

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

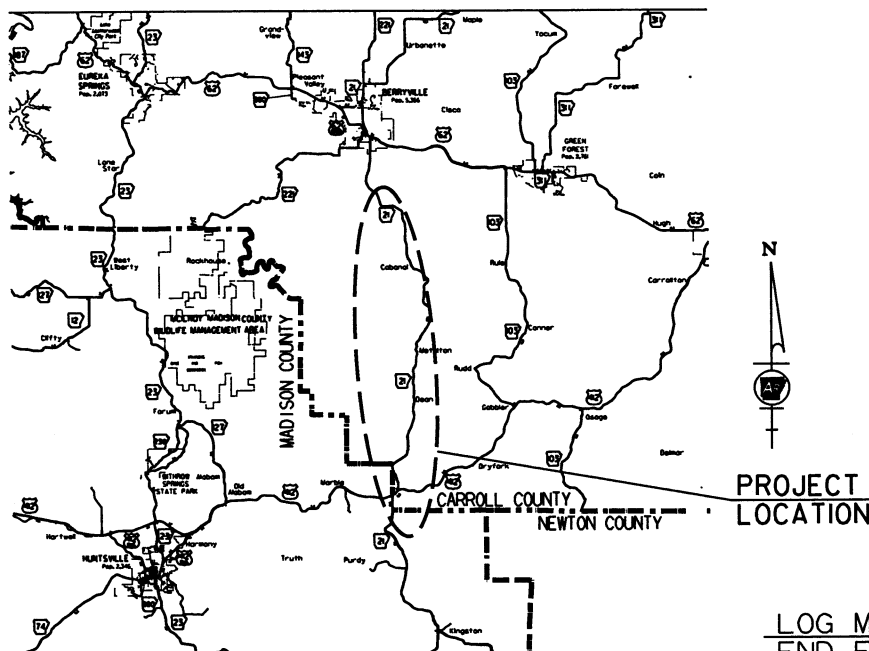
HWY. 412 - BERRYVILLE
(SAFETY IMPVTS.) (S)

CARROLL COUNTY
ROUTE 21 SECTION 5

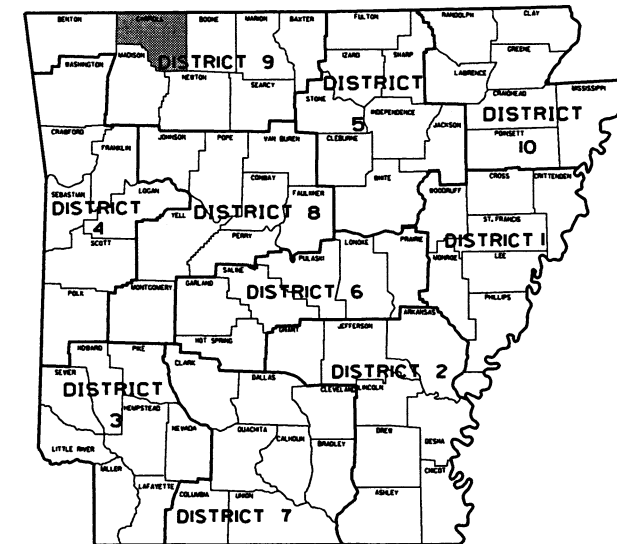
FED. AID PROJ. HSIP-0008(38)

JOB 090474

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.	090474		1	16
				2 HWY. 412 - BERRYVILLE (SAFETY IMPVTS.) (S)				



VICINITY MAP



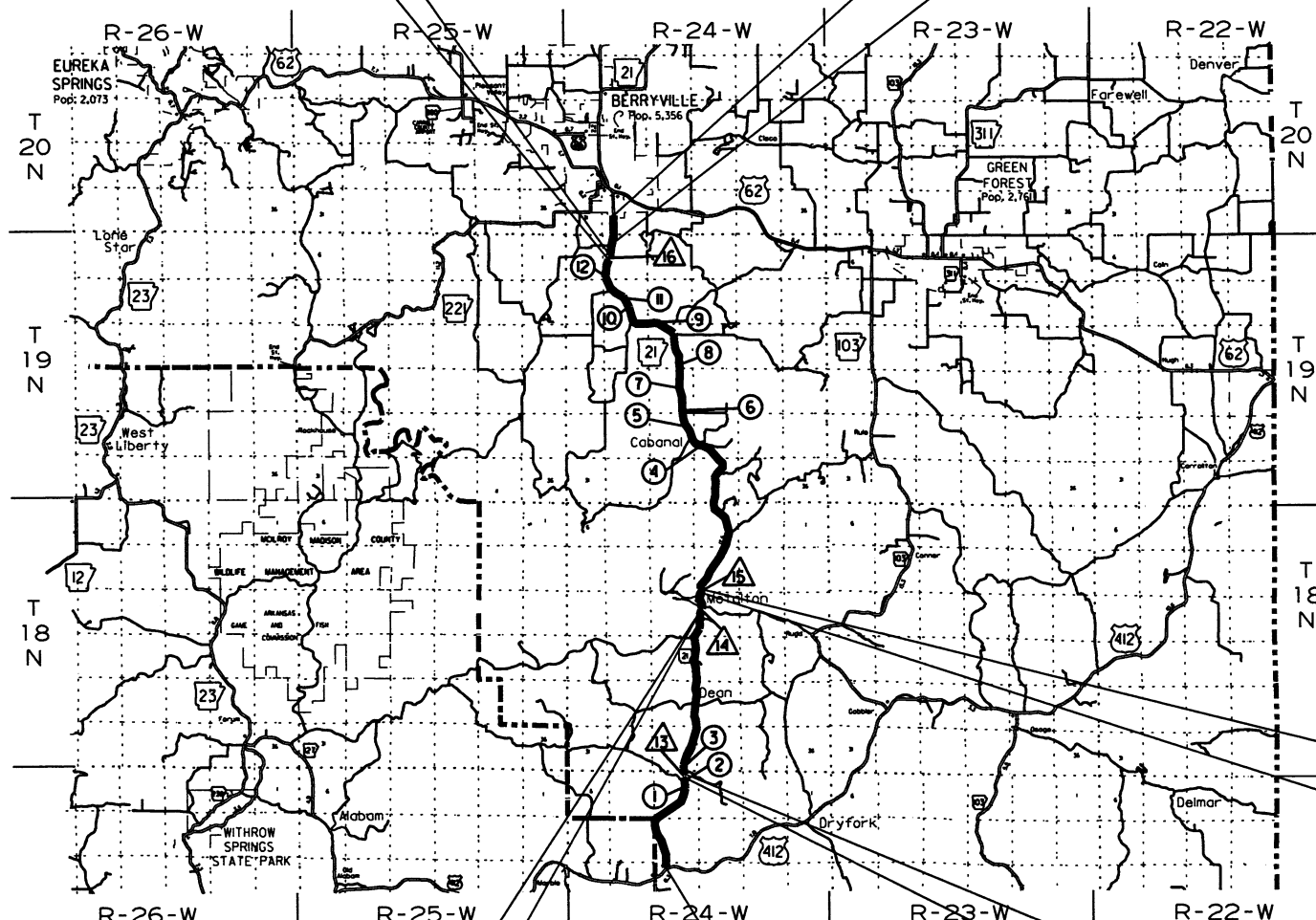
ARK. HWY. DIST. NO. 9

LOG MILE 16.06
END EXCEPTION
LOG MILE 16.02
BEGIN EXCEPTION

LOG MILE 16.94
END SHOULDER WIDENING
END JOB 090474
LOG MILE 16.31
BEGIN SHOULDER WIDENING

NOT TO SCALE

REFER TO SHEET 2
FOR BRIDGE STRUCTURES



LOG MILE 6.35
END EXCEPTION
LOG MILE 6.32
BEGIN EXCEPTION

LOG MILE 0.00
BEGIN JOB 090474

LOG MILE 6.80
END EXCEPTION
LOG MILE 6.78
BEGIN EXCEPTION

LOG MILE 2.50
END EXCEPTION
LOG MILE 2.47
BEGIN EXCEPTION

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT	89443.20	FEET OR	16.940	MILES
NET ROADWAY	88809.60		16.820	MILES
NET BRIDGES	0.00		0.000	MILES
NET PROJECT	88809.60		16.820	MILES

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 36°08'19"	N 36°15'01"	N 36°21'01"
LONGITUDE	W 93°32'46"	W 93°31'09"	W 93°33'44"



APPROVED



11-1-19
DEPUTY DIRECTOR
AND CHIEF ENGINEER

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				6	ARK.			
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② BRIDGE DATA AND EXCEPTIONS



STRUCTURES OVER 20' -0" SPAN
(FOR INFORMATION ONLY)

- ① LOG MILE 2.21 RETAIN
TRI. 10' X 4' X 30' R.C. BOX CULVERT
30° RT. FWD. SKEW
48.47' SPAN WIDTH
- ② LOG MILE 2.32 RETAIN
DBL. 10' X 4' X 41' R.C. BOX CULVERT
15° LT. FWD. SKEW
44.21' SPAN WIDTH
- ③ LOG MILE 2.73 RETAIN
TRI. 13' X 4' X 37' R.C. BOX CULVERT
45° RT. FWD. SKEW
73.29' SPAN WIDTH
- ④ LOG MILE 10.78 RETAIN
DOU. 8' X 5' X 57' R.C. BOX CULVERT
15° LT. FWD. SKEW
22.00' SPAN WIDTH
- ⑤ LOG MILE 11.21 RETAIN
TRI. 10' X 4' X 30' R.C. BOX CULVERT
30° RT. FWD. SKEW
45.61' SPAN WIDTH
- ⑥ LOG MILE 11.65 RETAIN
TRI. 10' X 4' X 30' R.C. BOX CULVERT
30° RT. FWD. SKEW
46.83' SPAN WIDTH
- ⑦ LOG MILE 12.04 RETAIN
4' X 6' X 36' R.C. BOX CULVERT
4.00' SPAN WIDTH
- ⑧ LOG MILE 12.45 RETAIN
6' X 6' X 36' R.C. BOX CULVERT
15° LT. FWD. SKEW
6.00' SPAN WIDTH
- ⑨ LOG MILE 14.33 RETAIN
5' X 5' X 43' R.C. BOX CULVERT
15° LT. FWD. SKEW
5.00' SPAN WIDTH
- ⑩ LOG MILE 14.70 RETAIN
5' X 4' X 37' R.C. BOX CULVERT
15° RT. FWD. SKEW
4.00' SPAN WIDTH
- ⑪ LOG MILE 14.90 RETAIN
6' X 6' X 37' R.C. BOX CULVERT
6.00' SPAN WIDTH
- ⑫ LOG MILE 15.58 RETAIN
4' X 6' X 51' R.C. BOX CULVERT
30° LT. FWD. SKEW
4.00' SPAN WIDTH

BRIDGE DATA
(FOR INFORMATION ONLY)
(EXCEPTIONS)

- ⑬ LOG MILE 2.47 RETAIN
BRIDGE NO. 03308
182' -2" FOUR SPAN COMP. COMPOSITE I-BEAM
(45' -0", 45' -0", 45' -0", 45' -0")
24' -0" CLEAR ROADWAY
- ⑭ LOG MILE 6.32 RETAIN
BRIDGE NO. 03309
162' -6" FOUR SPAN, COMPOSITE I-BEAM
(40' -0", 40' -0", 40' -0", 40' -0")
24' -0" CLEAR ROADWAY
- ⑮ LOG MILE 6.78 RETAIN
BRIDGE NO. 03310
84' -0" THREE SPAN R.C. SLAB
(28', 28', 28')
24' -0" CLEAR ROADWAY
- ⑯ LOG MILE 16.02 RETAIN
BRIDGE NO. 07153
201' -0" THREE SPAN TYPE THREE INTEGRAL
(67', 67', 67')
43' -2" CLEAR ROADWAY

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12/19/19				6	ARK.			
						JOB NO. 090474	3	16

② INDEX OF SHEETS AND STANDARD DRAWINGS



INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	BRIDGE DATA AND EXCEPTIONS
3	INDEX OF SHEETS AND STANDARD DRAWINGS
4	GOVERNING SPECIFICATIONS AND GENERAL NOTES
5	TYPICAL SECTIONS OF IMPROVEMENT
6 - 8	SPECIAL DETAILS
9 - 10	TEMPORARY EROSION CONTROL DETAILS
11 - 15	QUANTITIES
16	SUMMARY OF QUANTITIES AND REVISIONS

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
GR-6	GUARDRAIL DETAILS	11-07-19
GR-7	GUARDRAIL DETAILS	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	11-07-19
MB-1	MAILBOX DETAILS	11-07-19
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	11-18-04
PM-1	PAVEMENT MARKING DETAILS	02-27-14
PU-1	DETAILS OF PIPE UNDERDRAIN	06-01-17
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	12-08-16
SI-1	DETAILS OF SPECIAL ITEMS	11-07-19
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	10-25-18
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-07-19
TEC-2	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-3	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-4	TEMPORARY EROSION CONTROL DEVICES	11-03-94
		07-26-12

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12/3/19				6	ARK.			
12/19/19								
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2 GOVERNING SPECIFICATIONS AND GENERAL NOTES



GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
100-4	DEPARTMENT NAME CHANGE
102-2	ISSUANCE OF PROPOSALS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
306-1	QUALITY CONTROL AND ACCEPTANCE
400-1	TACK COATS
400-4	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6	LIQUID ANTI-STRIP ADDITIVE
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
505-1	PORTLAND CEMENT CONCRETE DRIVEWAY
600-2	INCIDENTAL CONSTRUCTION
603-1	LANE CLOSURE NOTIFICATION
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
617-1	GUARDRAIL TERMINAL (TYPE 2)
620-1	MULCH COVER
JOB 090474	BIDDING REQUIREMENTS AND CONDITIONS
JOB 090474	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 090474	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 090474	CARGO PREFERENCE ACT REQUIREMENTS
JOB 090474	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 090474	EXTENSION FOR PIPE CULVERTS
JOB 090474	FLEXIBLE BEGINNING OF WORK
JOB 090474	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 090474	MANDATORY ELECTRONIC CONTRACT
JOB 090474	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 090474	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 090474	PARTNERING REQUIREMENTS
JOB 090474	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 090474	RUMBLE STRIPS
JOB 090474	SHORING FOR CULVERTS
JOB 090474	SOIL STABILIZATION
JOB 090474	STORM WATER POLLUTION PREVENTION PLAN
JOB 090474	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 090474	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
JOB 090474	TRIANGULAR SILT DIKE
JOB 090474	UTILITY ADJUSTMENTS
JOB 090474	VALUE ENGINEERING
JOB 090474	WARM MIX ASPHALT
JOB 090474	WELLHEAD PROTECTION

GENERAL NOTES

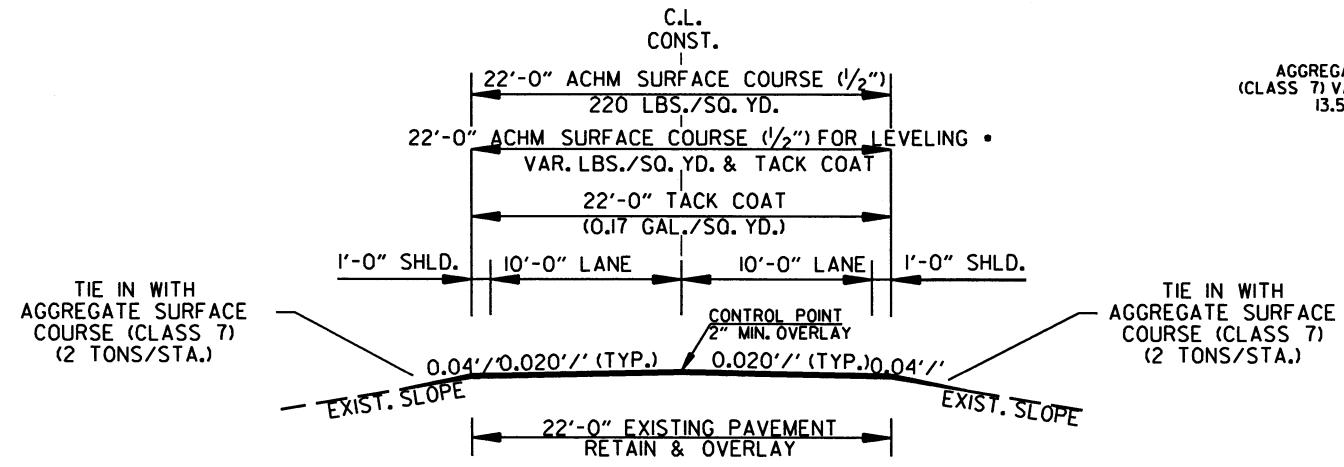
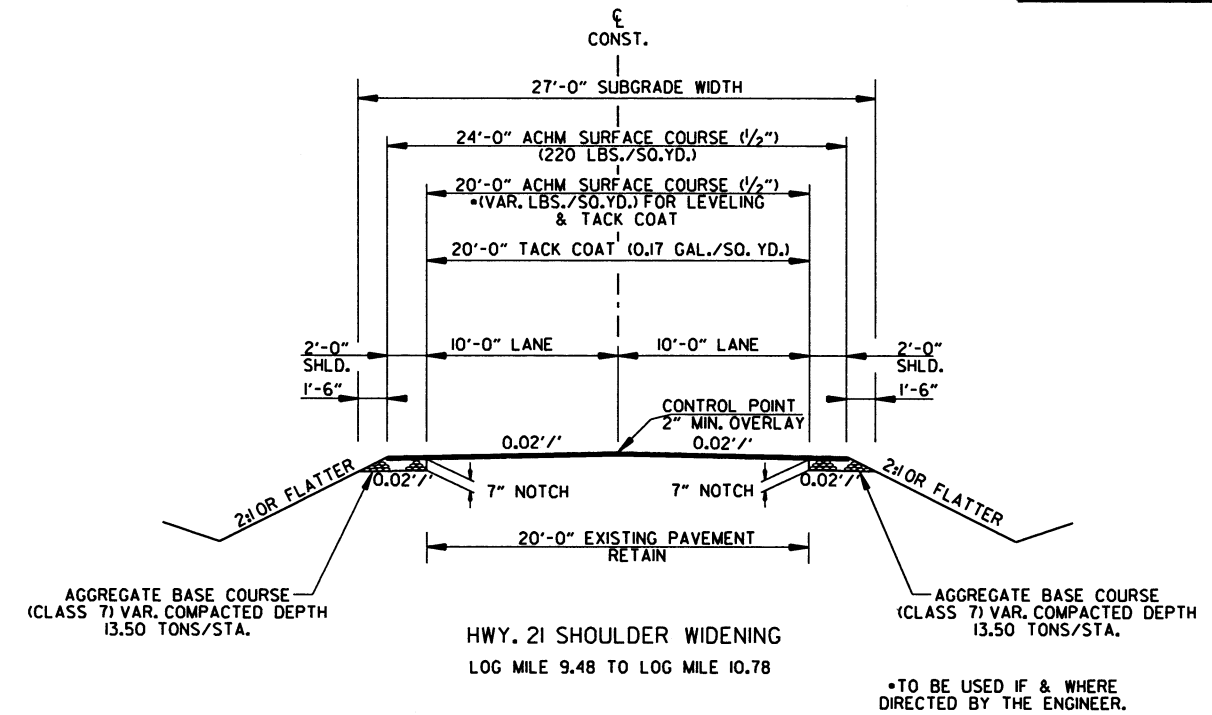
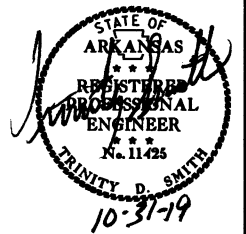
1. THE CONTRACTOR SHALL PROVIDE 2-WAY RADIO COMMUNICATIONS FOR FLAG PERSONS.
2. STRINGLINE WILL BE USED TO MAINTAIN A UNIFORM HORIZONTAL ALIGNMENT.
3. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE PERSPECTIVE OWNER AS PER AGREEMENT WITH SUCH OWNERS.
4. ANY EQUIPMENT 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.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. THE CONTRACTOR SHALL FURNISH AND MAINTAIN STD. W8-1 "BUMP" SIGNS (30" X 30") WITH BLACK LEGEND ON ORANGE BACKGROUND AT ALL TRANSVERSE JOINTS EXPOSED TO TRAFFIC.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
8. THE CONTRACTOR SHALL FURNISH AND MAINTAIN STD. W8-11 "UNEVEN LANES" SIGNS (48" X 48") WITH BLACK LEGEND ON ORANGE BACKGROUND AT ALL LONGITUDINAL JOINTS DURING MILLING AND PAVING OPERATIONS.
9. BRIDGE ANALYSIS SHALL BE REQUIRED PER SECTION 105.14 OF THE STANDARD SPECIFICATIONS.
10. ASPHALT DEBRIS RESULTING FROM THE PREPARATORY WORK SHALL BE REMOVED FROM THE PROJECT. THIS MATERIAL SHALL NOT BE BURIED WITHIN THE RIGHT OF WAY.
11. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
12. THE EXISTING ASPHALT 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 PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
13. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

10/18/2019

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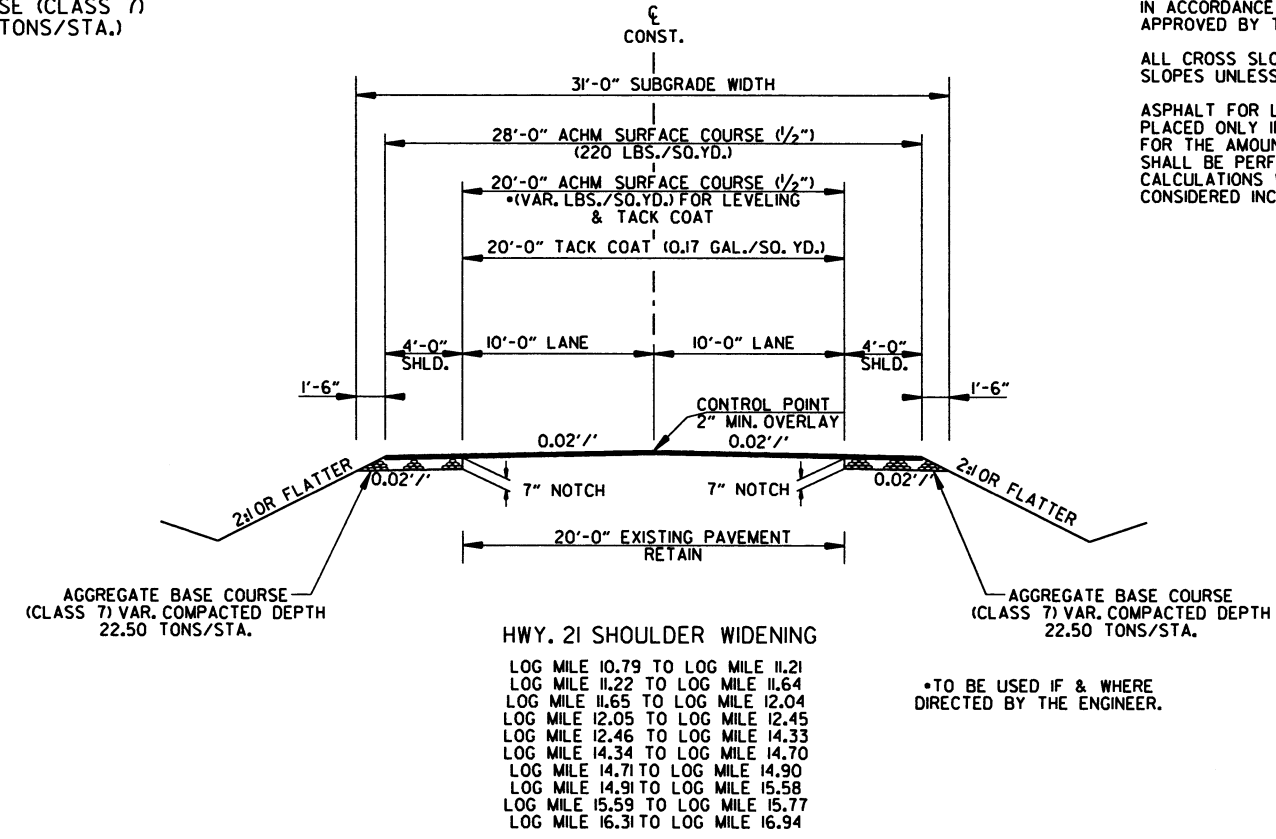
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				JOB NO.	090474		5	16

② TYPICAL SECTIONS OF IMPROVEMENT



2 LANE OPEN SHOULDER OVERLAY
 LOG MILE 10.78 TO LOG MILE 10.79
 LOG MILE 11.21 TO LOG MILE 11.22
 LOG MILE 11.64 TO LOG MILE 11.65
 LOG MILE 12.04 TO LOG MILE 12.05
 LOG MILE 12.45 TO LOG MILE 12.46
 LOG MILE 14.33 TO LOG MILE 14.34
 LOG MILE 14.70 TO LOG MILE 14.71
 LOG MILE 14.90 TO LOG MILE 14.91
 LOG MILE 15.58 TO LOG MILE 15.59

- TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
- SHOULDER WIDENING WILL NOT OCCUR AT BOX CULVERT LOCATIONS



HWY. 21 SHOULDER WIDENING
 LOG MILE 10.79 TO LOG MILE 11.21
 LOG MILE 11.22 TO LOG MILE 11.64
 LOG MILE 11.65 TO LOG MILE 12.04
 LOG MILE 12.05 TO LOG MILE 12.45
 LOG MILE 12.46 TO LOG MILE 14.33
 LOG MILE 14.34 TO LOG MILE 14.70
 LOG MILE 14.71 TO LOG MILE 14.90
 LOG MILE 14.91 TO LOG MILE 15.58
 LOG MILE 15.59 TO LOG MILE 15.77
 LOG MILE 16.31 TO LOG MILE 16.94

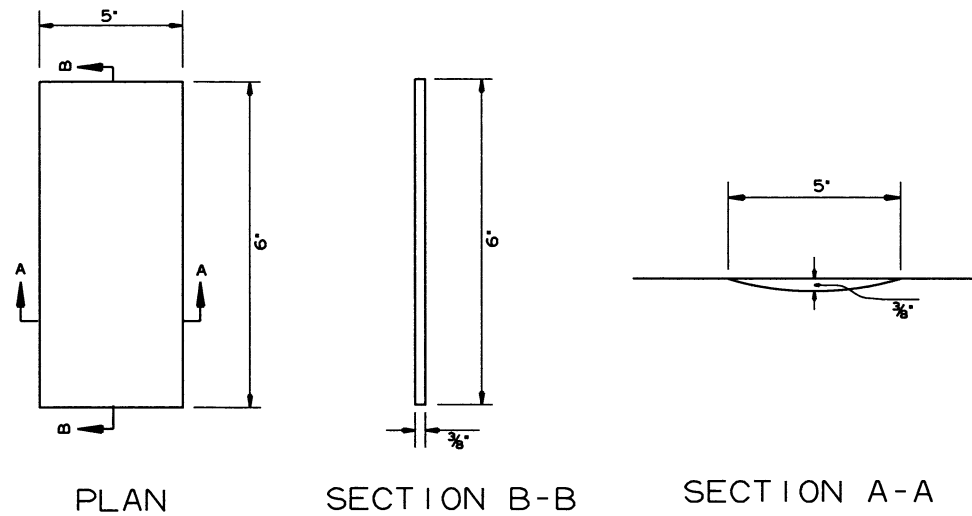
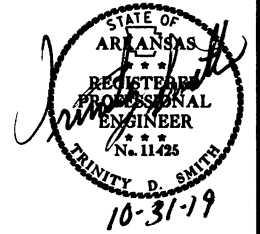
- TO BE USED IF & WHERE DIRECTED BY THE ENGINEER.

NOTES:
 LONGITUDINAL JOINTS ARE TO BE PLACED PER TYPICAL SECTION IN ACCORDANCE WITH SECTION 410.07 UNLESS OTHERWISE APPROVED BY THE ENGINEER.
 ALL CROSS SLOPES ARE TO MATCH EXISTING CROSS SLOPES UNLESS OTHERWISE APPROVED BY THE ENGINEER.
 ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

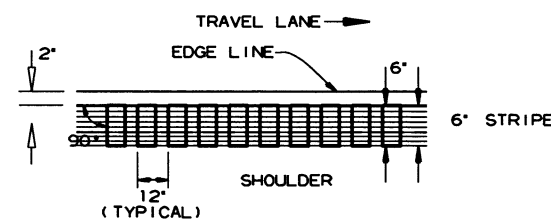
TYPICAL SECTIONS OF IMPROVEMENT

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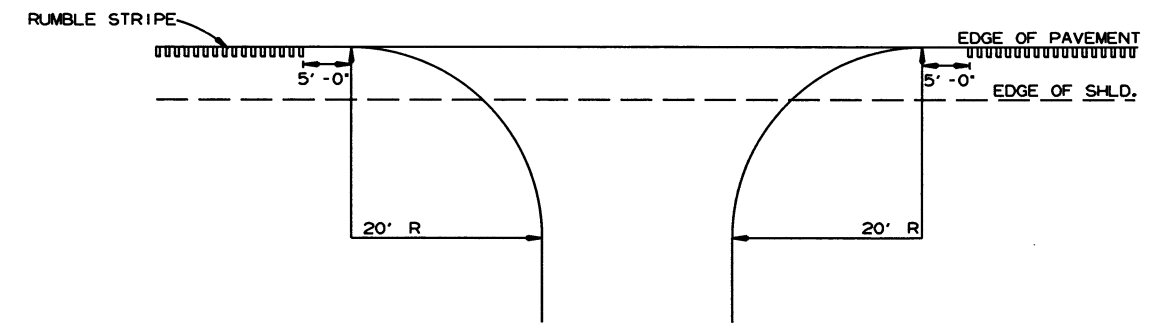
② SPECIAL DETAILS



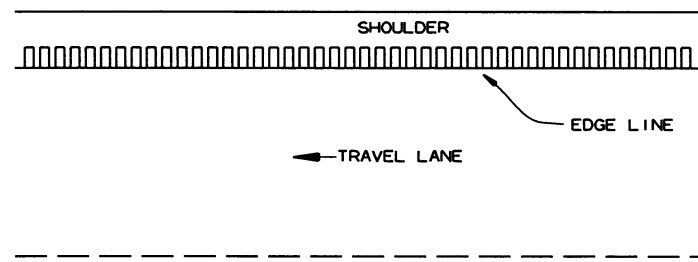
DETAILS OF RUMBLE STRIPE



LOCATION PLAN OF RUMBLE STRIPE
LEFT OR RIGHT SHOULDER



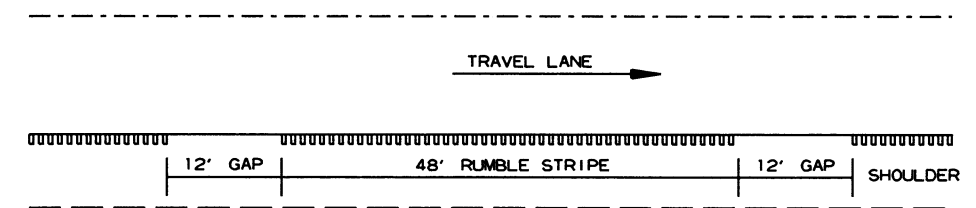
DETAIL FOR RUMBLE STRIPE GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPES SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPES SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. RUMBLE STRIPES SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPES HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPES HAVE NOT BEEN CONSTRUCTED.
4. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 6' LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

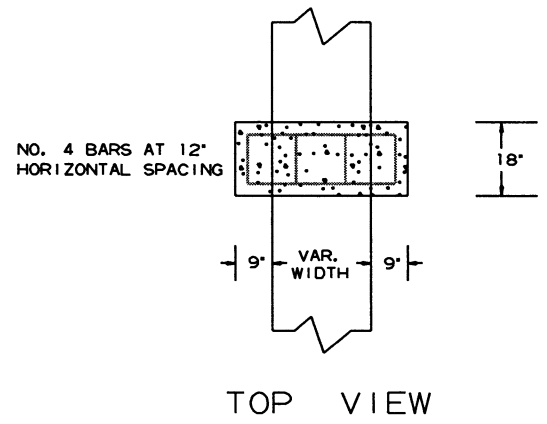
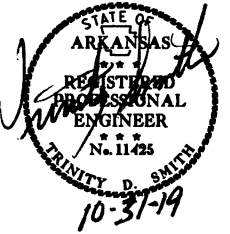
DETAIL FOR GAP PATTERN RUMBLE STRIPE

9/4/2019

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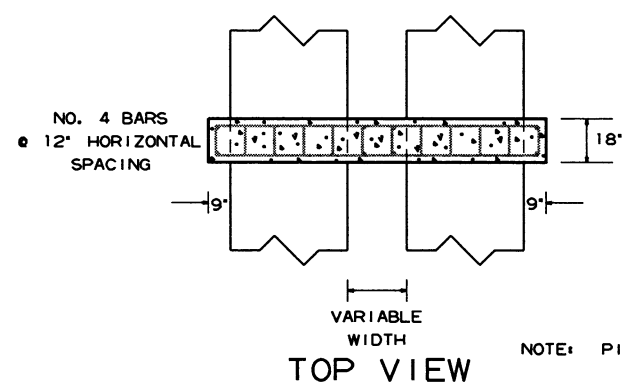
2 SPECIAL DETAILS



TOP VIEW

18"

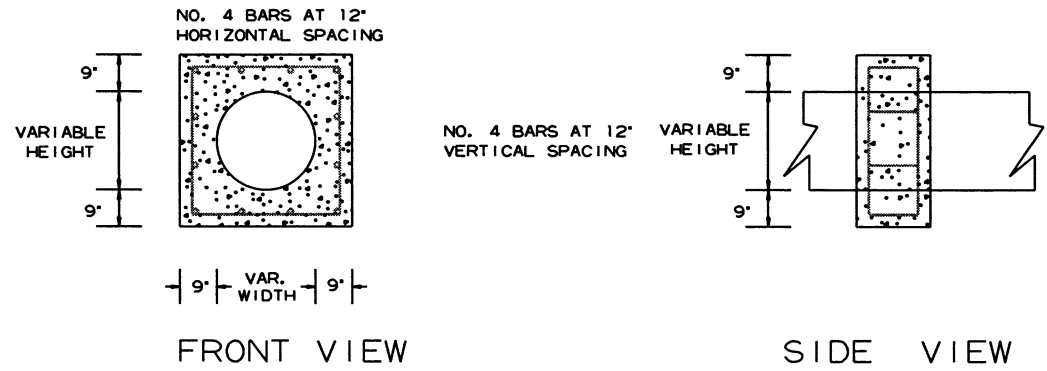
MIN 3' COVER



TOP VIEW

NOTE: PIPE COLLAR TO BE UTILIZED AS APPROVED BY THE ENGINEER.

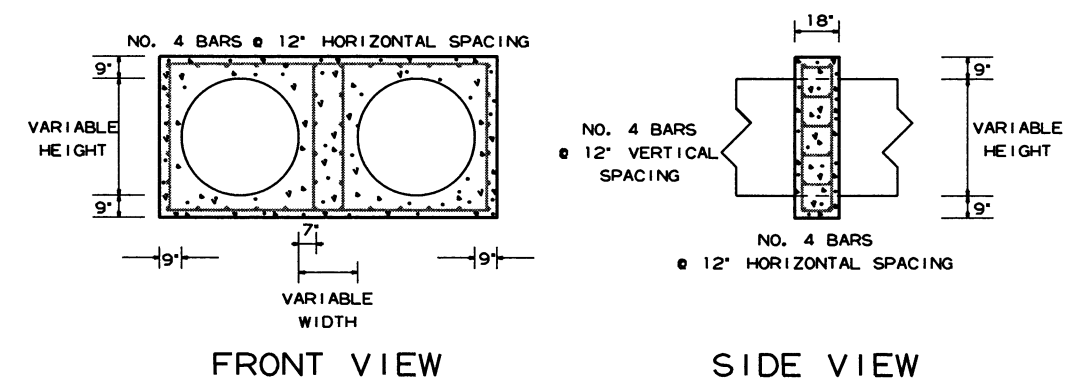
MIN. 3' COVER



FRONT VIEW

SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL

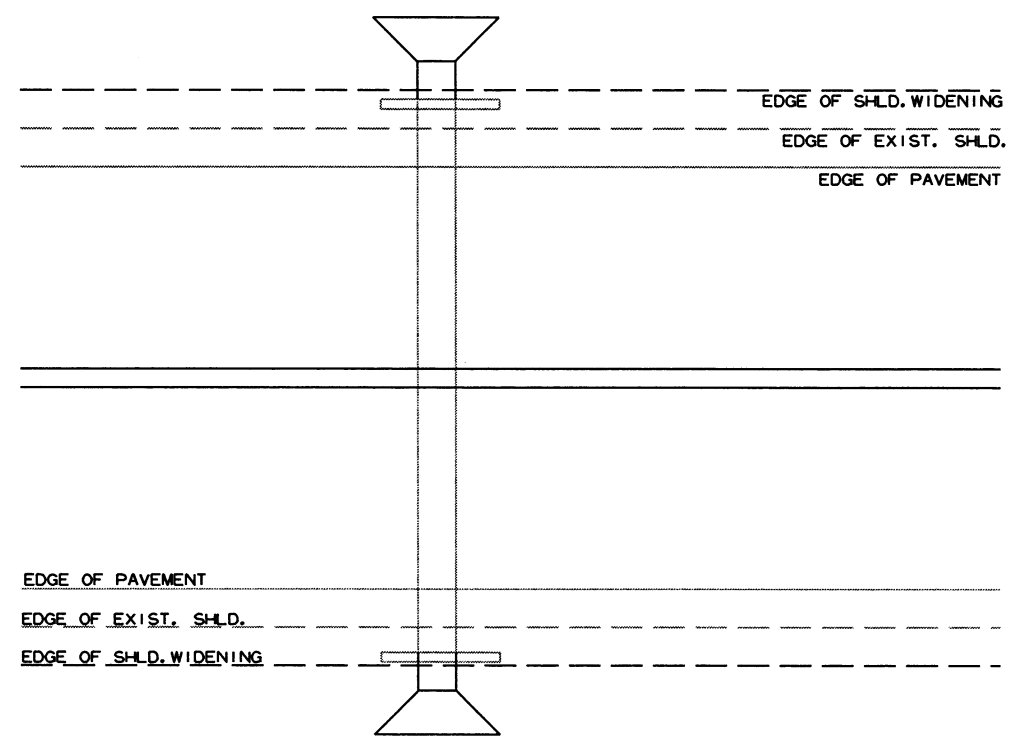


FRONT VIEW

SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL

REMOVE HEADWALLS AND EXTEND 4' LT. & 4' RT. WITH A TOTAL OF 16' PER SITE



DETAIL OF CULVERT EXTENSION WITH HEADWALL

LOG MILE LOCATIONS FOR PIPE CULVERTS

9.58	10.36	12.63	13.05	14.01	15.27
9.76	10.54	12.78	13.23	14.54	15.40
9.86	10.82	12.82	13.37	14.57	15.40
10.17	10.96	12.93	13.80	15.08	14.57

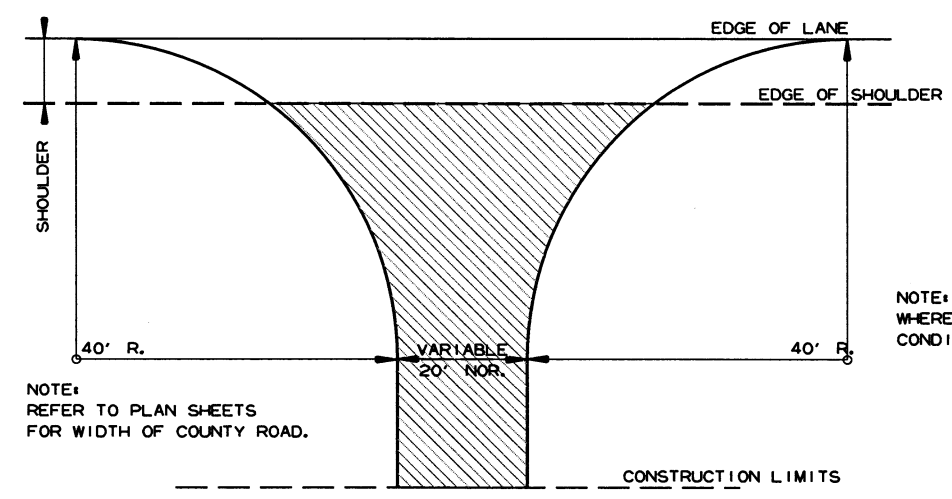
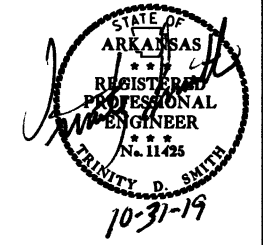
SPECIAL DETAILS

9/16/2019

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2 SPECIAL DETAILS

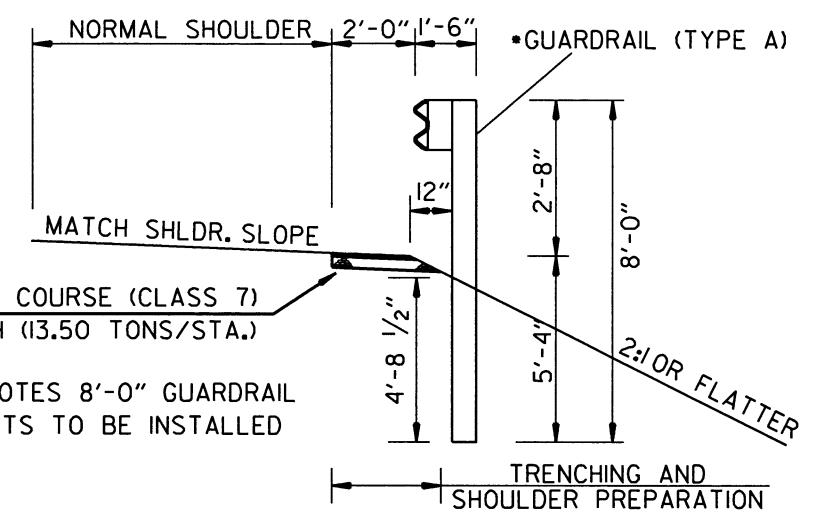


NOTE: REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

NOTE: TURNOUTS SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH

DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



AGGREGATE BASE COURSE (CLASS 7) VAR. COMP. DEPTH (13.50 TONS/STA.)

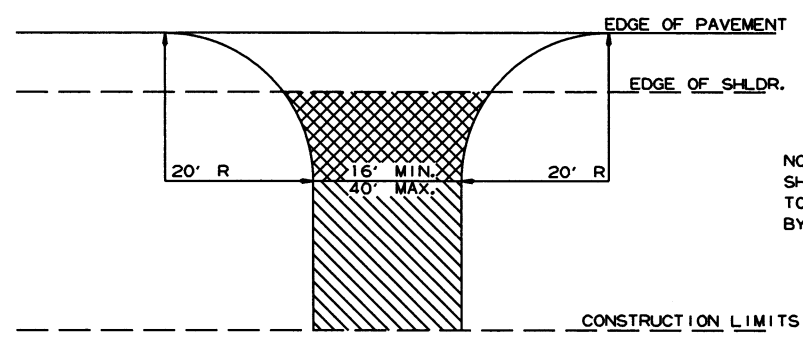
• DENOTES 8'-0" GUARDRAIL POSTS TO BE INSTALLED

SECTION DETAIL FOR GUARDRAIL

NOTE: REFER TO STANDARD DRAWINGS GR-8, GR-8A, GR-9, GR-9A, GR-10, GR-11, & GR-12 FOR ADDITIONAL INFORMATION.

LOG MILE 2.41 TO LOG MILE 2.47 LT & RT
LOG MILE 2.50 TO LOG MILE 2.53 LT & RT

LOG MILE 6.26 TO LOG MILE 6.32 LT & RT
LOG MILE 6.35 TO LOG MILE 6.41 LT & RT



NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ASPHALT CONCRETE HOT MIX SURFACE COURSE (220 LBS. PER SQ. YD.) AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR 6" CONCRETE IF CONCRETE DRIVE EXIST.

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

DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

9/16/2019

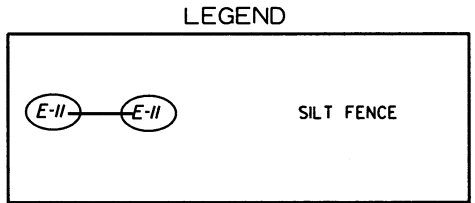
R090474.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		9	16
				JOB NO.		090474		

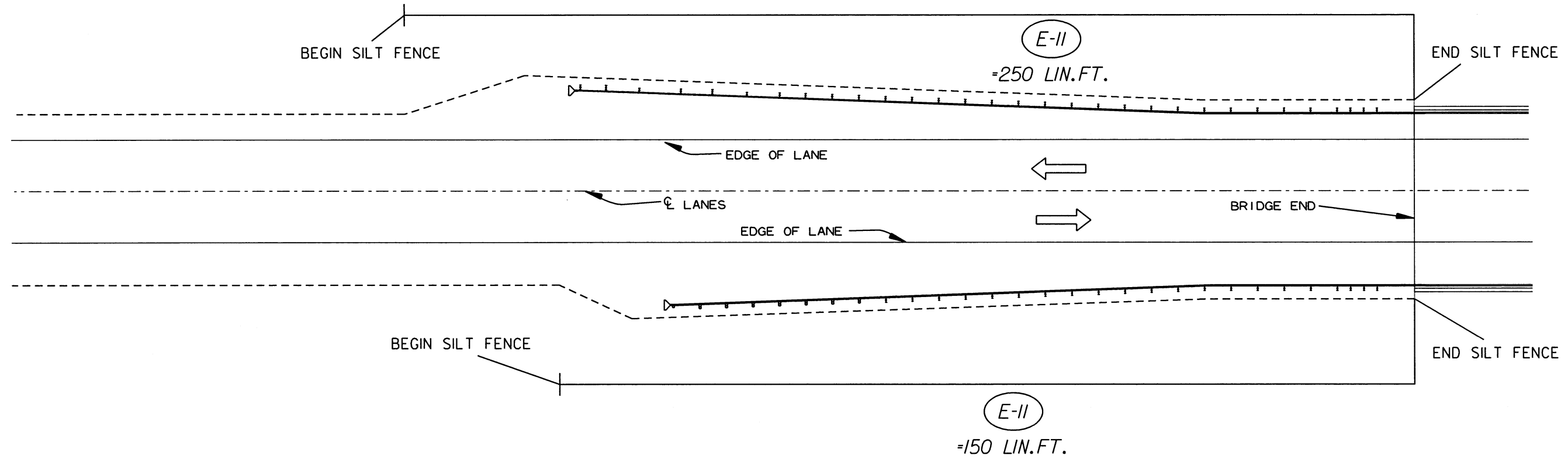
② TEMPORARY EROSION CONTROL DETAILS



DATE OF REVISION	REVISION



NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



TYPICAL SILT FENCE INSTALLATION FOR WIDENING FOR GUARDRAIL AT BRIDGE ENDS

10/18/2019
R090474.DGN

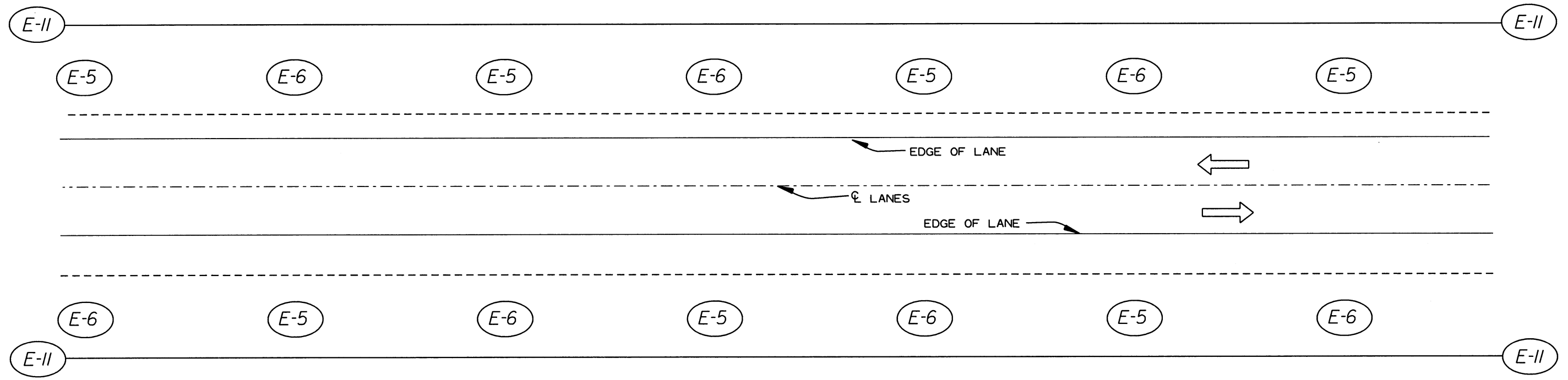
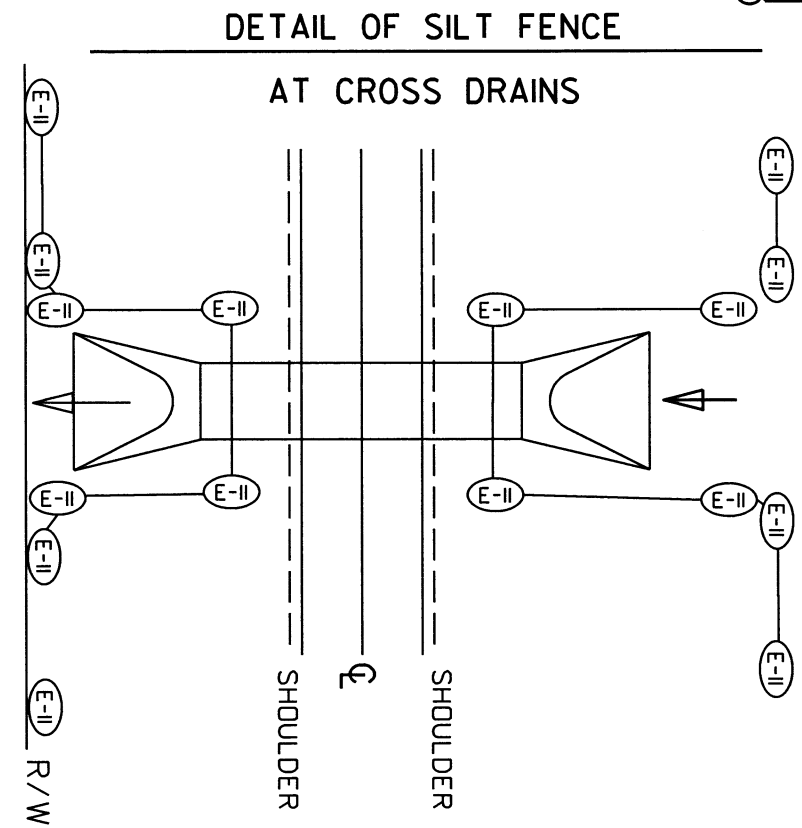
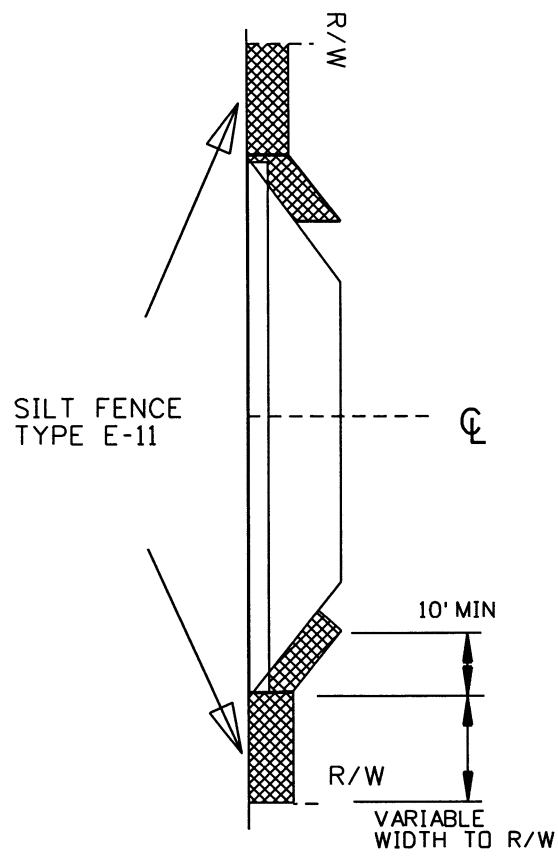
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 090474							10	16

DATE OF REVISION	REVISION

LEGEND

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

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

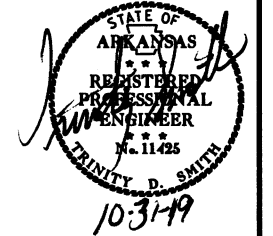


TYPICAL EROSION CONTROL INSTALLATION FOR SHOULDER WIDENING

10/18/2019 R090474.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. 090474	11 16

② QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	ENTIRE PROJECT	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS
			LIN. FT. - EACH		NO.	SQ. FT.		
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	32.0		
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	32.0		
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	32.0		
W20-1	ROAD WORK AHEAD	48"x48"	16	16	16	256.0		
G20-2	END ROAD WORK	48"x24"	18	18	18	144.0		
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2	2	20.0		
R4-1	DO NOT PASS	24"x30"	13	13	13	65.0		
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	18.0		
W8-1	BUMP	30"x30"	2	2	2	12.5		
R2-1	SPEED LIMIT 45 MPH	24"x30"	2	2	2	10.0		
	VERTICAL PANELS		235	235			235	
	TRAFFIC DRUMS		235	235				235
TOTALS:						621.5	235	235

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	ENTIRE JOB (L.M. 0.00-16.94)	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
			TYPE II (YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH	LIN. FT.	EACH	LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS	146150	146150			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	457		457		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	73076			73076	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	73076				73076
TOTALS:		146150	457	73076	73076

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

NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090474		12	16

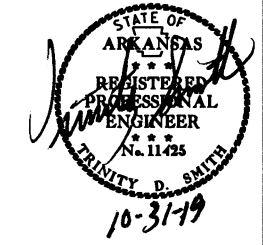
MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS	
		(SINGLE) EACH	(DOUBLE) EACH
ENTIRE PROJECT	41	37	2
TOTALS:	41	37	2

CLEARING & GRUBBING

LOG MILE	LOG MILE	LOCATION	CLEARING STATION	GRUBBING STATION
9.48	16.94	LT AND RT OF MAIN LANES	98	98
TOTAL:			98	98

2 QUANTITIES



EARTHWORK

LOG MILE	LOG MILE	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION CU. YD.	COMPACTED EMBANKMENT	* SOIL STABILIZATION TON
9.48	15.77	HWY. 21 SHOULDER WIDENING	6648	1662	
16.31	16.94	HWY. 21 SHOULDER WIDENING	666	166	
9.48	16.94	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			500
TOTALS:			7314	1828	500

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

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

TRENCHING AND SHOULDER PREPARATION

LOG MILE	LOG MILE	LOCATION / DESCRIPTION	TRENCHING AND SHOULDER PREPARATION STATIONS
2.41	2.47	HWY. 21 LT. & RT.	3
2.50	2.53	HWY. 21 LT. & RT.	2
6.26	6.32	HWY 21 LT. & RT.	3
6.35	6.41	HWY 21 LT. & RT.	3
TOTAL:			11

REMOVAL AND DISPOSAL OF ITEMS

LOG MILE	LOG MILE	LOCATION	GUARDRAIL LIN. FT.
2.42	2.47	HWY. 21 RT (BR. 03308)	200
2.45	2.47	HWY. 21 LT (BR. 03308)	75
2.50	2.51	HWY. 21 RT (BR. 03308)	75
2.50	2.52	HWY. 21 LT (BR. 03308)	100
6.27	6.32	HWY. 21 RT (BR. 03309)	200
6.30	6.32	HWY. 21 LT (BR. 03309)	75
6.35	6.37	HWY. 21 RT (BR. 03309)	75
6.35	6.40	HWY. 21 LT (BR. 03309)	200
15.97	16.02	HWY. 21 RT (BR. 07153)	200
16.00	16.02	HWY. 21 LT (BR. 07153)	75
16.06	16.08	HWY. 21 RT (BR. 07153)	75
16.06	16.11	HWY. 21 LT (BR. 07153)	200
TOTAL:			1550

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

GUARDRAIL

LOG MILE	LOG MILE	LOCATION	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2)
2.42	2.47	HWY. 21 RT (BR. 03308)	200		1
2.45	2.47	HWY. 21 LT (BR. 03308)	75		1
2.50	2.51	HWY. 21 RT (BR. 03308)	100		1
2.50	2.52	HWY. 21 LT (BR. 03308)	75		1
6.27	6.32	HWY. 21 RT (BR. 03309)	200		1
6.30	6.32	HWY. 21 LT (BR. 03309)	75		1
6.35	6.37	HWY. 21 RT (BR. 03309)	200		1
6.35	6.40	HWY. 21 LT (BR. 03309)	75		1
15.97	16.02	HWY. 21 RT (BR. 07153)	200	1	1
16.00	16.02	HWY. 21 LT (BR. 07153)	75	1	1
16.06	16.08	HWY. 21 RT (BR. 07153)	200	1	1
16.06	16.11	HWY. 21 LT (BR. 07153)	75	1	1
TOTALS:			1550	4	12

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL							
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	TRIANGULAR SILT DIKE	SAND BAG DITCH CHECKS (E-5) BAG	ROCK DITCH CHECKS (E-6) CU.YD.	SILT FENCE (E-11) LIN. FT.	*SEDIMENT REMOVAL & DISPOSAL CU. YD.
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	ACRE	ACRE	M.GAL.	LIN. FT.	BAG
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			10.79	21.58	10.79	1100.6	10.79	10.79	10.79	220.1	8000	880	120	5000	265
TOTALS:			10.79	21.58	10.79	1100.6	10.79	10.79	10.79	220.1	8000	880	120	5000	265

BASIS OF ESTIMATE:
 LIME2 TONS / ACRE OF SEEDING
 WATER102.0 M.G. / ACRE OF SEEDING
 WATER20.4 M.G. / ACRE OF TEMPORARY SEEDING
 SAND BAG DITCH CHECKS22 BAGS / LOCATION
 ROCK DITCH CHECKS3 CU.YD./LOCATION

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

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

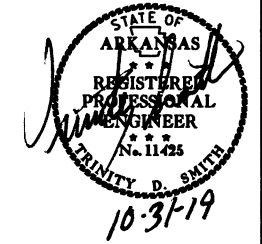
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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090474		13	16

QUANTITIES



SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100
TOTAL:	100

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

CENTERLINE RUMBLE STRIPES IN ASPHALT ROADWAYS

LOG MILE	LOG MILE	LOCATION	* CENTERLINE RUMBLE STRIPES IN ASPHALT ROADWAYS LIN.FT.
9.48	15.77	HWY. 21	33211
16.31	16.94	HWY. 21	3326
TOTAL:			36537

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	500
TOTAL:	500

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

DRIVEWAYS & TURNOUTS (P.C.C.)

LOG MILE	SIDE	LOCATION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY
			FEET	SQ. YD.
16.51	RT	HWY. 21	24	77.90
TOTAL:				77.90

RUMBLE STRIPES IN ASPHALT SHOULDERS

LOG MILE	LOG MILE	LOCATION	* RUMBLE STRIPES IN ASPHALT SHOULDERS LIN.FT.
0.00	2.47	HWY. 21 - LEFT SHOULDER	12610
0.00	2.47	HWY. 21 - RIGHT SHOULDER	12286
2.50	6.32	HWY. 21 - RIGHT SHOULDER	19103
2.50	6.32	HWY. 21 - LEFT SHOULDER	19458
6.35	6.78	HWY. 21 - LEFT SHOULDER	2270
6.35	6.78	HWY. 21 - RIGHT SHOULDER	2162
6.80	16.02	HWY. 21 - LEFT SHOULDER	48214
6.80	16.02	HWY. 21 - RIGHT SHOULDER	48682
16.06	16.94	HWY. 21 - LEFT SHOULDER	4646
16.06	16.94	HWY. 21 - RIGHT SHOULDER	4646
TOTAL:			174077

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	424	848
TOTALS:	424	848

BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

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

STRUCTURES

LOG MILE	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III)				FLARED END SECTIONS FOR R.C. PIPE CULVERTS				STD. DWG. NOS.	
		24"	30"	36"	48"	24"	30"	36"	48"		
		LIN. FT.				EACH					
9.58	EXTEND 24" x 62' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
9.76	EXTEND 24" x 54' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
9.86	EXTEND 24" x 44' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
10.17	EXTEND 24" x 54' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
10.36	EXTEND 24" x 42' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
10.54	EXTEND 24" x 46' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
10.82	EXTEND 24" x 38' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
10.96	EXTEND 42" x 58' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
12.63	EXTEND 48" x 44' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
12.78	EXTEND 48" x 42' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
12.82	EXTEND 24" x 46' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
12.93	EXTEND 42" x 42' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
13.05	EXTEND 24" x 38' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
13.23	EXTEND 42" x 38' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
13.37	EXTEND 24" x 50' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
13.80	EXTEND 42" x 62' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
14.01	EXTEND 42" x 58' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
14.54	EXTEND 48" x 38' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
14.57	EXTEND 48" x 38' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
15.08	EXTEND 48" x 38' PIPE CULVERT LT. & RT.			16				2		PCC-1, FES-1, FES-2	
15.27	EXTEND 36" x 38' PIPE CULVERT LT. & RT.		16					2		PCC-1, FES-1, FES-2	
15.40	EXTEND 30" x 38' PIPE CULVERT LT. & RT.		16				2			PCC-1, FES-1, FES-2	
15.47	EXTEND 24" x 42' PIPE CULVERT LT. & RT.	16				2				PCC-1, FES-1, FES-2	
TOTALS:		176	16	16	80	80	22	2	2	10	10

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

COLD MILLING ASPHALT PAVEMENT

LOG MILE	LOG MILE	LOCATION	AVG. WIDTH FEET	COLD MILLING ASPHALT PAVEMENT SQ. YD.
9.46	9.48	BEGIN OF SHOULDER WIDENING	20.00	234.67
16.00	16.02	BRIDGE 07153	20.00	234.67
16.06	16.08	BRIDGE 07153	20.00	234.67
16.94	16.96	END OF SHOULDER WIDENING	20.00	234.67
TOTAL:				938.68

NOTE: AVERAGE MILLING DEPTH 1".

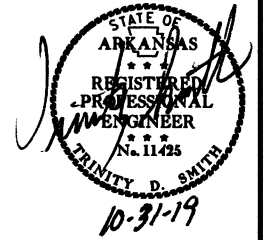
NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

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				6	ARK.			
				JOB NO.	090474		14	16

② QUANTITIES



DRIVEWAYS & TURNOUTS (ACHM) (BOX 1 OF 2)

LOG MILE	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		TACK COAT	
				FEET	SQ. YD.	TON	GALLONS/SQ. YD.
9.58	LT	HWY. 21	16	16.00	1.76	0.17	2.72
9.59	RT	HWY. 21	30	61.90	6.81	0.17	10.52
9.91	RT	HWY. 21	16	16.00	1.76	0.17	2.72
9.92	LT	HWY. 21	16	16.00	1.76	0.17	2.72
9.93	RT	HWY. 21	16	16.00	1.76	0.17	2.72
9.94	LT	HWY. 21	16	16.00	1.76	0.17	2.72
10.13	LT	HWY. 21	16	16.00	1.76	0.17	2.72
10.18	LT	HWY. 21	16	16.00	1.76	0.17	2.72
10.35	RT	HWY. 21	16	16.00	1.76	0.17	2.72
10.36	LT	HWY. 21	16	16.00	1.76	0.17	2.72
10.56	RT	HWY. 21	20	17.78	1.96	0.17	3.02
10.74	LT	HWY. 21	20	17.78	1.96	0.17	3.02
10.76	RT	HWY. 21	20	17.78	1.96	0.17	3.02
10.78	RT	HWY. 21	16	16.00	1.76	0.17	2.72
10.92	LT	HWY. 21	30	61.90	6.81	0.17	10.52
10.92	RT	HWY. 21	16	16.00	1.76	0.17	2.72
10.93	RT	HWY. 21	16	16.00	1.76	0.17	2.72
10.96	LT	HWY. 21	16	16.00	1.76	0.17	2.72
10.98	RT	HWY. 21	16	16.00	1.76	0.17	2.72
11.02	RT	HWY. 21	16	16.00	1.76	0.17	2.72
11.11	RT	HWY. 21	16	16.00	1.76	0.17	2.72
11.12	LT	HWY. 21	16	16.00	1.76	0.17	2.72
11.40	LT	HWY. 21	20	17.78	1.96	0.17	3.02
11.40	RT	HWY. 21	16	16.00	1.76	0.17	2.72
11.53	RT	HWY. 21	30	61.90	6.81	0.17	10.52
11.53	LT	HWY. 21	16	16.00	1.76	0.17	2.72
11.64	LT	HWY. 21	16	16.00	1.76	0.17	2.72
11.85	LT	HWY. 21	16	16.00	1.76	0.17	2.72
11.86	RT	HWY. 21	16	16.00	1.76	0.17	2.72
11.89	RT	HWY. 21	20	17.78	1.96	0.17	3.02
11.94	LT	HWY. 21	16	16.00	1.76	0.17	2.72
12.00	LT	HWY. 21	16	16.00	1.76	0.17	2.72
12.03	RT	HWY. 21	16	16.00	1.76	0.17	2.72
12.13	RT	HWY. 21	16	16.00	1.76	0.17	2.72
12.14	LT	HWY. 21	16	16.00	1.76	0.17	2.72
12.16	LT	HWY. 21	16	16.00	1.76	0.17	2.72
12.21	LT	HWY. 21	16	16.00	1.76	0.17	2.72
12.34	RT	HWY. 21	20	17.78	1.96	0.17	3.02
12.43	LT	HWY. 21	16	16.00	1.76	0.17	2.72
12.47	LT	HWY. 21	16	16.00	1.76	0.17	2.72
12.53	RT	HWY. 21	16	16.00	1.76	0.17	2.72
12.77	LT	HWY. 21	16	16.00	1.76	0.17	2.72
12.93	RT	HWY. 21	16	37.01	4.07	0.17	6.29
12.93	LT	HWY. 21	16	16.00	1.76	0.17	2.72
13.05	LT	HWY. 21	16	16.00	1.76	0.17	2.72
13.21	LT	HWY. 21	16	16.00	1.76	0.17	2.72
13.31	RT	HWY. 21	40	79.68	8.76	0.17	13.55
13.33	LT	HWY. 21	16	16.00	1.76	0.17	2.72
SUBTOTALS (BOX 1 OF 2):				1001.07	110.14		170.16

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

DRIVEWAYS & TURNOUTS (ACHM) (BOX 2 OF 2)

LOG MILE	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		TACK COAT	
				FEET	SQ. YD.	TON	GALLONS/SQ. YD.
13.38	RT	HWY. 21	20	17.78	1.96	0.17	3.02
13.39	RT	HWY. 21	20	17.78	1.96	0.17	3.02
13.47	RT	HWY. 21	16	16.00	1.76	0.17	2.72
13.52	RT	HWY. 21	16	16.00	1.76	0.17	2.72
13.53	LT	HWY. 21	16	16.00	1.76	0.17	2.72
13.65	LT	HWY. 21	16	16.00	1.76	0.17	2.72
13.89	LT	HWY. 21	16	16.00	1.76	0.17	2.72
13.97	RT	HWY. 21	16	16.00	1.76	0.17	2.72
13.98	LT	HWY. 21	16	16.00	1.76	0.17	2.72
13.99	LT	HWY. 21	16	16.00	1.76	0.17	2.72
14.05	LT	HWY. 21	16	16.00	1.76	0.17	2.72
14.09	RT	HWY. 21	16	16.00	1.76	0.17	2.72
14.24	LT	HWY. 21	16	16.00	1.76	0.17	2.72
14.25	LT	HWY. 21	30	171.19	18.83	0.17	29.10
14.37	RT	HWY. 21	16	16.00	1.76	0.17	2.72
14.38	LT	HWY. 21	16	16.00	1.76	0.17	2.72
14.55	LT	HWY. 21	16	16.00	1.76	0.17	2.72
14.55	LT	HWY. 21	16	16.00	1.76	0.17	2.72
14.59	RT	HWY. 21	16	16.00	1.76	0.17	2.72
14.71	LT	HWY. 21	16	16.00	1.76	0.17	2.72
14.71	RT	HWY. 21	16	16.00	1.76	0.17	2.72
14.88	LT	HWY. 21	16	16.00	1.76	0.17	2.72
14.91	RT	HWY. 21	16	20.44	2.25	0.17	3.47
14.92	LT	HWY. 21	16	16.00	1.76	0.17	2.72
15.09	LT	HWY. 21	16	16.00	1.76	0.17	2.72
15.13	RT	HWY. 21	16	16.00	1.76	0.17	2.72
15.27	LT	HWY. 21	30	61.90	6.81	0.17	10.52
15.32	RT	HWY. 21	16	16.00	1.76	0.17	2.72
15.50	RT	HWY. 21	20	17.78	1.96	0.17	3.02
15.55	LT	HWY. 21	16	16.00	1.76	0.17	2.72
15.57	LT	HWY. 21	16	16.00	1.76	0.17	2.72
15.58	LT	HWY. 21	20	17.78	1.96	0.17	3.02
16.28	LT	HWY. 21	16	37.01	4.07	0.17	6.29
16.33	LT	HWY. 21	16	16.00	1.76	0.17	2.72
16.37	RT	HWY. 21	16	16.00	1.76	0.17	2.72
16.38	RT	HWY. 21	16	16.00	1.76	0.17	2.72
16.46	RT	HWY. 21	16	16.00	1.76	0.17	2.72
16.48	LT	HWY. 21	16	16.00	1.76	0.17	2.72
16.49	LT	HWY. 21	16	16.00	1.76	0.17	2.72
16.53	LT	HWY. 21	16	16.00	1.76	0.17	2.72
16.54	RT	HWY. 21	20	17.78	1.96	0.17	3.02
16.69	RT	HWY. 21	16	16.00	1.76	0.17	2.72
16.70	LT	HWY. 21	20	17.78	1.96	0.17	3.02
SUBTOTALS (BOX 2 OF 2):				925.22	101.80		157.26
TOTALS:				1926.29	211.94		327.42

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

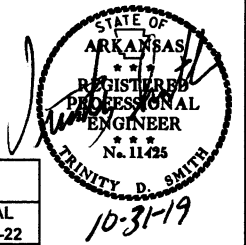
9/18/2019

R090474.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090474		15	16

2 QUANTITIES



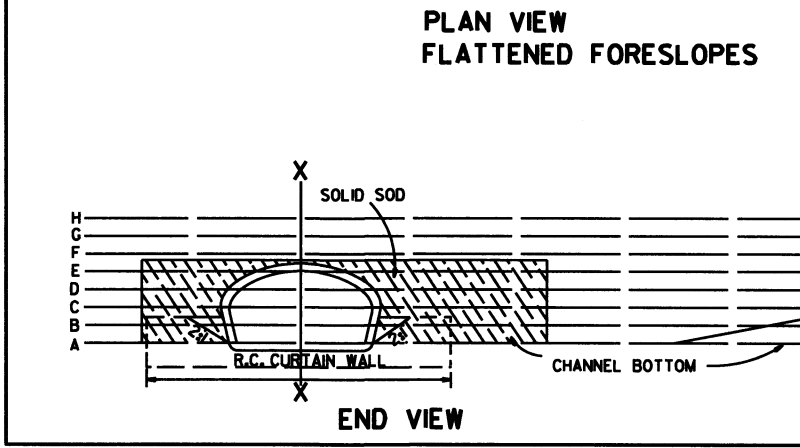
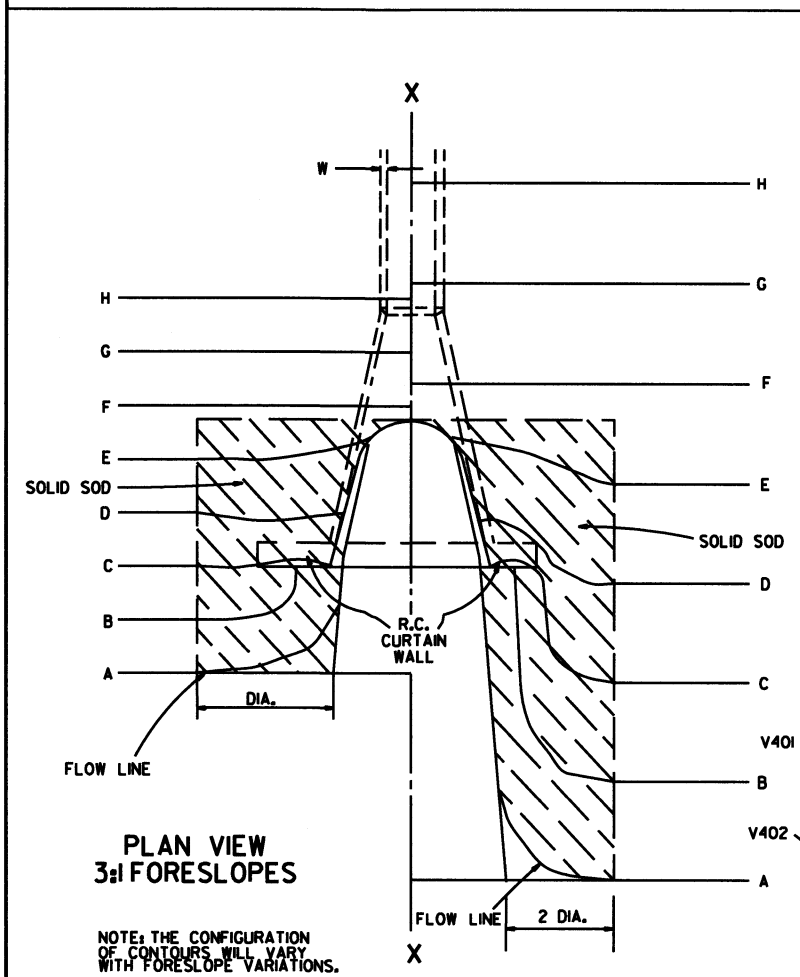
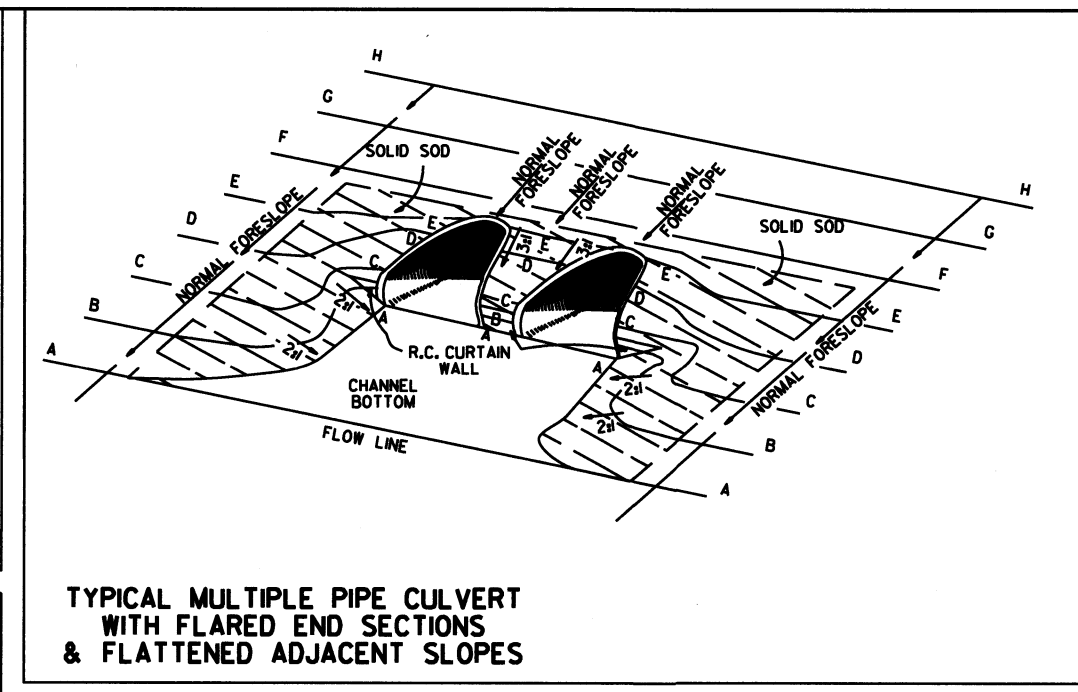
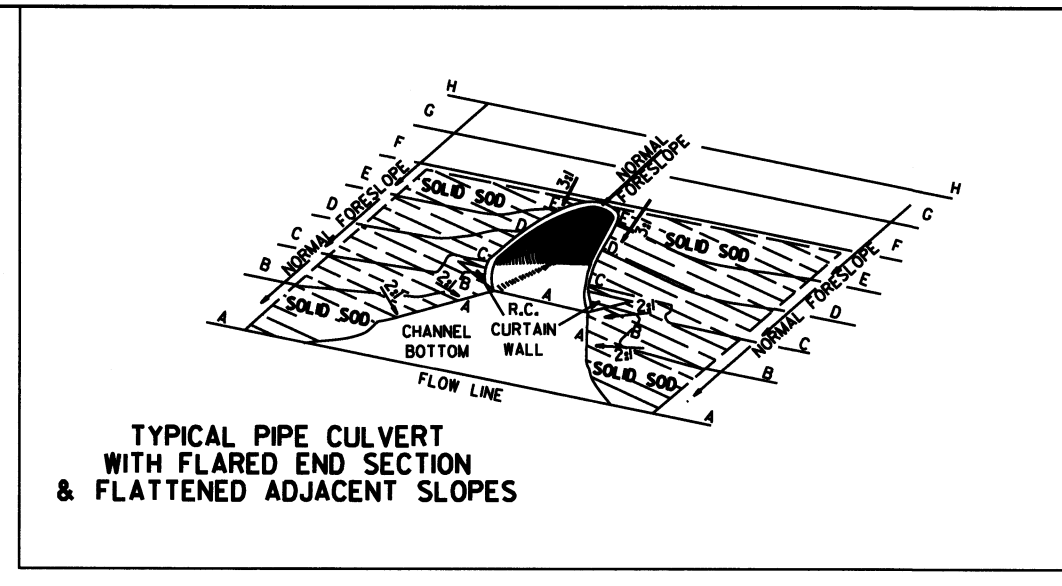
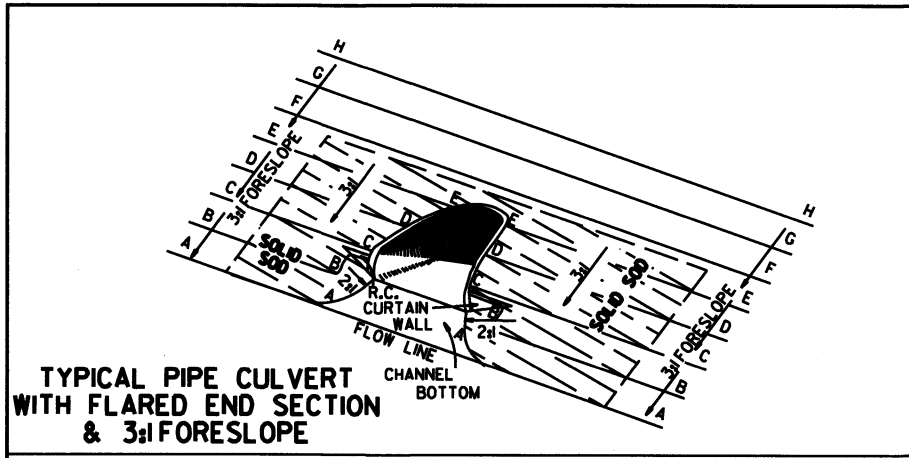
BASE AND SURFACING

LOG MILE	LOG MILE	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM SURFACE COURSE (1/2")									
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	TOTAL PG 64-22 TON
						TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON										
SHOULDER WIDENING AND OVERLAY																					
9.48	10.78	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	6864.00	27.00	1853.28	20.00	15253.33	762.67													
10.78	10.79	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
10.79	11.21	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	2217.60	45.00	997.92	20.00	4928.00	246.40													
11.21	11.22	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
11.22	11.64	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	2217.60	45.00	997.92	20.00	4928.00	246.40													
11.64	11.65	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
11.65	12.04	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	2059.20	45.00	926.64	20.00	4576.00	228.80													
12.04	12.05	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
12.05	12.45	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	2112.00	45.00	950.40	20.00	4693.33	234.67													
12.45	12.46	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
12.46	14.33	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	9873.60	45.00	4443.12	20.00	21941.33	1097.07													
14.33	14.34	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
14.34	14.70	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	1900.80	45.00	855.36	20.00	4224.00	211.20													
14.70	14.71	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
14.71	14.90	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	1003.20	45.00	451.44	20.00	2229.33	111.47													
14.90	14.91	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
14.91	15.58	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	3537.60	45.00	1591.92	20.00	7861.33	393.07													
15.58	15.59	HWY. 21 MAIN LANES OVERLAY	52.80	4.00	2.11	20.00	117.33	5.87													
15.59	15.77	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	950.40	45.00	427.68	20.00	2112.00	105.60													
16.31	16.94	HWY. 21 MAIN LANES - TWO LANE SHOULDER WIDENING	3326.40	45.00	1496.88	20.00	7392.00	369.60													
ADDITIONAL FOR LEVELING																					
9.48	10.78	HWY. 21 MAIN LANES	6864.00			20.00	15253.33	2593.07	2593.07	20.00	15253.33	VAR.	1677.87							1677.87	
10.78	10.79	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
10.79	11.21	HWY. 21 MAIN LANES	2217.60			20.00	4928.00	837.76	837.76	20.00	4928.00	VAR.	542.08							542.08	
11.21	11.22	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
11.22	11.64	HWY. 21 MAIN LANES	2217.60			20.00	4928.00	837.76	837.76	20.00	4928.00	VAR.	542.08							542.08	
11.64	11.65	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
11.65	12.04	HWY. 21 MAIN LANES	2059.20			20.00	4576.00	777.92	777.92	20.00	4576.00	VAR.	503.36							503.36	
12.04	12.05	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
12.05	12.45	HWY. 21 MAIN LANES	2112.00			20.00	4693.33	797.87	797.87	20.00	4693.33	VAR.	516.27							516.27	
12.45	12.46	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
12.46	14.33	HWY. 21 MAIN LANES	9873.60			20.00	21941.33	3730.03	3730.03	20.00	21941.33	VAR.	2891.09							2891.09	
14.33	14.34	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
14.34	14.70	HWY. 21 MAIN LANES	1900.80			20.00	4224.00	718.08	718.08	20.00	4224.00	VAR.	4336.94							4336.94	
14.70	14.71	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
14.71	14.90	HWY. 21 MAIN LANES	1003.20			20.00	2229.33	378.99	378.99	20.00	2229.33	VAR.	245.23							245.23	
14.90	14.91	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
14.91	15.58	HWY. 21 MAIN LANES	3537.60			20.00	7861.33	1336.43	1336.43	20.00	7861.33	VAR.	864.75							864.75	
15.58	15.59	HWY. 21 MAIN LANES	52.80			20.00	117.33	19.95	19.95	20.00	117.33	VAR.	12.91							12.91	
15.59	15.77	HWY. 21 MAIN LANES	950.40			20.00	2112.00	359.04	359.04	20.00	2112.00	VAR.	232.32							232.32	
16.31	16.94	HWY. 21 MAIN LANES	3326.40			20.00	7392.00	1256.64	1256.64	20.00	7392.00	VAR.	813.12							813.12	
ADDITIONAL FOR GUARDRAIL WIDENING																					
2.42	2.43	WIDENING TAPER RT	12.00	6.75	0.81									1.00	1.33	220.00	0.15	0.15			
2.43	2.47	WIDENING RT	225.00	13.50	30.38									2.00	50.00	220.00	5.50	5.50			
2.44	2.45	WIDENING TAPER LT	12.00	6.75	0.81									1.00	1.33	220.00	0.15	0.15			
2.45	2.47	WIDENING LT	100.00	13.50	13.50									2.00	22.22	220.00	2.44	2.44			
2.50	2.54	WIDENING LT	225.00	13.50	30.38									2.00	50.00	220.00	5.50	5.50			
2.54	2.55	WIDENING TAPER LT	12.00	6.75	0.81									1.00	1.33	220.00	0.15	0.15			
2.50	2.52	WIDENING RT	100.00	13.50	13.50									2.00	22.22	220.00	2.44	2.44			
2.52	2.53	WIDENING TAPER RT	12.00	6.75	0.81									1.00	1.33	220.00	0.15	0.15			
6.27	6.28	WIDENING TAPER RT	12.00	6.75	0.81									1.00	1.33	220.00	0.15	0.15			
6.28	6.32	WIDENING RT	225.00	13.50	30.38									2.00	50.00	220.00	5.50	5.50			
6.29	6.30	WIDENING TAPER LT	12.00	6.75	0.81									1.00	1.33	220.00	0.15	0.15			
6.30	6.32	WIDENING LT	100.00	13.50	13.50									2.00	22.22	220.00	2.44	2.44			
6.35	6.39	WIDENING LT	225.00	13.50	30.38									2.00	50.00	220.00	5.50	5.50			
6.39	6.40	WIDENING TAPER LT	12.00	6.75	0.81									1.00	1.33	220.00	0.15	0.15			
6.35	6.37	WIDENING RT	100.00	13.50	13.50									2.00	22.22	220.00	2.44	2.44			
6.37	6.38	WIDENING TAPER RT	12.00	6.75	0.81									1.00	1.33	220.00	0.15	0.15			
TOTALS:					15193.55		81194.62	4059.78		81194.62	13803.14	17862.92		81194.62		13281.30		110604.63		12166.55	25447.85

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
 TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

9/18/2019 R090474.DCN

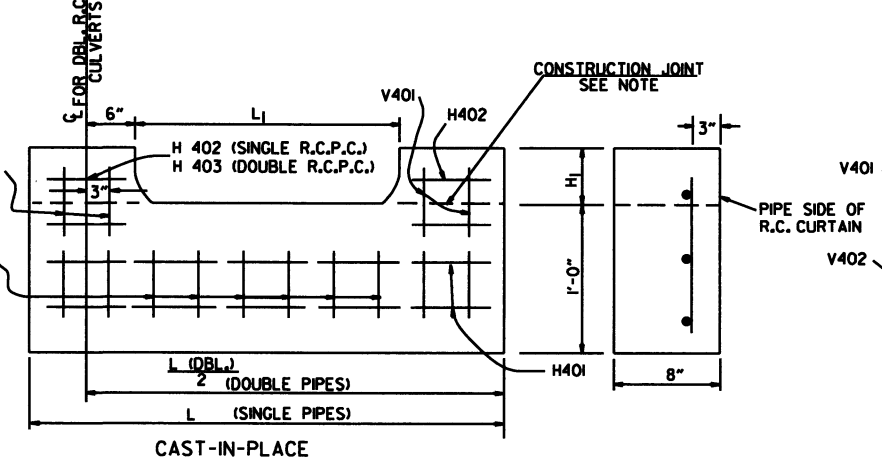
QUANTITIES



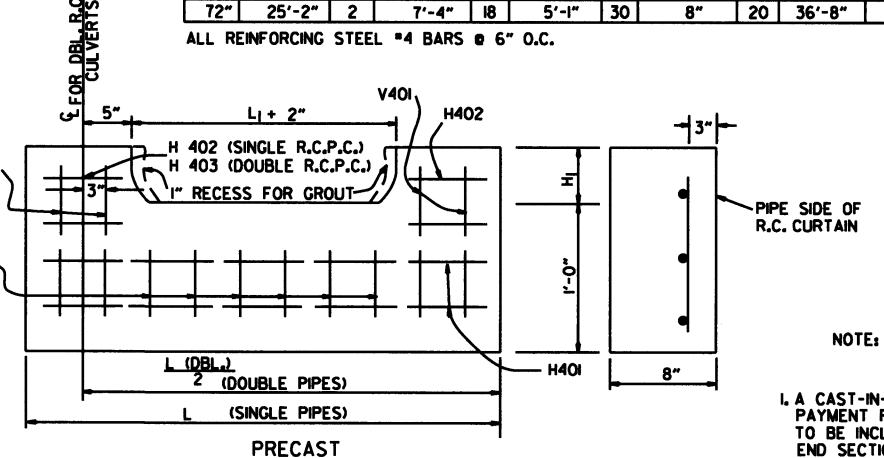
R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

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

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



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



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.

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H403		V401		V402			
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.		
18"	7'-8"	2	1'-11/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	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

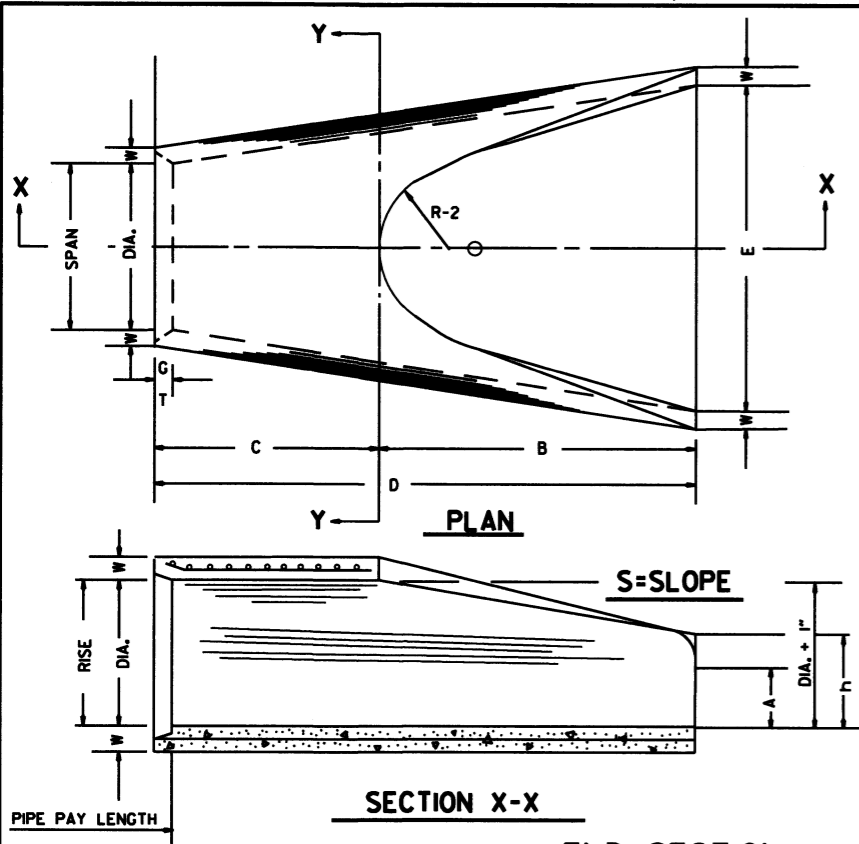
PIPE DIA.	SINGLE R.C.P.C.						DOUBLE R.C.P.C.					
	3:1		4:1		6:1		3:1		4:1		6:1	
	SQ. YDS.						SQ. YDS.					
18"	5	12	12	6	8	13	8	12	12	6	8	13
24"	8	18	18	9	13	20	12	18	18	9	13	20
30"	13	28	28	14	19	30	18	28	28	14	19	30
36"	17	36	36	18	25	41	24	36	36	18	25	41
42"	23	48	48	24	33	54	30	48	48	24	33	54
48"	28	58	58	28	40	66	36	58	58	28	40	66
54"	35	72	72	35	49	81	42	72	72	35	49	81
60"	45	90	90	45	63	107	54	90	90	45	63	107
72"	64	126	126	64	85	159	72	126	126	64	85	159

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

- GENERAL NOTES**
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL; AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
 2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
 3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION B02 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
 4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

10-18-98	ADDED NOTE TO SOLID SODDING	
10-12-98	CORRECTED SPELLING	
11-3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	
DATE	REVISION	FILMED

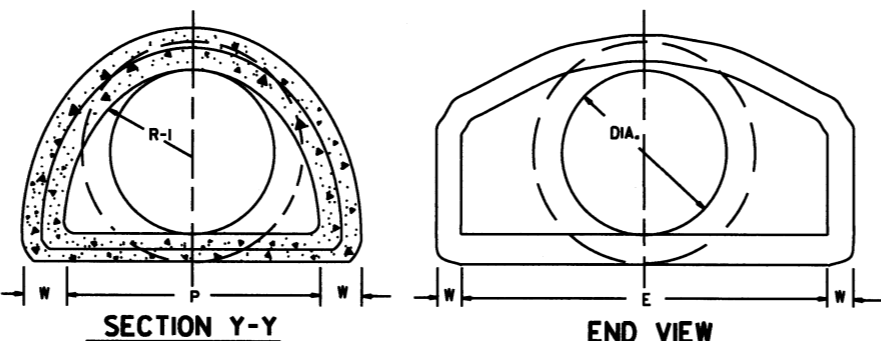
ARKANSAS STATE HIGHWAY COMMISSION
FLARED END SECTION
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ± 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3d	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"	3d	25"	33 3/8"	16 1/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 1/4"	5'-0"	3d	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 1/4"
36"	4"	1'-3"	5'-3"	2'-10 1/4"	8'-1 1/4"	6'-0"	3d	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"	3d	43"	53 1/8"	27 1/2"	22"	3 1/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3d	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"	3d	55"	65 1/2"	33 3/8"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3d	61"	72 1/2"	36 1/8"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3d	73"	77 3/8"	38 3/8"	24"	5"	13250	4'-6"

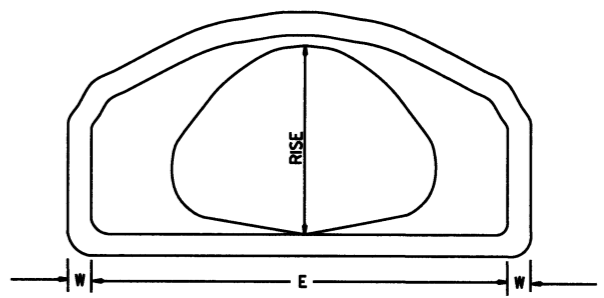


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

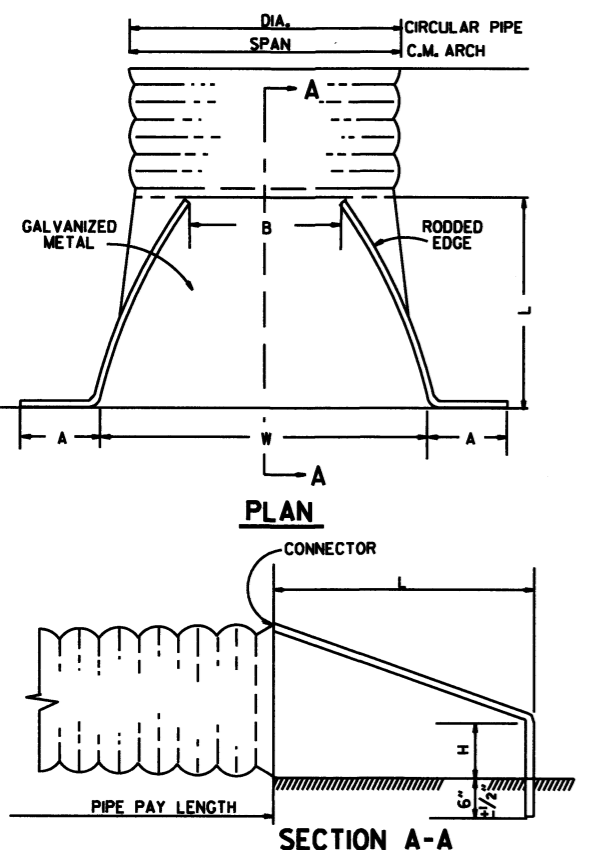
ARCH PIPE

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										
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2d
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2d
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2 1/2"	2 1/2d
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/8"	15"	2 1/2"	2 1/2d
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 1/2d
36	43 1/4	44	26 1/2	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 1/8"	22"	3 1/2"	2 1/2d
42	51 1/4	51	31 1/2	31	4 1/2"	11 1/2"	4'-7"	1'-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2d
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 1/4"	8'-1 1/4"	7'-10"	70 1/8"	24"	4 1/4"	2 1/2d
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/8"	24"	4 3/4"	2 1/2d
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/8"	24"	5"	2 1/2d

* 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

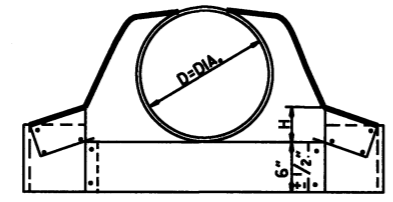


END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

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

CIRCULAR PIPE

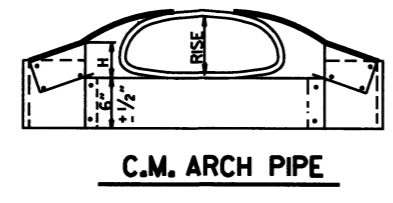
D. DIA.	GAUGE	A	B. MAX.	H	L	W	S
INCHES							
12	16	6	6	6	21	24	2 1/2d
15	16	7	8	6	26	30	2 1/2d
18	16	8	10	6	31	36	2 1/2d
21	16	9	12	6	36	42	2 1/2d
24	16	10	13	6	41	48	2 1/2d
30	14	12	16	8	51	60	2 1/2d
36	14	14	19	9	60	72	2 1/2d
42	12	16	22	11	69	84	2 1/2d
48	12	18	27	12	78	90	2 1/2d
54	12	18	30	12	84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



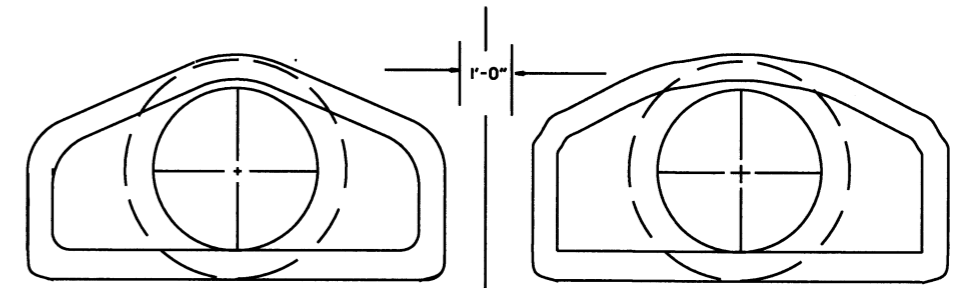
CIRCULAR PIPE

C.M. ARCH PIPE

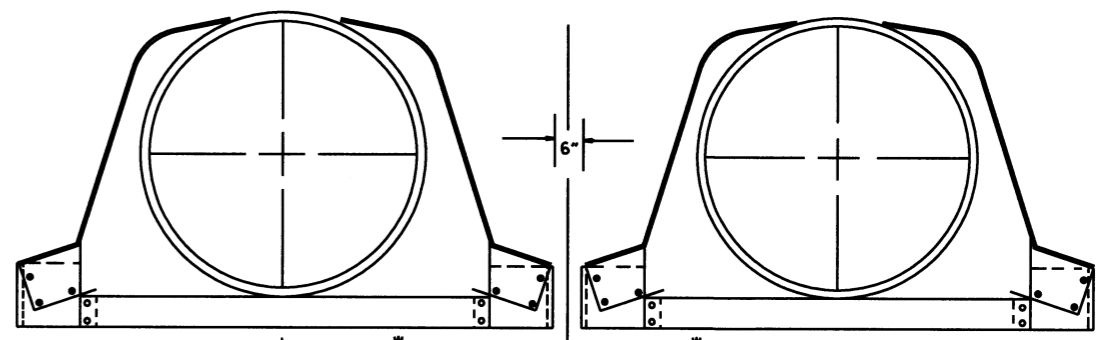
EQUIV. DIA.	SPAN	RISE	A	B. MAX.	H	L	W	S	GAUGE
INCHES									
15"	17	13	7	9	6	19	30	2 1/2d	16
18"	21	15	7	10	6	23	36	2 1/2d	16
21"	24	18	8	12	6	28	42	2 1/2d	16
24"	28	20	9	14	6	32	48	2 1/2d	16
30"	35	24	10	16	6	39	60	2 1/2d	14
36"	42	29	12	18	8	46	75	2 1/2d	14
42"	49	33	13	21	9	53	85	2 1/2d	12
48"	57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



C.M. ARCH PIPE

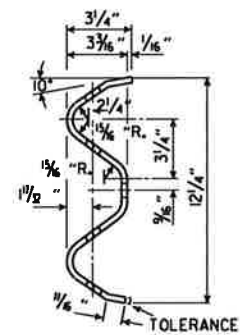
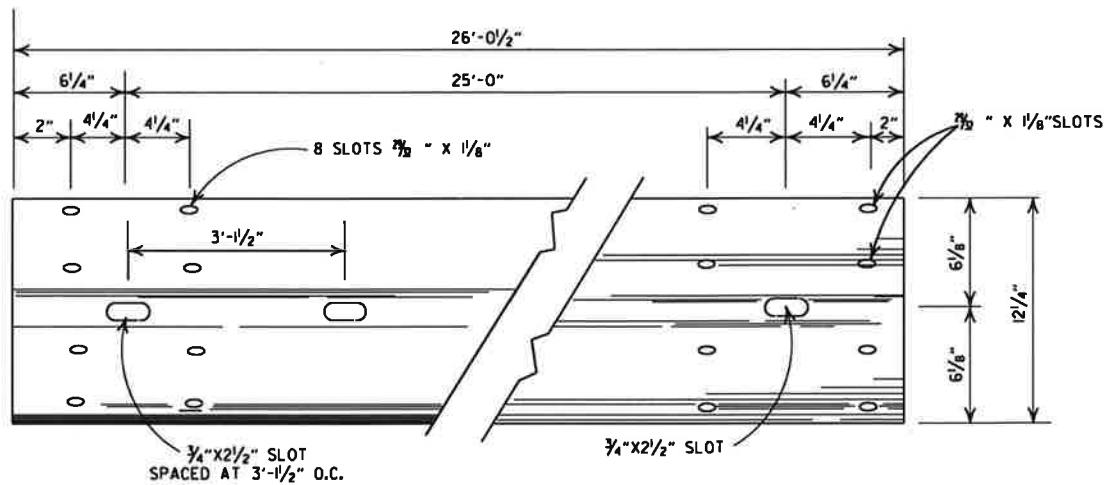


MULTIPLE R.C. PIPE CULVERTS



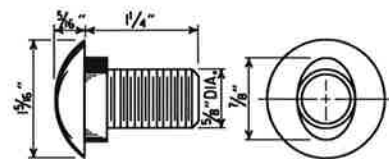
MULTIPLE C.M. PIPE CULVERTS

10-18-96	REVISED ASTM REF. TO AASHTO		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	FLARED END SECTION
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73	
10-2-72	REVISED AND REDRAWN	760-10-2-72	STANDARD DRAWING FES-2
DATE	REVISION	FILE NO.	

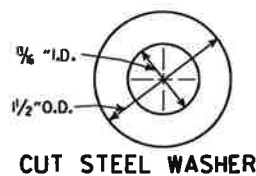


DETAILS OF W-BEAM GUARDRAIL

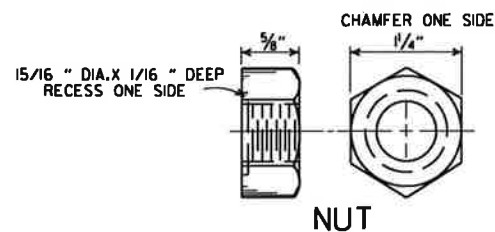
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



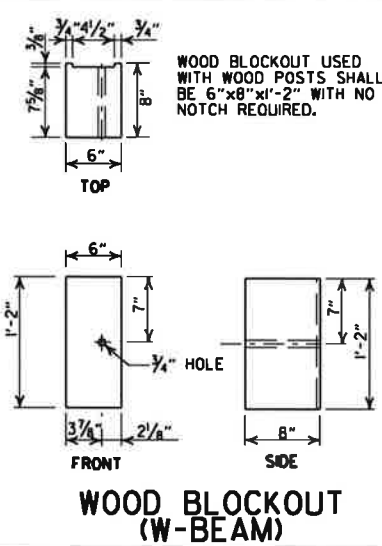
**SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH**



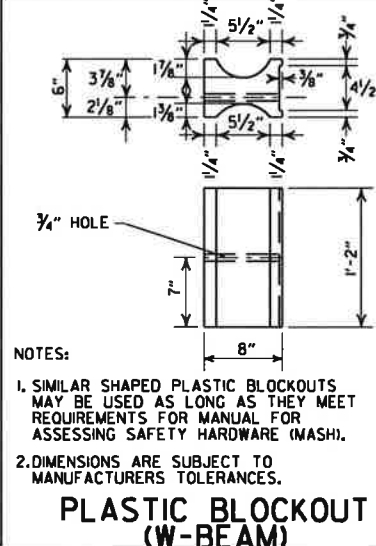
CUT STEEL WASHER



NUT

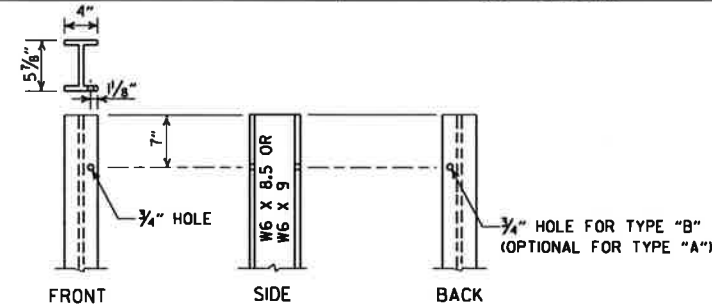


WOOD BLOCKOUT (W-BEAM)

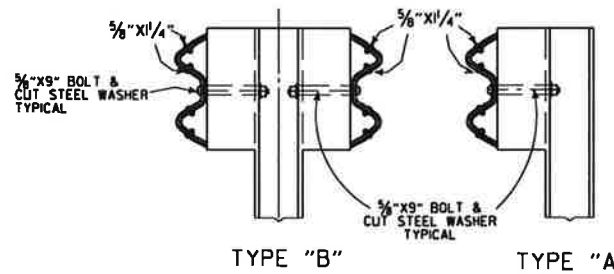


PLASTIC BLOCKOUT (W-BEAM)

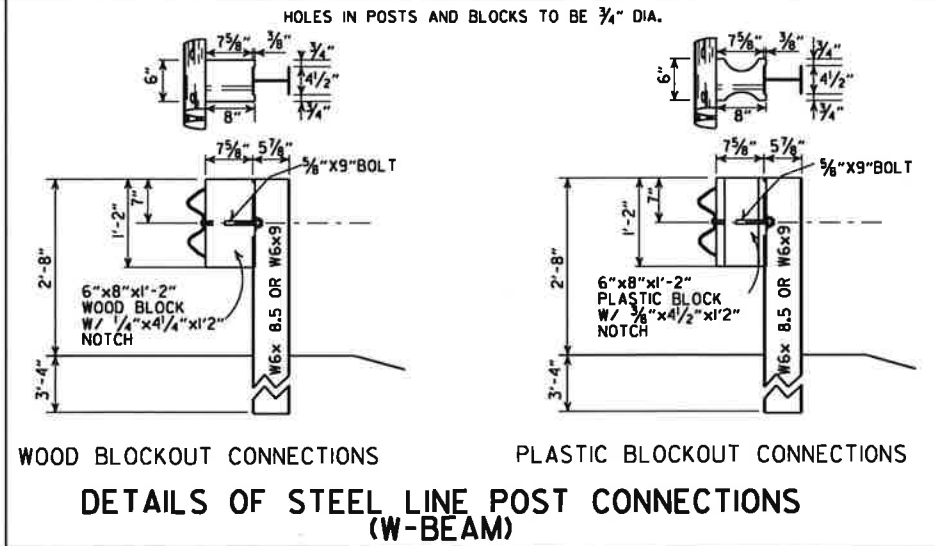
NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.



STEEL POST



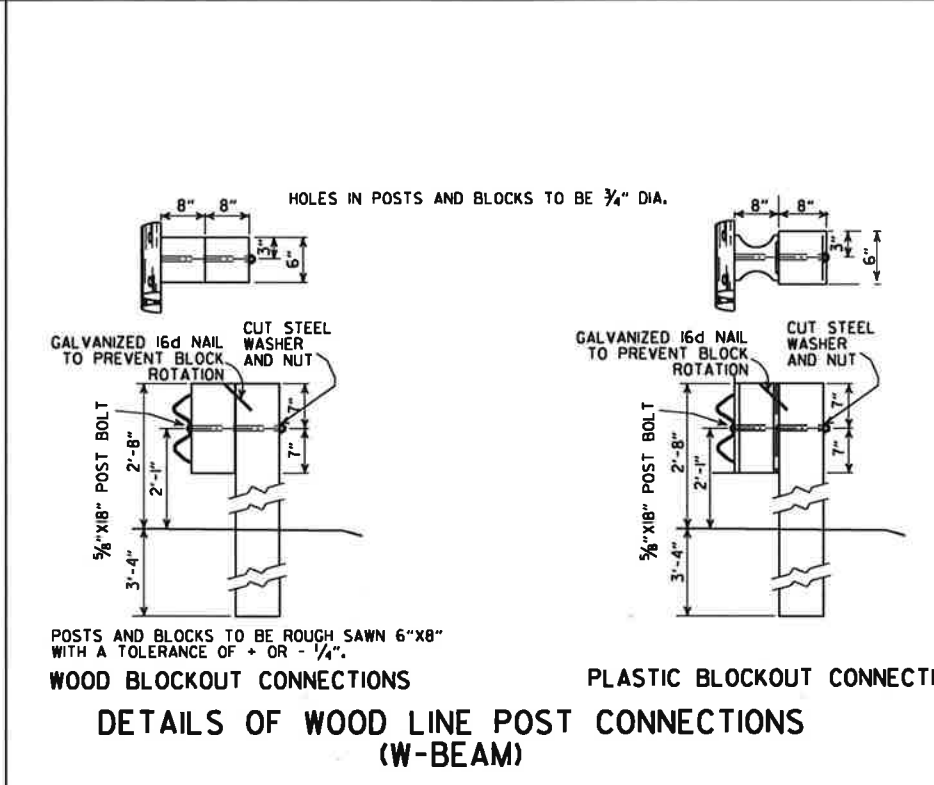
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



**WOOD BLOCKOUT CONNECTIONS
PLASTIC BLOCKOUT CONNECTIONS
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)**

-GENERAL NOTES-

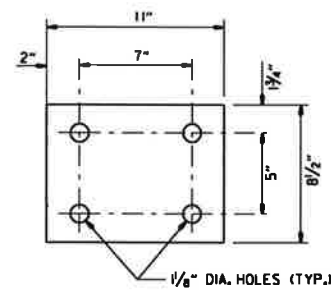
ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.
WHERE W-BEAM GUARDRAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.
W-BEAM GUARDRAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.
ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (4000 f) OR NO. 1 1350 f SOUTHERN PINE.
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARDRAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARDRAIL.



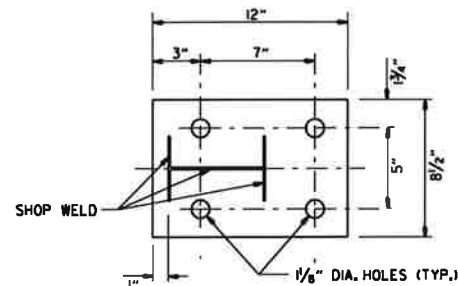
**WOOD BLOCKOUT CONNECTIONS
PLASTIC BLOCKOUT CONNECTIONS
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)**

DATE	REVISION	FILMED
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GENERAL NOTES AND RAISED GUARDRAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
03-30-00	REMOVED GUARDRAIL AT BRIDGE ENDS	
01-12-00	ADDED PLASTIC BLOCKOUT	
08-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARDRAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONC. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
04-03-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
06-02-94	ADDED ALT. STEEL POST SIZE	
08-05-93	REVISED STEEL POST SIZE	8-5-93
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED WASHER NOTE	8-15-91
08-02-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
07-15-88	REVISED SECTION 3 & GENERAL NOTES	
03-04-88	REV. ANCHOR POST ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-09-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION
GUARDRAIL DETAILS
STANDARD DRAWING GR-6

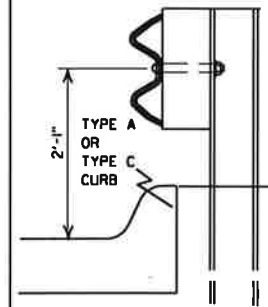


WASHER PLATE



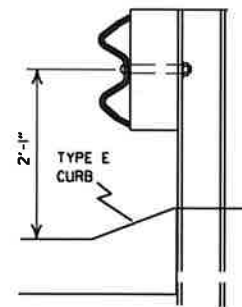
BASE PLATE

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



FOR DESIGN SPEEDS OF 50 MPH OR LESS

ALIGN FACE OF GUARDRAIL WITH FACE OF CURB.

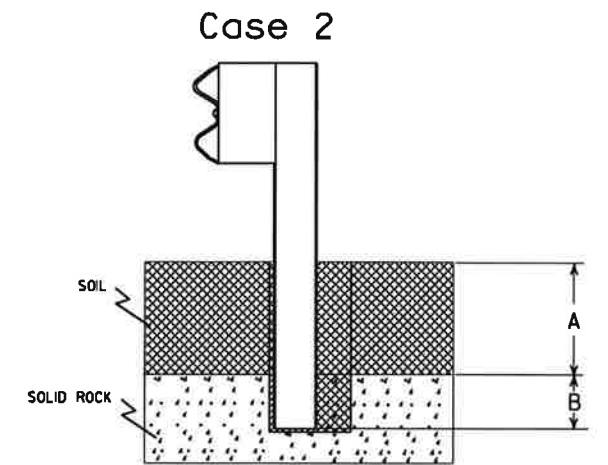
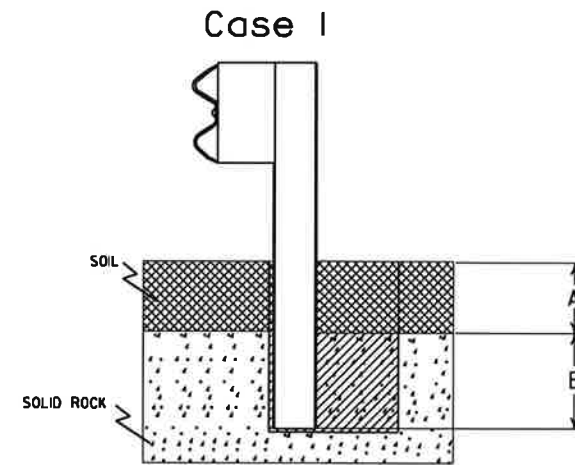


FOR DESIGN SPEEDS OF 55 MPH OR MORE

PLACE GUARDRAIL POSTS AGAINST BACK OF CURB.

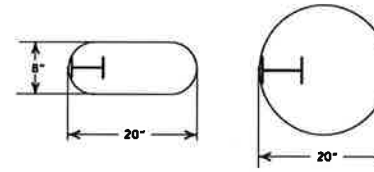
DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

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



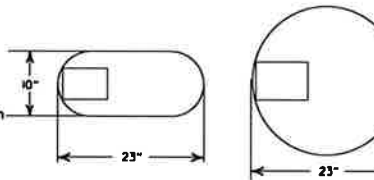
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

Either hole configuration acceptable



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

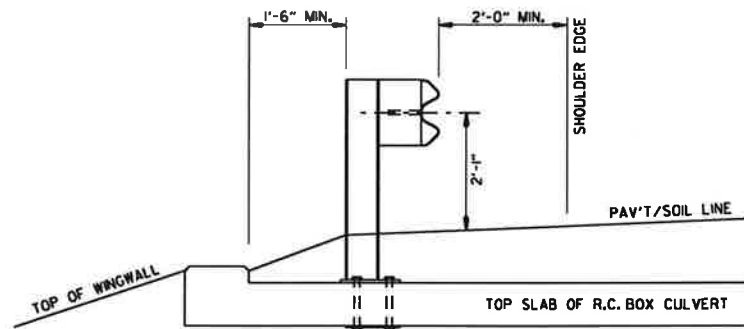
Zone A: Backfill according to Section 617.03(a).

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

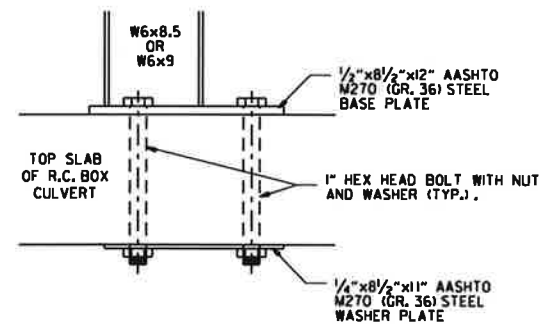
Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

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

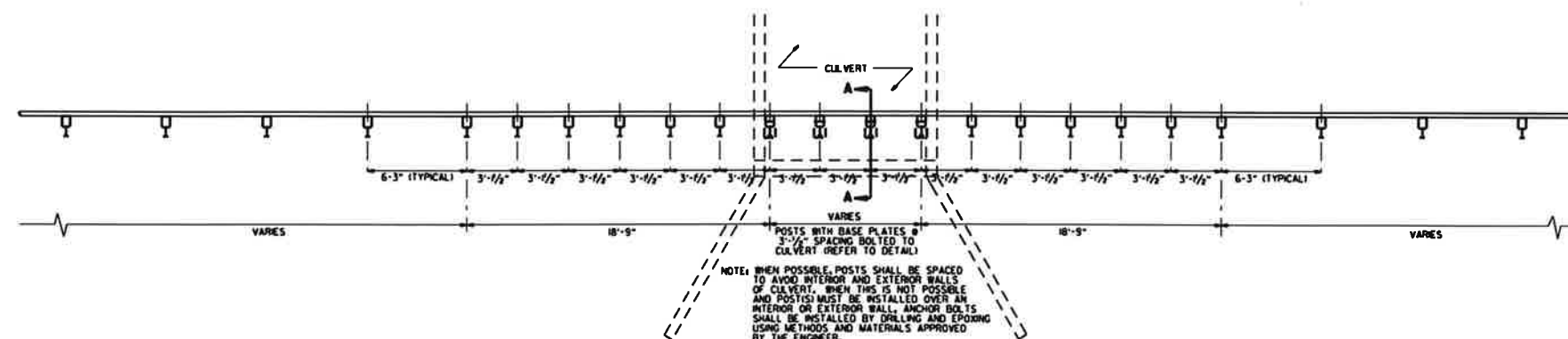
DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



SECTION A-A



DETAIL OF CONNECTION



PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

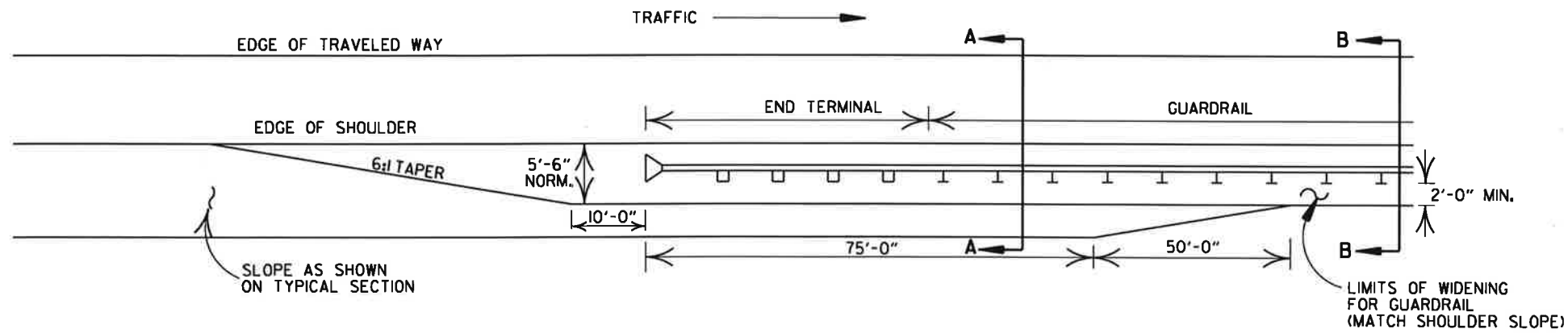
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARDRAIL POSTS AS SHOWN ON STD. DRWG. GR-6.

DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS, ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POSTPLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87

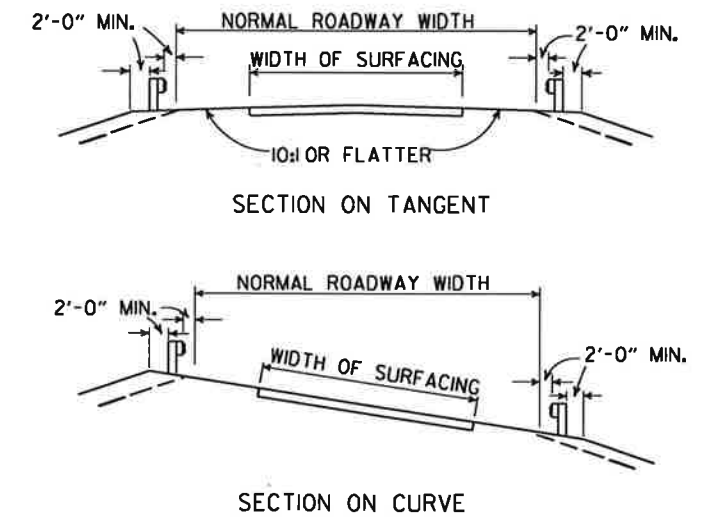
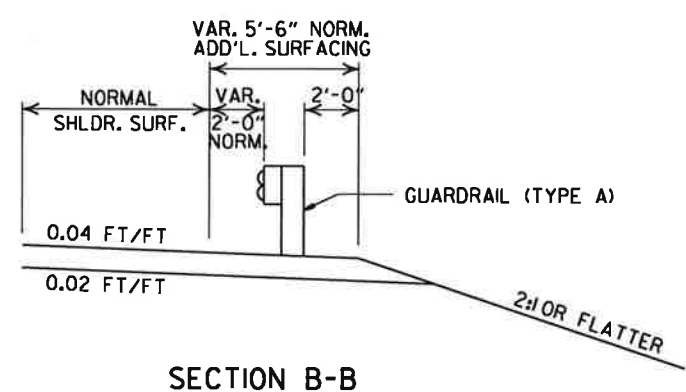
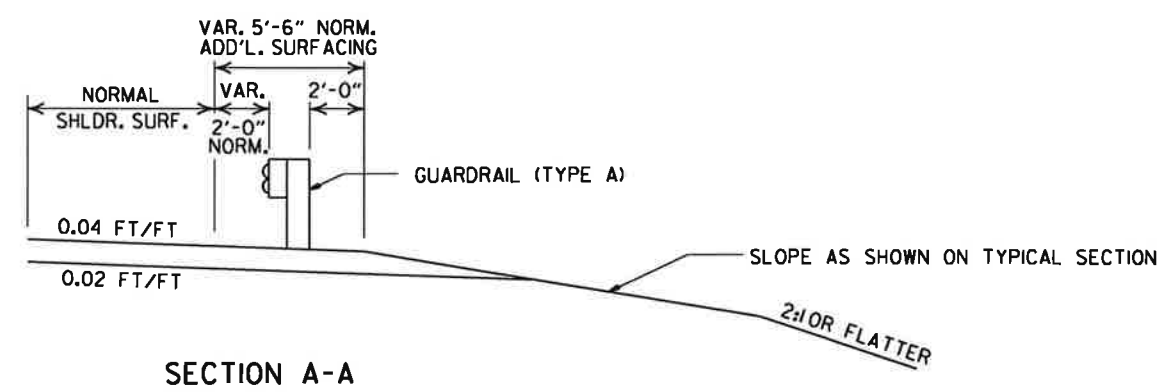
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-7

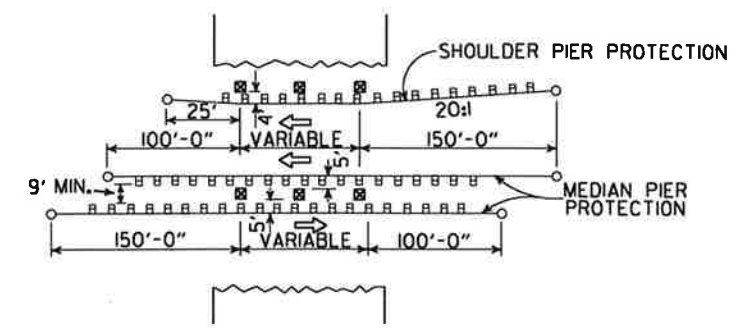


NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARDRAIL.



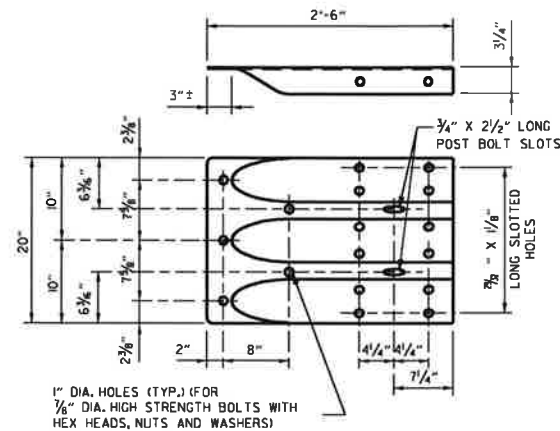
DETAILS OF WIDENING FOR GUARDRAIL

DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

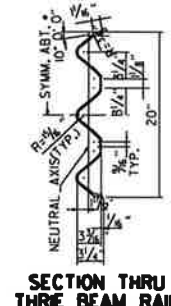


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

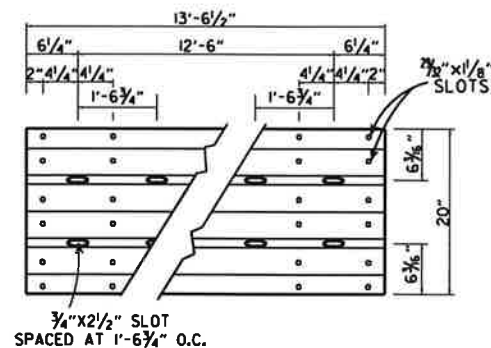
ARKANSAS STATE HIGHWAY COMMISSION		
GUARDRAIL DETAILS		
STANDARD DRAWING GR-9		
11-07-19	RENUMBERED AND RENAMED	
4-17-08	MINOR REVISION	
11-10-05	DRAWN	
DATE	REVISION	DATE FILED



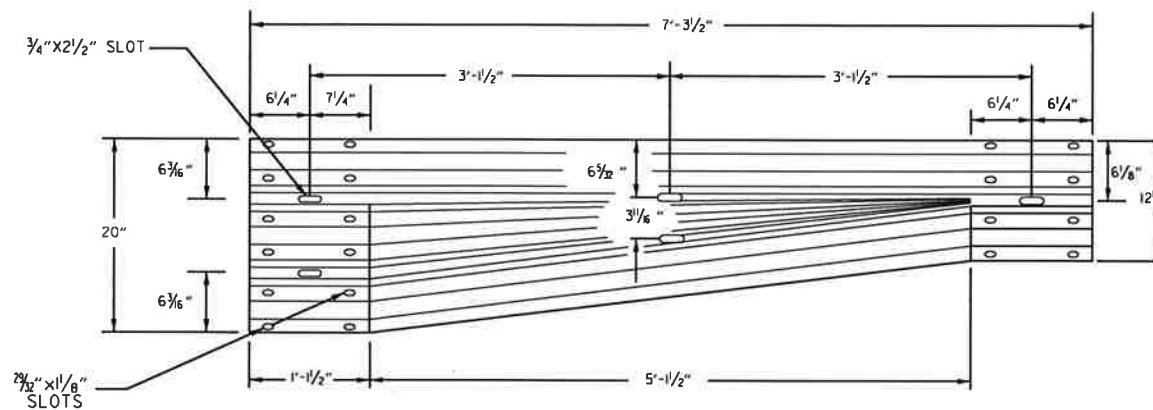
SPECIAL END SHOE



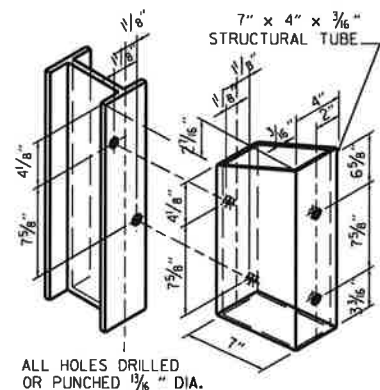
SECTION THRU THREE BEAM RAIL



THRIE BEAM RAIL

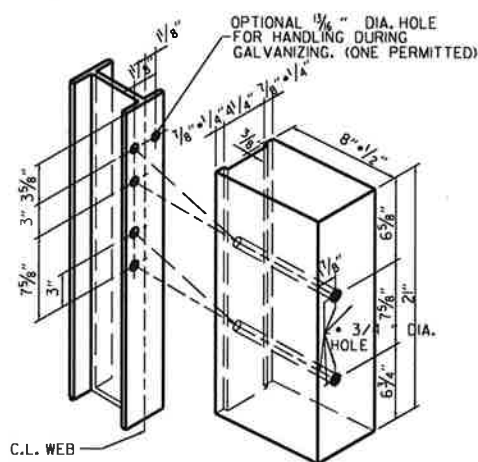


TRANSITION SECTION



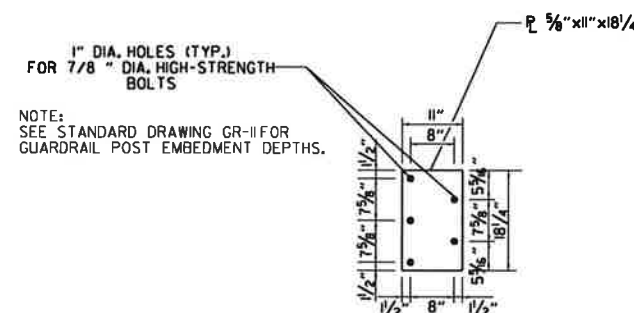
ATTACH BLOCKOUT TO POST USING 3/8" DIA. HEX HEAD BOLTS WITH 1/2" O.D. CUT STEEL WASHERS AND NUT.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



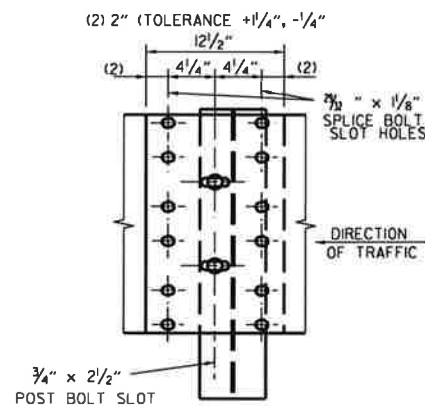
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

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



CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 3/8" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

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

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

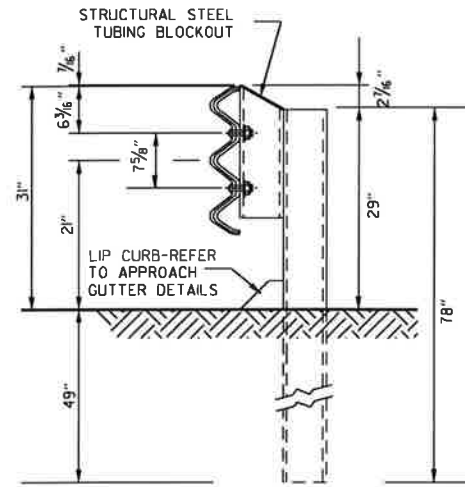
USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

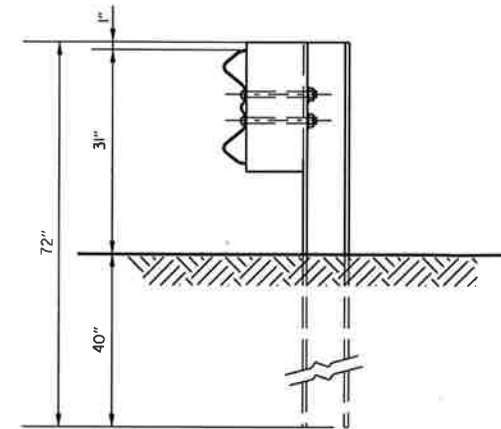
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
08-22-02	REMOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	
04-10-03	REMOVED GENERAL NOTES	
10-9-03	REMOVED GENERAL NOTES	
04-10-03	REMOVED GENERAL NOTES	
08-22-02	REMOVED NOTE (2)	
06-29-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	
02-29-07	ADDED PLASTIC BLOCKOUTS	
02-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGE ENDS TO STD. DRWG. GR-12	
02-07-19	RENAMED AND REVISED REFERENCES	

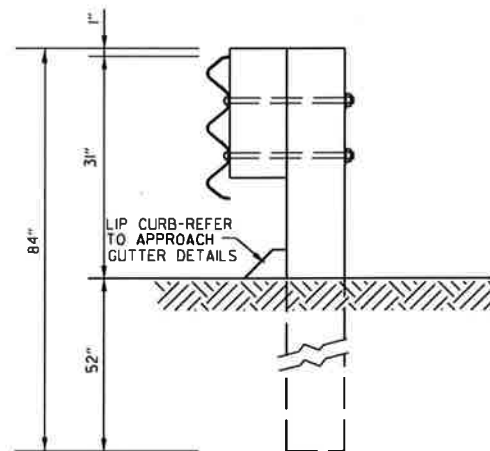
ARKANSAS STATE HIGHWAY COMMISSION
GUARDRAIL DETAILS
STANDARD DRAWING GR-10



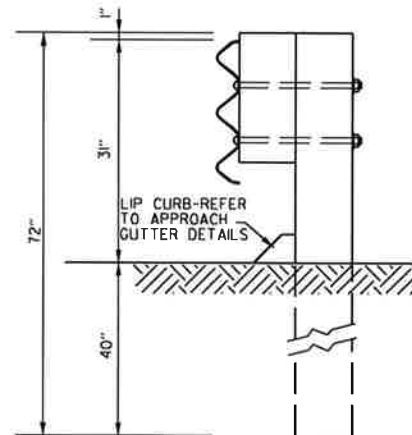
**THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST
POSTS 1-7**



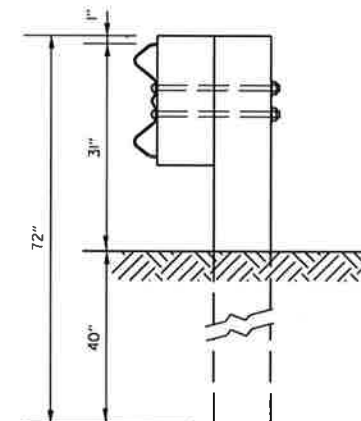
**W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8**



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



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

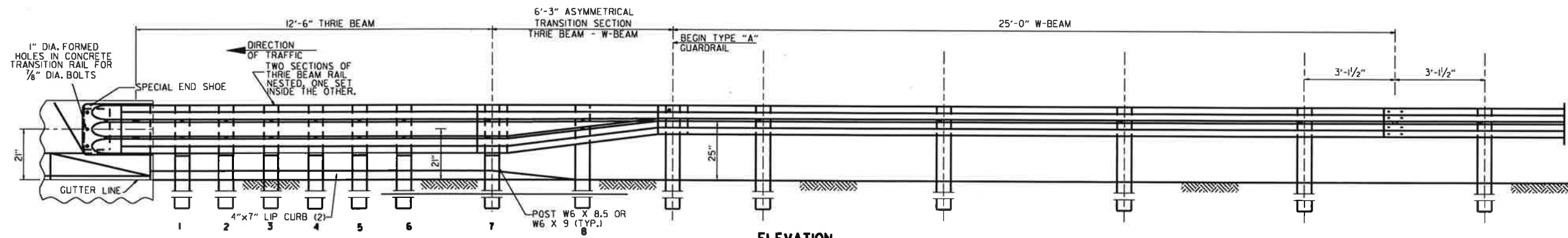


**W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT & WOOD POST
POST 8**

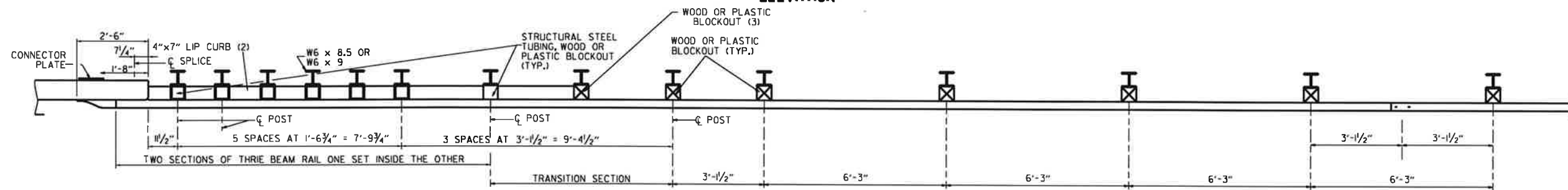
GENERAL NOTES:
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

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

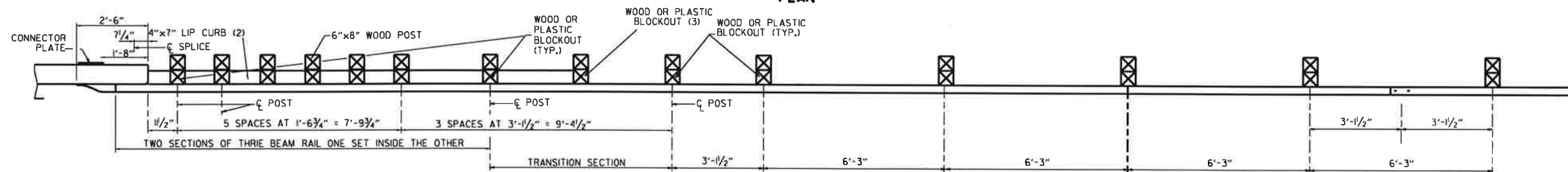
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
			STANDARD DRAWING GR-II
11-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-II		
07-14-10	REVISED POST 8 DIMENSIONS		
8-29-07	ADDED PLASTIC BLOCKOUTS		
08-22-02	REVISED LIP CURB NOTE		
03-30-00	DRAWN & ISSUED		
DATE	REVISION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



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

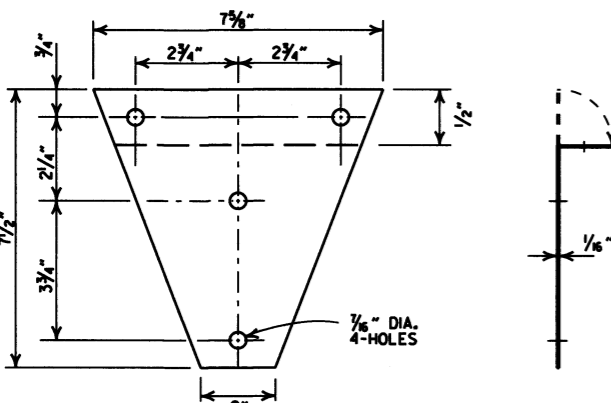
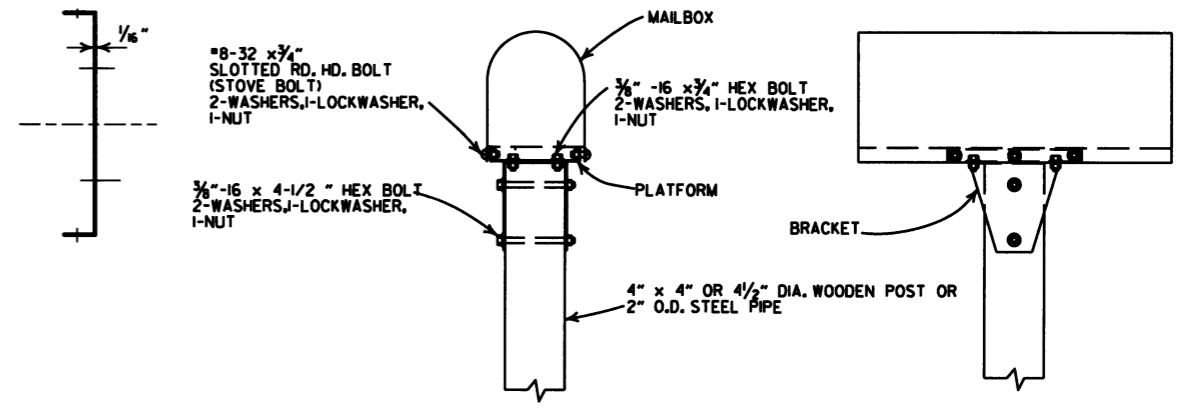
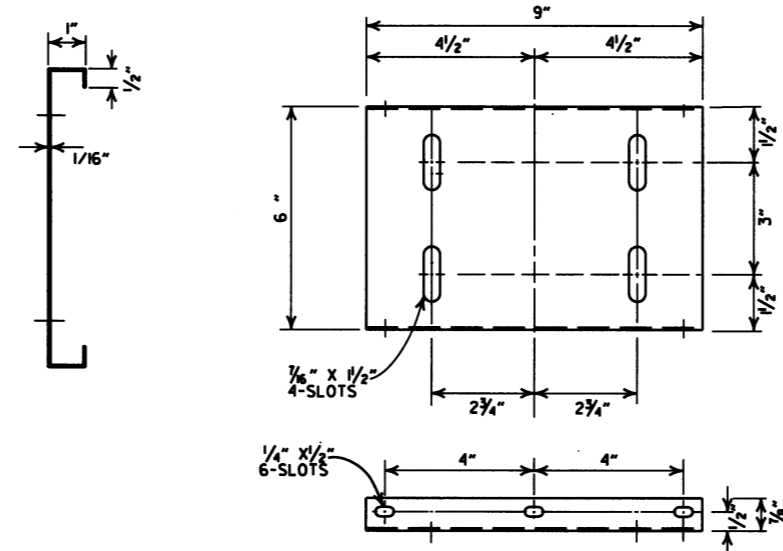
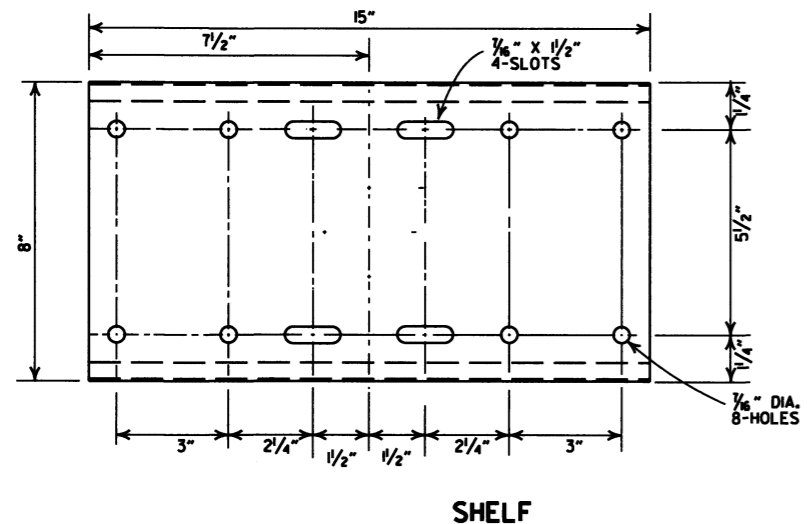
USE THRIE BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

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

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (400 f) OR NO. 1 1350 f SOUTHERN PINE.

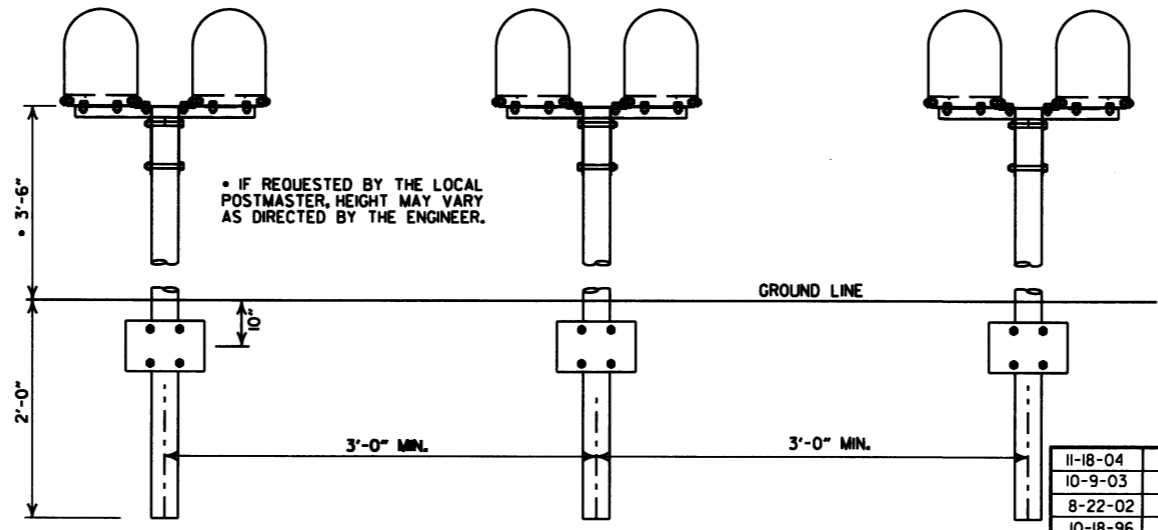
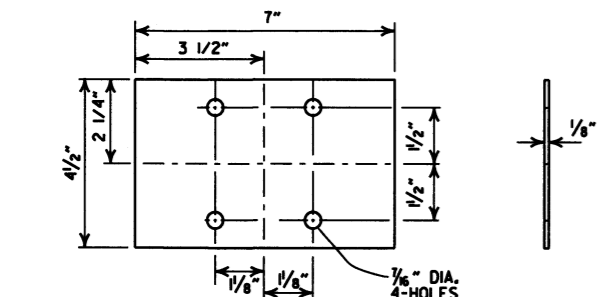
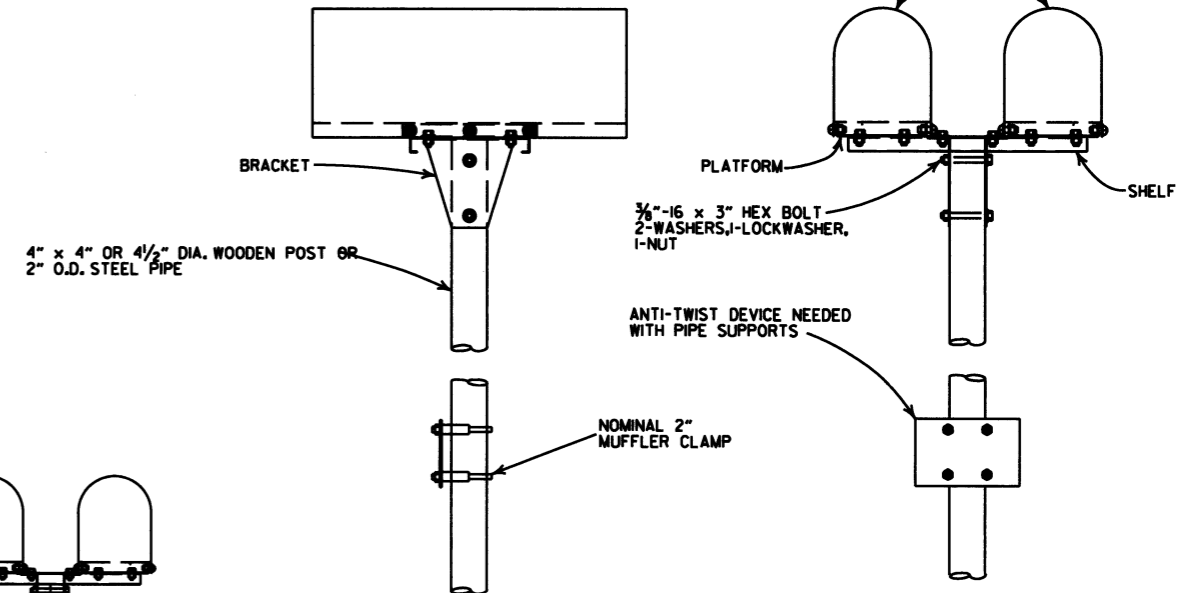
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
			STANDARD DRAWING GR-12
11-07-19	RENAMED & REVISED REFERENCES		
11-16-17	RE-DRAWN FROM STD. DRWG. GR-10 & ISSUED		
DATE	REVISION	FILMED	



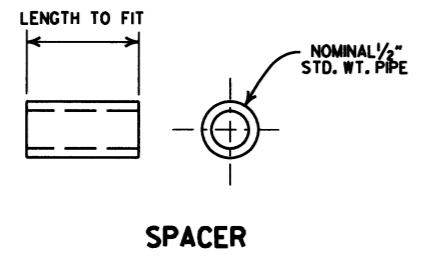
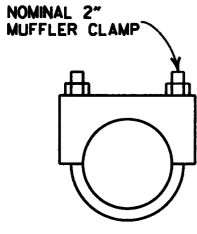
PLATFORM

GENERAL NOTES

- MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
- ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
- MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL. HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF 3/4" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 x 3/4" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
- THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
- METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.45" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
- MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



DOUBLE INSTALLATION



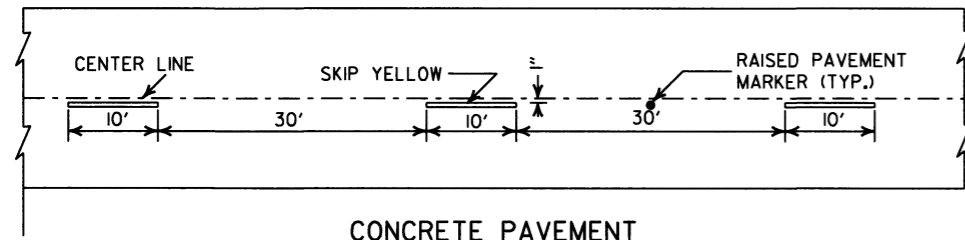
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	120-7-15-88	ISSUED

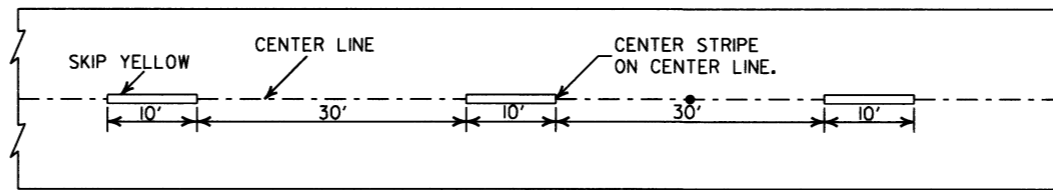
ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

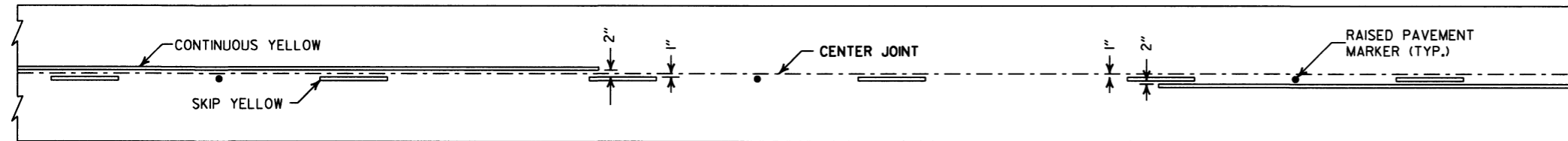


CONCRETE PAVEMENT

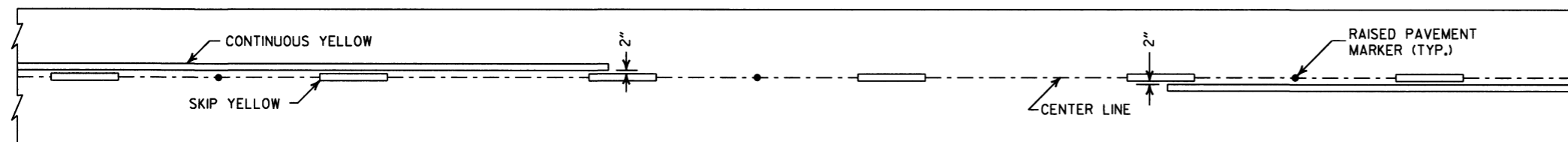


ASPHALT PAVEMENT

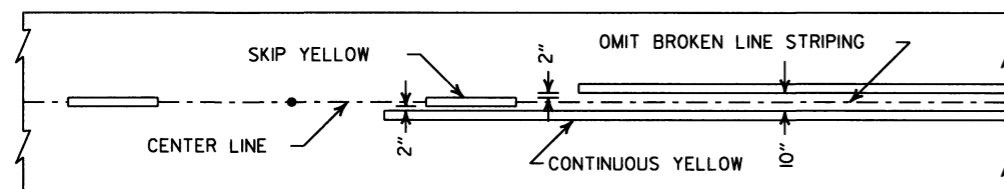
BROKEN LINE STRIPING



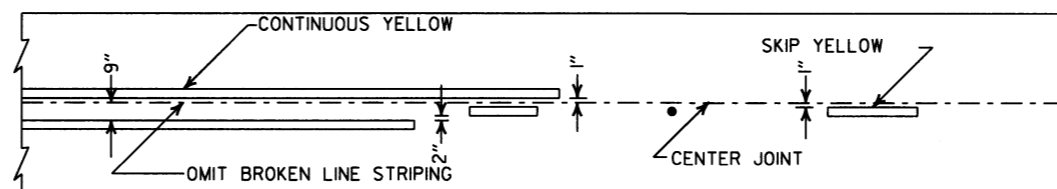
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

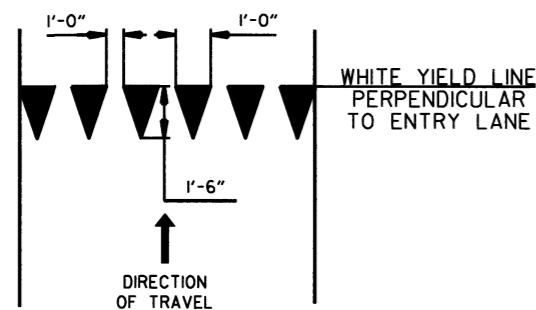


ASPHALT PAVEMENT

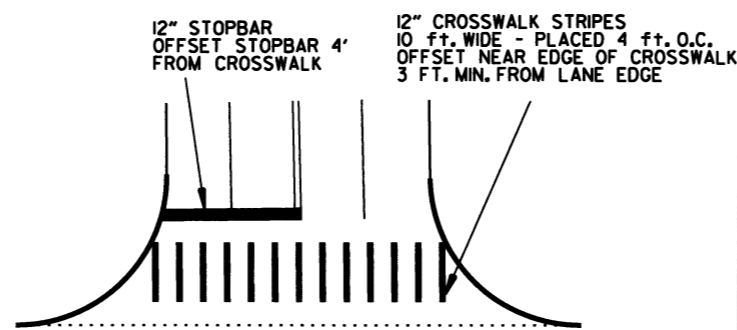


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL

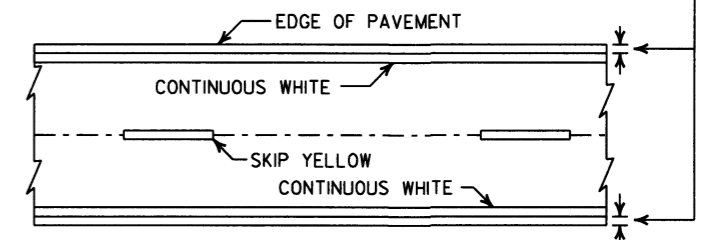


CROSSWALK AND STOPBAR DETAILS

NOTES:

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

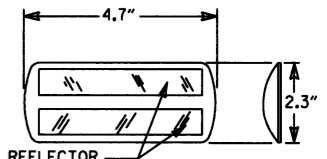
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

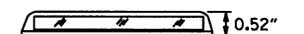
NOTE: THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

TYPE II RED/CLEAR OR YELLOW/YELLOW



PRISMATIC REFLECTOR

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.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

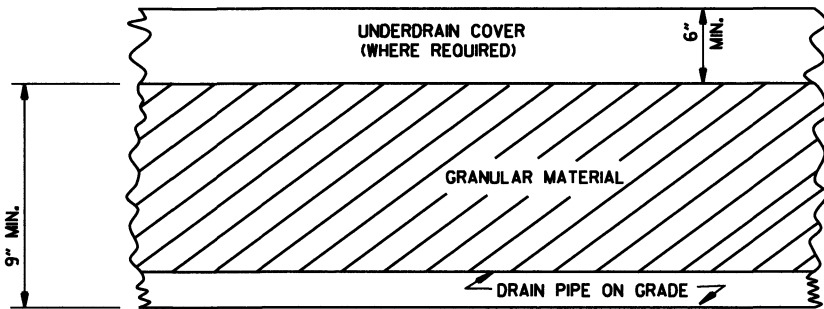
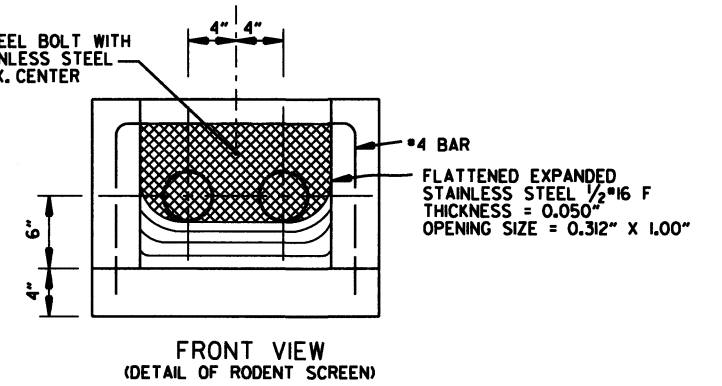
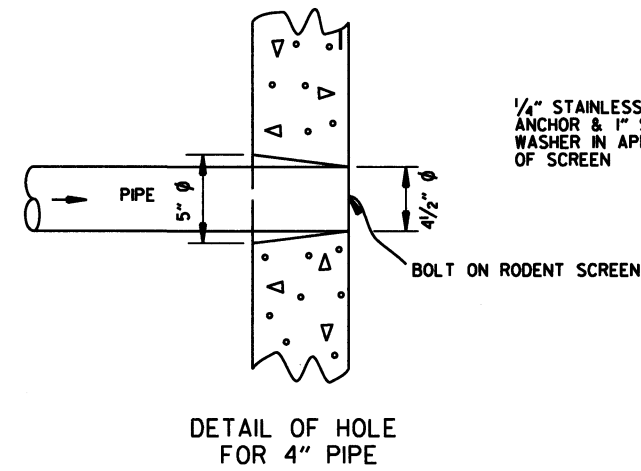
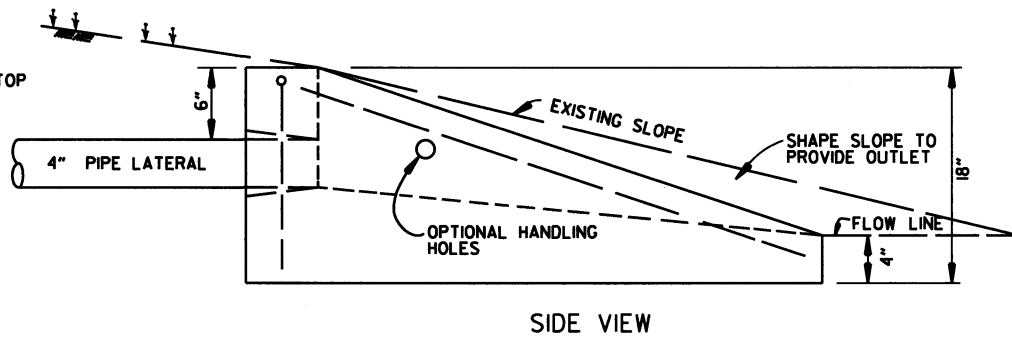
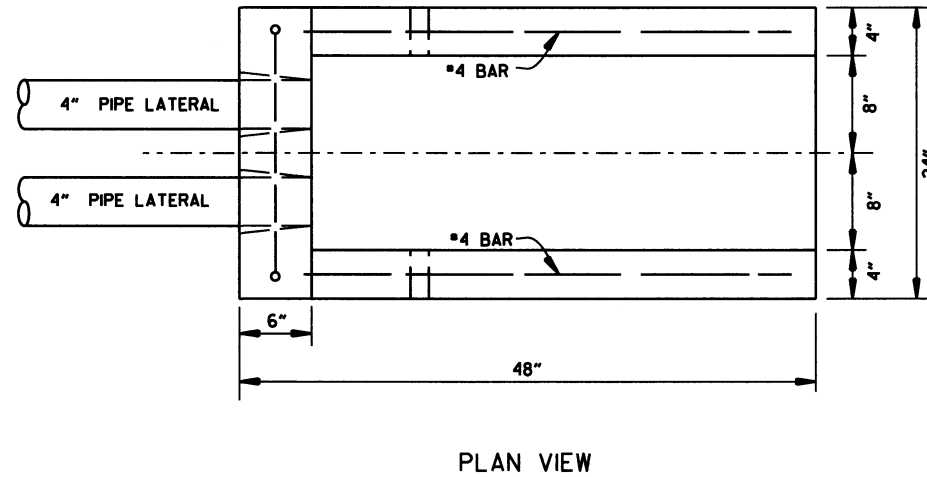
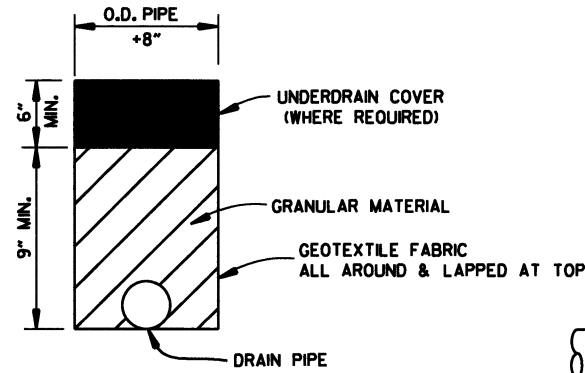
DATE	REVISION	FILMED
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PAVT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAVT. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

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



DETAILS OF PIPE UNDERDRAIN

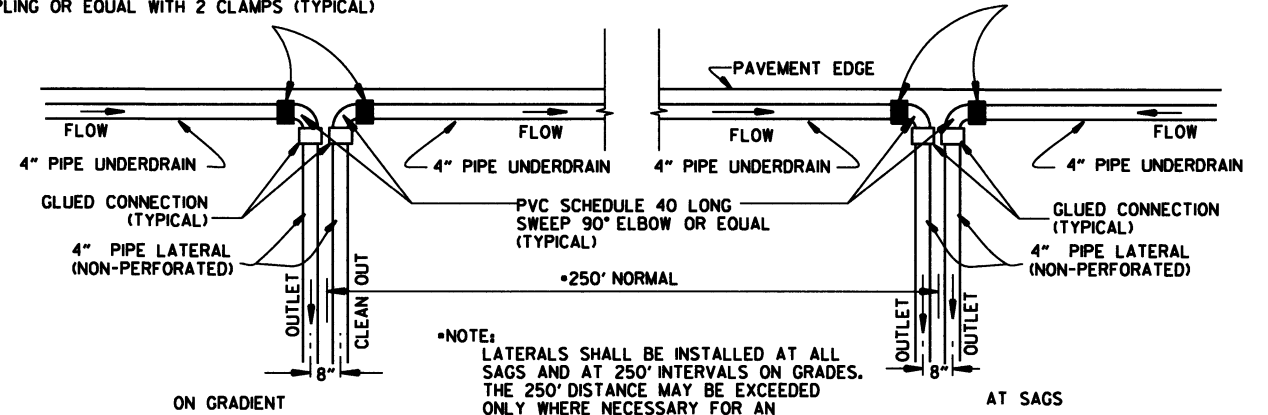
NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 61 OF THE STANDARD SPECIFICATIONS.
2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 61 OF THE STANDARD SPECIFICATIONS.
3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."
7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



*NOTE: LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE: 5 1/2" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11-3-94	REVISED FOR DUAL LATERALS	11-3-94
10-1-92	SUBSTITUTED GEOTEXTILE	10-1-92
8-15-91	ADDED POLYETHYLENE PIPE	8-15-91
11-8-90	DELETED ALTERNATE NOTE	11-8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		35 MPH		40 MPH		45 MPH		50 MPH		55 MPH		60 MPH		65 MPH		70 MPH		75 MPH			
	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)		
	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE		
0° 15'	NC		NC		NC		NC		NC		NC		NC		NC		NC		NC		NC	
0° 30'	NC		NC		NC		NC		NC		NC		NC		RC	96	RC	96	RC	96	0.022	101
0° 45'	NC		NC		NC		NC		RC	96	0.022	101	0.026	110	0.030	120	0.034	130	0.038	139	0.042	149
1° 00'	NC		NC		NC		RC	90	0.028	115	0.032	125	0.038	139	0.044	154	0.050	168	0.056	182	0.062	197
1° 15'	NC		NC		RC	84	0.022	88	0.028	108	0.032	125	0.038	139	0.044	154	0.050	168	0.056	182	0.062	197
1° 30'	NC		RC	78	0.022	88	0.028	108	0.032	125	0.038	139	0.044	154	0.050	168	0.056	182	0.062	197	0.070	216
1° 45'	RC	72	RC	78	0.026	97	0.030	113	0.036	134	0.044	154	0.050	168	0.056	182	0.062	197	0.068	211	0.074	226
2° 00'	RC	72	0.024	86	0.028	101	0.034	122	0.042	149	0.050	168	0.058	187	0.066	206	0.074	226	0.082	245	0.090	264
2° 15'	RC	72	0.026	90	0.032	109	0.038	131	0.046	158	0.054	178	0.062	197	0.070	216	0.078	235	0.086	254	0.094	274
2° 30'	0.022	75	0.028	94	0.034	113	0.042	140	0.050	168	0.058	187	0.066	206	0.074	226	0.082	245	0.090	264	0.098	283
2° 45'	0.024	79	0.030	98	0.036	122	0.044	149	0.052	176	0.060	203	0.068	222	0.076	241	0.084	260	0.092	279	0.100	298
3° 00'	0.026	83	0.034	105	0.040	126	0.050	158	0.060	192	0.070	226	0.080	262	0.090	298	0.100	334	0.110	370	0.120	406
3° 15'	0.028	86	0.036	109	0.044	134	0.052	162	0.062	197	0.072	231	0.082	266	0.092	302	0.102	338	0.112	374	0.122	410
3° 30'	0.030	90	0.038	113	0.048	139	0.056	171	0.066	206	0.076	240	0.086	274	0.096	308	0.106	344	0.116	380	0.126	416
3° 45'	0.032	93	0.040	117	0.050	147	0.058	176	0.068	210	0.078	244	0.088	278	0.098	312	0.108	348	0.118	384	0.128	420
4° 00'	0.034	97	0.042	121	0.052	151	0.062	185	0.072	219	0.082	253	0.092	287	0.102	321	0.112	357	0.122	393	0.132	429
4° 15'	0.036	100	0.044	125	0.054	155	0.064	189	0.074	223	0.084	257	0.094	291	0.104	325	0.114	361	0.124	397	0.134	433
4° 30'	0.038	100	0.048	129	0.058	160	0.068	198	0.078	231	0.088	265	0.098	299	0.108	333	0.118	369	0.128	405	0.138	441
4° 45'	0.038	104	0.048	133	0.060	168	0.070	203	0.080	237	0.090	271	0.100	305	0.110	339	0.120	375	0.130	411	0.140	447
5° 00'	0.040	108	0.050	137	0.062	172	0.072	207	0.082	241	0.092	275	0.102	309	0.112	343	0.122	379	0.132	415	0.142	451
5° 30'	0.044	115	0.054	144	0.066	181	0.078	221	0.088	255	0.098	289	0.108	323	0.118	357	0.128	393	0.138	429	0.148	465
6° 00'	0.046	119	0.058	152	0.070	189	0.082	230	0.092	264	0.102	298	0.112	332	0.122	366	0.132	402	0.142	438	0.152	474
6° 30'	0.050	126	0.062	160	0.074	198	0.086	239	0.096	273	0.106	307	0.116	341	0.126	375	0.136	411	0.146	447	0.156	483
7° 00'	0.052	130	0.064	164	0.078	206	0.090	248	0.098	282	0.108	316	0.118	350	0.128	384	0.138	420	0.148	456	0.158	492
7° 30'	0.054	133	0.066	172	0.080	210	0.092	252	0.100	286	0.108	320	0.118	354	0.128	388	0.138	424	0.148	460	0.158	496
8° 00'	0.058	140	0.070	178	0.084	219	0.094	257	0.102	291	0.110	325	0.118	359	0.128	393	0.138	429	0.148	465	0.158	501
8° 30'	0.060	144	0.072	179	0.086	223	0.096	261	0.104	295	0.112	329	0.120	363	0.128	397	0.138	433	0.148	469	0.158	507
9° 00'	0.062	148	0.076	187	0.088	227	0.098	265	0.106	299	0.114	333	0.122	367	0.130	401	0.138	437	0.148	473	0.158	513
9° 30'	0.064	151	0.078	191	0.092	235	0.100	270	0.108	303	0.116	337	0.124	371	0.132	405	0.140	441	0.148	477	0.158	519
10° 00'	0.066	155	0.080	195	0.094	240	0.102	274	0.110	307	0.118	341	0.126	375	0.134	409	0.142	445	0.150	481	0.158	525
11° 00'	0.070	162	0.084	203	0.098	244	0.106	278	0.114	311	0.122	345	0.130	379	0.138	413	0.146	449	0.154	485	0.162	531
12° 00'	0.074	169	0.088	211	0.098	248	0.108	282	0.116	315	0.124	349	0.132	383	0.140	417	0.148	453	0.156	489	0.164	537
13° 00'	0.076	173	0.090	215	0.100	252	0.108	286	0.116	319	0.124	353	0.132	387	0.140	421	0.148	457	0.156	493	0.164	543
14° 00'	0.080	180	0.094	222	0.104	256	0.112	290	0.120	323	0.128	357	0.136	391	0.144	425	0.152	461	0.160	497	0.168	549
15° 00'	0.082	184	0.096	226	0.106	260	0.114	294	0.122	327	0.130	361	0.138	395	0.146	429	0.154	465	0.162	501	0.170	555
16° 00'	0.086	191	0.098	230	0.108	264	0.116	298	0.124	331	0.132	365	0.140	399	0.148	433	0.156	469	0.164	505	0.172	559
17° 00'	0.088	194	0.100	234	0.110	268	0.118	302	0.126	335	0.134	369	0.142	403	0.150	437	0.158	473	0.166	509	0.174	563
18° 00'	0.090	198	0.102	238	0.112	272	0.120	306	0.128	339	0.136	373	0.144	407	0.152	441	0.160	477	0.168	513	0.176	567
19° 00'	0.092	202	0.104	242	0.114	276	0.122	310	0.130	343	0.138	377	0.146	411	0.154	445	0.162	481	0.170	517	0.178	571
20° 00'	0.094	205	0.106	246	0.116	280	0.124	314	0.132	347	0.140	381	0.148	415	0.156	449	0.164	485	0.172	521	0.180	575
21° 00'	0.096	209	0.108	250	0.118	284	0.126	318	0.134	351	0.142	385	0.150	419	0.158	453	0.166	489	0.174	525	0.182	579
22° 00'	0.098	209	0.110	254	0.120	288	0.128	322	0.136	355	0.144	389	0.152	423	0.160	457	0.168	493	0.176	531	0.184	583
23° 00'	0.098	212	0.110	258	0.122	292	0.130	326	0.138	359	0.146	393	0.154	427	0.162	461	0.170	497	0.178	537	0.186	587
24° 00'	0.098	212	0.110	258	0.122	292	0.130	326	0.138	359	0.146	393	0.154	427	0.162	461	0.170	497	0.178	537	0.186	587
25° 00'	0.100	216	0.110	262	0.124	296	0.132	330	0.140	363	0.148	397	0.156	431	0.164	465	0.172	501	0.180	541	0.188	591

ABBREVIATIONS

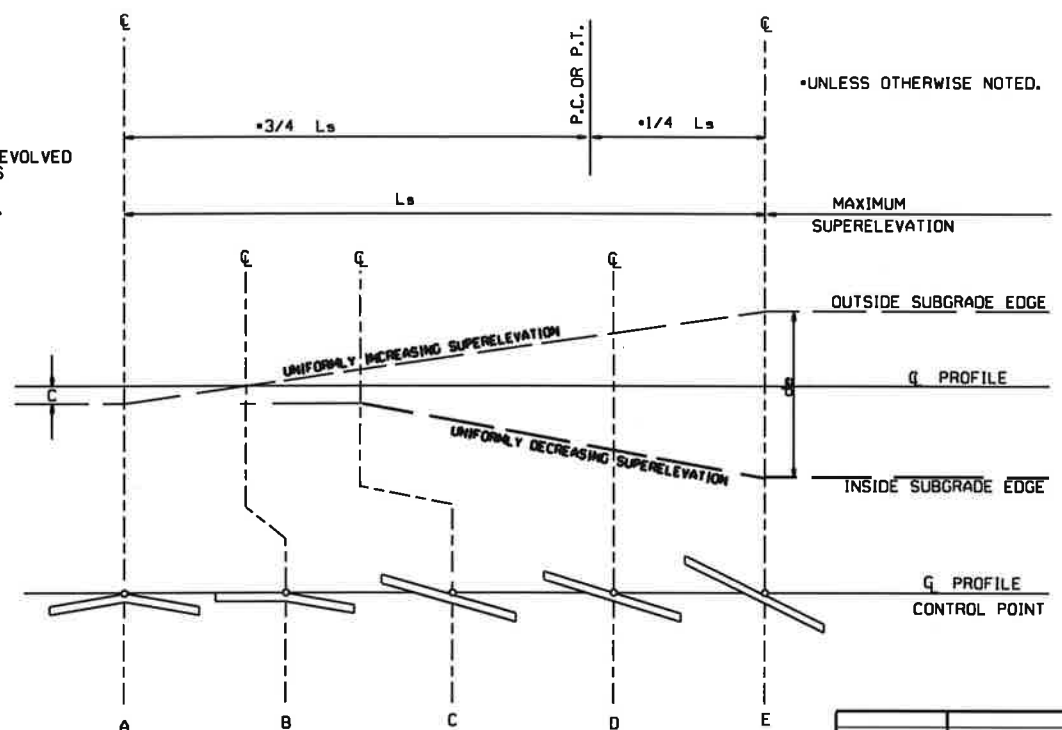
- NC - NORMAL CROWN
- RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
- e - RATE OF SUPERELEVATION (FT. PER FT.)
- Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
- L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
- d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)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

- 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:

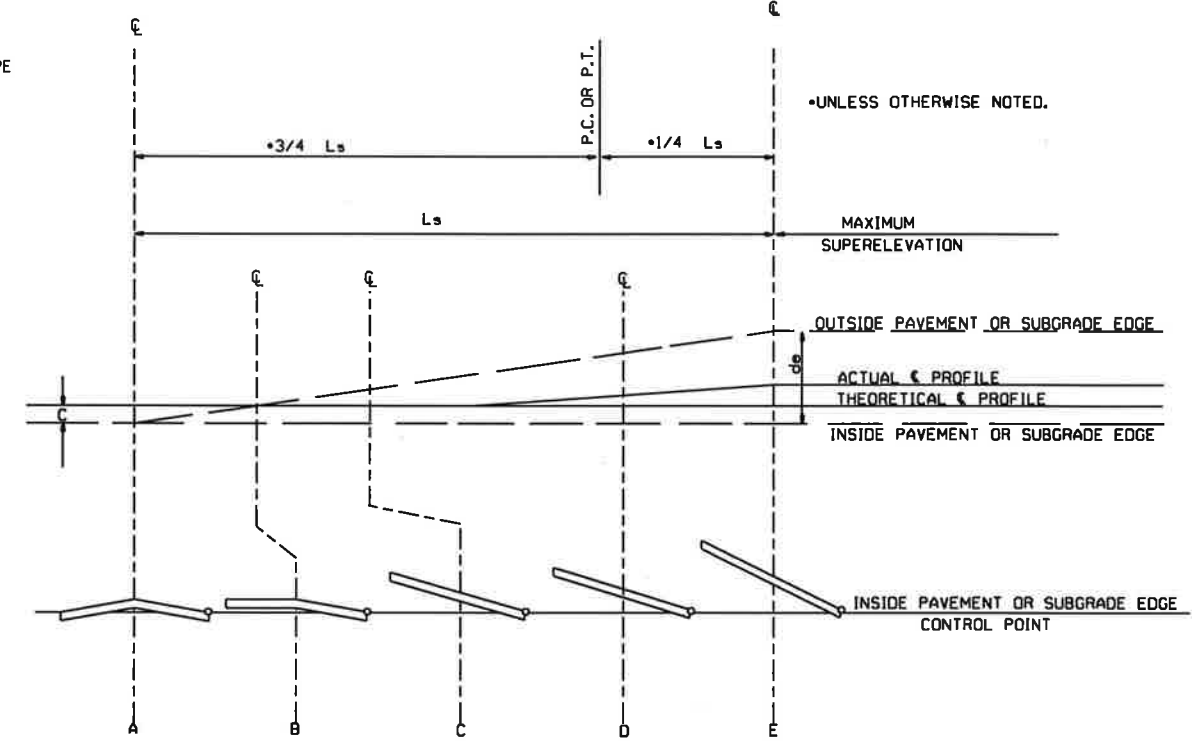
- 3 LANE UNDIVIDED - - - - +20%
- 4 LANE UNDIVIDED - - - - +50%
- 5 LANE UNDIVIDED - - - - +80%
- 6 LANE UNDIVIDED - - - - +100%

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

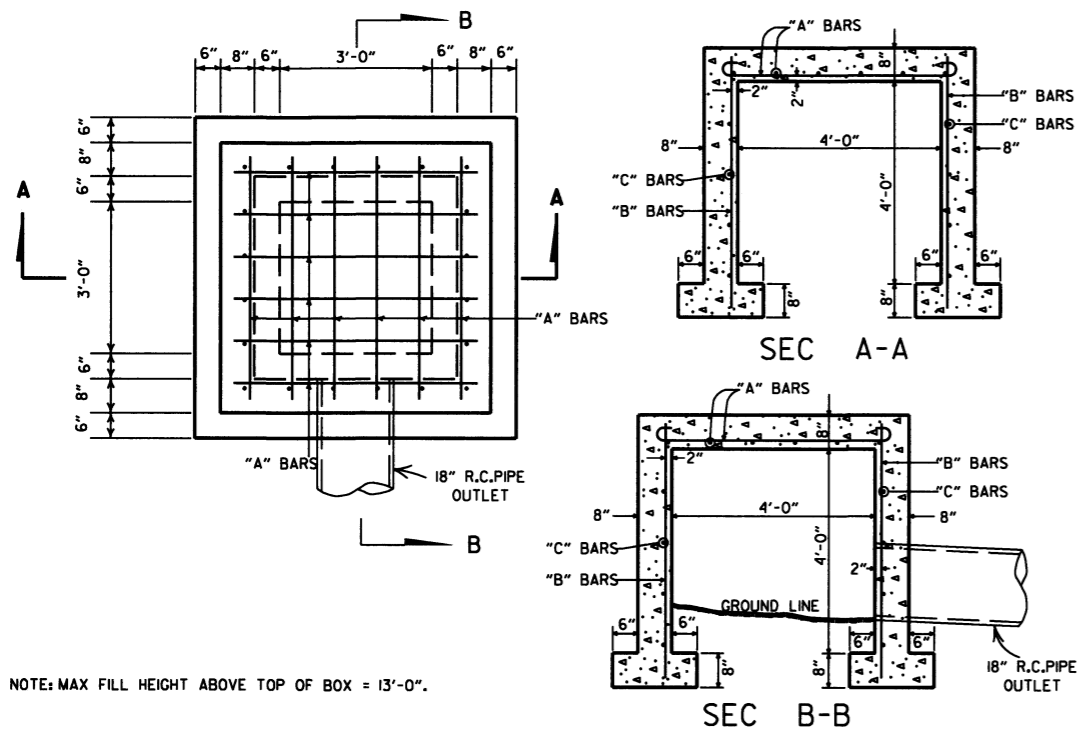
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

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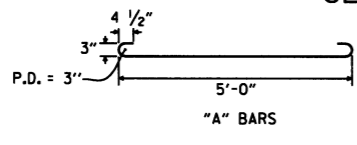
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2



NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

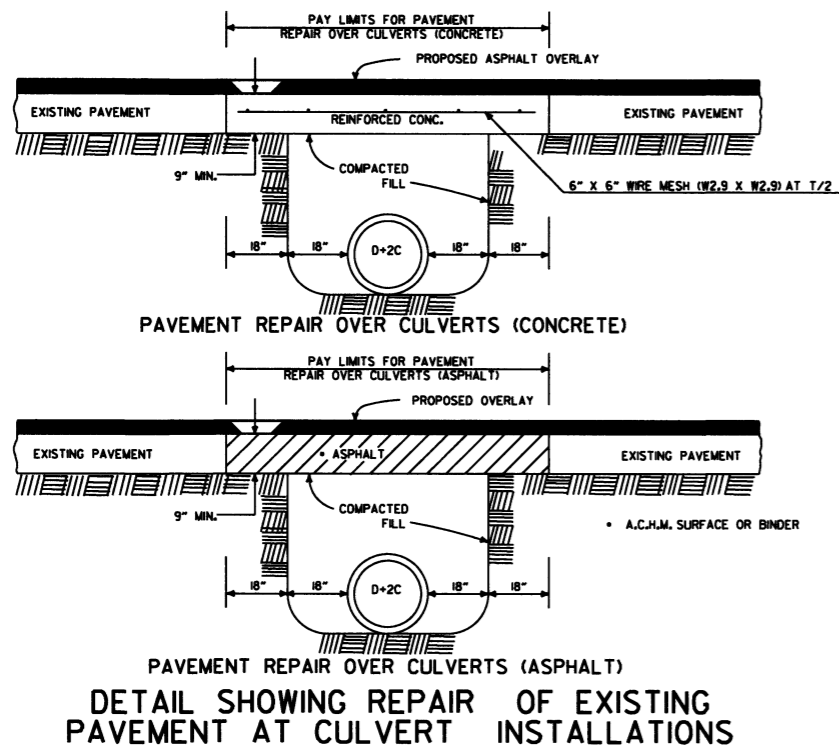
STEEL SCHEDULE			
BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 1/2"
"C"	16	5'-0"	12"



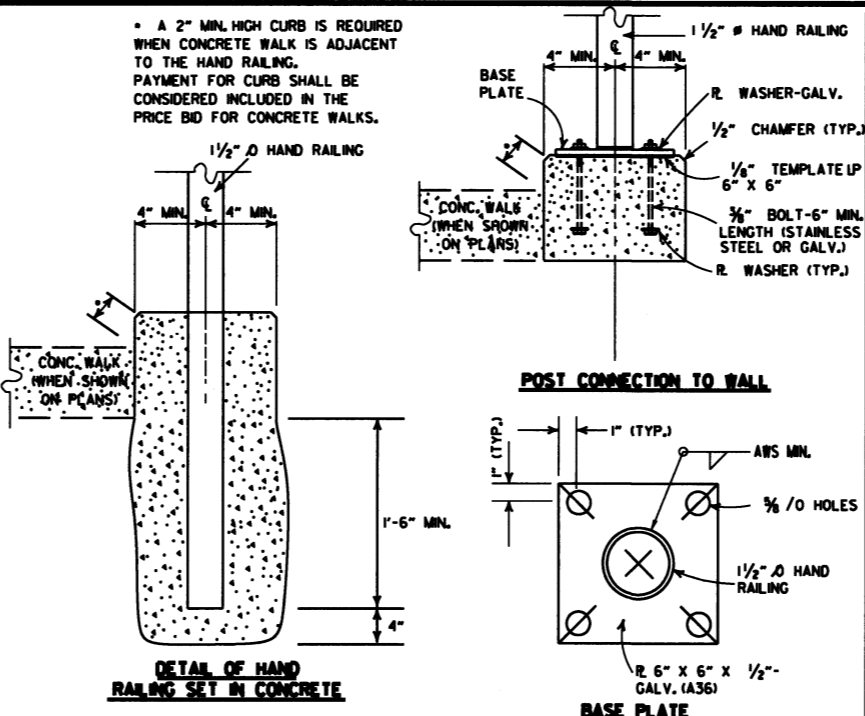
QUANTITIES
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

GENERAL NOTE:
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

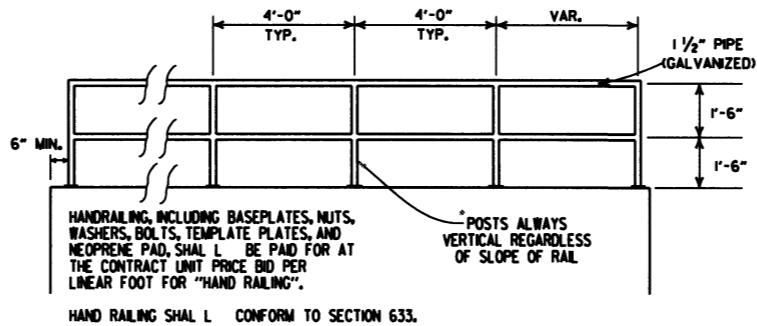
REINFORCED CONCRETE SPRING BOX



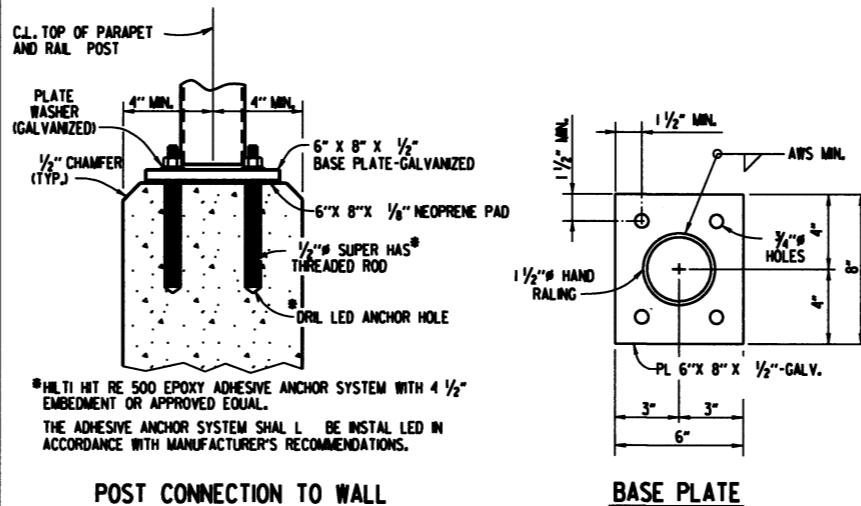
DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS



POST CONNECTION DETAILS



HAND RAILING SHALL CONFORM TO SECTION 633.

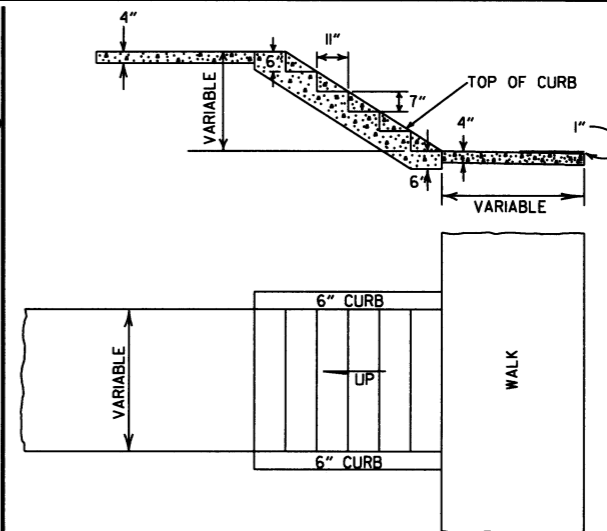


POST CONNECTION TO WALL

BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS












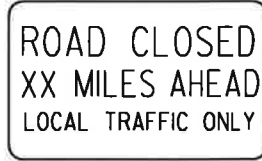










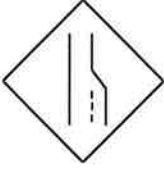




















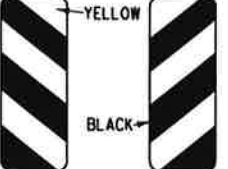


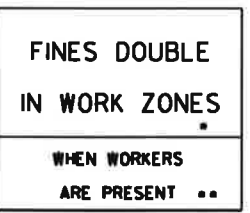
DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE, REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET & PAVEMENT REPAIR	674-4-20-79
2-2-76	12" MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

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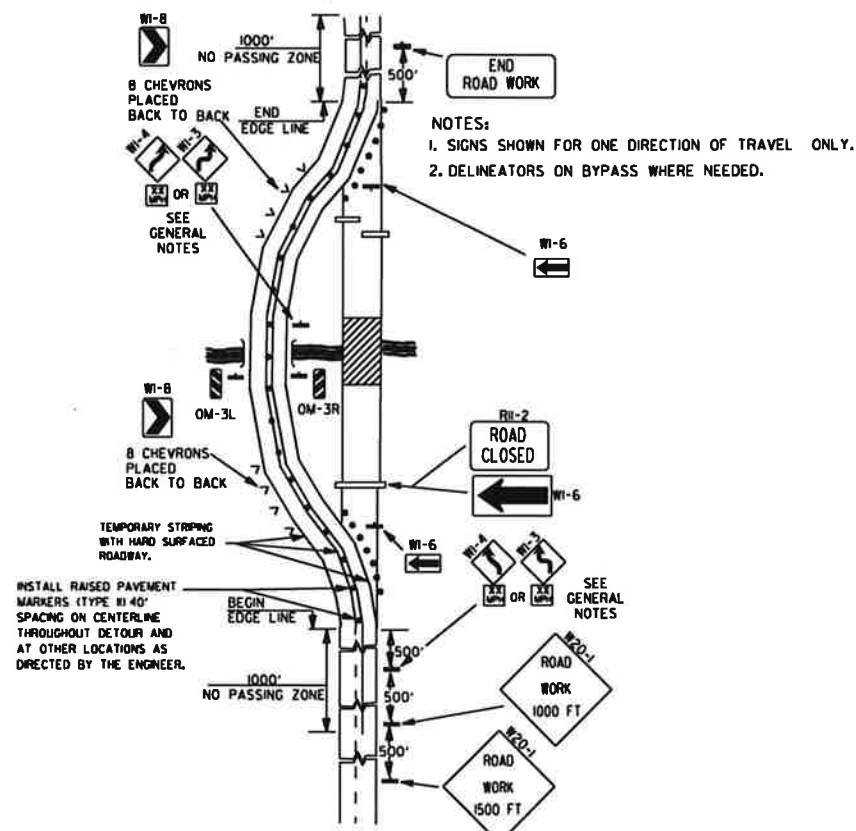
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

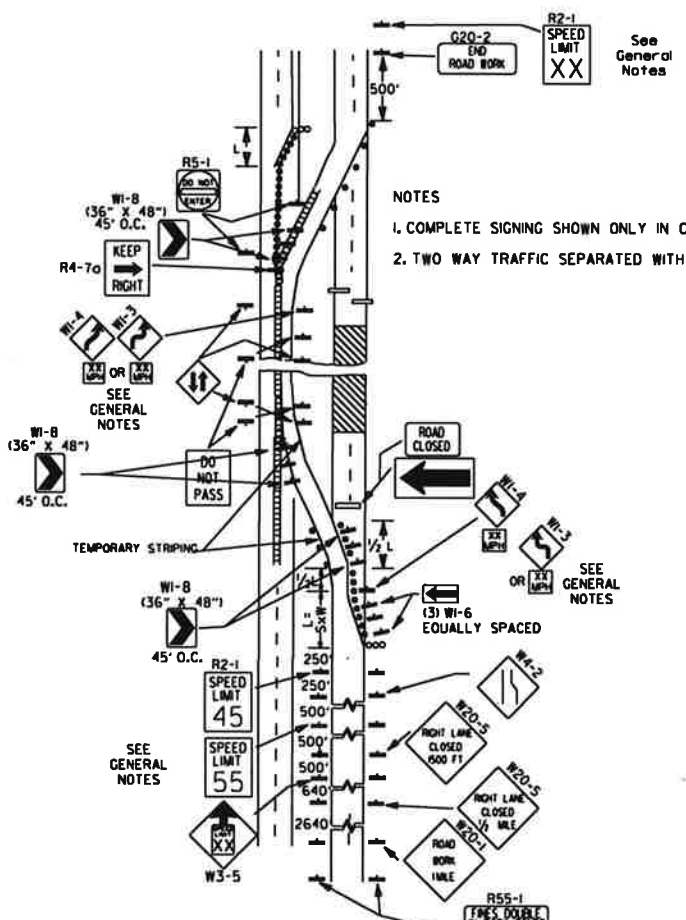
							ADVANCE DISTANCES (XXXX)
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</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>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</p> <p>GENERAL NOTES:</p> <ol style="list-style-type: none"> 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. <p>* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</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>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</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>W1-4b</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>

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

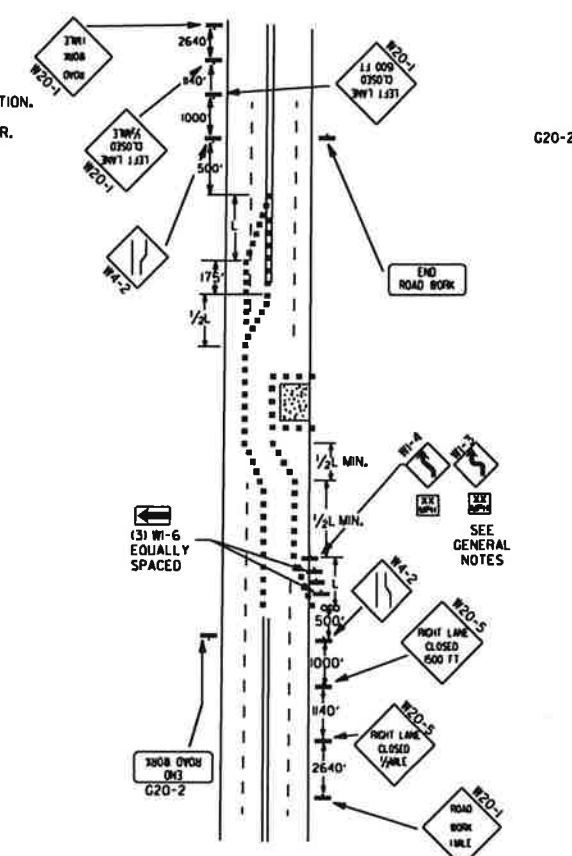
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



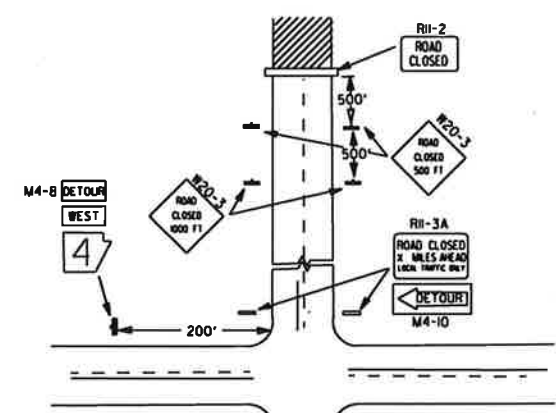
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



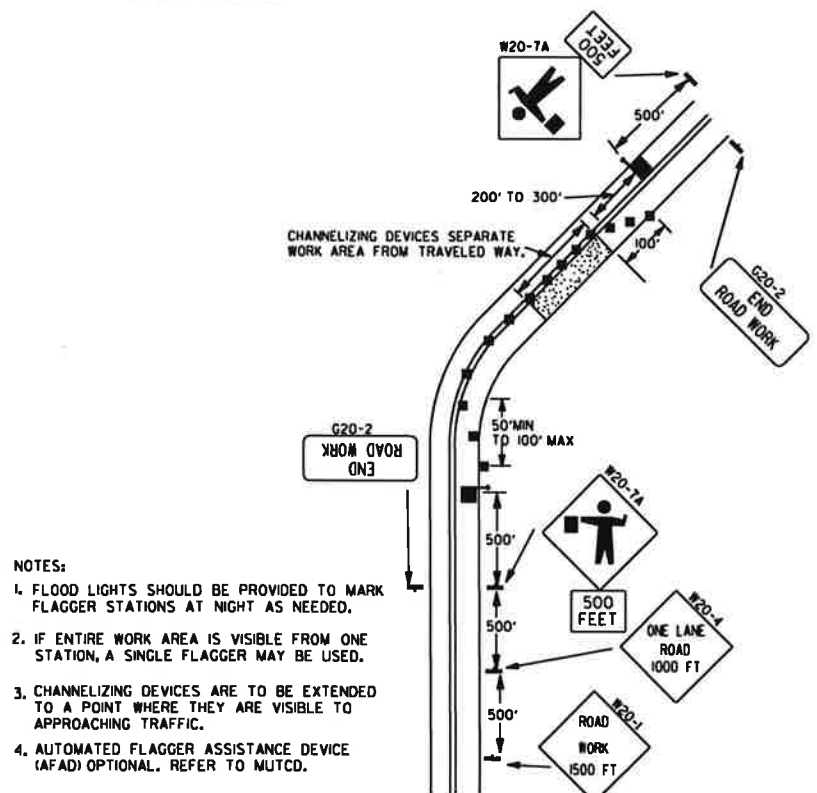
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



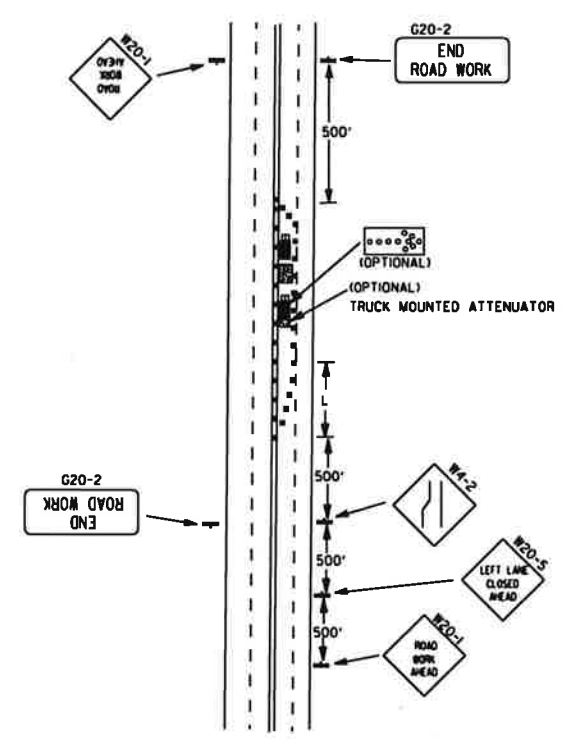
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



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

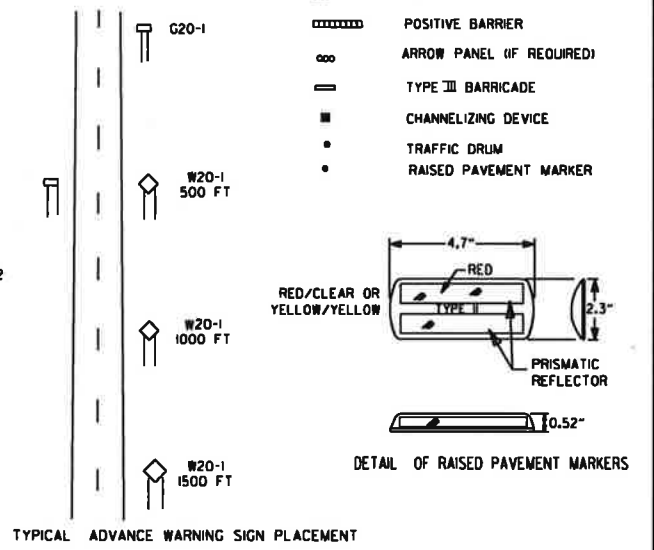


(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



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

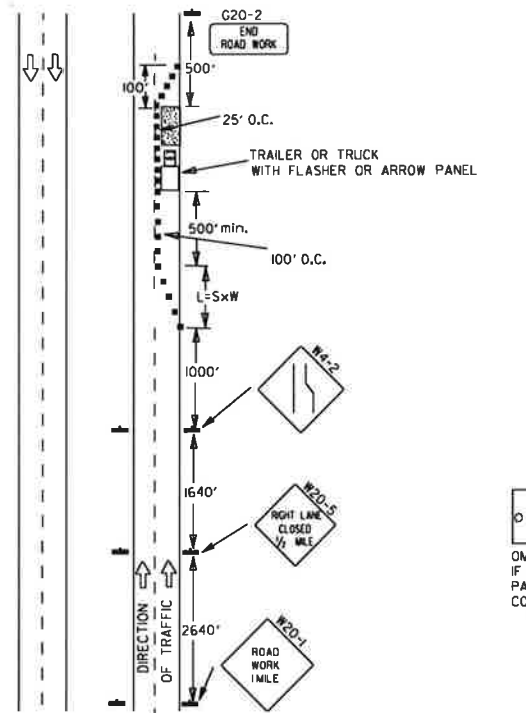
- KEY:
- FLAGGER
 - POSITIVE BARRIER
 - ARROW PANEL (IF REQUIRED)
 - TYPE III BARRICADE
 - CHANNELIZING DEVICE
 - TRAFFIC DRUM
 - RAISED PAVEMENT MARKER



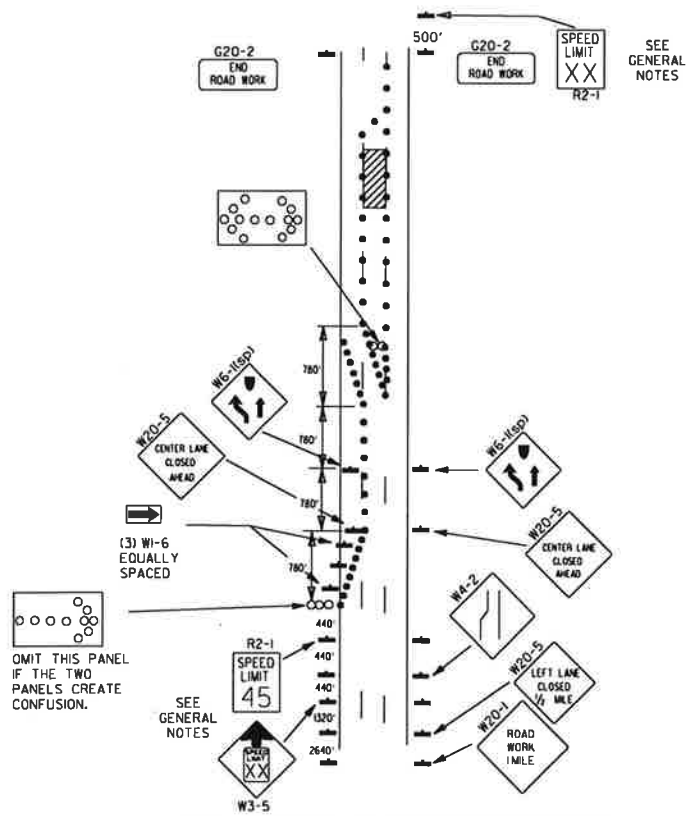
TAPER FORMULAE:
 $L = SXW$ FOR SPEEDS OF 45MPH OR MORE.
 $L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.
 WHERE:
 L = MINIMUM LENGTH OF TAPER.
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
 W = WIDTH OF OFFSET.

- GENERAL NOTES:
- THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
 - WHEN THE EXISTING SPEED LIMIT IS 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45)MPH 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.
 - WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH 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.
 - 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.
 - 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 ARODT QUALIFIED PRODUCTS LIST.
 - ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

DATE	REVISION	FILED
8-07-89	REVISED NOTE 1, ADDED NOTE 9	
9-2-95	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (G) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	



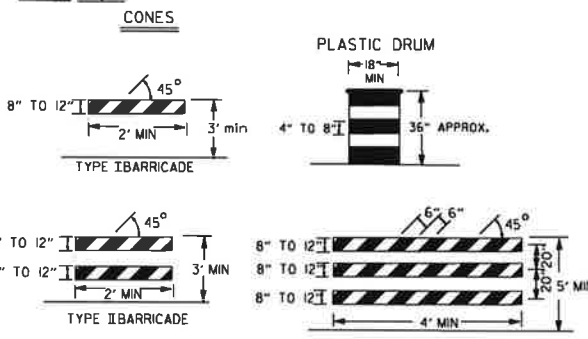
(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



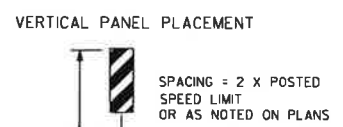
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

CHANNELIZING DEVICES

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



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



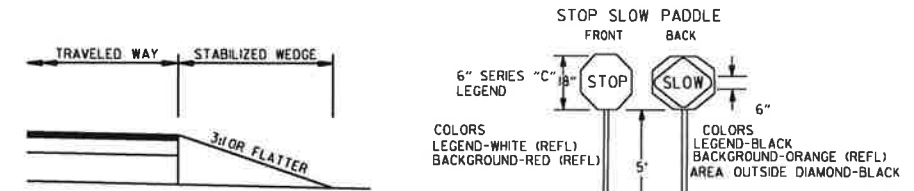
FLAG SHALL BE OF GOOD GRADE RED MATERIAL

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

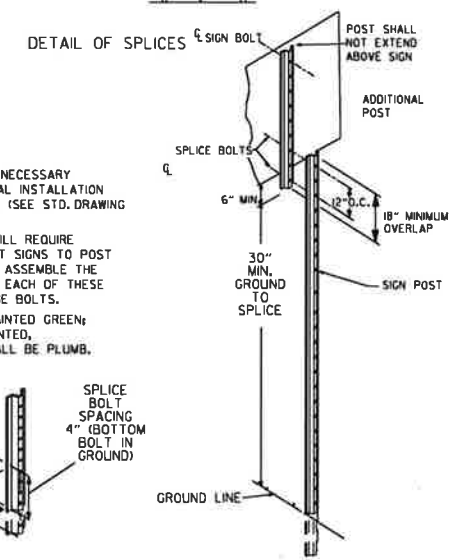
INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 6"	EDGE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

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

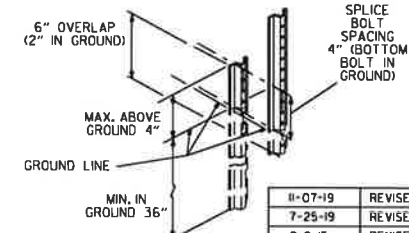
GENERAL NOTES:
 1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
 2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED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



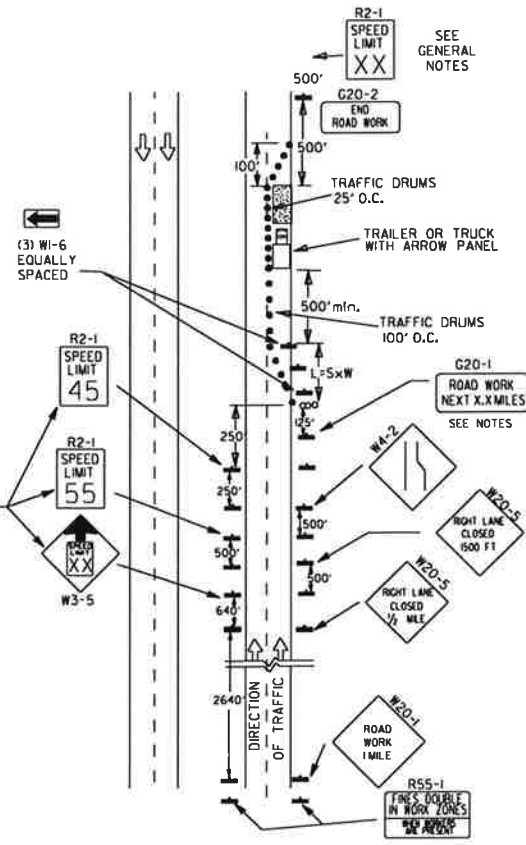
NOTE: MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



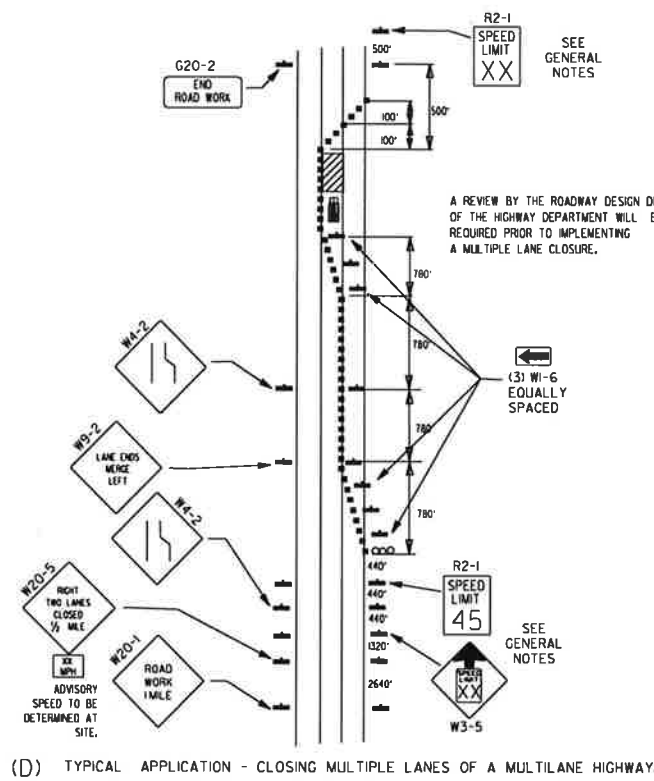
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION, TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2).
 NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS, EACH OF THESE BOLTS SHALL BE CARRIAGE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



- 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(45) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
 5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1(1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
 8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
 9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
 10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
 11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

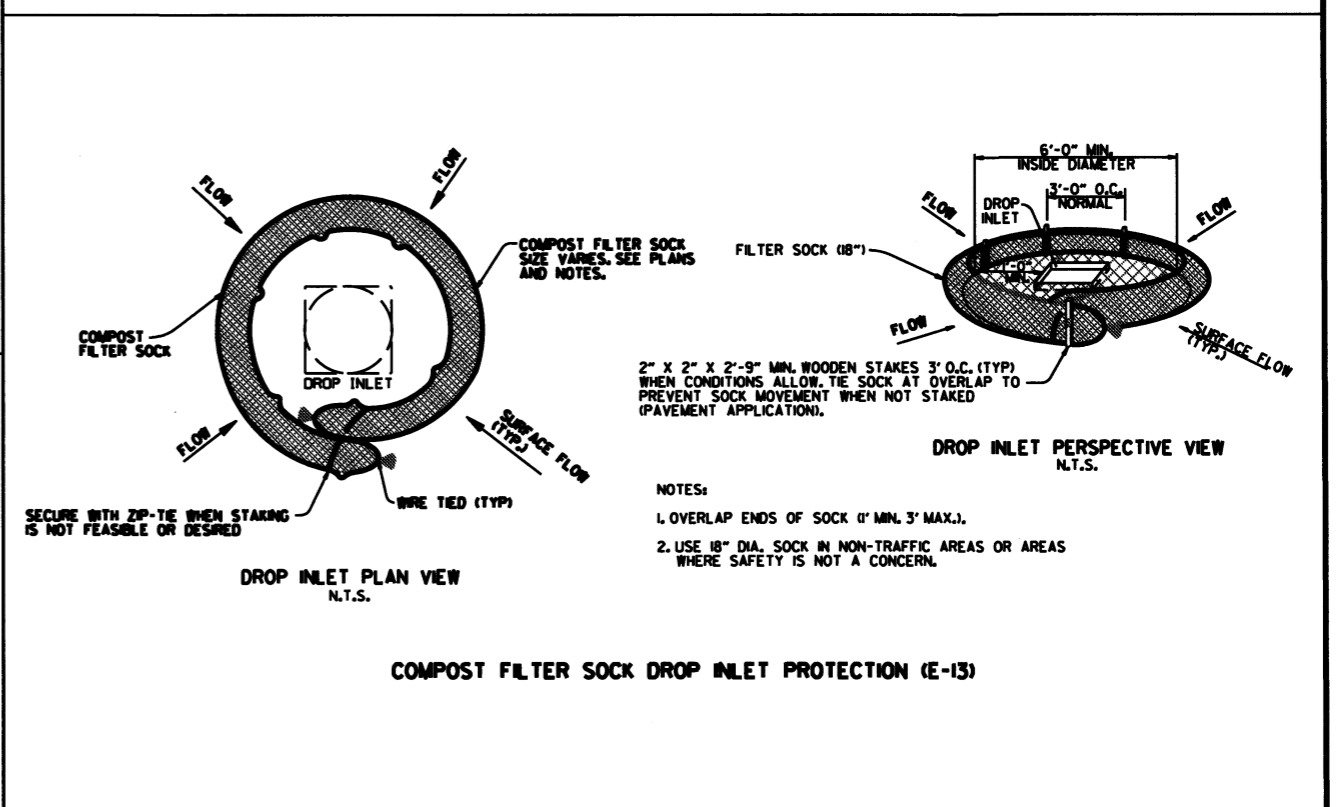
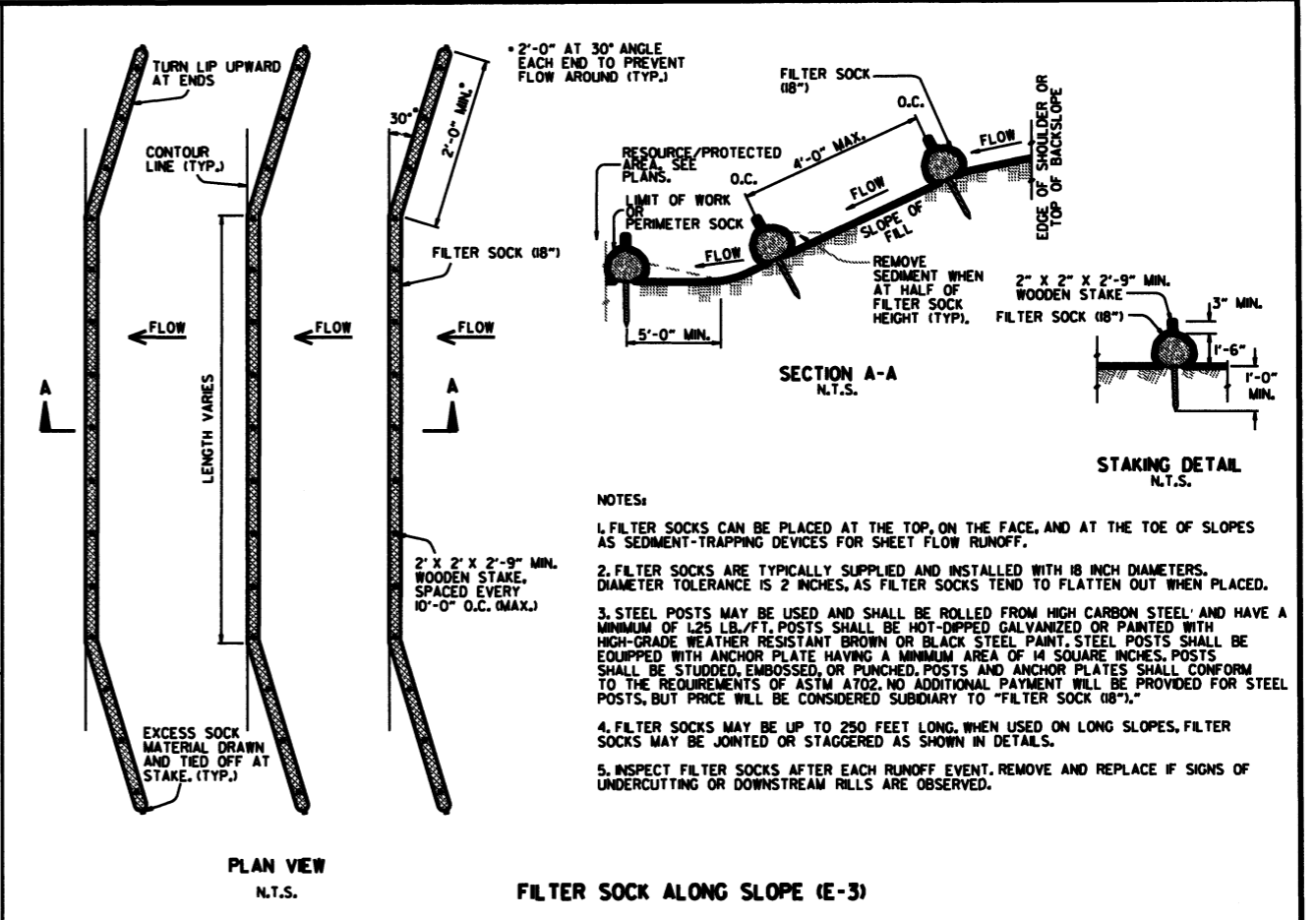
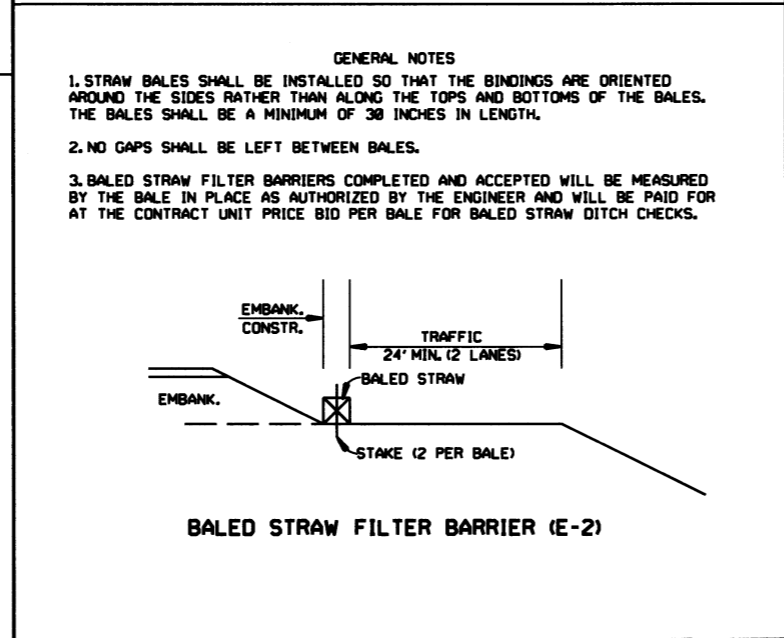
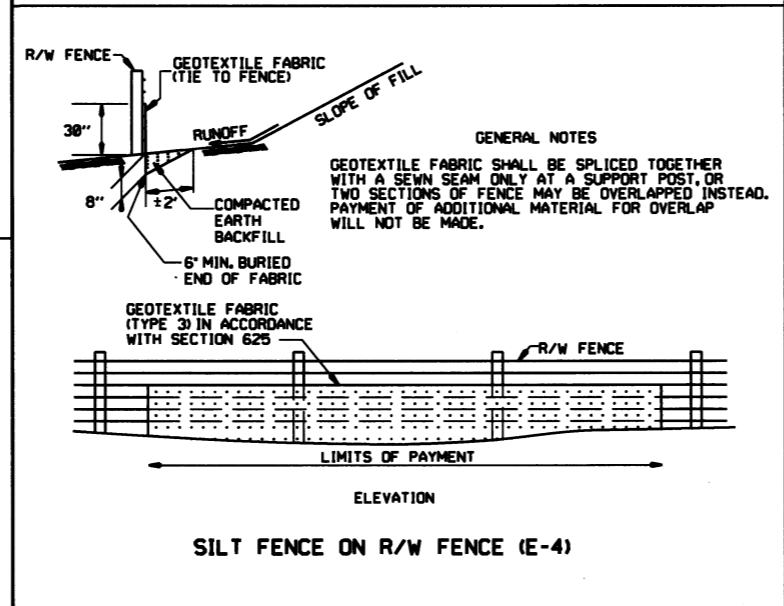
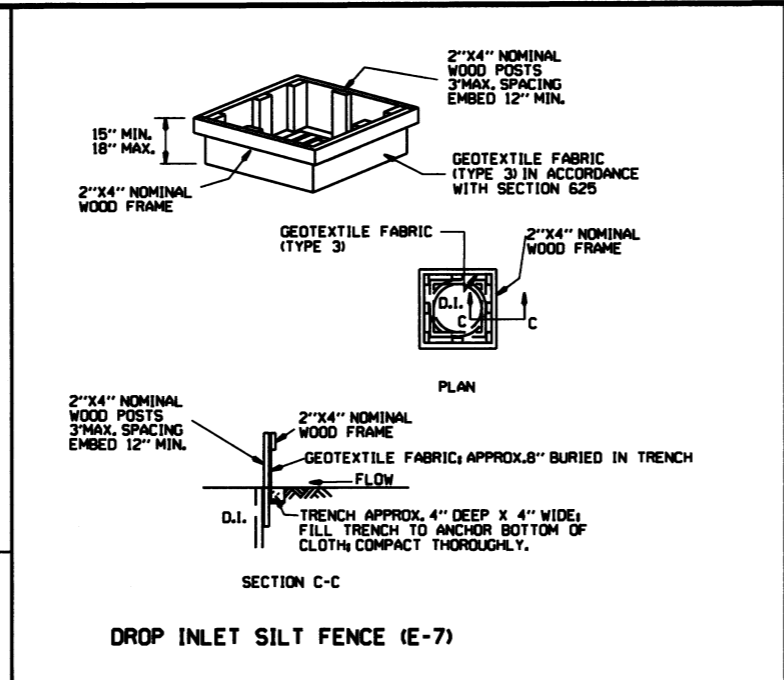
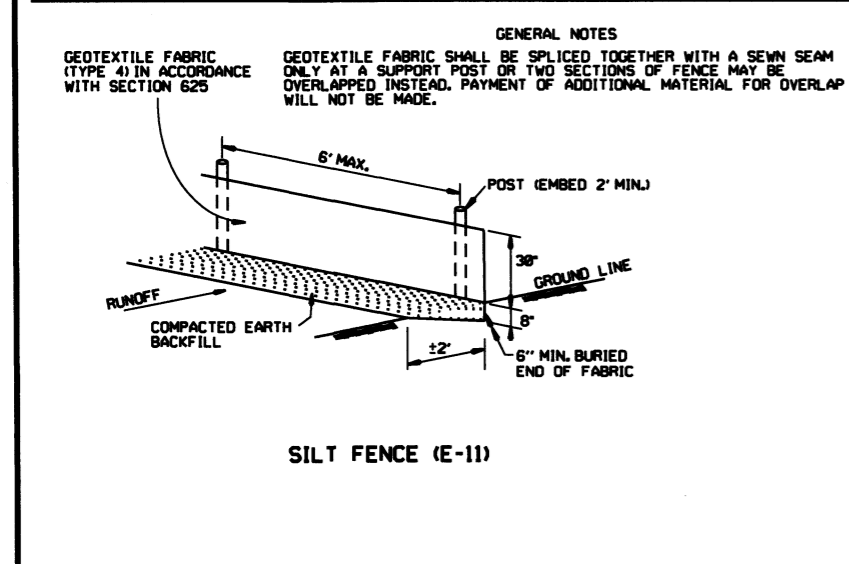
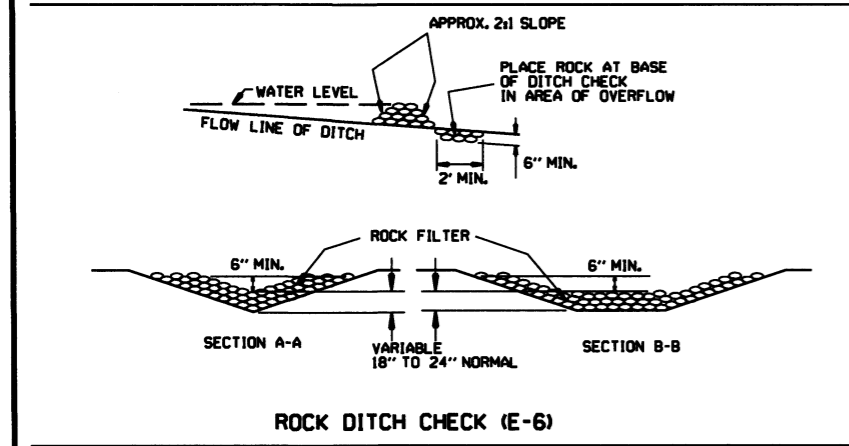
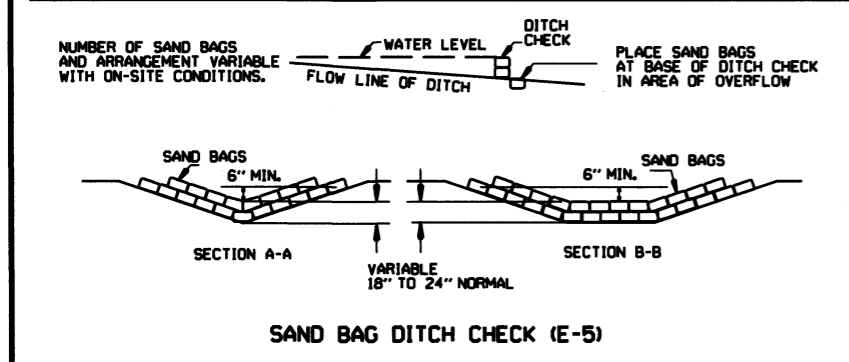
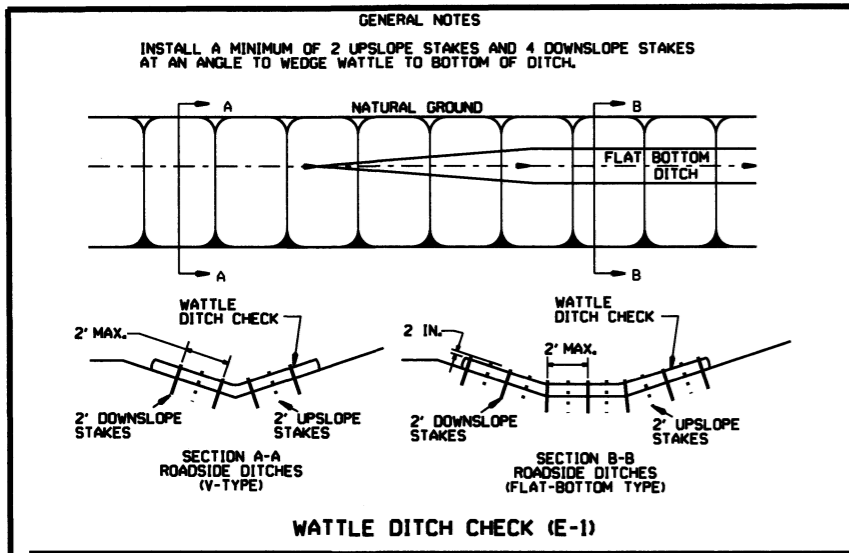


(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



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

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

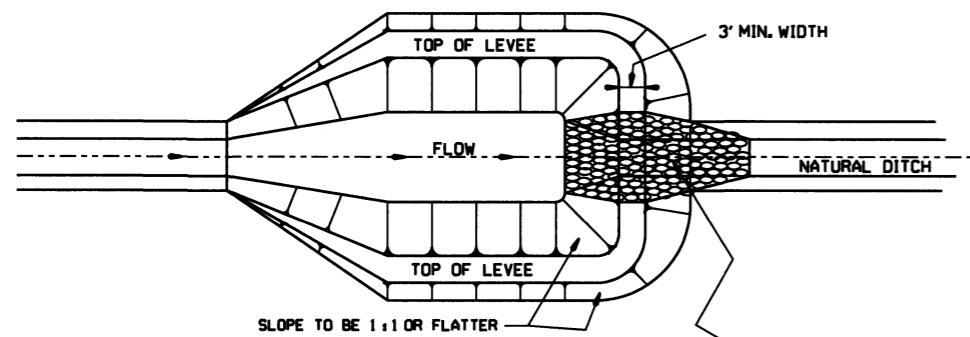


DATE	REVISION	ISSUED R.D.M.	298-7-28-76
08-02-76	ISSUED R.D.M.		298-7-28-76
10-01-92	REDRAWN		
04-01-93	REDRAWN		
06-02-94	REVISED E-1, 4, 7 & 11 DELETED E-2 & 3		6-2-94
07-15-94	REV. E-4 & E-11 MIN. 15" BURIED END OF FABRIC		7-20-95
07-20-95	REVISED SILT FENCE E-4 AND E-11		
07-18-98	ADDED NOTES		
12-15-11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

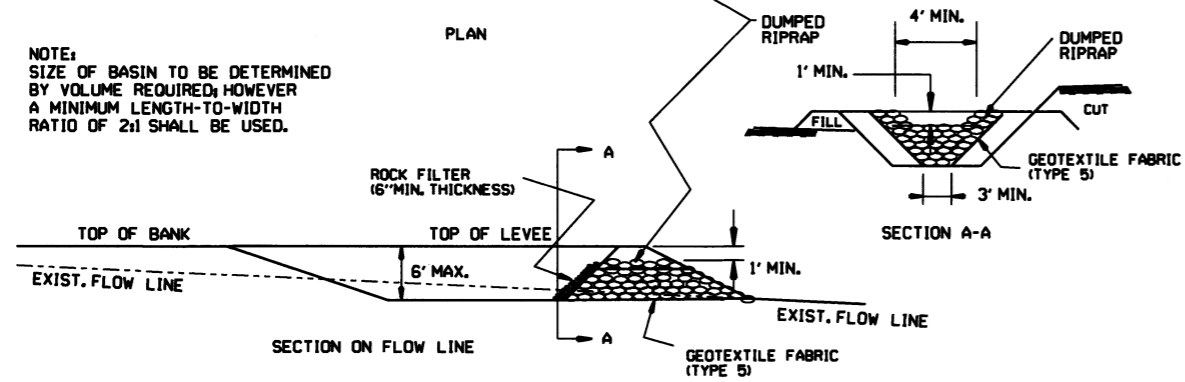
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

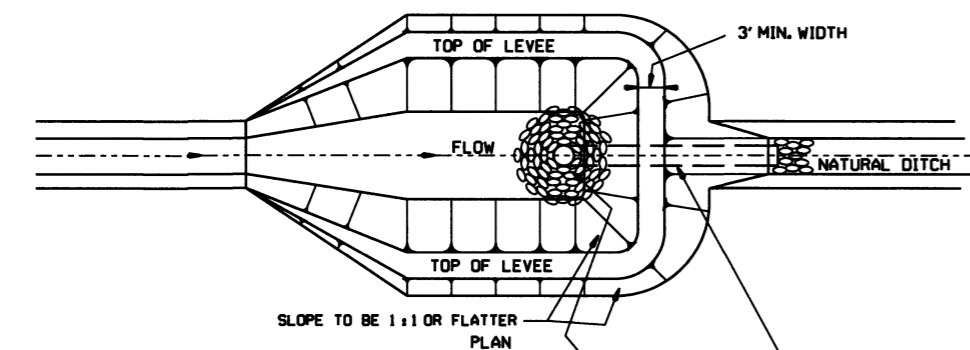
STANDARD DRAWING TEC-1



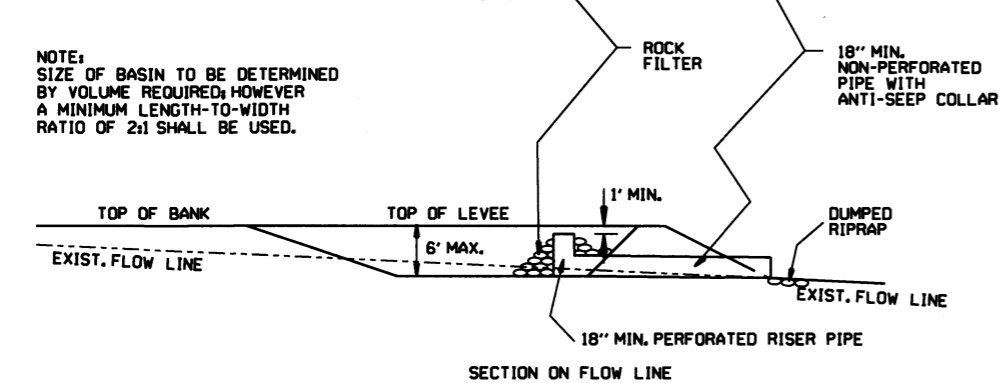
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



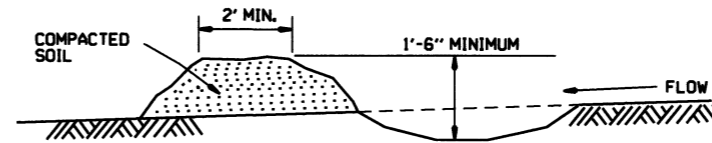
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



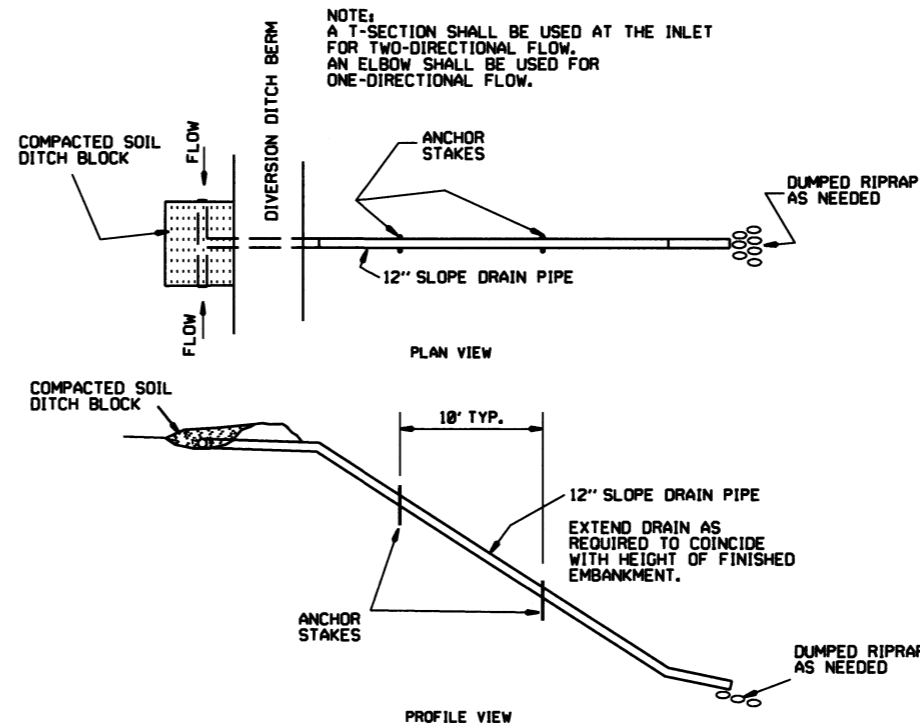
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



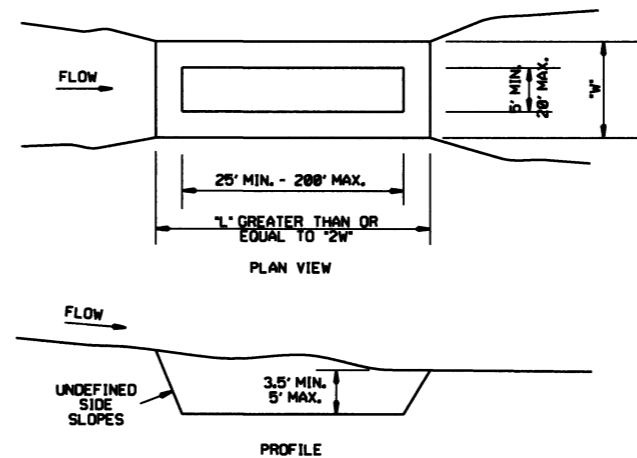
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

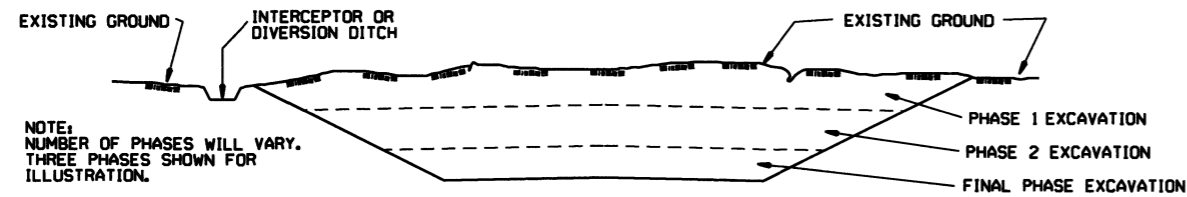
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION
 CONTROL DEVICES
 STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



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

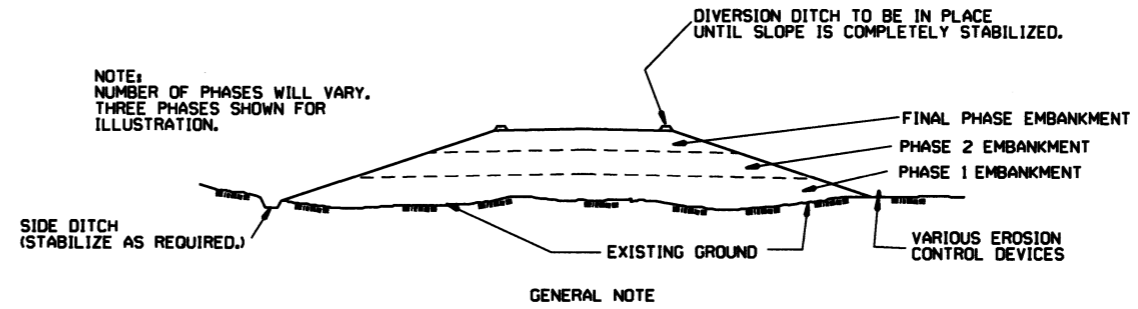
GENERAL NOTE

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

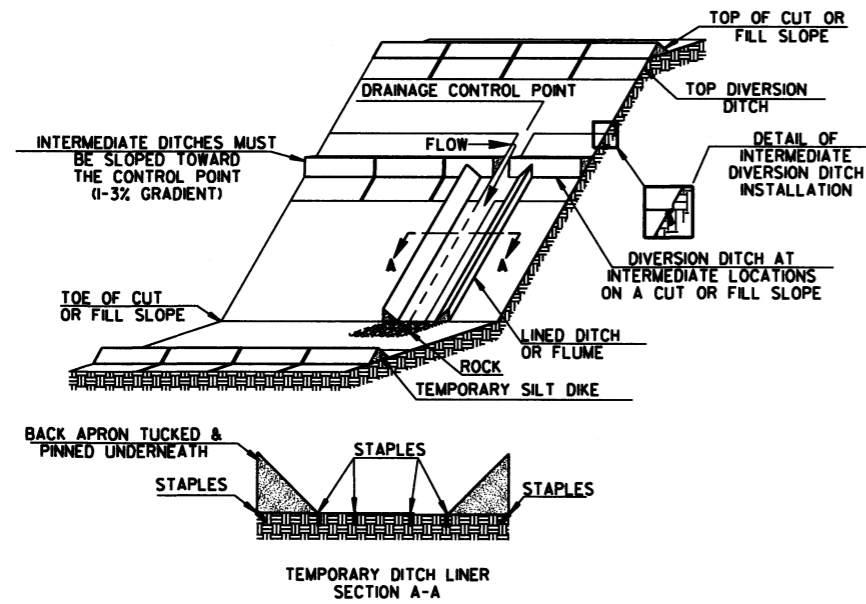
ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

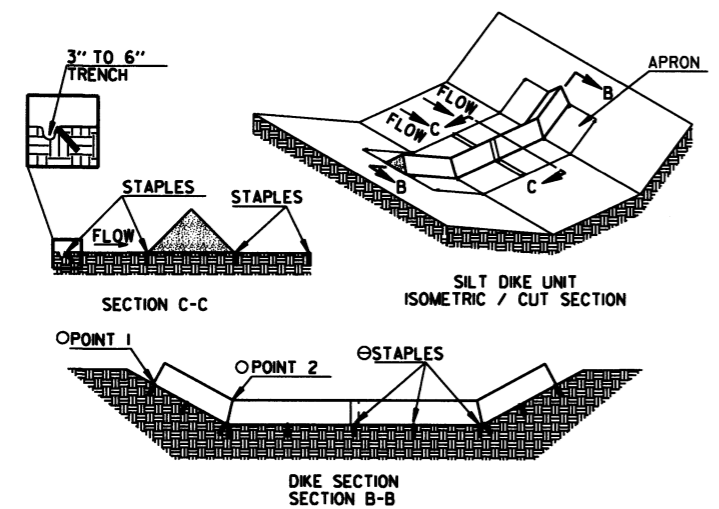
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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		
11-03-94	CORRECTED SPELLING	6-2-94
6-2-94	Drawn & Issued	FILMED
DATE	REVISION	

STANDARD DRAWING TEC-3

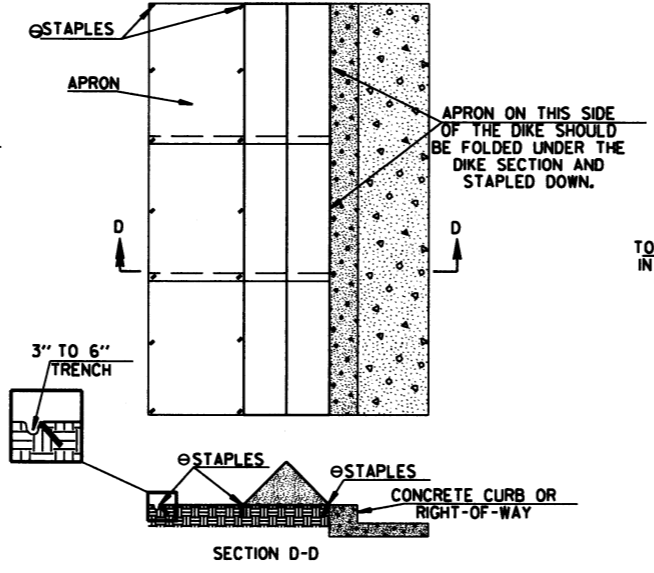


TRIANGULAR SILT DIKE INSTALLATION FOR DIVERSION DITCH AND/OR DITCH LINER

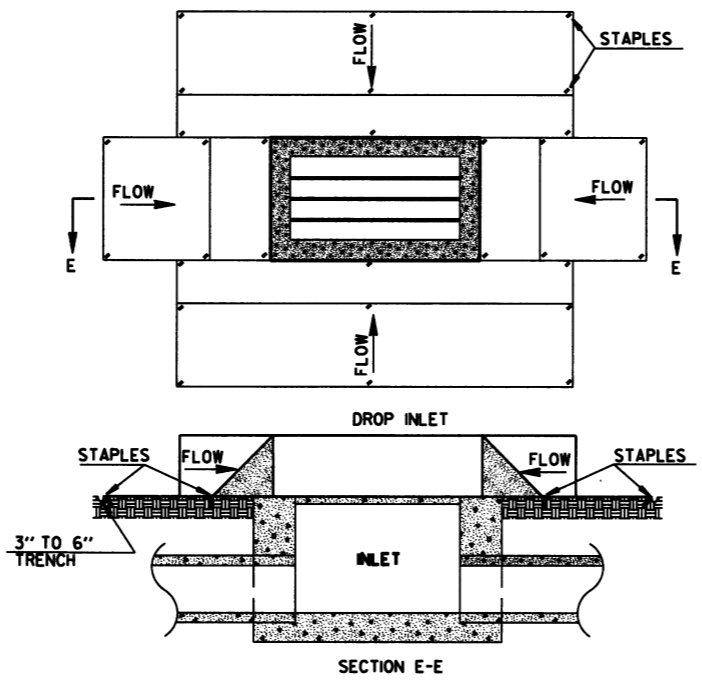


TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

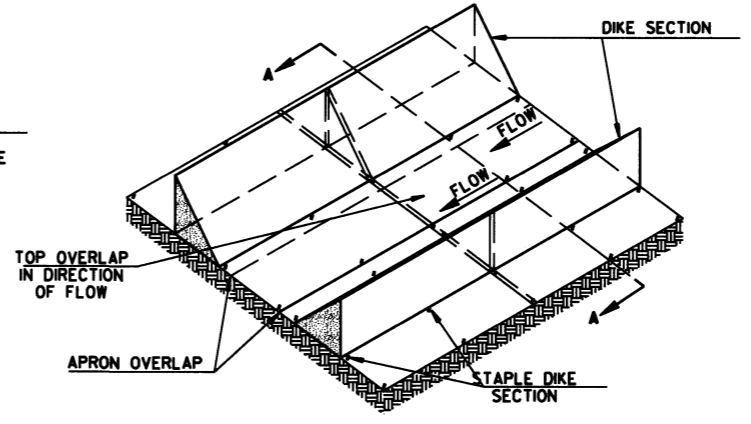
○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
 ⊗ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER



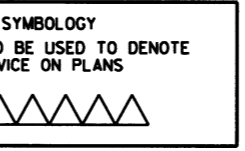
TRIANGULAR SILT DIKE INSTALLATION FOR DROP INLETS



TRIANGULAR SILT DIKE INSTALLATION FOR TEMPORARY DITCH LINER

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.
2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.
3. THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS, THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.



NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
7-26-12	REVISOR	GENERAL NOTE 2.	
12-15-11	ISSUED		
DATE	REVISION		FILMED
			STANDARD DRAWING TEC-4