.
710	NON-METALLIC CONDUIT (3")	348	464		464	812	LIN. FT.
SS & 711	CONCRETE PULL BOX (TYPE 1)	1			0	1	EACH
SS & 711	CONCRETE PULL BOX (TYPE 2)	2			0	2	EACH
SS & 711	CONCRETE PULL BOX (TYPE 2 HD)	2	6		6	8	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')	0	1		1	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	0	1		1	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (46'-46")	1			0	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (56')	0	2		2	2	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60')	1			0	1	EACH
733	VIDEO CABLE	1424	1431		1431	2855	LIN. FT.
SP & 733	VIDEO DETECTOR (CLR)	5	* 7		7	12	EACH
733	VIDEO MONITOR (CLR)	1	1		1	2	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	1		1	2	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	3	* 5		5	8	EACH
SP	ANTENNA CABLE (TYPE 6)	72	75		75	147	LIN. FT.
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)	1			0	1	EACH
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	0	189		189	189	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	434	588		588	1022	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	40	40		40	80	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/12 A.W.G.)	0	846		846	846	LIN. FT.
SP	LOCAL RADIO WITH ANTENNA	1	1		1	2	EACH
SP	LOUVERS	0	3	1	4	4	EACH
SP	LUMINAIRE ASSEMBLY	0	4		4	4	EACH
SP	RELOCATION OF TRAFFIC SIGNAL HEAD	0		3	3	3	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0	1.00		1.00	1.00	LUMP SUM
SP	VIDEO DETECTOR ROTATION	0		1	1	1	EACH

* ONE SPARE VIDEO PROCESSOR & VIDEO DETECTOR PROVIDED TO CITY.



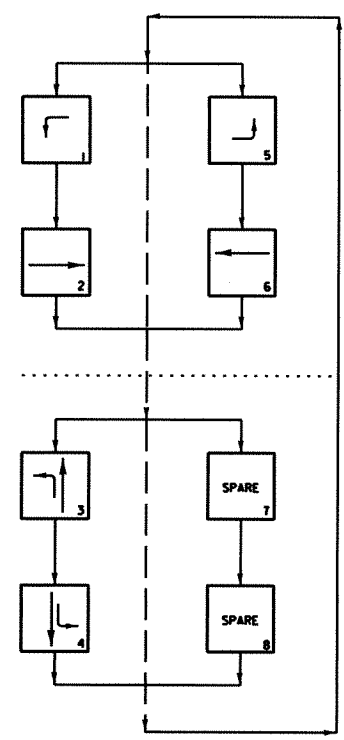
LOCATION: HWY. 1B/63 INTERSECTION & PARKER RD. SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10
 DRAWN BY: F&H

DATE: 10/21/11 FILE NAME: T100738.S001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		23	69

2 SIGNALIZATION PLAN SHEET

PHASING DIAGRAM



LEGEND

- TYPE 1 PULL BOX
- ▣ TYPE 1 HD PULL BOX
- ▤ TYPE 2 PULL BOX
- ▥ TYPE 2 HD PULL BOX
- ⊠ CONTROL CABINET
- ⊡ SIGNAL HEAD
- N.M.C.-NON-METALLIC CONDUIT
- ⊙ VIDEO DETECTOR

NOTE:
THE EXISTING SIGNAL IS TO BE MAINTAINED UNTIL SUCH TIME AS THE NEW SIGNAL EQUIPMENT CAN BE PLACED INTO OPERATION. FLAGGING OPERATION MUST BE UTILIZED IF THE SIGNAL IS OFF FOR ANY PERIOD OF TIME DURING CONSTRUCTION ACTIVITIES.

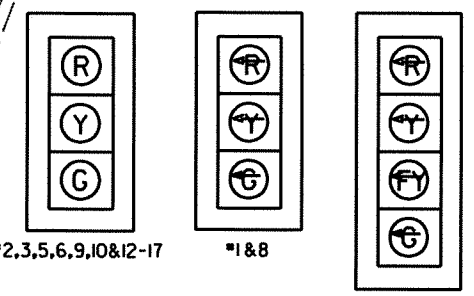
STA. 15+00.00 HWY. 1B (HARRISBURG RD.)=
STA. 20+00.00 PARKER RD.
495°15'22"

STAGE I CONSTRUCTION

ANTENNA ORIENTATION

LED SIGNAL FACES

12" LENSES



NOTE: SIGNAL FACE #7 NOT USED DURING CONSTRUCTION.
INSTALL LOUVERS (R) ON SIGNAL FACE #8 AND (R) ON SIGNAL FACES #9&10 SUCH THAT THE INDICATIONS ARE NOT VISIBLE WITHIN 40' OF THE SIGNAL HEADS.

TRAFFIC SIGNAL QUANTITIES

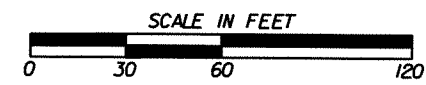
ITEM NO.	ITEM	HWY. 1B & PARKER RD. STAGE 1 CONSTRUCTION	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	14	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
708	TRAFFIC SIGNAL CABLE (6C/14 A.W.G.)	1006	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	94	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	671	LIN. FT.
710	NON-METALLIC CONDUIT (2")	33	LIN. FT.
710	NON-METALLIC CONDUIT (3")	464	LIN. FT.
SS & 711	CONCRETE PULL BOX (TYPE 2 HD)	6	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (56')	2	EACH
SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	0	EACH
733	VIDEO CABLE	1431	LIN. FT.
SP & 733	VIDEO DETECTOR (CLR)	7	EACH
733	VIDEO MONITOR (CLR)	1	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	5	EACH
SP	ANTENNA CABLE (TYPE 6)	75	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	189	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	588	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	40	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/12 A.W.G.)	846	LIN. FT.
SP	LOCAL RADIO WITH ANTENNA	1	EACH
SP	LOUVERS	3	EACH
SP	LUMINAIRE ASSEMBLY	4	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM

* ONE SPARE VIDEO PROCESSOR & VIDEO DETECTOR PROVIDED TO CITY.

POLE CHART

POLE	MAST ARM(S) LENGTH	MAST ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	HWY. 1B STATION	NORTHING EASTING
A	40'	270 DEGREES	35'-0"	25'-0"	270 DEGREES	STA. 15+47.20 70.51' LT.	N 538199.9671 E 1698242.5706
B	56'	180 DEGREES	35'-0"	25'-0"	180 DEGREES	STA. 15+49.75 56.65' RT.	N 538216.2466 E 1698368.7069
* C	44'	180 DEGREES	50'-0"	25'-0"	180 DEGREES	STA. 14+48.44 79.19' RT.	N 538128.4847 E 1698406.4532
D	56'	180 DEGREES	35'-0"	25'-0"	180 DEGREES	STA. 14+25.44 58.23' LT.	N 538073.2069 E 1698278.6282

* LUMINAIRE ARM TO BE MOUNTED AT 35'-0".



DATE: 10/18/11 FILE NAME: T100738.P05

LOCATION: HWY. 1B & PARKER RD. SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10
 DRAWN BY: F&H



20+00

DESIGN PARAMETERS

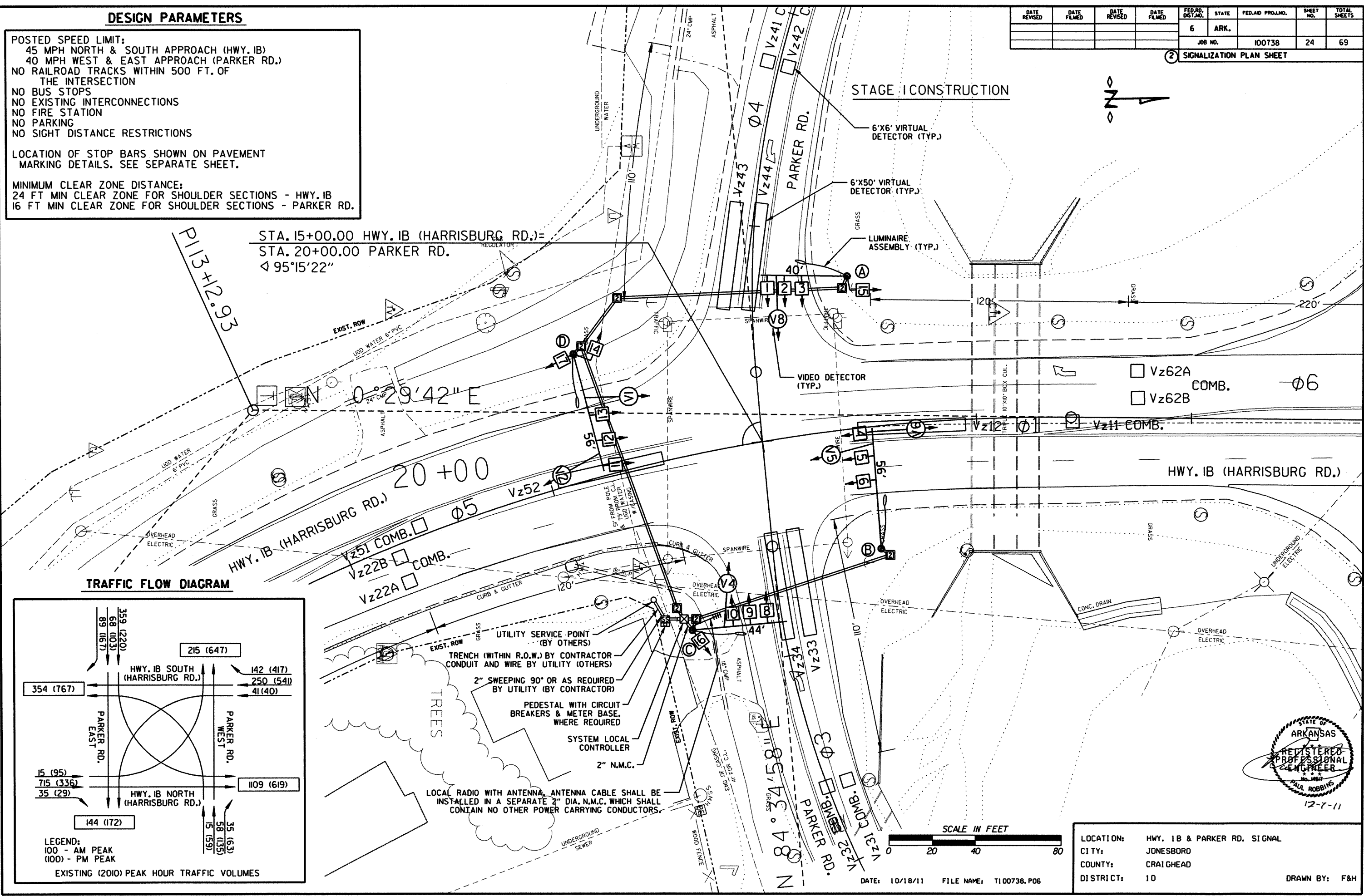
POSTED SPEED LIMIT:
 45 MPH NORTH & SOUTH APPROACH (HWY. IB)
 40 MPH WEST & EAST APPROACH (PARKER RD.)
 NO RAILROAD TRACKS WITHIN 500 FT. OF THE INTERSECTION
 NO BUS STOPS
 NO EXISTING INTERCONNECTIONS
 NO FIRE STATION
 NO PARKING
 NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP BARS SHOWN ON PAVEMENT MARKING DETAILS. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE:
 24 FT MIN CLEAR ZONE FOR SHOULDER SECTIONS - HWY. IB
 16 FT MIN CLEAR ZONE FOR SHOULDER SECTIONS - PARKER RD.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		24	69

2 SIGNALIZATION PLAN SHEET



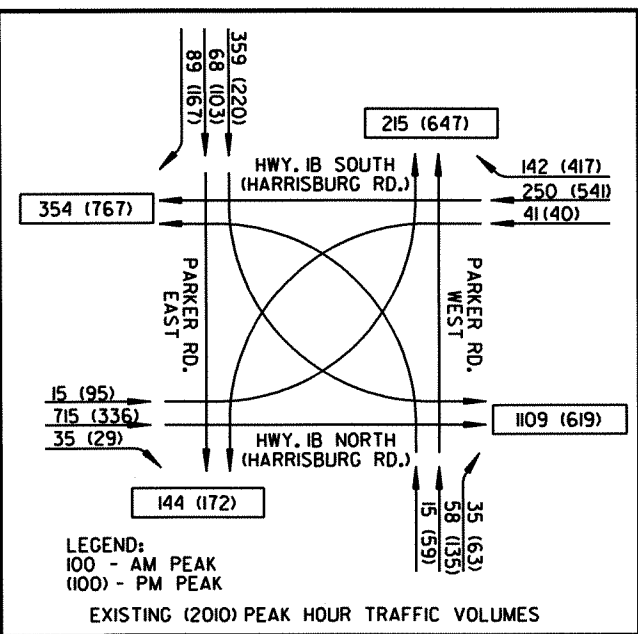
STA. 15+00.00 HWY. IB (HARRISBURG RD.) =
 STA. 20+00.00 PARKER RD.
 ∠ 95°15'22"

P113+12.93

0°29'42" E

20+00

TRAFFIC FLOW DIAGRAM



UTILITY SERVICE POINT (BY OTHERS)
 TRENCH (WITHIN R.O.W.) BY CONTRACTOR
 CONDUIT AND WIRE BY UTILITY (OTHERS)
 2" SWEEPING 90° OR AS REQUIRED BY UTILITY (BY CONTRACTOR)
 PEDESTAL WITH CIRCUIT BREAKERS & METER BASE, WHERE REQUIRED
 SYSTEM LOCAL CONTROLLER
 2" N.M.C.
 LOCAL RADIO WITH ANTENNA. ANTENNA CABLE SHALL BE INSTALLED IN A SEPARATE 2" DIA. N.M.C. WHICH SHALL CONTAIN NO OTHER POWER CARRYING CONDUCTORS.



SCALE IN FEET

DATE: 10/18/11 FILE NAME: T100738.P06

LOCATION: HWY. 1B & PARKER RD. SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10
 DRAWN BY: F&H

INTERVAL CHART

SIGNAL FACES	INTERVALS												FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3	CLR.	4	CLR.	
1	R	R	R	R	R	R	R	R	G	Y	R	R	R
2	R	R	R	R	R	R	R	R	G	Y	R	R	R
3	R	R	R	R	R	R	R	R	G	Y	R	R	R
4	G	**	FY	**	G	**	FY	**	R	R	R	R	R
5	R	R	R	R	G	*	G	*	R	R	R	R	R
6	R	R	R	R	G	*	G	*	R	R	R	R	R
7	NOT USED												
8	R	R	R	R	R	R	R	R	R	G	Y	R	R
9	R	R	R	R	R	R	R	R	R	G	Y	R	R
10	R	R	R	R	R	R	R	R	R	G	Y	R	R
11	G	**	FY	**	G	**	FY	**	R	R	R	R	R
12	R	R	G	*	R	R	G	*	R	R	R	R	R
13	R	R	G	*	R	R	G	*	R	R	R	R	R
14	R	R	R	R	R	R	R	R	R	G	Y	R	R
15	R	R	R	R	R	R	R	R	R	G	Y	R	R
16	R	R	R	R	R	R	R	R	G	Y	R	R	R
17	R	R	R	R	G	*	G	*	R	R	R	R	R

* DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
 ** DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE

NOTES:

- A SEPARATE 5c/14 AWG SHALL BE PROVIDED FROM EACH 3 SECTION HEAD TO THE BASE OF POLE.
- ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA ON CABINET.
- THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DETECTOR CHART

DETECTOR I.D. NUMBER	DIRECTION & LOCATION	TYPE	DET. NUM.	HARDWARE INPUTS			PROGRAM ASSIGNMENTS			COMMENT	TUBE LENGTH
				CAB. TER. NUM.	AMP. CHN. NUM.	CON. INP. NUM.	LOCAL		MSTR. SYS. DET.		
							PHS.	SYS. DET.			
Vz11	SB LT ADV	COMB.	-	-	1	D1	1	1	-	VIDEO 1	46'
Vz12	SB LT PRES	LOCAL	-	-	2	V1	1	1	-	VIDEO 1	46'
Vz21A&B	NB ADV	LOCAL	-	-	5	V2	2	2	-	VIDEO 2	74'
Vz22A&B	NB NEAR	COMB.	-	-	6	D2	2	2	-	VIDEO 5	23'
Vz31	WB ADV	COMB.	-	-	9	D8	3	8	-	VIDEO 8	46'
Vz32	WB LT ADV	COMB.	-	-	10	D3	3	3	-	VIDEO 8	46'
Vz33	WB PRES	LOCAL	-	-	11	V8	3	3	-	VIDEO 8	46'
Vz34	WB LT PRES	LOCAL	-	-	12	V3	3	3	-	VIDEO 8	46'
Vz41	EB ADV	COMB.	-	-	13	D4	4	4	-	VIDEO 4	74'
Vz42	EB LT ADV	COMB.	-	-	14	D7	4	7	-	VIDEO 4	74'
Vz43	EB PRES	LOCAL	-	-	15	V4	4	4	-	VIDEO 4	74'
Vz44	EB LT PRES	LOCAL	-	-	16	V7	4	4	-	VIDEO 4	74'
Vz51	NB LT ADV	COMB.	-	-	7	D5	5	5	-	VIDEO 5	23'
Vz52	NB LT PRES	LOCAL	-	-	8	V5	5	5	-	VIDEO 5	23'
Vz61A&B	SB ADV	LOCAL	-	-	3	V6	6	6	-	VIDEO 6	74'
Vz62A&B	SB NEAR	COMB.	-	-	4	D6	6	6	-	VIDEO 1	46'

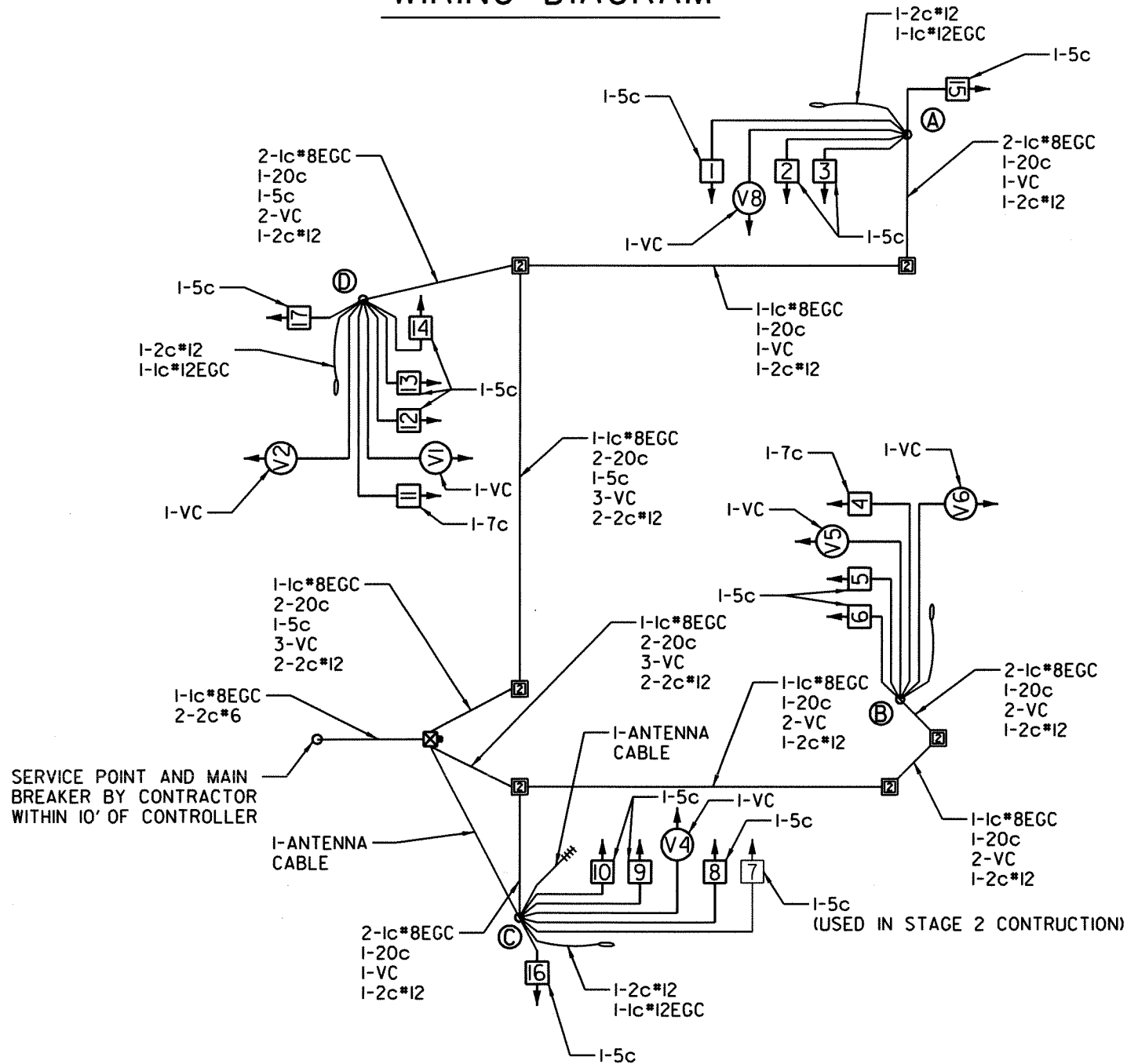
CONTROLLER INPUT ABBREVIATIONS:
 V - VEHICLE INPUT
 D - SYSTEM OR AUXILIARY INPUT
 P - PEDESTRIAN INPUT

NOTE: *AMP.CHN.* REFERS TO THE DETECTOR RACK OUTPUT POSITION AND IS WIRED TO THE CONTROLLER INPUT DETECTOR NUMBER THAT IS PROGRAMMED TO ACTIVATE THE DESIGNATED PHASE.

STAGE I CONSTRUCTION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		25	69
JOB NO. 100738							SIGNALIZATION PLAN SHEET	

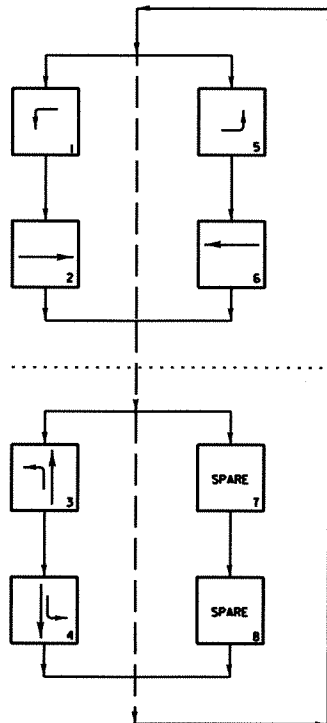
WIRING DIAGRAM



12-7-11

LOCATION: HWY. 1B & PARKER RD. SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10
 DRAWN BY: F&H

PHASING DIAGRAM



LEGEND

- TYPE 1 PULL BOX
- ▣ TYPE 1 HD PULL BOX
- ▣ TYPE 2 PULL BOX
- ▣ TYPE 2 HD PULL BOX
- ⊠ CONTROL CABINET
- ⊠ SIGNAL HEAD
- N.M.C.-NON-METALLIC CONDUIT
- ⊙ VIDEO DETECTOR

NOTE:

SIGNAL FACES #8,9&10 SHALL BE RELOCATED FROM PREVIOUS STAGE CONSTRUCTION LOCATION TO THE POSITION SHOWN.

VIDEO DETECTOR V4 SHALL BE ROTATED FOR PROPER ALIGNMENT WITH TRAFFIC.

STA. 15+00.00 HWY. 1B (HARRISBURG RD.)=
STA. 20+00.00 PARKER RD.
∠ 95°15'22"

POLE CHART

POLE	MAST ARM(S) LENGTH	MAST ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	HWY. 1B STATION	NORTHING EASTING
* A	40'	270 DEGREES	35'-0"	25'-0"	270 DEGREES	STA. 15+47.20 70.51' LT.	N 538199.9671 E 1698242.5706
* B	56'	180 DEGREES	35'-0"	25'-0"	180 DEGREES	STA. 15+49.75 56.65' RT.	N 538216.2466 E 1698368.7069
* C	44'	180 DEGREES	50'-0"	25'-0"	180 DEGREES	STA. 14+48.44 79.19' RT.	N 538128.4847 E 1698406.4532
* D	56'	180 DEGREES	35'-0"	25'-0"	180 DEGREES	STA. 14+25.44 58.23' LT.	N 538073.2069 E 1698278.6282

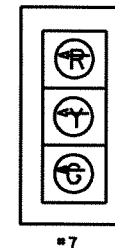
* EXISTING POLE TO BE RETAINED

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		26	69

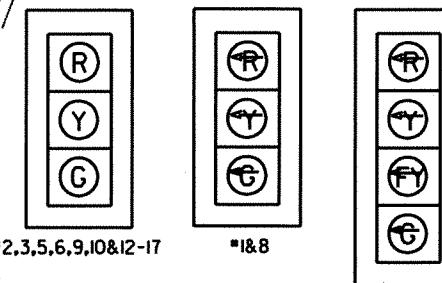
2 SIGNALIZATION PLAN SHEET

STAGE 2 CONSTRUCTION

LED SIGNAL FACES
12" LENSES

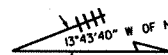


EXIST. LED SIGNAL FACES
12" LENSES



NOTE: RETAIN LOUVERS ON SIGNAL FACES #8-10 AND INSTALL LOUVERS (R) ON SIGNAL FACE #7 SUCH THAT THE INDICATIONS ARE NOT VISIBLE WITHIN 40' OF THE SIGNAL HEAD.

EXIST. ANTENNA ORIENTATION



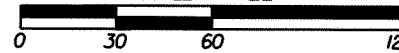
HWY. 63 EXIT RAMP

HWY. 1B (HARRISBURG RD.)

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	HWY. 1B & PARKER RD. STAGE 2 CONSTRUCTION	UNIT
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	1	EACH
SP	LOUVERS	1	EACH
SP	RELOCATION OF TRAFFIC SIGNAL HEAD	3	EACH
SP	VIDEO DETECTOR ROTATION	1	EACH

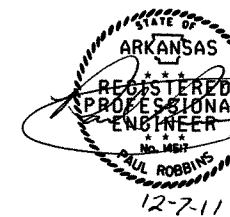
SCALE IN FEET



DATE: 10/18/11 FILE NAME: T100738.P01

LOCATION: HWY. 1B & PARKER RD. SIGNAL
CITY: JONESBORO
COUNTY: CRAIGHEAD
DISTRICT: 10

DRAWN BY: F&H



DESIGN PARAMETERS

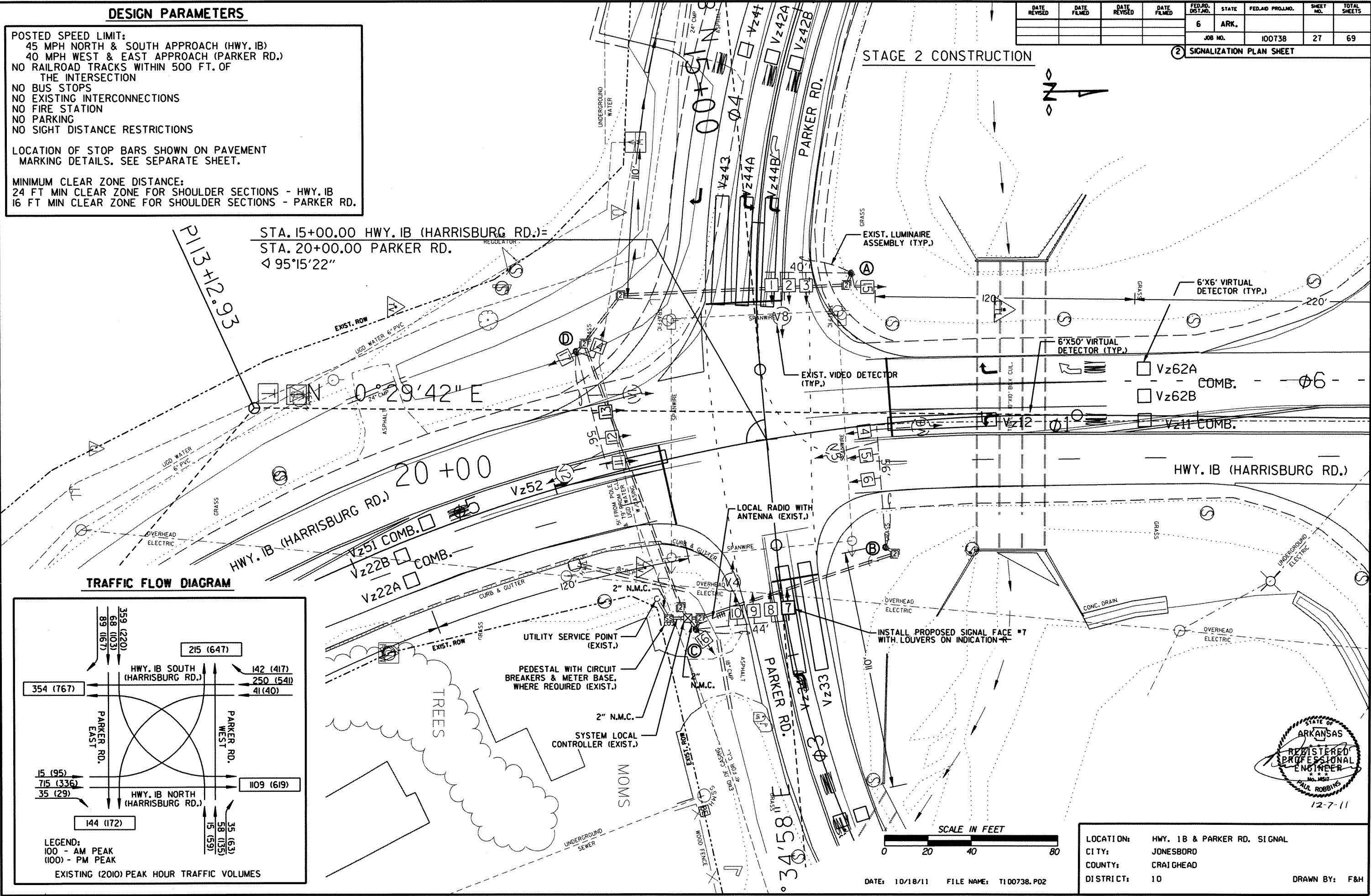
POSTED SPEED LIMIT:
 45 MPH NORTH & SOUTH APPROACH (HWY. IB)
 40 MPH WEST & EAST APPROACH (PARKER RD.)
 NO RAILROAD TRACKS WITHIN 500 FT. OF THE INTERSECTION
 NO BUS STOPS
 NO EXISTING INTERCONNECTIONS
 NO FIRE STATION
 NO PARKING
 NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP BARS SHOWN ON PAVEMENT MARKING DETAILS. SEE SEPARATE SHEET.

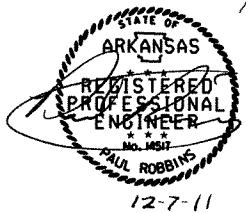
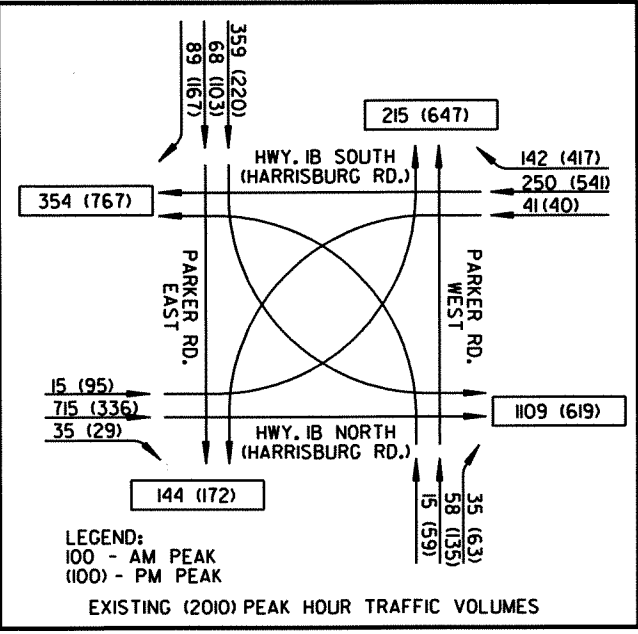
MINIMUM CLEAR ZONE DISTANCE:
 24 FT MIN CLEAR ZONE FOR SHOULDER SECTIONS - HWY. IB
 16 FT MIN CLEAR ZONE FOR SHOULDER SECTIONS - PARKER RD.

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. PROJ. NO.	STATE	FED. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		27	69
				JOB NO.	100738		27	69

② SIGNALIZATION PLAN SHEET



TRAFFIC FLOW DIAGRAM



LOCATION: HWY. 1B & PARKER RD. SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10
 DRAWN BY: F&H

DATE: 10/18/11 FILE NAME: T100738.P02

INTERVAL CHART

SIGNAL FACES	INTERVALS												FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3	CLR.	4	CLR.	
1	R	R	R	R	R	R	R	R	G	Y	R	R	R
2	R	R	R	R	R	R	R	R	G	Y	R	R	R
3	R	R	R	R	R	R	R	R	G	Y	R	R	R
4	G	**	FY	**	G	**	FY	**	R	R	R	R	R
5	R	R	R	R	G	*	G	*	R	R	R	R	R
6	R	R	R	R	G	*	G	*	R	R	R	R	R
7	R	R	R	R	R	R	R	R	R	G	Y	R	R
8	R	R	R	R	R	R	R	R	R	G	Y	R	R
9	R	R	R	R	R	R	R	R	R	R	G	Y	R
10	R	R	R	R	R	R	R	R	R	R	G	Y	R
11	G	**	FY	**	FY	**	FY	**	R	R	R	R	R
12	R	R	G	*	R	R	G	*	R	R	R	R	R
13	R	R	G	*	R	R	G	*	R	R	R	R	R
14	R	R	R	R	R	R	R	R	R	G	Y	R	R
15	R	R	G	*	R	R	G	*	R	R	R	R	R
16	R	R	R	R	R	R	R	R	R	G	Y	R	R
17	R	R	R	R	G	*	G	*	R	R	R	R	R

* DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
 ** DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE

NOTES:

- A SEPARATE 5c/14 AWG SHALL BE PROVIDED FROM EACH 3 SECTION HEAD TO THE BASE OF POLE.
- ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA ON CABINET.
- THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DETECTOR CHART

DETECTOR I.D. NUMBER	DIRECTION & LOCATION	TYPE	DET. NUM.	HARDWARE INPUTS			PROGRAM ASSIGNMENTS			COMMENT	TUBE LENGTH
				CAB. TER. NUM.	AMP. CHN. NUM.	CON. INP. NUM.	LOCAL	SYS. DET.	MSTR. SYS. DET.		
Vz11	SB LT ADV	COMB.		-	1	D1	1	1	-	VIDEO 1	46'
Vz12	SB LT PRES	LOCAL		-	2	V1	1	1	-	VIDEO 1	46'
Vz21A&B	NB ADV	LOCAL		-	5	V2	2	2	-	VIDEO 2	74'
Vz22A&B	NB NEAR	COMB.		-	6	D2	2	2	-	VIDEO 5	23'
Vz31	WB ADV	COMB.		-	9	D8	3	8	-	VIDEO 8	46'
Vz32	WB LT ADV	COMB.		-	10	D3	3	3	-	VIDEO 8	46'
Vz33	WB PRES	LOCAL		-	11	V8	3	3	-	VIDEO 8	46'
Vz34	WB LT PRES	LOCAL		-	12	V3	3	3	-	VIDEO 8	46'
Vz41	EB ADV	COMB.		-	13	D4	4	4	-	VIDEO 4	74'
Vz42A&B	EB LT ADV	COMB.		-	14	D7	4	7	-	VIDEO 4	74'
Vz43	EB PRES	LOCAL		-	15	V4	4	4	-	VIDEO 4	74'
Vz44A&B	EB LT PRES	LOCAL		-	16	V7	4	4	-	VIDEO 4	74'
Vz51	NB LT ADV	COMB.		-	7	D5	5	5	-	VIDEO 5	23'
Vz52	NB LT PRES	LOCAL		-	8	V5	5	5	-	VIDEO 5	23'
Vz61A&B	SB ADV	LOCAL		-	3	V6	6	6	-	VIDEO 6	74'
Vz62A&B	SB NEAR	COMB.		-	4	D6	6	6	-	VIDEO 1	46'

CONTROLLER INPUT ABBREVIATIONS:
 V - VEHICLE INPUT
 D - SYSTEM OR AUXILIARY INPUT
 P - PEDESTRIAN INPUT

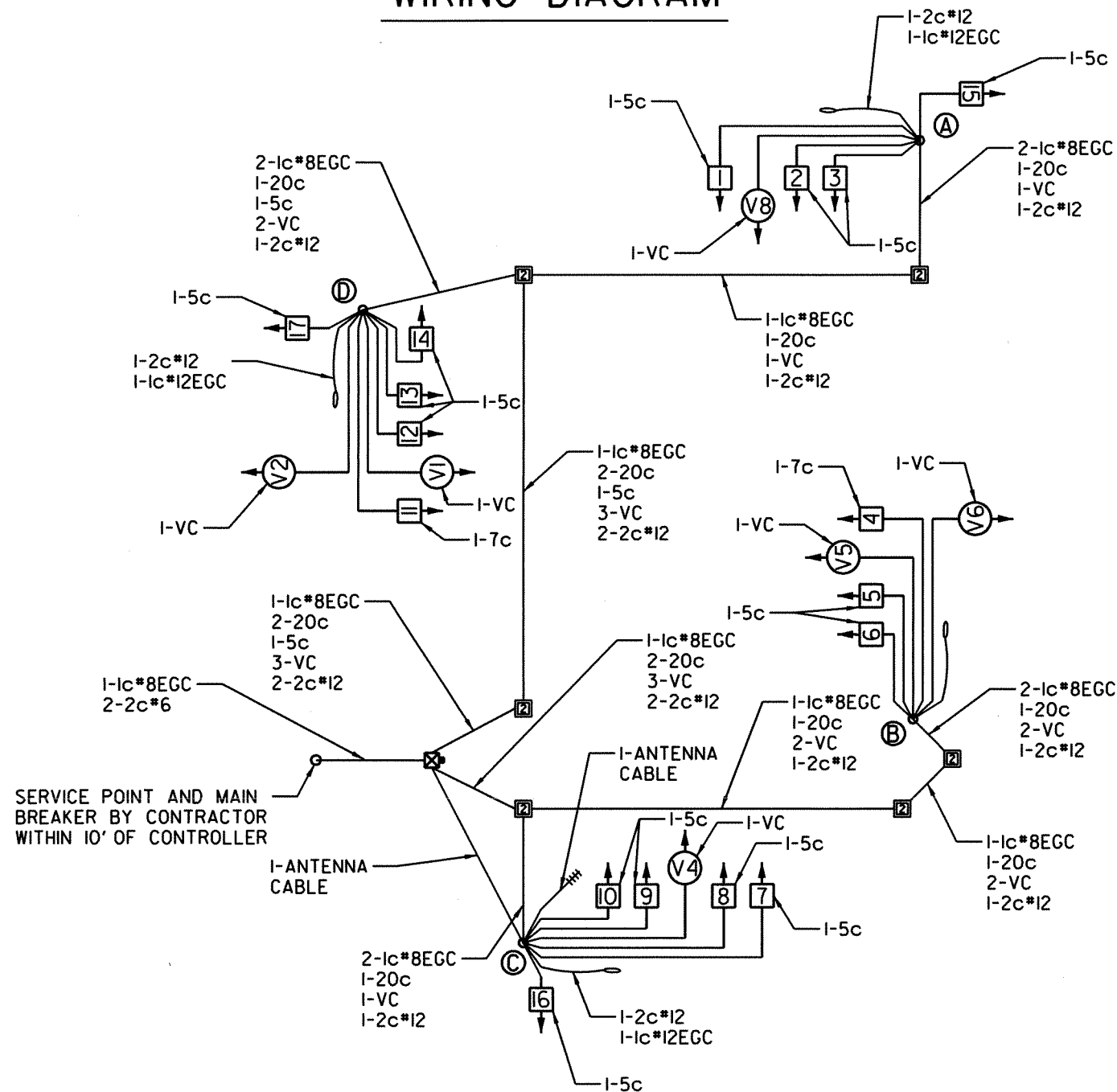
NOTE: *AMP.CHN.* REFERS TO THE DETECTOR RACK OUTPUT POSITION AND IS WIRED TO THE CONTROLLER INPUT DETECTOR NUMBER THAT IS PROGRAMMED TO ACTIVATE THE DESIGNATED PHASE.

STAGE 2 CONSTRUCTION

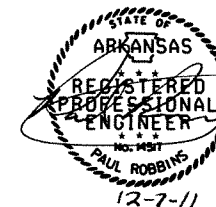
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		28	69

2 SIGNALIZATION PLAN SHEET

WIRING DIAGRAM



NOTE: WIRING DIAGRAM SHOWS ULTIMATE WIRING SCHEME. EXISTING WIRING FROM STAGE 1 SHALL BE USED WHERE APPLICABLE.

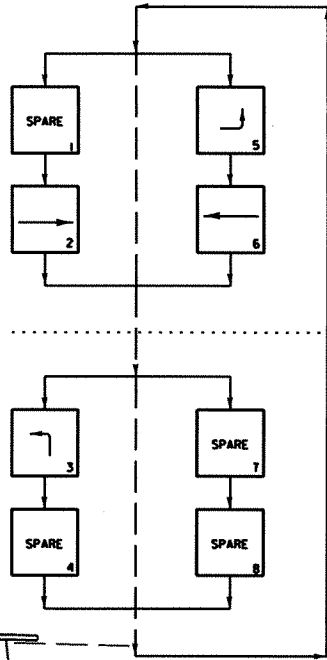


LOCATION: HWY. 1B & PARKER RD. SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10

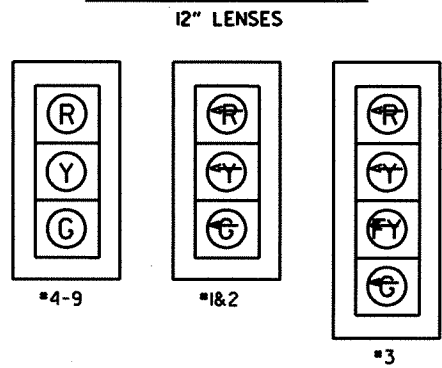
DATE: 10/18/11 FILE NAME: T100738.P01

DRAWN BY: F&H

PHASING DIAGRAM



LED SIGNAL FACES

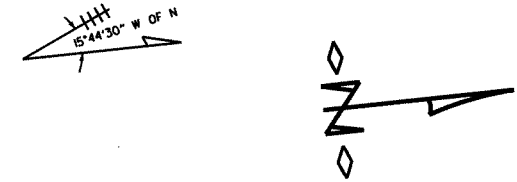


LEGEND

- TYPE 1 PULL BOX
- ▣ TYPE 1 HD PULL BOX
- ▢ TYPE 2 PULL BOX
- ▣ TYPE 2 HD PULL BOX
- ⊠ CONTROL CABINET
- ⊞ SIGNAL HEAD
- N.M.C.-NON-METALLIC CONDUIT
- ⊖ VIDEO DETECTOR

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		29	69
							JOB NO. 100738	
							② SIGNALIZATION PLAN SHEET	

ANTENNA ORIENTATION



HWY. 1B (HARRISBURG RD.)

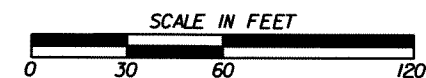
HWY. 1B (HARRISBURG RD.)

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	HWY. 1B & HWY. 63 NB EXIT RAMP	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	1	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	574	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	99	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)	557	LIN. FT.
710	NON-METALLIC CONDUIT (2")	31	LIN. FT.
710	NON-METALLIC CONDUIT (3")	348	LIN. FT.
SS & 711	CONCRETE PULL BOX (TYPE 1)	1	EACH
SS & 711	CONCRETE PULL BOX (TYPE 2)	2	EACH
SS & 711	CONCRETE PULL BOX (TYPE 2 HD)	2	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (46'-46")	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60")	1	EACH
733	VIDEO CABLE	1424	LIN. FT.
SP & 733	VIDEO DETECTOR (CLR)	5	EACH
733	VIDEO MONITOR (CLR)	1	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	3	EACH
SP	ANTENNA CABLE (TYPE 6)	72	LIN. FT.
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)	1	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	434	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	40	LIN. FT.
SP	LOCAL RADIO WITH ANTENNA	1	EACH

POLE CHART

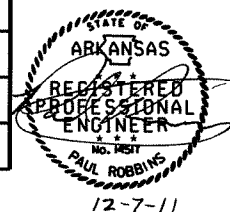
POLE	MAST ARM(S) LENGTH	MAST ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	HWY. 1B STATION	NORTHING EASTING
A	46'	90 DEGREES 180 DEGREES	21'-0"	-	-	STA. 29+20.95 55.66' LT.	N 539583.6307 E 1698354.3853
B	60'	270 DEGREES	21'-0"	-	-	STA. 30+55.31 60.87' RT.	N 539698.1415 E 1698490.4692
C	0'	0 DEGREES	50'-0"	-	-	STA. 28+86.96 113.83' LT.	N 539559.4170 E 1698291.6245



DATE: 10/18/11 FILE NAME: T100738.P03

LOCATION: HWY. 1B & HWY. 63 NB RAMP SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10

DRAWN BY: F&H



12-7-11

DESIGN PARAMETERS

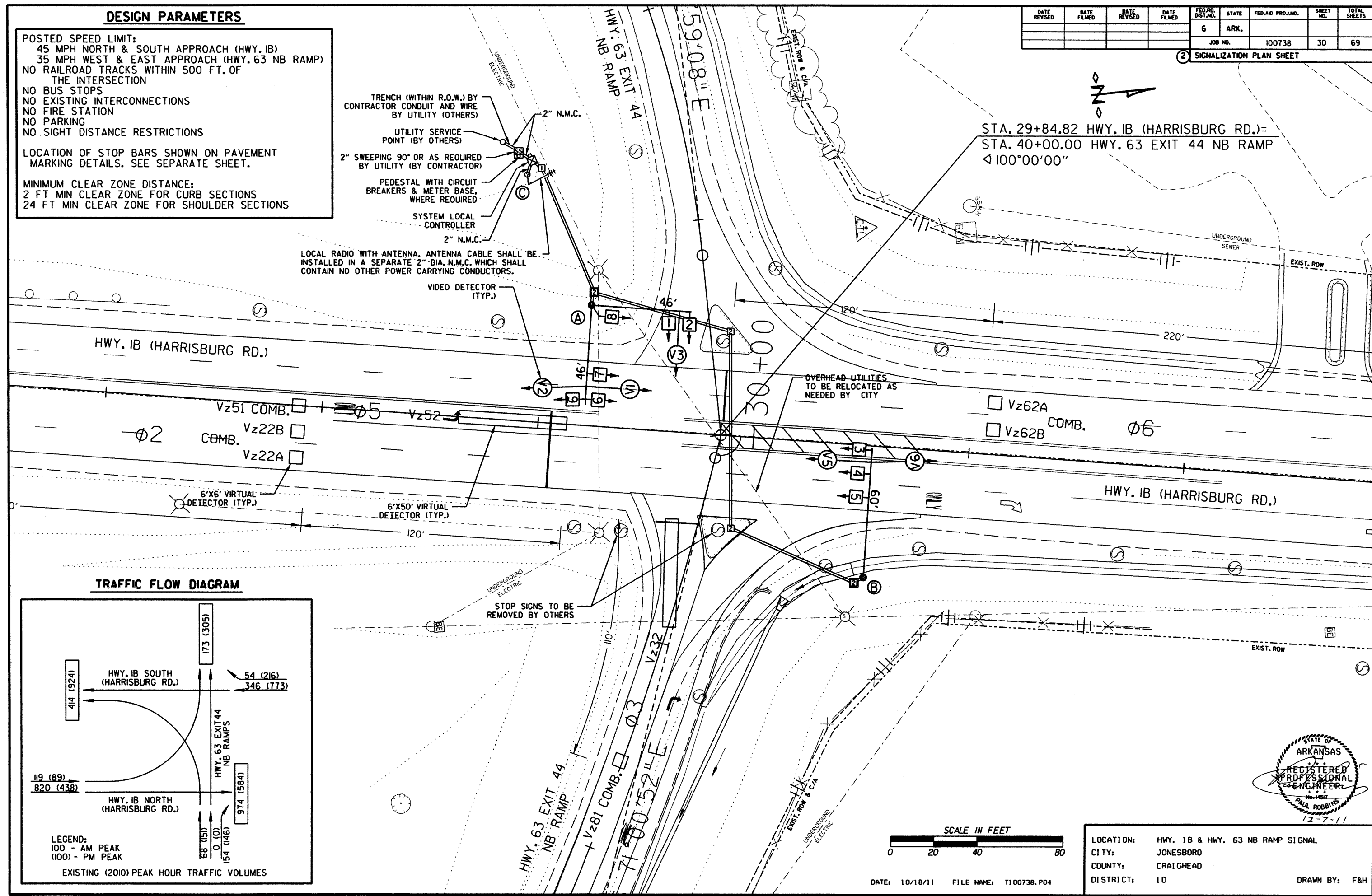
POSTED SPEED LIMIT:
 45 MPH NORTH & SOUTH APPROACH (HWY. 1B)
 35 MPH WEST & EAST APPROACH (HWY. 63 NB RAMP)
 NO RAILROAD TRACKS WITHIN 500 FT. OF THE INTERSECTION
 NO BUS STOPS
 NO EXISTING INTERCONNECTIONS
 NO FIRE STATION
 NO PARKING
 NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP BARS SHOWN ON PAVEMENT MARKING DETAILS. SEE SEPARATE SHEET.

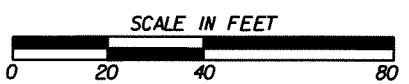
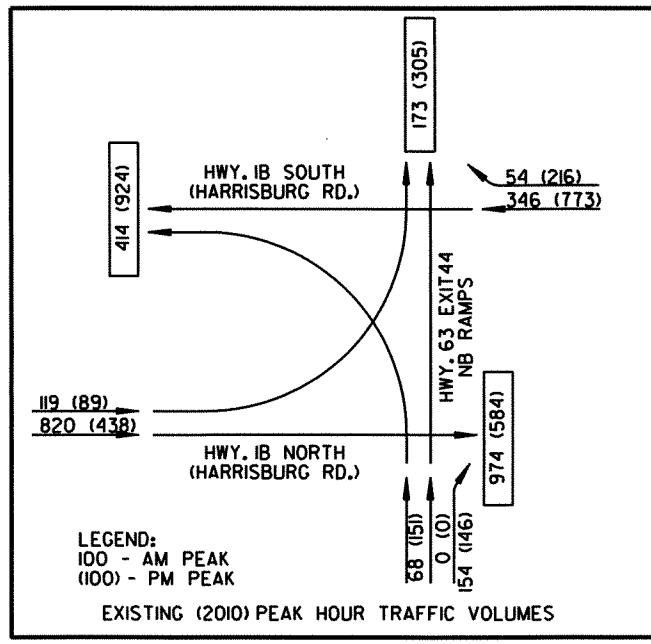
MINIMUM CLEAR ZONE DISTANCE:
 2 FT MIN CLEAR ZONE FOR CURB SECTIONS
 24 FT MIN CLEAR ZONE FOR SHOULDER SECTIONS

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. 100738							30	69

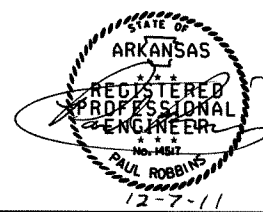
2 SIGNALIZATION PLAN SHEET



TRAFFIC FLOW DIAGRAM



DATE: 10/18/11 FILE NAME: T100738.P04



LOCATION: HWY. 1B & HWY. 63 NB RAMP SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10
 DRAWN BY: F&H

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.	100738		31	69

② SIGNALIZATION PLAN SHEET

INTERVAL CHART

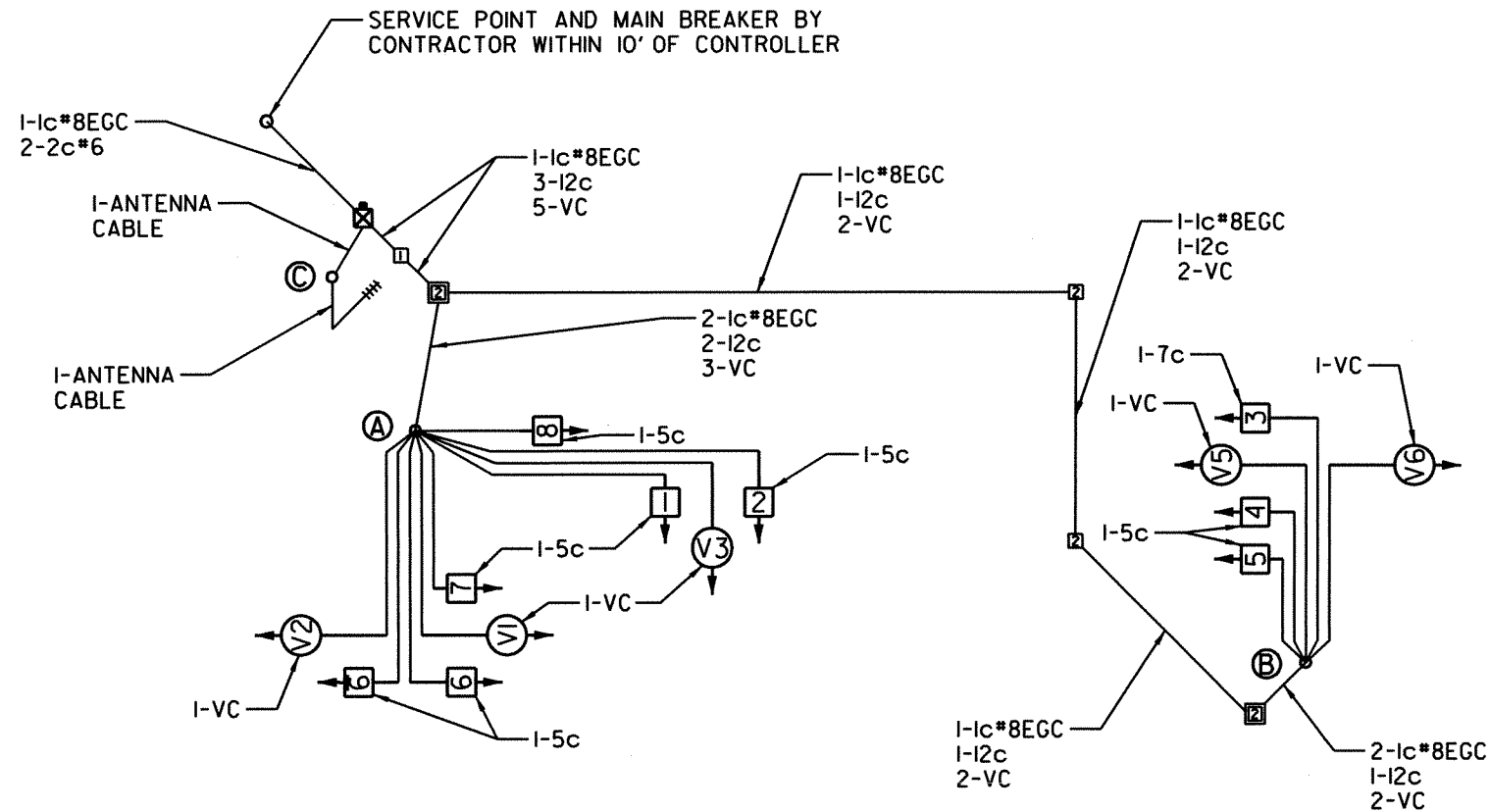
SIGNAL FACES	INTERVALS						FLASH SEQ.
	2+5	CLR.	2+6	CLR.	3	CLR.	
1	-R	-R	-R	-R	-G	-Y	-R
2	-R	-R	-R	-R	-G	-Y	-R
3	-G	**	-FY	**	-R	-R	-R
4	G	*	G	*	R	R	R
5	G	*	G	*	R	R	R
6	R	R	G	Y	R	R	R
7	R	R	G	Y	R	R	R
8	R	R	G	Y	R	R	R
9	G	*	G	*	R	R	R

* DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
 ** DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE

NOTES:

1. A SEPARATE 5c/14 AWG SHALL BE PROVIDED FROM EACH 3 SECTION HEAD TO THE BASE OF POLE.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA ON CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

WIRING DIAGRAM



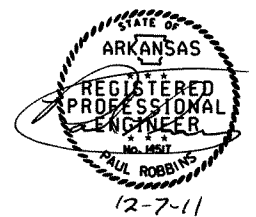
DETECTOR CHART

DETECTOR I.D. NUMBER	DIRECTION & LOCATION	TYPE	DET. NUM.	HARDWARE INPUTS			PROGRAM ASSIGNMENTS			COMMENT	TUBE LENGTH
				CAB. TER. NUM.	AMP. CHN. NUM.	CON. INP. NUM.	LOCAL		MSTR. SYS. DET.		
							PHS.	SYS. DET.			
Vz21A&B	NB ADV	LOCAL	-	1	V2	2			-	VIDEO 2	74"
Vz22A&B	NB NEAR	COMB.	-	2	D2	2	2		-	VIDEO 5	23"
Vz31	WB ADV	COMB.	-	9	D3	3	3		-	VIDEO 3	23"
Vz32	WB PRES	LOCAL	-	10	V3	3			-	VIDEO 3	23"
Vz51	NB LT ADV	COMB.	-	3	D5	5	5		-	VIDEO 5	23"
Vz52	NB LT PRES	LOCAL	-	4	V5	5			-	VIDEO 5	23"
Vz61A&B	SB ADV	LOCAL	-	5	V6	6			-	VIDEO 6	46"
Vz62A&B	SB NEAR	COMB.	-	6	D6	6	6		-	VIDEO 1	23"

CONTROLLER INPUT ABBREVIATIONS:
 V - VEHICLE INPUT
 D - SYSTEM OR AUXILIARY INPUT
 P - PEDESTRIAN INPUT

AMP.CHN.NOT USED:7,B&11-16

NOTE: *AMP.CHN. REFERS TO THE DETECTOR RACK OUTPUT POSITION AND IS WIRED TO THE CONTROLLER INPUT DETECTOR NUMBER THAT IS PROGRAMMED TO ACTIVATE THE DESIGNATED PHASE.



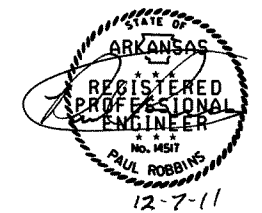
12-7-11

LOCATION: HWY. 1B & HWY. 63 NB RAMP SIGNAL
 CITY: JONESBORO
 COUNTY: CRAIGHEAD
 DISTRICT: 10

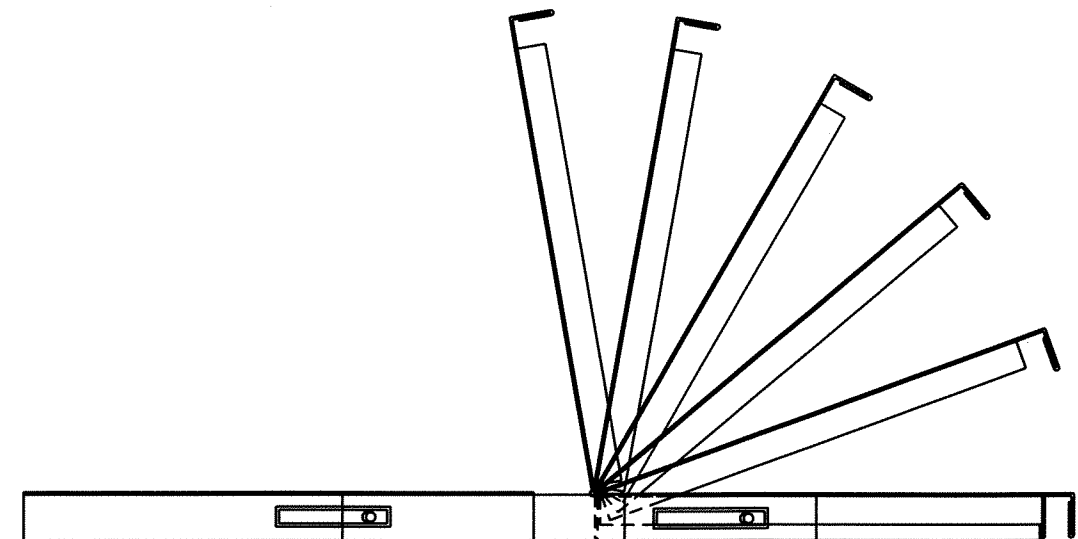
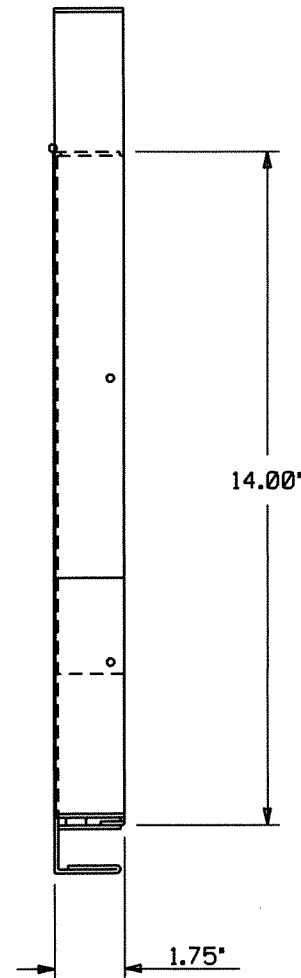
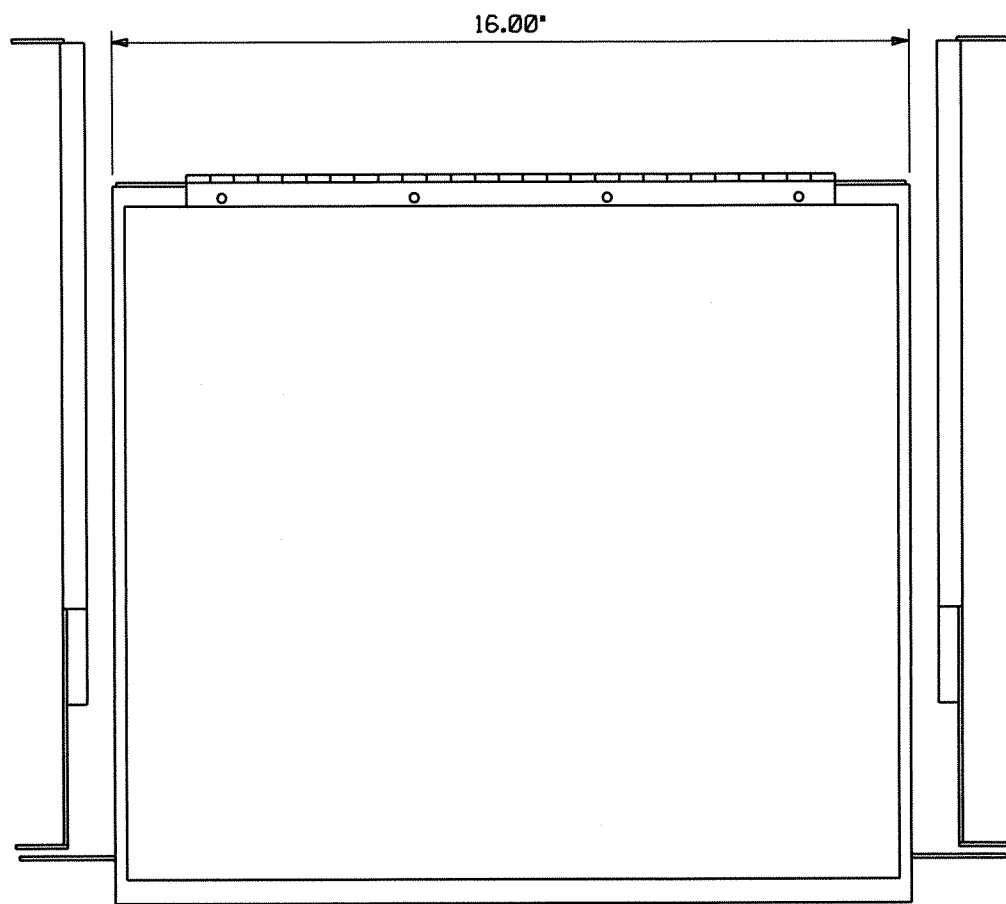
DRAWN BY: F&H

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.							100738	32	69

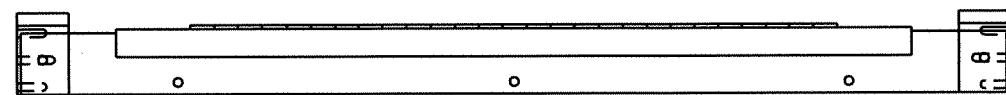
② SIGNALIZATION DETAILS



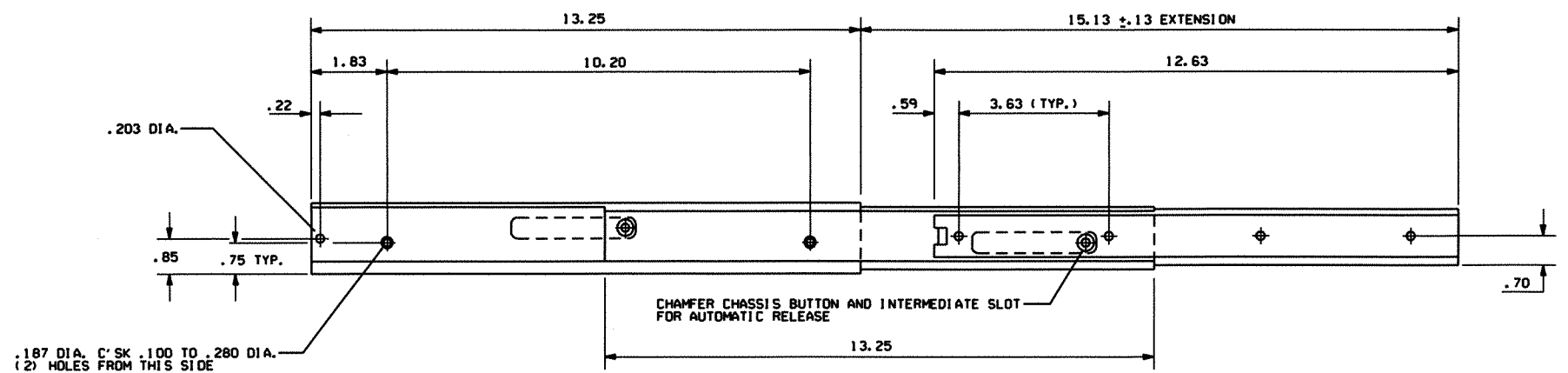
DRAWER PLAN VIEW



- NOTES:
 1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
 2. GENERAL DEVICES (CC3002-99-D102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
 3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

A.H.T.D. STANDARD DETAILS

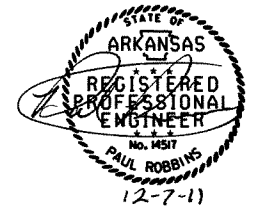
ARKANSAS STATE HIGHWAY COMMISSION

SIGNALIZATION DETAIL
(Controller Cabinet Utility Drawer)

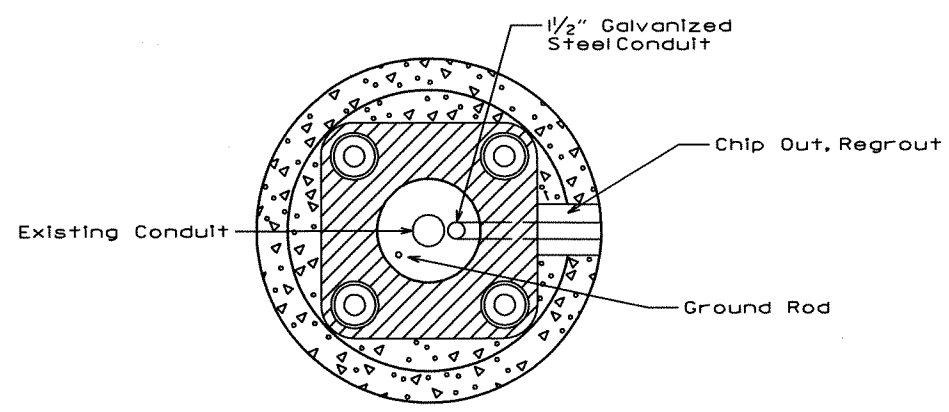
DATE	REVISION	DATE FILM
6-15-05	ISSUED	

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.							100738	33	69

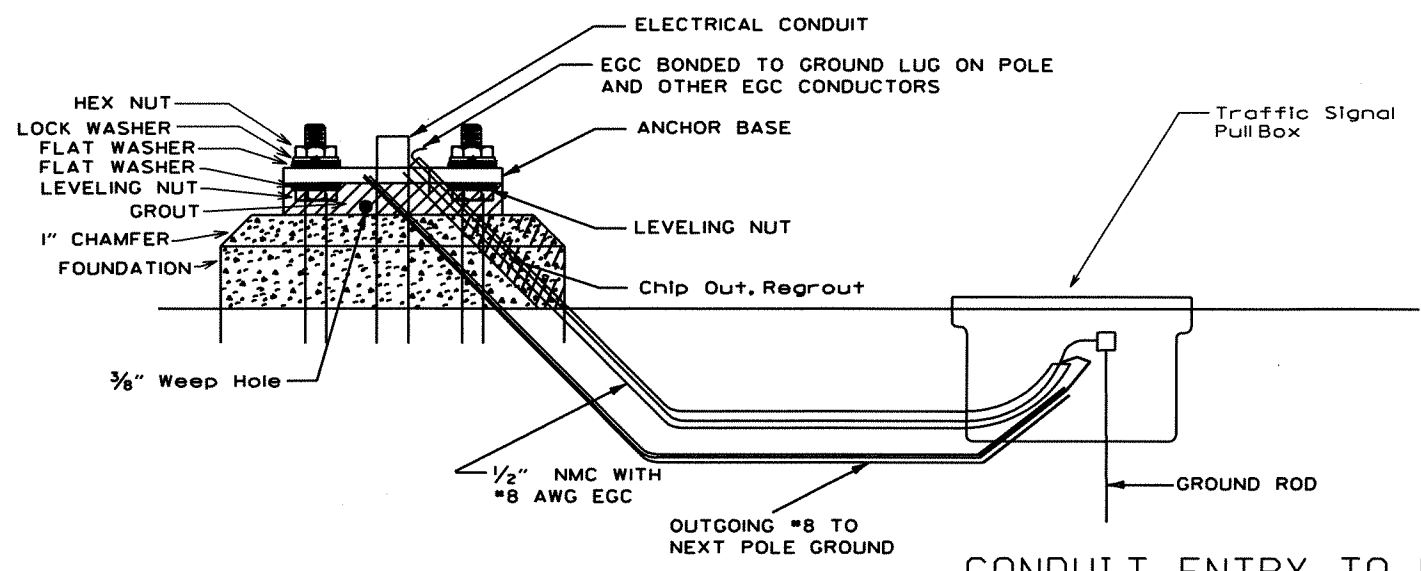
2 SIGNALIZATION DETAILS



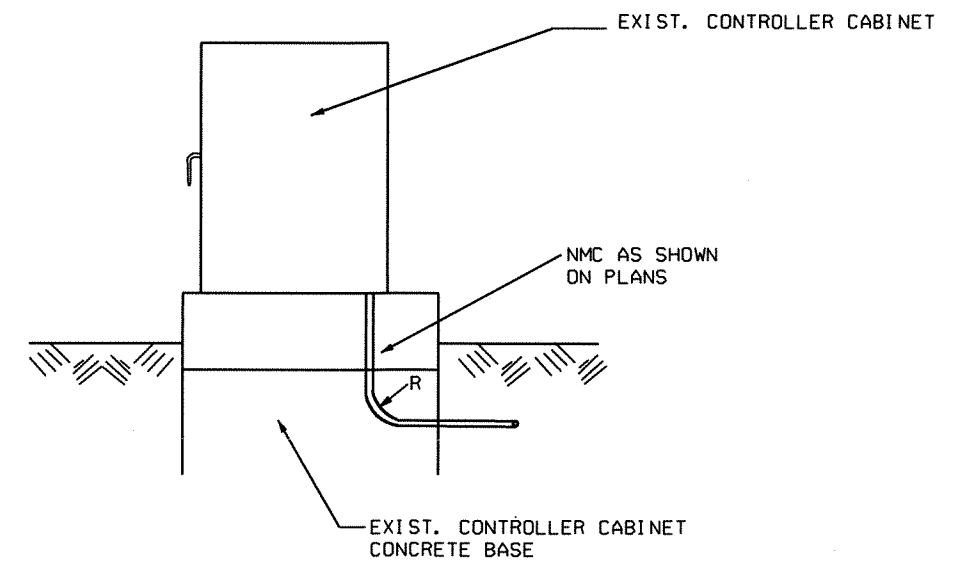
CONDUIT ENTRY TO EXISTING POLE BASE



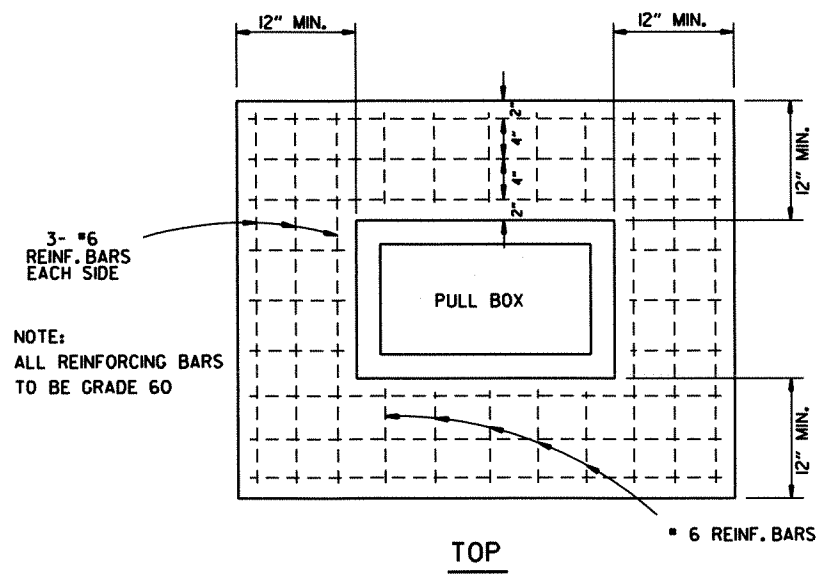
ANCHOR BASE



CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

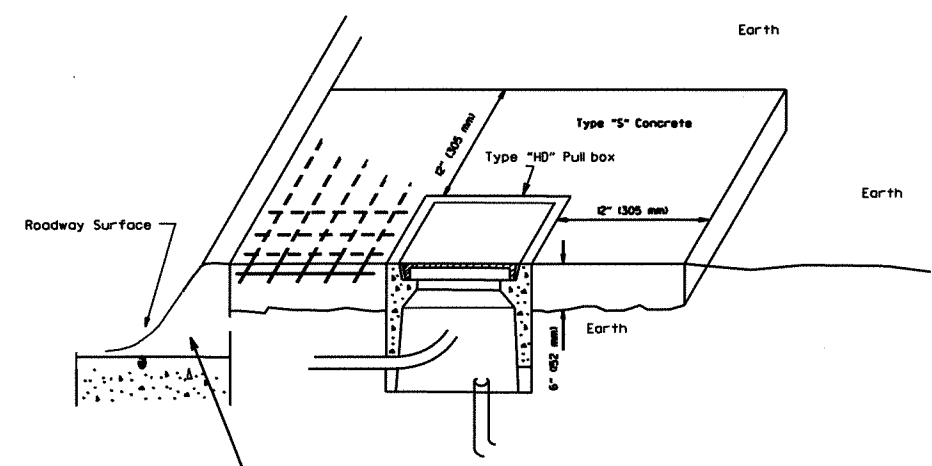


NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

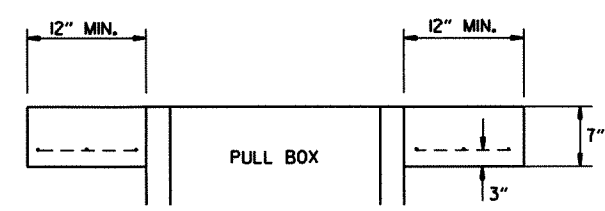


NOTE: ALL REINFORCING BARS TO BE GRADE 60

Type "HD" Concrete Pull Box Detail



2" CLEAR FROM TOP (TOLERANCE +/- 0.5 ")



ELEVATION

Note: All Type 1 and Type 2 HD pullboxes are installed with an apron of concrete 12" (305 mm) wide and 6" (152 mm) in depth. All payment shall be included in the price of the Type HD pullbox. Pull box shall be installed flush to surrounding grade unless otherwise instructed by the engineer. The concrete shall be Class "S." Three #6 reinforcing bars in the apron on all sides of the pullbox is required in concrete.

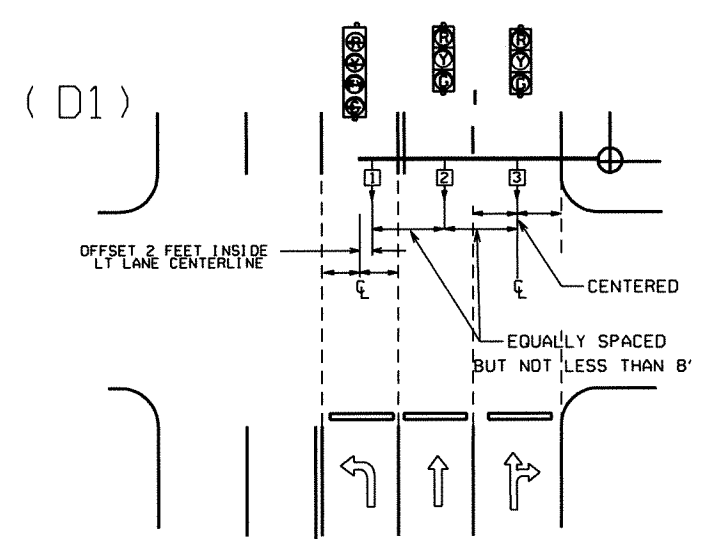
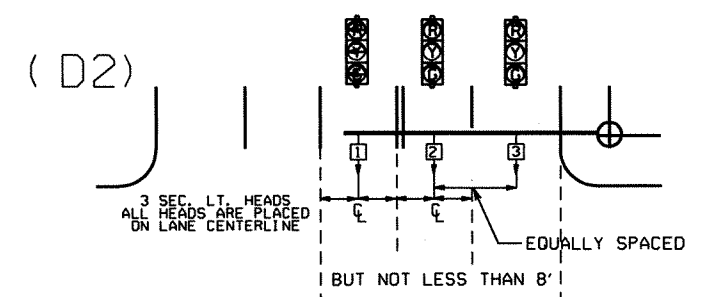
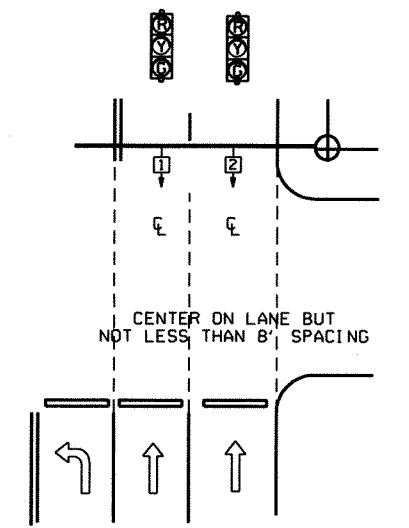
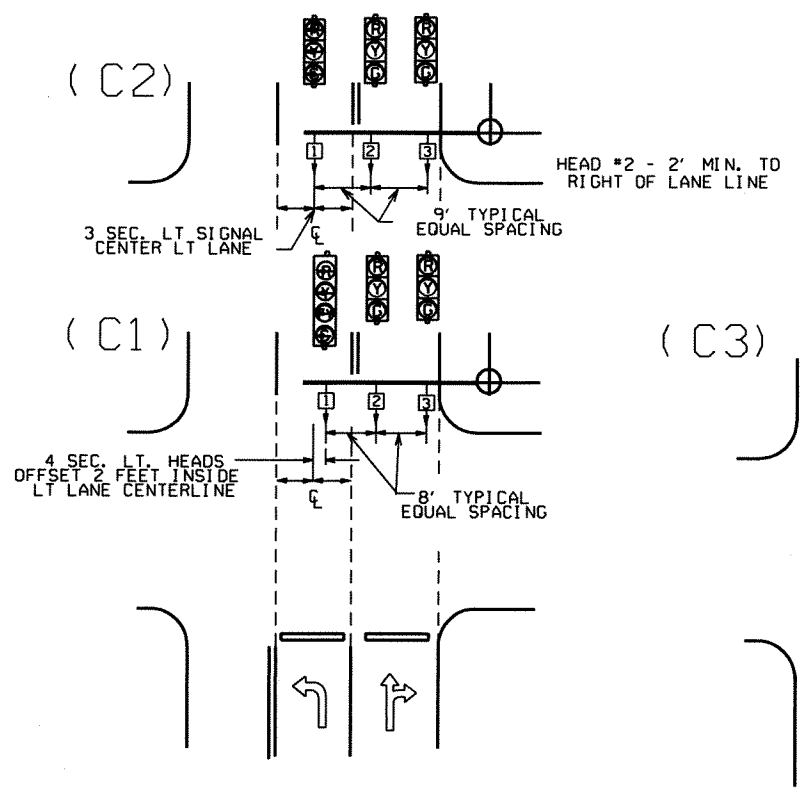
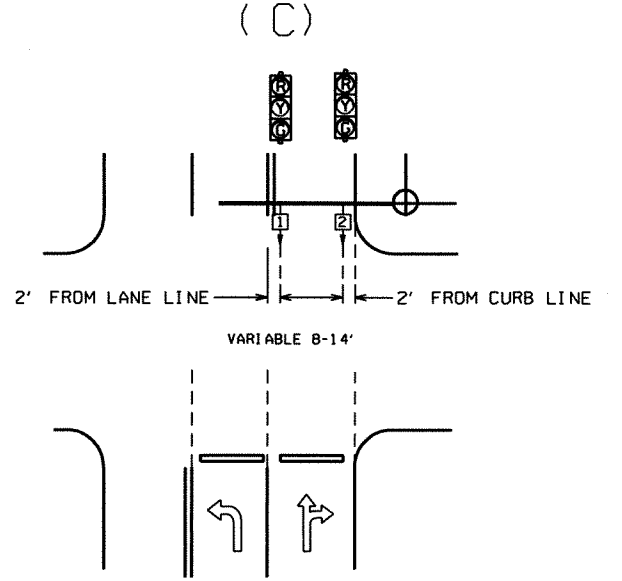
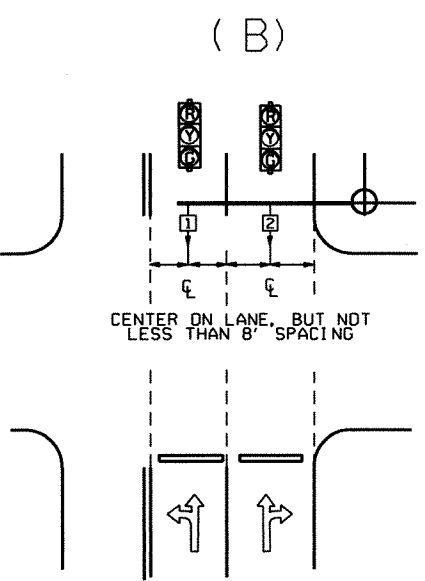
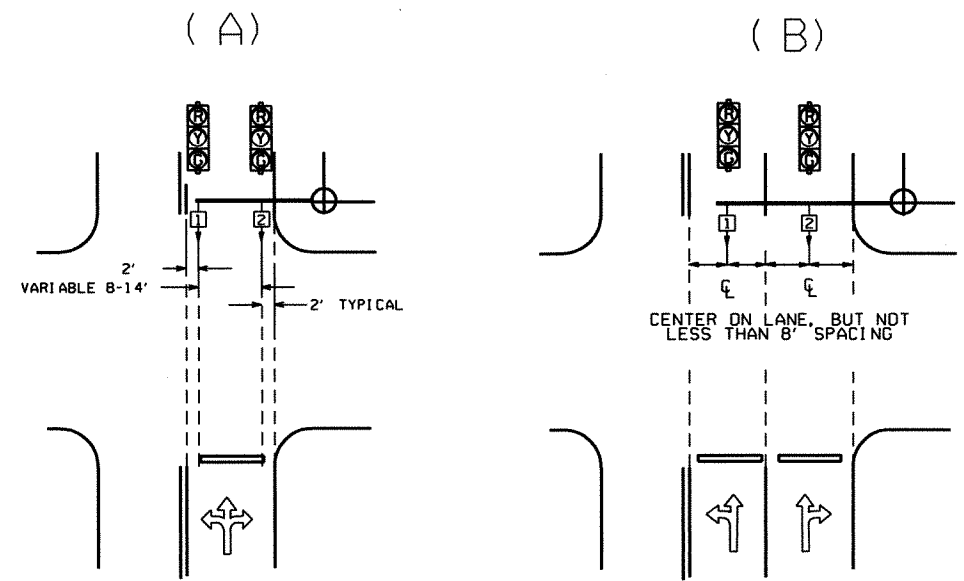
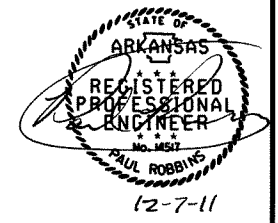
DATE	REVISION	DATE FILM
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

A.H.T.D. STANDARD DETAILS
ARKANSAS STATE HIGHWAY COMMISSION

SIGNALIZATION DETAIL (Heavy Duty Pull Box)

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. 100738	34	69

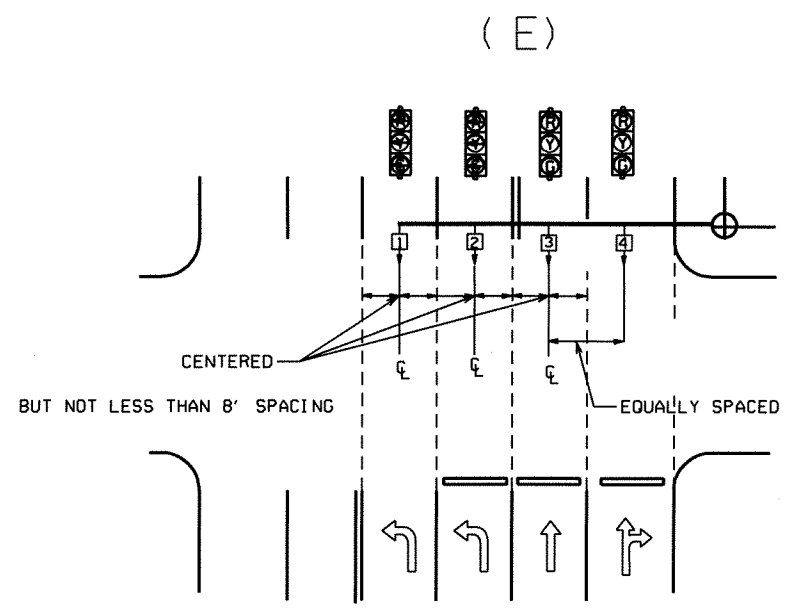
2 SIGNALIZATION DETAILS



NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS

GENERAL NOTES:

- FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.
- THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.
- WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.
- SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.
- ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.
- MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-1 OF 2009 MUTCD.



℄ = CENTER OF LANE FROM APPROACH SIDE

A.H.T.D. STANDARD DETAILS

ARKANSAS STATE HIGHWAY COMMISSION

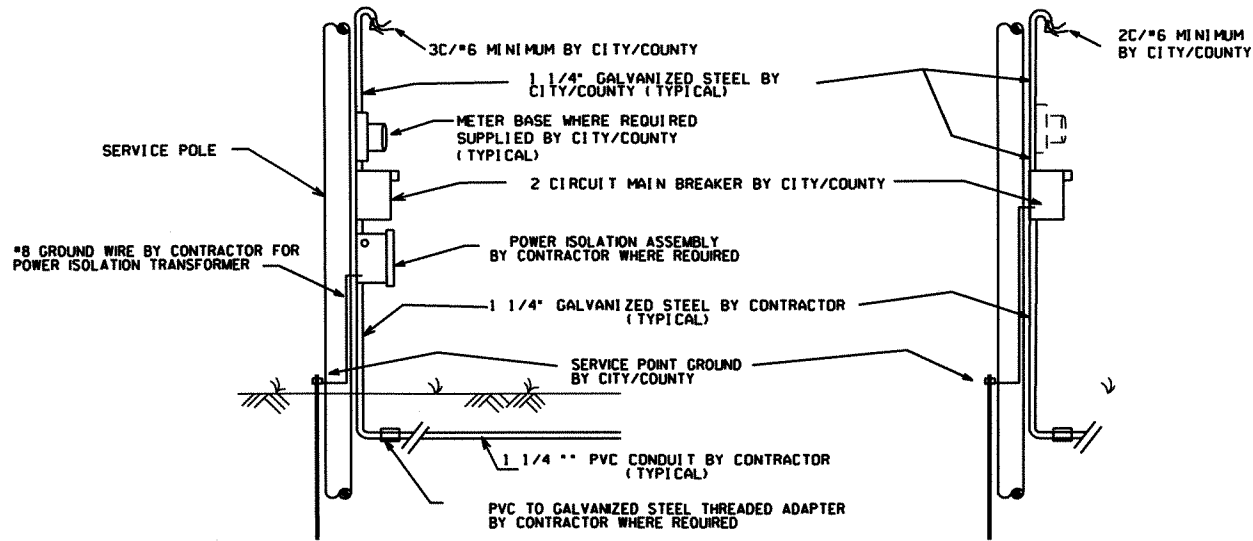
SIGNALIZATION DETAIL (SignalHead Placement)

DATE	REVISION	DATE FILM
3-11-10	2009 MUTCD	
12-9-99	ISSUED	

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY

WITHOUT POWER ISOLATION ASSEMBLY



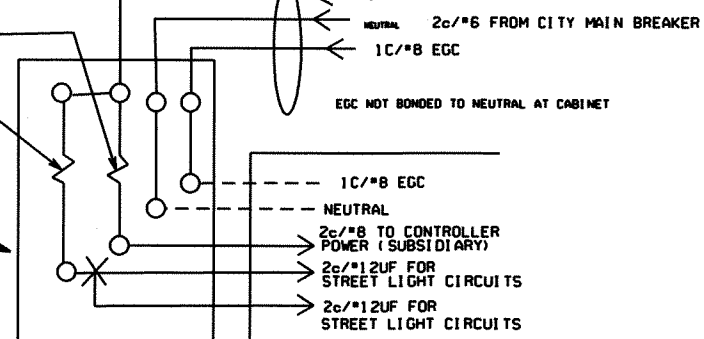
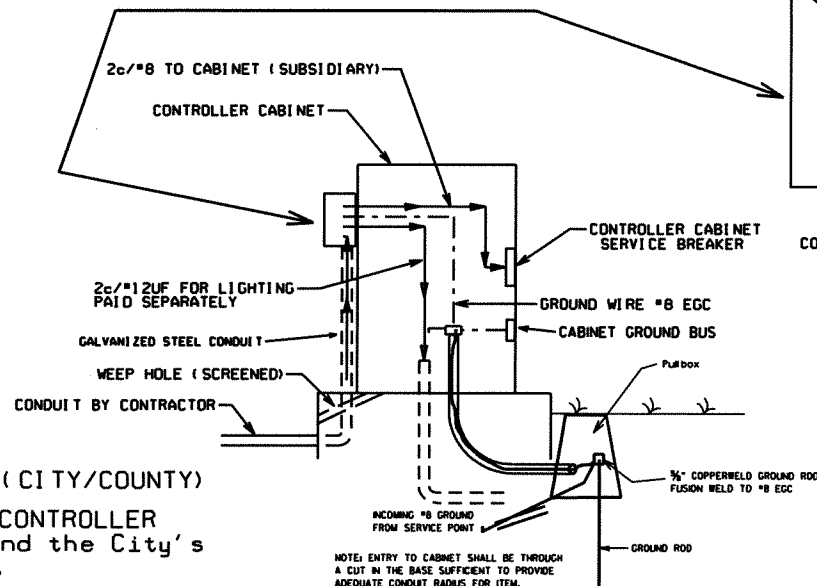
Ground Rod-A 10' x 3/4" ground rod shall be installed in the pull box for each pole and the controller. Payment for the ground rod and 1/2" NMC shall be included in Item 701. The pull box and conductor box shall be paid for separately.

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.	100738		35	69

2 SIGNALIZATION DETAILS



SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



MAIN BREAKER WIRING (TYPICAL)

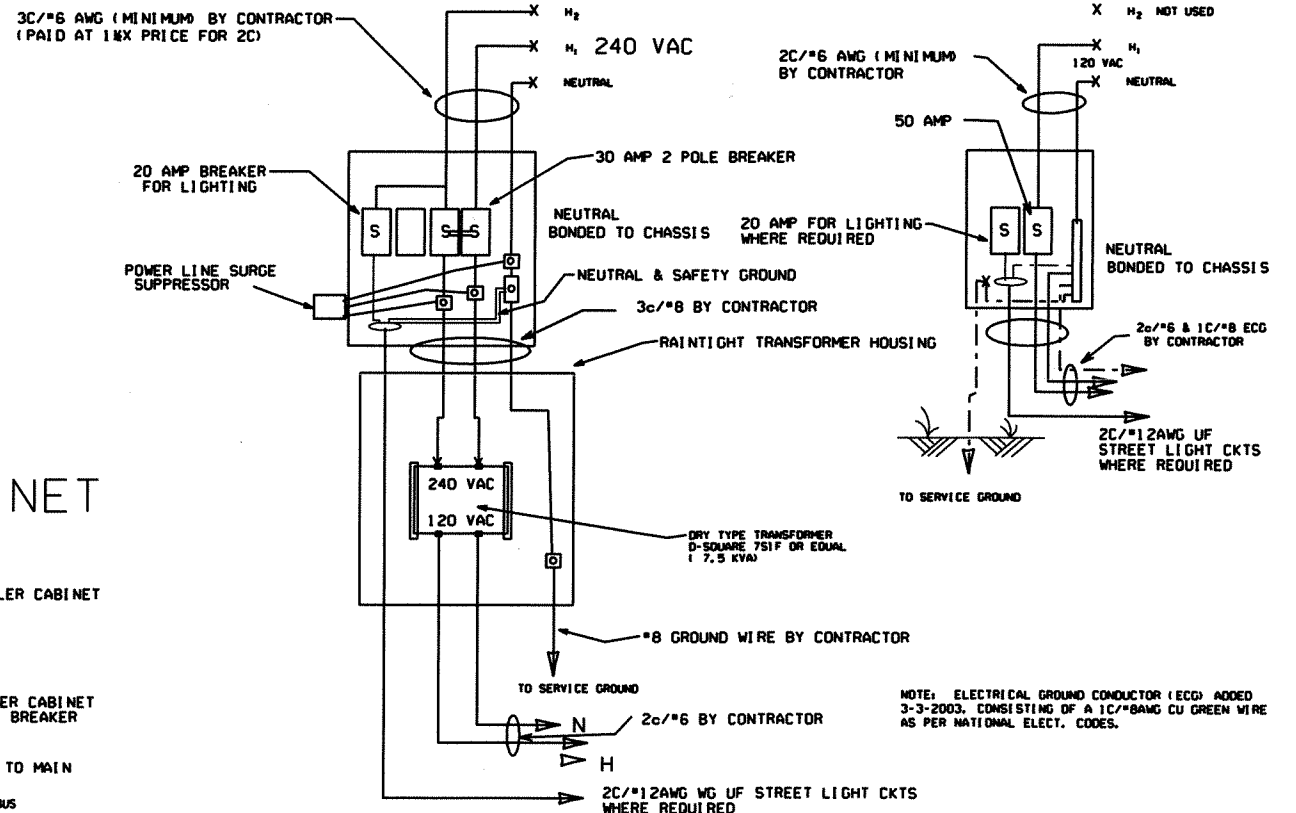
Service Ground is typically tied to neutral at the Main Breaker. As such, controller ground IS NOT tied to Neutral at secondary Breaker or in controller cabinet.

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY)

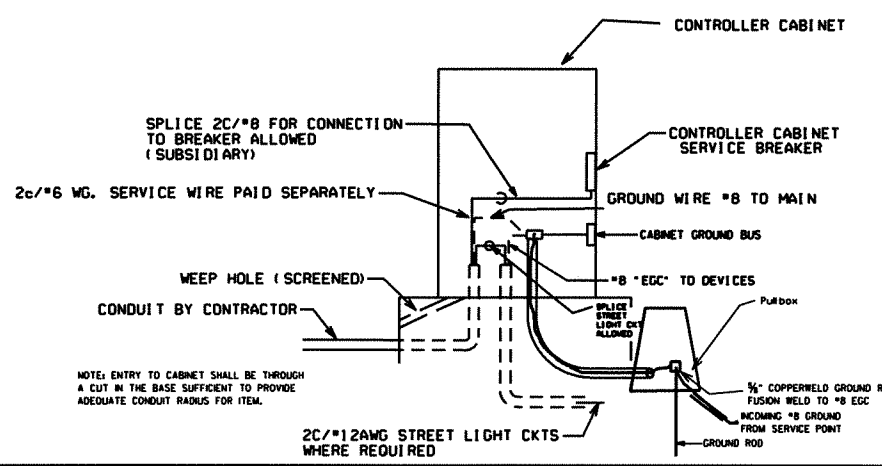
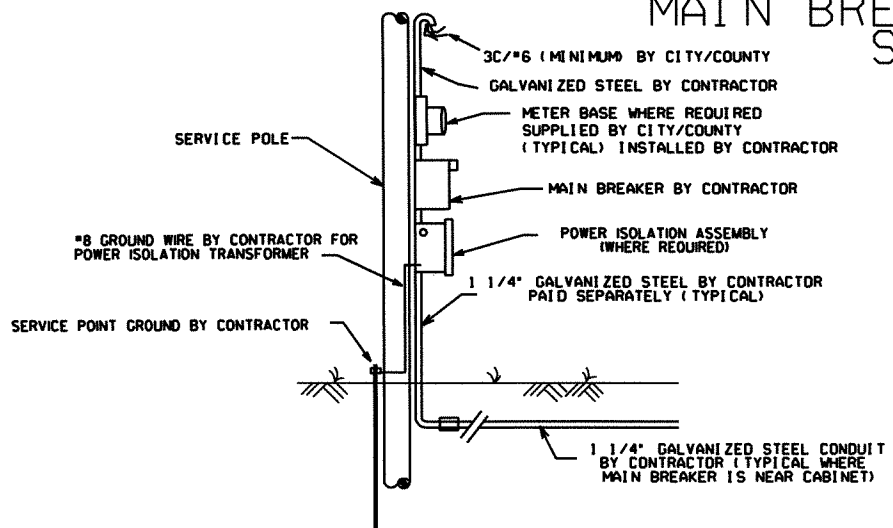
- Electrical service typically falls into two categories: MAIN BREAKER NEAR CONTROLLER CABINET; and MAIN BREAKER NOT NEAR CONTROLLER CABINET. The Contractor's and the City's or County's responsibility varies accordingly as indicated on these details.
- ALL SITUATIONS:** Electrical service shall be provided by the City/County to a service pole with external raintight breaker (MAIN BREAKER) at a mutually acceptable point within the right-of-way. Service point includes galvanized steel conduit to a point 18" below ground line, two circuit main breaker, power isolation assembly where required, meter loop if required by local utility, electrical conductors and weatherhead. Where street lighting is included as part of signal installation, street lighting circuit (2c/#12 awg UF rated, typical) shall be kept separate from the circuit serving traffic signal. Service wire and wiring from the controller to main breaker is provided by the Contractor as a part of this contract. Wire and wiring from main breaker, and connection to the utility is the responsibility of the City/County.
 - MAIN BREAKER NOT NEAR CONTROLLER CABINET:** The Main Breaker assembly, galvanized steel conduit, weatherhead and wire above Main Breaker and connection to the utility shall be provided by City/County. Contractor shall provide as part of contract Secondary Breaker, conduit, wire and wiring to the Main Breaker.
 - MAIN BREAKER NEAR CONTROLLER CABINET:** All components of the service point with the exception of the wire and wiring above the Main Breaker is furnished and installed by the Contractor. Wiring from Main Breaker including connection to the utility, is the responsibility of the City/County. If meter loop is required, meter base and hardware is provided by the City/County and installed by the contractor.

WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED



DATE	REVISION	DATE FILM
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

A.H.T.D. STANDARD DETAILS
ARKANSAS STATE HIGHWAY COMMISSION
SIGNALIZATION DETAIL
(Service Point)

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209, ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS: DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL + 2' X 0' X 2' X 6", 20 LB. REMAINING HEADS SPACED A 8 FT. + 3 SEC., 56 LB., TWO 5 SEC.)
14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING 2 HEADS FOR ARMS 10 TO 16 FT. INCLUDING LB. 2 HEADS FOR ARMS 10 TO 16 FT. INCLUDING LB. 3 HEADS FOR 18 TO 24 FT. ARMS; 4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) + VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE. POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

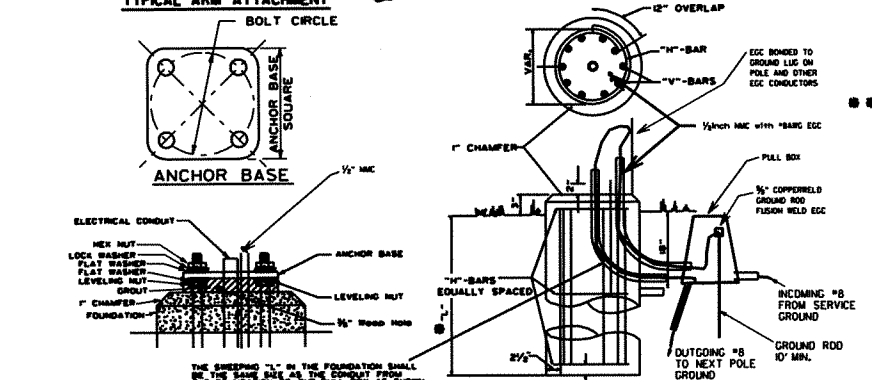
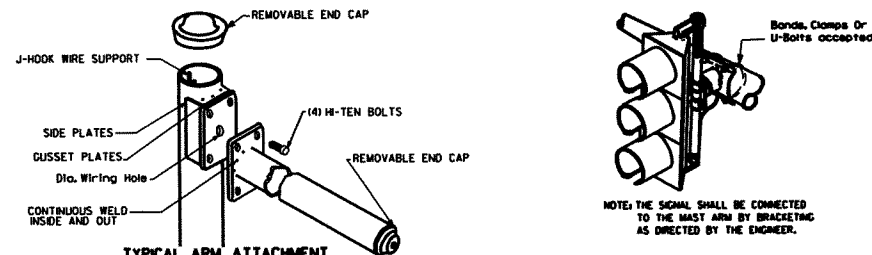
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 15 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.

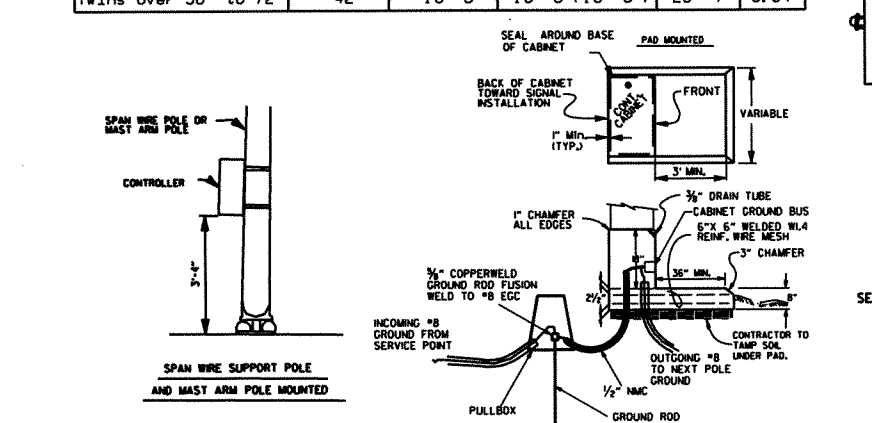


THE GROUND ROD SHALL BE FUSION WELDED TO A 1/2" X 8 A.W.G. SOLID COPPER GROUND WIRE ATTACHMENT TO THE PRIMARY GROUND. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH *L*	STEEL		
			VERT.	HORZ.	O/C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44'
2' to 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42'
over 12' to 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66'
over 20' to 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88'
over 35' to 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56'
over 50' to 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74'
Twins to 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76'
Twins over 20' to 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76'
Twins over 44' to 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76'
Twins over 50' to 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64'



CONTROLLER CABINET MOUNTING DETAILS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX. NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A 1/4" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

10. WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 OF THE STANDARD SPECIFICATIONS.

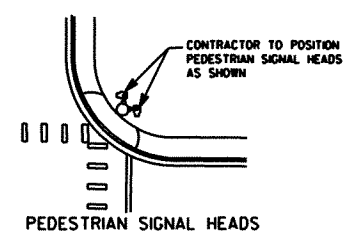
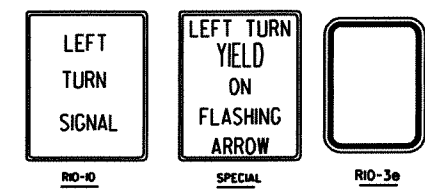
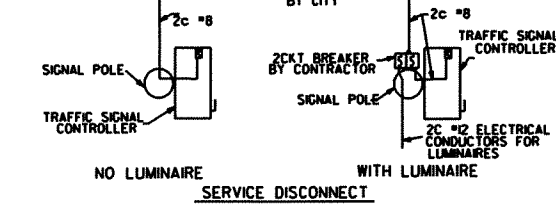
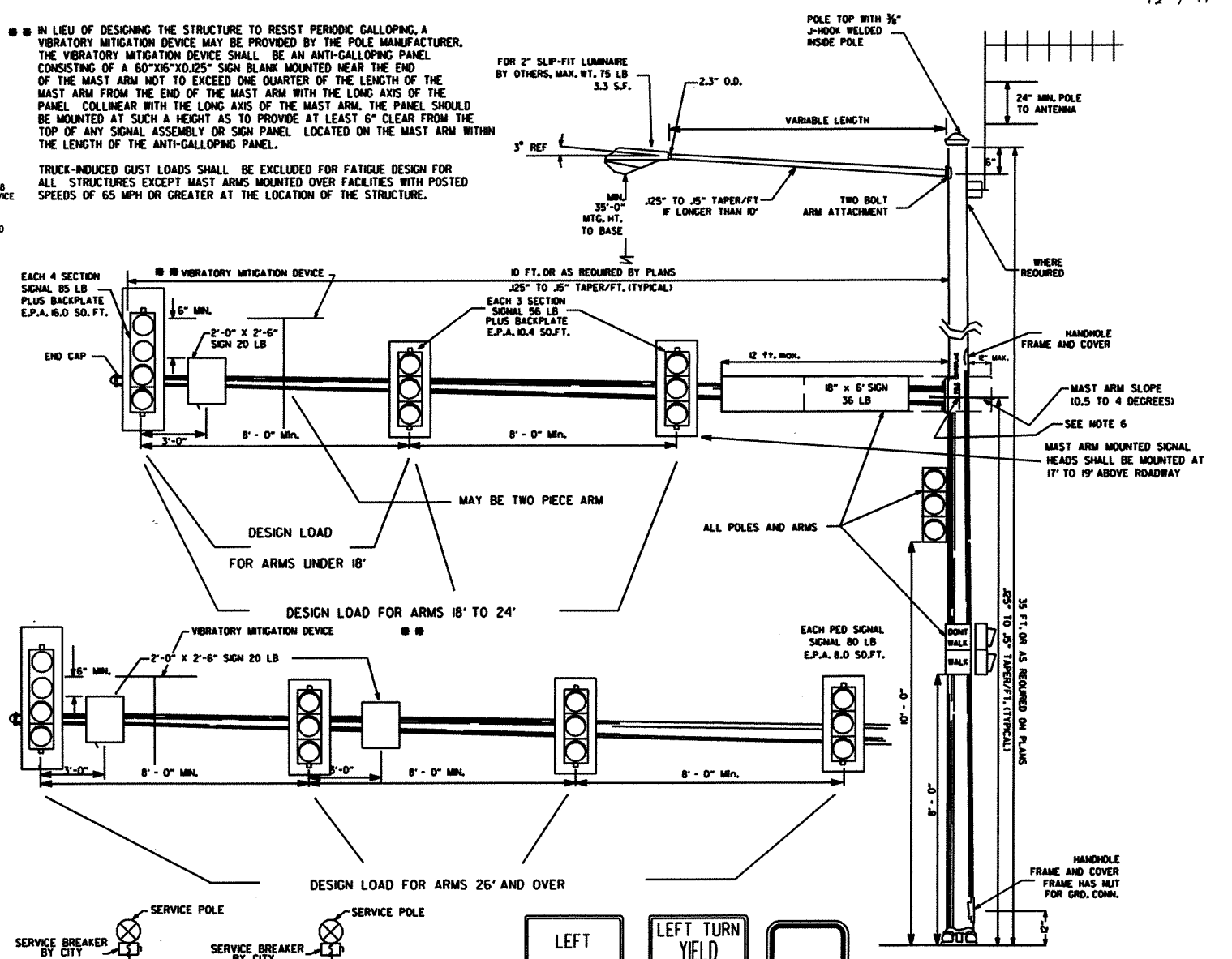
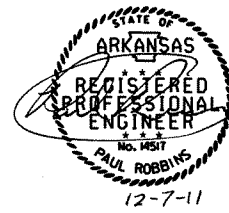
11. IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60" X 16" X 0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.

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.	100738		36	69

2 SIGNALIZATION DETAIL

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3, MINIMUM STRUCTURAL REQUIREMENTS.



DATE	REVISION	DATE FILM
7-21-8	REVISED VMD, SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
4-8-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2004 AASHTO STANDARDS	
10-2-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-8-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-1-04	REV. NOTES & POLE MAST ARM SLOPE	
4-8-01	REVISED POLE TAPERS	
4-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
4-22-99	REVISED FOUNDATION DETAILS	
8-17-98	REVISED DETAILS AND NOTES	
8-21-95	ISSUED	

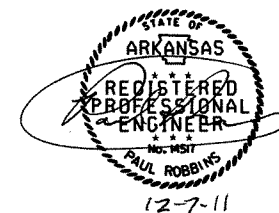
A.H.T.D. STANDARD DETAILS

ARKANSAS STATE HIGHWAY COMMISSION

SIGNALIZATION DETAILS (Steel Pole With Mast Arm)

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.							100738	37	69

2 SIGNALIZATION DETAILS



DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

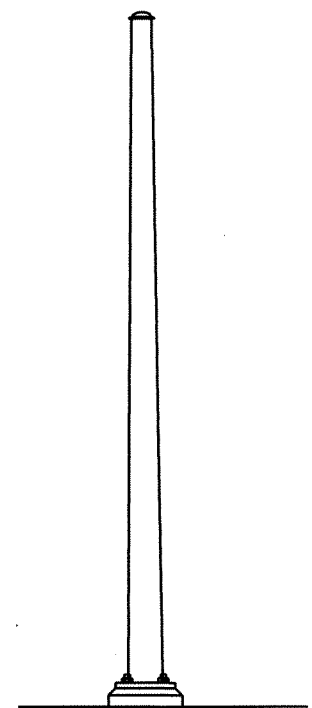
USE FATIGUE CATEGORY II.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH

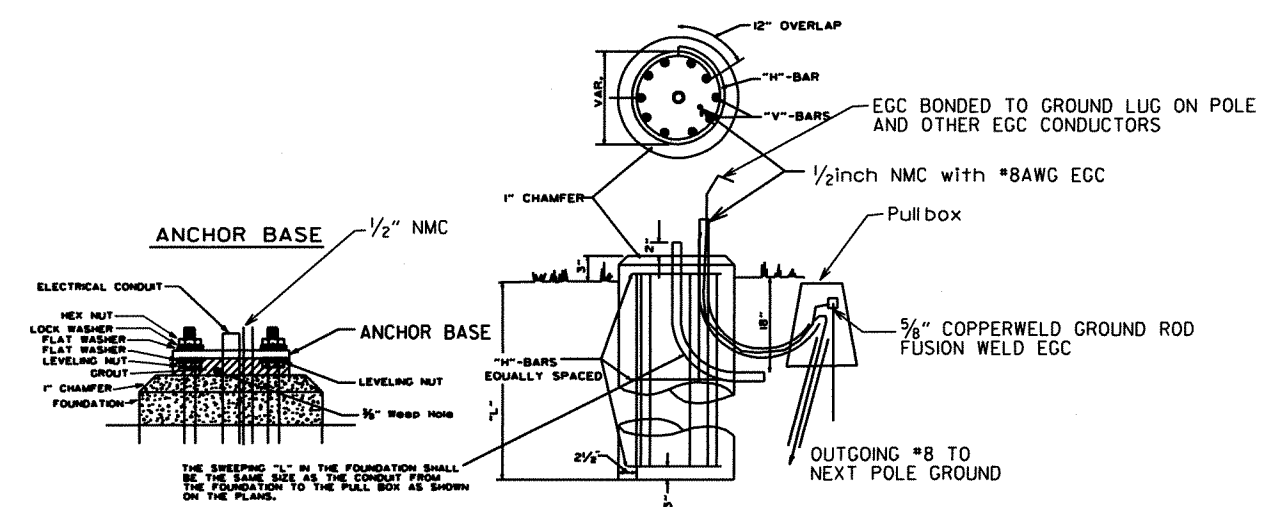
STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARNY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/*8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX PAID FOR SEPARATELY AS SHOWN ON THE PLANS.



ANTENNA POLE

NOTE: COMMUNICATION CABLE SHIELD SHALL BE TIED TO GROUND AT ONLY ONE POINT (MASTER CABINET). THE SHIELD SHALL BE MAINTAINED CONTINUOUS (THROUGH ALL SPLICES). PLEASE REFER TO TESTING PROCEDURES IN SPECIAL PROVISIONS.



TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING.

POLE HEIGHT	FOUNDATION DIAMETER	DEPTH 'L'	VERTICAL	HORIZONTAL	TIE SPACING
20.0'	30"	5'-6"	12-*7	*4	5 sp @ 12"
25.0'	30"	6'-0"	12-*7	*4	6 sp @ 11"
30.0'	30"	6'-6"	12-*7	*4	6 sp @ 12"
35.0'	30"	7'-0"	12-*7	*4	7 sp @ 11"
40.0'	30"	7'-6"	12-*7	*4	7 sp @ 12"
45.0'	36"	8'-6"	13-*8	*4	8 sp @ 12"
50.0'	36"	9'-6"	13-*8	*4	9 sp @ 12"
55.0'	36"	10'-0"	13-*8	*4	10 sp @ 11"
60.0'	36"	10'-6"	13-*8	*4	10 sp @ 12"
65.0'	36"	11'-0"	13-*8	*4	12 sp @ 10 1/2"
70.0'	36"	11'-6"	13-*8	*4	11 sp @ 12"
75.0'	42"	13'-0"	18-*8	*4	14 sp @ 10 1/2"
80.0'	42"	13'-6"	18-*8	*4	13 sp @ 12"
85.0'	42"	14'-6"	18-*8	*4	14 sp @ 12"
90.0'	42"	15'-0"	18-*8	*4	18 sp @ 9 1/2"

ALL CONCRETE SHALL BE CLASS "S" WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH F'c=3500 PSI. CONCRETE SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS CHAMFERED 3/4" UNLESS NOTED OTHERWISE.

ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31OR M53, GRADE 40 (YIELD STRENGTH=40,000 PSI).

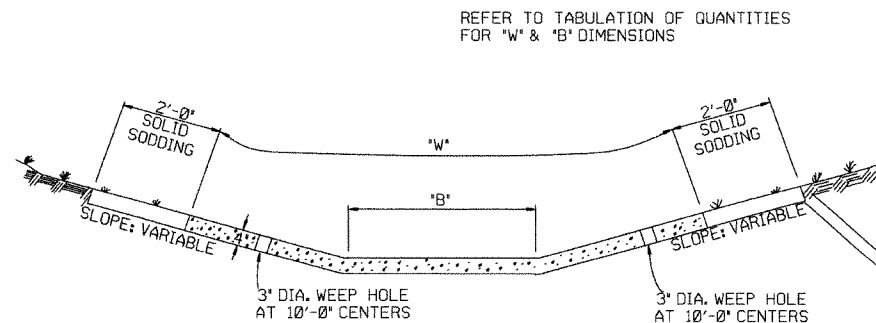
PROVIDE 3" CLEAR TIES. DETAIL 3" TO FIRST TIE AT TOP OF SHAFT.

A.H.T.D. STANDARD DETAILS

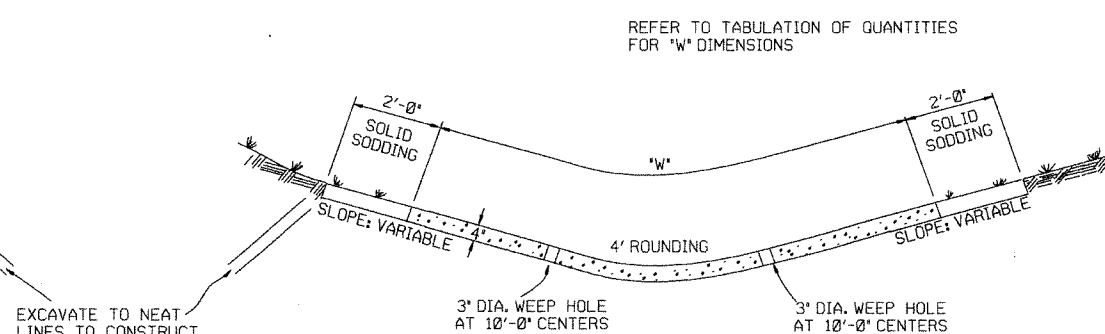
DATE	REVISION	DATE FILM
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
9-6-00	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SIGNALIZATION DETAIL
(Antenna Pole)



TYPE A

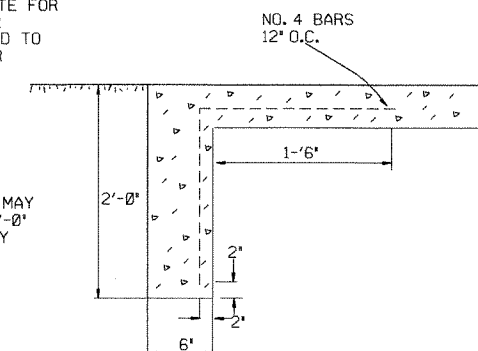


TYPE B

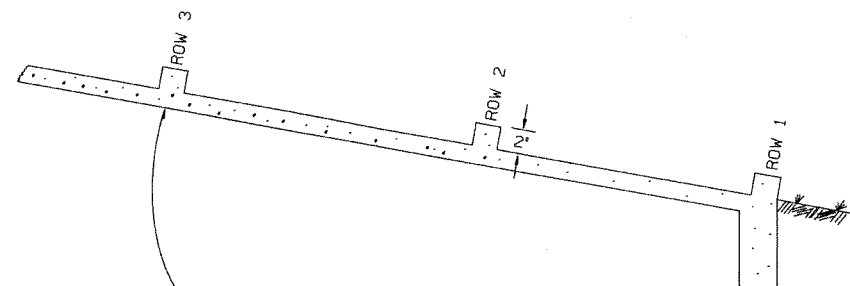
EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

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

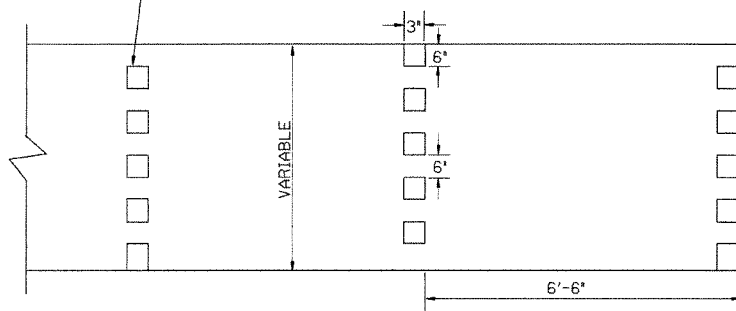


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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 UNINCLUDED 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.

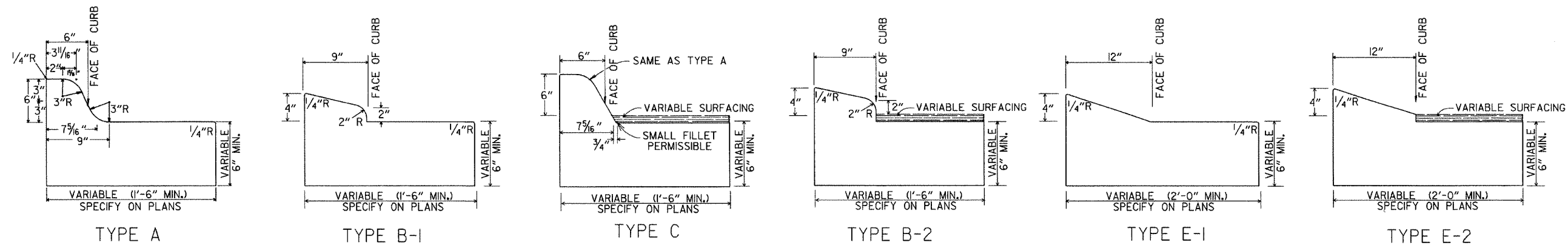
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
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	
	TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

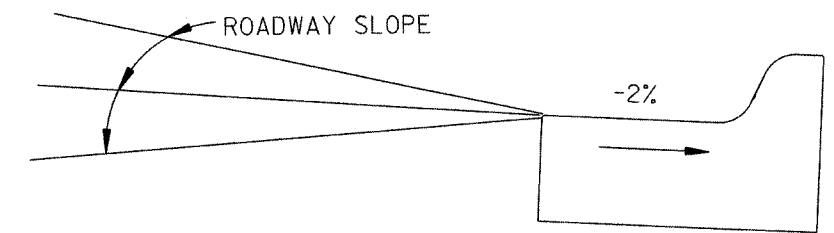
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

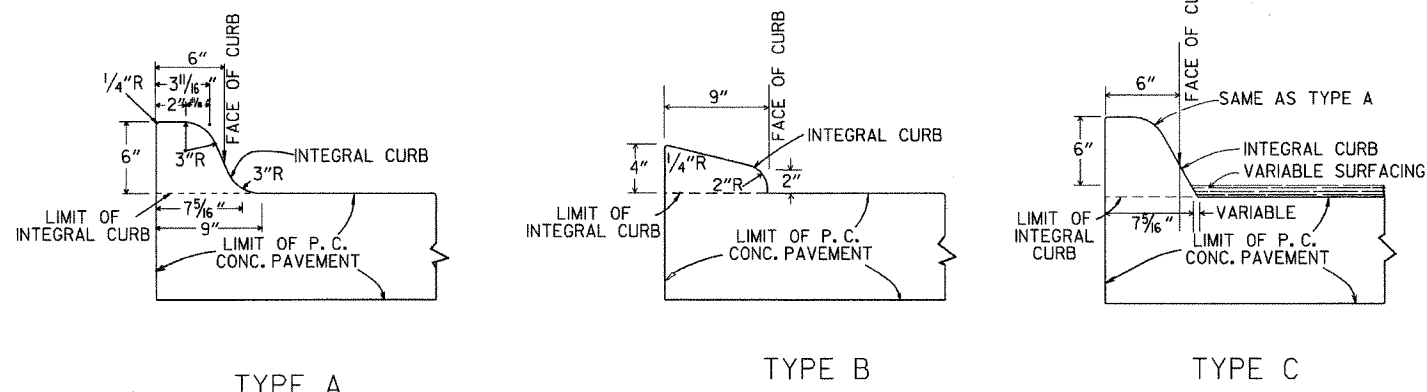
STANDARD DRAWING CDP-1



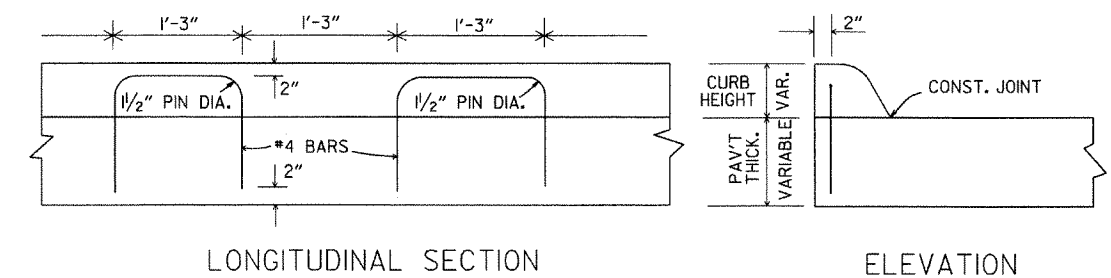
CONCRETE COMBINATION CURB AND GUTTER



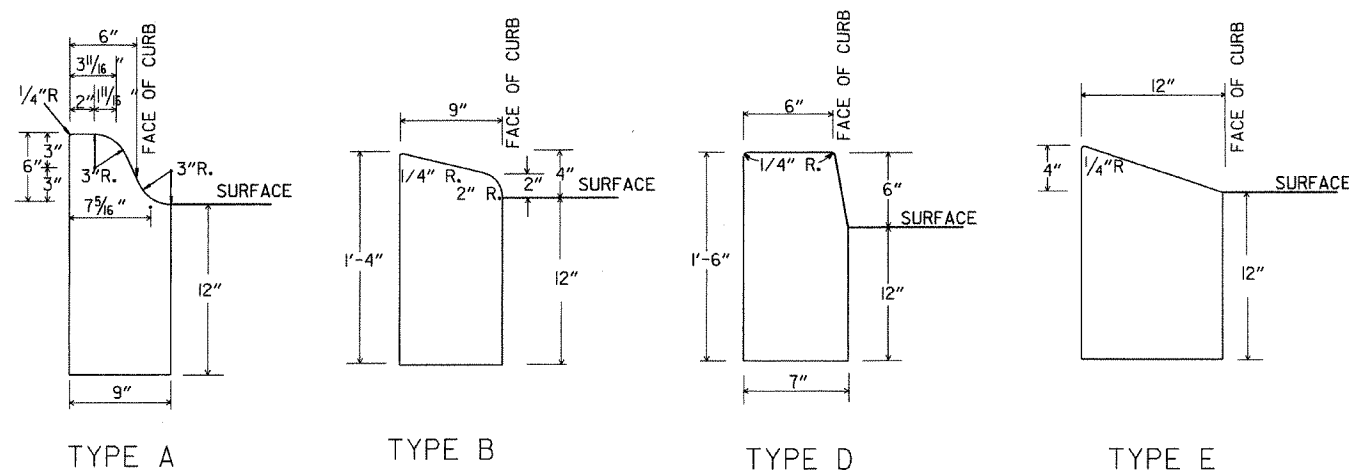
DETAIL OF GUTTER SLOPE
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



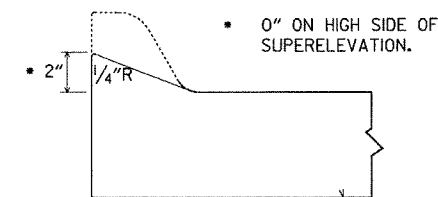
INTEGRAL CURB



ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

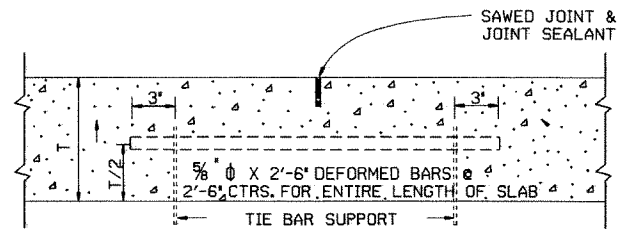
DETAILS OF MODIFIED CURB

11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIABLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

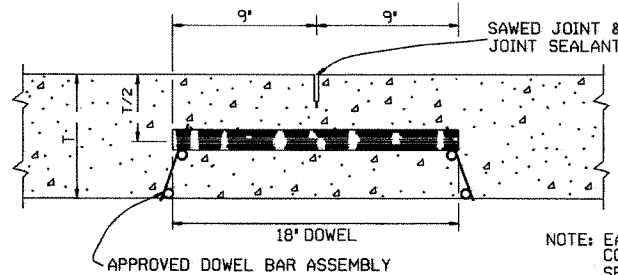
CURBING DETAILS

STANDARD DRAWING CG-1



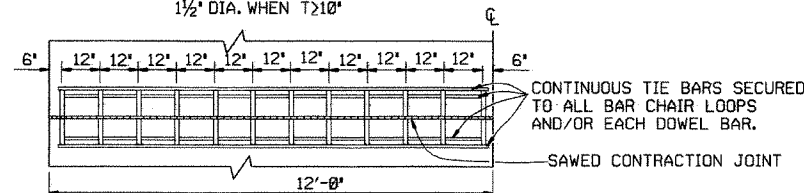
LONGITUDINAL JOINT

NOTE: THE TIE BAR SUPPORT SHOWN ABOVE MAY BE ELIMINATED IF OTHER APPROVED METHODS FOR PLACING AND SUPPORTING THE TIE BARS ARE PROVIDED. TIE BARS SHALL BE 15' FROM TRANSVERSE JOINTS.



NOTE: EACH DOWEL TO BE COATED ACCORDING TO SECTION 502 OF THE STANDARD SPECIFICATIONS.

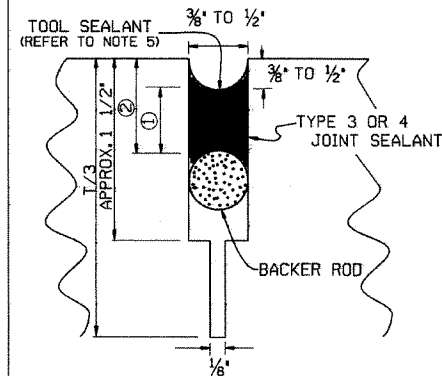
ROUND STEEL BAR DOWEL
1 1/4" DIA. WHEN T < 10"
1 1/2" DIA. WHEN T > 10"



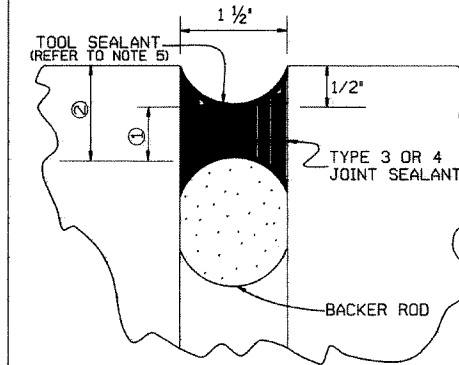
ONE-HALF 24' PAVEMENT
12 DOWELS
PLAN

NOTE: FOR 20' PAVEMENT USE 20 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 15' PAVEMENT USE 15 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 26' PAVEMENT USE 26 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR PAVEMENT WIDTHS OTHER THAN THOSE SHOWN ABOVE, USE DOWELS AT 12' CTRS. WITH 6" MAX. SPACING FROM C.L. TO FIRST BAR. DISTANCE FROM EDGE OF SLAB TO FIRST BAR SHALL BE ADJUSTED TO MAINTAIN 12" DOWEL BAR SPACING

CONTRACTION JOINT DETAILS



DETAIL OF SAWS CONTRACTION JOINT



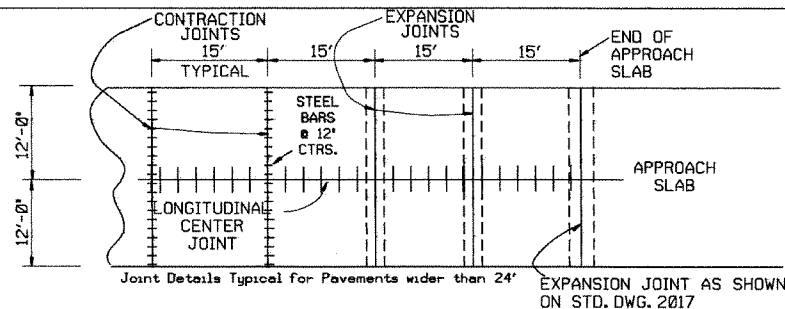
DETAIL OF EXPANSION JOINT

JOINT CONFIGURATION FOR TYPE 3 OR 4 JOINT SEALANT

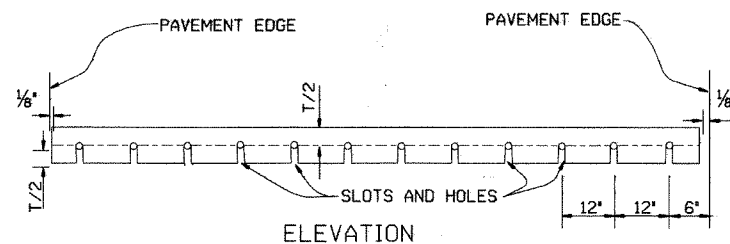
JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
1/4	1/4	3/8	1/2
3/8	1/4	1/2	1/2
1/2	1/4	5/8	1/2
5/8	3/8	3/4	3/4
3/4	3/8	7/8	3/4
1 1/4	3/4	2	1 1/4

JOINT CONFIGURATION FOR TYPE 5 JOINT SEALANT

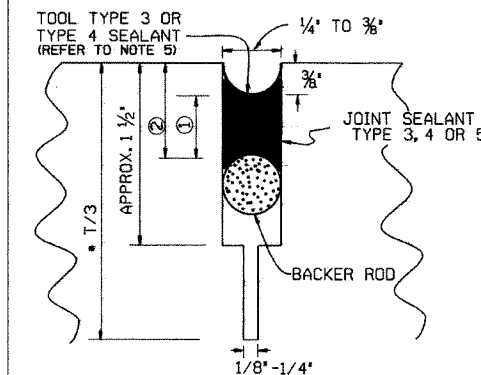
JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
1/4	1/2	3/8	3/4
3/8	3/4	1/2	1



PLAN SHOWING EXPANSION JOINTS AT BRIDGE APPROACH SLABS

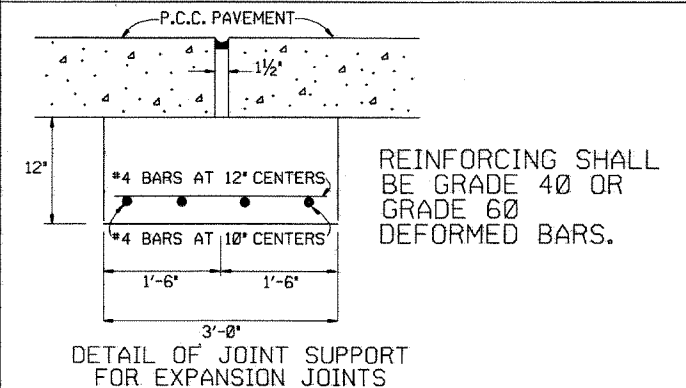


NOTE: ALL DOWEL BARS SHALL CONFORM TO THE DETAILS FOR CONTRACTION JOINTS.



*NOTE: T/3 SAW CUT NOT REQUIRED FOR LONGITUDINAL CONSTRUCTION JOINT.

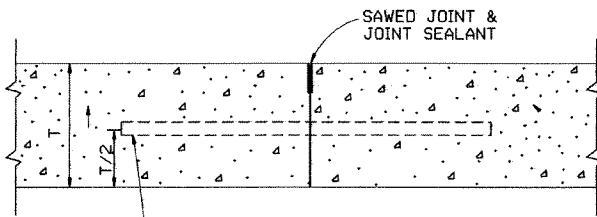
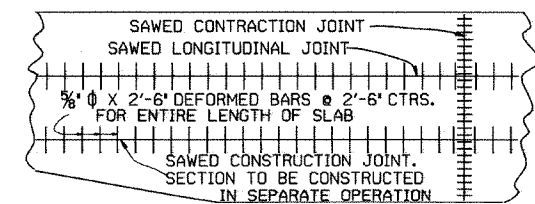
DETAIL OF SAWS LONGITUDINAL JOINT AND LONGITUDINAL CONSTRUCTION JOINT



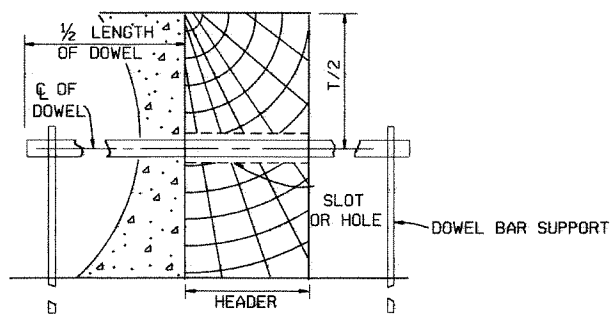
DETAIL OF JOINT SUPPORT FOR EXPANSION JOINTS

GENERAL NOTES

1. 'T' DENOTES THICKNESS OF SLAB.
2. DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH THE DIMENSIONS SHOWN. A TOLERANCE OF PLUS OR MINUS ONE INCH WILL BE ALLOWED FOR THE VERTICAL AND LATERAL PLACEMENT AND A TOLERANCE OF PLUS OR MINUS 1/4" WILL BE ALLOWED FOR THE TILT AND SKEW. DOWEL BARS SHALL BE FIELD COATED FOR A MINIMUM DISTANCE OF 2' GREATER THAN HALF THE LENGTH OF THE BAR WITH AN APPROVED GREASE AS A BOND BREAKER JUST PRIOR TO PLACEMENT OF CONCRETE.
3. THE EXPANSION JOINT SUPPORT MAY BE CONSTRUCTED WITH CLASS 'A', 'S' OR PAVING CONCRETE. PAYMENT FOR THE JOINT SUPPORT SHALL BE FOR THE CONTRACT UNIT PRICE BID FOR THE CLASS OF CONCRETE SPECIFIED IN THE PLANS. PAYMENT FOR ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR THE ABOVE ITEMS.
4. CONTRACTION JOINTS SHALL BE CONSTRUCTED ON 15' CENTERS.
5. TOOLING NOT REQUIRED FOR SELF-LEVELING SILICONE.
6. UNLESS OTHERWISE SPECIFIED IN THE PLANS, CONCRETE SHOULDERS SHALL BE CONSTRUCTED ACCORDING TO THE DETAILS SHOWN HEREON. CONTRACTION JOINTS SHALL MATCH CONTRACTION JOINTS IN THE LANES.
7. TIE WIRES IN DOWEL BAR ASSEMBLIES SHALL NOT BE CUT PRIOR TO PLACEMENT OF PAVING CONCRETE.



LONGITUDINAL CONSTRUCTION JOINT



SECTION

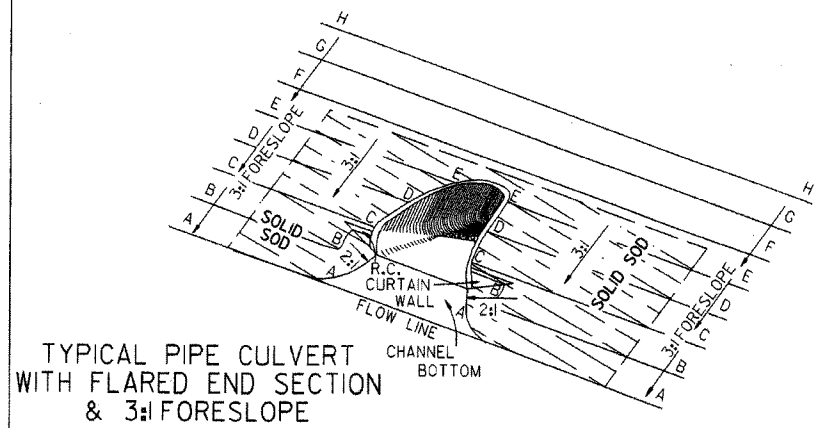
TRANSVERSE CONSTRUCTION JOINT

DATE	REVISION	DATE FILMED
5-25-06	ADDED GENERAL NOTE 7	
10-9-03	REMOVED TIE BAR COATING & REVISED GENERAL NOTES	
11-16-01	ADDED TOOL SEALANT AND NOTE 5; REVISED NOTE 3	
4-26-96	REVISED CONTRACTION JOINT NOTE	
11-3-94	ADDED NOTE RE: REINF. BARS	
4-1-93	REVISED DOWEL BARS & GEN. NOTES	4-1-93
10-1-92	REVISED DOWEL SPACING	10-1-92
8-15-91	ADDED SPAC FOR CONTR JTS & DEL KEYWAY	
05-24-90	REVISED TIE BAR, DOWEL & JOINT SIZE	
01-25-90	ADDED EXPANSION JOINT	01-25-90
11-30-89	CHANGED T/4+1 TO T/3+1	11-30-89
03-23-89	ALTERED SAWS JOINT & ADDED NOTE 5	03-23-89
07-15-88	REVISED AND REDRAWN	07-15-88

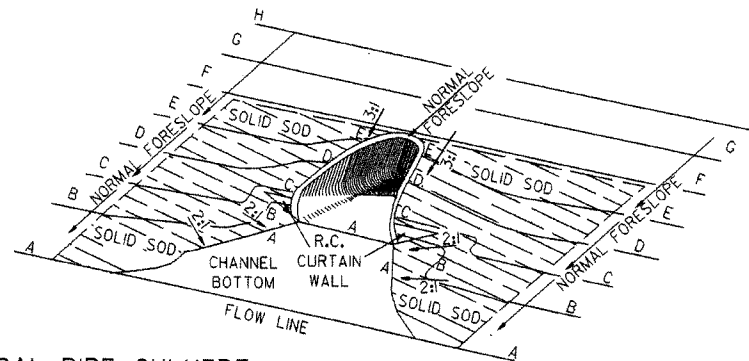
ARKANSAS STATE HIGHWAY COMMISSION

TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)

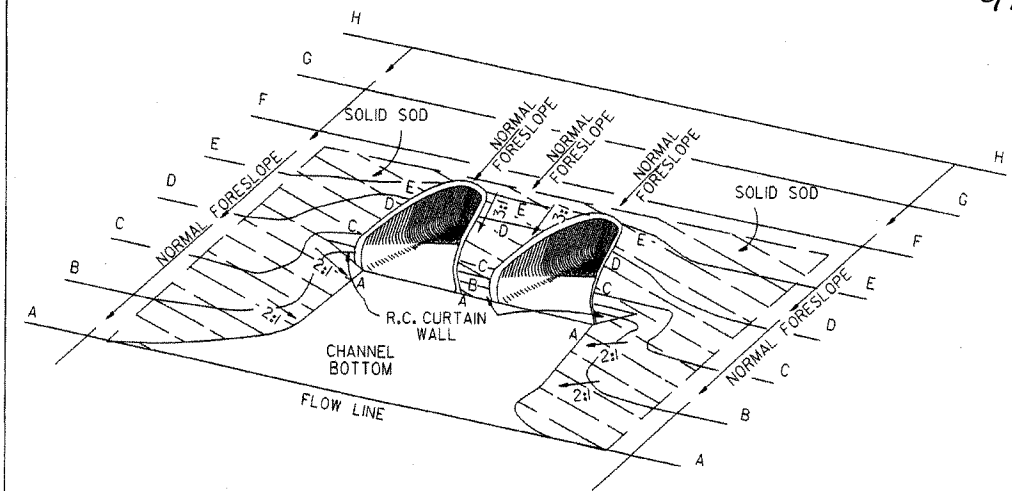
STANDARD DRAWING CPTJ - 6A



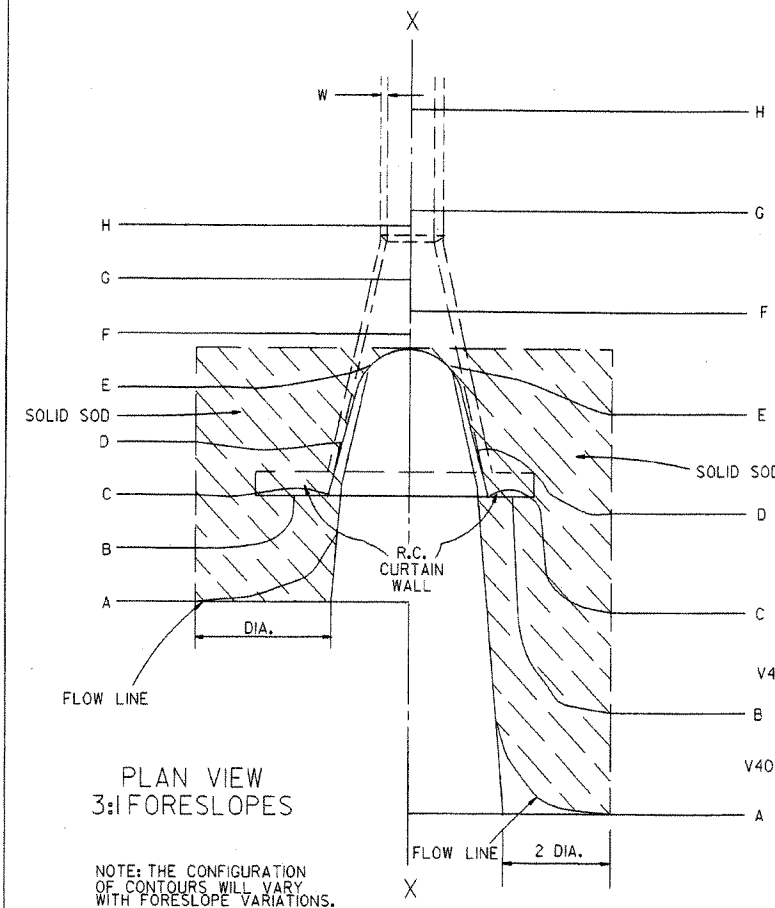
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



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

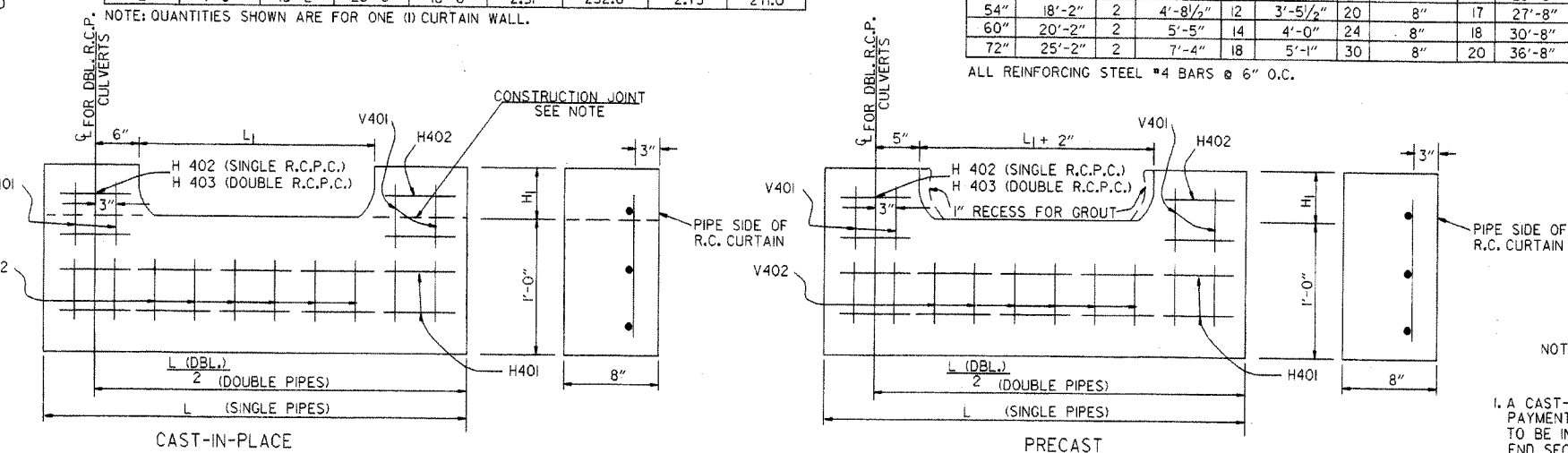
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

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"	1 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.



R.C. CURTAIN WALL DETAILS

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.

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

REINFORCING STEEL SCHEDULE

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

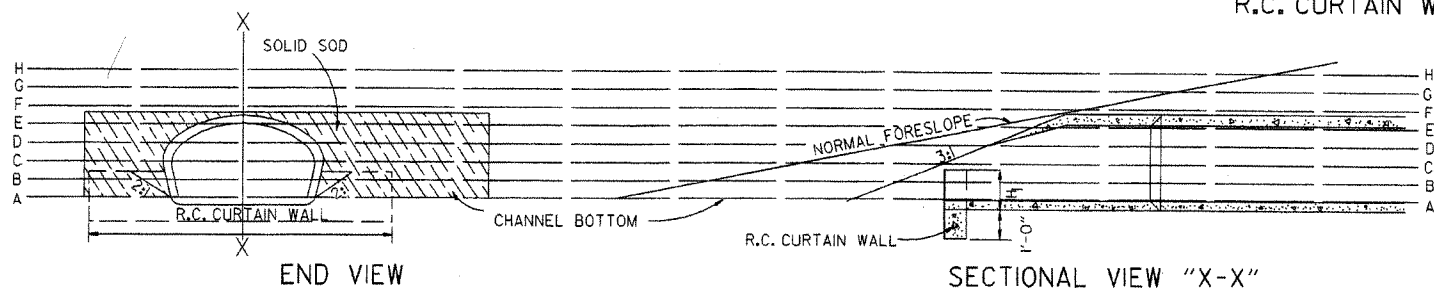
ALL REINFORCING STEEL #4 BARS @ 6" O.C.

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.						DOUBLE R.C.P.C.								
	3:1			4:1			3:1			4:1			6:1		
	SQ. YDS.						SQ. YDS.								
18"	5	7	12	6	8	13	10	14	24	12	16	30	15	20	36
24"	8	12	19	9	13	20	14	19	30	15	20	36	20	27	36
30"	13	18	29	14	19	30	20	27	45	20	27	45	27	36	45
36"	17	26	41	18	28	43	27	36	60	27	36	60	36	45	60
42"	23	35	55	25	37	57	36	48	81	36	48	81	45	60	81
48"	29	46	68	31	48	70	45	60	108	45	60	108	60	81	108
54"	35	57	85	37	59	87	54	72	135	54	72	135	81	108	135
60"	45	62	104	48	65	107	60	81	180	60	81	180	90	135	180
72"	64	92	156	67	95	159	81	108	252	81	108	252	135	180	252

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

- GENERAL NOTES
- 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.
 - ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
 - 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.
 - 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.		
3-2-91	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

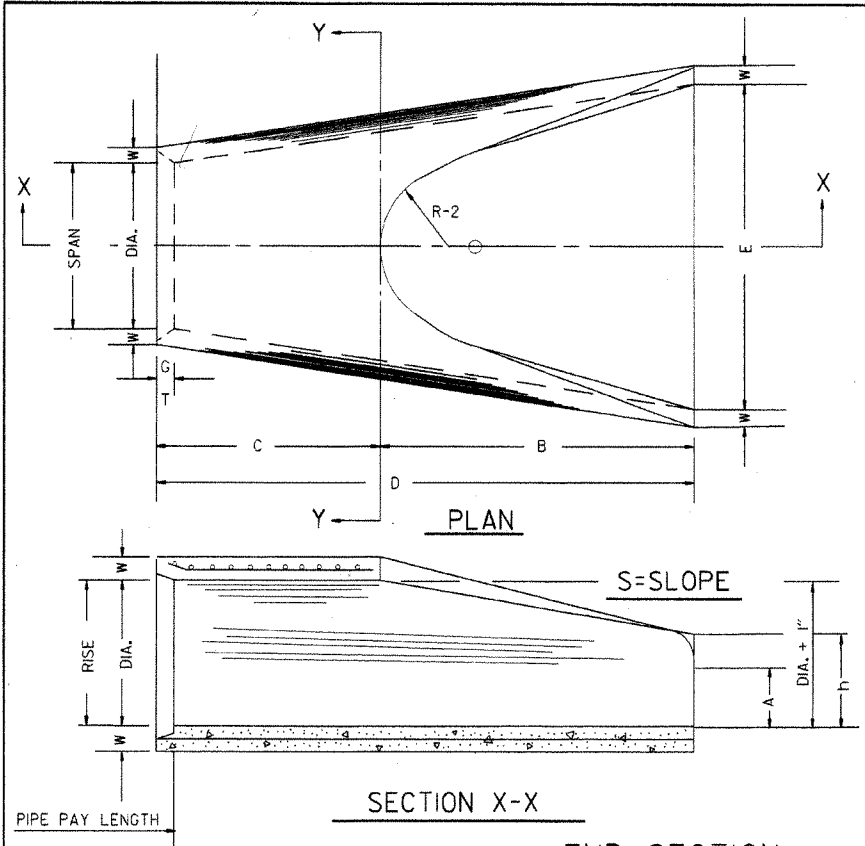
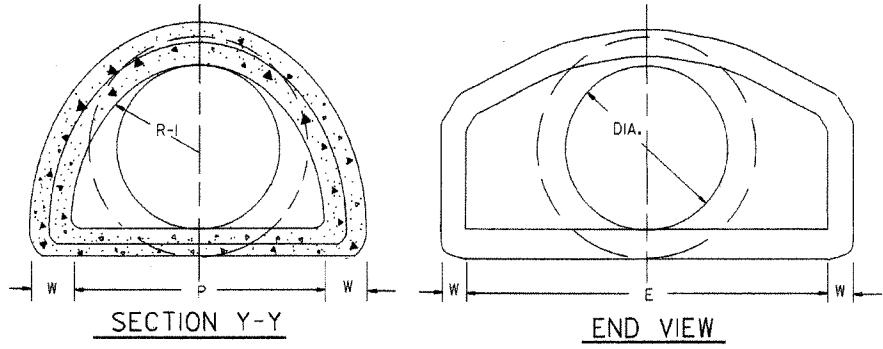


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA.	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"	600	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 3/4"	6'-0"	3:1	37"	47 1/8"	24 3/8"	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 1/8"	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 3/8"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-0"	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 3/8"	38 3/8"	24"	5"	13250	4'-6"



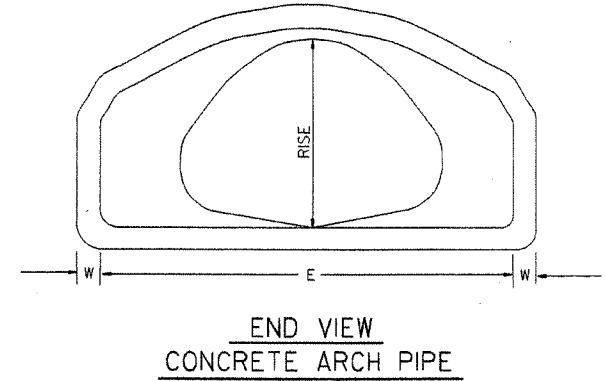
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

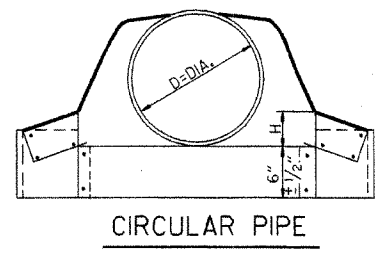
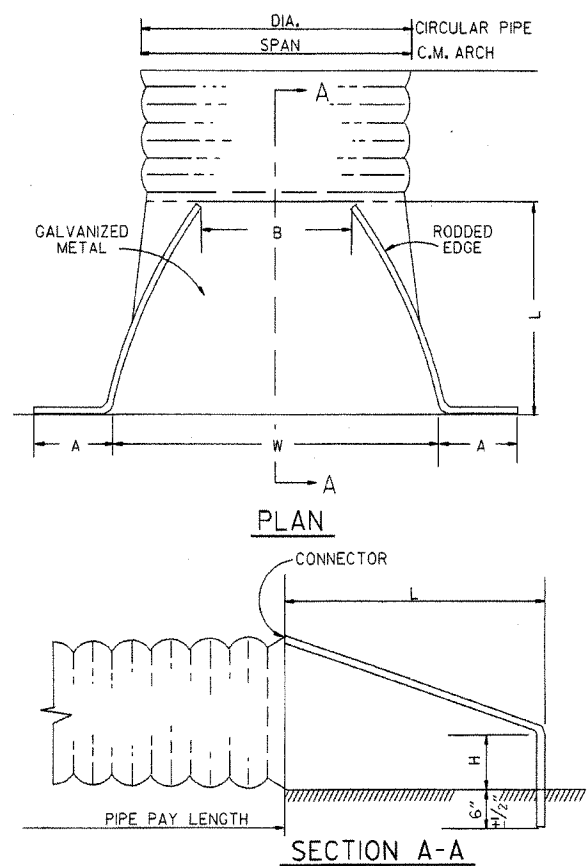
ARCH PIPE

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

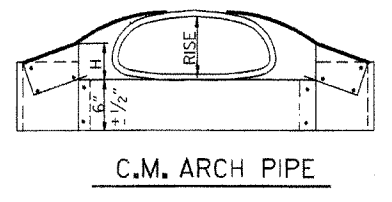
* THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



END VIEW CONCRETE ARCH PIPE



CIRCULAR PIPE



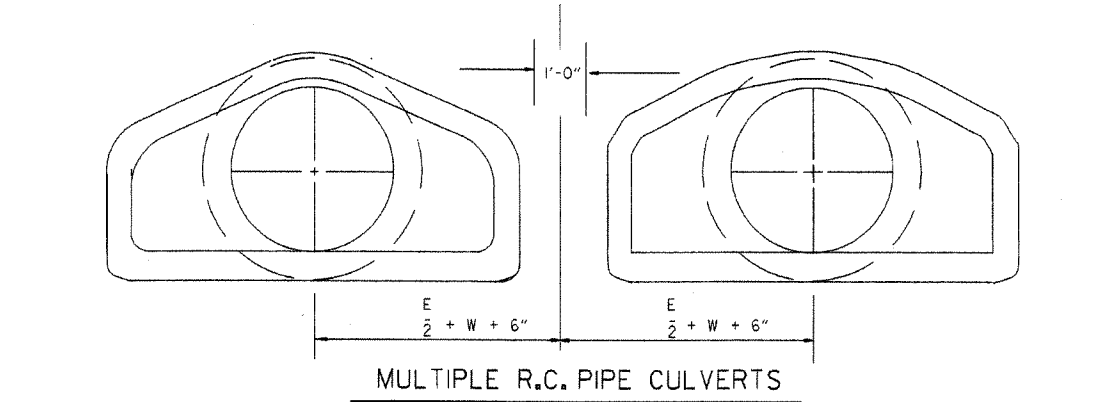
C.M. ARCH PIPE

CIRCULAR PIPE

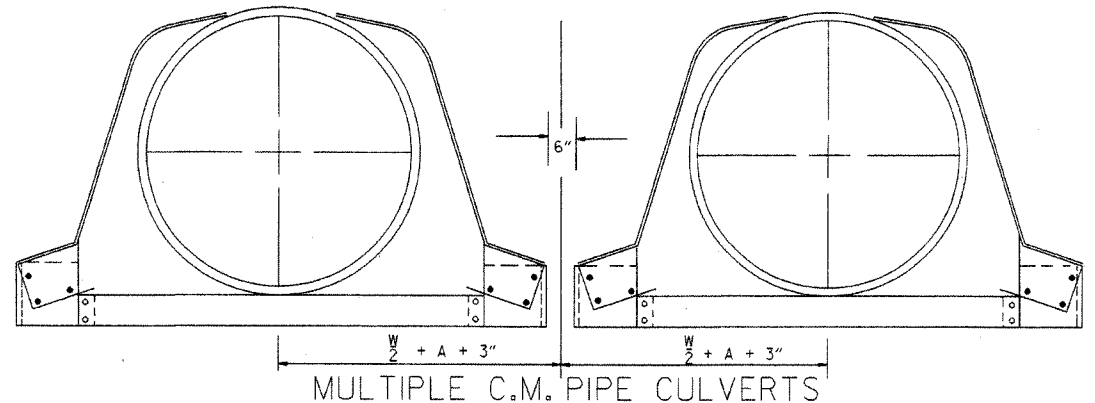
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1 1/2" ± 2" ±	W	S
12	16	6	6	6	21	24	2 1/2:1
15	16	7	8	6	26	30	2 1/2:1
18	16	8	10	6	31	36	2 1/2:1
21	16	9	12	6	36	42	2 1/2:1
24	16	10	13	6	41	48	2 1/2:1
30	14	12	16	8	51	60	2 1/2:1
36	14	14	19	9	60	72	2 1/2:1
42	12	16	22	11	69	84	2 1/2:1
48	12	18	27	12	78	90	2 1/2:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1 3/4:1
66	2	18	36	12	87	120	1 1/2:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

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



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96	ARKANSAS STATE HIGHWAY COMMISSION
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80	
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78	
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75	
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74	
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73	
10-2-72	REVISED AND REDRAWN	760-10-2-72	
DATE	REVISION	FILE NO.	

FLARED END SECTION
STANDARD DRAWING FES-2

CORRUGATED STEEL PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

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

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

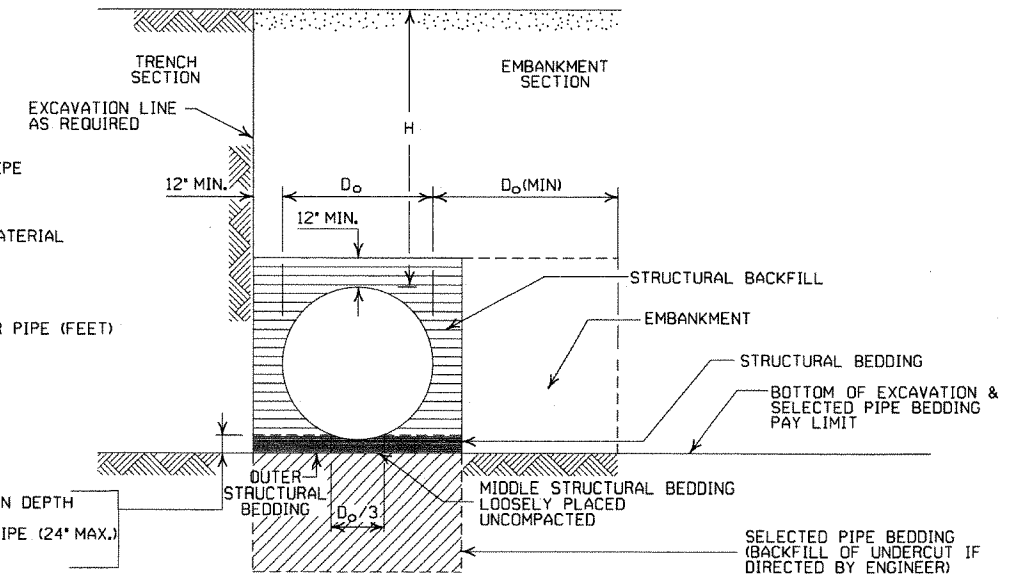
INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

- LEGEND -

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

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/8" X 1/2" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		
				INSTALLATION			INSTALLATION		
				TYPE 1	TYPE 1		TYPE 1	TYPE 1	
2 1/2 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM									
15	17x13	3	0.064	2	15	0.060	2	15	
18	21x15	3	0.064	2	15	0.060	2	15	
21	24x18	3	0.064	2,25	15	0.060	2,25	15	
24	28x20	3	0.064	2,5	15	0.075	2,5	15	
30	35x24	3	0.079	3	12	0.075	3	12	
36	42x29	3 1/2	0.079	3	12	0.105	3	12	
42	49x33	4	0.079	3	12	0.105	3	12	
48	57x38	5	0.109	3	13	0.135	3	13	
54	64x43	6	0.109	3	14	0.135	3	14	
60	71x47	7	0.138	3	15	0.135	3	14	
66	77x52	8	0.168	3	15	0.164	3	15	
72	83x57	9	0.168	3	15				
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM									
			INSTALLATION		INSTALLATION				
			TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15		
42	46x36	6	0.079	3	2	13	15		
48	53x41	7	0.079	3	2	13	15		
54	60x46	8	0.079	3	2	13	15		
60	66x51	9	0.079	3	2	13	15		
66	73x55	12	0.079	3	2	15	15		
72	81x59	14	0.079	3	2	15	15		
78	87x63	14	0.079	3	2	15	15		
84	95x67	16	0.109	3	2	15	15		
90	103x71	16	0.109	3	2	15	15		
96	112x75	18	0.109	3	2	15	15		
102	117x79	18	0.109	3	2	15	15		
108	128x83	18	0.138	3	2	15	15		

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

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

DATE	REVISION	DATE FILMED
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

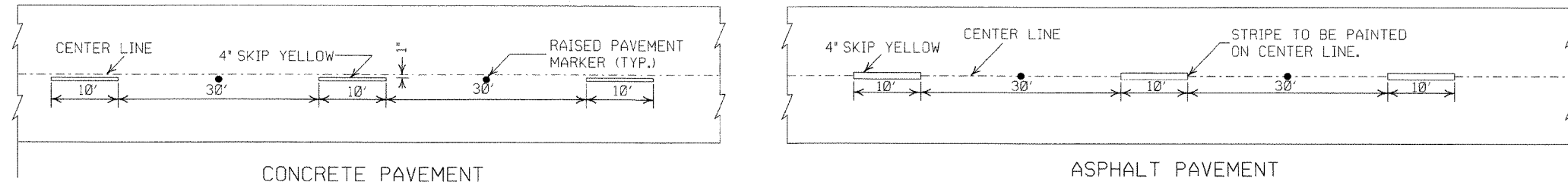
ARKANSAS STATE HIGHWAY COMMISSION

**METAL PIPE CULVERT
FILL HEIGHTS & BEDDING**

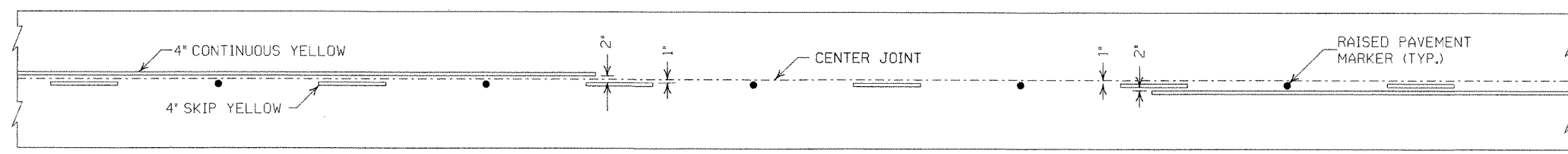
STANDARD DRAWING PCM-1

NOTES:

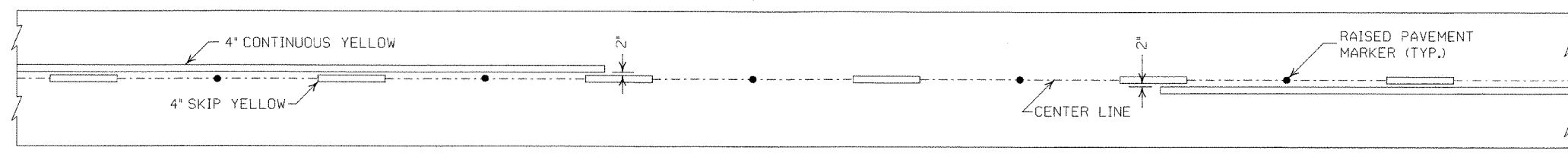
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.'
4. RAISED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



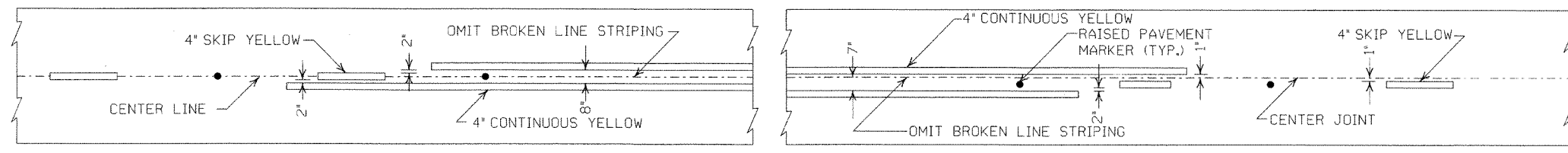
BROKEN LINE STRIPING



SOLID LINE STRIPING ON CONCRETE PAVEMENT



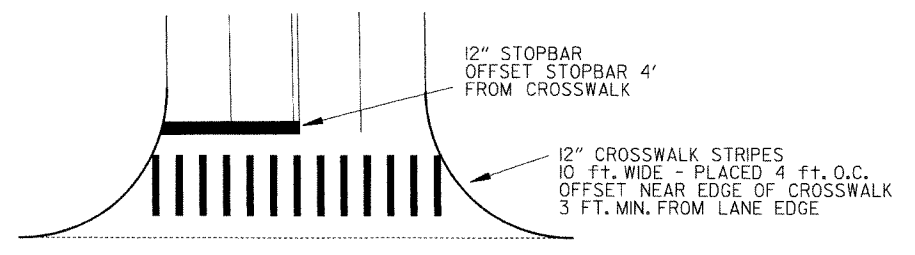
SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT

CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



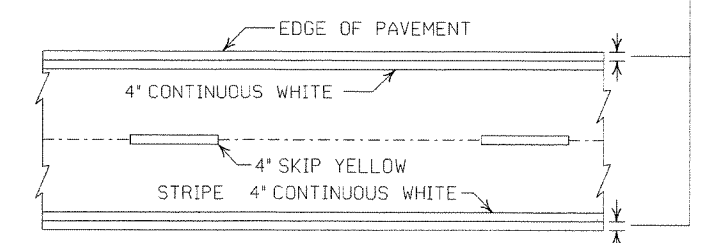
CROSSWALK AND STOPBAR DETAILS

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.

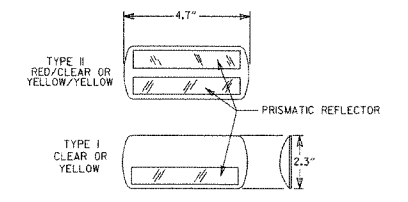
THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

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



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

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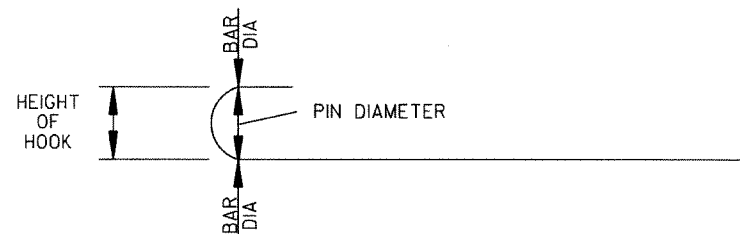
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

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.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

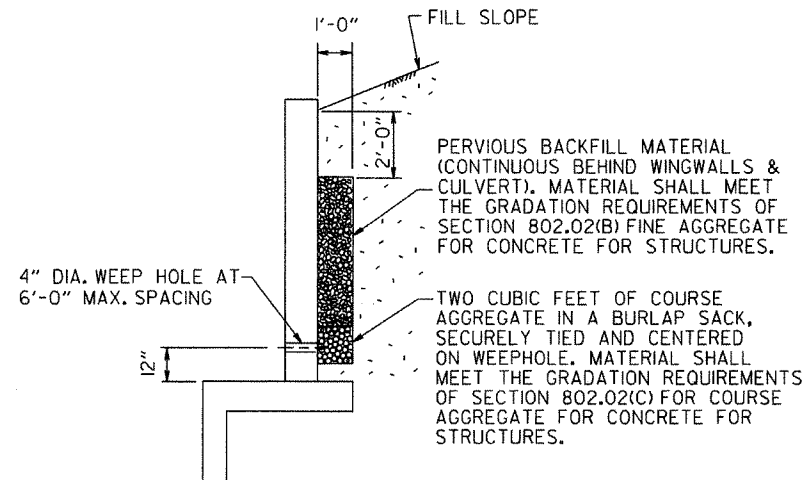
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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 & CULVERT 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 & CULVERT 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.

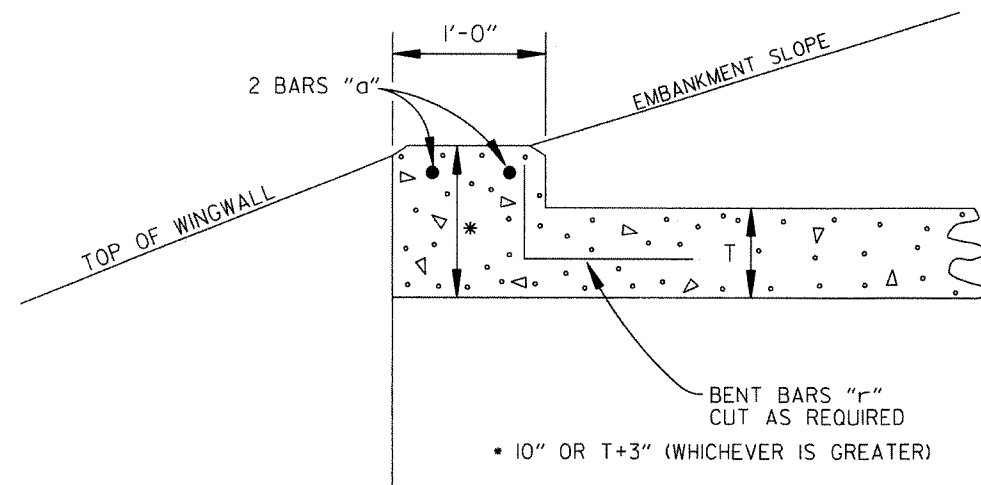
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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 BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE 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.

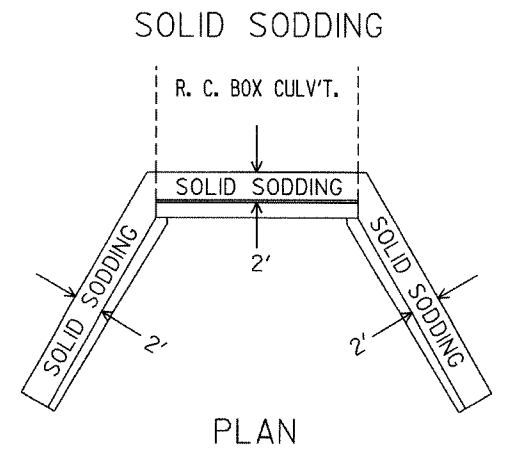
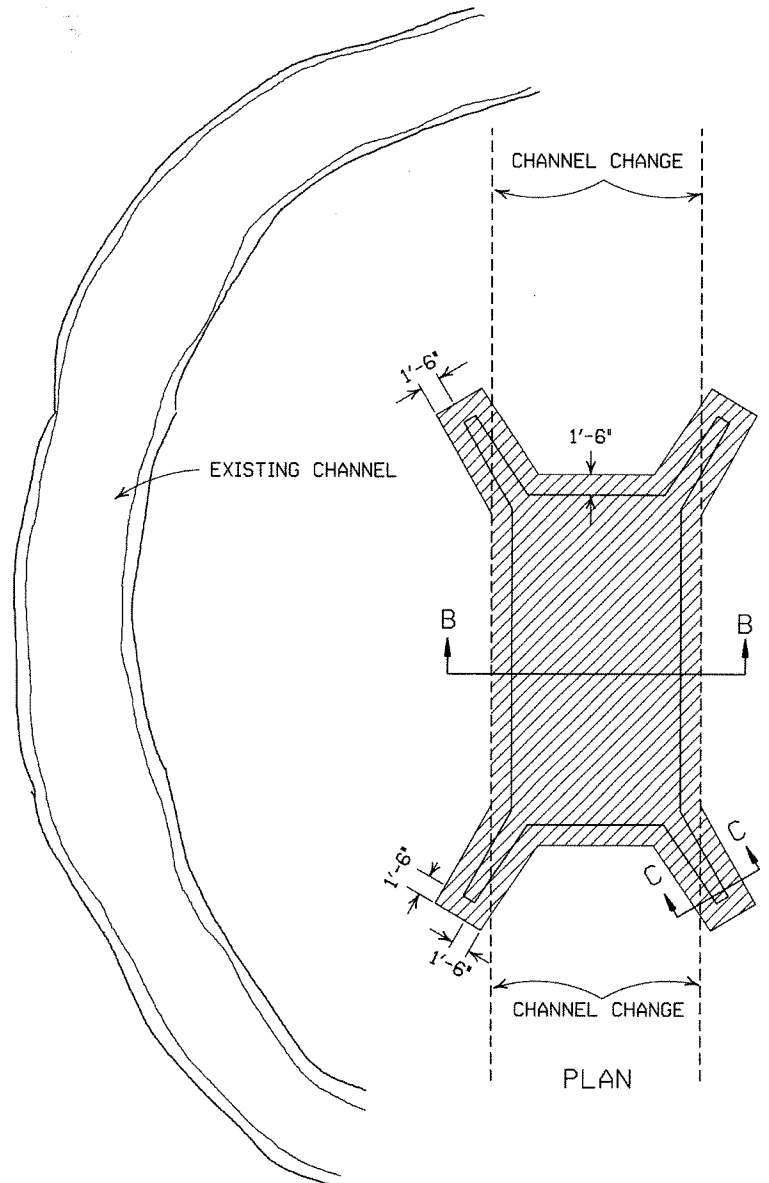
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
12-15-11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	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	

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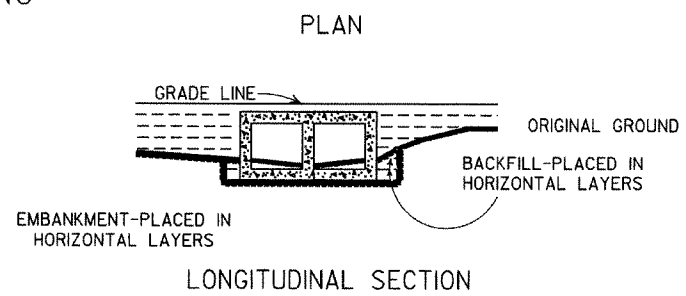
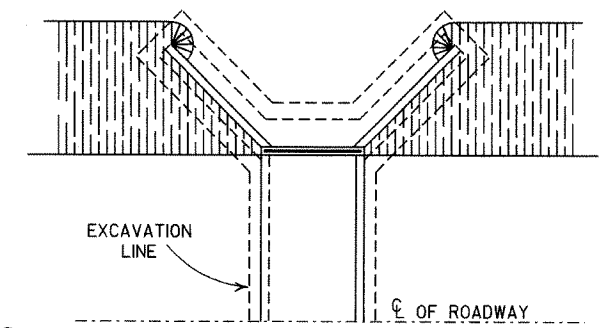
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1

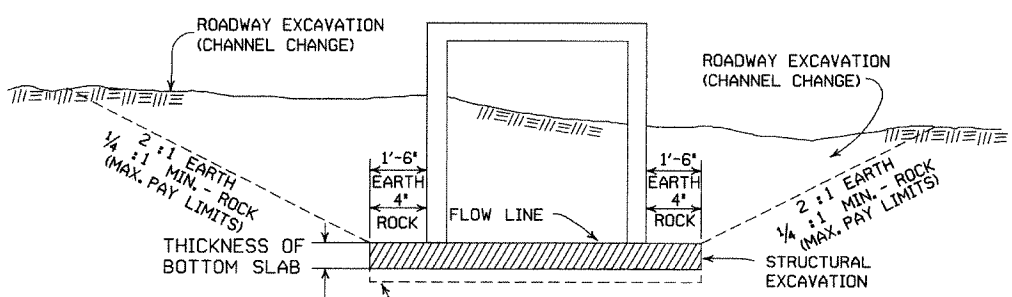
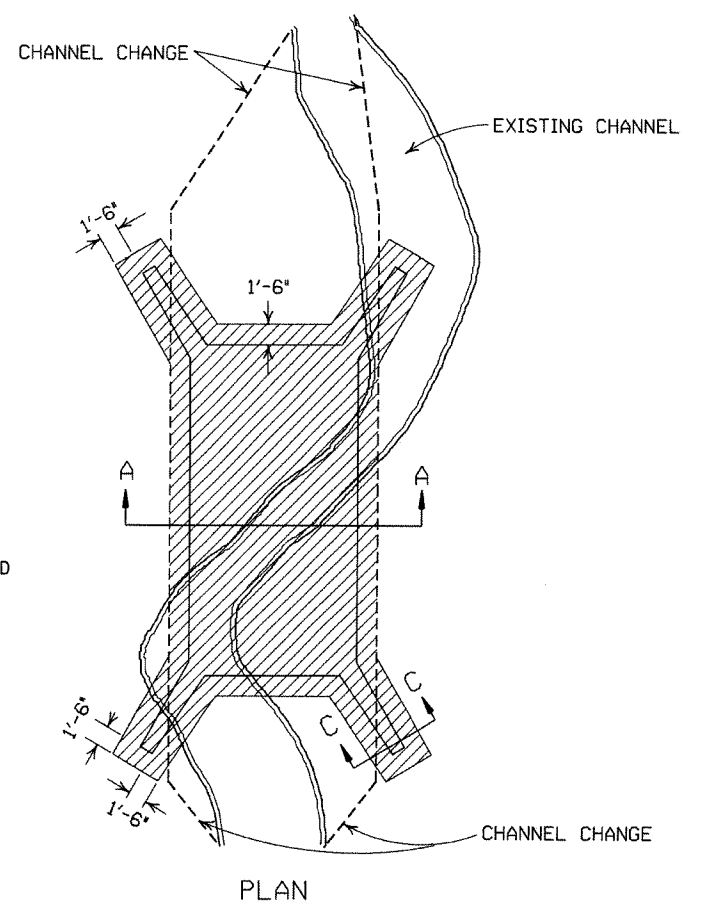


PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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



LONGITUDINAL SECTION
BACKFILL DETAILS FOR BOX CULVERT



SECTION B-B
DETAILS FOR NEW CHANNELS

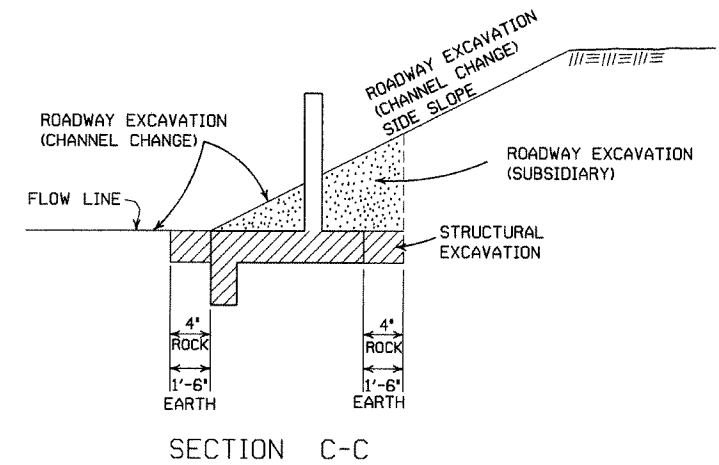
UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS 801.10 AND 801.11, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.

GENERAL NOTES:

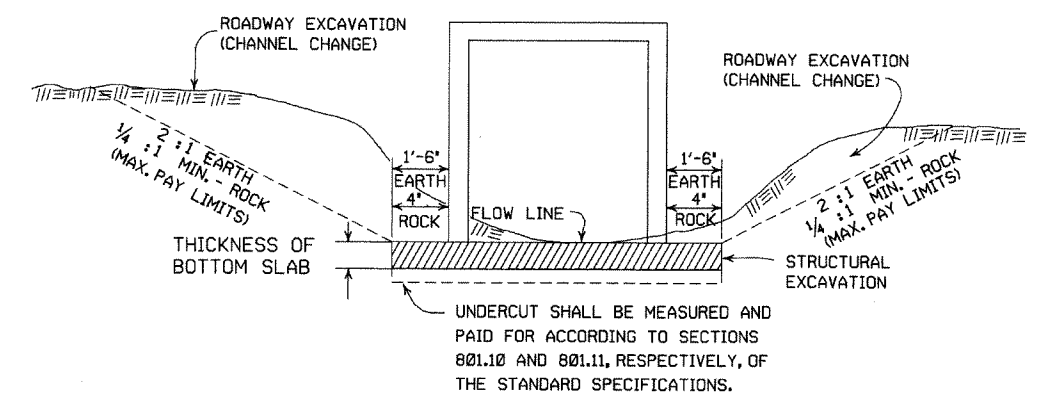
ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED 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.



SECTION C-C



SECTION A-A
DETAILS THROUGH EXISTING CHANNELS

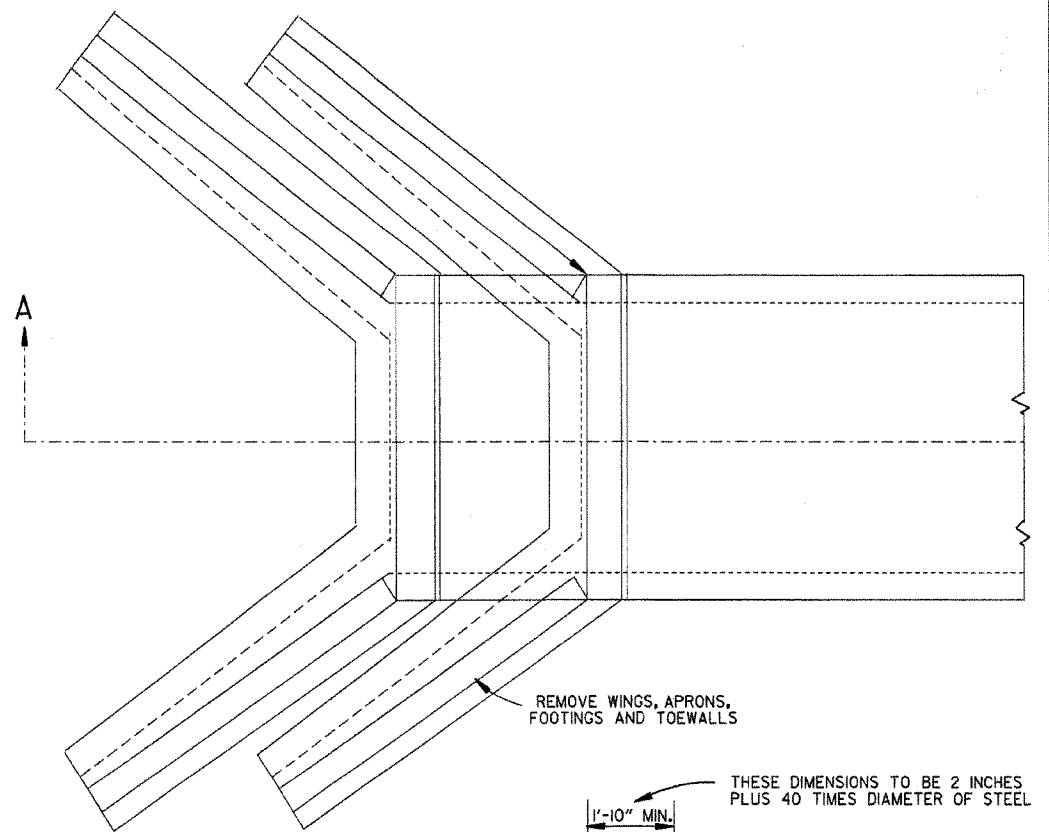
UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS 801.10 AND 801.11, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.

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
DATE	REVISION	FILMED

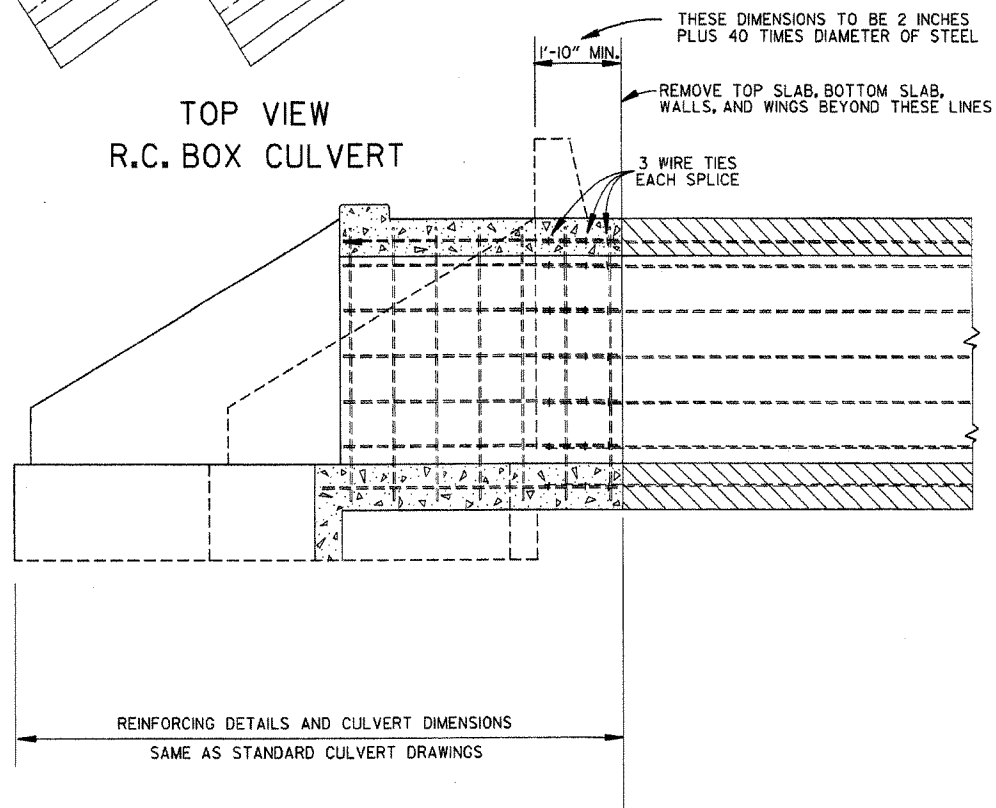
ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

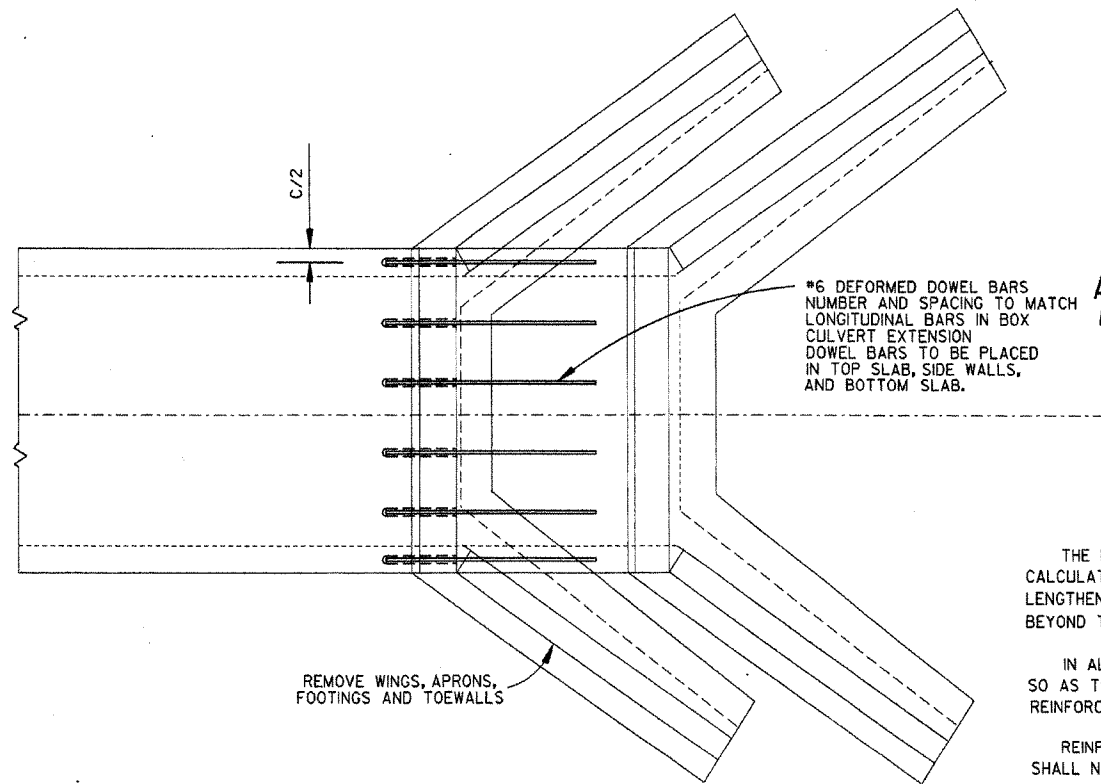
STANDARD DRAWING RCB-2



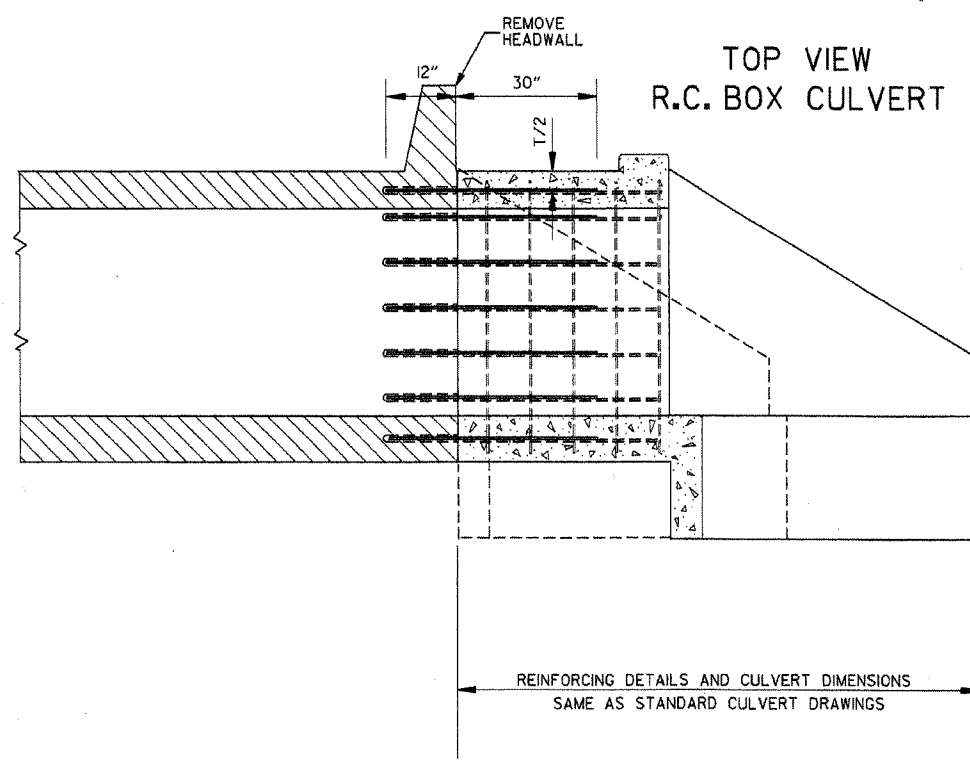
TOP VIEW
R.C. BOX CULVERT



SECTION A-A
METHOD 1



TOP VIEW
R.C. BOX CULVERT



SECTION A-A
METHOD 2

#6 DEFORMED DOWEL BARS
NUMBER AND SPACING TO MATCH
LONGITUDINAL BARS IN BOX
CULVERT EXTENSION
DOWEL BARS TO BE PLACED
IN TOP SLAB, SIDE WALLS,
AND BOTTOM SLAB.

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.

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.

DATE	REVISION	DATE FILM
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	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING
EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

SUPERELEVATION TABLE FOR ONE - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		65 MPH		70 MPH	
	Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)	
	MINIMUM	DESIRABLE	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.		N.C.	
0° 30'	N.C.		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.		N.C.	
1° 00'	N.C.		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.		N.C.	
1° 30'	N.C.		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.		N.C.	
2° 00'	N.C.		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.		N.C.	
2° 30'	0.021		0.021		0.021		0.021		0.021		0.021		0.021	
2° 45'	0.023		0.023		0.023		0.023		0.023		0.023		0.023	
3° 00'	0.025		0.025		0.025		0.025		0.025		0.025		0.025	
3° 15'	0.027		0.027		0.027		0.027		0.027		0.027		0.027	
3° 30'	0.029		0.029		0.029		0.029		0.029		0.029		0.029	
3° 45'	0.031		0.031		0.031		0.031		0.031		0.031		0.031	
4° 00'	0.033		0.033		0.033		0.033		0.033		0.033		0.033	
4° 30'	0.037		0.037		0.037		0.037		0.037		0.037		0.037	
5° 00'	0.040		0.040		0.040		0.040		0.040		0.040		0.040	
5° 30'	0.043		0.043		0.043		0.043		0.043		0.043		0.043	
6° 00'	0.046		0.046		0.046		0.046		0.046		0.046		0.046	
6° 30'	0.050		0.050		0.050		0.050		0.050		0.050		0.050	
7° 00'	0.053		0.053		0.053		0.053		0.053		0.053		0.053	
7° 30'	0.056		0.056		0.056		0.056		0.056		0.056		0.056	
8° 00'	0.058		0.058		0.058		0.058		0.058		0.058		0.058	
8° 30'	0.061		0.061		0.061		0.061		0.061		0.061		0.061	
9° 00'	0.063		0.063		0.063		0.063		0.063		0.063		0.063	
10° 00'	0.068		0.068		0.068		0.068		0.068		0.068		0.068	
11° 00'	0.072		0.072		0.072		0.072		0.072		0.072		0.072	
12° 00'	0.076		0.076		0.076		0.076		0.076		0.076		0.076	
13° 00'	0.080		0.080		0.080		0.080		0.080		0.080		0.080	
14° 00'	0.083		0.083		0.083		0.083		0.083		0.083		0.083	
15° 00'	0.086		0.086		0.086		0.086		0.086		0.086		0.086	
16° 00'	0.089		0.089		0.089		0.089		0.089		0.089		0.089	
17° 00'	0.091		0.091		0.091		0.091		0.091		0.091		0.091	
18° 00'	0.093		0.093		0.093		0.093		0.093		0.093		0.093	
19° 00'	0.095		0.095		0.095		0.095		0.095		0.095		0.095	
20° 00'	0.097		0.097		0.097		0.097		0.097		0.097		0.097	
21° 00'	0.098		0.098		0.098		0.098		0.098		0.098		0.098	
22° 00'	0.099		0.099		0.099		0.099		0.099		0.099		0.099	
23° 00'	0.099		0.099		0.099		0.099		0.099		0.099		0.099	
24° 00'	0.100		0.100		0.100		0.100		0.100		0.100		0.100	

D MAX = 24' 45"

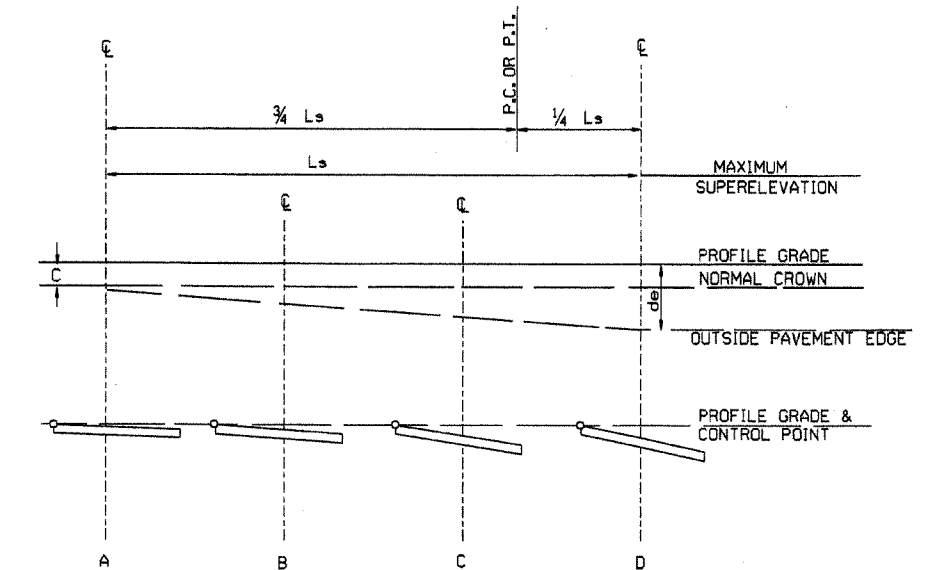
GENERAL NOTES

- ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
- SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
- LENGTHS FOR Ls MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
- MINIMUM Ls VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
- DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

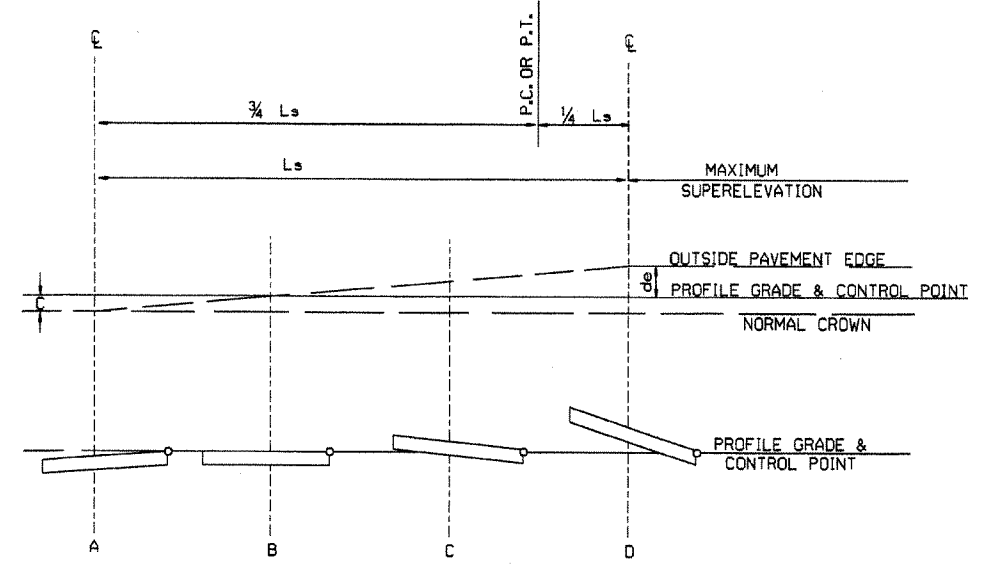
6 LANE DIVIDED-----+20%
8 LANE DIVIDED-----+50%

ABBREVIATIONS

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



SUPERELEVATION FORMULA = $S = - \frac{L(d+e-C)}{L_s}$



SUPERELEVATION FORMULA = $S = + \frac{L(d+e-C)}{L_s}$

01-09-87	ISSUED	578-1-15-87
DATE	REVISION	DATE FILLED

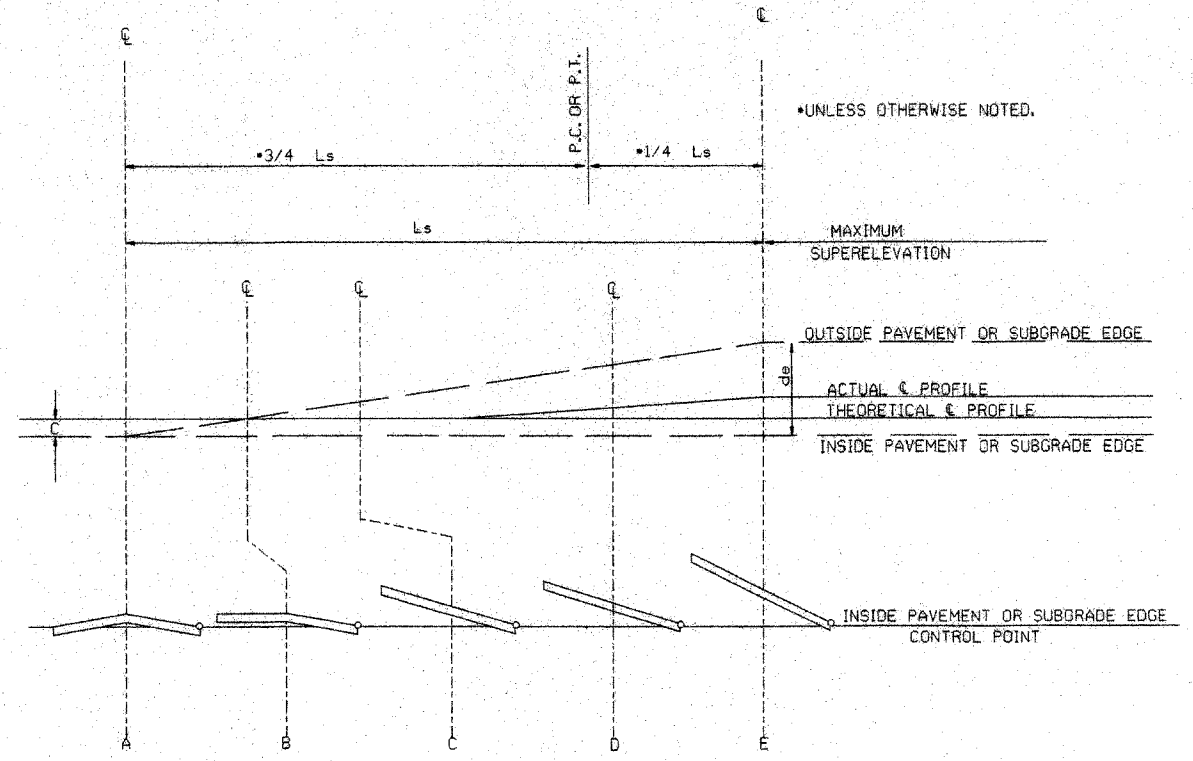
ARKANSAS STATE HIGHWAY COMMISSION
TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC
STANDARD DRAWING SE-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
2° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
2° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
2° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
3° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
3° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
3° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
3° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
4° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
4° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
4° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
4° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
5° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
5° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
5° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
5° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
6° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
6° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
6° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
6° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
7° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
7° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
7° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
7° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
8° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
8° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
8° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
8° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
9° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
9° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
9° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
9° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
10° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
10° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
10° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
10° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
11° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
11° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
11° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
11° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
12° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
12° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
12° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
12° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
13° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
13° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
13° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
13° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
14° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
14° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
14° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
14° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
15° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
15° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
15° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
15° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
16° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
16° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
16° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
16° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
17° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
17° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
17° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
17° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
18° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
18° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
18° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
18° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
19° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
19° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
19° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
19° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
20° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
20° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
20° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
20° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
21° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
21° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
21° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
21° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
22° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
22° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
22° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
22° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
23° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	
23° 15'	R.C.		0.021		0.021		0.021		0.021		0.021	
23° 30'	R.C.		0.021		0.021		0.021		0.021		0.021	
23° 45'	R.C.		0.021		0.021		0.021		0.021		0.021	
24° 00'	R.C.		0.021		0.021		0.021		0.021		0.021	

ABBREVIATIONS

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



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

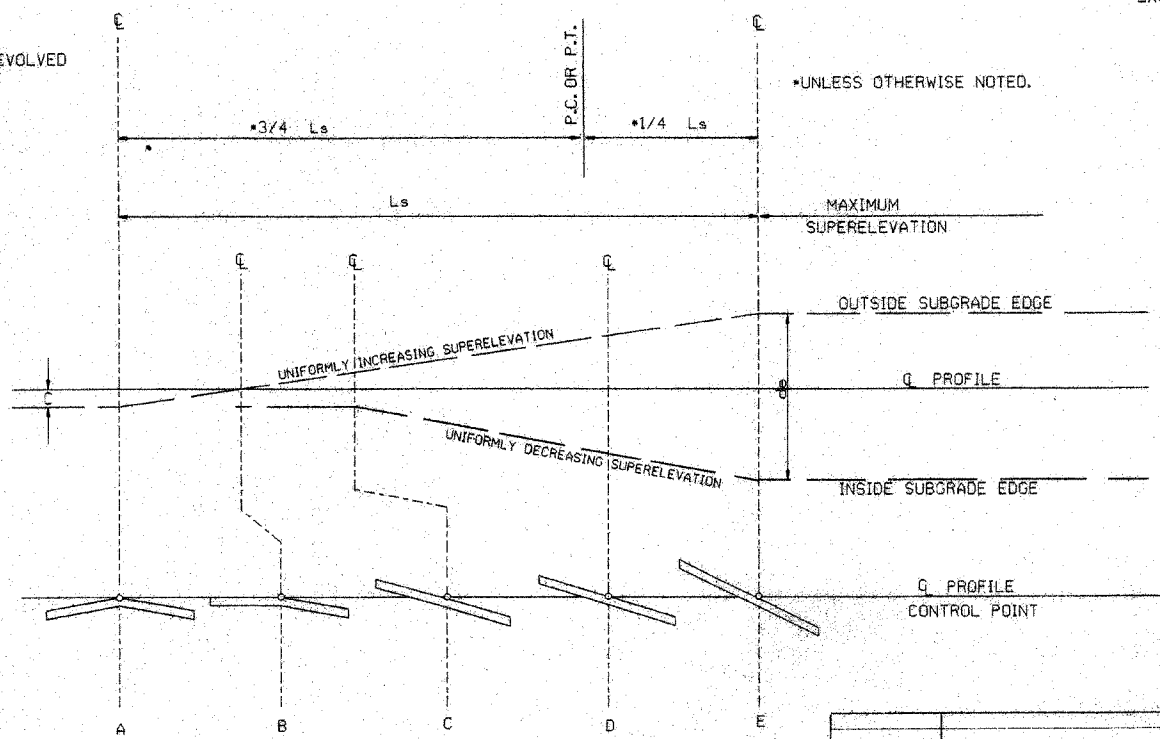
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

GENERAL NOTES

- 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


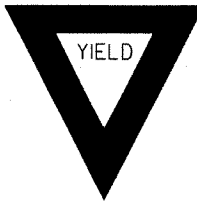
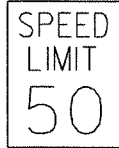
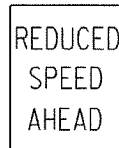





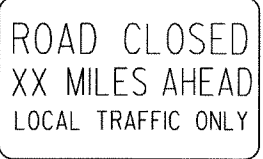
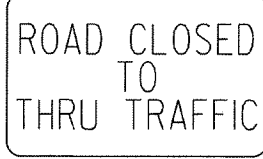

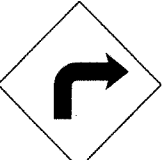
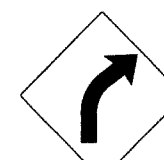




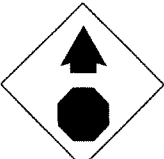
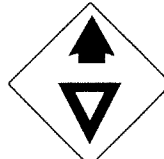
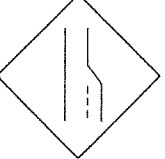

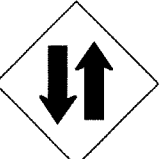

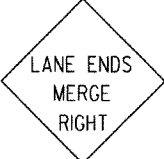






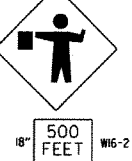


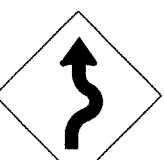
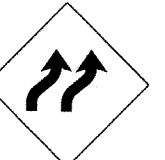


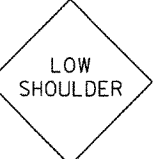

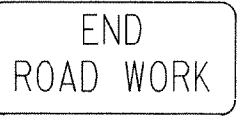
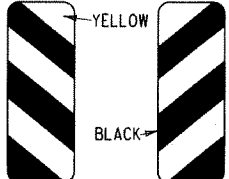
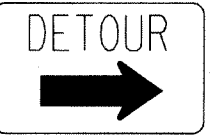

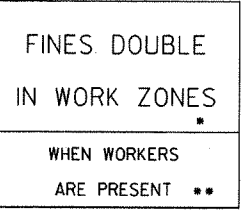
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

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

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>

ADVANCE DISTANCES (XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

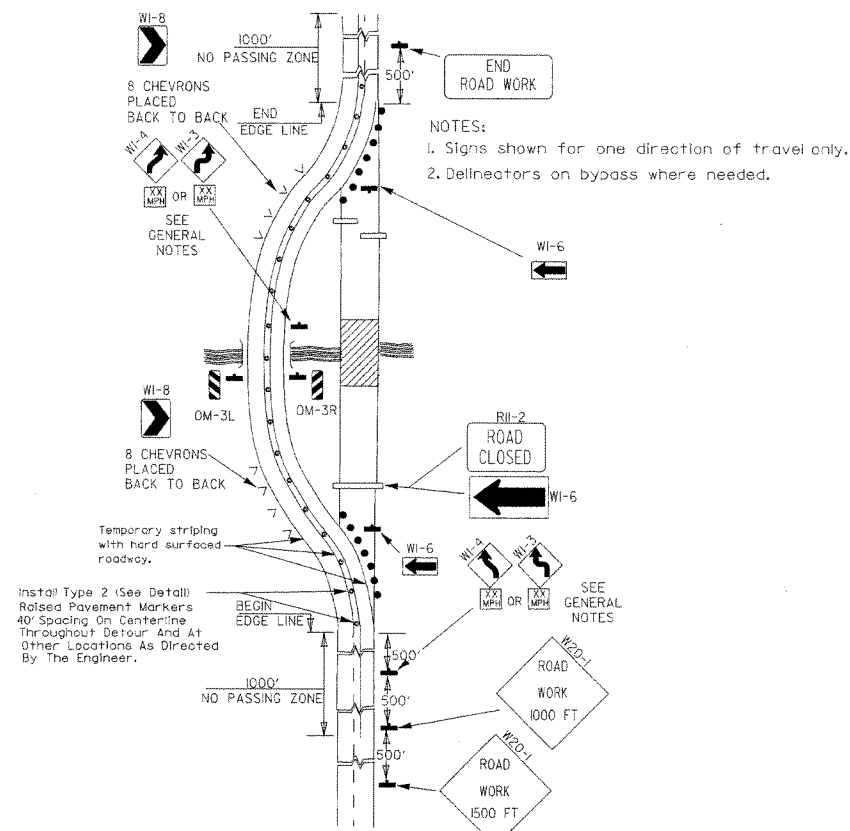
GENERAL NOTES:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- 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.
- 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.

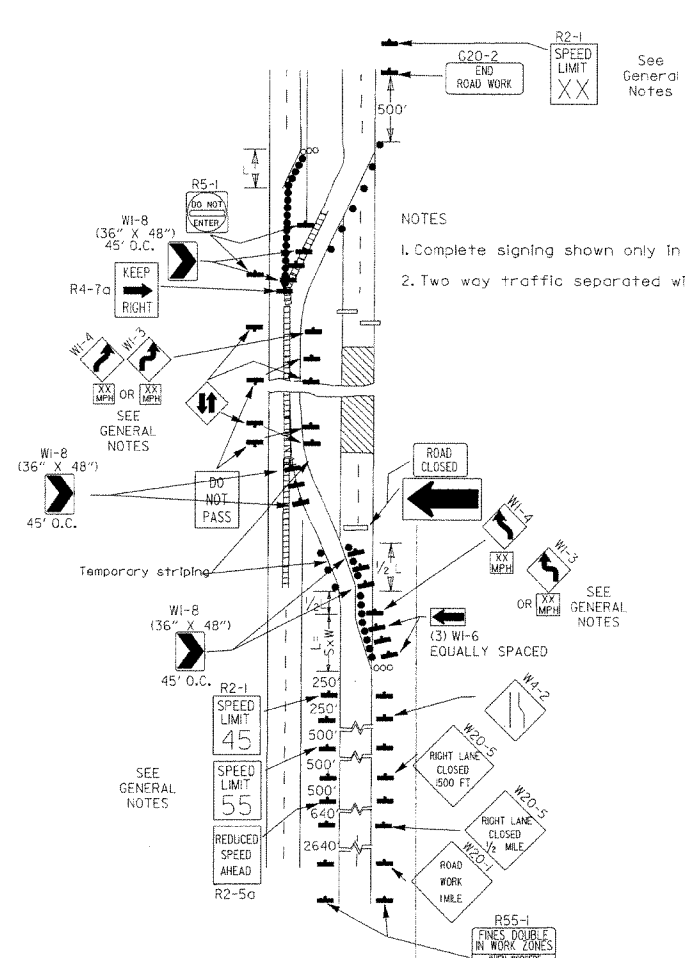
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

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

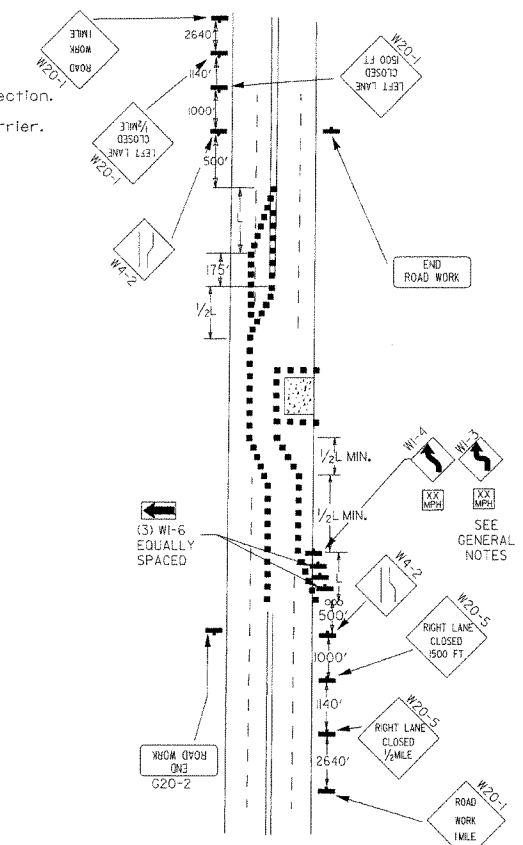
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



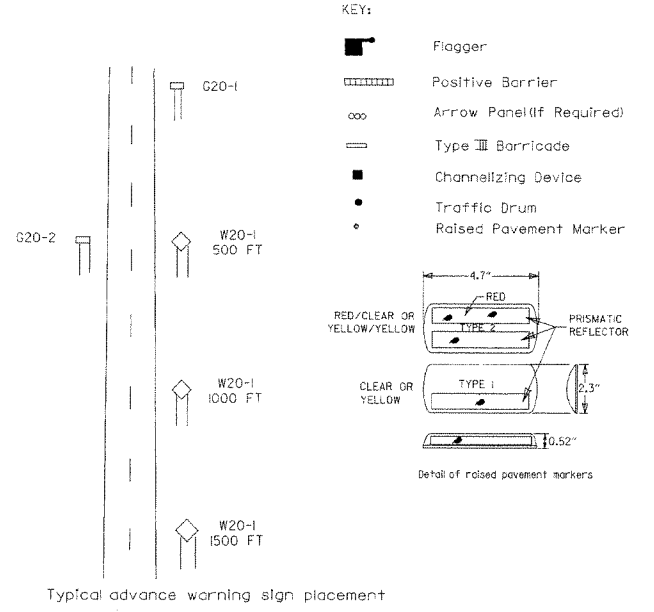
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



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

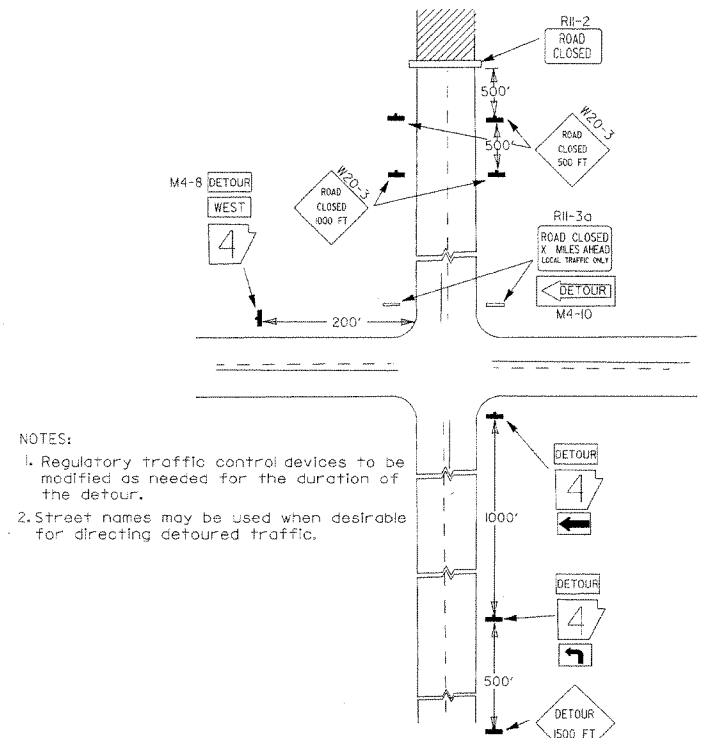


(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.

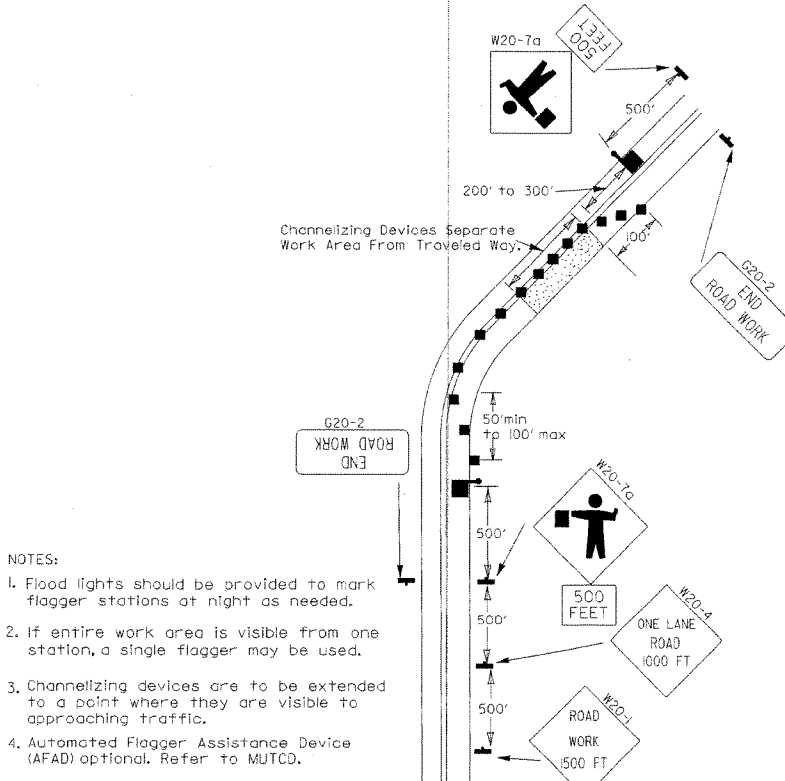


Taper formulae:
 L=SxW for speeds of 45mph or more.
 $L = \frac{WS^2}{60}$ for speeds of 40mph or less.
 Where:
 L = Minimum length of taper.
 S = Numerical value of posted speed limit prior to work or 85th percentile speed.
 W = Width of offset.

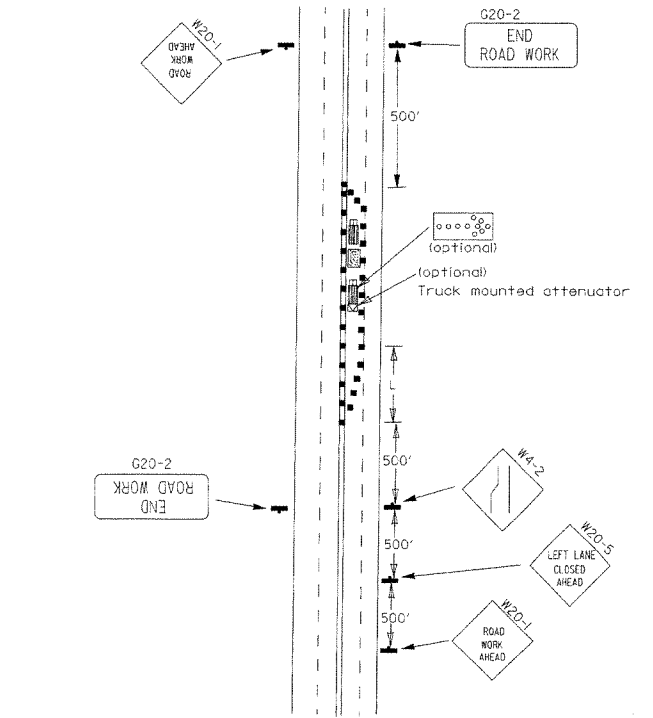
- GENERAL NOTES:
- Advisory speed posted on W1-3 or W1-4 curve warning signs to be determined at site. Use W1-4 when speed is greater than 30mph and W1-3 when 30mph or less.
 - When the existing speed limit is 45mph, the R2-(K55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-(Kxx) 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-(K45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-(Kxx) 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.



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



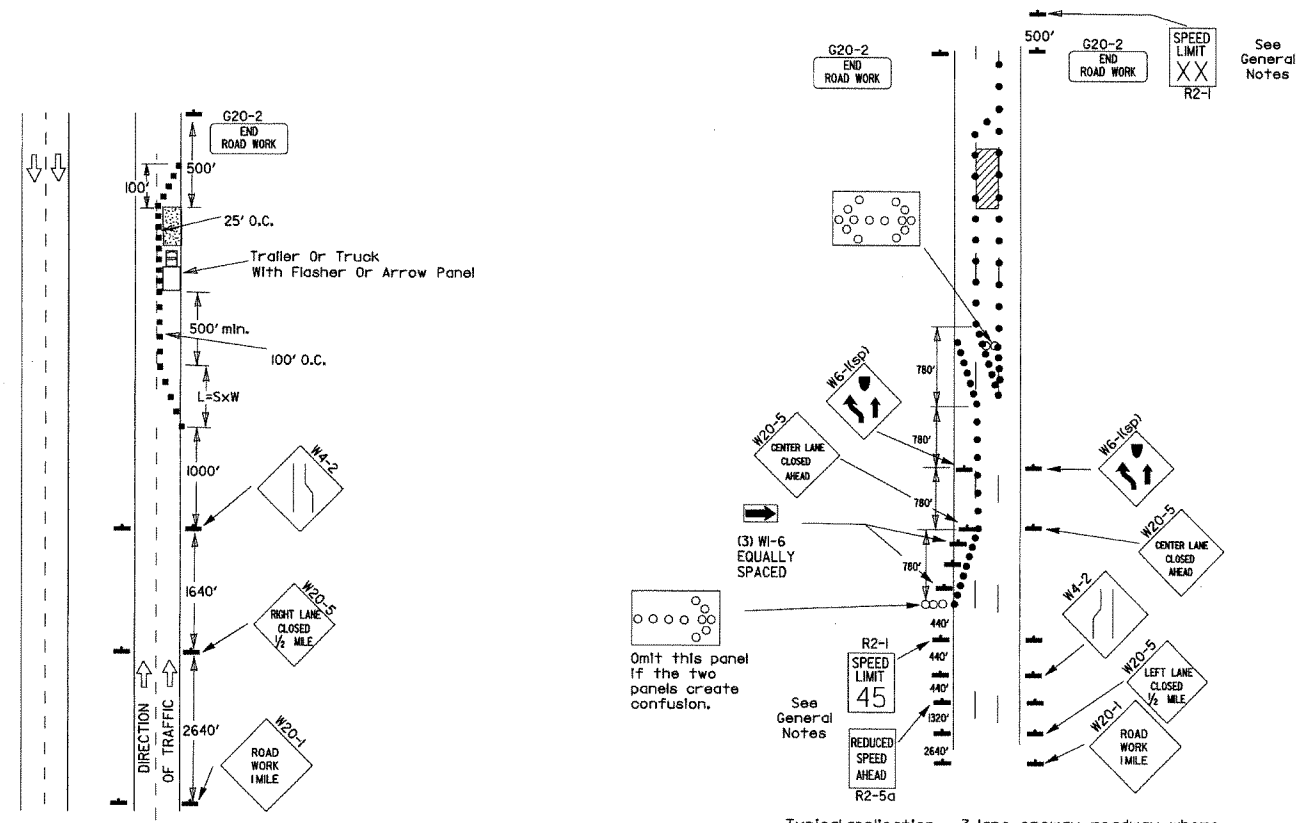
(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



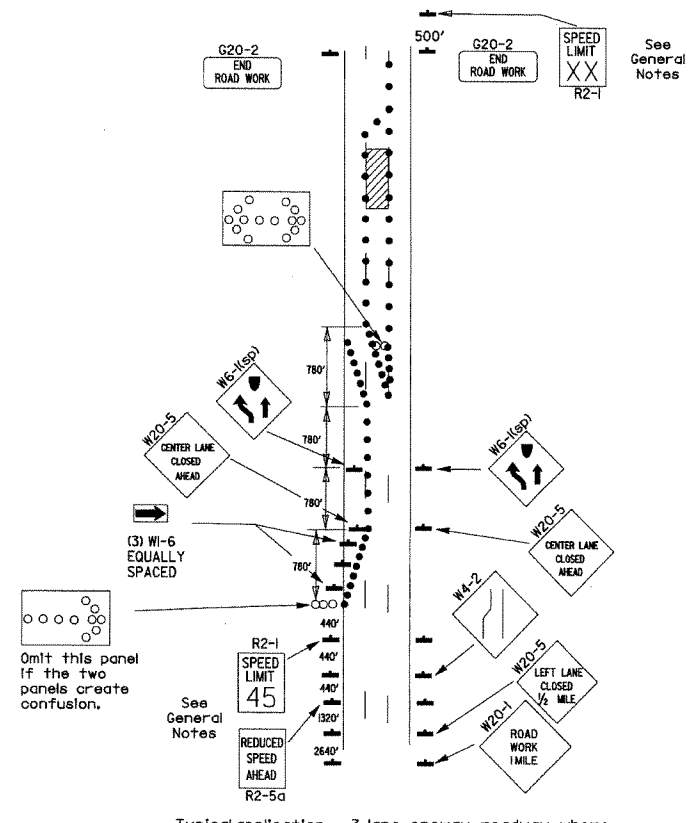
(F) Typical application - 4-lane undivided roadway with inside lane closed.

DATE	REVISION	FILMED
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (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	
8-5-91	DRAWN AND PLACED IN USE	

Channelizing devices



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

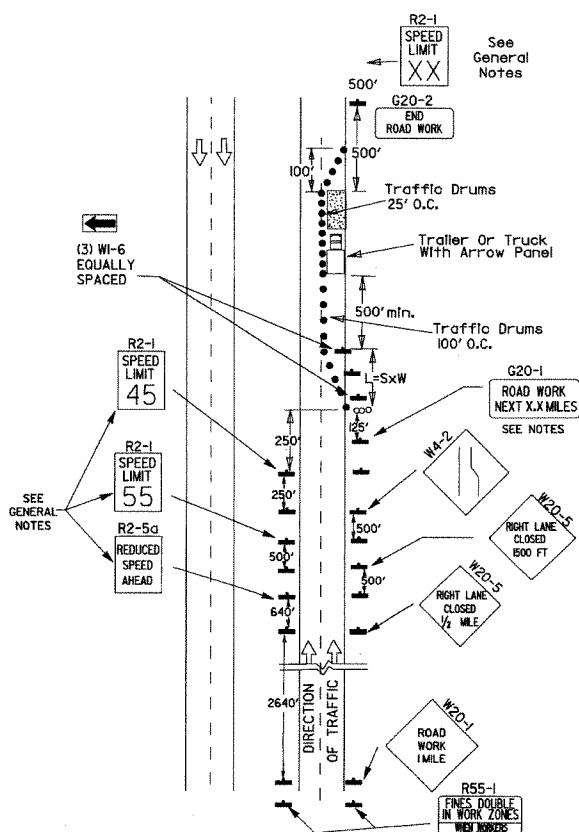


(B) Typical application - 3-lane oneway roadway where center lane is closed.

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

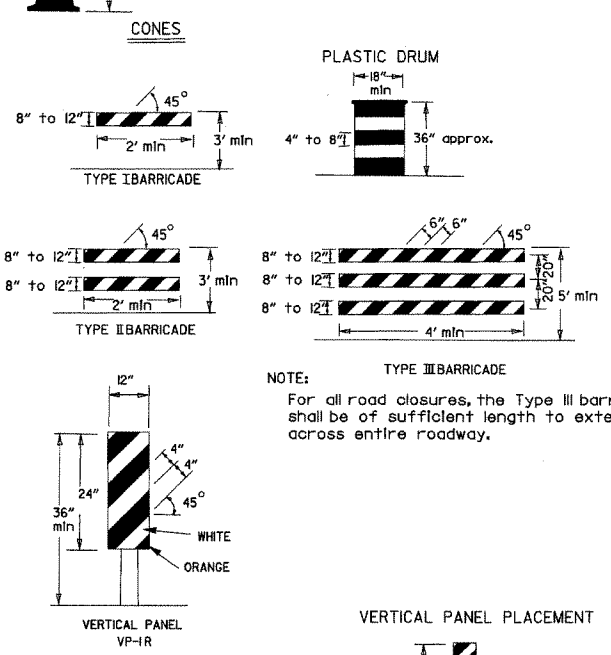
GENERAL NOTES:

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 1/2 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 45mph, the R2-1(65) shall be omitted. Additional R2-1(55) speed limit signs shall be installed at a maximum of 1/2 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 (1/2 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

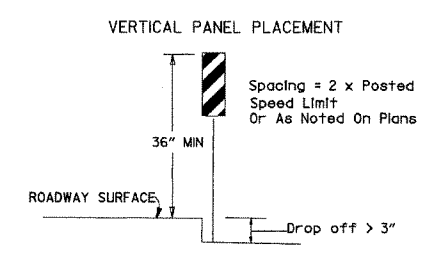


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

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



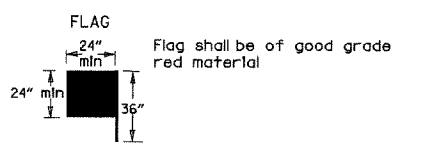
NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



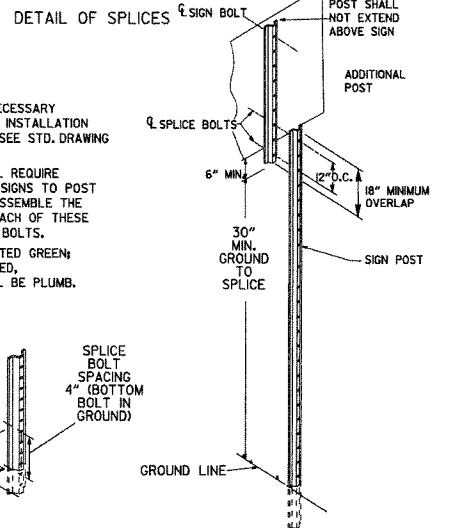
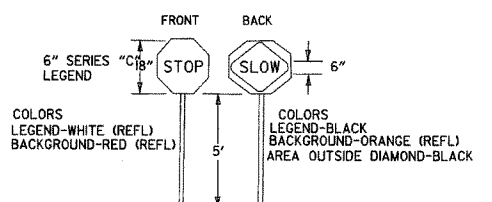
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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-land vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

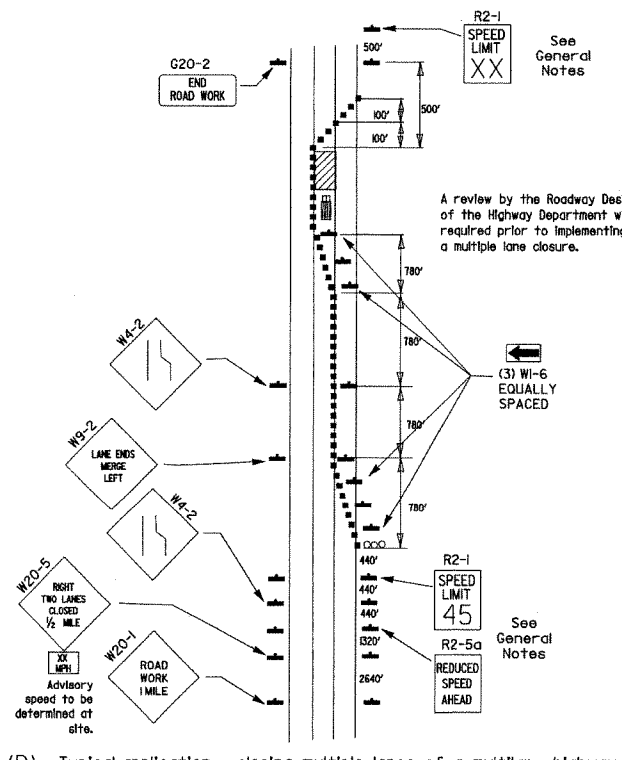
* When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



STOP SLOW PADDLE



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

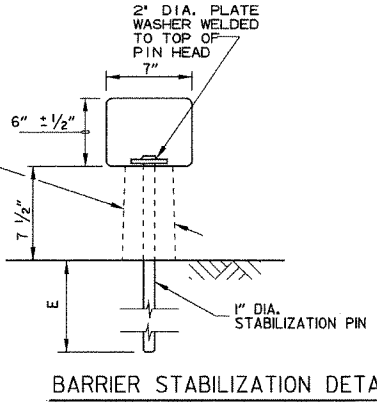
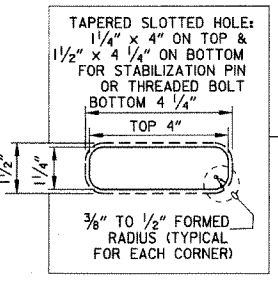
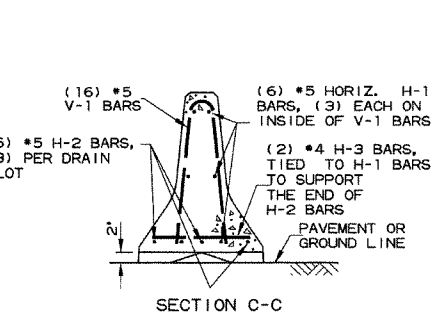
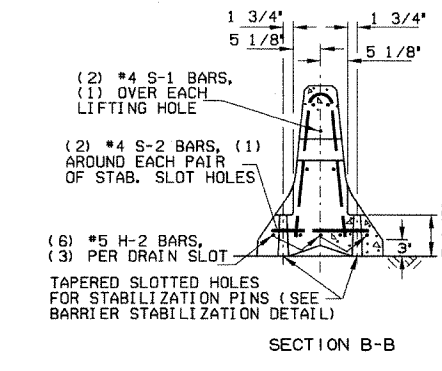
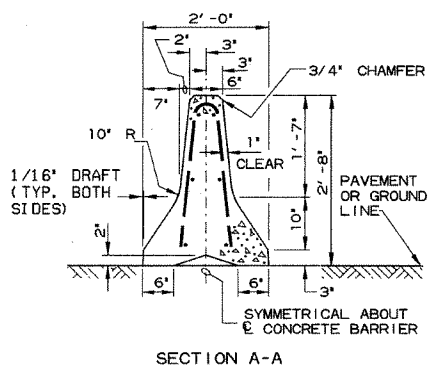
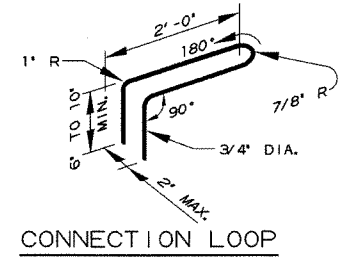
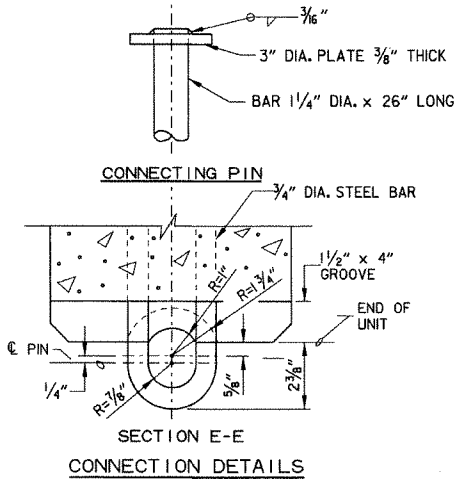


(D) Typical application - closing multiple lanes of a multi-lane highway.

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

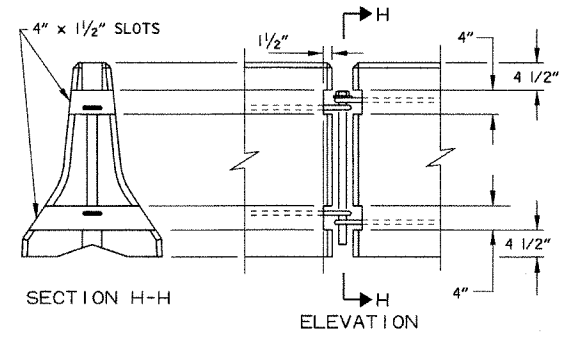
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT			
MARK	LOCATION	BAR SIZE	(NO. BARS)
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)
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)

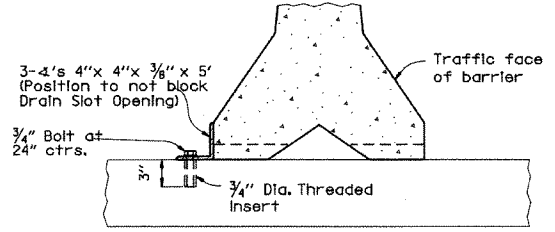


BARRIER STABILIZATION DETAIL
ROADWAY SECTION

- (E) 4" - Concrete Pavement
- 8" - Asphalt Pavement
- 12" - Shoulder Areas

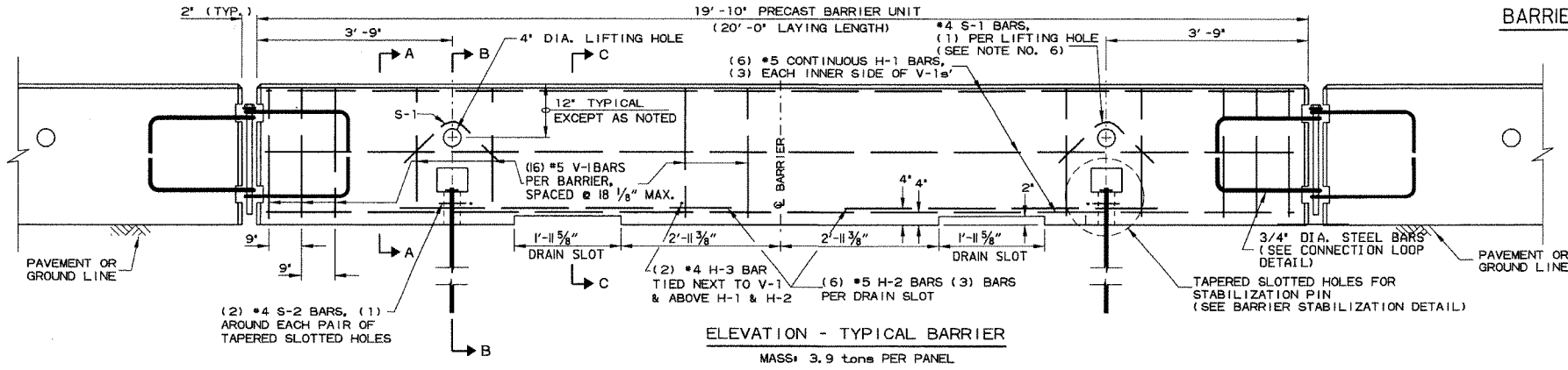


BARRIER REMOVAL SLOT DETAILS



BARRIER STABILIZATION DETAIL
BRIDGE DECKS

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.



ELEVATION - TYPICAL BARRIER
MASS: 3.9 tons PER PANEL

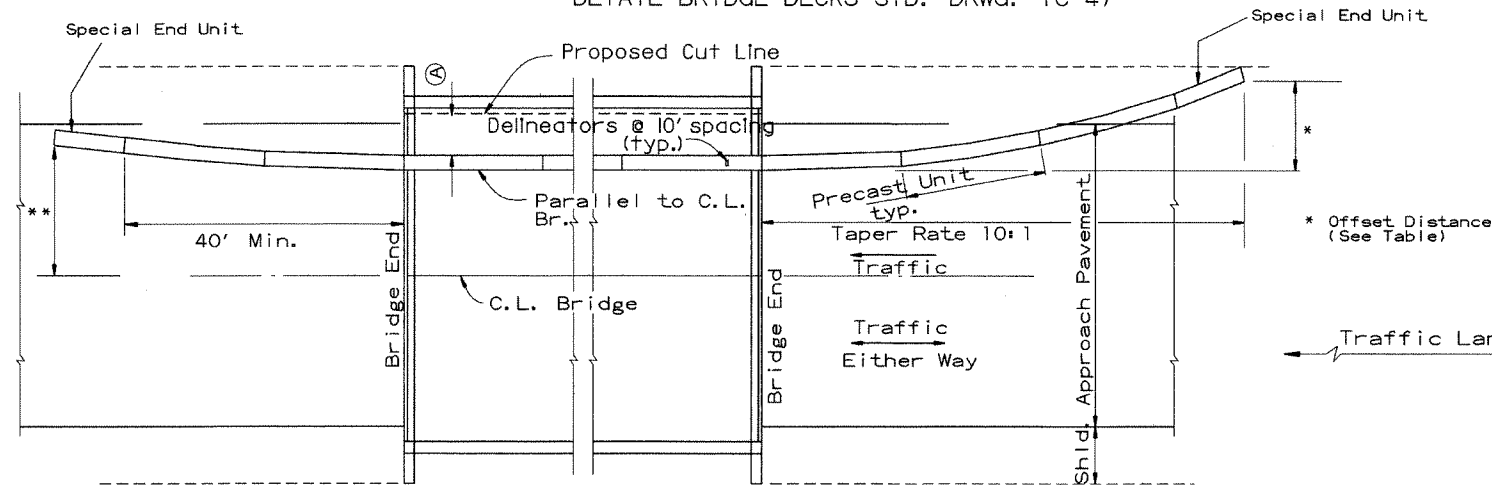
- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following minimum requirements: Concrete: 2500 psi compressive strength at 28 days. Reinforcing Steel: AASHTO M 31 or M 53, Grade 60. Structural Steel: AASHTO-M270 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 Uniform Traffic Control Devices. Payment for delineators shall be considered included in the price bid per Ln. 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.

DATE	REVISION	FILED
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	

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION -
TEMPORARY PRECAST BARRIER
STANDARD DRAWING TC-4

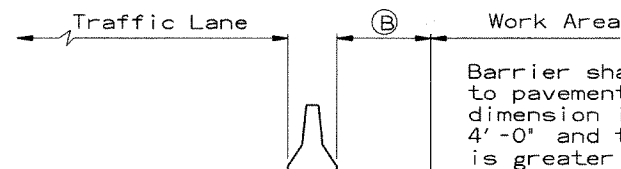
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

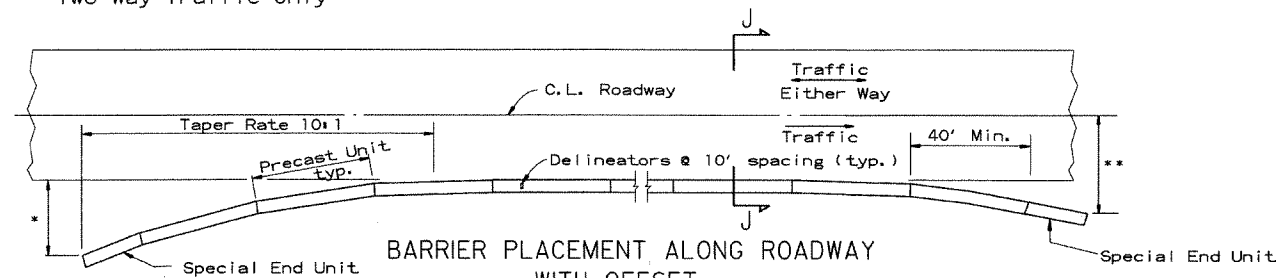
No Scale

** Offset Distance for Two Way Traffic Only



SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

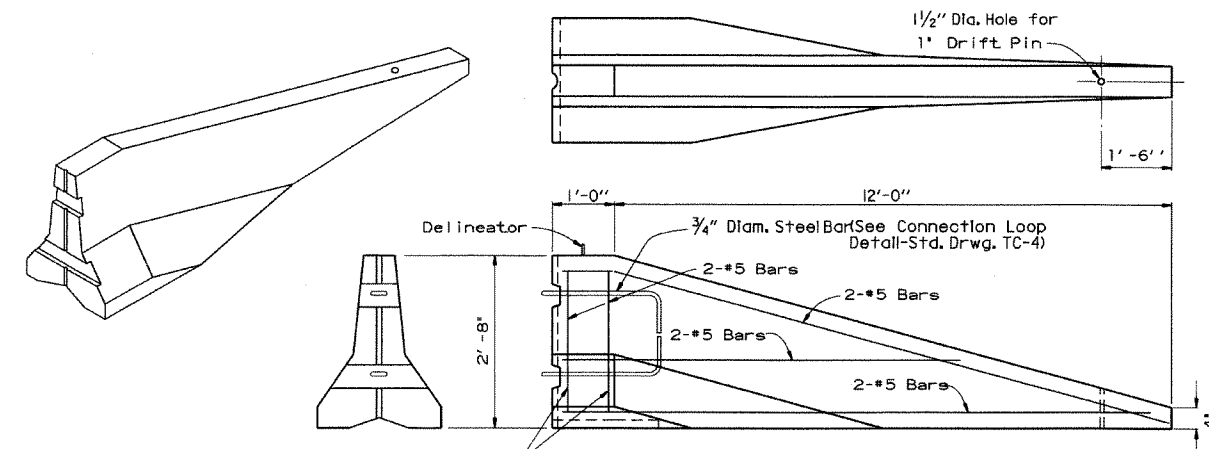
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

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.

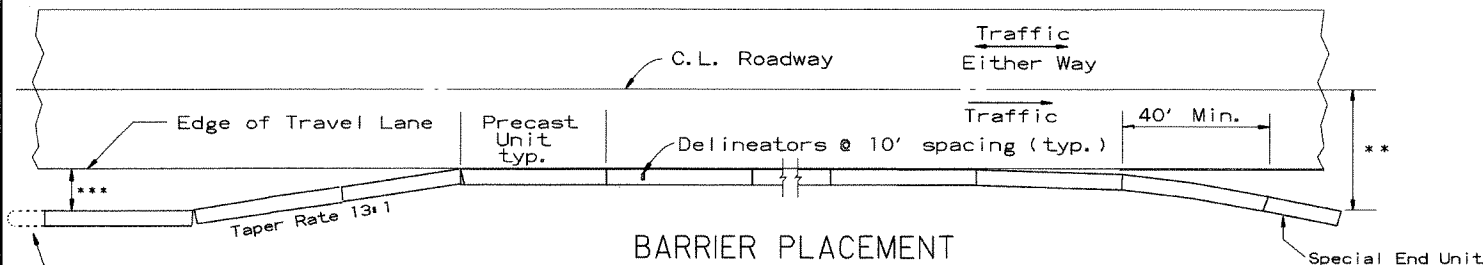


SPECIAL END UNIT

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

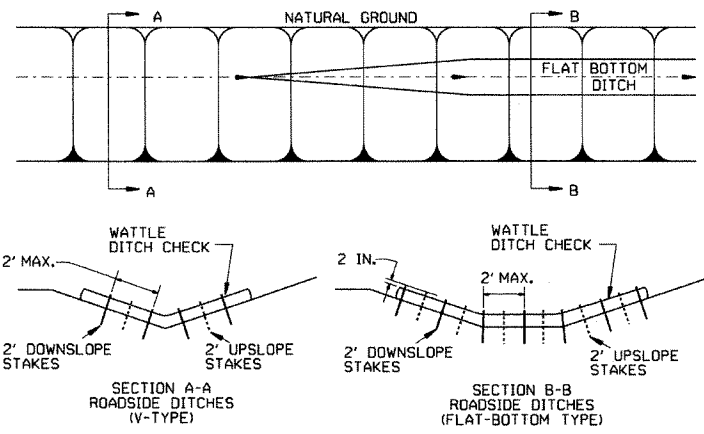
No Scale

** Offset Distance For Two Way Traffic Only

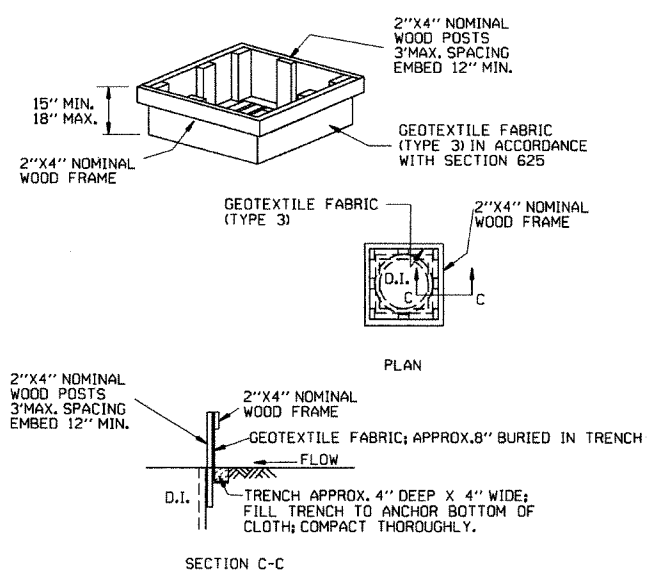
*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

			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	

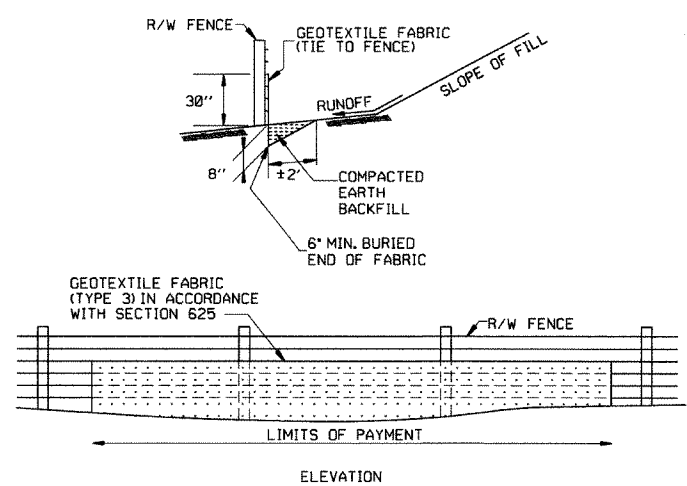
GENERAL NOTES
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



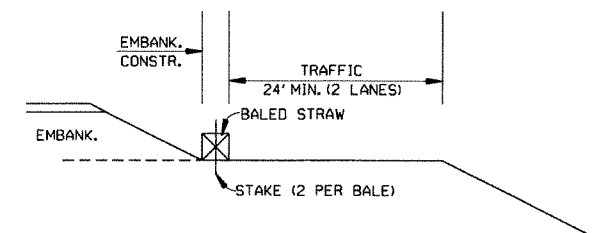
DROP INLET SILT FENCE (E-7)



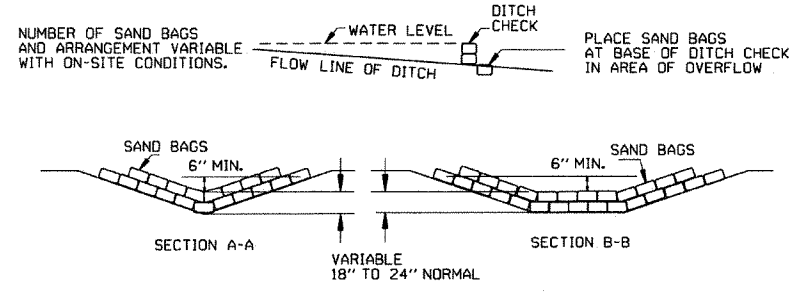
SILT FENCE ON R/W FENCE (E-4)

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

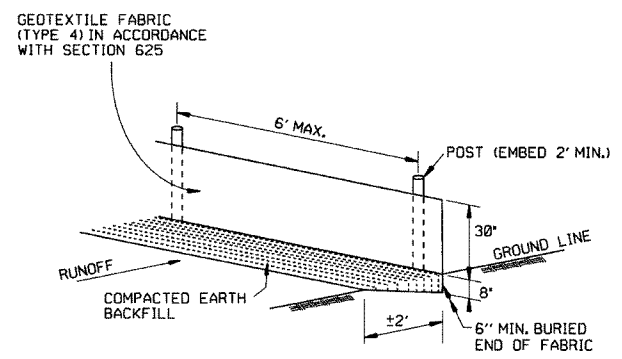
GENERAL NOTES
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL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



BALED STRAW FILTER BARRIER (E-2)

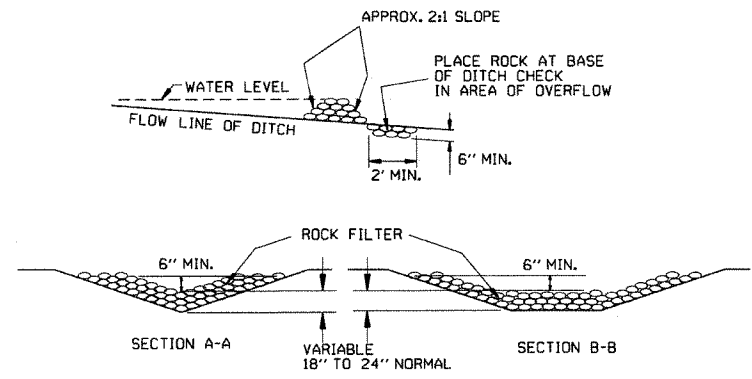


SAND BAG DITCH CHECK (E-5)



SILT FENCE (E-11)

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



ROCK DITCH CHECK (E-6)

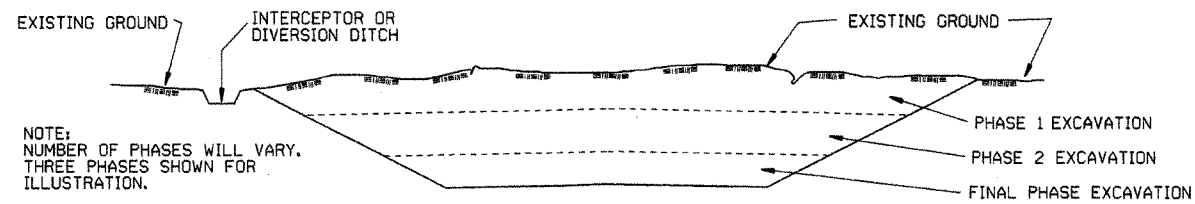
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1, 4, 7 & 11; DELETED E-2 & 3	6-2-94
4-1-93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

ARKANSAS STATE HIGHWAY COMMISSION
TEMPORARY EROSION CONTROL DEVICES
STANDARD DRAWING TEC-1

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



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

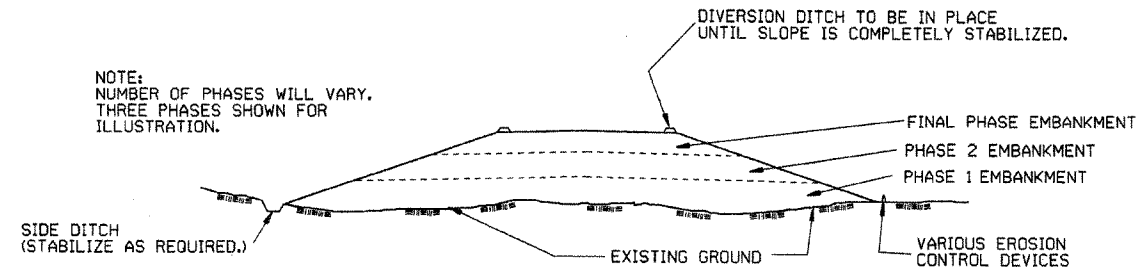
GENERAL NOTE

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



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

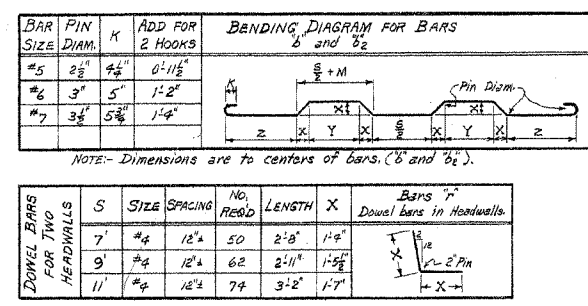
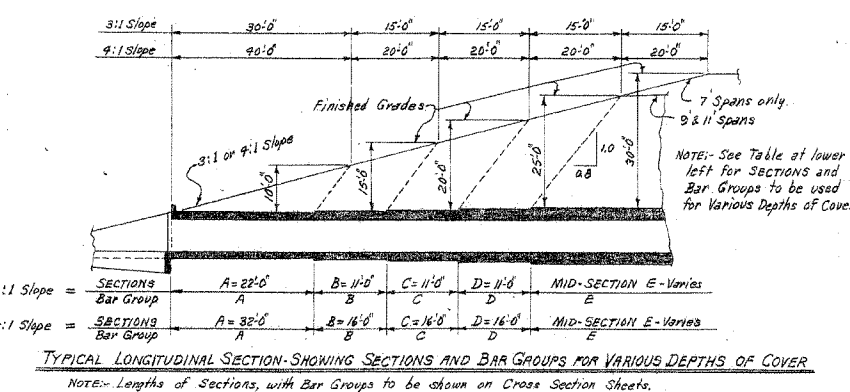
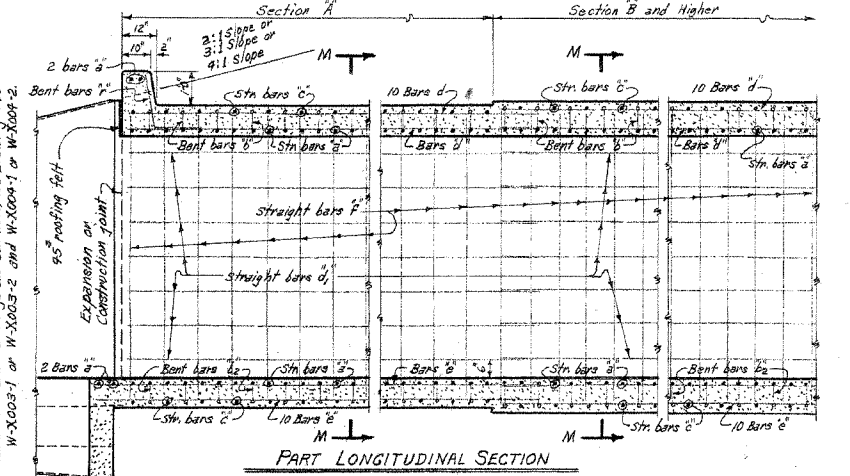
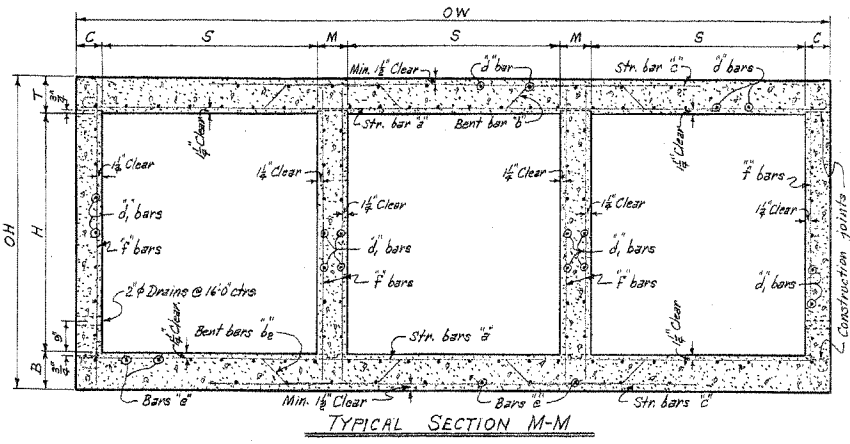
ARKANSAS STATE HIGHWAY COMMISSION		
TEMPORARY EROSION CONTROL DEVICES		
STANDARD DRAWING TEC-3		
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			58	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTHS OF SECTION	DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	BAR LIST FOR VARIOUS SECTIONS OF BARREL																			
					a bars			b bars			c bars			d bars			e bars			f bars				
					STRAIGHT	BENT - See Diagram below.	BENT - See Diagram below.	STRAIGHT	BENT - See Diagram below.	BENT - See Diagram below.	STRAIGHT	BENT - See Diagram below.	BENT - See Diagram below.	STRAIGHT	BENT - See Diagram below.	BENT - See Diagram below.	STRAIGHT	BENT - See Diagram below.	BENT - See Diagram below.	STRAIGHT	BENT - See Diagram below.	BENT - See Diagram below.		
SECTION A & BAR GROUP A	0' TO 10'-0"	10'	6'	5'	22 32	24 4'	0-4'	3-5'	5-7'	22 32	24 4'	0-4'	3-5'	5-7'	22 32	24 4'	0-4'	3-5'	5-7'	22 32	24 4'	0-4'	3-5'	5-7'

SECTION & BAR GROUP	DIMENSIONS										QUANTITIES			
	BARREL DIMENSIONS										UNIT QUANTITIES			
	D	S	H	A	OW	T	C	M	B	DH	CU YD.	LB.	LB.	LB.
SECTION A - 10'-0"	10'	10'	6'	5'	10'	10'	10'	10'	10'	10'	1.546	285.17	81.89	327.10



GENERAL NOTES:
 CONCRETE: All concrete to be Class S, and shall be poured in the dry.
 All exposed corners to have chamfers.
 REINFORCING STEEL: Reinforcing to be deformed bars of intermediate or hard grade.
 BAR LAP: In computing the quantities of steel from the tables add one lap for each additional 30' length of barrel over 30'. Lap longitudinal bars 30 diameters.
 CONSTRUCTION JOINTS: Construction joints between wingwalls, side walls, division walls and slabs shall be only where shown on plans.
 SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable special provisions.

DESIGN LIVE LOAD
 H20-S16 LOADING A.A.S.H.O. 1961
 AND
 SPECIAL MILITARY LOADING
 Two 20,000 Lb. Axles @ 9'-0" cts.
UNIT STRESSES:
 Class S Concrete (n=10) 1200 psi
 Reinforcing Steel 20,000 psi

LENGTH OF SECTIONS FOR SKEWED CULVERTS

SKEW ANGLE	SEC. OF SKEW ANGLE	3:1 SLOPES		4:1 SLOPES	
		A	B,C,D	A	B,C,D
0°	1.0	22.0'	11.0	32.0'	16.0'
15°	1.0353	22.776'	11.388'	33.129'	16.544'
30°	1.1547	* 22.702'	* 12.702'	* 33.975'	* 18.975'
45°	1.4142	* 15.556'	* 15.556'	* 22.621'	* 22.621'

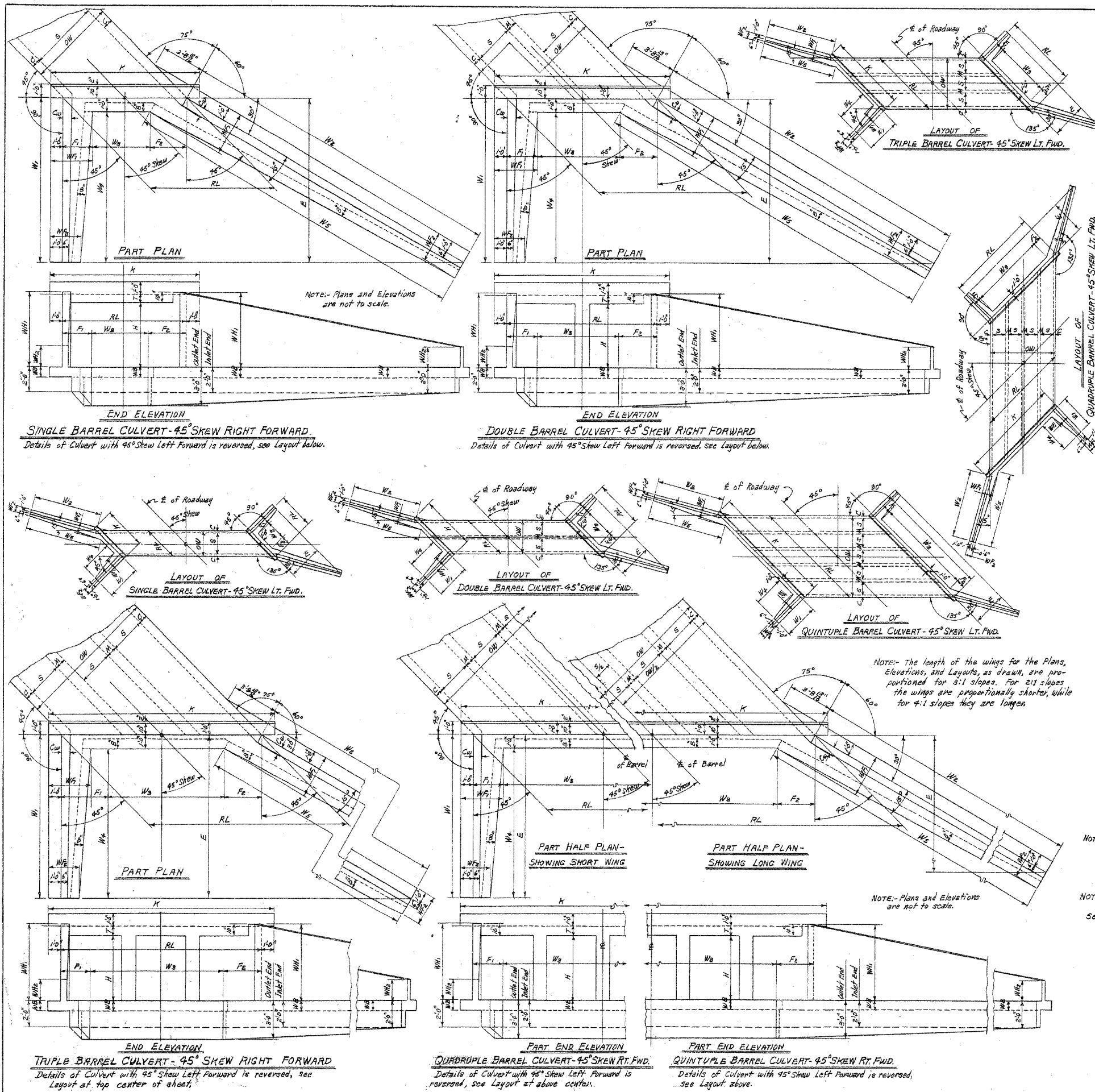
SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTH OF COVER	SECTIONS AND BAR GROUPS FOR END SECTIONS				MID-SECTION AND BAR GROUP
	A	B	C	D	
5.0 to 9.5'	-	-	-	-	A
10.0 to 14.5'	-	-	-	-	B
15.0 to 19.5'	-	-	-	-	C
20.0 to 25.0'	-	-	-	-	D
25.0 to 30.0'	-	-	-	-	E

CLASS S CONCRETE
 ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD BARREL SECTIONS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 7, 9 & 11 SPANS
 TRIPLES
 3:1 OR 4:1 SLOPES
 OVER 5'-0" COVER
 STANDARD DRAWING No. R-300X-X9

Drawn by: M.C.H. 3-28-63
 Checked by: M.C.H. 6-6-63
 Checked by: M.C.H. 6-6-63

FED. ROAD NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.			59	
JOB No.					

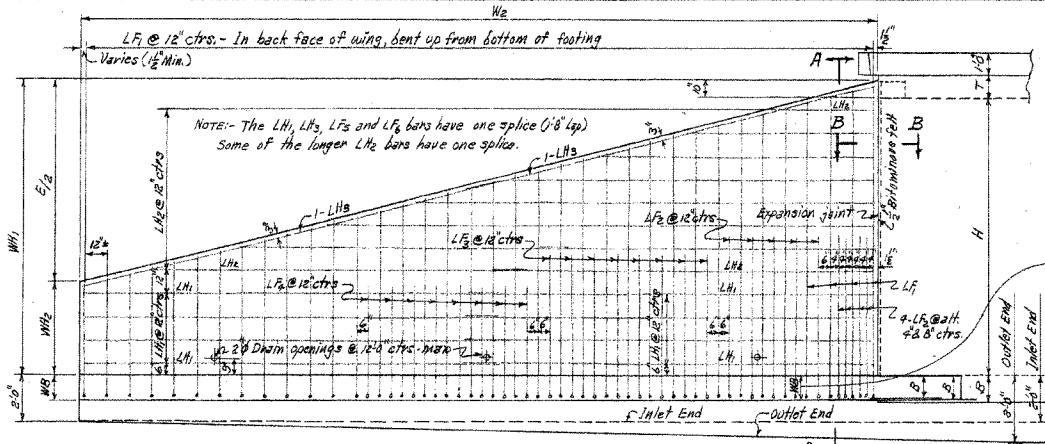


USE WITH DRAWING NO.	CLEAR SPAN	CLEAR HEIGHT	ROADWAY LENGTH RL															HEADWALL LENGTH K															APRON DIMENSION W ₃																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
			SINGLE BARREL CULVERT					DOUBLE BARREL CULVERT					TRIPLE BARREL CULVERT					QUADRUPLE BARREL CULVERT					QUINTUPLE BARREL CULVERT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW	RL	OW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
4	2	2'-3"	5'-0"	7'-0"	9'-0"	4'-3"	9'-8"	13'-8"	15'-8"	11'-4"	14'-4"	20'-3"	22'-3"	18'-0"	19'-0"	26'-0"	28'-0"	24'-0"	25'-0"	31'-0"	33'-0"	28'-0"	29'-0"	35'-0"	37'-0"	32'-0"	33'-0"	39'-0"	41'-0"	36'-0"	37'-0"	43'-0"	45'-0"	40'-0"	41'-0"	47'-0"	49'-0"	44'-0"	45'-0"	51'-0"	53'-0"	48'-0"	49'-0"	55'-0"	57'-0"	52'-0"	53'-0"	59'-0"	61'-0"	56'-0"	57'-0"	63'-0"	65'-0"	60'-0"	61'-0"	67'-0"	69'-0"	64'-0"	65'-0"	71'-0"	73'-0"	68'-0"	69'-0"	75'-0"	77'-0"	72'-0"	73'-0"	79'-0"	81'-0"	76'-0"	77'-0"	83'-0"	85'-0"	80'-0"	81'-0"	87'-0"	89'-0"	84'-0"	85'-0"	91'-0"	93'-0"	88'-0"	89'-0"	95'-0"	97'-0"	92'-0"	93'-0"	99'-0"	101'-0"	96'-0"	97'-0"	103'-0"	105'-0"	100'-0"	101'-0"	107'-0"	109'-0"	104'-0"	105'-0"	111'-0"	113'-0"	108'-0"	109'-0"	115'-0"	117'-0"	112'-0"	113'-0"	119'-0"	121'-0"	116'-0"	117'-0"	123'-0"	125'-0"	120'-0"	121'-0"	127'-0"	129'-0"	124'-0"	125'-0"	131'-0"	133'-0"	128'-0"	129'-0"	135'-0"	137'-0"	132'-0"	133'-0"	139'-0"	141'-0"	136'-0"	137'-0"	143'-0"	145'-0"	140'-0"	141'-0"	147'-0"	149'-0"	144'-0"	145'-0"	151'-0"	153'-0"	148'-0"	149'-0"	155'-0"	157'-0"	152'-0"	153'-0"	159'-0"	161'-0"	156'-0"	157'-0"	163'-0"	165'-0"	160'-0"	161'-0"	167'-0"	169'-0"	164'-0"	165'-0"	171'-0"	173'-0"	168'-0"	169'-0"	175'-0"	177'-0"	172'-0"	173'-0"	179'-0"	181'-0"	176'-0"	177'-0"	183'-0"	185'-0"	180'-0"	181'-0"	187'-0"	189'-0"	184'-0"	185'-0"	191'-0"	193'-0"	188'-0"	189'-0"	195'-0"	197'-0"	192'-0"	193'-0"	199'-0"	201'-0"	196'-0"	197'-0"	203'-0"	205'-0"	200'-0"	201'-0"	207'-0"	209'-0"	204'-0"	205'-0"	211'-0"	213'-0"	208'-0"	209'-0"	215'-0"	217'-0"	212'-0"	213'-0"	219'-0"	221'-0"	216'-0"	217'-0"	223'-0"	225'-0"	220'-0"	221'-0"	227'-0"	229'-0"	224'-0"	225'-0"	231'-0"	233'-0"	228'-0"	229'-0"	235'-0"	237'-0"	232'-0"	233'-0"	239'-0"	241'-0"	236'-0"	237'-0"	243'-0"	245'-0"	240'-0"	241'-0"	247'-0"	249'-0"	244'-0"	245'-0"	251'-0"	253'-0"	248'-0"	249'-0"	255'-0"	257'-0"	252'-0"	253'-0"	259'-0"	261'-0"	256'-0"	257'-0"	263'-0"	265'-0"	260'-0"	261'-0"	267'-0"	269'-0"	264'-0"	265'-0"	271'-0"	273'-0"	268'-0"	269'-0"	275'-0"	277'-0"	272'-0"	273'-0"	279'-0"	281'-0"	276'-0"	277'-0"	283'-0"	285'-0"	280'-0"	281'-0"	287'-0"	289'-0"	284'-0"	285'-0"	291'-0"	293'-0"	288'-0"	289'-0"	295'-0"	297'-0"	292'-0"	293'-0"	299'-0"	301'-0"	296'-0"	297'-0"	303'-0"	305'-0"	300'-0"	301'-0"	307'-0"	309'-0"	304'-0"	305'-0"	311'-0"	313'-0"	308'-0"	309'-0"	315'-0"	317'-0"	312'-0"	313'-0"	319'-0"	321'-0"	316'-0"	317'-0"	323'-0"	325'-0"	320'-0"	321'-0"	327'-0"	329'-0"	324'-0"	325'-0"	331'-0"	333'-0"	328'-0"	329'-0"	335'-0"	337'-0"	332'-0"	333'-0"	339'-0"	341'-0"	336'-0"	337'-0"	343'-0"	345'-0"	340'-0"	341'-0"	347'-0"	349'-0"	344'-0"	345'-0"	351'-0"	353'-0"	348'-0"	349'-0"	355'-0"	357'-0"	352'-0"	353'-0"	359'-0"	361'-0"	356'-0"	357'-0"	363'-0"	365'-0"	360'-0"	361'-0"	367'-0"	369'-0"	364'-0"	365'-0"	371'-0"	373'-0"	368'-0"	369'-0"	375'-0"	377'-0"	372'-0"	373'-0"	379'-0"	381'-0"	376'-0"	377'-0"	383'-0"	385'-0"	380'-0"	381'-0"	387'-0"	389'-0"	384'-0"	385'-0"	391'-0"	393'-0"	388'-0"	389'-0"	395'-0"	397'-0"	392'-0"	393'-0"	399'-0"	401'-0"	396'-0"	397'-0"	403'-0"	405'-0"	400'-0"	401'-0"	407'-0"	409'-0"	404'-0"	405'-0"	411'-0"	413'-0"	408'-0"	409'-0"	415'-0"	417'-0"	412'-0"	413'-0"	419'-0"	421'-0"	416'-0"	417'-0"	423'-0"	425'-0"	420'-0"	421'-0"	427'-0"	429'-0"	424'-0"	425'-0"	431'-0"	433'-0"	428'-0"	429'-0"	435'-0"	437'-0"	432'-0"	433'-0"	439'-0"	441'-0"	436'-0"	437'-0"	443'-0"	445'-0"	440'-0"	441'-0"	447'-0"	449'-0"	444'-0"	445'-0"	451'-0"	453'-0"	448'-0"	449'-0"	455'-0"	457'-0"	452'-0"	453'-0"	459'-0"	461'-0"	456'-0"	457'-0"	463'-0"	465'-0"	460'-0"	461'-0"	467'-0"	469'-0"	464'-0"	465'-0"	471'-0"	473'-0"	468'-0"	469'-0"	475'-0"	477'-0"	472'-0"	473'-0"	479'-0"	481'-0"	476'-0"	477'-0"	483'-0"	485'-0"	480'-0"	481'-0"	487'-0"	489'-0"	484'-0"	485'-0"	491'-0"	493'-0"	488'-0"	489'-0"	495'-0"	497'-0"	492'-0"	493'-0"	499'-0"	501'-0"	496'-0"	497'-0"	503'-0"	505'-0"	500'-0"	501'-0"	507'-0"	509'-0"	504'-0"	505'-0"	511'-0"	513'-0"	508'-0"	509'-0"	515'-0"	517'-0"	512'-0"	513'-0"	519'-0"	521'-0"	516'-0"	517'-0"	523'-0"	525'-0"	520'-0"	521'-0"	527'-0"	529'-0"	524'-0"	525'-0"	531'-0"	533'-0"	528'-0"	529'-0"	535'-0"	537'-0"	532'-0"	533'-0"	539'-0"	541'-0"	536'-0"	537'-0"	543'-0"	545'-0"	540'-0"	541'-0"	547'-0"	549'-0"	544'-0"	545'-0"	551'-0"	553'-0"	548'-0"	549'-0"	555'-0"	557'-0"	552'-0"	553'-0"	559'-0"	561'-0"	556'-0"	557'-0"	563'-0"	565'-0"	560'-0"	561'-0"	567'-0"	569'-0"	564'-0"	565'-0"	571'-0"	573'-0"	568'-0"	569'-0"	575'-0"	577'-0"	572'-0"	573'-0"	579'-0"	581'-0"	576'-0"	577'-0"	583'-0"	585'-0"	580'-0"	581'-0"	587'-0"	589'-0"	584'-0"	585'-0"	591'-0"	593'-0"	588'-0"	589'-0"	595'-0"	597'-0"	592'-0"	593'-0"	599'-0"	601'-0"	596'-0"	597'-0"	603'-0"	605'-0"	600'-0"	601'-0"	607'-0"	609'-0"	604'-0"	605'-0"	611'-0"	613'-0"	608'-0"	609'-0"	615'-0"	617'-0"	612'-0"	613'-0"	619'-0"	621'-0"	616'-0"	617'-0"	623'-0"	625'-0"	620'-0"	621'-0"	627'-0"	629'-0"	624'-0"	625'-0"	631'-0"	633'-0"	628'-0"	629'-0"	635'-0"	637'-0"	632'-0"	633'-0"	639'-0"	641'-0"	636'-0"	637'-0"	643'-0"	645'-0"	640'-0"	641'-0"	647'-0"	649'-0"	644'-0"	645'-0"	651'-0"	653'-0"	648'-0"	649'-0"	655'-0"	657'-0"	652'-0"	653'-0"	659'-0"	661'-0"	656'-0"	657'-0"	663'-0"	665'-0"	660'-0"	661'-0"	667'-0"	669'-0"	664'-0"	665'-0"	671'-0"	673'-0"	668'-0"	669'-0"	675'-0"	677'-0"	672'-0"	673'-0"	679'-0"	681'-0"	676'-0"	677'-0"	683'-0"	685'-0"	680'-0"	681'-0"	687'-0"	689'-0"	684'-0"	685'-0"	691'-0"	693'-0"	688'-0"	689'-0"	695'-0"	697'-0"	692'-0"	693'-0"	699'-0"	701'-0"	696'-0"	697'-0"	703'-0"	705'-0"	700'-0"	701'-0"	707'-0"	709'-0"	704'-0"	705'-0"	711'-0"	713'-0"	708'-0"	709'-0"	715'-0"	717'-0"	712'-0"	713'-0"	719'-0"	721'-0"	716'-0"	717'-0"	723'-0"	725'-0"	720'-0"	721'-0"	727'-0"	729'-0"	724'-0"	725'-0"	731'-0"	733'-0"	728'-0"	729'-0"	735'-0"	737'-0"	732'-0"	733'-0"	739'-0"	741'-0"	736'-0"	737'-0"	743'-0"	745'-0"	740'-0"	741'-0"	747'-0"	749'-0"	744'-0"	745'-0"	751'-0"	753'-0"	748'-0"	749'-0"	755'-0"	757'-0"	752'-0"	753'-0"	759'-0"	761'-0"	756'-0"	757'-0"	763'-0"	765'-0"	760'-0"	761'-0"	767'-0"	769'-0"	764'-0"	765'-0"	771'-0"	773'-0"	768'-0"	769'-0"	775'-0"	777'-0"	772'-0"	773'-0"	779'-0"	781'-0"	776'-0"	777'-0"	783'-0"	785'-0"	780'-0"	781'-0"	787'-0"	789'-0"	784'-0"	785'-0"	791'-0"	793'-0"	788'-0"	789'-0"	795'-0"	797'-0"	792'-0"	793'-0"	799'-0"	801'-0"	796'-0"	797'-0"	803'-0"	805'-0"	800'-0"	801'-0"	807'-0"	809'-0"	804'-0"	805'-0"	811'-0"	813'-0"	808'-0"	809'-0"	815'-0"	817'-0"	812'-0"	813'-0"	819'-0"	821'-0"	816'-0"	817'-0"	823'-0"	825'-0"	820'-0"	821'-0"	827'-0"	829'-0"	824'-0"	825'-0"	831'-0"	833'-0"	828'-0"	829'-0"	835'-0"	837'-0"	832'-0"	833'-0"	839'-0"	841'-0"	836'-0"	837'-0"	843'-0"	845'-0"	840'-0"	841'-0"	847'-0"	849'-0"	844'-0"	845'-0"	851'-0"	853'-0"	848'-0"	849'-0"	855'-0"	857'-0"	852'-0"	853'-0"	859'-0"	861'-0"	856'-0"	857'-0"	863'-0"	865'-0"	860'-0"	861'-0"	867'-0"	869'-0"	864'-0"	865'-0"	871'-0"	873'-0"	868'-0"	869'-0"	875'-0"	877'-0"	872'-0"	873'-0"	879'-0"	881'-0"	876'-0"	877'-0"	883'-0"	885'-0"	880'-0"	881'-0"	887'-0"	889'-0"	884'-0"	885'-0"	891'-0"	893'-0"	888'-0"	889'-0"	895'-0"	897'-0"	892'-0"	893'-0"	899'-0"	901'-0"	896'-0"	897'-0"	903'-0"	905'-0"	900'-0"	901'-0"	907'-0"	909'-0"	904'-0"	905'-0"	911'-0"	913'-0"	908'-0"	909'-0"	915'-0"	917'-0"	912'-0"	913'-0"	919'-0"	921'-0"	916'-0"	917'-0"	923'-0"	925'-0"	920'-0"	921'-0"	927'-0"	929'-0"	924'-0"	925'-0"	931'-0"	933'-0"	928'-0"	929'-0"	935'-0"	937'-0"	932'-0"	933'-0"	939'-0"	941'-0"	936'-0"	937'-0"	943'-0"	945'-0"	940'-0"	941'-0"	947'-0"	949'-0"	944'-0"	945'-0"	951'-0"	953'-0"	948'-0"	949'-0"	955'-0"	957'-0"	952'-0"	953'-0"	959'-0"	961'-0"	956'-0"	957'-0"	963'-0"	965'-0"	960'-0"	961'-0"	967'-0"	969'-0"	964'-0"	965'-0"	971'-0"	973'-0"	968'-0"	969'-0"	975'-0"	977'-0"	972'-0"	973'-0"	979'-0"	981'-0"	976'-0"	977'-0"	983'-0"	985'-0"	980'-0"	981'-0"	987'-0"	989'-0"	984'-0"	985'-0"	991'-0"	993'-0"	988'-0"	989'-0"	995'-0"	997'-0"	992'-0"	993'-0"	999'-0"	1001'-0"	996'-0"	997'-0"	1003'-0"	1005'-0"	1000'-0"	1001'-0"	1007'-0"	1009'-0"	1004'-0"	1005'-0"	1011'-0"	1013'-0"	1008'-0"	1009'-0"	1015'-0"	1017'-0"	1012'-0"	1013'-0"	1019'-0"	1021'-0"	1016'-0"	1017'-0"	1023'-0"	1025'-0"	1020'-0"	1021'-0"	1027'-0"	1029'-0"	1024'-0"	1025'-0"	1031'-0"	103

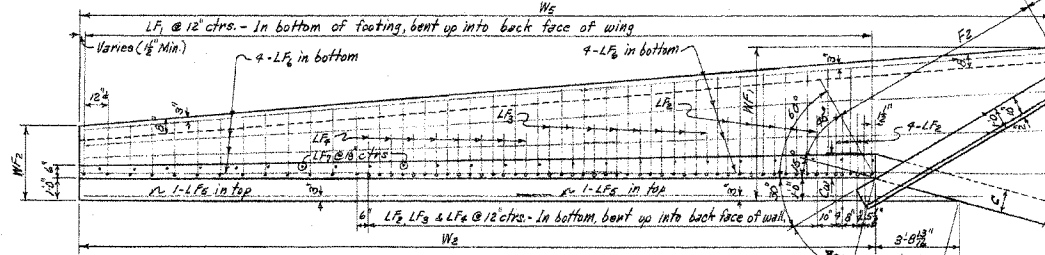
NOTE: This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. -

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
R-145X-1	R-245X-02	R-345X-02	R-445X-02	R-545X-02
	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

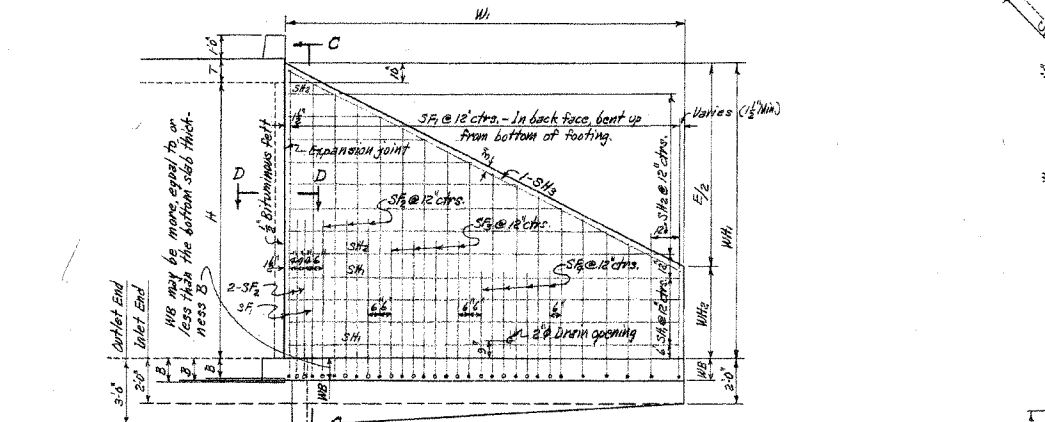
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			100	
JOB No.					



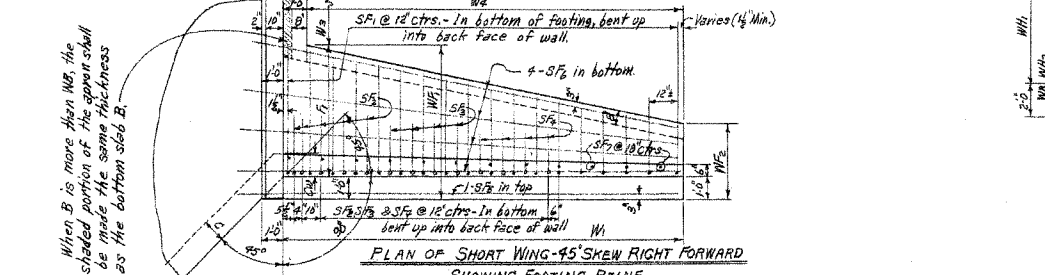
REAR ELEVATION OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



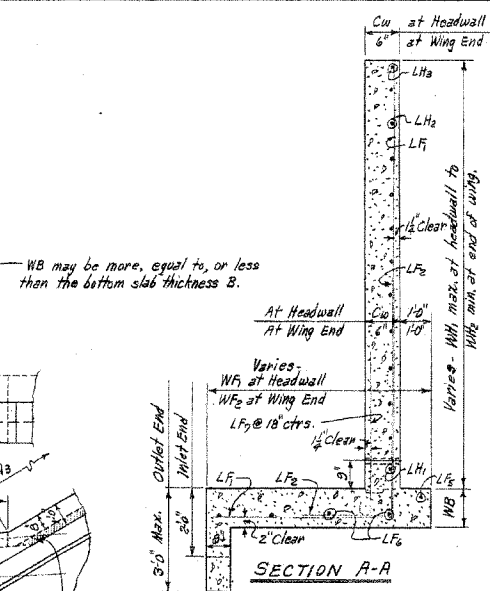
PLAN OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



REAR ELEVATION OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING

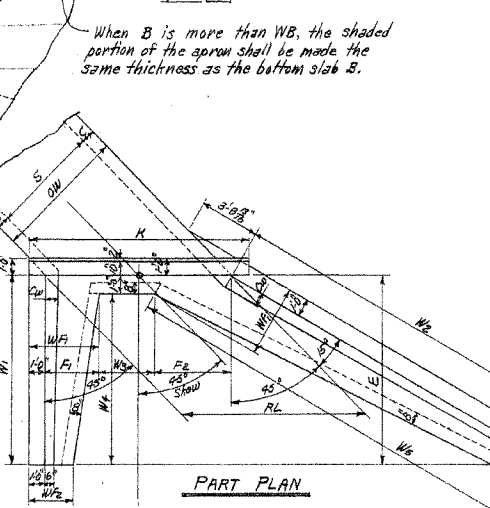


PLAN OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING

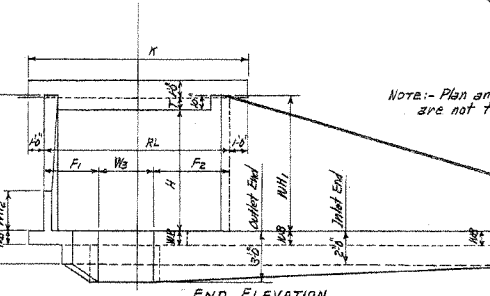


SECTION A-A

SECTION C-C



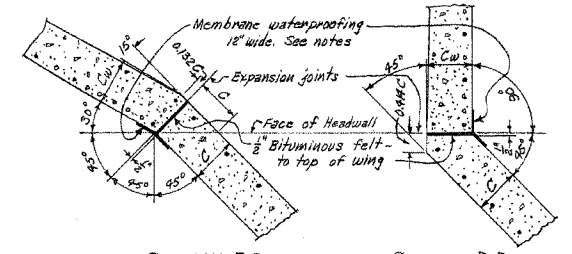
PART PLAN



END ELEVATION

SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

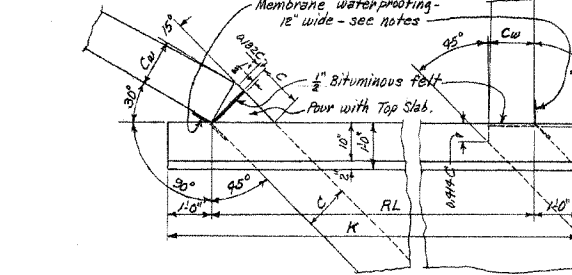
Details of Culvert with 45° Skew Left Forward is reversed, see Drawing No. W-X45.



SECTION B-B

SECTION D-D

SECTIONS THRU EXPANSION JOINTS



DETAILS AT TOP OF WINGS - 45° SKEW RIGHT FORWARD

REGULAR WING DIMENSIONS - 2:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING AT WING END	WING WALL HEIGHTS AT HEADWALL	WING WALL HEIGHTS AT WING END	WIDTHS OF WINGS AT HEADWALL	WIDTHS OF WINGS AT WING END	FOOTING DIMENSIONS PARALLEL WITH HEADWALL	FOOTING DIMENSIONS PARALLEL WITH WING END	PERPENDICULAR TO WING END	LENGTHS OF WING WALLS				INSIDE FOOTING DIMENSIONS				QUANTITY PER WING			
										SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING
9	10	9	9'-0"	8'-0"	5'-2"	2'-10"	4'-2"	6'-7"	13'-8"	13'-8"	27'-4"	12'-8"	32'-6"	4.222	8.981	4.396	9.388				
10	11	10	10'-0"	9'-0"	5'-8"	3'-0"	4'-8"	7'-7"	15'-0"	15'-0"	30'-0"	14'-0"	36'-1"	5.384	11.939	5.576	11.931				
11	12	11	11'-0"	10'-0"	6'-2"	3'-1/2"	5'-2"	8'-7"	16'-4"	16'-4"	32'-8"	15'-4"	39'-7"	6.700	14.826	6.999	14.821				
12	13	12	12'-0"	11'-0"	6'-8"	3'-3"	5'-8"	9'-7"	17'-8"	17'-8"	35'-4"	16'-8"	43'-1/2"	8.336	17.674	8.562	18.215				

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

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING AT WING END	REINFORCING STEEL FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS				
					HEADWALLS, WING WALLS, FOOTINGS, TRENCHES AND APRONS	SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT
9	9	10	9	1949	28.10	30.97	32.83	35.21	37.58
9	9	10	10	1949	28.41	31.09	33.75	36.42	39.09
10	10	11	10	2459	35.54	38.26	40.98	43.70	46.42
10	10	11	11	1949	28.72	31.72	34.66	37.62	40.59
11	11	12	11	2459	35.85	38.88	41.89	44.91	47.94
11	11	12	12	2935	42.88	47.80	50.84	53.88	56.94
12	12	13	12	1949	29.04	32.34	35.64	38.94	42.24
12	12	13	13	2459	36.17	39.51	42.81	46.13	49.44
13	13	14	13	2935	43.54	47.92	51.27	54.61	57.97
13	13	14	14	1949	32.02	34.81	37.60	40.39	43.18
14	14	15	14	1949	29.34	33.01	36.57	40.09	43.69
14	14	15	15	2459	36.47	40.17	43.78	47.35	50.95
15	15	16	15	2935	43.84	48.56	52.19	55.85	59.35
16	16	17	16	1949	32.02	34.81	37.60	40.39	43.18
16	16	17	17	2459	39.64	43.33	46.92	50.51	54.13
17	17	18	17	2935	47.29	51.09	54.79	58.49	62.19
18	18	19	18	1949	35.84	39.58	43.32	47.06	50.80
18	18	19	19	2459	43.44	47.29	51.09	54.89	58.69
19	19	20	19	2935	51.04	54.89	58.69	62.49	66.29

For reinforcing steel in headwalls and aprons, see Drawing Nos. of Barrel Sections listed at top of sheet.

GENERAL NOTES:-

- CONCRETE: All concrete to be Class S, and shall be poured in the dry. All exposed corners to have 3/4" chamfers.
- REINFORCING STEEL: Reinforcing steel to be deformed bars of intermediate or hard grade.
- CONSTRUCTION JOINTS: Construction joints between wingwalls, footings and sidealls shall be only where shown on plans.
- MEMBRANE: A membrane waterproofing 12" wide, consisting of three layers of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the expansion joints.
- Payment for the membrane waterproofing and bituminous felt shall be included in unit price bid for Class S Concrete.
- SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
- UNIT STRESSES: Class S Concrete (n=10) 1200%
Reinforcing steel 20,000%

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD WINGS
FOR
REINFORCED CONCRETE BOX CULVERTS
45° SKEW

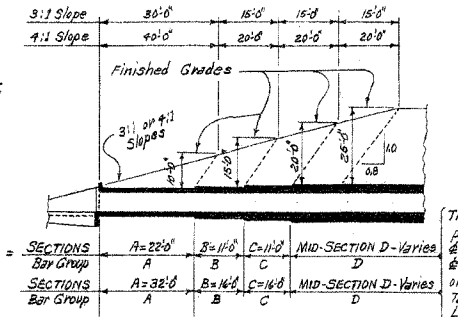
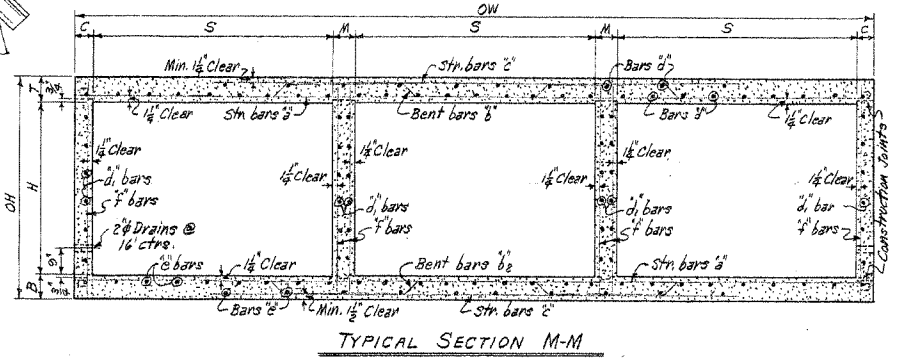
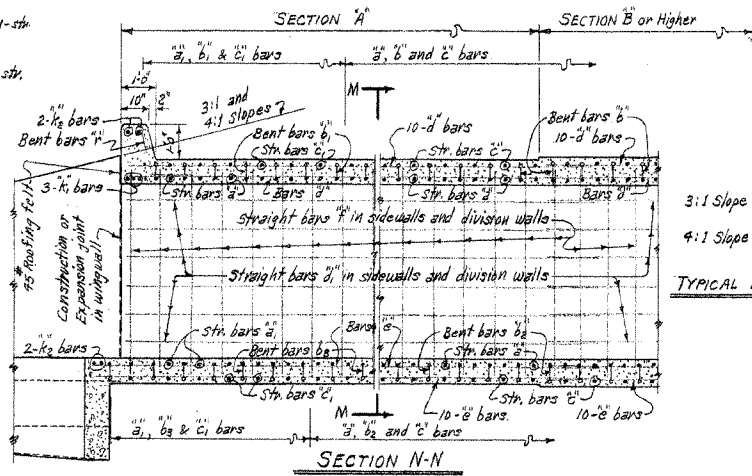
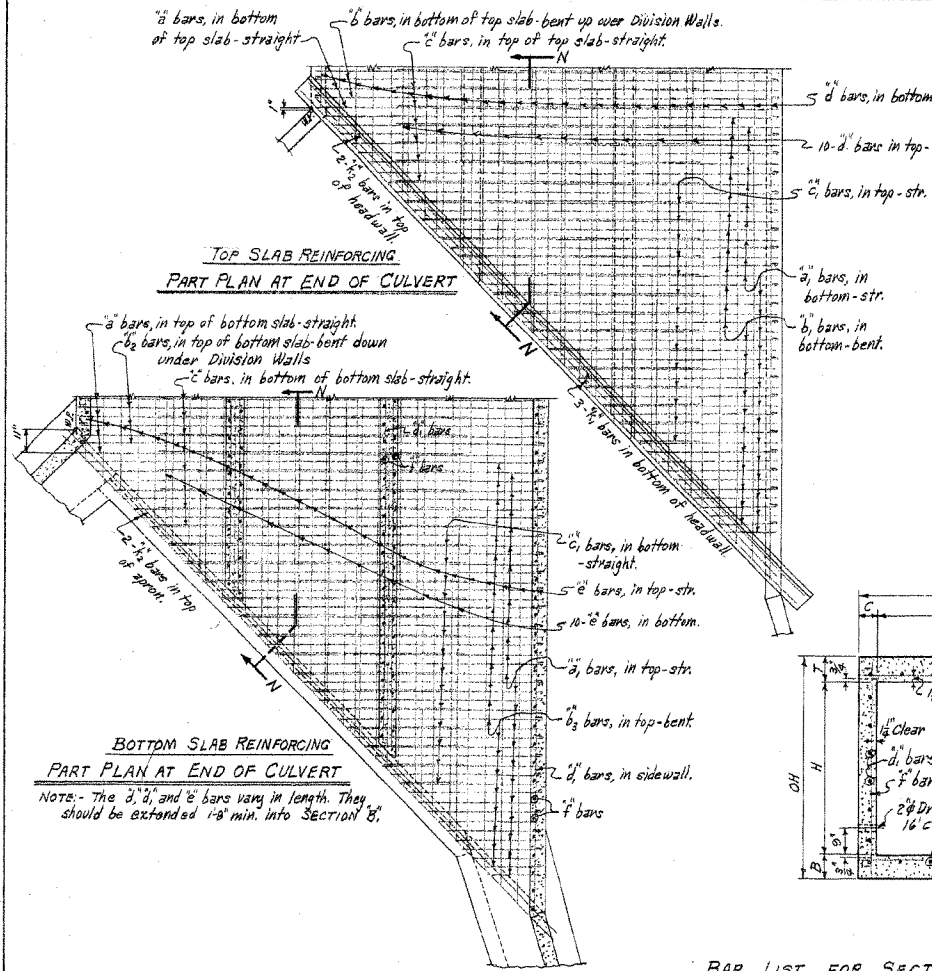
7, 8, 9, 10, 11 & 12 SPANS 2:1 SLOPES
SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER
QUADRUPLES & QUINTUPLES. FOR H=9'-0" & OVER
STANDARD DRAWING NO. W-X452-2

CLEAR HEIGHT	WING LOCATION	SF1 & LF1		SF2 & LF2		SF3 & LF3		SF4 & LF4		SF5 & LF5		SF6 & LF6		SF7 & LF7		SH & LH1		SH2 & LH2		SH3 & LH3		BAR BENDING DIAGRAMS	QUANTITY										
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.												
9'	Short	12"	14"	5"	13 1/4"	14"	3 1/2"	3 1/2"	10'-2"	5"	12"	3"	7'-6"	2'-1"	5'-6"	4"	12"	4"	6'-6"	1'-0"	4'-9"	4"	12"	3"	13'-4"	4"	12"	6"	12'-2"	2'-2"	4"	1"	15'-0"
	Long	12"	28"	4 1/4"	13'-3"	14 1/4"	3'-6"	3'-6"	10'-3"	4"	12"	3"	7'-6"	2'-1"	5'-6"	4"	12"	4"	6'-6"	1'-0"	4'-9"	4"	12"	3"	13'-4"	4"	12"	6"	12'-2"	2'-2"	4"	1"	14'-10"
10'	Short	12"	16"	5 1/4"	15'-6"	16"	4 1/4"	3'-9"	11'-3"	4"	12"	3"	8'-0"	2'-4"	6'-3"	4"	12"	4"	6'-6"	1'-0"	4'-9"	4"	12"	3"	14'-9"	4"	12"	7"	14'-3"	2'-2"	4"	1"	16'-6"
	Long	12"	37"	5 1/4"	15'-2"	16"	4 1/4"	3'-10"	11'-4"	4"	12"	3"	8'-0"	2'-4"	6'-3"	4"	12"	4"	6'-6"	1'-0"	4'-9"	4"	12"	3"	14'-9"	4"	12"	7"	14'-3"	2'-2"	4"	1"	16'-6"
11'	Short	12"	17"	6 1/4"	17'-0"	17 1/4"	4'-9"	4'-9"	12'-5"	4"	12"	3"	8'-6"	2'-4"	6'-3"	4"	12"	4"	6'-6"	1'-0"	4'-9"	4"	12"	3"	15'-9"	4"	12"	7"	14'-8"	2'-2"	4"	1"	17'-0"
	Long	12"	33"	6 1/4"	16'-8"	17 1/4"	4'-9"	4'-9"	12'-5"	4"	12"	3"	8'-6"	2'-4"	6'-3"	4"	12"	4"	6'-6"	1'-0"	4'-9"	4"	12"	3"	15'-9"	4"	12"	7"	14'-8"	2'-2"	4"	1"	17'-0"
12'	Short	12"	18"	6 3/4"	18'-3"	18 3/4"	5'-0"	5'-0"	13'-5"	4"	12"	3"	9'-0"	2'-4"	7'-0"	4"	12"	4"	6'-6"	1'-0"	4'-9"	4"	12"	3"	16'-9"	4"	12"	8"	15'-2"	2'-2"	4"	1"	19'-5"
	Long	12"	36"	6 3/4"	18'-2"	18 3/4"	4'-9"	4'-9"	13'-4"	4"	12"	3"	9'-0"	2'-4"	7'-0"	4"	12"	4"	6'-6"	1'-0"	4'-9"	4"	12"	3"	16'-9"	4"	12"	8"	15'-2"	2'-2"	4"	1"	19'-5"

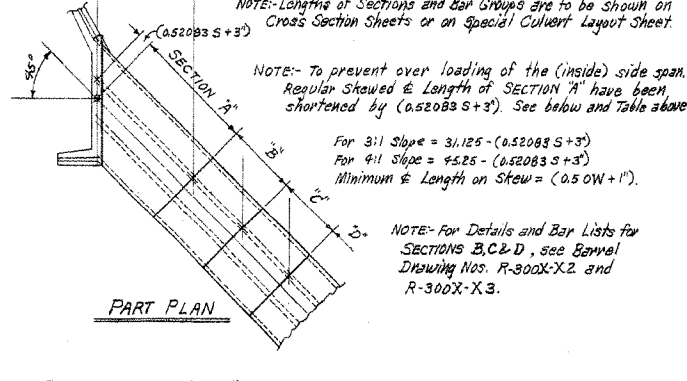
NOTE: Bars for short wing to be marked with prefix letter 'S', while those for long wing shall be marked with letter 'L'.
* Except as shown at headwall.
* Lengths without splice. Bars over 25' length may be spliced. (L=8' lap)
Quantities include laps for L2 bars over 25' length.

Designed By: W.C.H. 5-16-63
Checked By: J.E.M. 7-15-64
Drawn By: W.C.H. 6-4-64
Quantity By: W.C.H. 6-30-64

NOTE: For Details of Standard Wings and bar lists, see Drawing Nos. W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.



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	SECT'S & BAR GROUPS FOR END SECTIONS AND MID-SECTION AND			DEPTH OF COVER	SECT'S & BAR GROUPS FOR END SECTIONS AND MID-SECTION AND		
	A	B	C		A	B	C
5.0 to 9.5	A		A	5.0 to 9.5	A		A
10.0 to 14.5	A		B	10.0 to 14.5	A		B
15.0 to 19.5	A	B	C	15.0 to 19.5	A	B	C
20.0 to 25.0	A	B	C	20.0 to 25.0	A	B	C

LENGTH OF SECTIONS ON 45° SKEW

SLOPE	3:1		4:1	
	A	B & C	A	B & C
9'	24'-2 1/2"	15'-6 3/4"	40'-3 3/4"	22'-7 1/2"
10'	25'-8"	"	39'-9"	"
11'	25'-7 3/4"	"	39'-3 3/4"	"
12'	24'-7 1/2"	"	38'-9"	"

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			61	

BARREL DIMENSIONS

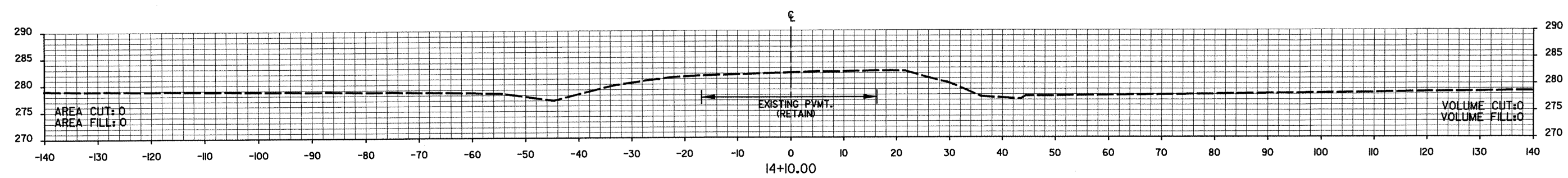
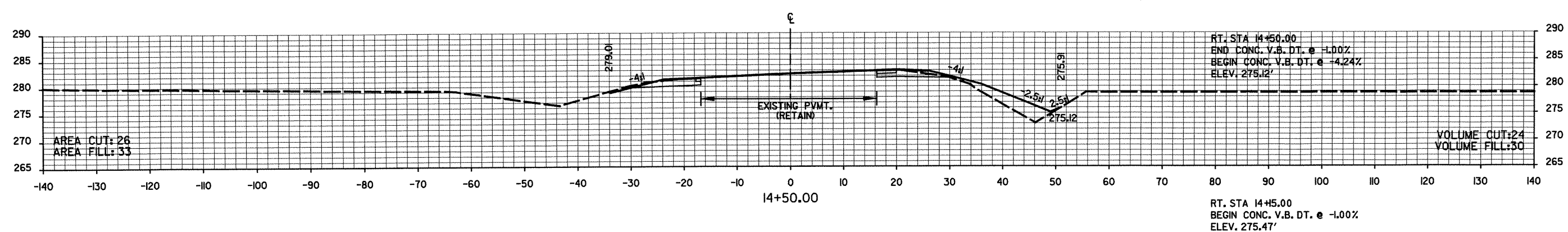
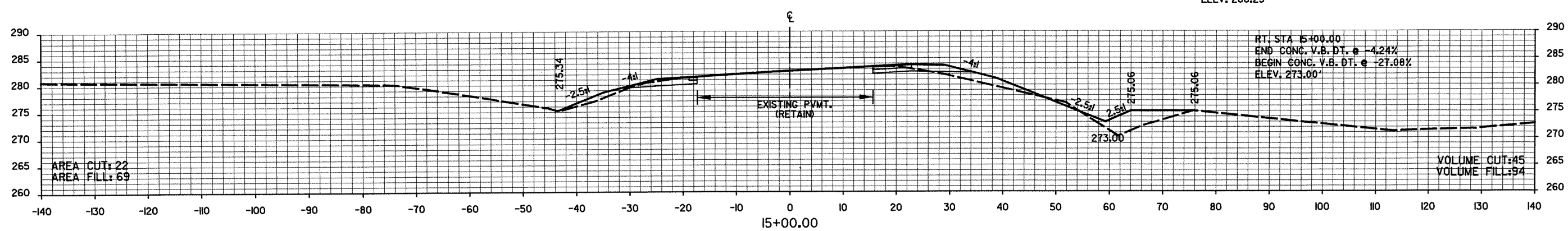
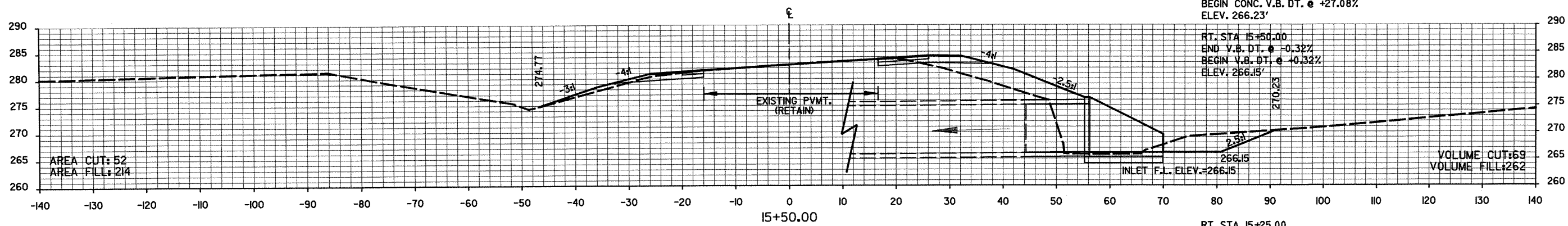
MAX. DESIGN DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	SP. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	QUANTITIES - ONE SECTION				
												CLASS S CONCRETE	REINFORCING STEEL	BARREL ONLY	BARREL, APRON AND HEADWALL	
D	S	H	A	OW	T	C	M	B	OH	RL	K	CUYD	CUYD	LB.	LB.	
3 @ 9'	5'	135	29'-8"	7'	9"	6-7"	4-11 1/2"	43-4 1/2"	58.50	30.06	10,656	15,764				
	6'	162	29'-8"	7 1/2"	10"	7-7 1/2"	42-3 3/4"	44-3 3/4"	62.33	36.87	10,965	16,219				
	7'	189	29'-8"	8"	10 1/2"	8-7"	41-3 3/4"	44-3 3/4"	65.76	40.82	11,352	16,822				
	8'	216	29'-8"	8 1/2"	11"	9-7"	42-5 1/2"	44-5 1/2"	69.39	44.75	11,920	17,775				
	9'	243	30'-4"	9"	11 1/2"	10-7"	42-10 1/2"	44-10 1/2"	72.68	48.50	12,549	18,884				
	10'	270	30'-4"	10"	12"	11-7"	43-4 1/2"	45-4 1/2"	76.45	52.25	13,256	20,097				
	11'	297	30'-4"	10 1/2"	12 1/2"	12-7"	43-7 1/2"	45-7 1/2"	80.25	56.00	13,963	21,293				
	12'	324	30'-4"	11"	13"	13-7"	44-1 1/2"	46-1 1/2"	84.25	59.75	14,670	22,493				
	3 @ 10'	5'	150	32'-8"	7"	9"	6-3 1/2"	46-2 1/2"	45-2 1/2"	65.78	30.91	12,096	18,028			
		6'	180	32'-8"	7 1/2"	10"	7-10"	44-6 3/4"	44-6 3/4"	70.10	34.67	12,410	19,389			
		7'	210	32'-8"	8"	10 1/2"	8-8 1/2"	43-8 1/2"	44-8 1/2"	72.87	38.42	12,795	20,393			
		8'	240	32'-8"	8 1/2"	11"	9-8 1/2"	44-8 1/2"	44-8 1/2"	76.91	42.17	13,274	21,599			
9'		270	32'-8"	9"	11 1/2"	10-8 1/2"	44-10 1/2"	44-10 1/2"	81.25	45.92	13,870	22,854				
10'		300	32'-8"	10"	12"	11-8 1/2"	44-12 1/2"	44-12 1/2"	85.93	49.67	14,497	24,164				
11'		330	32'-8"	10 1/2"	12 1/2"	12-8 1/2"	44-14 1/2"	44-14 1/2"	90.93	53.42	15,150	25,529				
12'		360	32'-8"	11"	13"	13-8 1/2"	44-16 1/2"	44-16 1/2"	96.25	57.17	15,825	26,949				
3 @ 11'		5'	165	36'-0"	7"	9"	6-8 1/2"	48-2 1/2"	47-2 1/2"	72.61	33.66	13,464	20,497			
		6'	198	36'-0"	7 1/2"	10"	7-10 1/2"	46-2 1/2"	46-2 1/2"	77.10	37.41	13,974	21,974			
		7'	231	36'-0"	8"	10 1/2"	8-10 1/2"	45-2 1/2"	45-2 1/2"	81.80	41.16	14,505	23,497			
		8'	264	36'-0"	8 1/2"	11"	9-10 1/2"	44-2 1/2"	44-2 1/2"	86.80	44.91	15,057	25,027			
	9'	297	36'-0"	9"	11 1/2"	10-10 1/2"	44-4 1/2"	44-4 1/2"	92.00	48.66	15,630	26,597				
	10'	330	36'-0"	10"	12"	11-10 1/2"	44-6 1/2"	44-6 1/2"	97.50	52.41	16,224	28,217				
	11'	363	36'-0"	10 1/2"	12 1/2"	12-10 1/2"	44-8 1/2"	44-8 1/2"	103.25	56.16	16,839	29,887				
	12'	396	36'-0"	11"	13"	13-10 1/2"	44-10 1/2"	44-10 1/2"	109.25	59.91	17,474	31,607				
	3 @ 12'	5'	180	36'-0"	7"	9"	6-8 1/2"	50-2 1/2"	49-2 1/2"	81.00	35.41	14,064	21,164			
		6'	216	36'-0"	7 1/2"	10"	7-10 1/2"	48-2 1/2"	48-2 1/2"	86.25	39.16	14,694	22,814			
		7'	252	36'-0"	8"	10 1/2"	8-10 1/2"	47-2 1/2"	47-2 1/2"	91.75	42.91	15,345	24,504			
		8'	288	36'-0"	8 1/2"	11"	9-10 1/2"	46-2 1/2"	46-2 1/2"	97.50	46.66	16,017	26,244			
9'		324	36'-0"	9"	11 1/2"	10-10 1/2"	45-2 1/2"	45-2 1/2"	103.50	50.41	16,710	28,034				
10'		360	36'-0"	10"	12"	11-10 1/2"	44-2 1/2"	44-2 1/2"	109.75	54.16	17,424	29,874				
11'		396	36'-0"	10 1/2"	12 1/2"	12-10 1/2"	44-4 1/2"	44-4 1/2"	116.25	57.91	18,159	31,764				
12'		432	36'-0"	11"	13"	13-10 1/2"	44-6 1/2"	44-6 1/2"	123.00	61.66	18,924	33,704				

BAR LIST FOR SECTION A ON 45° SKEW - ONE END ONLY.

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN		CLEAR HEIGHT		STRAIGHT		BENT - See Diagrams below.		STRAIGHT		STRAIGHT		STRAIGHT		STRAIGHT		STRAIGHT																									
			D	H	A	OW	T	C	M	B	OH	RL	K	CUYD	CUYD	LB.	LB.	BARREL ONLY	BARREL, APRON AND HEADWALL																									
			SIZE	SPACING	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																						
SECTION A & BAR GROUP A	0'-0" TO 10'-0" MAXIMUM	6"	5'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
			6'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
			7'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
			8'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
			9'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
			10'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
			11'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
			12'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
			SECTION B & BAR GROUP B	0'-0" TO 10'-0" MAXIMUM	6"	5'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30
						6'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30
						7'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30
						8'	25	53	29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30
9'	25	53				29'-8"	54	28'-5"	25	11	25	31'-2"	0-3/4"	4-3/4"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	12	24	31'-3"	0-1/2"	4-2 1/2"	7'-2"	27	30'-3"	3'-5"	28'-0"	2'-0"	35	63	19'-6"	34	18'-6"	2'-6"	40	30	30	30			
10'	25	53				29'-8"	54	28'-5"	25	11	25																																	

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.		I00738	62	69

② CROSS SECTIONS

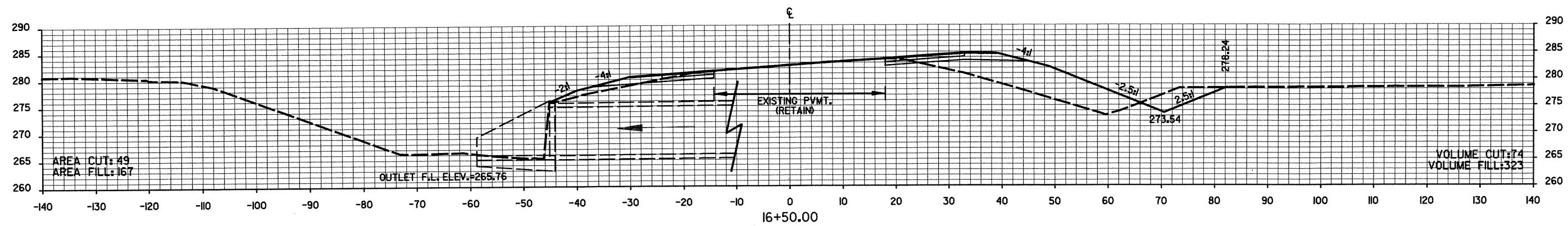
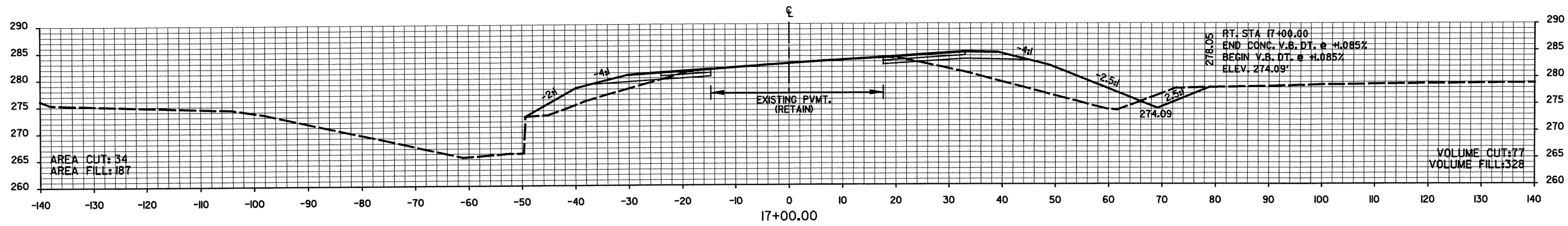


STA. 14+10 BEGIN 240' TAPER LT. & RT.
 STA. 14+10 BEGIN JOB I00738

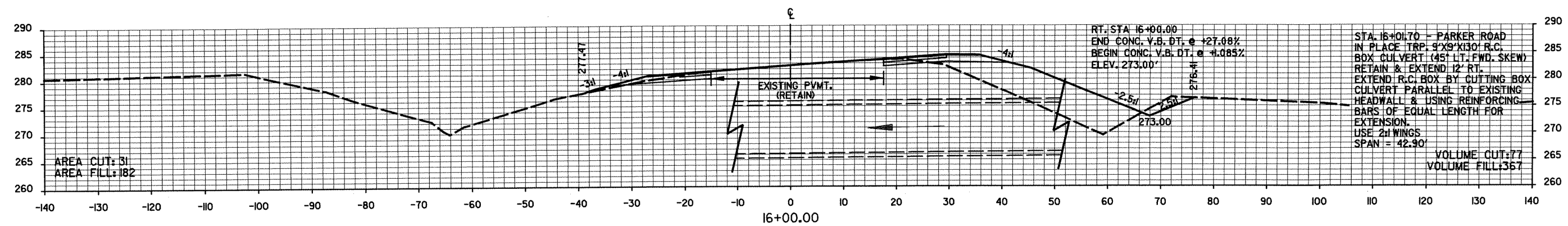
STA. 14+10.00 TO STA. 15+50.00
 HWY. 1B/PARKER RD. EB TURN LANE PLAN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		63	69
				JOB NO.		100738		

2 CROSS SECTIONS



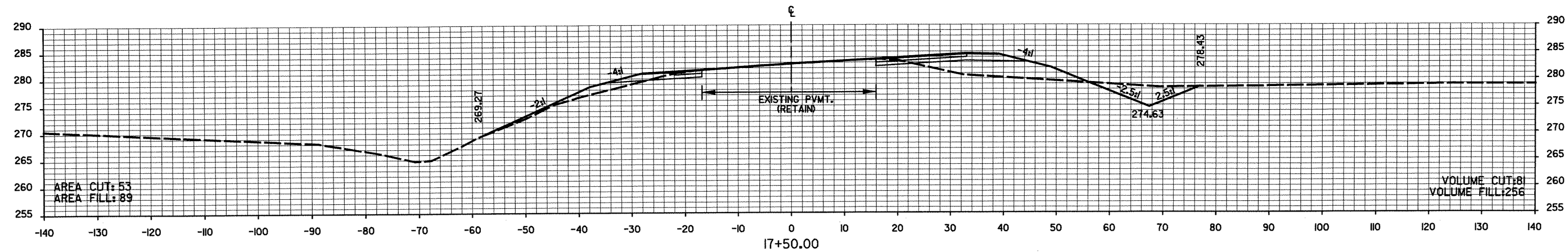
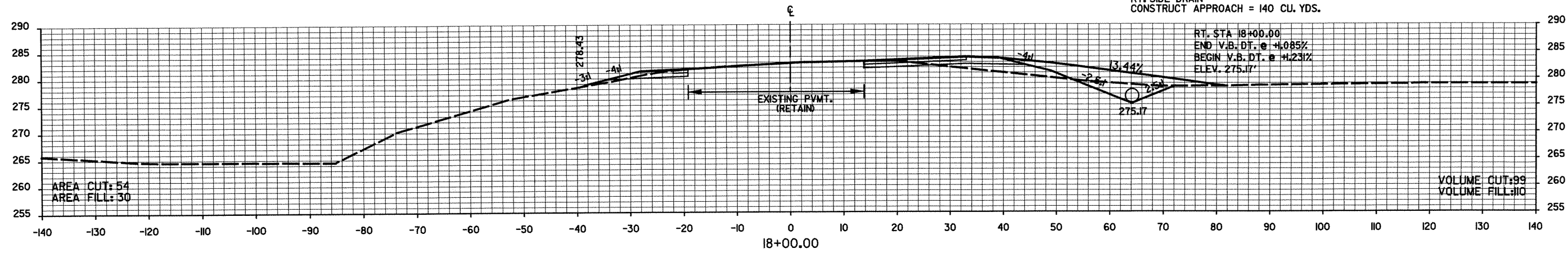
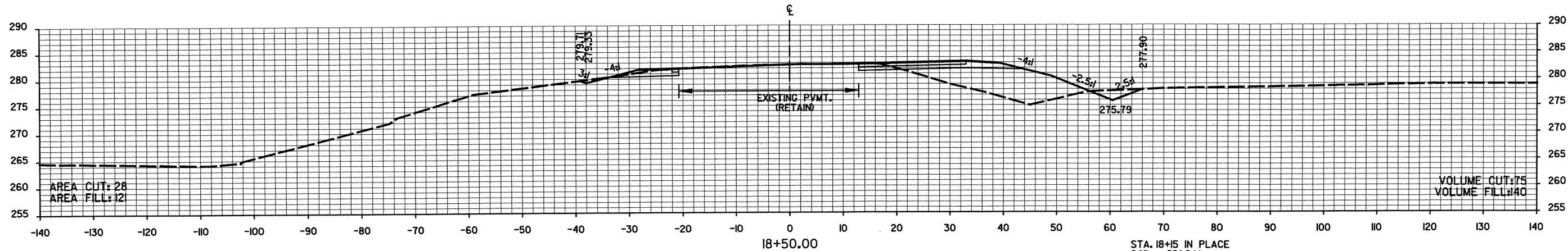
STA. 16+50 END 240' TAPER LT. & RT.



STA. 16+00.00 TO STA. 17+00.00
HWY. 1B/PARKER RD. EB TURN LANE PLAN

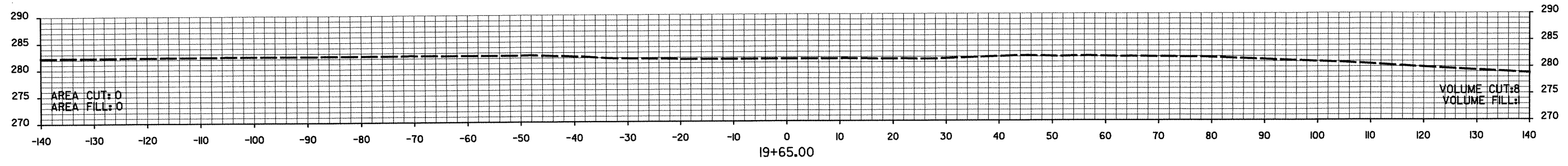
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100738		64	69

2 CROSS SECTIONS

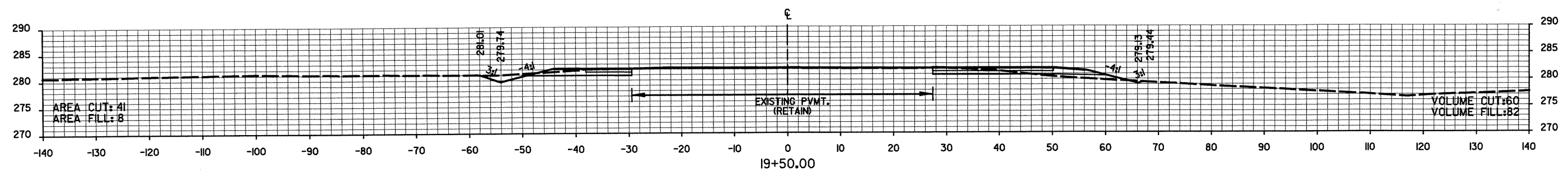


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 100738							65	69

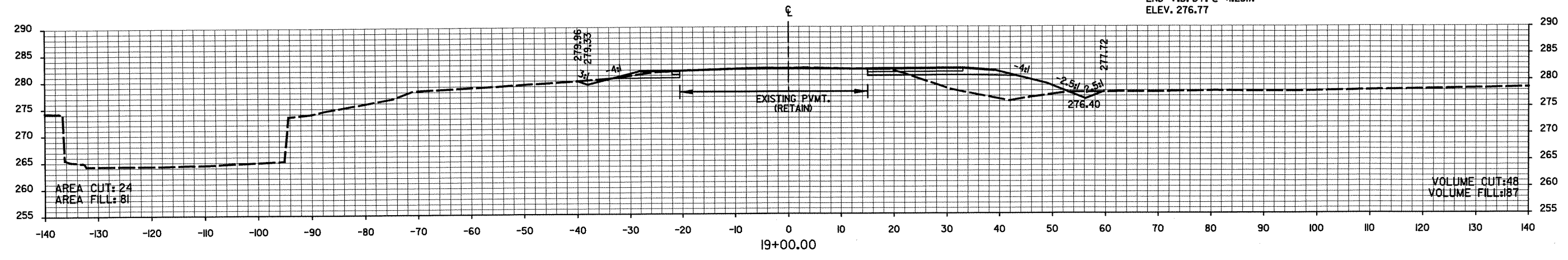
2 CROSS SECTIONS



STA. 19+65 END JOB 100738



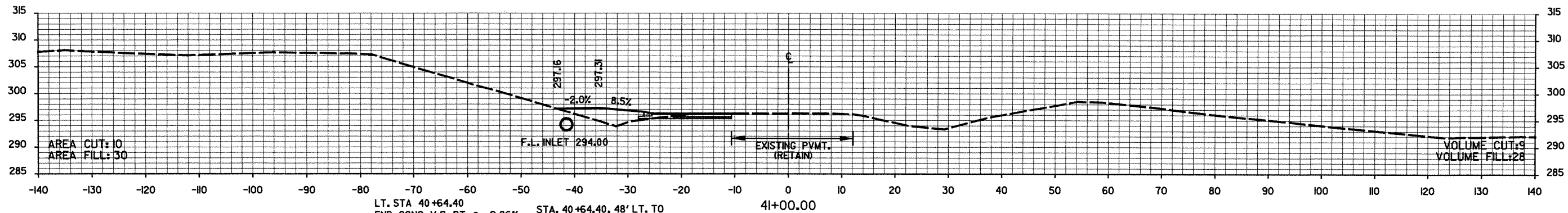
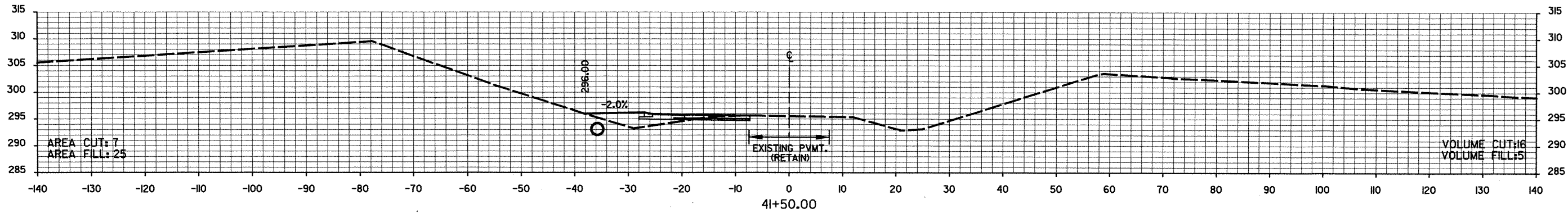
RT. STA 19+30.00
END V.B. DT. e +1.231%
ELEV. 276.77



STA. 19+00.00 TO STA. 19+65.00
HWY. IB/PARKER RD. EB TURN LANE PLAN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 100738	66	69

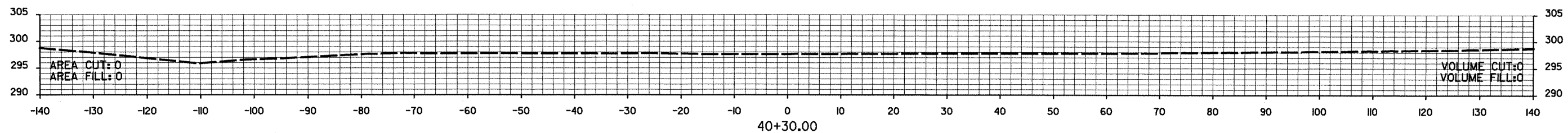
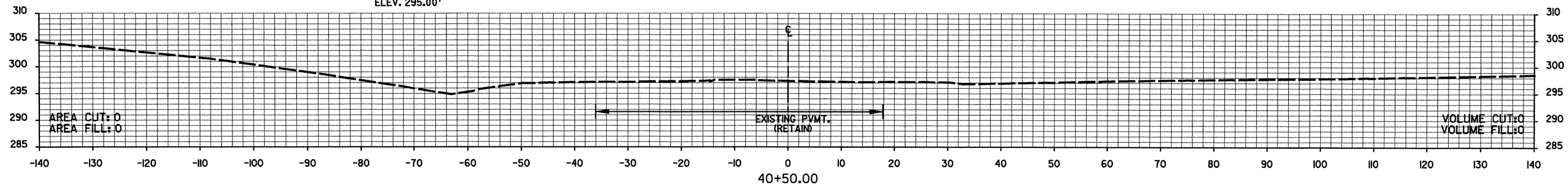
2 CROSS SECTIONS



LT. STA 40+64.40
 END CONC. V.B. DT. e -2.86%
 ELEV. 294.00'

STA. 40+64.40, 48' LT. TO
 STA. 44+25.00, 36' LT. CONSTRUCT
 24"x360" R.C. PIPE CULVERT
 (CLASS III) TYPE 3 BEDDING
 WITH FES ON INLET & OUTLET ENDS.
 Q₅₀ = 26 CFS, D.A. = 5 AC.

LT. STA 40+43.50
 BEGIN CONC. V.B. DT. e -2.86%
 ELEV. 295.00'

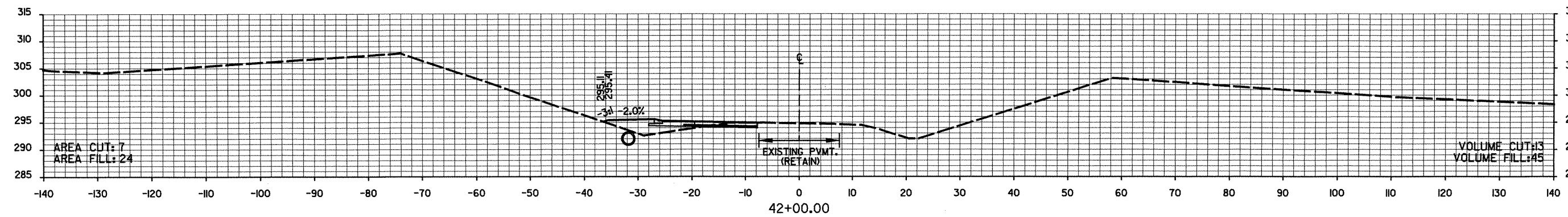
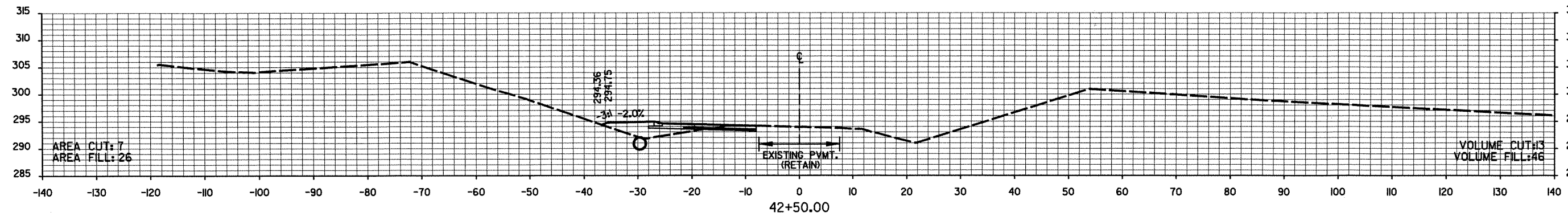
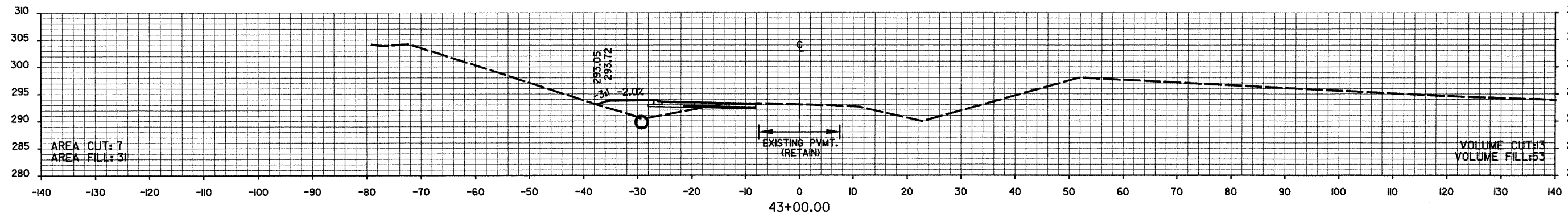
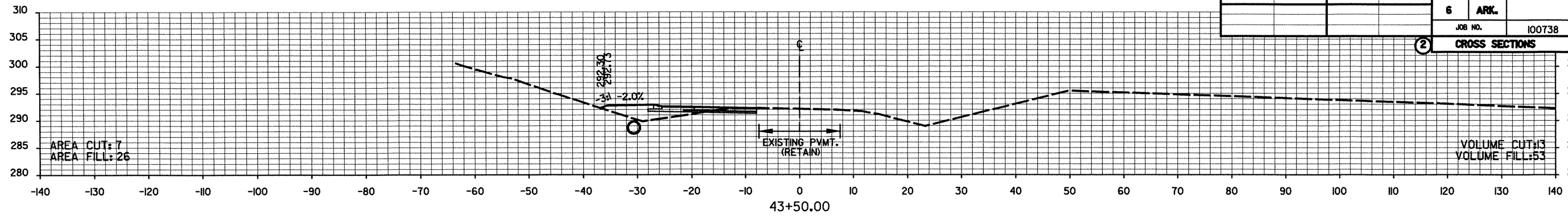


STA. 40+30 BEGIN JOB 100738

STA. 40+30.00 TO STA. 41+50.00
 HWY. 63 NB EXIT RAMP

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
JOB NO.							100738	67	69

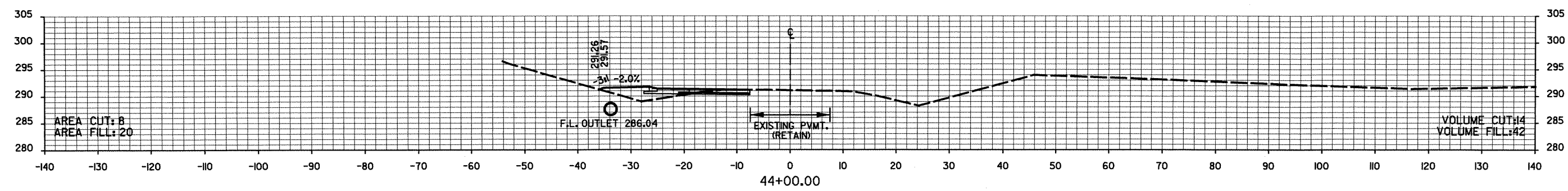
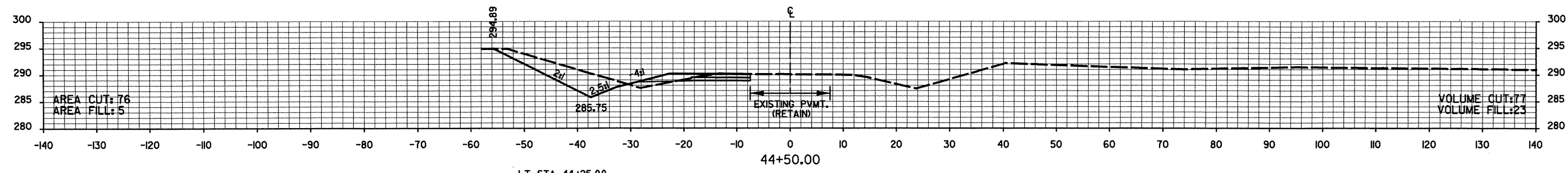
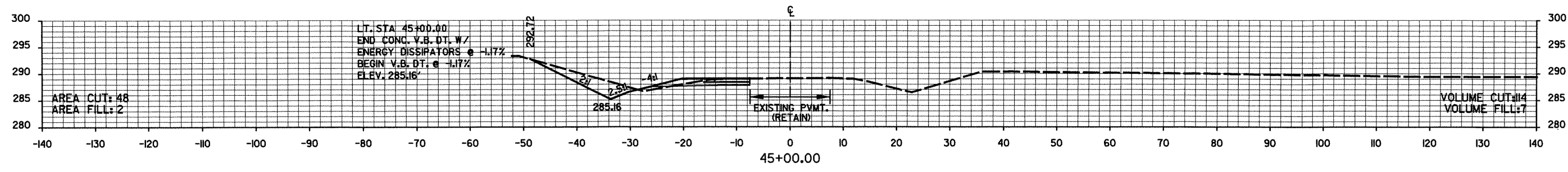
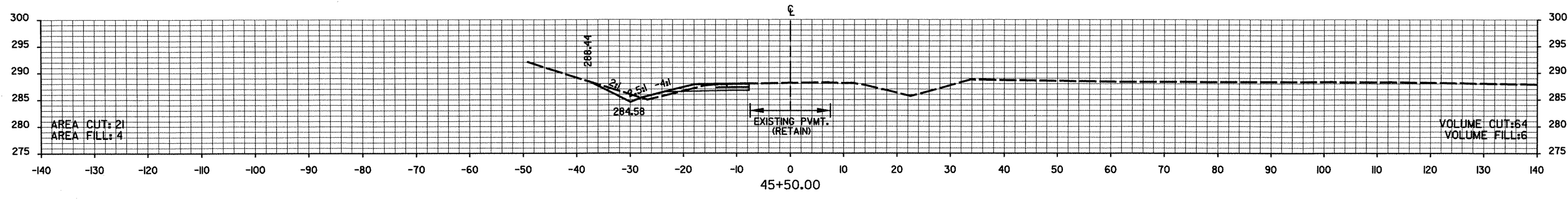
2 CROSS SECTIONS



STA. 42+00.00 TO STA. 43+50.00
HWY. 63 NB EXIT RAMP

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.							100738	68	69

2 CROSS SECTIONS

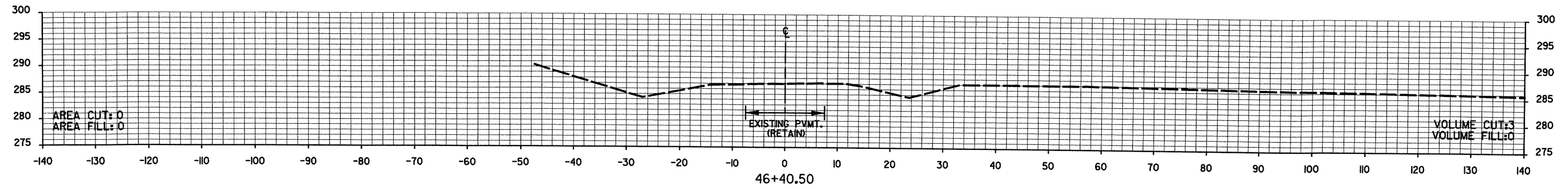


STA. 43+90.50 BEGIN 250' TAPER LT.

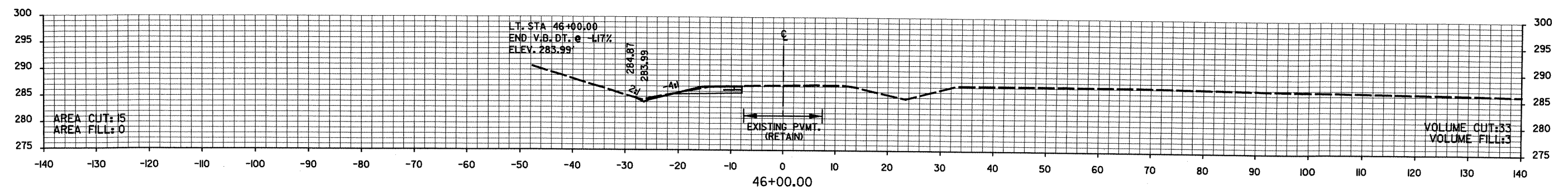
STA. 44+00.00 TO STA. 45+50.00
HWY. 63 NB EXIT RAMP

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.	100738		69	69

② CROSS SECTIONS



STA. 46+40.50 END JOB 100738
STA. 46+40.50 END 250' TAPER LT.



STA. 46+00.00 TO STA. 46+40.50
HWY. 63 NB EXIT RAMP