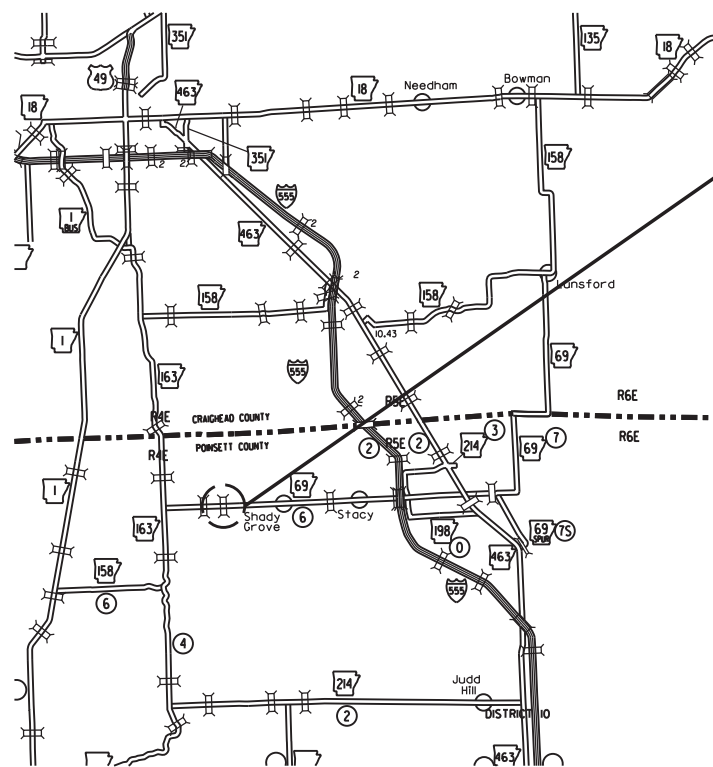


DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	1	38
HWY. 69 STR. & APPRS. (POINSETT CO.) (S)						



VICINITY MAP

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY



HWY. 69 STR. & APPRS.
(POINSETT CO.) (S)

POINSETT COUNTY
ROUTE 69 SECTION 6

JOB 101132

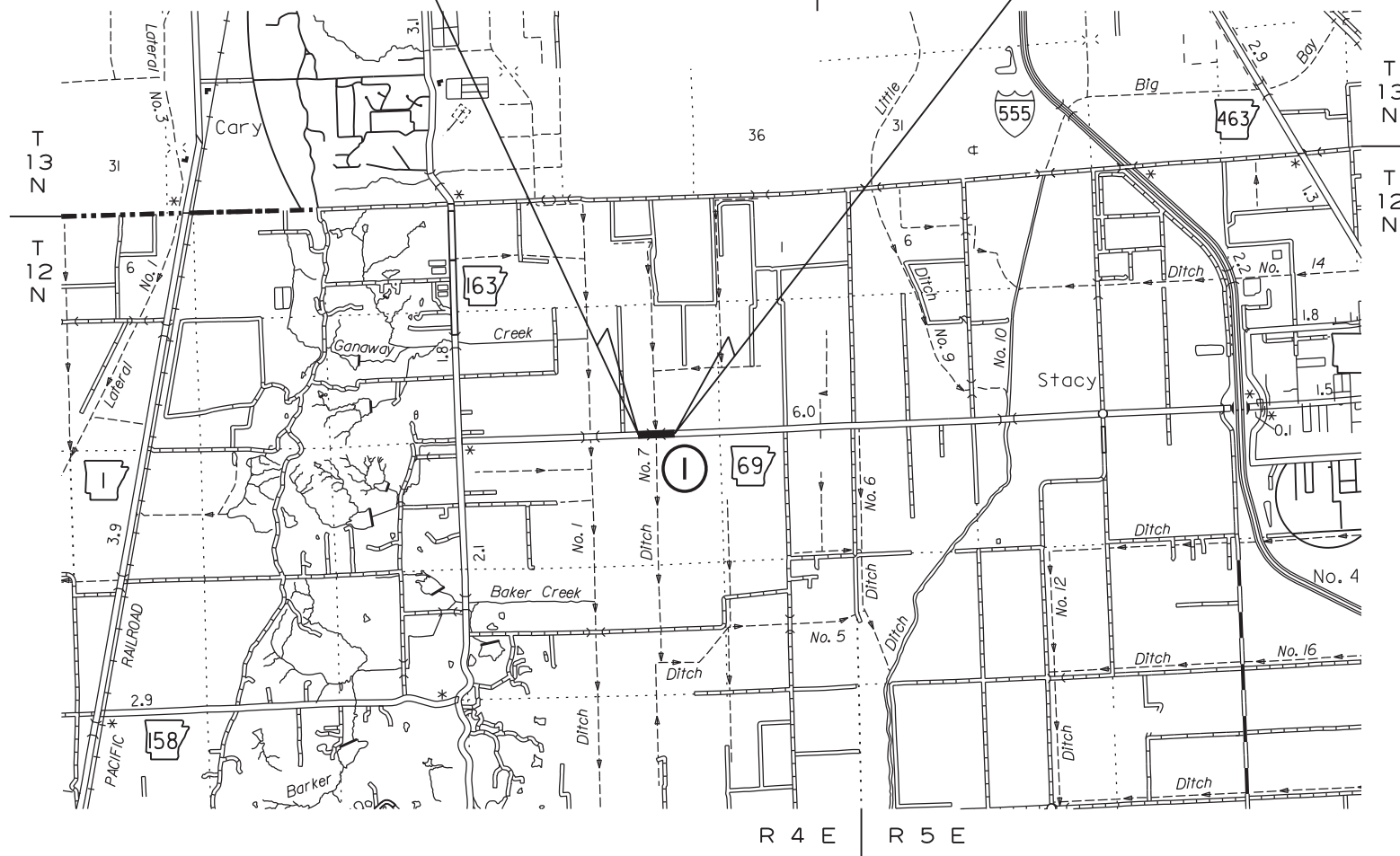
FED. AID PROJ. NHPP-0056(68)

STA. 100+00.00
BEGIN JOB 101132
LOG MILE 1.491

STA. 102+00.00
END JOB 101132

NOT TO SCALE

R 4 E | R 5 E



STRUCTURES OVER 20' -0" SPAN

- ① STA. 100+97.00 CONSTRUCT
TRIPLE 8' X 6' X 68' R.C. BOX CULVERT
WITH 3:1 WINGS LT. AND RT.
Q25 = 565 CFS D.A. = 4.56 SQ. MI.
SPAN = 26' -6"

ARK. HWY. DIST. NO. 10

DESIGN TRAFFIC DATA

DESIGN YEAR.....2045
2025 ADT.....1800
2045 ADT.....2100
2045 DHV.....231
DIRECTIONAL DISTRIBUTION.....0.60
TRUCKS.....5%
DESIGN SPEED.....55 MPH



Digitally signed by Michael L. Foster
Date: 2025.06.12 16:02:55 -05'00'

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°40' 42"	N 35°40' 42"	N 35°40' 42"
LONGITUDE	W 90°37' 58"	W 90°37' 57"	W 90°37' 56"

LENGTH OF PROJECT CALCULATED ALONG C.L.			
GROSS LENGTH OF PROJECT	200.00	FEET OR	0.038 MILES
NET . . . ROADWAY	173.50	.	0.033 MILES
NET . . . BRIDGES	26.50	.	0.005 MILES
NET . . . PROJECT	200.00	.	0.038 MILES

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	2	38
		INDEX OF SHEETS AND STANDARD DRAWINGS				



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Date: 2025.08.11

INDEX OF SHEETS

1	_____	TITLE SHEET
2	_____	INDEX OF SHEETS AND STANDARD DRAWINGS
3	_____	GOVERNING SPECIFICATIONS AND GENERAL NOTES
4 - 5	_____	TYPICAL SECTIONS OF IMPROVEMENT
6 - 12	_____	SPECIAL DETAILS
13 - 16	_____	TEMPORARY EROSION CONTROL DETAILS
17 - 21	_____	MAINTENANCE OF TRAFFIC DETAILS
22	_____	PERMANENT PAVEMENT MARKING DETAILS
23 - 26	_____	QUANTITIES
27	_____	SUMMARY OF QUANTITIES AND REVISIONS
28	_____	SURVEY CONTROL DETAILS
29 - 30	_____	PLAN AND PROFILE SHEETS
31 - 38	_____	CROSS SECTIONS

ROADWAY STANDARD DRAWINGS

DR-2	_____	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
PBC-1	_____	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	_____	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	_____	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	_____	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	_____	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	_____	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	_____	PAVEMENT MARKING DETAILS	02-27-20
PU-1	_____	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	_____	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	_____	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
SE-2	_____	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
TC-1	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-14-25
TC-2	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-14-25
TC-3	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-14-25
TC-6	_____	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-14-25
TEC-1	_____	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	_____	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	_____	TEMPORARY EROSION CONTROL DEVICES	11-03-94

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	3	38
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
102-3____PREQUALIFICATION OF BIDDERS
103-2____CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
105-4____MAINTENANCE DURING CONSTRUCTION
107-2____RESTRAINING CONDITIONS
108-1____LIQUIDATED DAMAGES
108-2____WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1____PROTECTION OF WATER QUALITY AND WETLANDS
210-1____UNCLASSIFIED EXCAVATION
303-1____AGGREGATE BASE COURSE
306-1____QUALITY CONTROL AND ACCEPTANCE
400-1____TACK COATS
400-4____DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5____PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6____LIQUID ANTI-STRIP ADDITIVE
400-7____TRACKLESS TACK
404-3____DESIGN OF ASPHALT MIXTURES
409-2____ASPHALT LABORATORY FACILITY
410-1____CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2____DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4____EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
416-1____RECYCLED ASPHALT PAVEMENT
501-3____PORTLAND CEMENT CONCRETE PAVEMENT
600-2____INCIDENTAL CONSTRUCTION
603-1____LANE CLOSURE NOTIFICATION
604-1____RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3____TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
606-1____PIPE CULVERTS FOR SIDE DRAINS
620-1____MULCH COVER
800-1____STRUCTURES
802-5____CONCRETE FOR STRUCTURES
804-2____REINFORCING STEEL FOR STRUCTURES
JOB 101132____BIDDING REQUIREMENTS AND CONDITIONS
JOB 101132____BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 101132____BUY AMERICA - CONSTRUCTION MATERIALS
JOB 101132____CARGO PREFERENCE ACT REQUIREMENTS
JOB 101132____COLD MILLING – COUNTY PROPERTY
JOB 101132____DESIGN AND QUALITY CONTROL ASPHALT MIXTURES
JOB 101132____DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 101132____FLEXIBLE BEGINNING OF WORK – CALENDAR DAY CONTRACT
JOB 101132____GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 101132____LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 101132____MANDATORY ELECTRONIC CONTRACT
JOB 101132____MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 101132____NESTING SITES OF MIGRATORY BIRDS
JOB 101132____PLASTIC PIPE
JOB 101132____PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 101132____PRICE ADJUSTMENT FOR FUEL
JOB 101132____PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 101132____SHORING FOR CULVERTS
JOB 101132____SOIL STABILIZATION
JOB 101132____STORM WATER POLLUTION PREVENTION PLAN
JOB 101132____SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 101132____UTILITY ADJUSTMENTS
JOB 101132____WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. 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.
4. 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.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. 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.
11. 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.

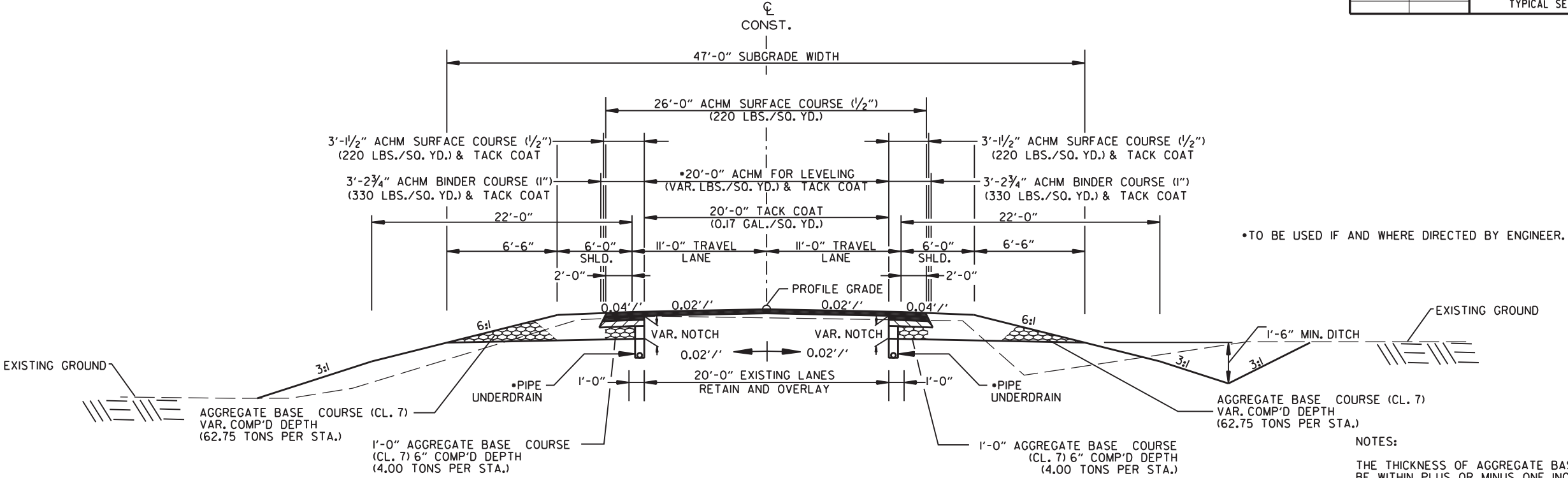


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Date: 2025.06.12

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	4	38
TYPICAL SECTIONS OF IMPROVEMENT						



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Date: 2025.06.12



HWY. 69 - TWO LANE NOTCH AND WIDEN OPEN SHOULDER
STA. 100+00.00 - STA. 100+60.00
STA. 101+35.00 - STA. 102+00.00

• TO BE USED IF AND WHERE DIRECTED BY ENGINEER.

NOTES:

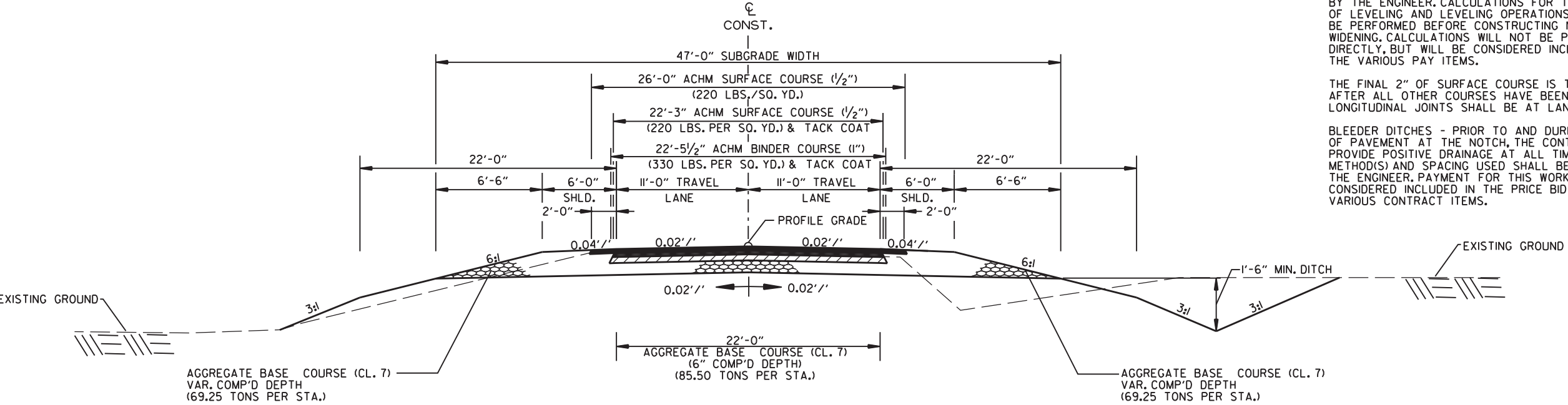
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

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

BLEEDER DITCHES - PRIOR TO AND DURING PLACEMENT OF PAVEMENT AT THE NOTCH, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) AND SPACING USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.

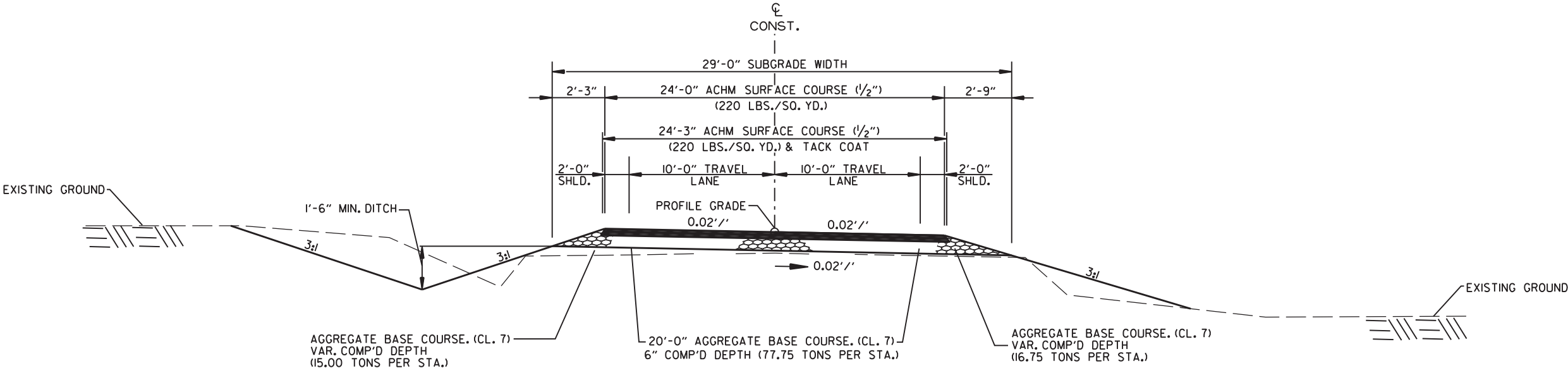


HWY. 69 - TWO LANE FULL DEPTH OPEN SHOULDER
STA. 100+60.00 - STA. 101+35.00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	5	38
TYPICAL SECTIONS OF IMPROVEMENT						



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Date: 2024.10.03

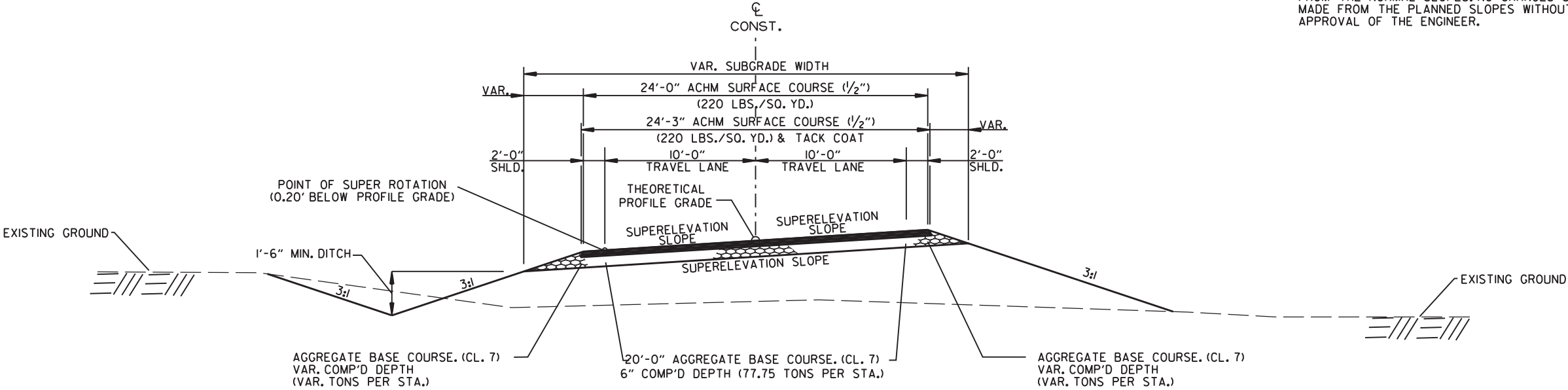


HWY. 69 DETOUR - TWO LANE SECTION
STA. 500+00.00 - STA. 501+63.88
STA. 507+72.29 - STA. 509+35.72

NOTES:

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

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

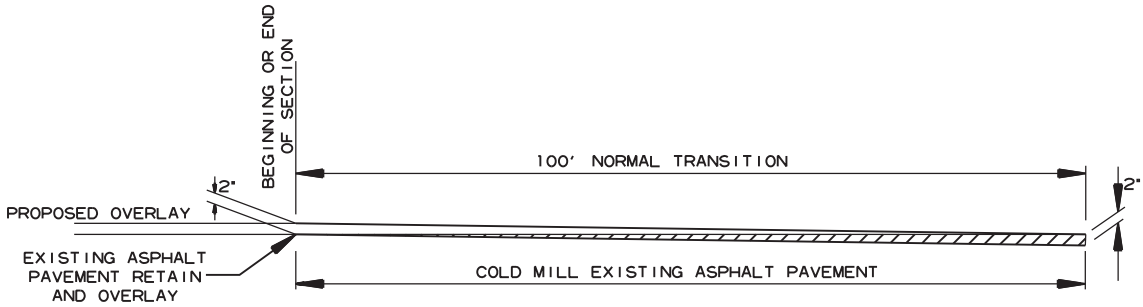


HWY. 69 DETOUR - TWO LANE SUPERELEVATED SECTION
STA. 501+63.88 - STA. 507+72.29

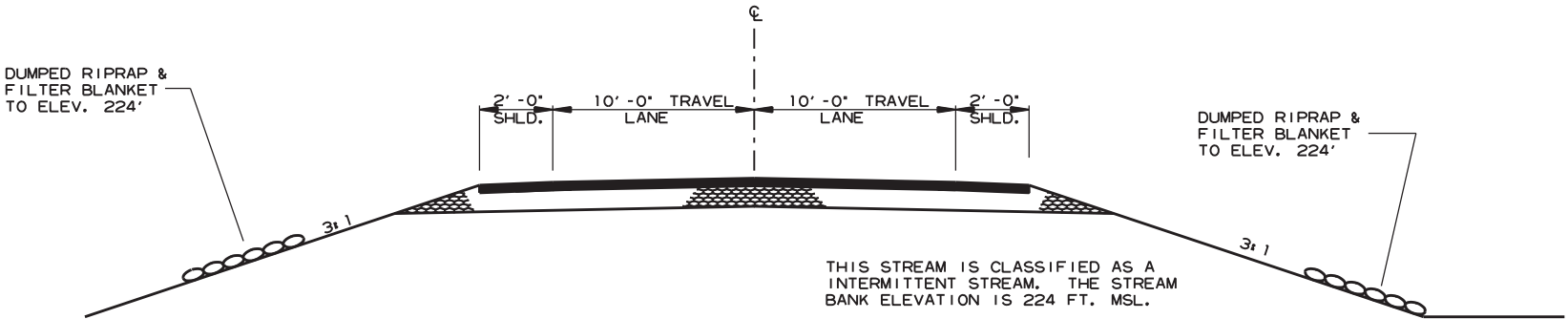
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	6	38
SPECIAL DETAILS						



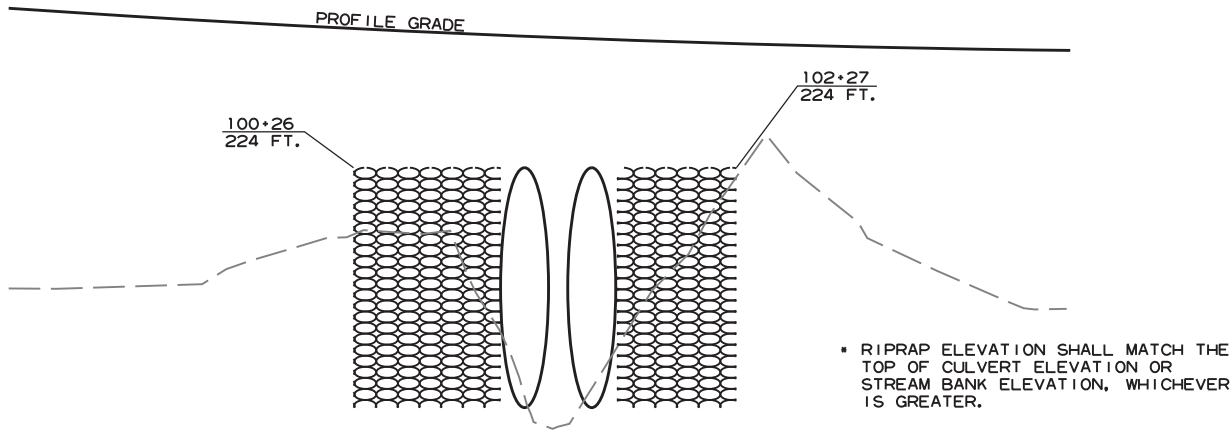
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Date: 2024.10.03



DETAIL FOR TRANSITIONS



TYPICAL SECTIONS OF IMPROVEMENT - DETOUR ROAD
STA. 100+26 - STA. 102+27



DETAIL OF DUMPED RIPRAP &
FILTER BLANKET

INLET SLOPE SECTION(S)

INLET SKEWED END SECTION

INLET WINGWALL TABLE

[illegible]

	CU. YDS.	CLASS "S" CONCRETE (Includes HDWL)
	LBS.	① REINFORCING STEEL (GR 60) (Includes HDWL)

[illegible]

	CU. YDS.	CLASS "S" CONCRETE
0.24	69	REINFORCING STEEL (GR. 60)
TOTAL		
0.24	69	

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

R.C. BOX SECTION		DESIGN FILL DEPTH (FT.)									SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL								SIDE WALL REINFORCING STEEL				INTERIOR WALL REINFORCING STEEL				TOP SLAB DISTRIBUTION REINF. STEEL			BOTTOM SLAB DISTRIBUTION REINF. STEEL			SIDE WALL DISTRIBUTION REINF. STEEL			INTERIOR WALL DISTRIBUTION REINF. STEEL			
		CLEAR SPAN (FT.)						CLEAR HEIGHT (FT.)				OW	OH	SL	LENGTH = OW - 4" + BENDS							LENGTH = OW - 4" + BENDS							"f0" LENGTH = OH - 4"				"f1" LENGTH = OH - 4"				"g" LENGTH = SL			"e" LENGTH = SL			"d1" LENGTH = SL			"d2" LENGTH = SL		
		D	S	H	T	B	C	W	SIZE	L					SIZE	Bent "b"		SIZE	L	SPACING	NO. REQ'D	SIZE	L	Bent "b1"		SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D		
																"a"								"c"																							"d"	
A	2	8	6	11	11	6	8	26'-4"	7'-10"	63	4	26'-0"	8	26'-7"	8	26'-0"	17	48	4	26'-0"	4	26'-7"	4	26'-0"	18	45	4	6	272	7'-6"	4	12	272	7'-6"	4	10	65	4	10	65	4	12	12	4	12	24		

156.85	CU. YDS.	CLASS "S" CONCRETE
20,412	LBS.	REINFORCING STEEL (GR. 60)

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 100+97

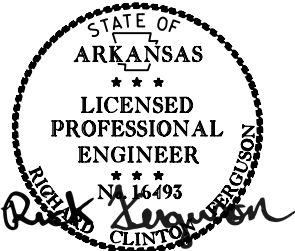
SPECIAL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		101132	7	38

1

SPECIAL DETAILS



10/03/2024

TABULAR DATA BY: CZP DATE: 03/15/2024
CHECKED BY: RCF DATE: 03/15/2024

MID-SECTION
BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT"; 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE';
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT"; 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT';
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT"; 'DETAILS OF WINGWALLS'; and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

OUTLET SKEWED END SECTION

OUTLET WINGWALL TABLE

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF
ARKANSAS

LICENSED
PROFESSIONAL
ENGINEER

No. 16493
EXPIRES 12/31/2016
RICK FERGUSON
CLINTON

10/03/2024

TABULAR DATA BY: CZP DATE: 03/15/2024
CHECKED BY: RCF DATE: 03/15/2024

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

[illegible][illegible]

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.



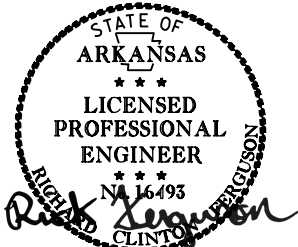
2:1 Slope	20'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
3:1 Slope	30'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
4:1 Slope	40'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"

Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

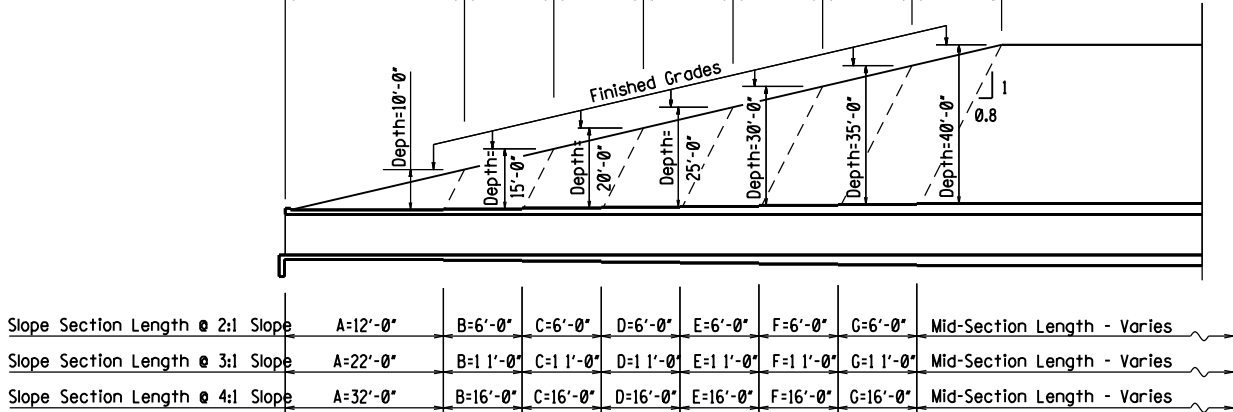
* LL = Skewed End Section Length - See "Skewed End Section Details"
Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		101132	9	38

SPECIAL DETAILS

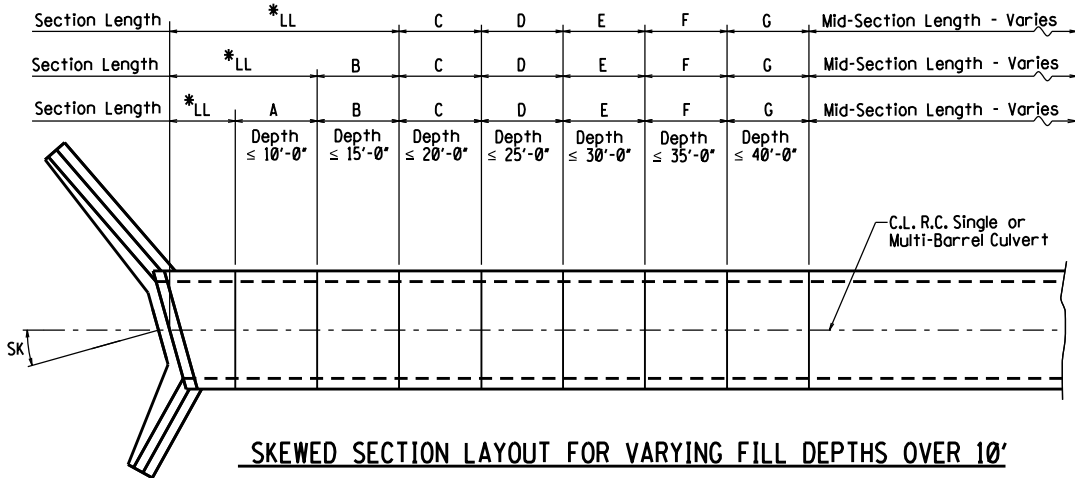


10/03/2024



LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes



SKewed SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

GENERAL NOTES:

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have 1/2" chamfers.

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

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

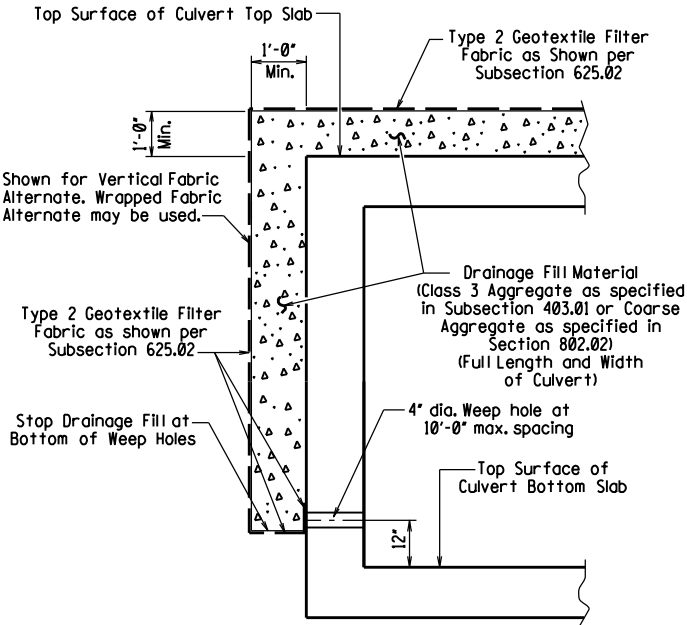
Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be keyed and shall be normal to the centerline of barrel except as noted. Reinforcing shall be continuous through joints unless noted otherwise. Reinforcing through stage construction joints shall provide the minimum bar lap length shown on the Tabular Data Sheets. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

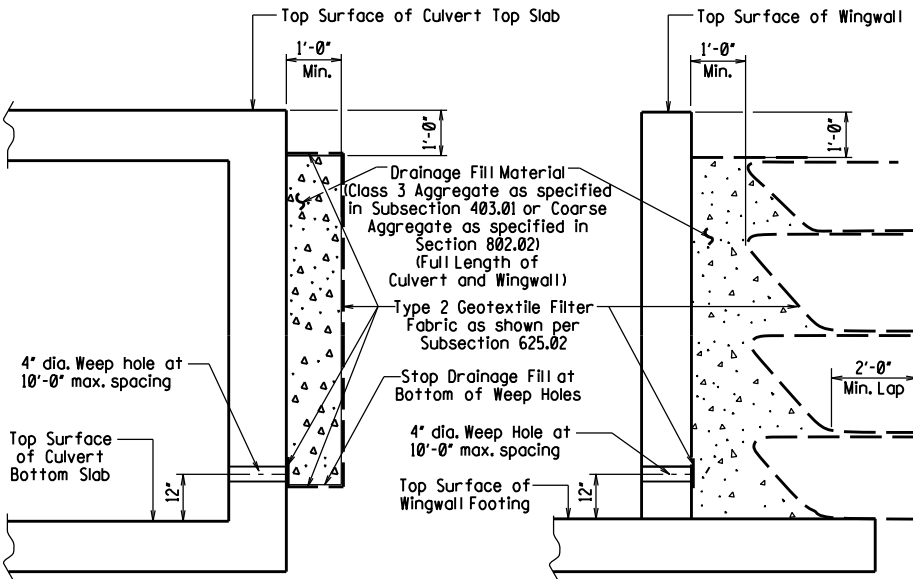
When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a time finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.



CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.



VERTICAL FABRIC ALTERNATE

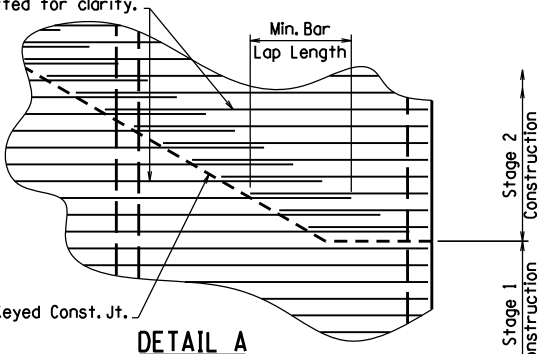
(Shown for Culvert, Similar for Wingwall)

WRAPPED FABRIC ALTERNATE

(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL

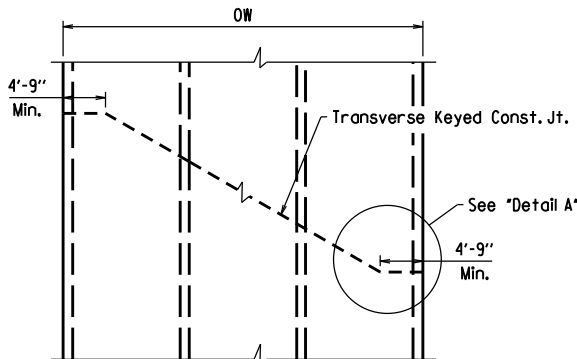
Slab bars "a", "b", "c", "d", "bl", or "f". Slab distribution and Wall reinforcing omitted for clarity.



DETAIL A

See Tabular Data Sheets for Minimum Bar Lap Lengths.

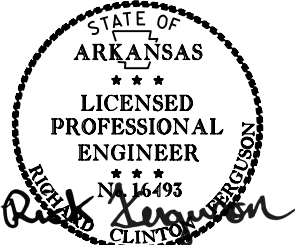
Shown for transverse reinforcing, longitudinal reinforcing similar.



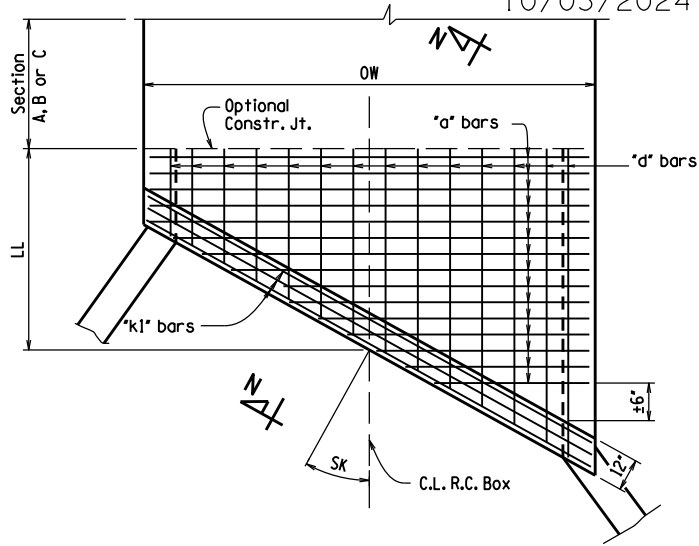
SKewed TRANSVERSE JOINT DETAIL

This detail shall be used to construct a skewed transverse joint only for Multi-Barrel Culverts and only when required by the Maintenance of Traffic Plans. Otherwise, transverse joints should be made normal to the centerline of the barrel.

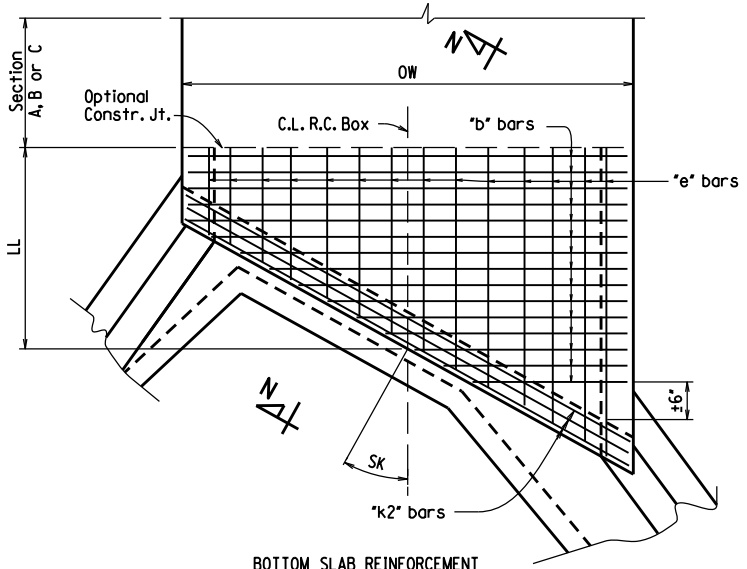
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		101132	10	38
① SPECIAL DETAILS								



10/03/2024



TOP SLAB REINFORCEMENT



BOTTOM SLAB REINFORCEMENT

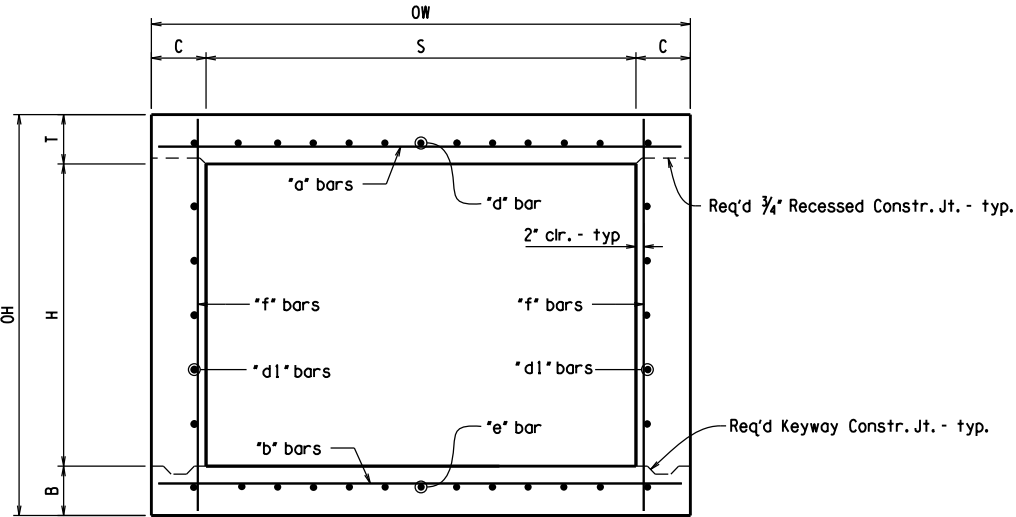
SKewed END SECTION DETAILS

SHEET 2 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

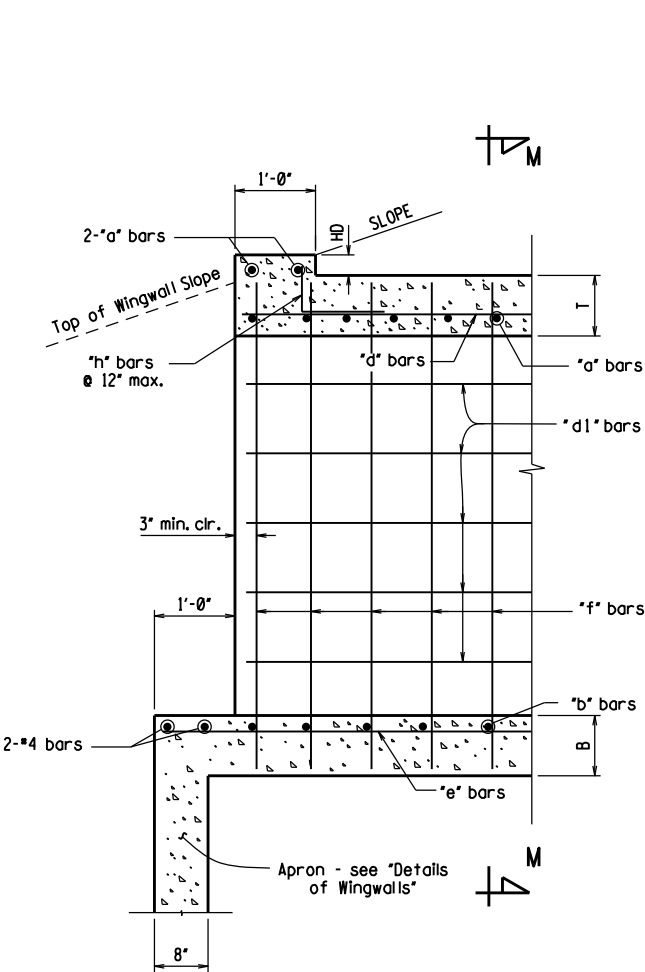
SPECIAL DETAILS



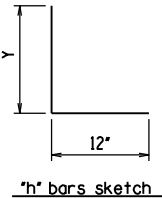
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



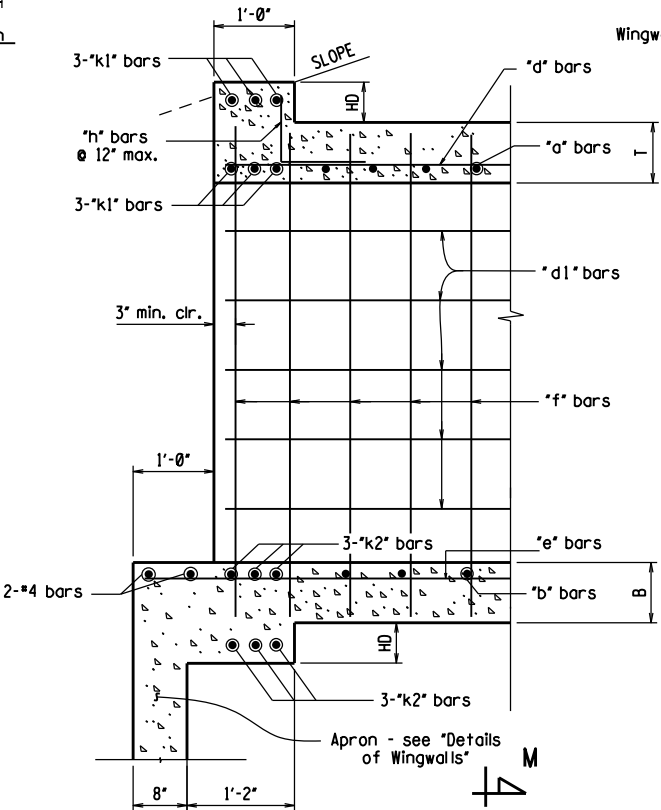
TYPICAL SECTION M-M



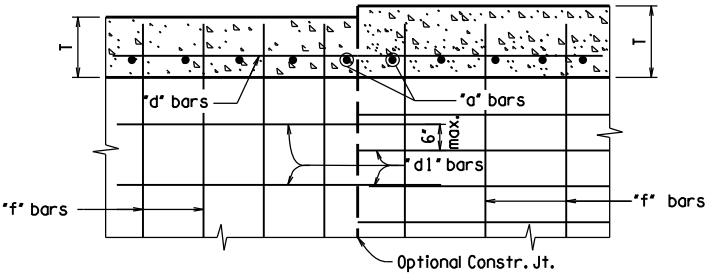
PART LONGITUDINAL SECTION
(Non-Skewed Ends)



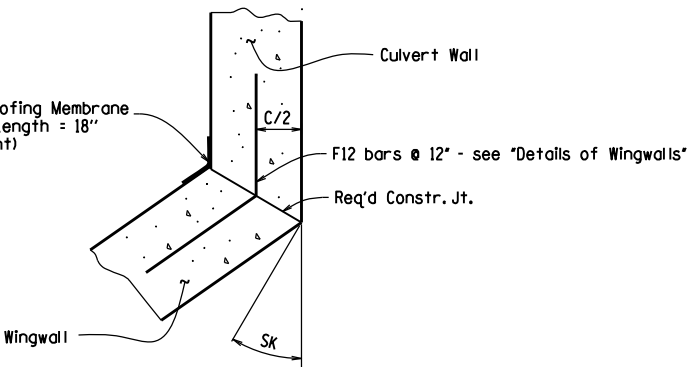
"h" bars sketch



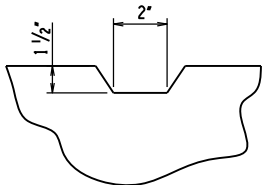
PART LONGITUDINAL SECTION N-N
(Skewed Ends)



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



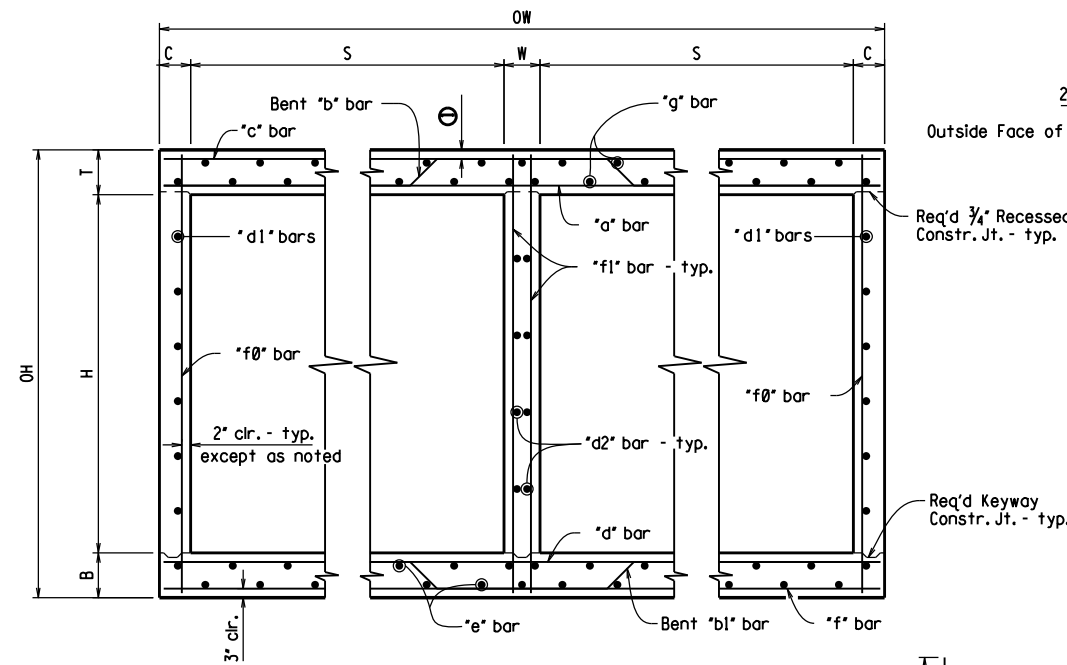
WINGWALL ATTACHMENT
See "Details of Wingwalls" for additional information and wingwall details.



TYPICAL KEYWAY DETAIL
(All Construction Joints)

① 2" cl. for fill depth (D) greater than 2 ft.
2 1/2" cl. for fill depth (D) equal to or less than 2 ft.

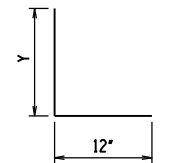
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



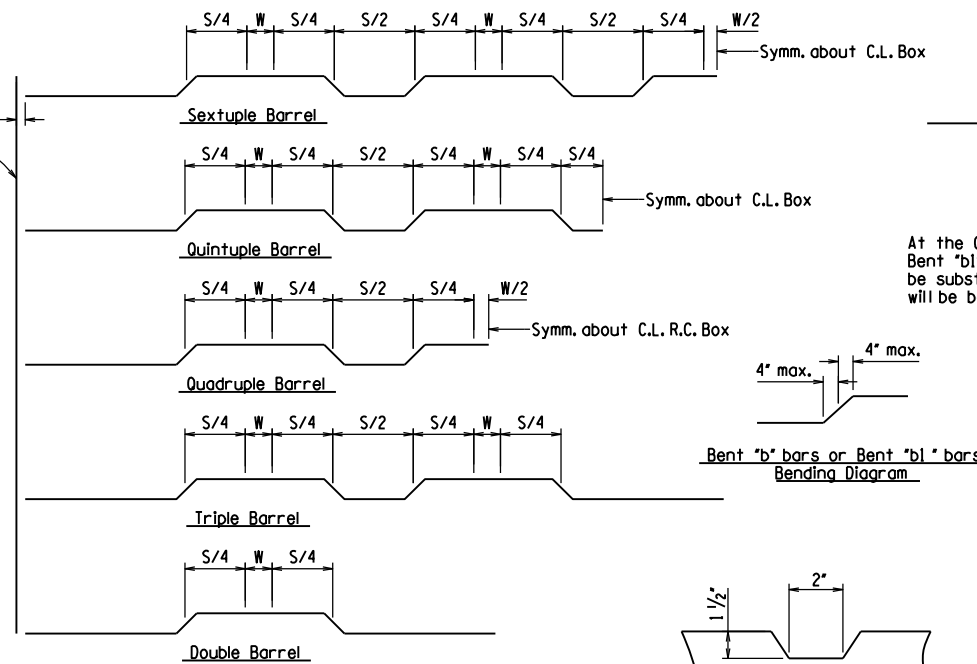
TYPICAL SECTION M-M

Top Slab
Straight 'c' bars shall alternate with Bent 'b' bars in top.
Straight 'a' bars shall alternate with Bent 'b' bars in bottom.

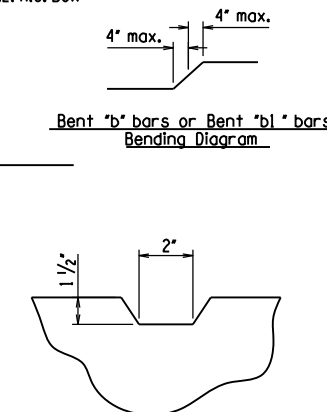
Bottom Slab
Straight 'd' bars shall alternate with Bent 'bl' bars in top.
Straight 'f' bars shall alternate with Bent 'bl' bars in bottom.



'h' bars sketch



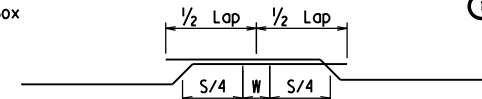
Bent 'b' bars or Bent 'bl' bars sketch



TYPICAL KEYWAY DETAIL
(All Construction Joints)

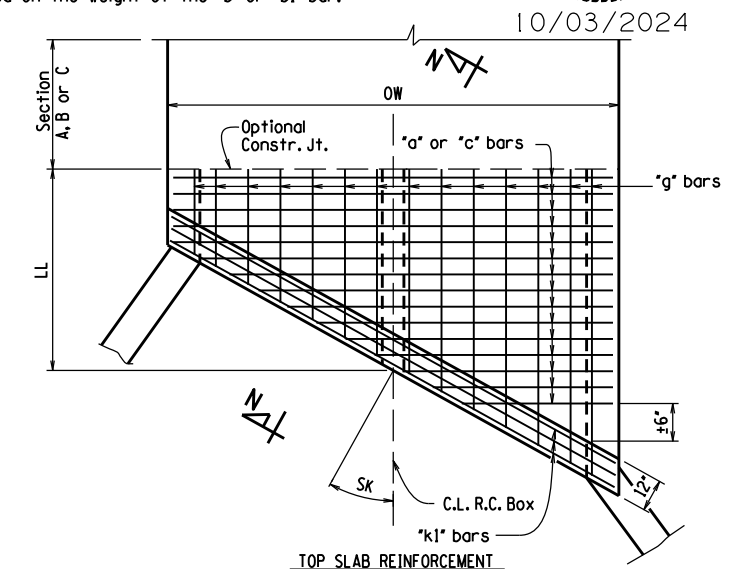
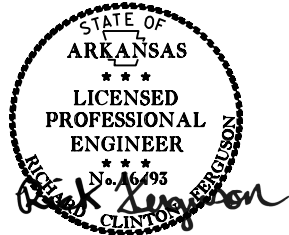
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		101132	11	38

SPECIAL DETAILS

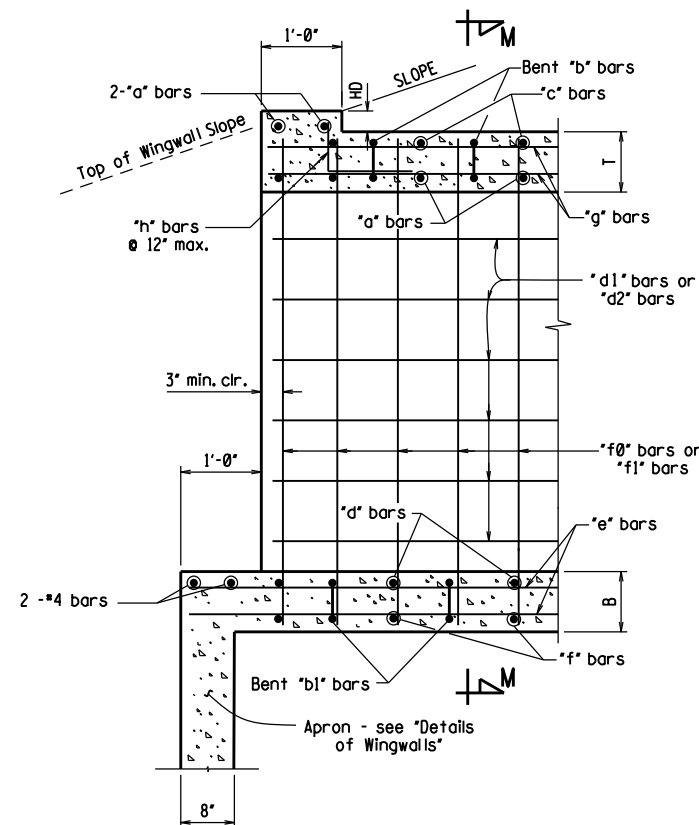


Lap Detail
For Bent 'b' bars and Bent 'bl' bars

At the Contractor's option in lieu of providing Bent 'b' or Bent 'bl' bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the 'b' or 'bl' bar.

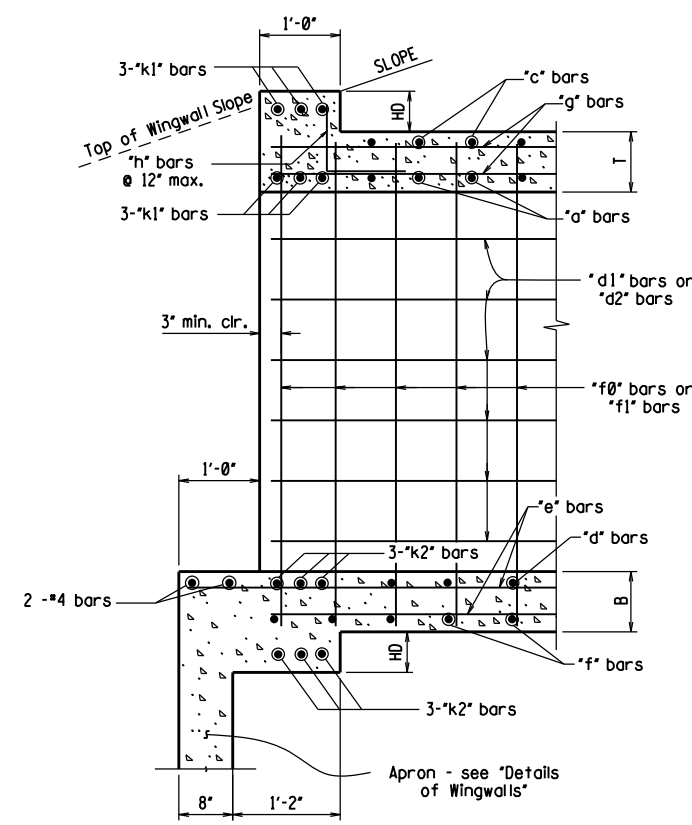


TOP SLAB REINFORCEMENT
Straight 'c' bars in top.
Straight 'a' bars in bottom.



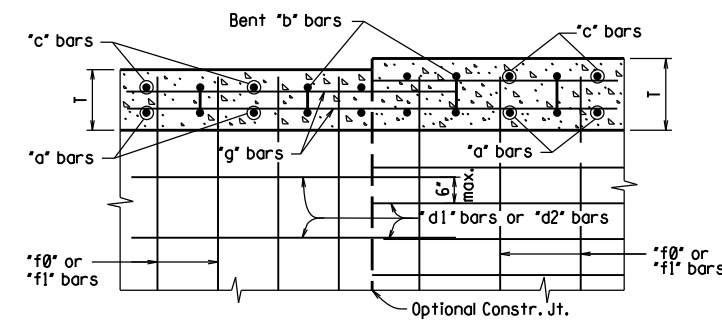
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

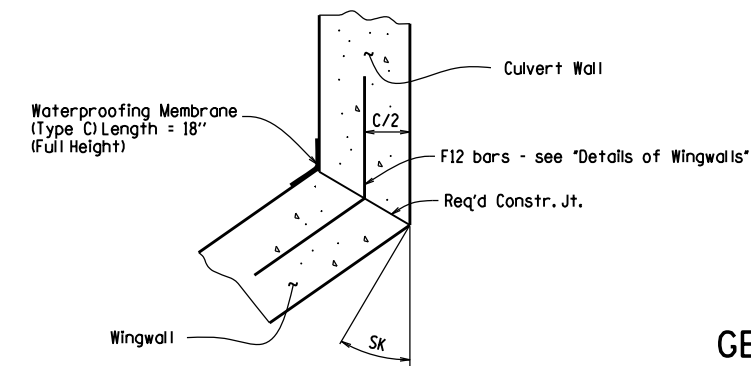
(Skewed Ends)



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

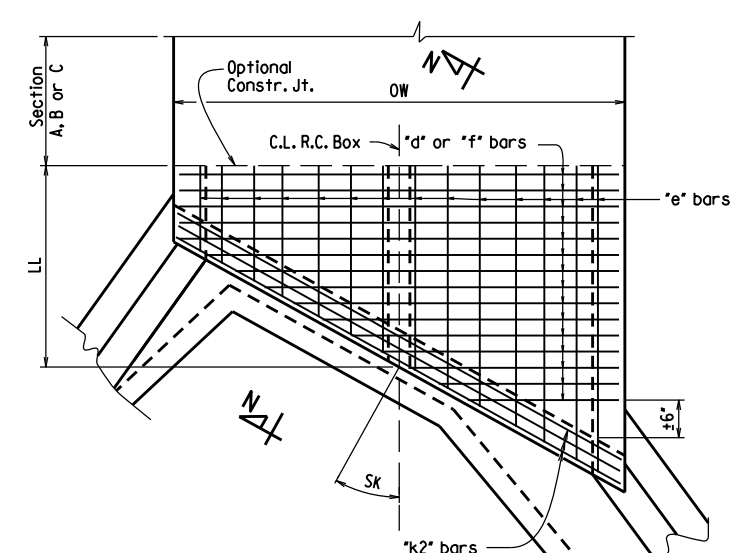
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

See 'Details of Wingwalls' for additional information and wingwall details.



BOTTOM SLAB REINFORCEMENT
Straight 'd' bars in top.
Straight 'f' bars in bottom.

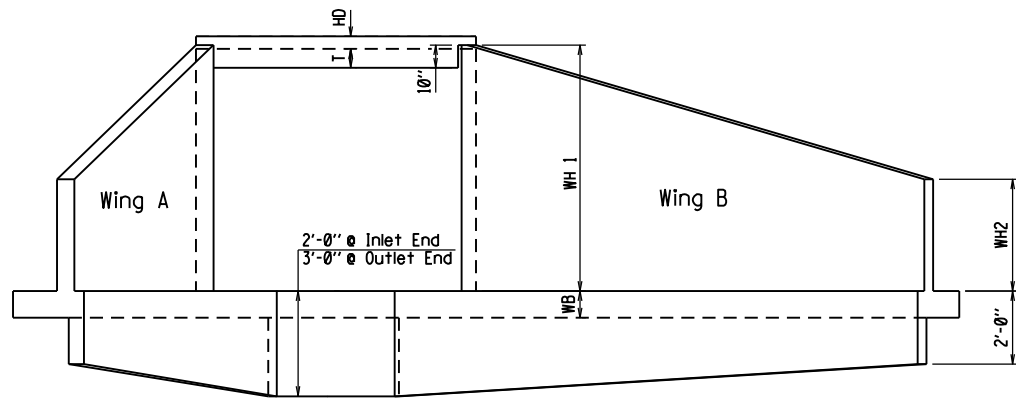
SKewed END SECTION DETAILS

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

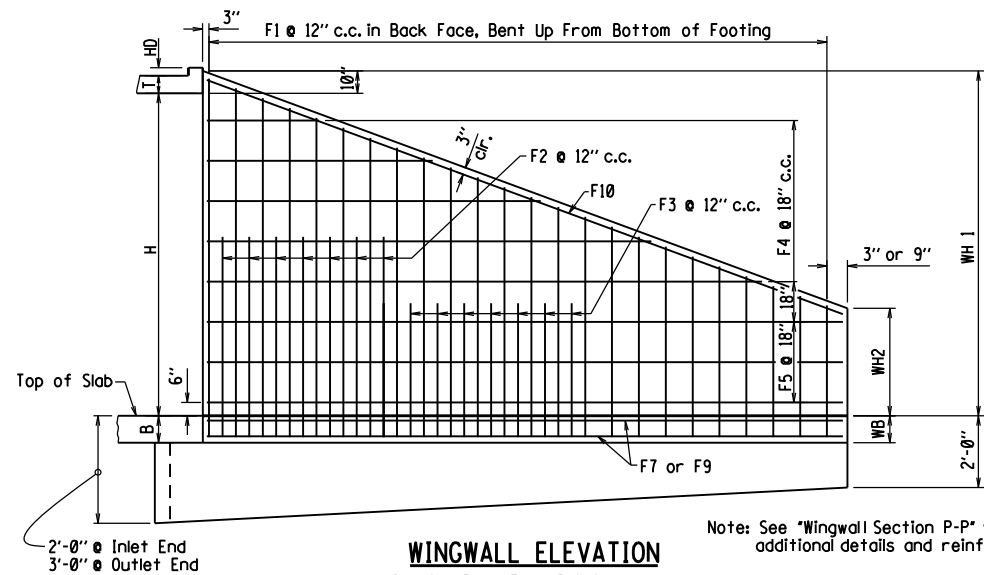
SPECIAL DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		101132	12	38
① SPECIAL DETAILS								

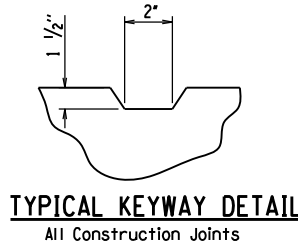


END ELEVATION
Flared Wingwalls Shown

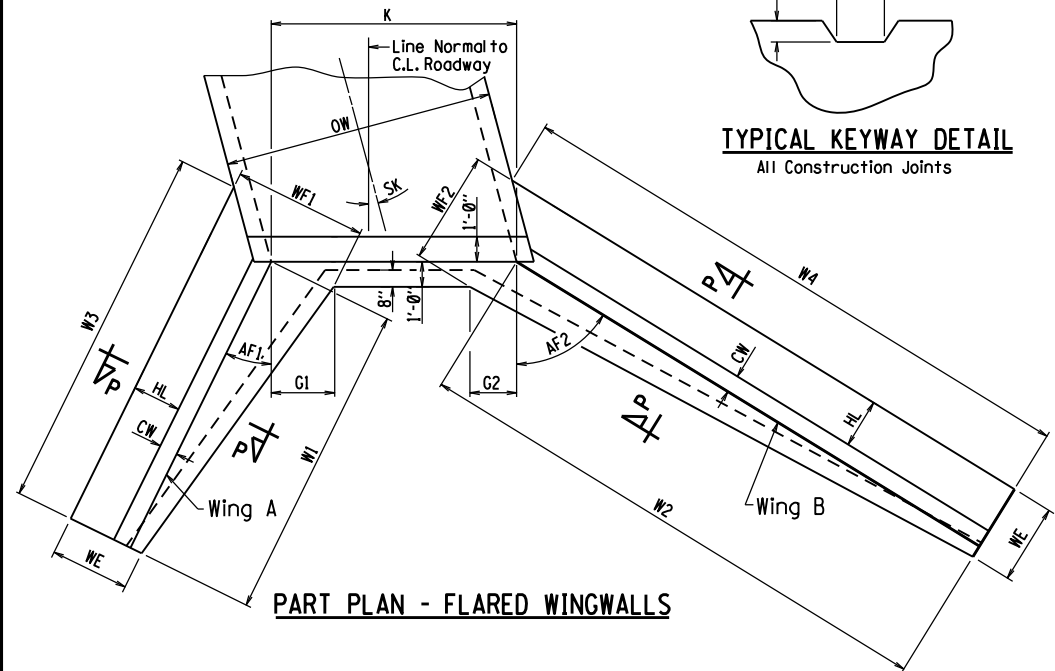


WINGWALL ELEVATION
Showing Back Face Reinforcement

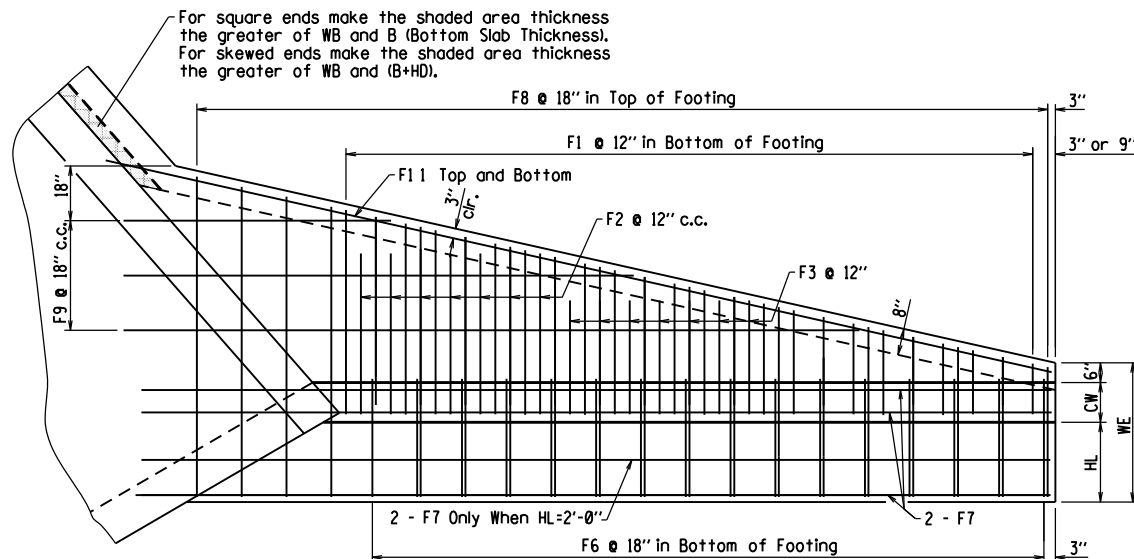
Note: See "Wingwall Section P-P" for additional details and reinforcing.



TYPICAL KEYWAY DETAIL
All Construction Joints

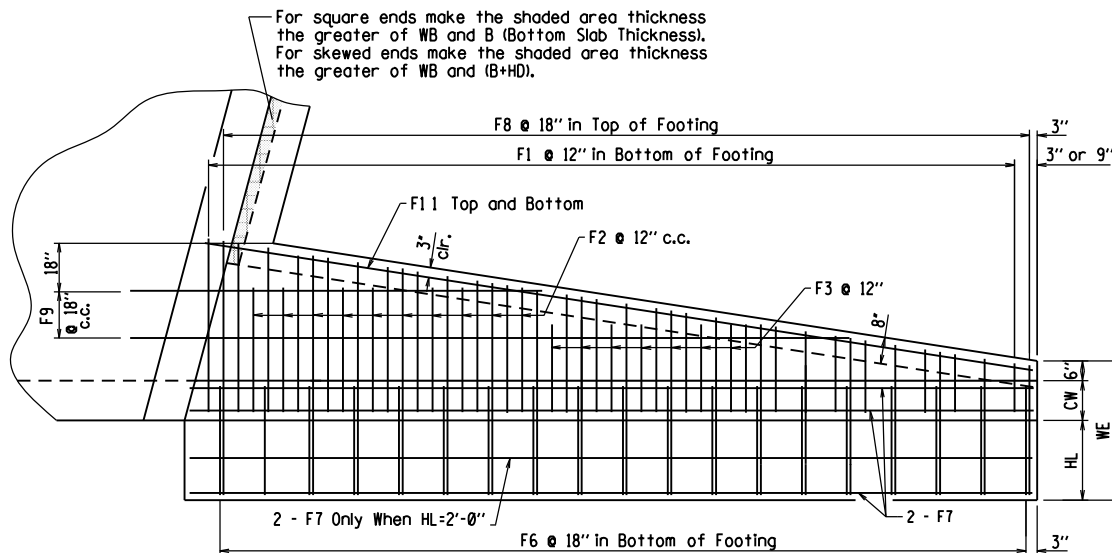


PART PLAN - FLARED WINGWALLS



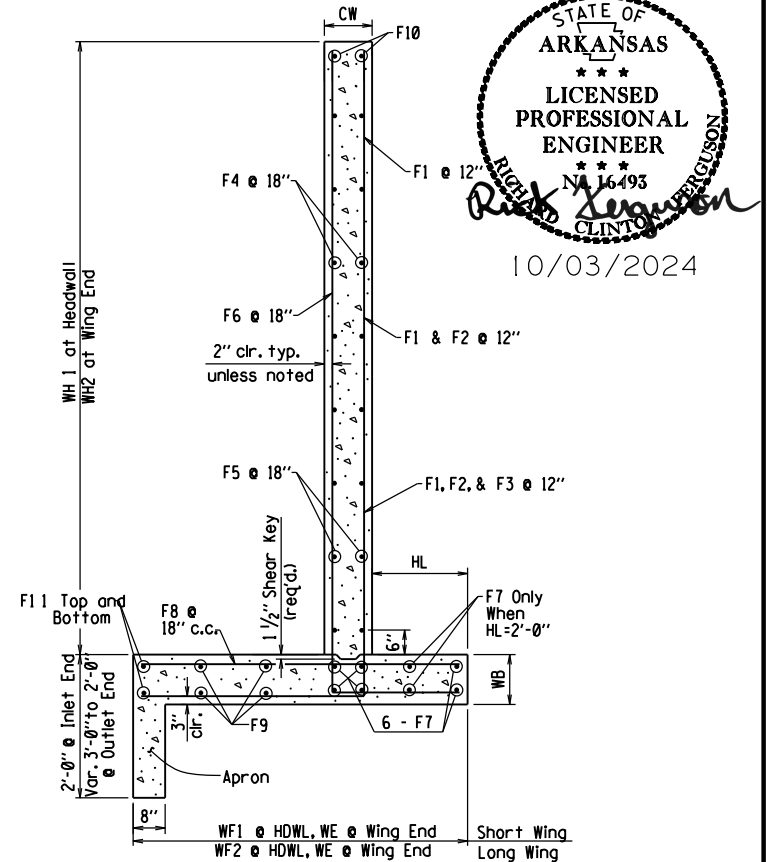
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement

For square ends make the shaded area thickness the greater of WB and B (Bottom Slab Thickness).
For skewed ends make the shaded area thickness the greater of WB and (B+HD).



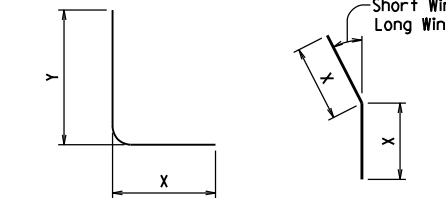
PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement

⊙F12 is a straight bar for parallel wingwalls

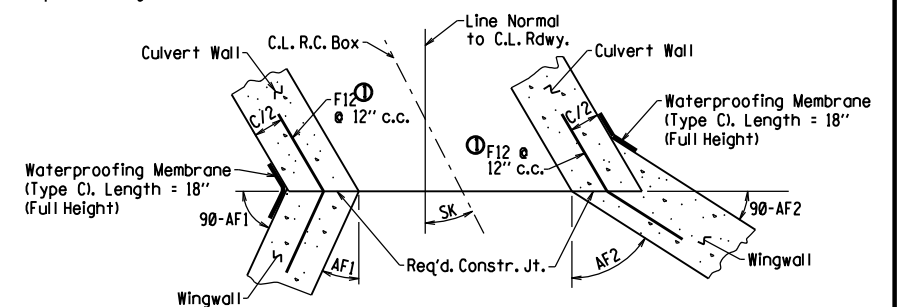


WINGWALL SECTION P-P

Short Wing = (AF1+SK)
Long Wing = (AF2-SK)



F1, F2, F3, & F6 BARS ⊙F12 BAR



CONSTRUCTION JOINTS
Flared Wingwalls Shown

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

HWY. 69

TEMPORARY SEEDING & MULCH COVER

	LT.	RT.	ACRE
STA. 99+00 TO 102+55			0.35
STA. 100+00 TO 102+28			0.60

SILT FENCE

	LT.	RT.	LIN. FT.
STA. 99+00 TO 100+91			241
STA. 100+11 TO 100+73			306
STA. 101+03 TO 102+70			224
STA. 101+23 TO 102+25			337

ROCK DITCH CHECKS

	LT.	RT.	INSTALLATION
STA. 100+79			1
STA. 100+79			1
STA. 101+11			1
STA. 101+15			1

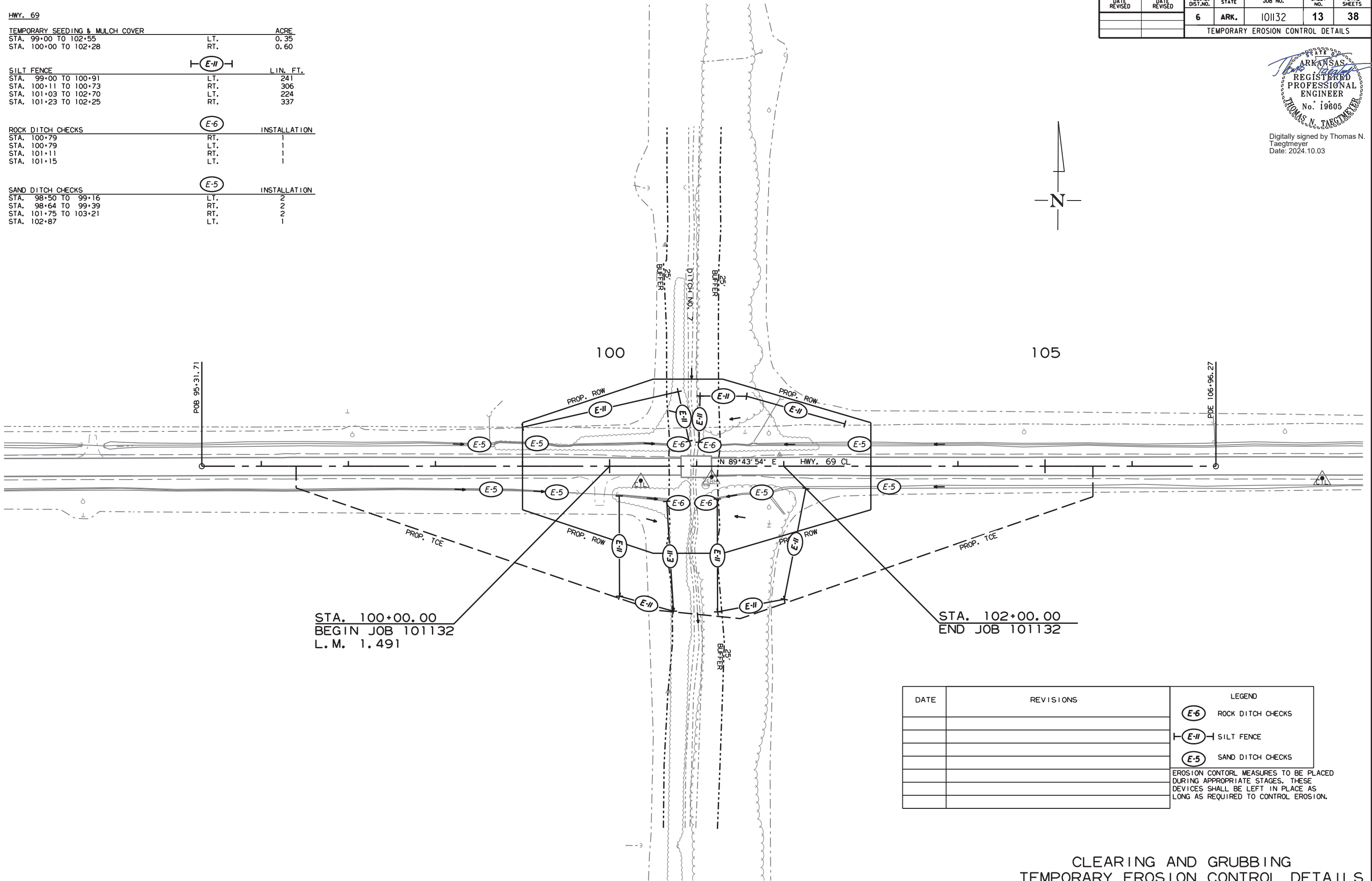
SAND DITCH CHECKS

	LT.	RT.	INSTALLATION
STA. 98+50 TO 99+16			2
STA. 98+64 TO 99+39			2
STA. 101+75 TO 103+21			2
STA. 102+87			1

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	13	38
TEMPORARY EROSION CONTROL DETAILS						



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Date: 2024.10.03



DATE	REVISIONS	LEGEND
		E-6 ROCK DITCH CHECKS
		E-11 SILT FENCE
		E-5 SAND DITCH CHECKS
EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.		

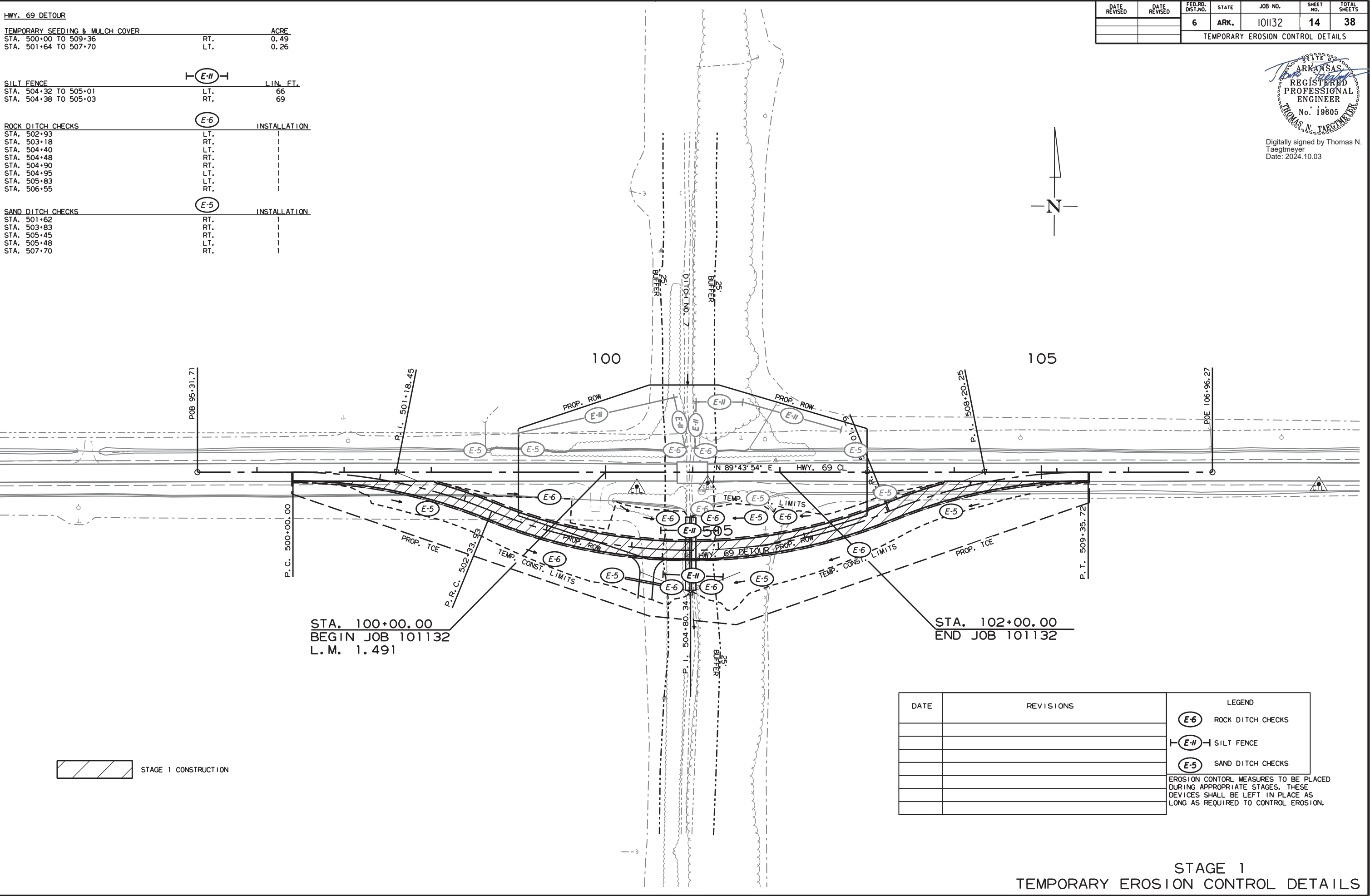
CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

HWY. 69 DETOUR		
TEMPORARY SEEDING & MULCH COVER		
STA. 500+00 TO 509+36	RT.	0.49
STA. 501+64 TO 507+70	LT.	0.26
SILT FENCE		
STA. 504+32 TO 505+01	LT.	66
STA. 504+38 TO 505+03	RT.	69
ROCK DITCH CHECKS		
STA. 502+93	LT.	
STA. 503+18	RT.	
STA. 504+40	LT.	
STA. 504+48	RT.	
STA. 504+90	RT.	
STA. 504+95	LT.	
STA. 505+83	LT.	
STA. 506+55	RT.	
SAND DITCH CHECKS		
STA. 501+62	RT.	
STA. 503+83	RT.	
STA. 505+45	RT.	
STA. 505+48	LT.	
STA. 507+70	RT.	

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	14	38
TEMPORARY EROSION CONTROL DETAILS						



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Date: 2024.10.03



STAGE 1 CONSTRUCTION

HWY. 69		
TEMPORARY SEEDING & MULCH COVER		
STA. 99+00 TO 103+00	LT.	0.40
STA. 99+00 TO 103+00	RT.	0.34

SILT FENCE		
STA. 100+57 TO 101+26	LT.	93
STA. 100+68 TO 101+33	RT.	99

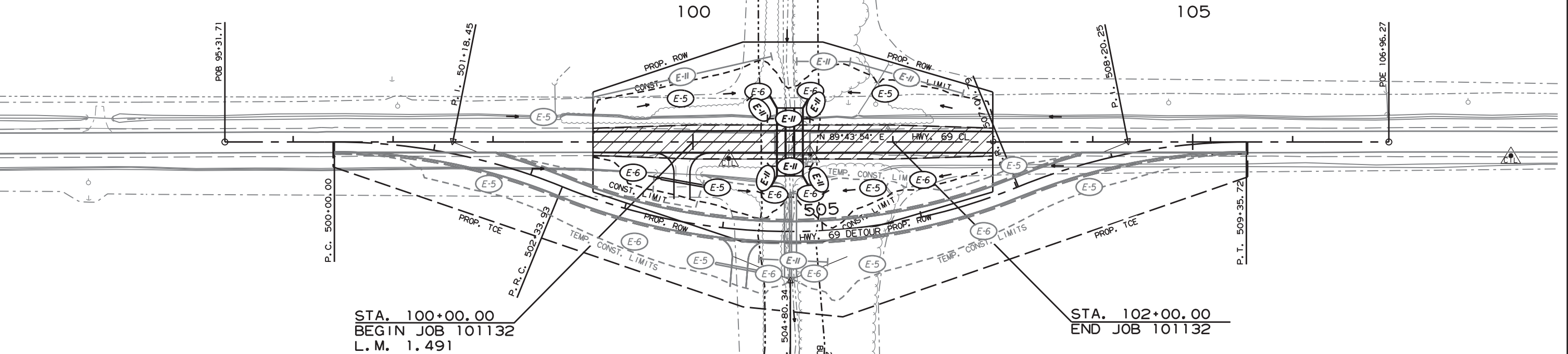
ROCK DITCH CHECKS		
STA. 99+40	RT.	1
STA. 100+65	LT.	1
STA. 100+82	RT.	1
STA. 101+18	LT.	1
STA. 101+18	RT.	1
STA. 102+30	RT.	1

SAND DITCH CHECKS		
STA. 99+88	LT.	1
STA. 100+24	RT.	1
STA. 101+80	RT.	1
STA. 101+92	LT.	1

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	15	38
TEMPORARY EROSION CONTROL DETAILS						



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Date: 2024.10.03



DATE		REVISIONS	LEGEND	
			E-6	ROCK DITCH CHECKS
			E-11	SILT FENCE
			E-5	SAND DITCH CHECKS
EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.				

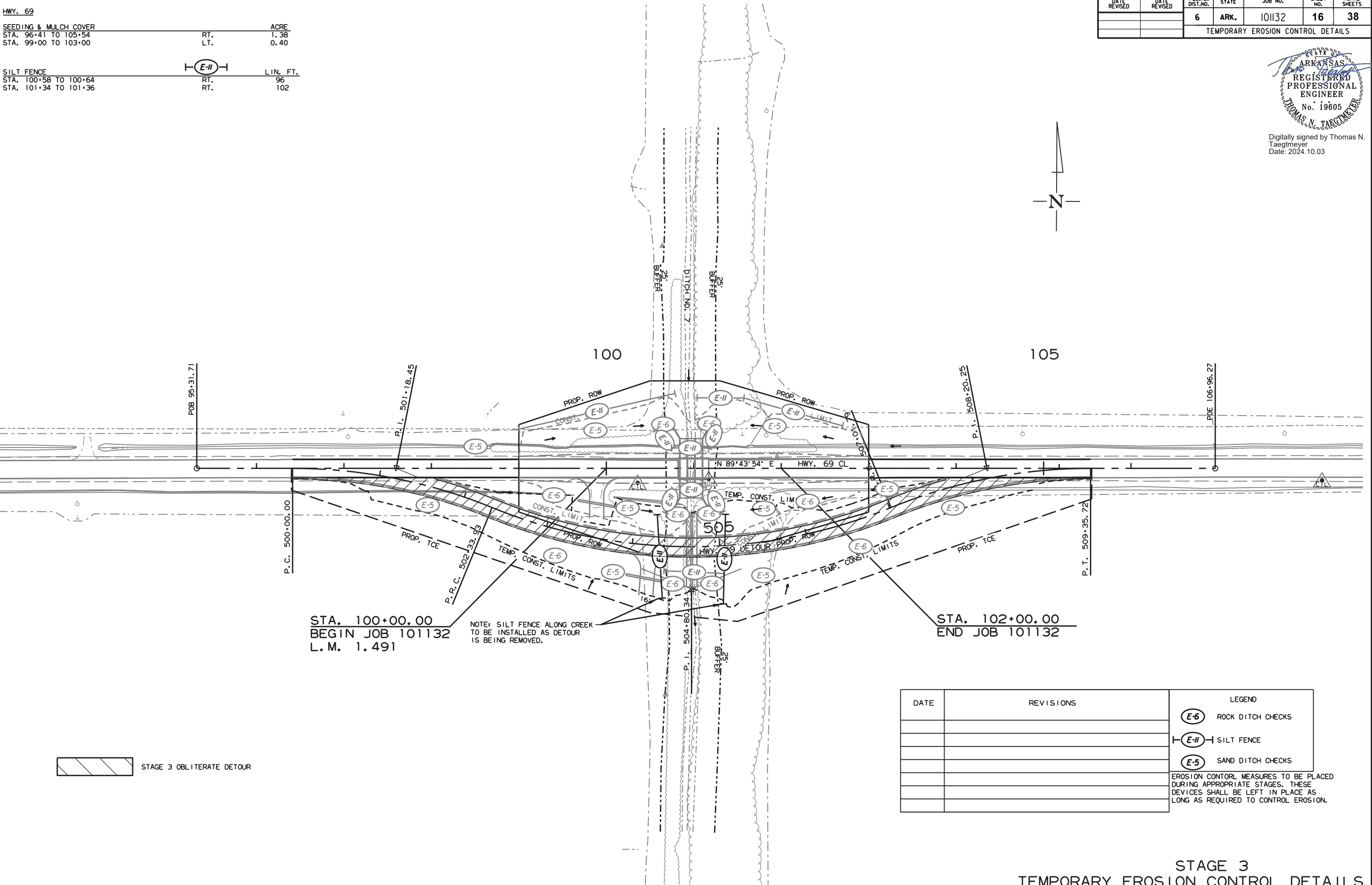
STAGE 2
TEMPORARY EROSION CONTROL DETAILS

HWY. 69		
SEEDING & MULCH COVER		
STA. 96+41 TO 105+54	RT.	ACRE
STA. 99+00 TO 103+00	LT.	0.40
SILT FENCE		
STA. 100+58 TO 100+64	RT.	96
STA. 101+34 TO 101+36	RT.	102

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	16	38
TEMPORARY EROSION CONTROL DETAILS						



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Date: 2024.10.03



 STAGE 3 OBLITERATE DETOUR

REVISIONS		LEGEND	
DATE		 E-6	ROCK DITCH CHECKS
		 E-11	SILT FENCE
		 E-5	SAND DITCH CHECKS
EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.			

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

STAGE 1 CONSTRUCTION SEQUENCE:

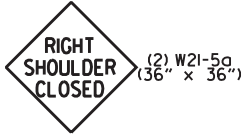
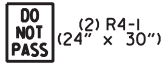
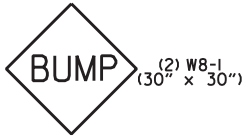
INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON TC-6.
NOTCH AND WIDEN FOR DETOUR ON RIGHT AND CONSTRUCT DETOUR.

STAGE 2 CONSTRUCTION SEQUENCE:

MAINTAIN ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON TC-6.
REMOVE CONFLICTING PERMANENT PAVEMENT MARKINGS.
APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
SHIFT TRAFFIC TO DETOUR AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.
CONSTRUCT R.C. BOX CULVERTS AND ROADWAY.

STAGE 3 CONSTRCTION SEQUENCE:

MAINTAIN ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON TC-6.
APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
SHIFT TRAFFIC TO MAINLANES AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
OBLITERATE DETOUR AND CONSTRUCT SHOULDERS AND SLOPE AT DETOUR CONNECTIONS.
APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND PLACE PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.



TO BE USED IF AND WHERE DIRECTED BY ENGINEER (ALL STAGES)

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	17	38
MAINTENANCE OF TRAFFIC DETAILS						

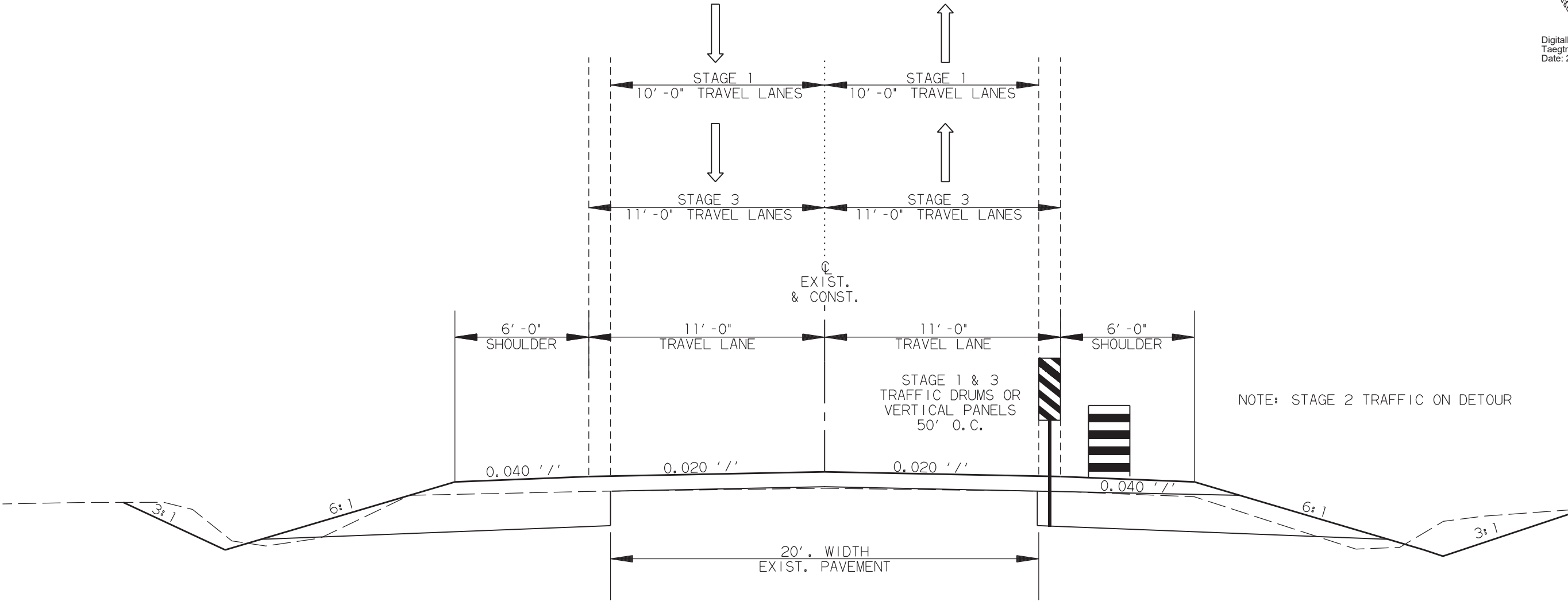


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Date: 2025.08.11

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	18	38
MAINTENANCE OF TRAFFIC DETAILS						



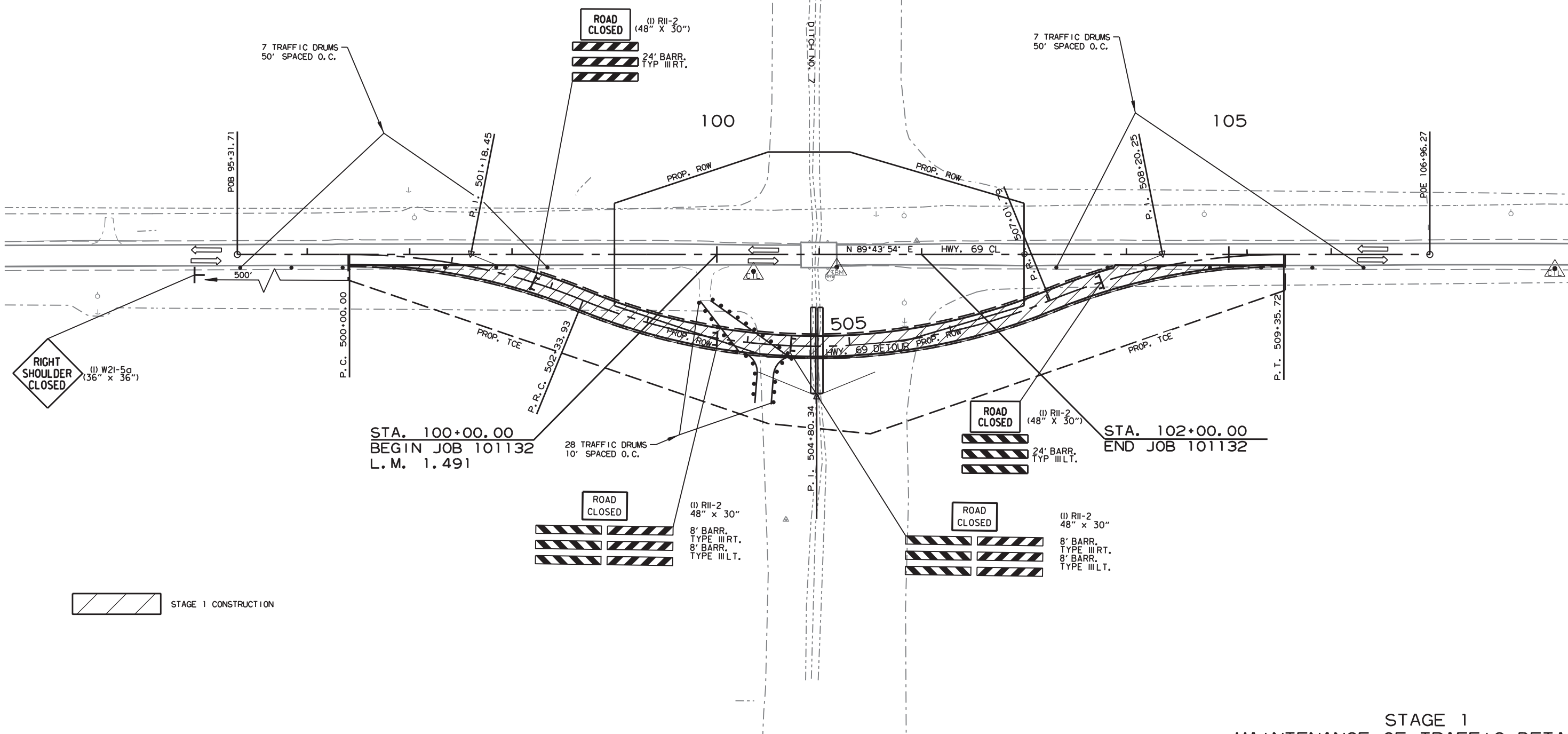
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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	19	38
MAINTENANCE OF TRAFFIC DETAILS						



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 STAGE 1 CONSTRUCTION

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

HWY. 69

REMOVAL OF PERMANENT PAVEMENT MARKINGS			
STA.	STA.	LOCATION	LIN. FT.
96+41	97+52	C.L.	111
96+41	98+11	RT.	170
104+43	105+54	C.L.	111
103+85	105+54	RT.	169

HWY. 69 DETOUR

CONSTRUCTION PAVEMENT MARKINGS				
STA.	STA.	COLOR	LOCATION	LIN. FT.
500+00	509+36	WHITE	RT.	936
501+13	508+22	YELLOW	C.L.	1418
501+64	507+70	WHITE	LT.	606

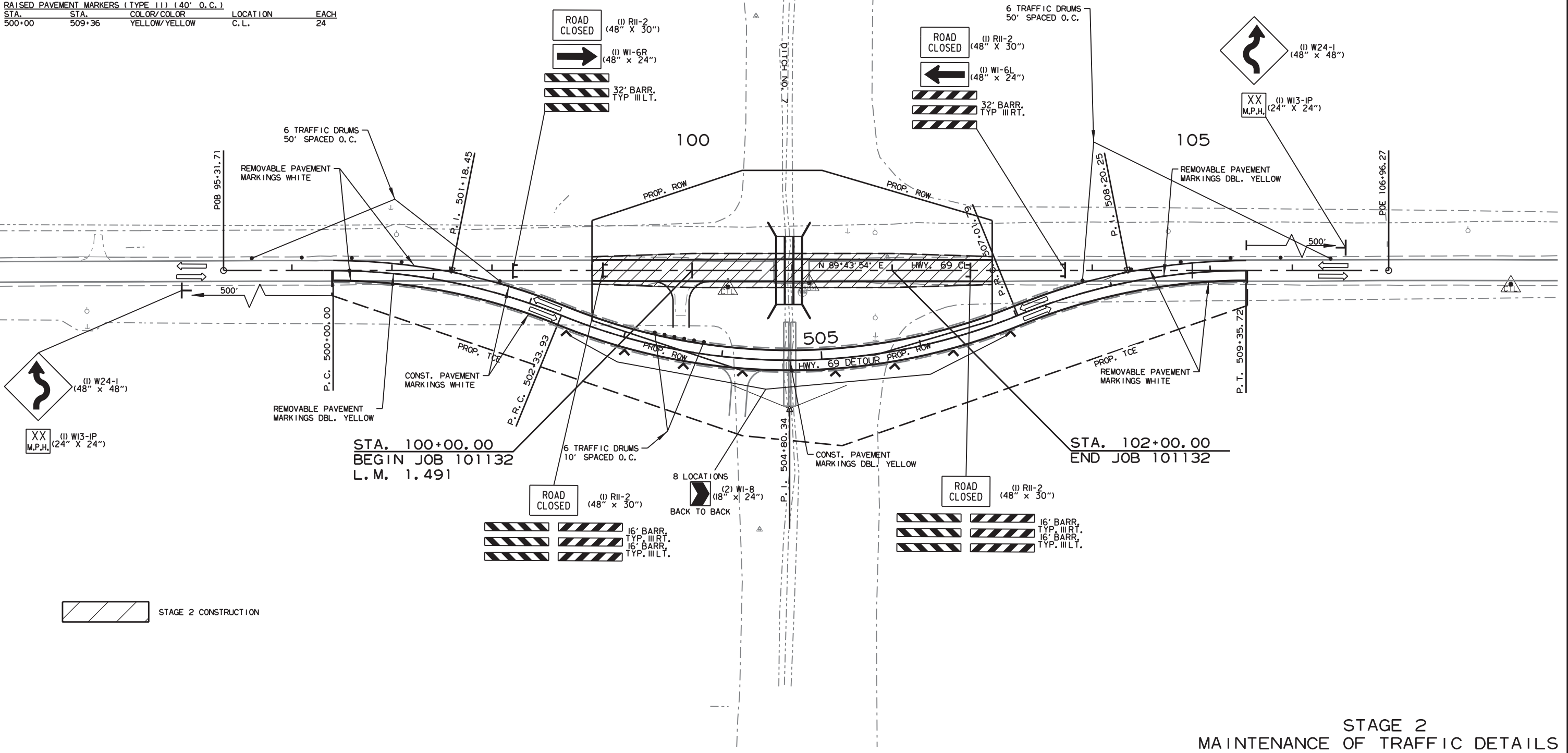
REMOVABLE PAVEMENT MARKINGS				
STA.	STA.	COLOR	LOCATION	LIN. FT.
500+00	501+64	WHITE	LT.	164
500+00	501+13	YELLOW	C.L.	226
500+00	500+26	WHITE	RT.	26
507+70	509+36	WHITE	LT.	166
508+22	509+36	YELLOW	C.L.	228
508+61	509+36	WHITE	RT.	75

RAISED PAVEMENT MARKERS (TYPE III) (40' O.C.)				
STA.	STA.	COLOR/COLOR	LOCATION	EACH
500+00	509+36	YELLOW/YELLOW	C.L.	24

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	20	38
MAINTENANCE OF TRAFFIC DETAILS						



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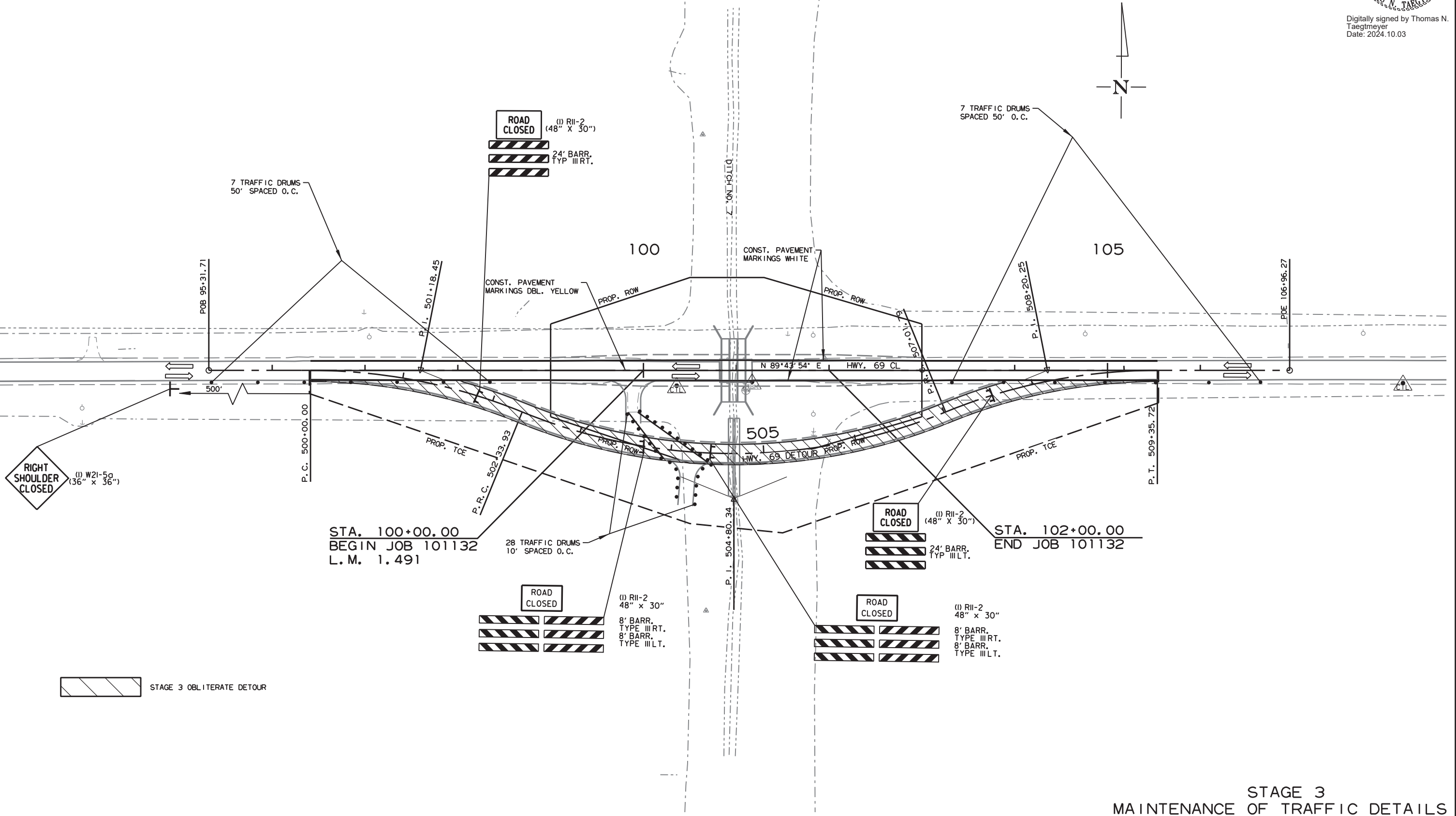
HWY. 69

CONSTRUCTION PAVEMENT MARKINGS				
STA.	STA.	COLOR	LOCATION	LIN. FT.
96+41	105+54	WHITE	LT.	913
96+41	105+54	WHITE	RT.	913
96+41	105+54	YELLOW	C.L.	1826

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	21	38
MAINTENANCE OF TRAFFIC DETAILS						



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STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

HWY. 64

6" WHITE THERMOPLASTIC PAVEMENT MARKINGS

STA.	STA.	LOCATION	LIN. FT.
96+41	105+54	LT.	913
96+41	105+54	RT.	913

6" YELLOW THERMOPLASTIC PAVEMENT MARKINGS

STA.	STA.	LOCATION	LIN. FT.
96+41	105+54	C.L.	1826

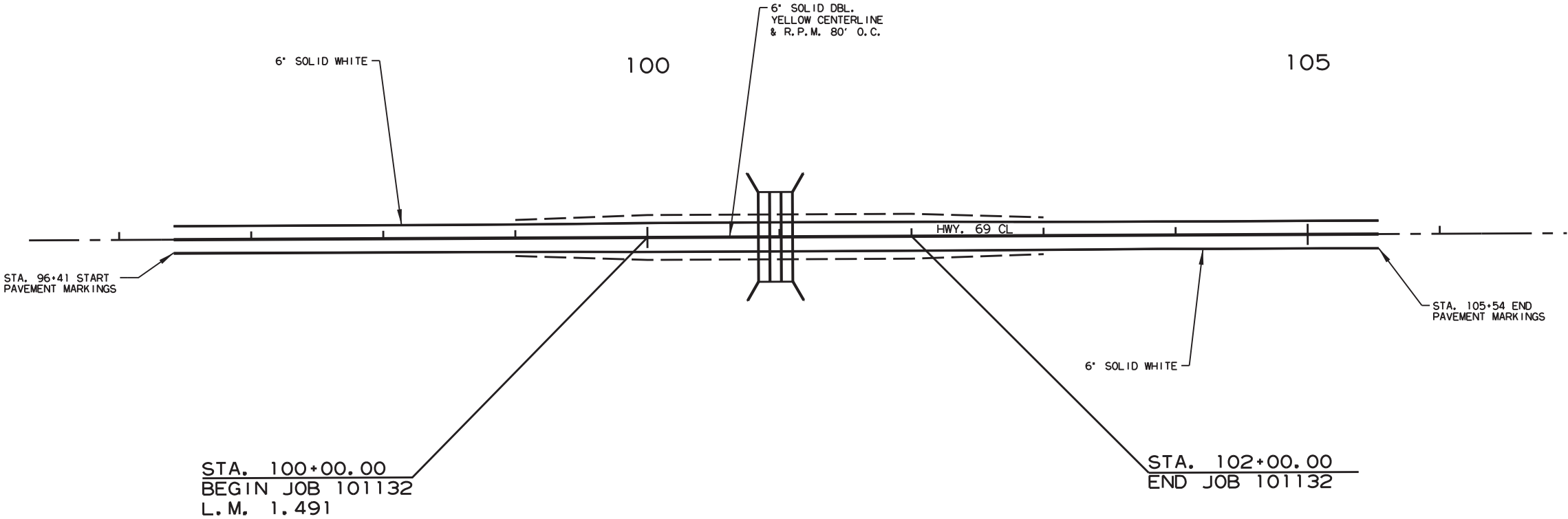
RAISED PAVEMENT MARKERS (TYPE III)

STA.	STA.	COLOR/COLOR	LOCATION	EACH
96+41	105+54	YELLOW/YELLOW	C.L.	12

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	22	38
PERMANENT PAVEMENT MARKING DETAILS						



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*THE 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.

PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	23	38
QUANTITIES						



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ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE II)	
			LIN. FT. - EACH				NO.	SQ. FT.		RIGHT	LEFT
									EACH	LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0			
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0			
W13-1P	SPEED LIMIT (ADVISORY)	24"x24"		2		2	2	8.0			
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	4	40.0			
W1-6	LARGE ARROW	48"x24"		2		2	2	16.0			
W1-8	CHEVRONS	18"x24"		16		13	16	48.0			
R2-6aP	FINES DOUBLE WHEN WORKERS ARE PRESENT	48"x36"	2	2	2	2	2	24.0			
R2-11	END HIGHER FINES ZONE	36"x48"	2	2	2	2	2	24.0			
* R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0			
* W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	2	18.0			
W8-1	BUMP	30"x30"	2	2	2	2	2	12.5			
W24-1R	DOUBLE REVERSE CURVE RT.	48"x48"		1		1	1	16.0			
W24-1L	DOUBLE REVERSE CURVE LT.	48"x48"		1		1	1	16.0			
	TRAFFIC DRUMS		42	18	42	42			42		
	TYPE III BARRICADE-RT. (8')		5	8	5	8				64	
	TYPE III BARRICADE-LT (8')		5	8	5	8					64
TOTALS:								344.5	42	64	64

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

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING	
							TYPE II (YELLOW/YELLOW)	6"	
								WHITE	YELLOW
								LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	561			561					
CONSTRUCTION PAVEMENT MARKINGS	2960	3652			6612				
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	885					885			
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)									
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	24		12				36		
THERMOPLASTIC PAVEMENT MARKING WHITE (6")			1826					1826	
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")			1826						1826
TOTALS:				561	6612	885	36	1826	1826

NOTE: THIS IS A LOW 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.

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
09/02/25		6	ARK.	101132	24	38
		QUANTITIES				



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REMOVAL AND DISPOSAL OF CULVERTS		
STATION	DESCRIPTION	PIPE CULVERTS
		EACH
99+89	24" x 44' STEEL PIPE RT.	1
TOTAL:		1

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

REMOVAL OF EXISTING BRIDGE STRUCTURE			
STATION	STATION	LOCATION	LUMP SUM
100+82	101+17	BRIDGE NO. M1290 - (SITE NO.1)	1.00

COLD MILLING ASPHALT PAVEMENT				
STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
96+41.27	97+41.27	DEPTH TRANSITION	20.00	222.22
104+53.71	105+53.71	DEPTH TRANSITION	20.00	222.22
TOTAL:				444.44

NOTE: COORDINATE COLD MILLING STOCKPILE LOCATIONS WITH DISTRICT ENGINEER. STOCKPILE LOCATIONS SHALL BE NO FURTHER THAN FIVE MILES FROM EACH SITE.

4" PIPE UNDERDRAIN				
STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			200	2
TOTALS:			200	2

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

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1	2228	1971
ENTIRE	PROJECT	STAGE 2	1842	820
ENTIRE	PROJECT	STAGE 3	2458	1339
ENTIRE	PROJECT	APPROACHES		90
ENTIRE	PROJECT	TEMPORARY APPROACHES		235
		CHANNEL CHANGE	771	
TOTALS:			7299	4455

NOTE: EARTHWORK QUANTITIES SHALL BE PAID AS PLAN QUANTITY.

CLEARING AND GRUBBING				
STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
101+00	103+00	HWY. 69 LT. & RT.	2	2
TOTALS:			2	2

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE	50
		DIRECTED BY THE ENGINEER	
TOTAL:			50

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

BENCH MARKS		
STATION	LOCATION	BENCH MARKS
		EACH
100+83	HWY. 69 HEADWALL ON RT.	1
TOTAL:		1

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

ACHM PATCHING OF EXISTING ROADWAY	
DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	20
TOTAL:	20

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

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
504+28	HWY. 69 DETOUR RT.	264	527
503+95	HWY. 69 DETOUR LT.	251	502
TOTALS:		515	1029

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

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

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	5	10
TOTALS:	5	10

NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	25	38
QUANTITIES						



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DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS	STANDARD DRAWINGS
			FEET	SQ. YD.	TON	TON	24" LIN. FT.	
99+89	RT.	HWY. 69 - DRIVEWAY	16	30.43	3.35	34.70	40	DR-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
* ENTIRE PROJECT TEMPORARY DRIVES					10.28	106.72		
TOTALS:				30.43	13.63	141.42	40	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER

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

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERTS		SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		24"	60"									
		LIN. FT.										
504+20	DETOUR 24" x 56' TEMP. PIPE CULVERT	56										PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
504+68	DETOUR DOUBLE 60" x 84' TEMP. PIPE CULVERT		168									PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
SUBTOTAL:		56	168									
STRUCTURES OVER 20' - 0" SPAN												
100+97	TRIPLE 8' x 6' x 68' R.C. BOX CULVERT			8	6	68	176.81	22270	92	27	0.34	PBC-1, RCB-1, RCB-2, SPECIAL DETAILS
SUBTOTALS:							176.81	22270	92	27	0.34	
TOTALS:		56	168				176.81	22270	92	27	0.34	

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

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

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL						
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	(E-5) BAG	(E-6) CU.YD.	(E-11) LIN. FT.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						0.95	0.95	19.4	154	12	1108	52
ENTIRE	PROJECT	STAGE 1						0.75	0.75	15.3	110	24	135	18
ENTIRE	PROJECT	STAGE 2						0.74	0.74	15.1	88	18	192	17
ENTIRE	PROJECT	STAGE 3	1.78	3.56	1.78	181.6	1.78						198	7
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.45	0.90	0.45	45.9	0.45	0.61	0.61	12.4	88	15	408	24
TOTALS:			2.23	4.46	2.23	227.5	2.23	3.05	3.05	62.2	440	69	2041	118

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

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

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

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	26	38
QUANTITIES						



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BASE AND SURFACING																									
STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")									
				TON / STATION	TON	(0.65 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
						TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON														
MAIN LANES																									
96+41.27	97+41.27	HWY. 69 - TRANSITION	100.00						20.00	222.22	37.78	37.78									20.00	222.22	220.00	24.44	24.44
97+41.27	99+00.00	HWY. 69 - OVERLAY	158.73						20.00	352.73	59.96	59.96									20.00	352.73	220.00	38.80	38.80
99+00.00	100+00.00	HWY. 69 - TAPER	100.00	111.75	111.75	26.36	292.89	14.64				14.64	3.23	35.89	330.00	5.92	3.13	34.78	220.00	3.83	23.00	255.56	220.00	28.11	31.94
100+00.00	100+60.00	HWY. 69 - NOTCH AND WIDEN	60.00	133.50	80.10	32.71	218.07	10.90				10.90	6.46	43.07	330.00	7.11	6.25	41.67	220.00	4.58	26.00	173.33	220.00	19.07	23.65
100+60.00	101+35.00	HWY. 69 - FULL DEPTH	75.00	224.00	168.00	44.71	372.58	18.63				18.63	22.46	187.17	330.00	30.88	22.25	185.42	220.00	20.40	26.00	216.67	220.00	23.83	44.23
101+35.00	102+00.00	HWY. 69 - NOTCH AND WIDEN	65.00	133.50	86.78	32.71	236.24	11.81				11.81	6.46	46.66	330.00	7.70	6.25	45.14	220.00	4.97	26.00	187.78	220.00	20.66	25.63
102+00.00	103+00.00	HWY. 69 - TAPER	100.00	111.75	111.75	26.36	292.89	14.64				14.64	3.23	35.89	330.00	5.92	3.13	34.78	220.00	3.83	23.00	255.56	220.00	28.11	31.94
103+00.00	104+53.71	HWY. 69 - OVERLAY	153.71						20.00	341.58	58.07	58.07									20.00	341.58	220.00	37.57	37.57
104+53.71	105+53.71	HWY. 69 - TRANSITION	100.00						20.00	222.22	37.78	37.78									20.00	222.22	220.00	24.44	24.44
DETOUR																									
500+00.00	501+63.88	HWY. 69 - DETOUR	163.88	VAR.	71.54	VAR.	162.86	8.14				8.14					VAR.	162.86	220.00	17.91	VAR.	160.64	220.00	17.67	35.58
501+63.88	507+72.29	HWY. 69 - DETOUR	608.41	109.50	666.21	24.25	1639.33	81.97				81.97					24.25	1639.33	220.00	180.33	24.00	1622.43	220.00	178.47	358.80
507+72.29	509+35.72	HWY. 69 - DETOUR	163.43	VAR.	70.63	VAR.	159.98	8.00				8.00					VAR.	159.98	220.00	17.60	VAR.	157.75	220.00	17.35	34.95
ADDITIONAL FOR LEVELING																									
97+41.27	100+60.00	HWY. 69 - LEVELING	318.73						20.00	708.29	120.41	120.41					20.00	VAR.	VAR.	351.21					351.21
101+35.00	104+53.71	HWY. 69 - LEVELING	318.71						20.00	708.24	120.40	120.40					20.00	VAR.	VAR.	133.67					133.67
ADDITIONAL FOR SUPERELEVATION																									
501+63.88	504+63.88	HWY. 69 DETOUR SUPER TRANSITION	300.00	VAR.	2.25																				
504+63.88	504+72.29	HWY. 69 DETOUR MAX SUPER	8.41	1.50	0.13																				
504+72.29	507+72.29	HWY. 69 DETOUR SUPER TRANSITION	300.00	VAR.	2.25																				
TOTALS:					1371.39		3374.84	168.73		2555.28	434.40	603.13		348.68		57.53		2303.96		738.33		4168.47		458.52	1196.85

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
09/02/25		6	ARK.	101132	27	38
SUMMARY OF QUANTITIES AND REVISIONS						



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Date: 2025.08.29

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	2	STATION
201	GRUBBING	2	STATION
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	1	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION	7299	CU. YD.
SP & 210	COMPACTED EMBANKMENT	4455	CU. YD.
SP & 210	SOIL STABILIZATION	50	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	1513	TON
SS & 401	TACK COAT	613	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	56	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	2	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	1147	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	64	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	444	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	5	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	20	TON
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	24" TEMPORARY CULVERT	56	LIN. FT.
603	60" TEMPORARY CULVERT	168	LIN. FT.
SS & 604	SIGNS	345	SQ. FT.
SS & 604	BARRICADES	128	LIN. FT.
SS & 604	TRAFFIC DRUMS	42	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	6612	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	885	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	561	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	40	LIN. FT.
SS & 611	4" PIPE UNDERDRAINS	200	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	2	EACH
620	LIME	4	TON
620	SEEDING	2.23	ACRE
SS & 620	MULCH COVER	5.28	ACRE
620	WATER	290.0	M. GAL.
621	TEMPORARY SEEDING	3.05	ACRE
621	SILT FENCE	2041	LIN. FT.
621	SAND BAG/DITCH CHECKS	440	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	118	CU. YD.
621	ROCK DITCH CHECKS	69	CU. YD.
623	SECOND SEEDING APPLICATION	2.23	ACRE
624	SOLID SODDING	27	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	1826	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	1826	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	36	EACH
SS & 816	FILTER BLANKET	1029	SQ. YD.
SS & 816	DUMPED RIPRAP	515	CU. YD.
STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	92	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY	176.81	CU. YD.
SS & 804	REINFORCNG STEEL-ROADWAY (GRADE 60)	22270	POUND

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
9/2/2025	REVISED CLEARING AND GRUBBING QUANTITY; REVISED SUMMARY OF QUANTITIES.	24, 27

SURVEY CONTROL COORDINAILES

Project Name: s101132
Date: 5/5/2023
Coordinate System: ARKANSAS STATE PLANE – NORTH ZONE BASED ON GPS CONTROL, PN:1 & 5

Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	492308.3859	1716811.9970	223.25	CTL	ARDOT STD MON STAMPED PN:1
2	492314.6948	1717580.9840	221.81	CTL	ARDOT STD MON STAMPED PN:2
3	492317.0395	1718374.1240	221.92	CTL	ARDOT STD MON STAMPED PN:3
4	492323.4727	1719156.6380	221.54	CTL	ARDOT STD MON STAMPED PN:4
5	492327.2375	1719918.5990	222.18	CTL	ARDOT STD MON STAMPED PN:5
900	492278.4841	1717128.8740	221.96	TBM	RBR W ALUM CAP
901	492321.3847	1718455.3480	222.99	TBM	SQUARE CUT ON SE CRNR BR
902	492379.3943	1719712.4890	221.90	TBM	RBR W ALUM CAP
903	492288.8178	1715743.6510	234.49	TBM	DISK SET ON SW CRNR BR

*Note – Rebar and Cap – Standard – 5/8” Rebar with 2” Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).

GRID COORDINATES ARE STORED UNDER FILE NAME s101132gi.CTL
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS – 0301–NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: PN:1 & 5
CONVERGENCE ANGLE: 00 47 41.1 RIGHT AT PN:3 LT:N35°40’41.4370” LG:W90°37’57.9794”
GRID AZIMUTH = ASTRONOMICAL AZIMUTH – CONVERGENCE ANGLE.

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	28	38
SURVEY CONTROL DETAILS						



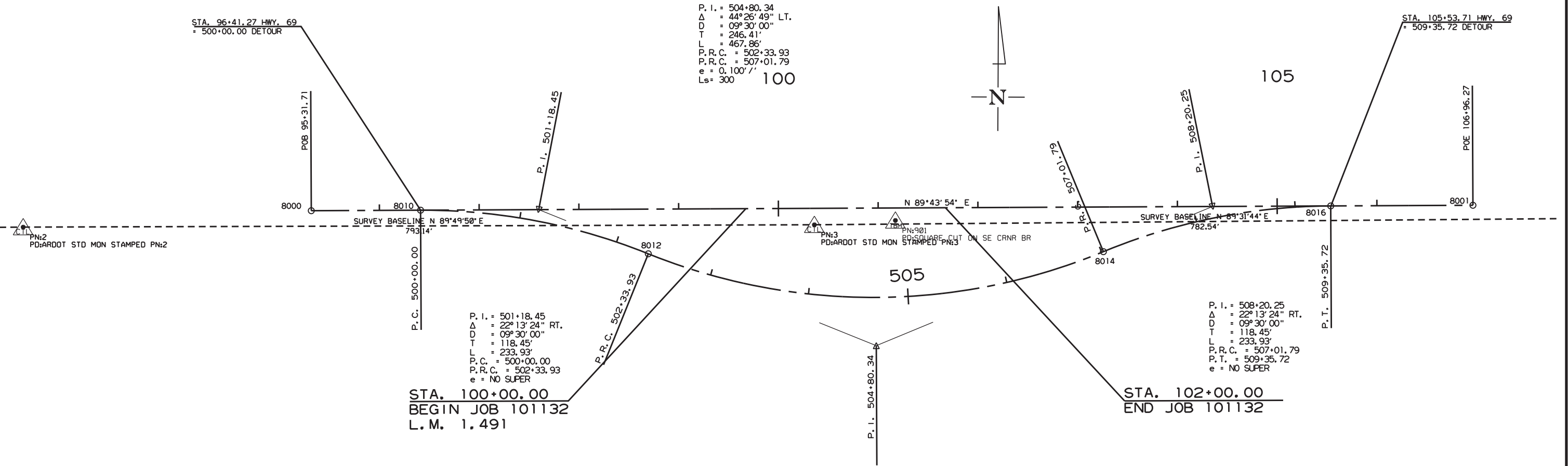
Digitally signed by Thomas N. Taegtmeier
Date: 2024.10.03

HWY. 69 CONST.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	95+31.71	492331.0326	1717869.9121
8001	POE	106+96.27	492336.4893	1719034.4582

HWY. 69 DETOUR CONST.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8010	P. C.	500+00.00	492331.5460	1717979.4710
8012	P. R. C.	502+33.93	492287.8137	1718207.7875
8014	P. R. C.	507+01.79	492289.9513	1718664.0006
8016	P. T.	509+35.72	492335.8213	1718891.8973



SURVEY CONTROL DETAILS

STA. 96+41.27 HWY. 69
= 500+00.00 DETOUR

100' TRANSITION 158.73' OVERLAY 100' TAPER 100

105 100' TAPER 153.71' OVERLAY 100' TRANSITION 105

STA. 105+53.71 HWY. 69
= 509+35.72 DETOUR

BRIDGE NO. M1290 IN PLACE
35'-0" 1 SPAN
REMOVAL OF EXISTING BRIDGE
STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM

STA. 100+00.00
BEGIN JOB 101132
L.M. 1.491

STA. 99+89 RT. IN PLACE
24" X 44" STEEL PIPE
REMOVE AND INSTALL
24" X 40" SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

STA. 102+00.00
END JOB 101132

STA. 100+97.00 CONSTRUCT
TRIPLE 8' X 6' X 68' R.C. BOX CULVERT
WITH 3:1 WINGS LT. AND RT.
Q25 = 565 CFS D.A. = 4.56 SQ. MI.
SPAN = 26'-6"

DATE REVISED DATE REVISED
FED. RD. DIST. NO. 6 STATE ARK. JOB NO. 101132 SHEET NO. 29 TOTAL SHEETS 38
PLAN AND PROFILE

ARKANSAS
REGISTERED
PROFESSIONAL
ENGINEER
No. 19605
THOMAS N. TAEGTMEYER
Digitally signed by Thomas N. Taegtmeyer
Date: 2024.10.03

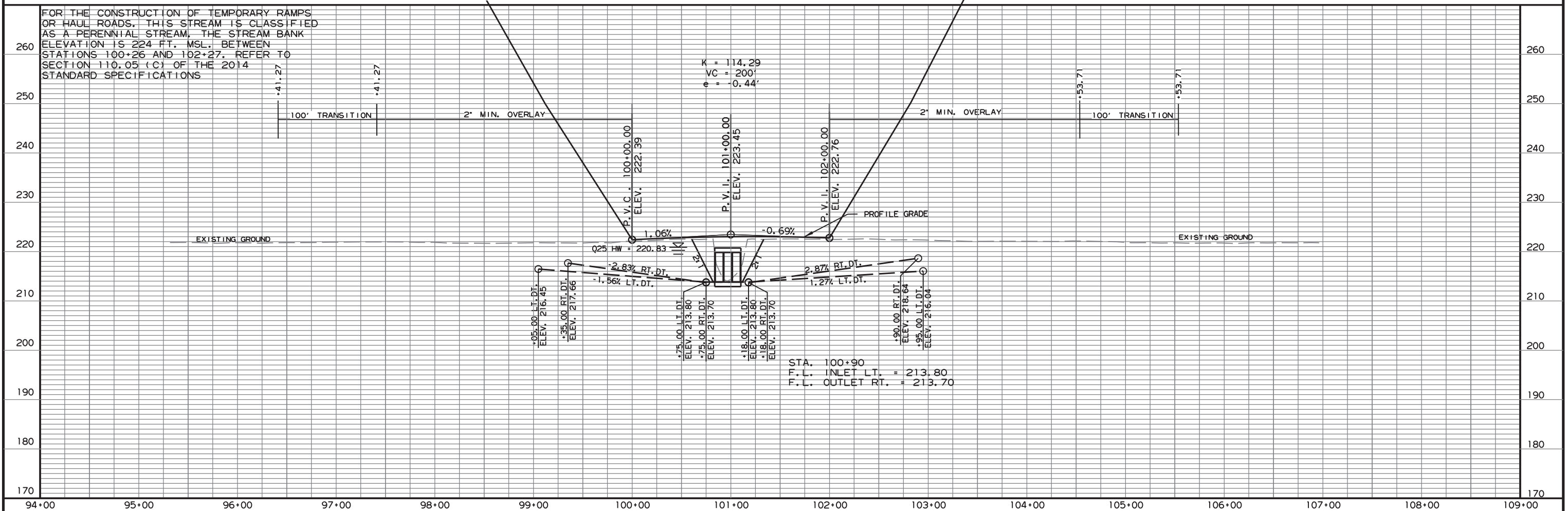
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA

HWY. 69

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

HWY. 69

FOR THE CONSTRUCTION OF TEMPORARY RAMPS
OR HAUL ROADS. THIS STREAM IS CLASSIFIED
AS A PERENNIAL STREAM. THE STREAM BANK
ELEVATION IS 224 FT. MSL. BETWEEN
STATIONS 100+26 AND 102+27. REFER TO
SECTION 110.05 (C) OF THE 2014
STANDARD SPECIFICATIONS



DATE & TIME: 10/3/2024 9:58:14 AM
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STATE OF
ARKANSAS
 REGISTERED
 PROFESSIONAL
 ENGINEER
 No. 19605
 THOMAS J. MEYER

DATE REVISED

DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
	6	ARK.	101132	30	38

PLAN AND PROFILE

Arkansas
REGISTERED PROFESSIONAL ENGINEER
No. 19605
THOMAS N. TAEGTMEYER

Digitally signed by Thomas N. Taegtmeyer
Date: 2024.10.03

STA. 96+41.27 HWY. 69 = 500+00.00 DETOUR

P.O.B. 95+31.71

MATCH EXIST. DITCH LOCATION AND GRADE

P.I. = 504+80.34
 Δ = 44°26'49" LT.
D = 09°30'00"
T = 246.41'
L = 467.86'
P.R.C. = 502+33.93
P.T. = 507+01.79
e = 0.100' / 100
Ls = 300

25' BUFFER

DITCH NO. 1

25' BUFFER

N 89°43'54" E HWY. 69 CL

DITCH

TEMP. CONST. LIMITS

505

HWY. 69 DETOUR

PROP. TCE

P.I. = 501+18.45
 Δ = 22°13'24" RT.
D = 09°30'00"
T = 118.45'
L = 233.93'
P.C. = 500+00.00
P.R.C. = 502+33.93
e = NO SUPER

STA. 504+20 RT. INSTALL 24" X 56' TEMP. PIPE CULVERT CONSTRUCT TEMP. APPROACH = 235 CU. YDS.

STA. 504+68 CONSTRUCT DOUBLE 60" X 84' TEMP PIPE CULVERT Q2 = 290 CFS D.A. = 4.56 SQ. MI.

P.I. = 508+20.25
 Δ = 22°13'24" RT.
D = 09°30'00"
T = 118.45'
L = 233.93'
P.R.C. = 507+01.79
P.T. = 509+35.72
e = NO SUPER

STA. 509+35.72 END DETOUR

HWY. 69 DETOUR

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS. THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATION IS 224 FT. MSL. BETWEEN STATIONS 100+26 AND 102+27. REFER TO SECTION 110.05 (C) OF THE 2014 STANDARD SPECIFICATIONS

STA. 501+63.88 BEGIN SUPERELEVATION (-0.020 FT./FT.)
 STA. 504+63.88 MAX SUPERELEVATION (0.100 FT./FT.)
 STA. 504+72.29 MAX SUPERELEVATION (0.100 FT./FT.)
 STA. 507+72.29 END SUPERELEVATION (-0.020 FT./FT.)

EXISTING GROUND
 PROFILE GRADE
 EXISTING GROUND

Vertical Curve Data:
 K = 100.67
 VC = 150'
 e = 0.28'

Vertical Curve Data:
 K = 107.91
 VC = 150'
 e = -0.26'

Stationing and Elevation Data:
 P.V.I. 500+00.00 ELEV. 221.77
 P.V.I. 500+59.26 ELEV. 221.77
 P.V.C. 501+63.88 ELEV. 221.22
 P.V.I. 502+38.88 ELEV. 220.83
 P.V.T. 503+13.88 ELEV. 221.55
 P.V.C. 503+88.81 ELEV. 222.28
 P.V.I. 504+63.81 ELEV. 223.00
 P.V.T. 505+38.81 ELEV. 222.69
 P.V.I. 507+50.29 ELEV. 221.81
 P.V.I. 509+35.72 ELEV. 221.75

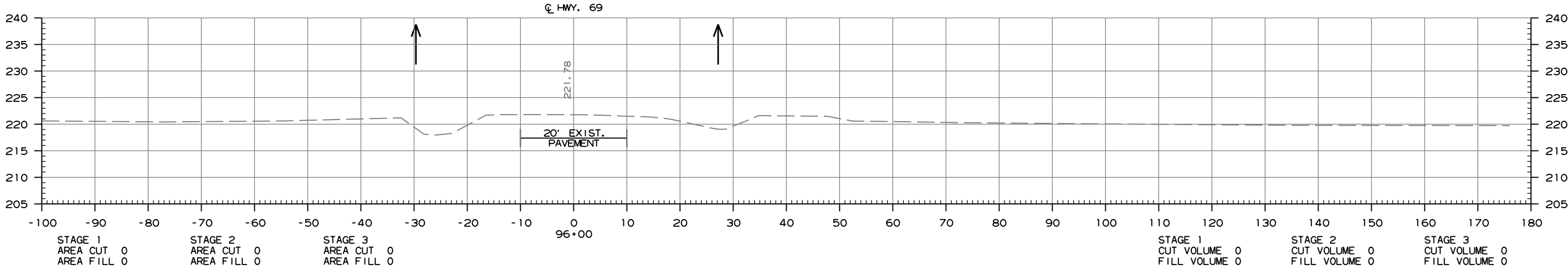
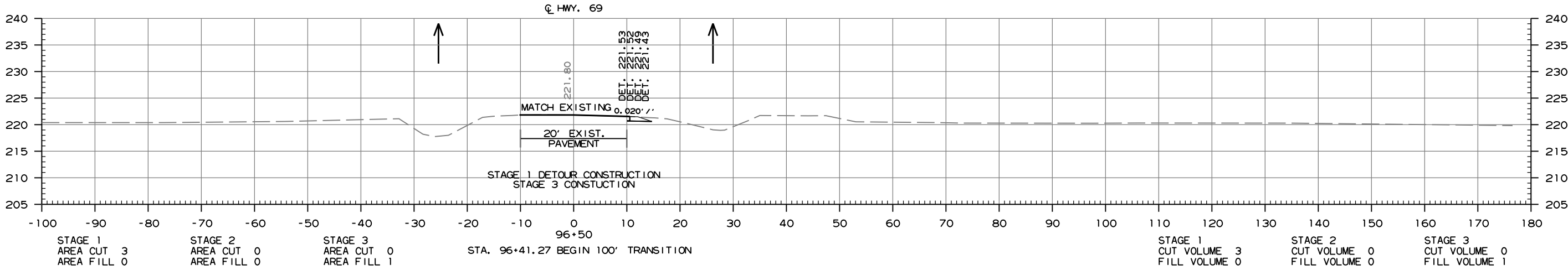
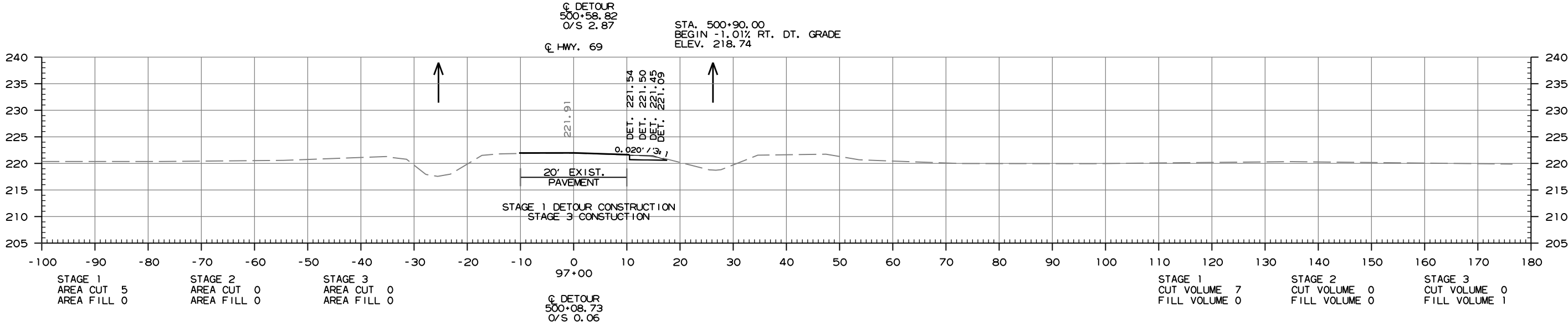
Grades:
 -0.00%
 -0.52%
 0.97%
 -0.42%
 -0.03%

Right of Way (RT) and Left of Way (LT) Data:
 +90.00 RT.DT. ELEV. 218.74
 +60.00 RT.DT. ELEV. 217.19
 +30.00 RT.DT. ELEV. 215.29
 +63.67 RT.DT. ELEV. 213.45
 +73.67 LT.DT. ELEV. 213.70
 +73.67 RT.DT. ELEV. 213.70
 +73.67 LT.DT. ELEV. 213.45
 +100.00 RT.DT. ELEV. 215.14
 +70.00 LT.DT. ELEV. 215.88
 +90.00 LT.DT. ELEV. 219.40
 +70.00 RT.DT. ELEV. 218.84

STA. 504+68
 F.L. INLET LT. = 213.70
 F.L. OUTLET RT. = 213.45

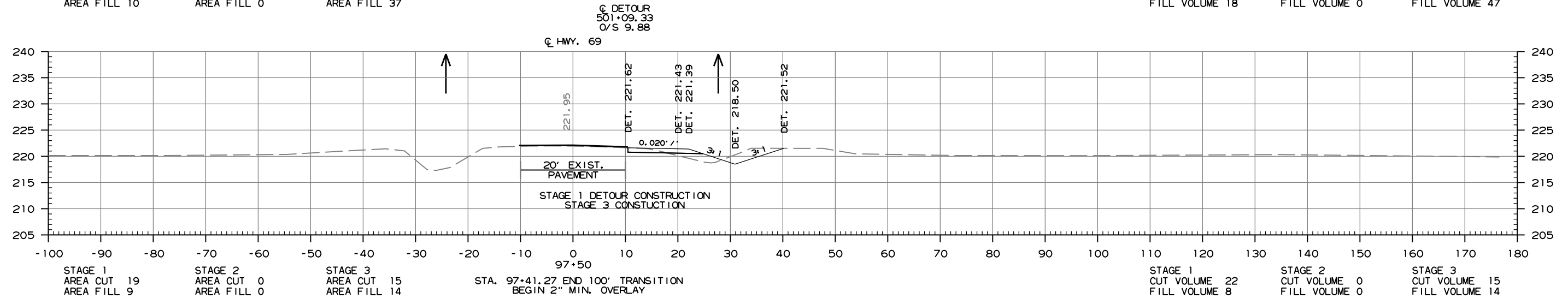
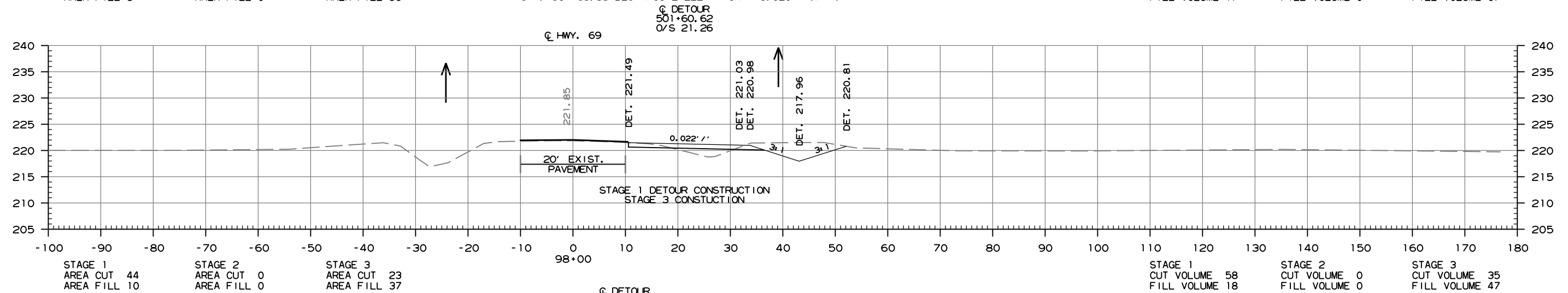
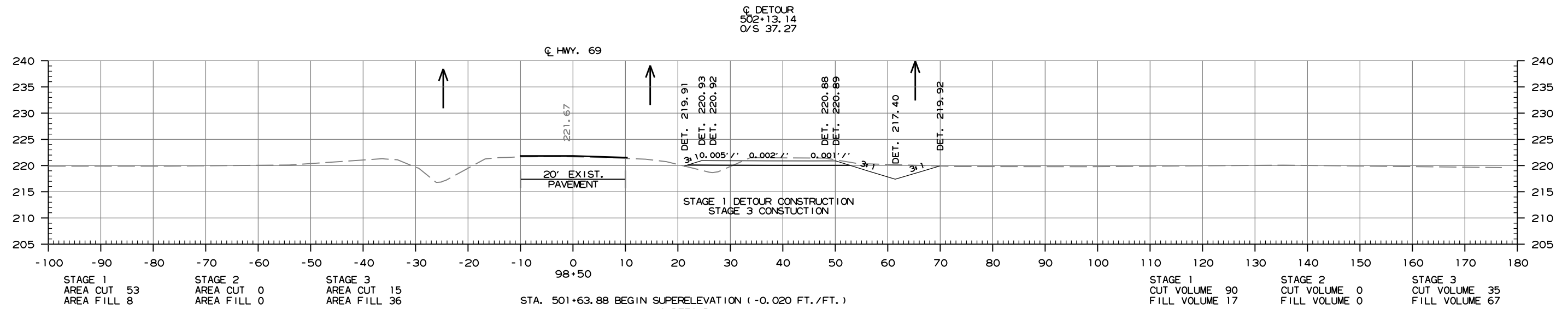
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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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CROSS SECTIONS						



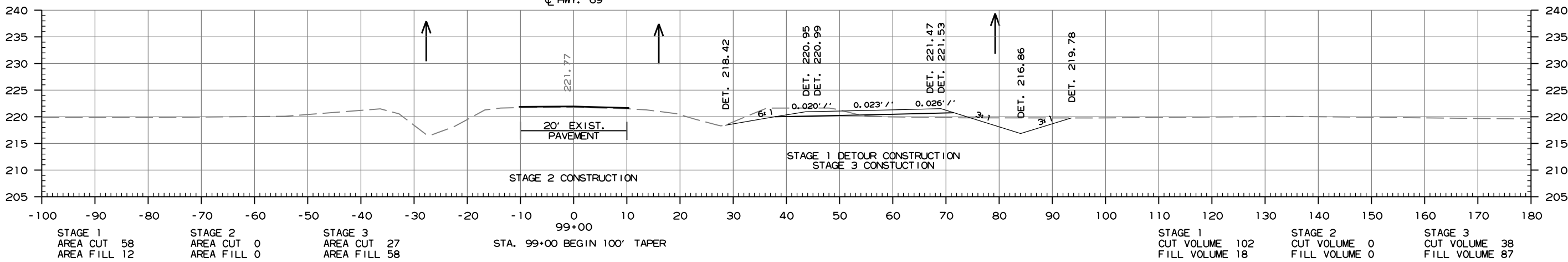
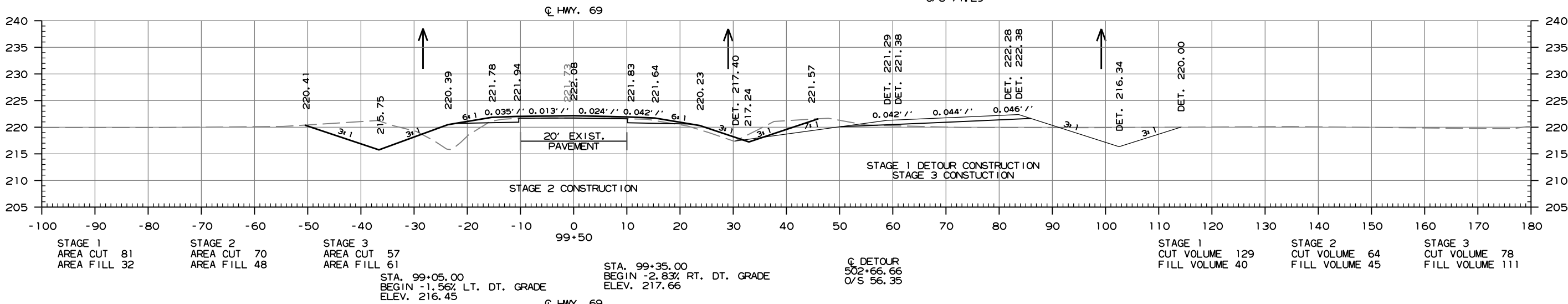
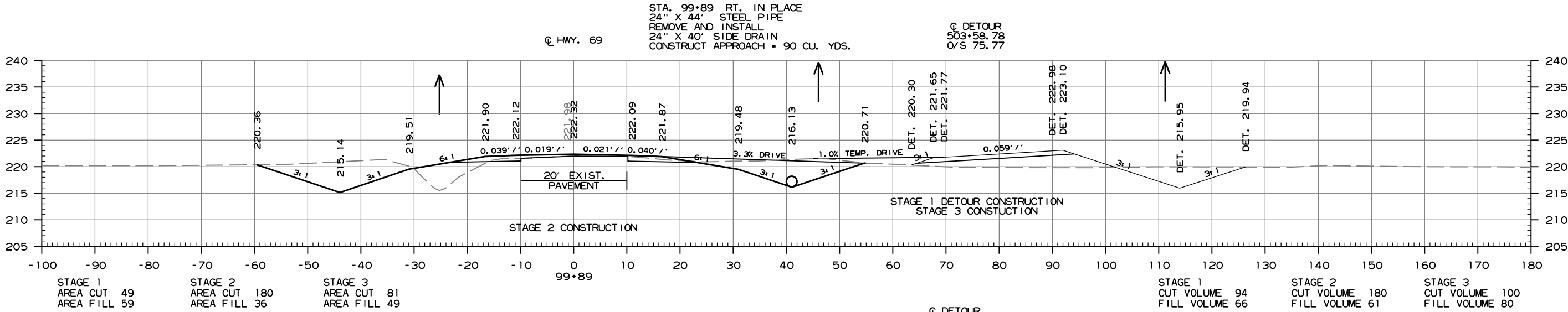
CROSS SECTION STA. 96+00 TO STA. 97+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	32	38
		CROSS SECTIONS				



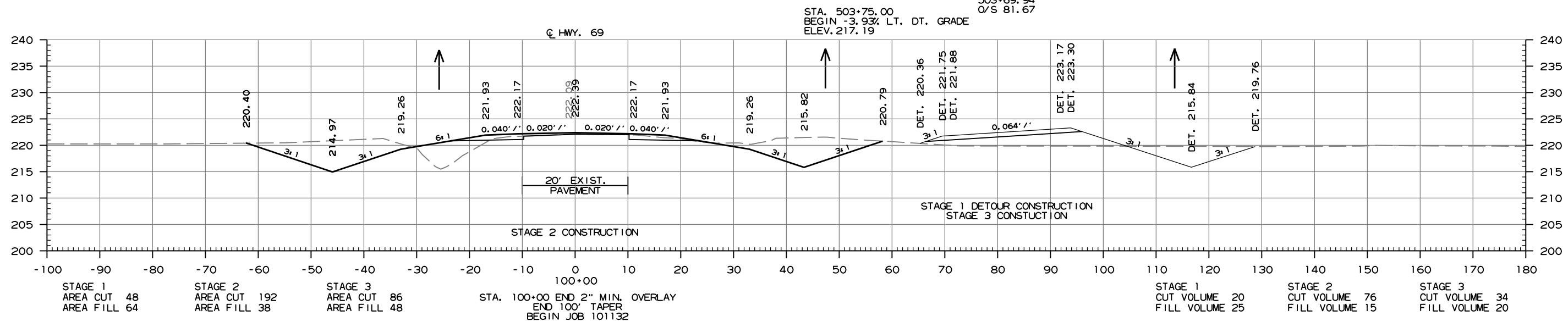
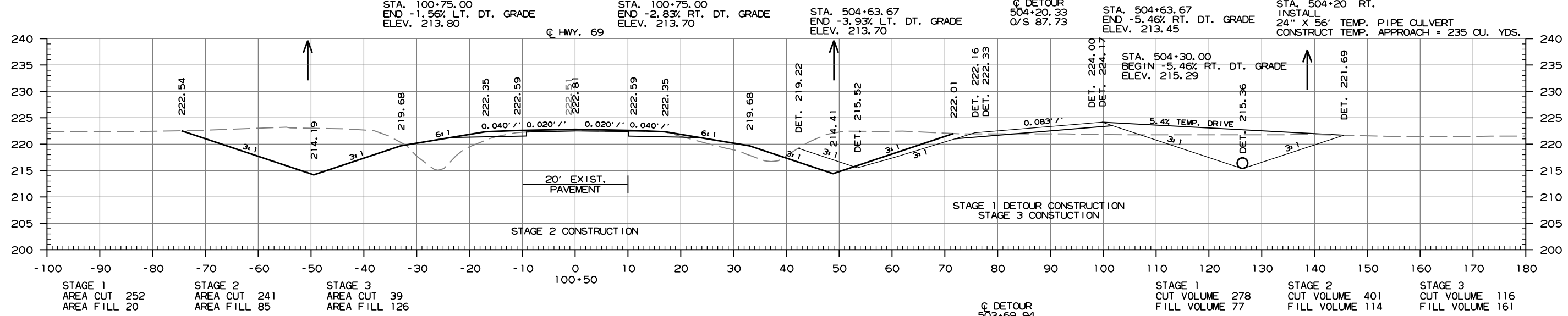
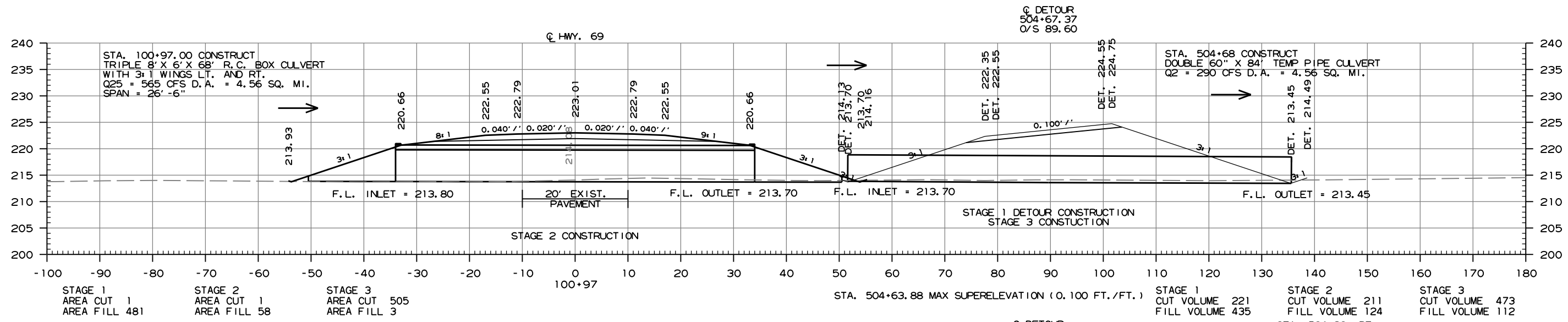
CROSS SECTION STA. 97+50 TO STA. 98+50

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	33	38
CROSS SECTIONS						



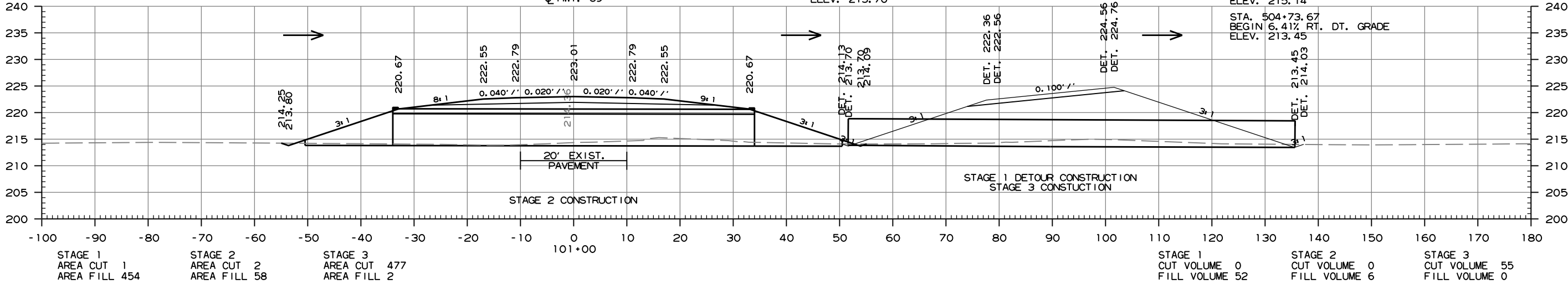
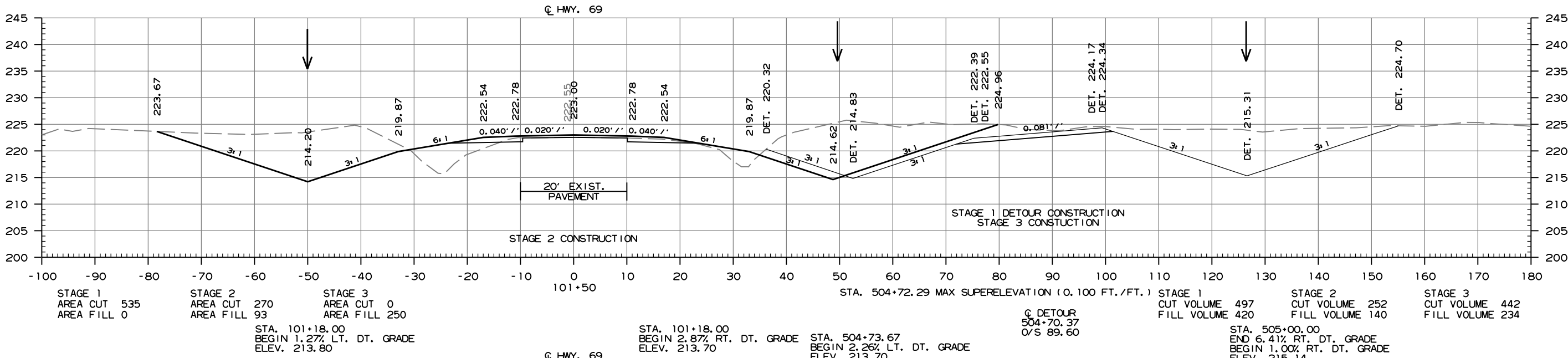
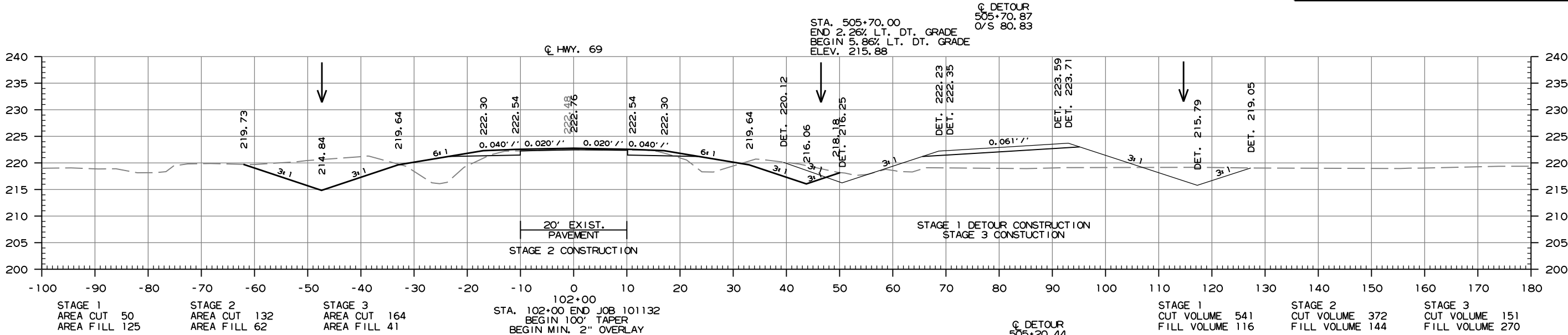
CROSS SECTION STA. 99+00 TO STA. 99+89

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	34	38
CROSS SECTIONS						



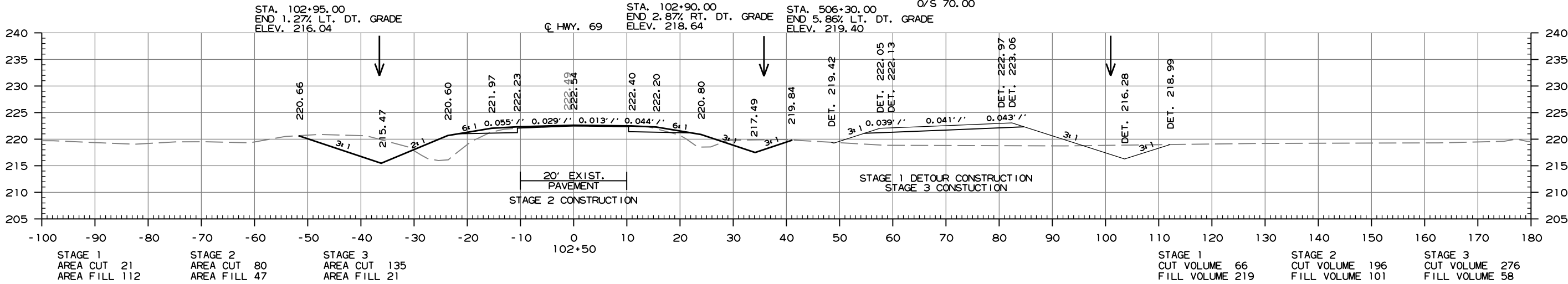
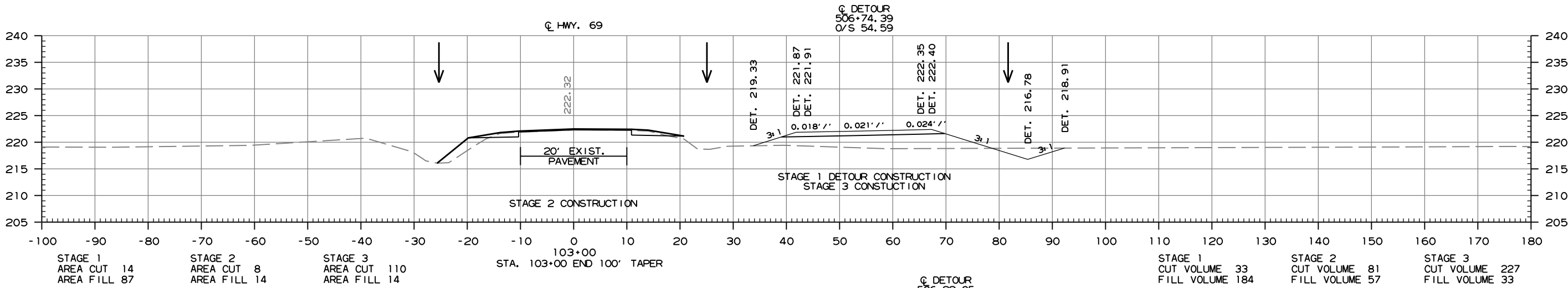
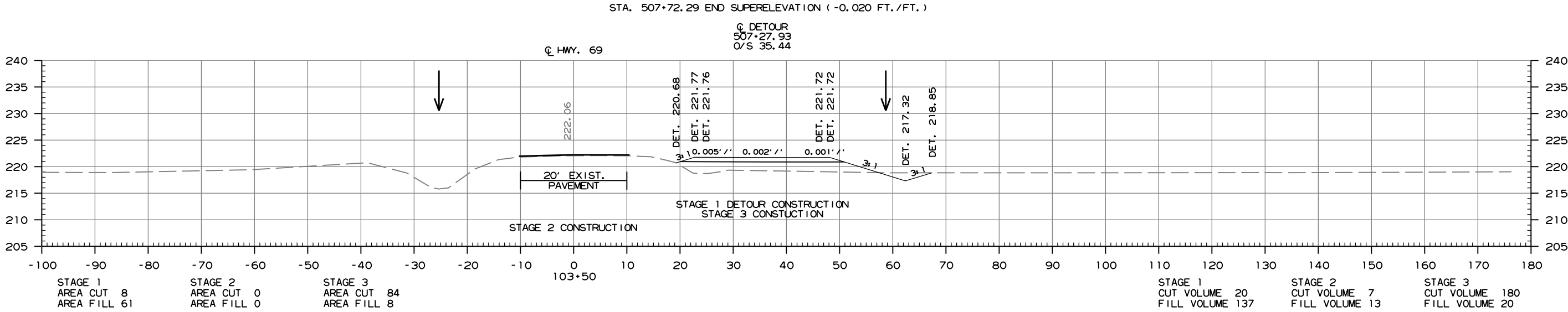
CROSS SECTION STA. 100+00 TO STA. 100+97

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	101132	35	38
CROSS SECTIONS						



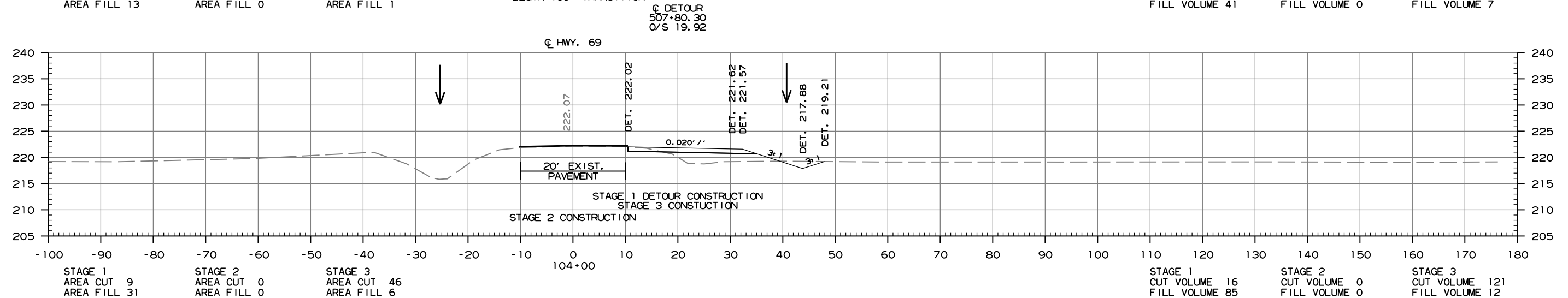
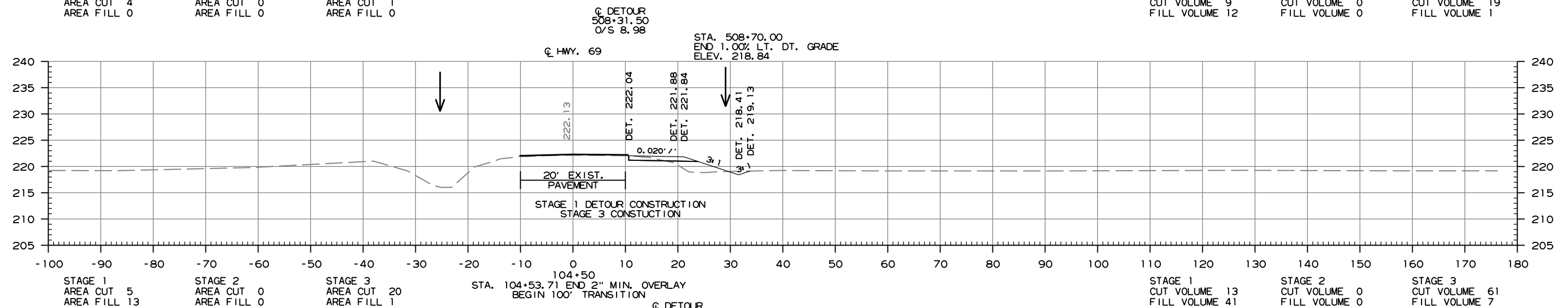
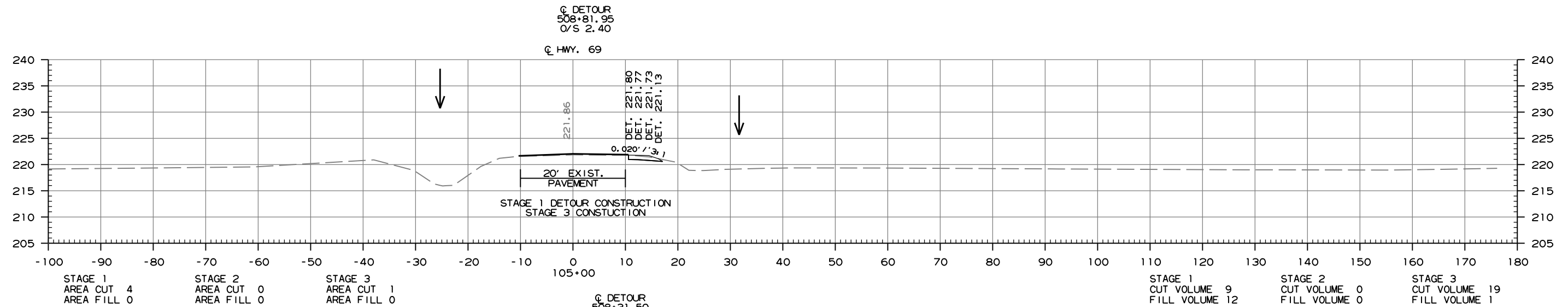
CROSS SECTION STA. 101+00 TO STA. 102+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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CROSS SECTIONS						



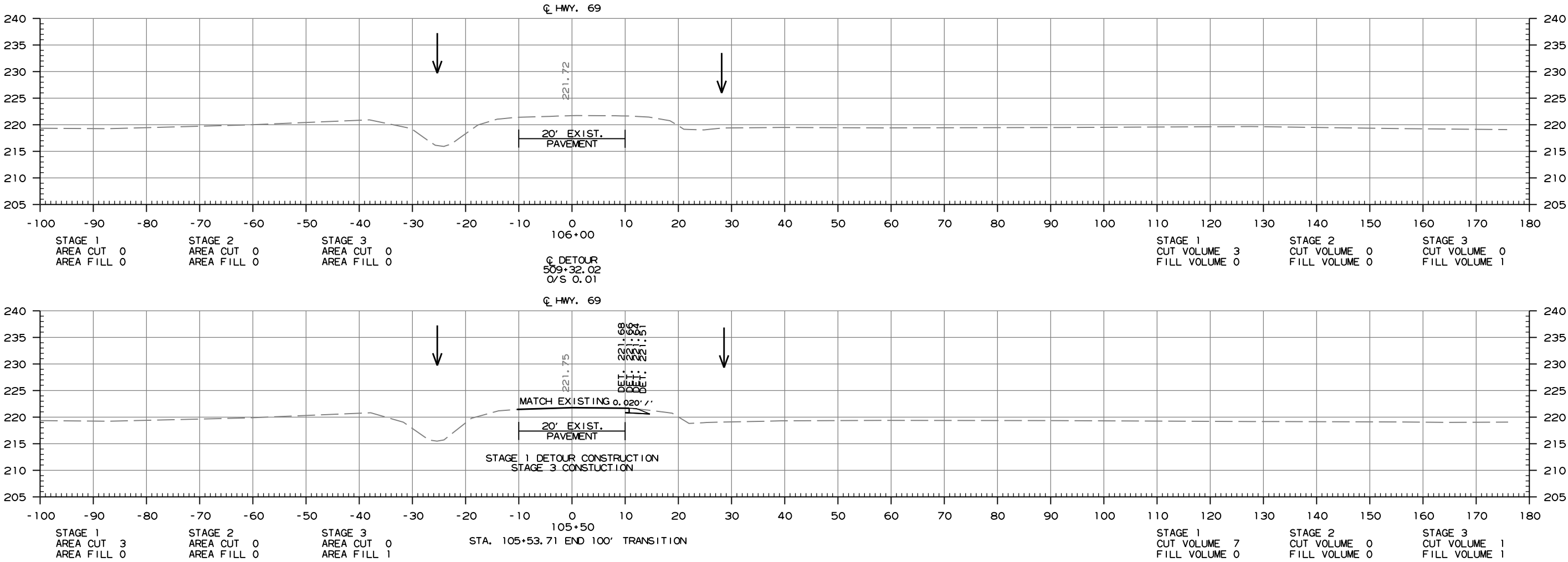
CROSS SECTION STA. 102+50 TO STA. 103+50

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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		CROSS SECTIONS				

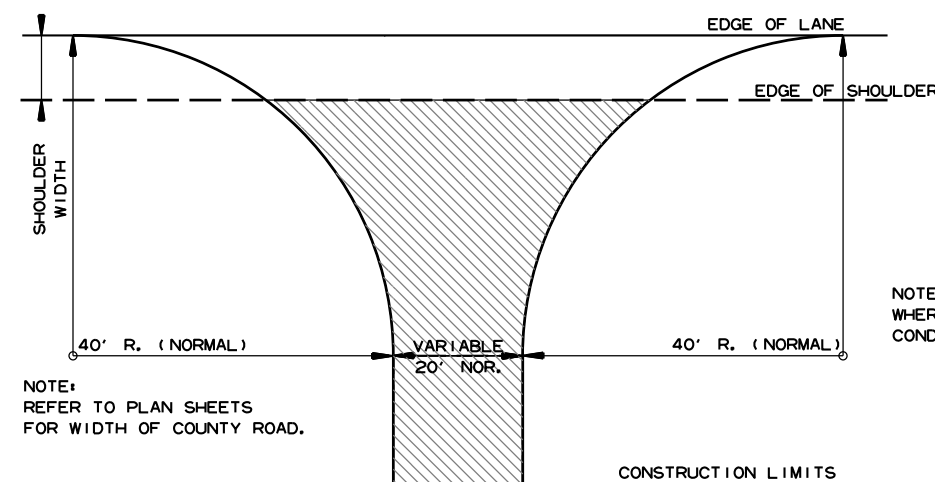


CROSS SECTION STA. 104+00 TO STA. 105+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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CROSS SECTIONS						



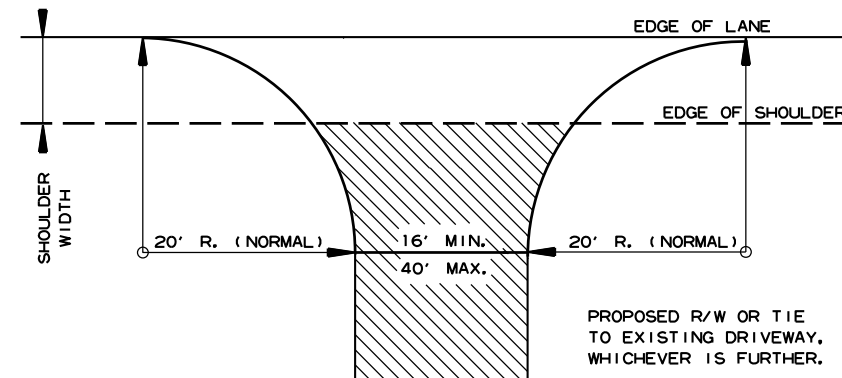
CROSS SECTION STA. 105+50 TO STA. 106+00



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, UNLESS OTHERWISE SPECIFIED IN PLANS.

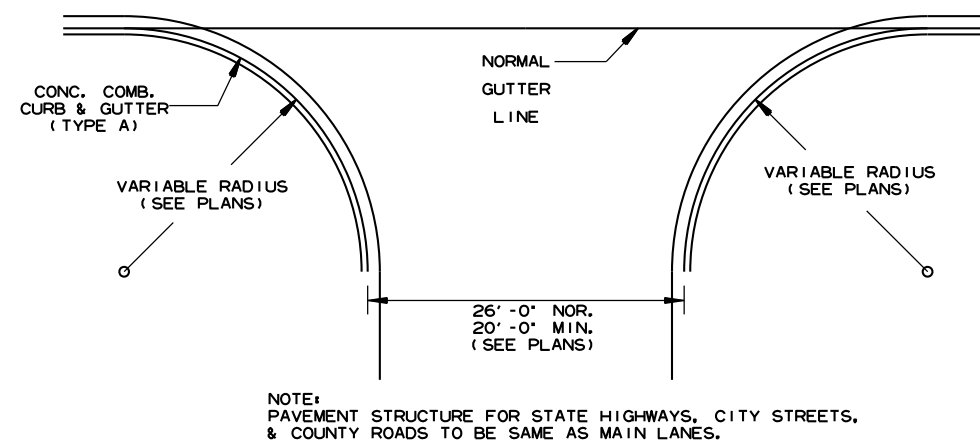
DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION



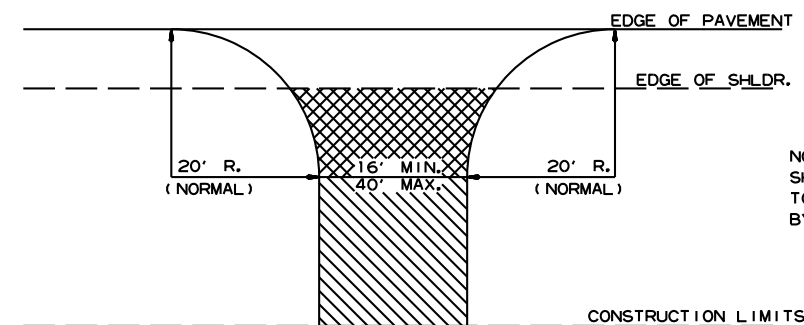
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)



DETAIL OF TURNOUTS, ASPHALT STREETS,
COUNTY ROADS & STATE HIGHWAYS
CURB & GUTTER SECTION



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

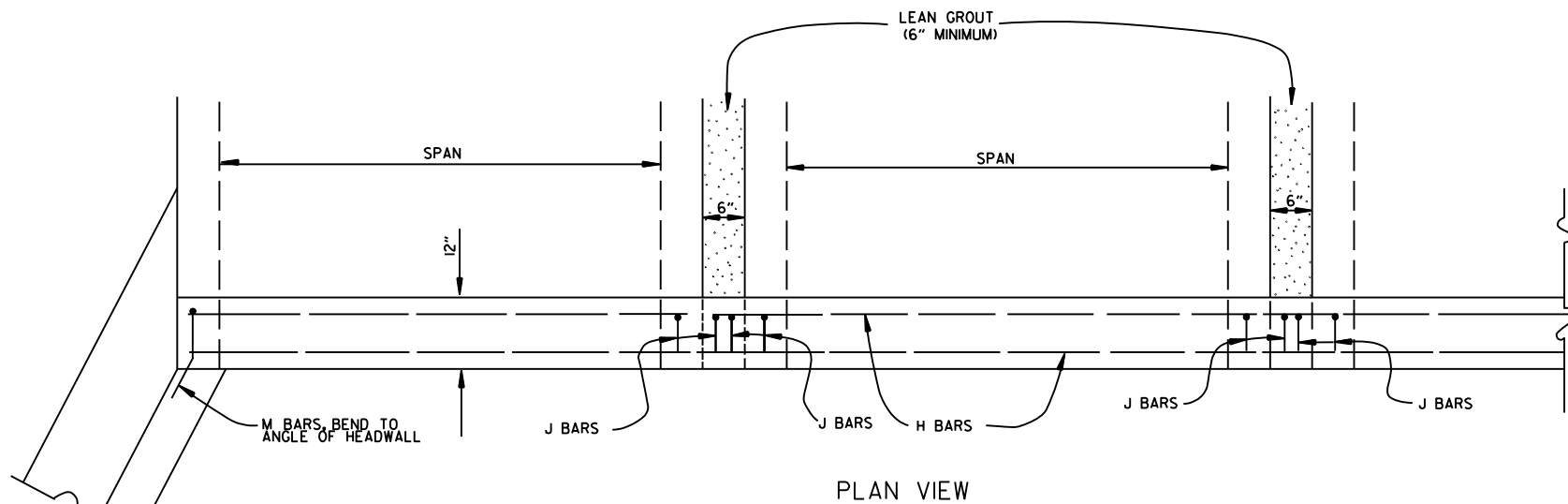
ASPHALT CONCRETE HOT MIX SURFACE COURSE (220 LBS. PER SQ. YD.) AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR 6" CONCRETE IF CONCRETE DRIVE EXIST.

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

DETAIL FOR DRIVEWAY TURNOUTS
(COLLECTORS)

5-19-22		ISSUED
DATE REV	DATE FILMED	DESCRIPTION

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & STREET
TURNOUTS
STANDARD DRAWING DR-2



BAR LIST				
BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	

• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE $\frac{3}{4}$ " CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS: PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85. SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS. THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE. THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

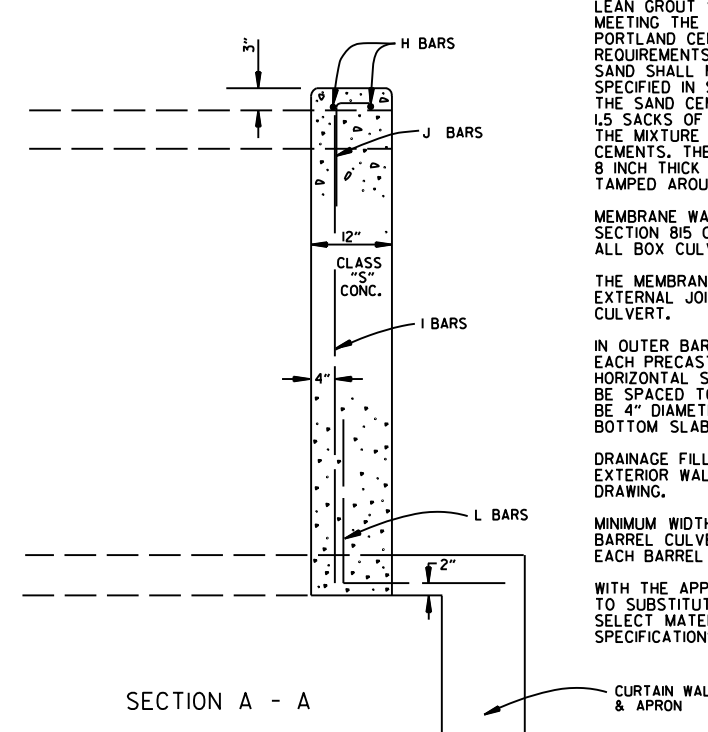
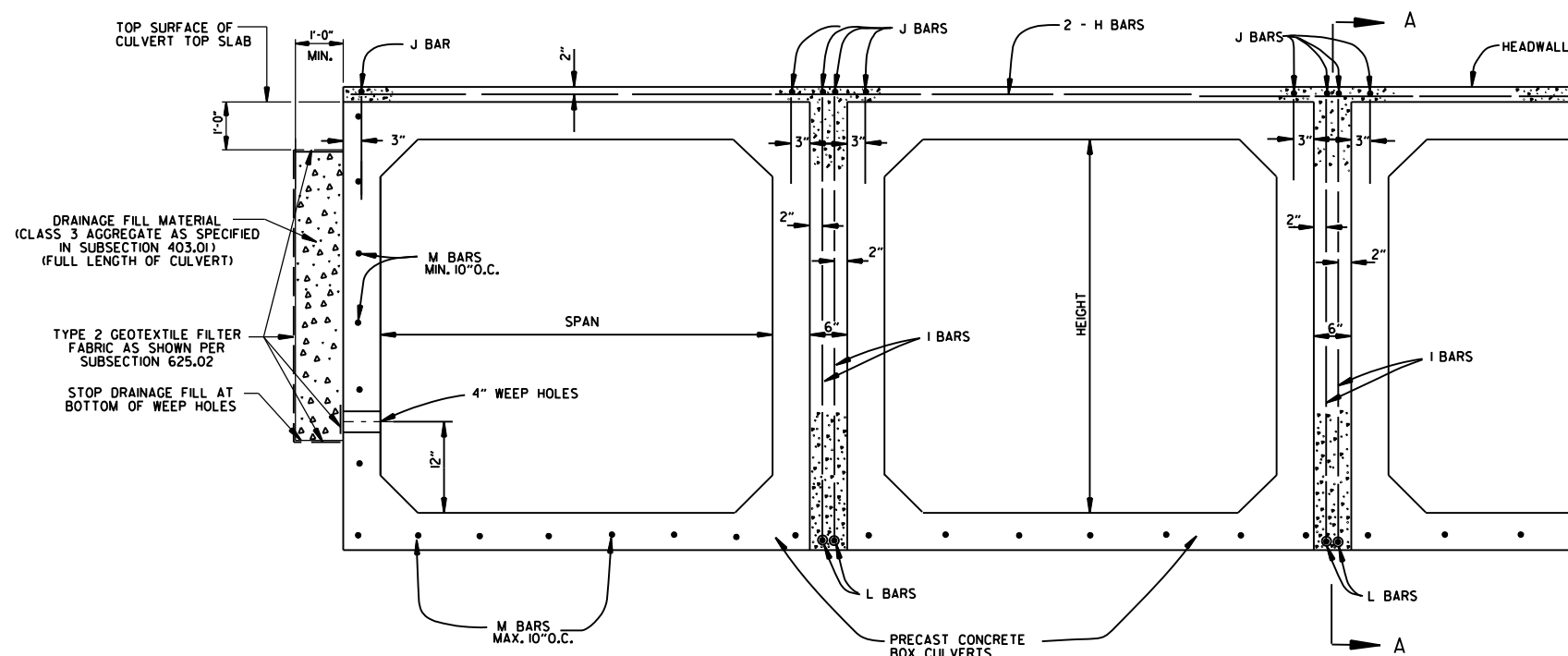
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW

SECTION A - A

DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED: JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE
ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51½	51	31¾	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87½	87
120	154	154	96¾	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE
HORIZONTAL ELLIPTICAL
PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

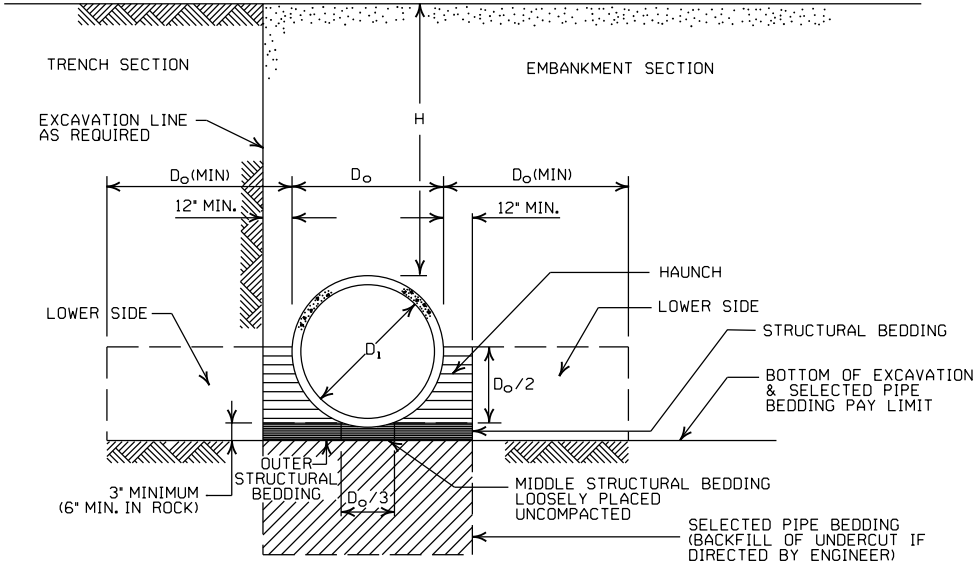
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2 3/4 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 3/4 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

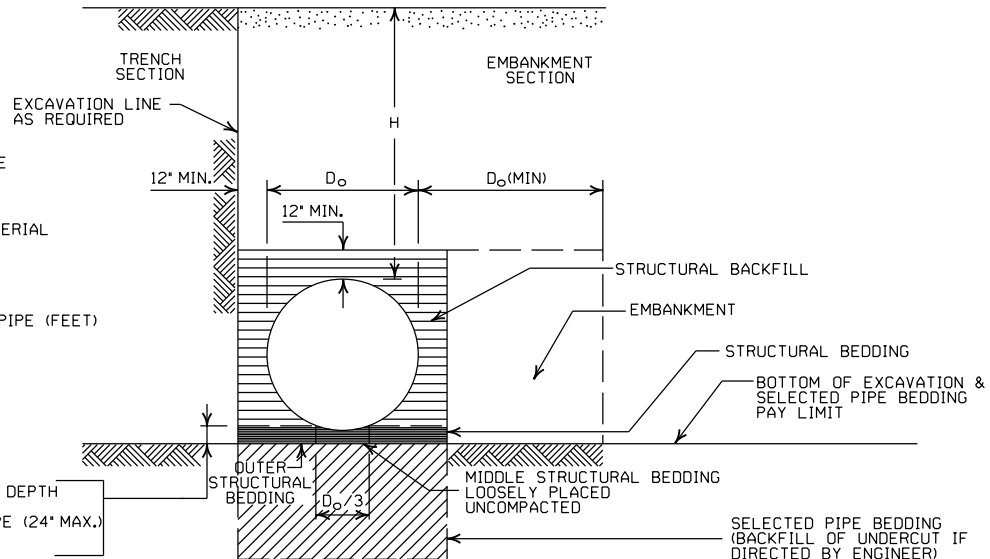
EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

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

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1



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

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
 - SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/2 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

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

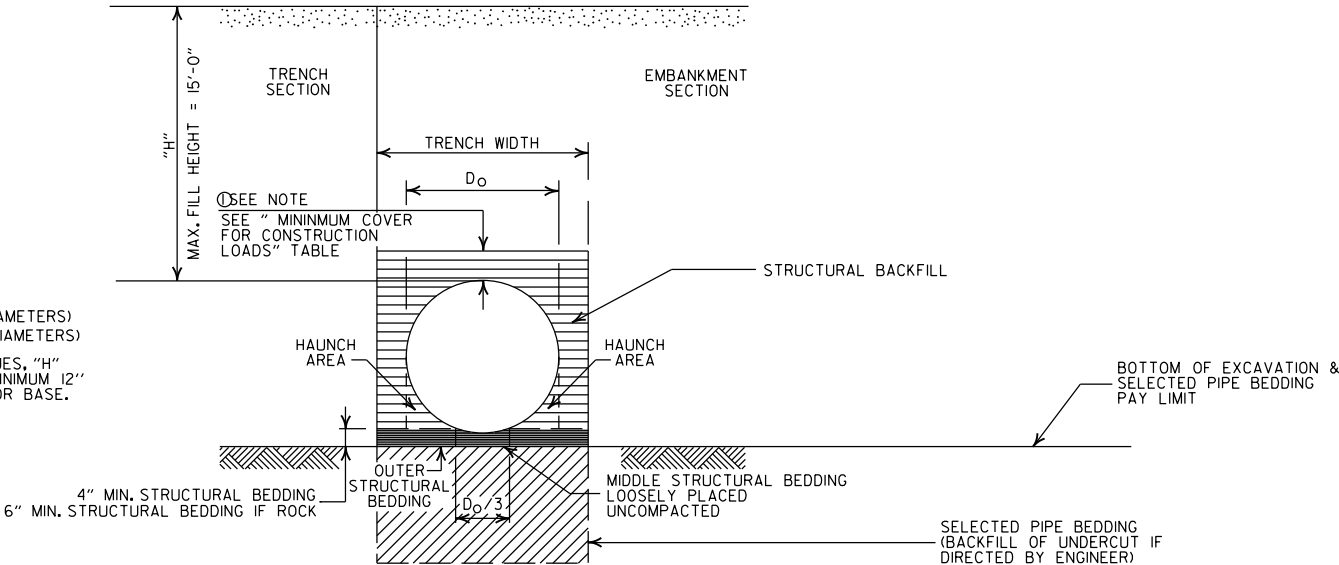
NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)
MINIMUM COVER VALUES, "H"
SHALL INCLUDE A MINIMUM 12"
OF PAVEMENT AND/OR BASE.

MULTIPLE INSTALLATION OF
HIGH DENSITY POLYETHYLENE PIPES

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

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

- H = FILL HEIGHT (FT.)
Do = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
- ===== = STRUCTURAL BACKFILL MATERIAL
===== = UNDISTURBED SOIL

GENERAL NOTES

- PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
- PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
- THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
- IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
- WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
- WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
- FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
- HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
- JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

			ARKANSAS STATE HIGHWAY COMMISSION
			PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)
			STANDARD DRAWING PCP-1
2-27-14	REVISED GENERAL NOTE 1.		
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE		
11-17-10	ISSUED		
DATE	REVISION	DATE FILMED	

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

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

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/4 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

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

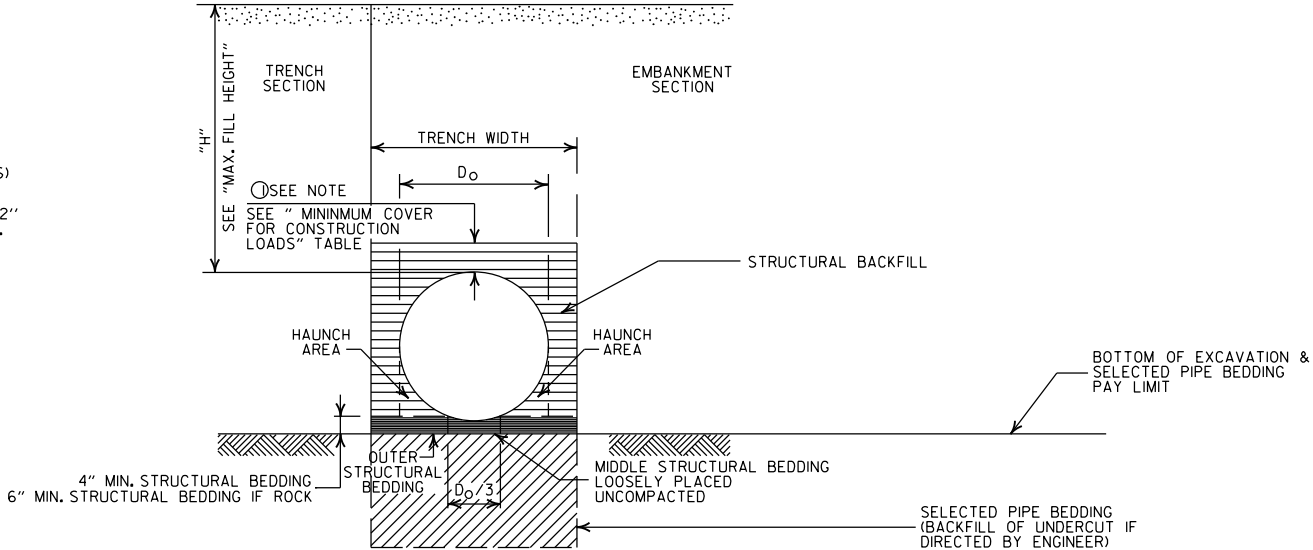
MULTIPLE INSTALLATION OF
PVC PIPES

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

MAXIMUM FILL HEIGHT
BASED ON STRUCTURAL BACKFILL

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

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

===== = STRUCTURAL BACKFILL MATERIAL
XXXXXX = UNDISTURBED SOIL

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2



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

* SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

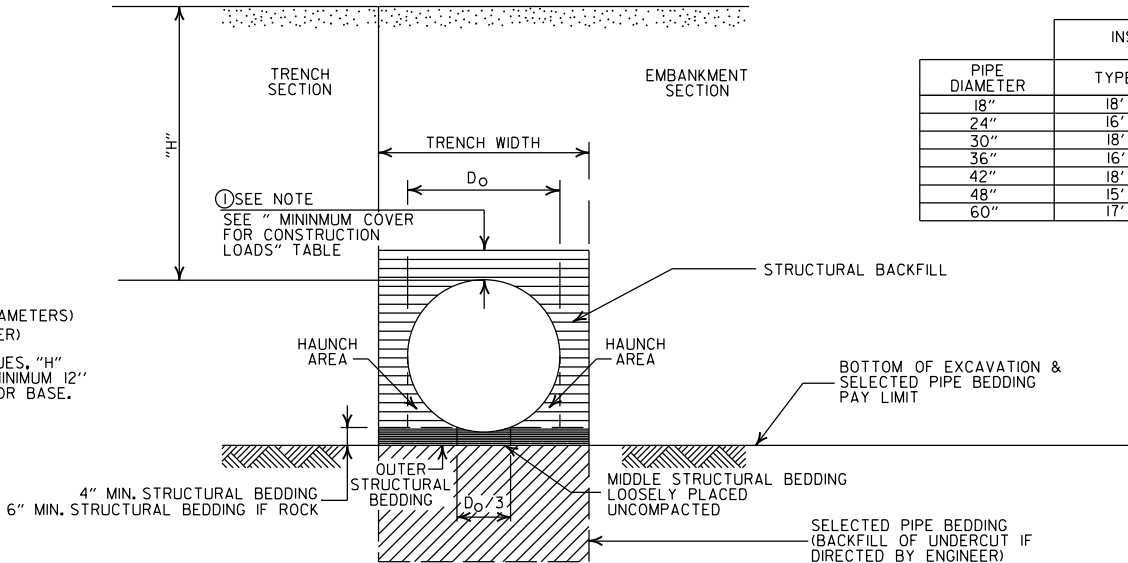
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"
60"	10'-0"	15'-0"

①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

===== = STRUCTURAL BACKFILL MATERIAL
||||||| = UNDISTURBED SOIL

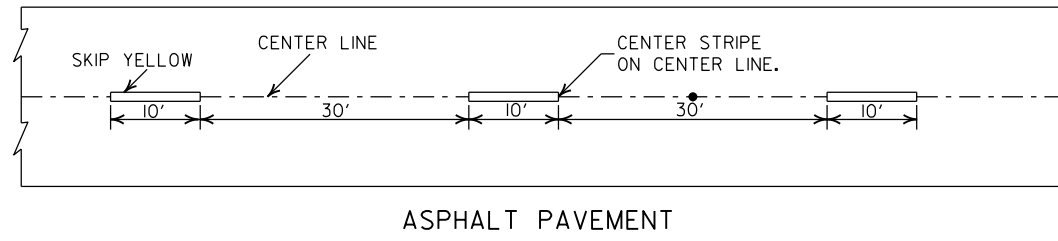
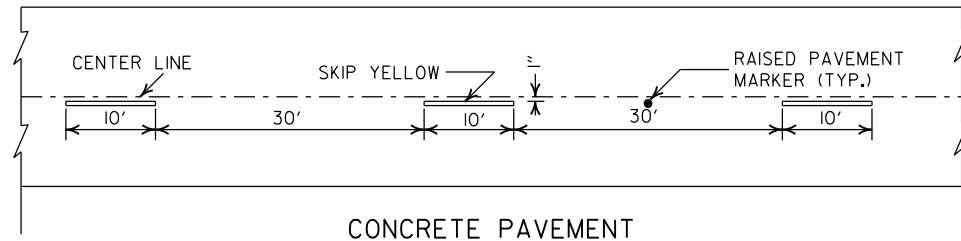
02-27-20	REVISED	
11-07-19	ISSUED	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

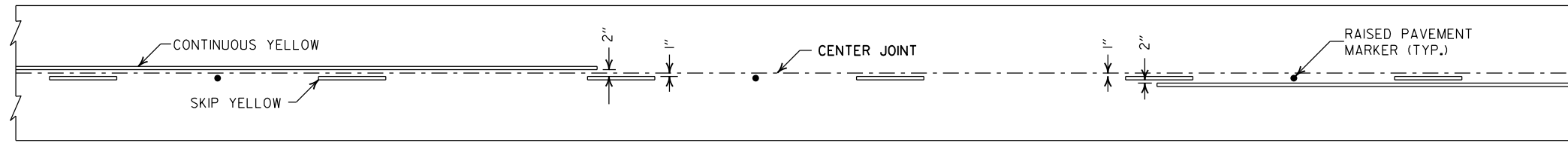
PLASTIC PIPE CULVERT
(POLYPROPYLENE)

STANDARD DRAWING PCP-3

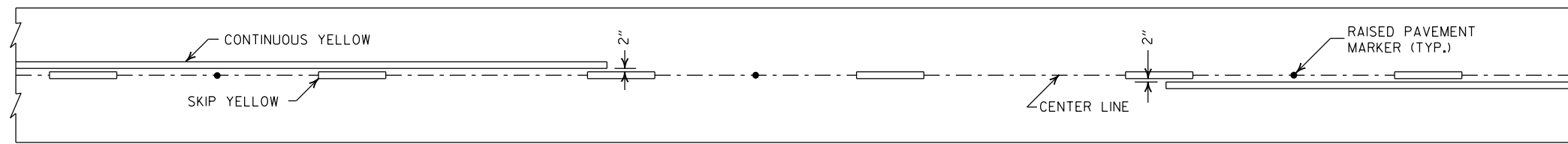




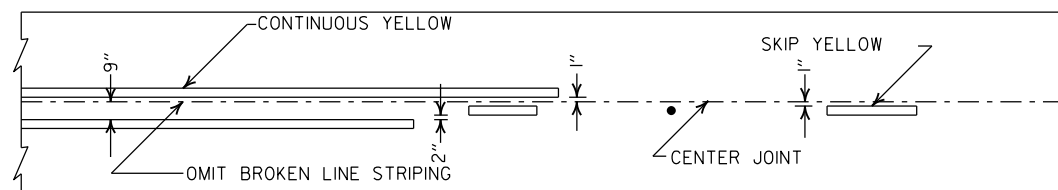
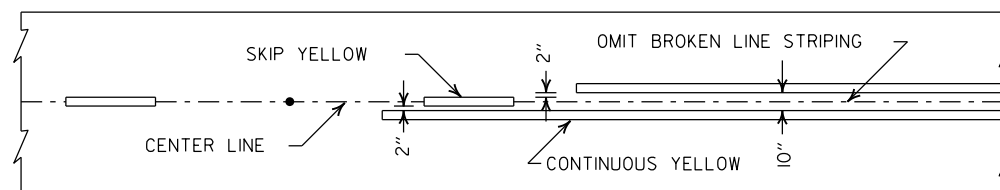
BROKEN LINE STRIPING



SOLID LINE STRIPING ON CONCRETE PAVEMENT



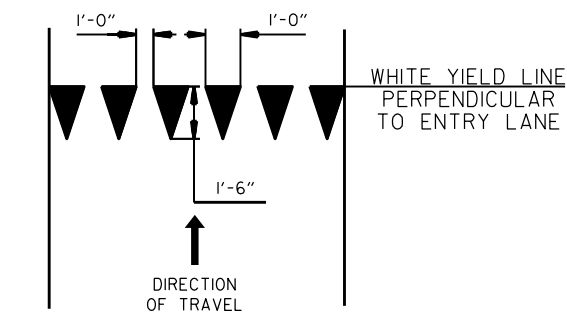
SOLID LINE STRIPING ON ASPHALT PAVEMENT



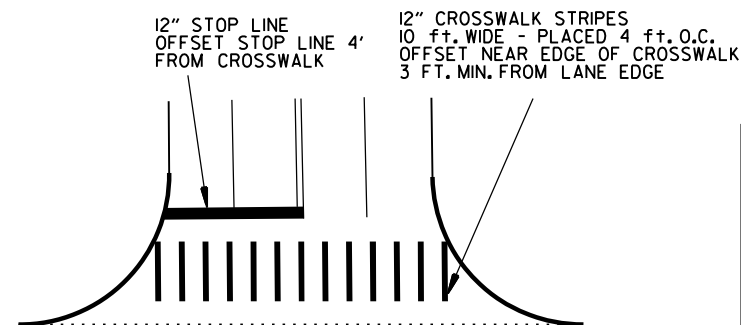
ASPHALT PAVEMENT

CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL

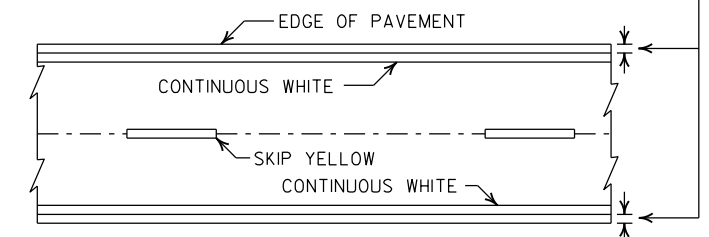


CROSSWALK AND STOP LINE DETAILS

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

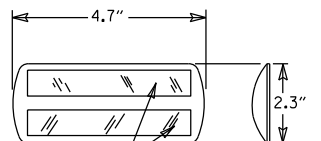


PAVEMENT EDGE LINE MARKING

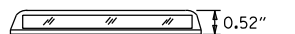
NOTE:
THE RED LENS OF THE
TYPE II R.P.M. SHALL
FACE THE INCORRECT
TRAFFIC MOVEMENT.

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 ARDOT QUALIFIED
PRODUCTS LIST.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

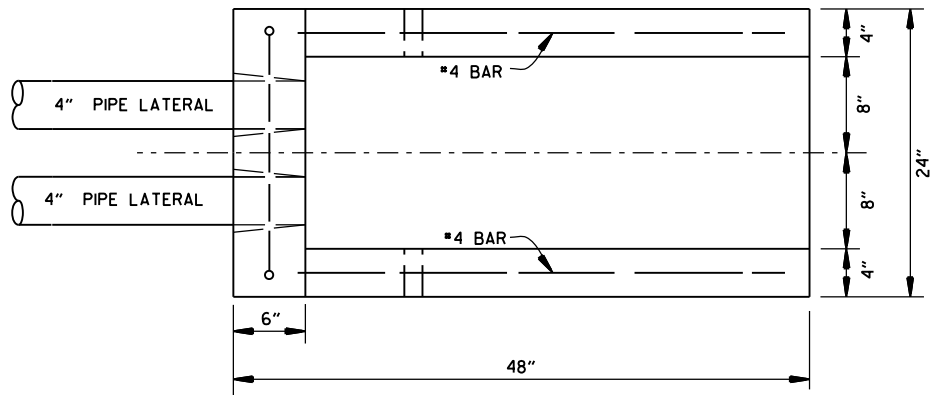
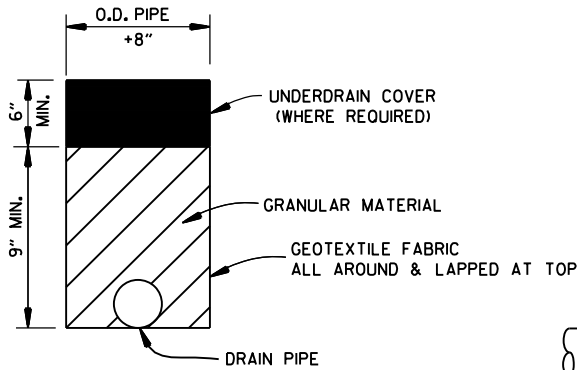
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK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

ARKANSAS STATE HIGHWAY COMMISSION

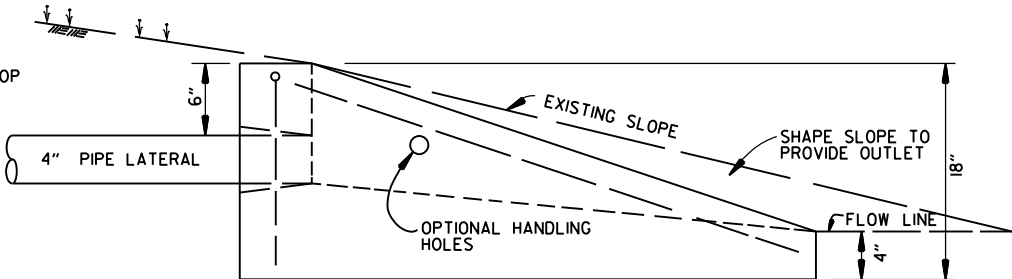
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

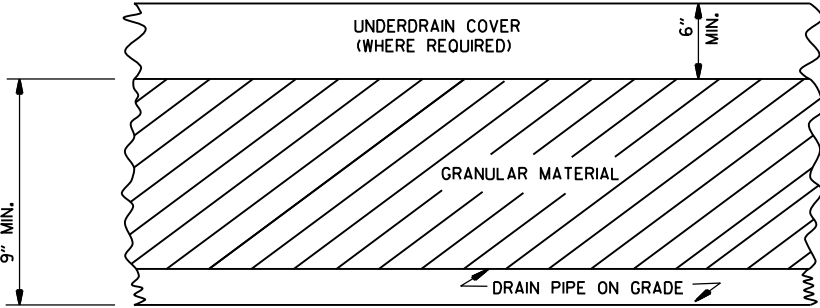
NOTE:
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



PLAN VIEW



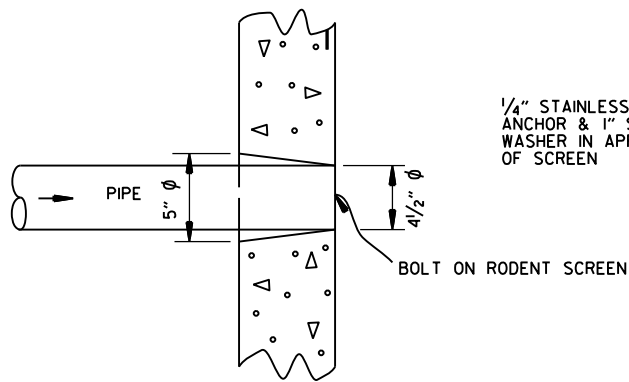
SIDE VIEW



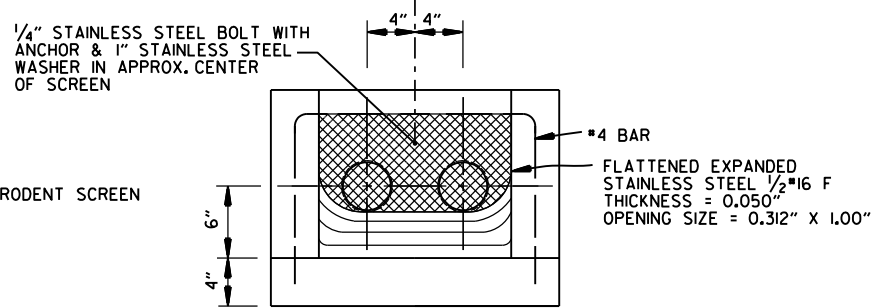
DETAILS OF PIPE UNDERDRAIN

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 611 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 611 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.



DETAIL OF HOLE FOR 4" PIPE

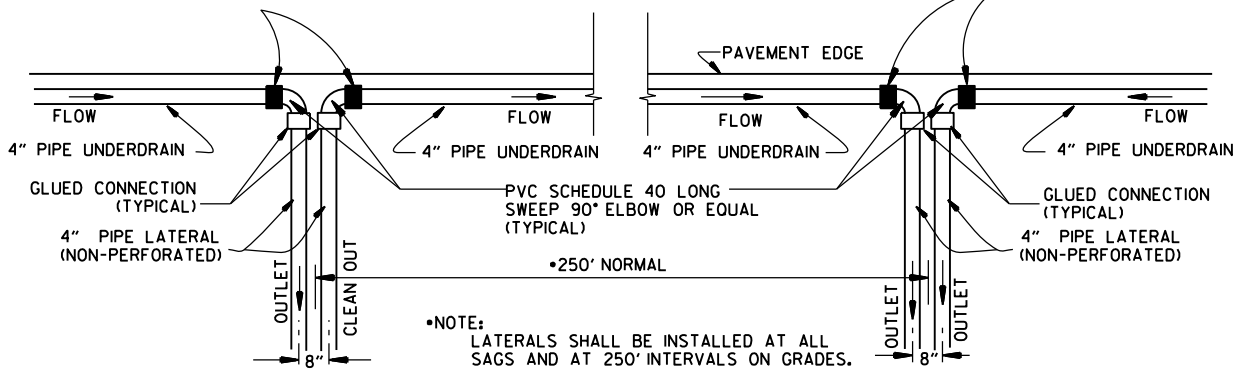


FRONT VIEW (DETAIL OF RODENT SCREEN)

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 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/DI OR 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.

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
DATE	REVISION	DATE FILMED

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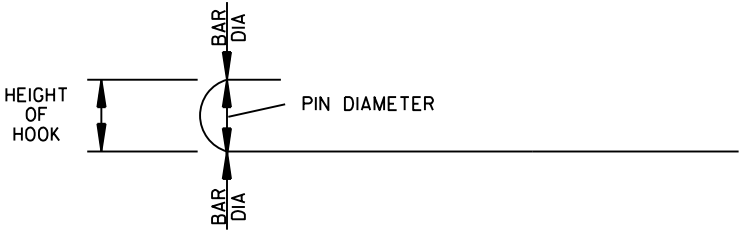
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

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

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



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

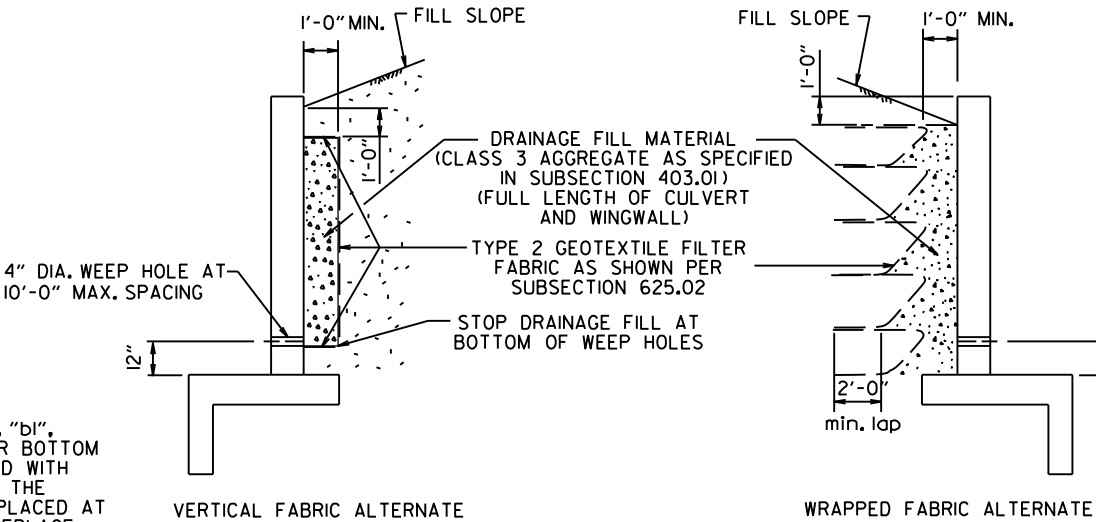
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

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

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31OR M 53, GRADE 60.

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

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

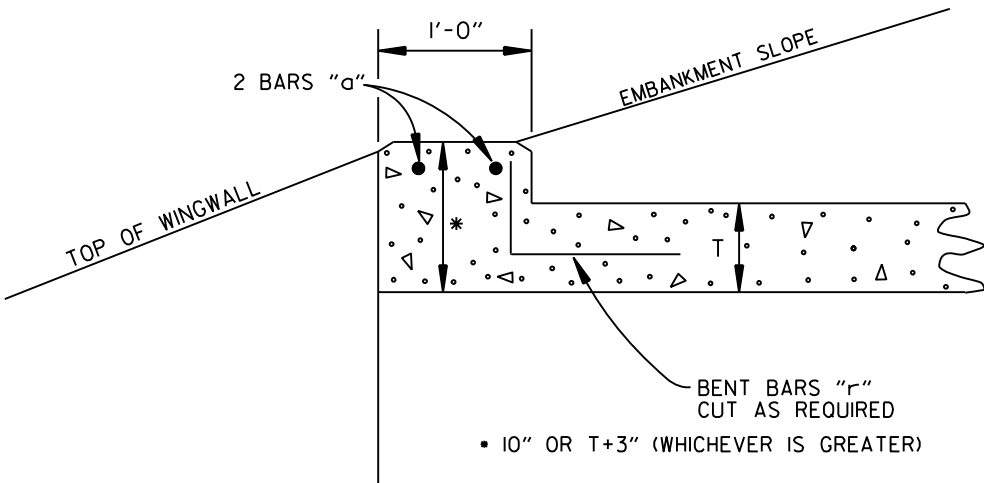
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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

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

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

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



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

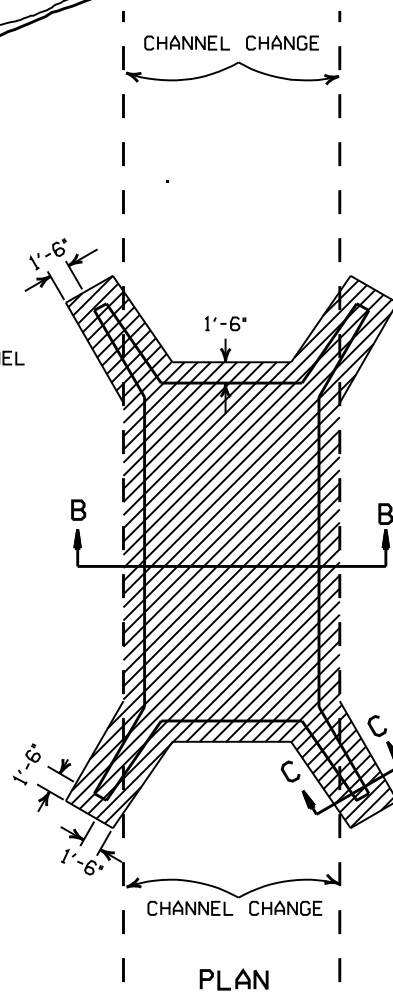
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

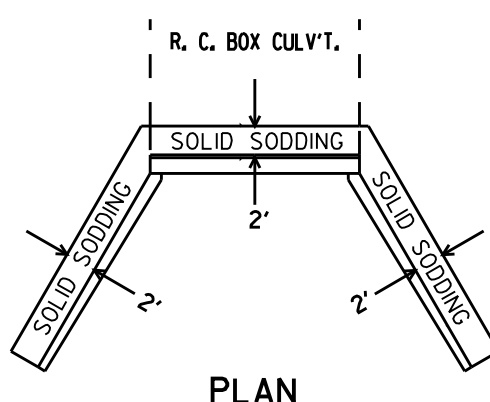
ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX
CULVERT DETAILS

STANDARD DRAWING RCB-1

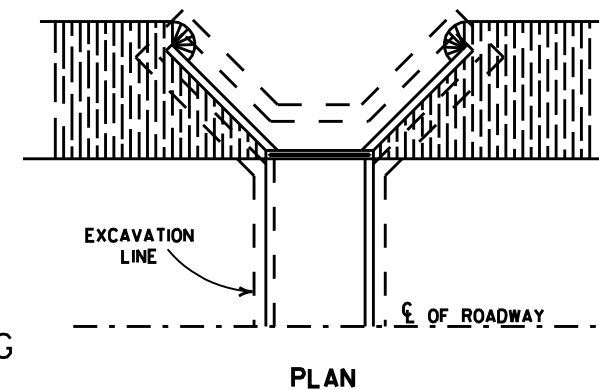


SECTION B-B
DETAILS FOR NEW CHANNELS



PARTIAL SECTION SHOWING SOLID SODDING
AT HEADWALLS AND WING WALLS

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

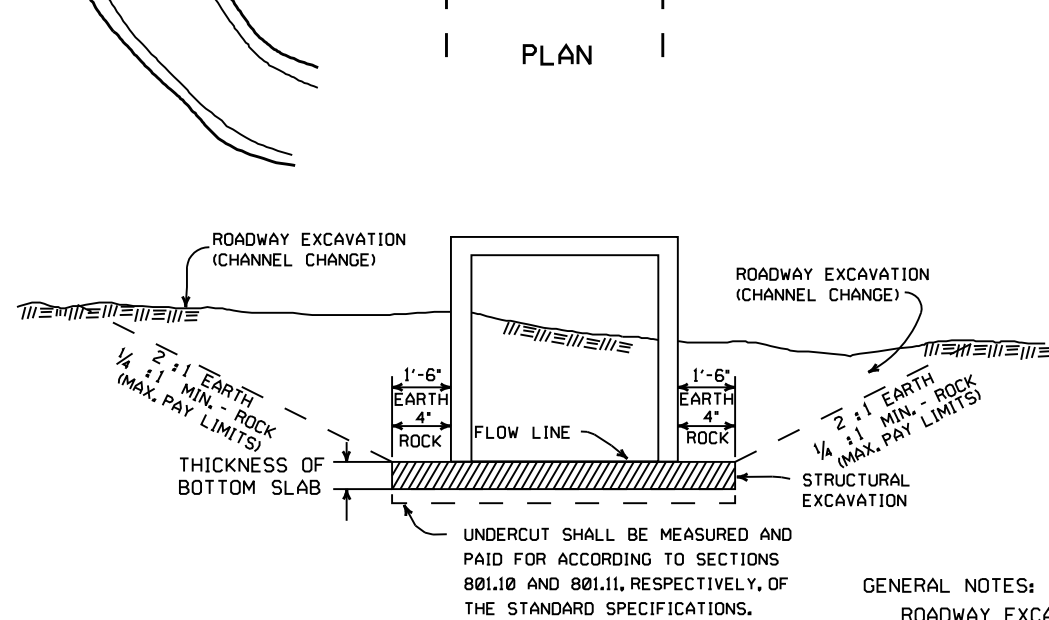
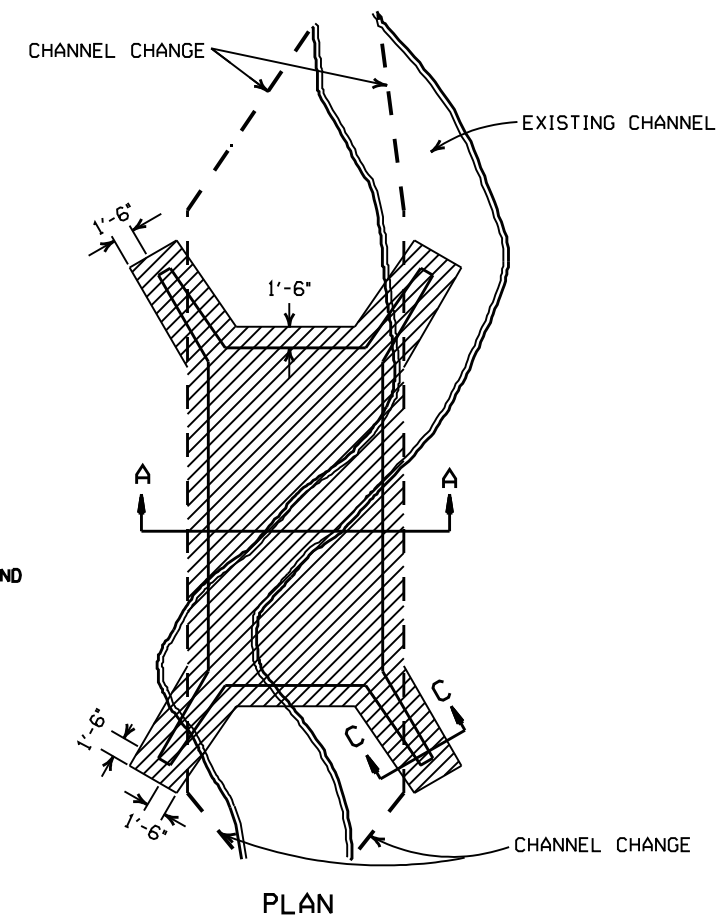


LONGITUDINAL SECTION

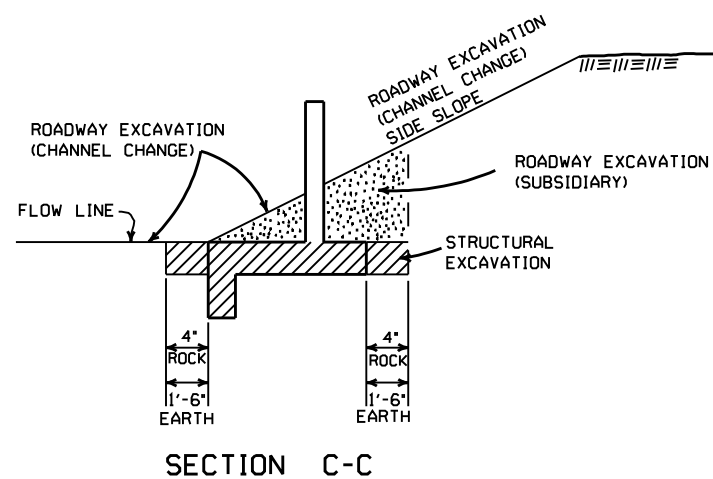
BACKFILL DETAILS FOR BOX CULVERT

Diagram illustrating the longitudinal section of a box culvert showing the backfill details. The structure is shown with horizontal layers of backfill and embankment material. Labels include:

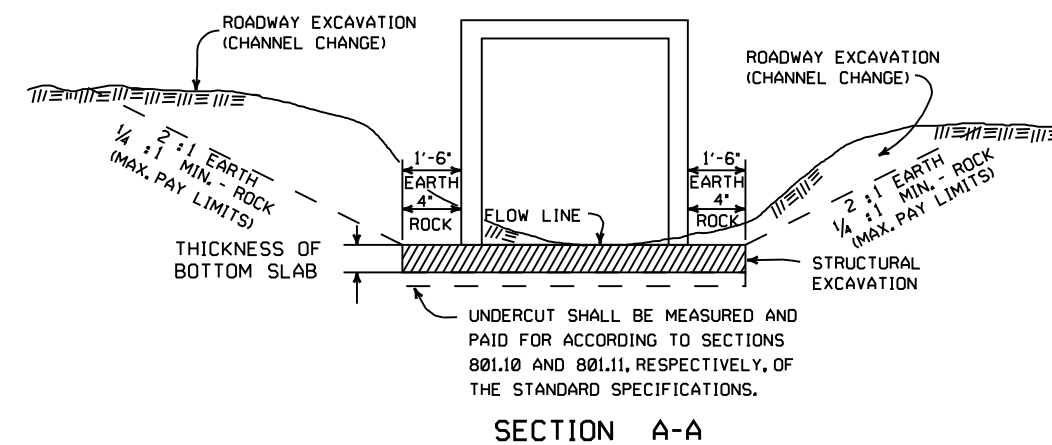
- GRADE LINE
- ORIGINAL GROUND
- BACKFILL-PLACED IN HORIZONTAL LAYERS
- EMBANKMENT-PLACED IN HORIZONTAL LAYERS



SECTION B-B
DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A
DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

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

STANDARD DRAWING RCB-2

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

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

ABBREVIATIONS

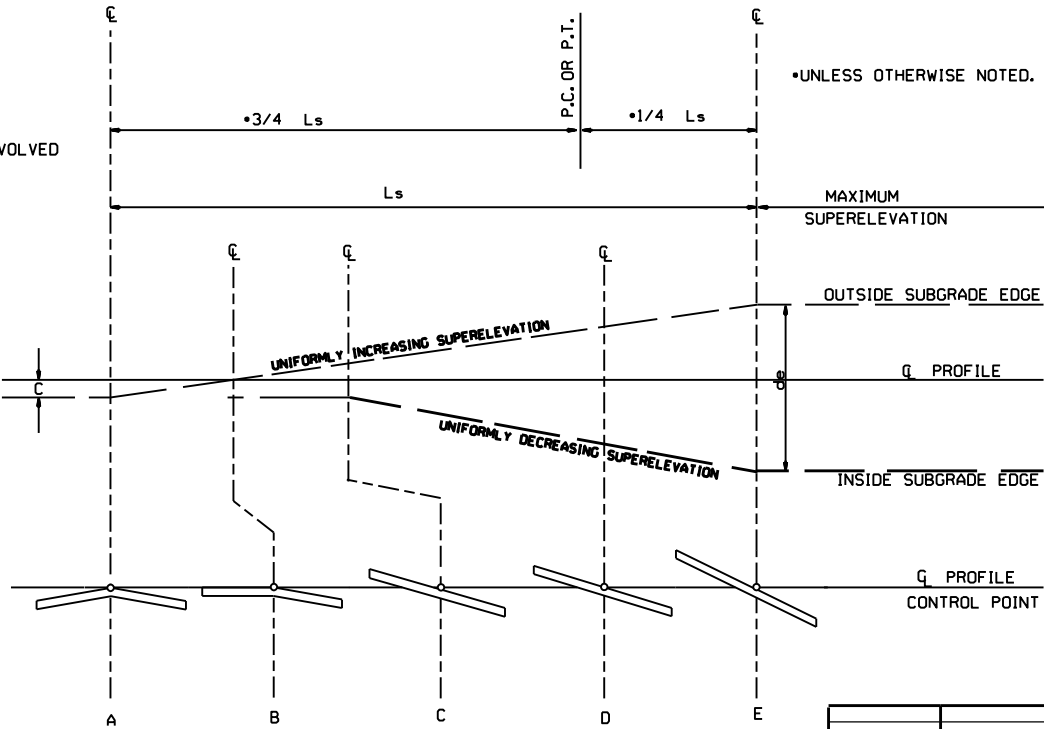
NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL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

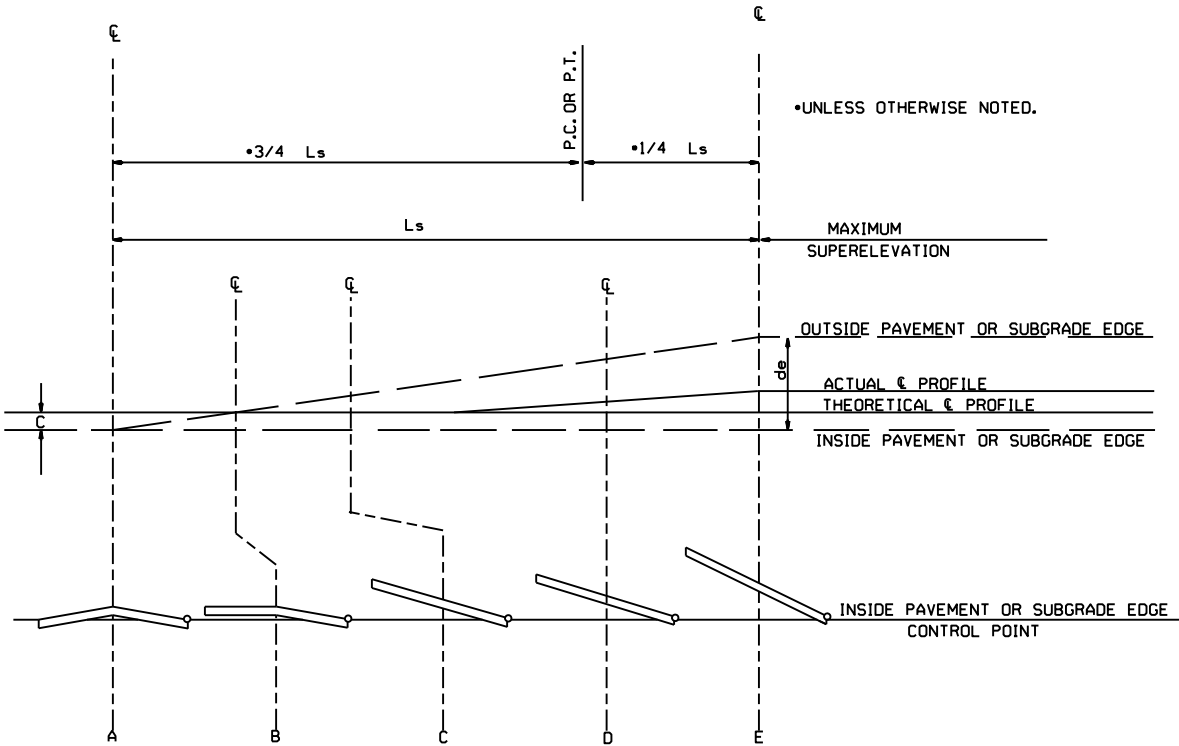
3 LANE UNDIVIDED - - - - +20%
4 LANE UNDIVIDED - - - - +50%
5 LANE UNDIVIDED - - - - +80%
6 LANE UNDIVIDED - - - - +100%

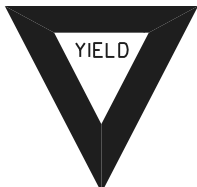
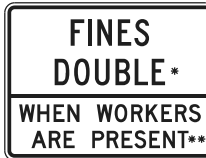
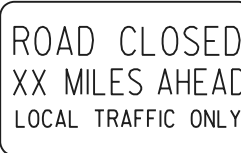
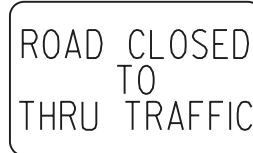
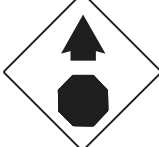
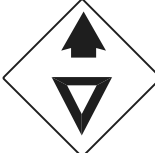
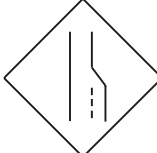
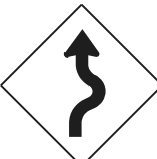
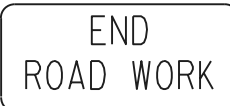
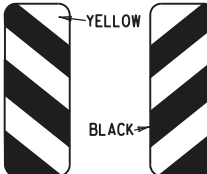
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

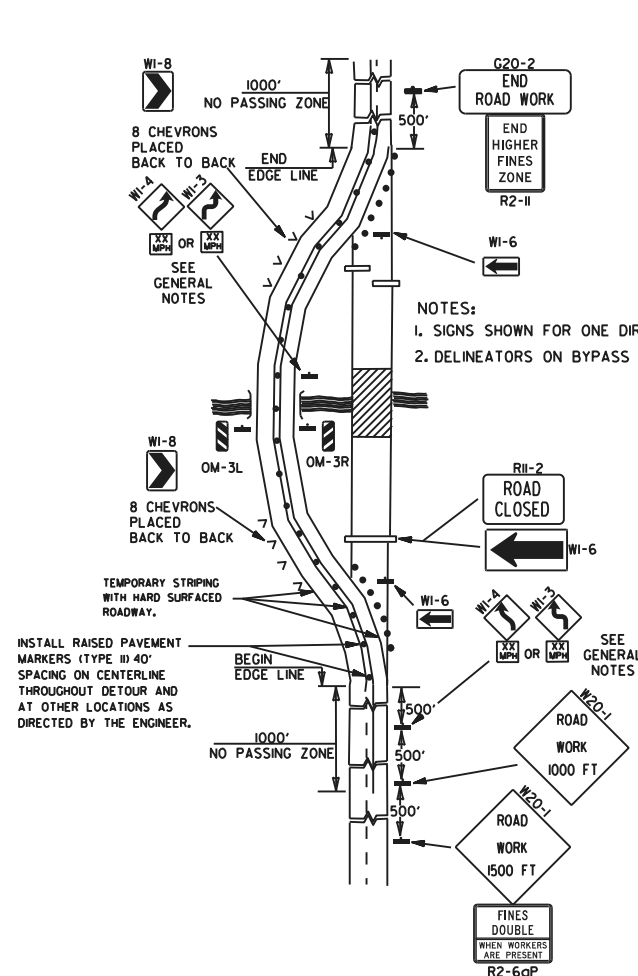
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$



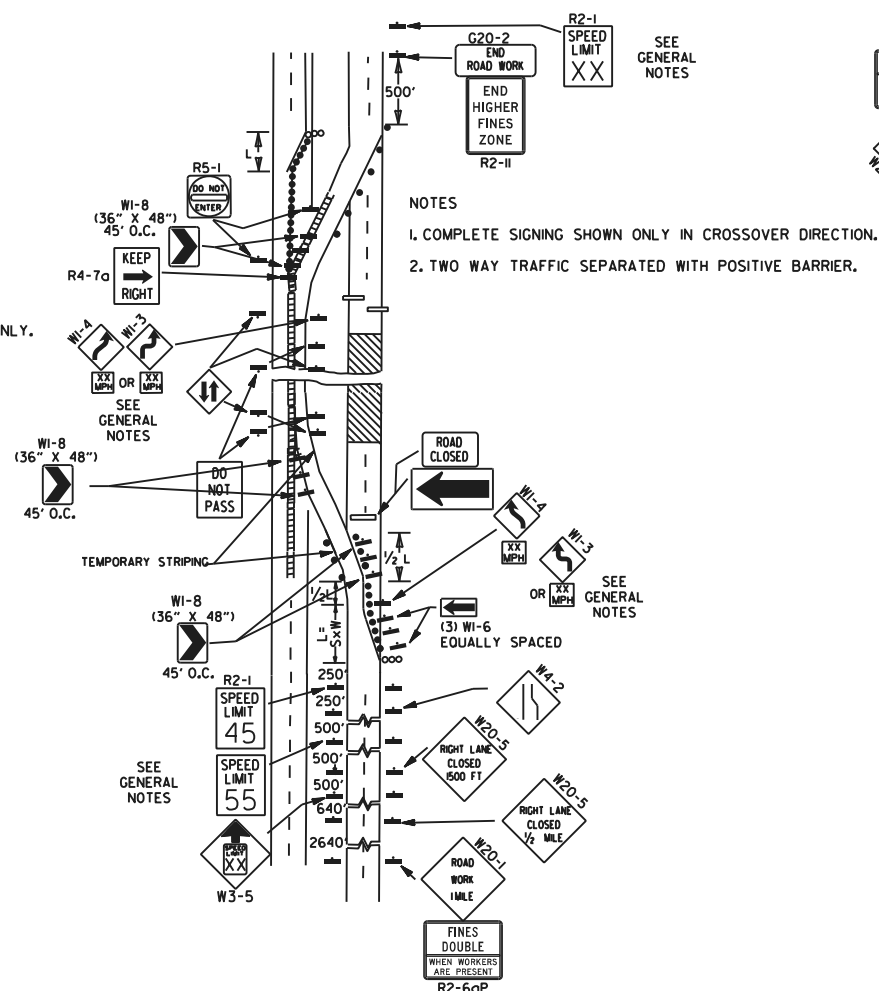
STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



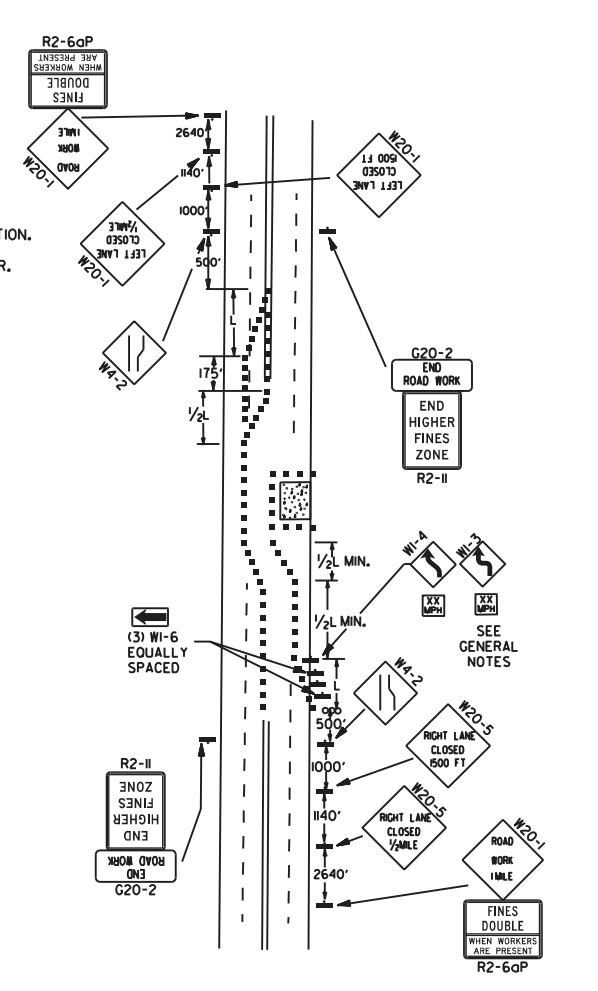
RI-I  STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"	RI-2  STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"	R2-I  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	W3-5  STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"	W3-5a  STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"	R4-I  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R4-2  STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"	R2-6aP  48"x36" *USE 6" C LETTERS **USE 4" D LETTERS	GENERAL NOTES: 1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. 2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. 3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. 6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. 7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. 8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. 10. R2-6aP PLAQUES SHALL BE MOUNTED BELOW AN APPLICABLE ADVANCE WARNING SIGN THAT IS LOCATED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE PLAQUE SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE W3-5 "REDUCED SPEED AHEAD" SIGN. R2-II SIGNS SHALL BE INSTALLED AT OR NEAR THE DOWNSTREAM END OF THE WORK ZONE. SEE STANDARD DRAWINGS TC-2, TC-3, AND TC-6 FOR TYPICAL PLACEMENT LOCATIONS. • 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.													
R5-I  STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"	RII-2  48"x30"	RII-3A  60"x30"	RII-4  60"x30"	W2I-5a  STD. 36"x36" FWY. 48"x48"	WI-I  STD. 36"x36" FWY. 48"x48"	WI-2  STD. 36"x36" FWY. 48"x48"	R2-II  36"x48"														
WI-3  STD. 48"x48"	WI-4  STD. 48"x48"	WI-6  STD. 48"x24" SPECIAL 60"x30"	WI-8  STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"	W3-I  STD. 36"x36" SPECIAL 48"x48"	W3-2  STD. 36"x36" SPECIAL 48"x48"	W4-2  STD. 36"x36" FWY. 48"x48"	R56-I  STD. 18"x18"														
W5-I  STD. 36"x36" SPECIAL 48"x48"	W6-3  EXPWY. 36"x36" SPECIAL 48"x48"	W8-7  EXPWY. 36"x36" FWY. 48"x48"	W9-2  STD. 36"x36" FWY. 48"x48"	W13-I  STD. 24"x24"	W20-I  STD. 48"x48"	W20-2  STD. 48"x48"	W20-3  STD. 48"x48"														
W20-4  STD. 48"x48"	W20-5  STD. 48"x48"	W20-7a  18" 500 FEET W16-2 24" STD. 36"x36" FWY. 48"x48"	W2I-2  STD. 30"x30" SPECIAL 36"x36"	W2I-5  STD. 30"x30" SPECIAL 36"x36"	W24-I  STD. 36"x36"	WI-4b  STD. 48"x48"															
W8-II  STD. 36"x36" FWY. 48"x48"	W8-9  STD. 36"x36" FWY. 48"x48"	G20-I  60"x24"	G20-2  48"x24"	OM-3L OM-3R  12"x36"	M4-9  STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"	M4-10  48"x18"															
							<table><tr><td rowspan="2">08-14-25</td><td rowspan="2">11-07-19</td><td rowspan="2">04-13-17</td><td rowspan="2">09-02-15</td><td rowspan="2">12-15-11</td><td rowspan="2">DATE</td><td rowspan="2">REV</td><td rowspan="2">DESCRIPTION</td><td colspan="3">  ARKANSAS STATE HIGHWAY COMMISSION STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION </td></tr><tr><td>DATE EFFECTIVE</td><td>STANDARD DRAWING</td><td>TC-1</td></tr></table>	08-14-25	11-07-19	04-13-17	09-02-15	12-15-11	DATE	REV	DESCRIPTION	 ARKANSAS STATE HIGHWAY COMMISSION STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION			DATE EFFECTIVE	STANDARD DRAWING	TC-1
08-14-25	11-07-19	04-13-17	09-02-15	12-15-11	DATE	REV	DESCRIPTION									 ARKANSAS STATE HIGHWAY COMMISSION STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION					
								DATE EFFECTIVE	STANDARD DRAWING	TC-1											



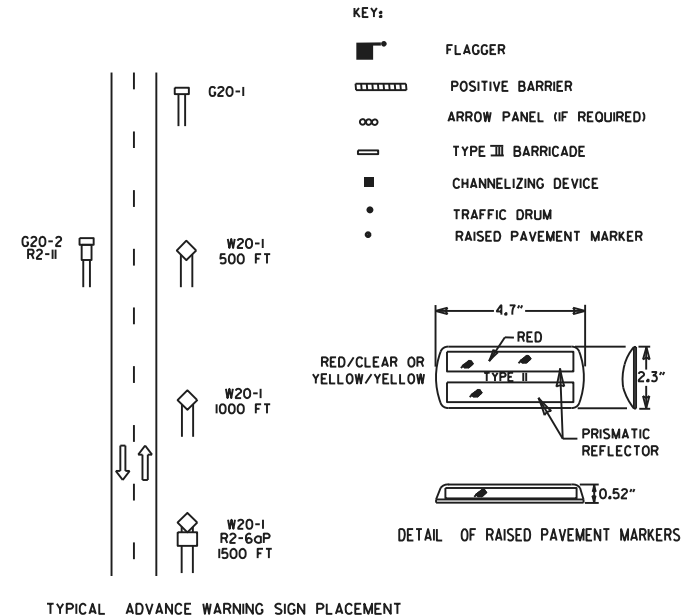
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



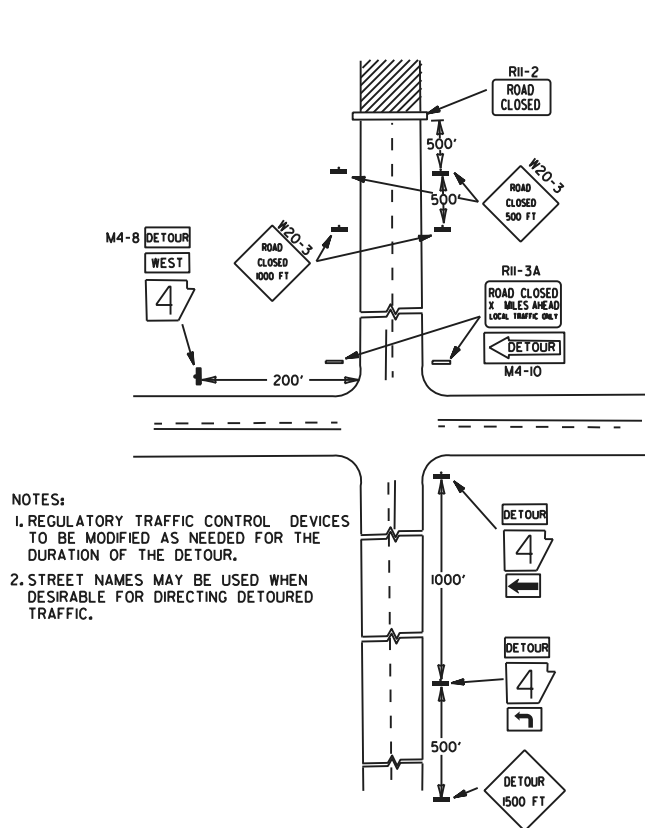
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



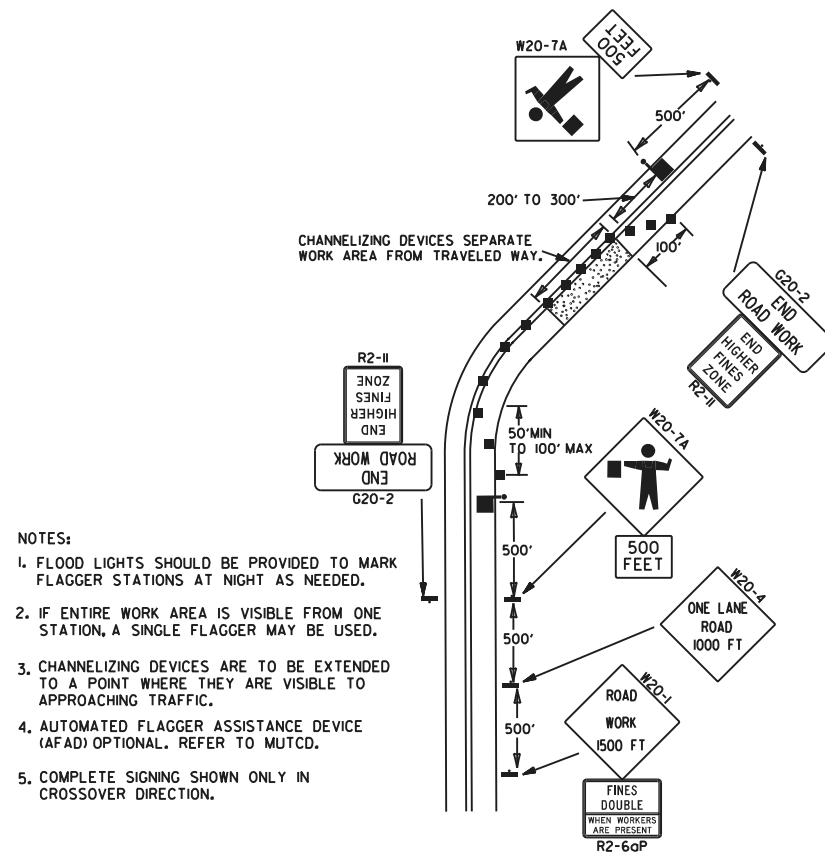
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



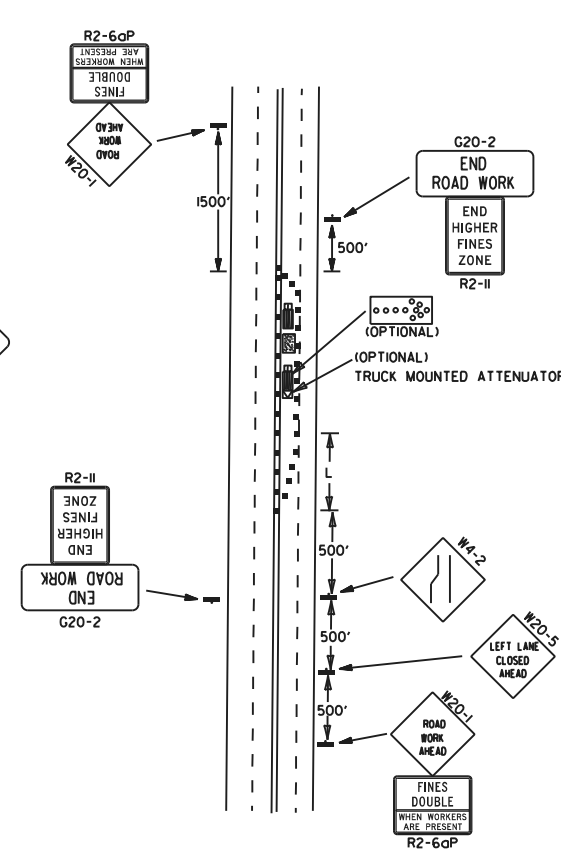
- GENERAL NOTES:
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
 2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
 5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 7. 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. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
 8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.
 9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



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



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



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

DATE	REV	DESCRIPTION
08-14-25	ADDED R2-6aP AND R2-11	
05-20-21	REVISED NOTE 7	
11-07-19	ADDED NOTE 1, 9	
09-02-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
09-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKINGS	
AR DOT ARKANSAS DEPARTMENT OF TRANSPORTATION ARKANSAS STATE HIGHWAY COMMISSION		
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		
DATE EFFECTIVE	STANDARD DRAWING	TC-2
08-14-2025		

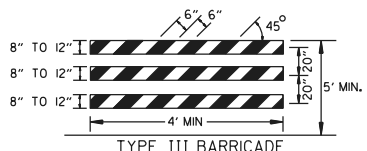
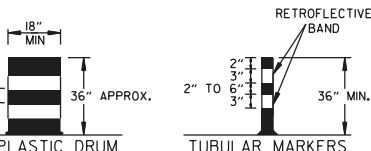
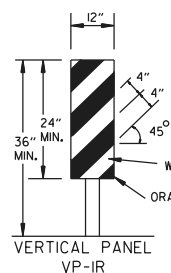
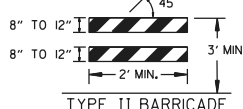
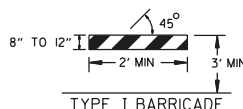
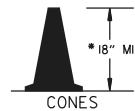
(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

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

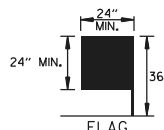
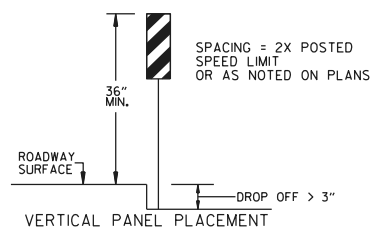
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

CHANNELIZING DEVICES

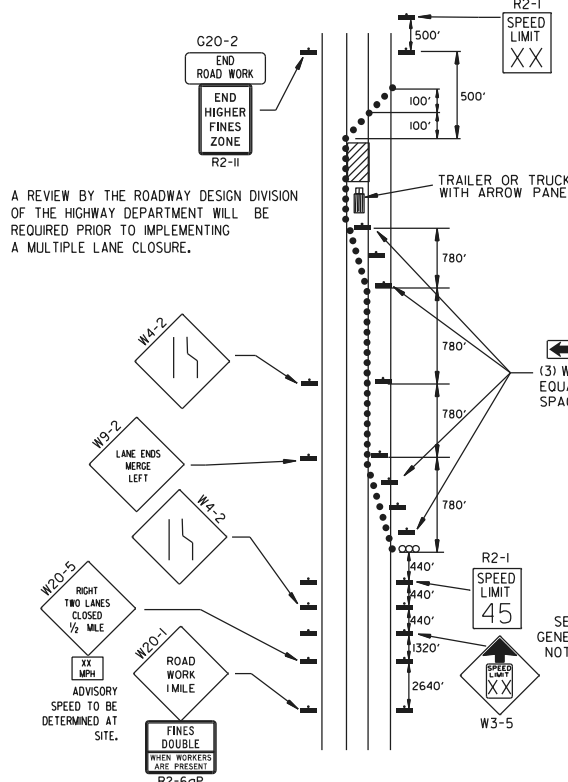
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.



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



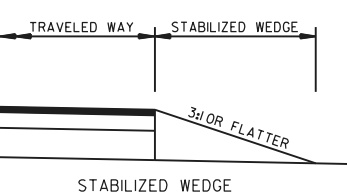
(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

TRAFFIC CONTROL DEVICES

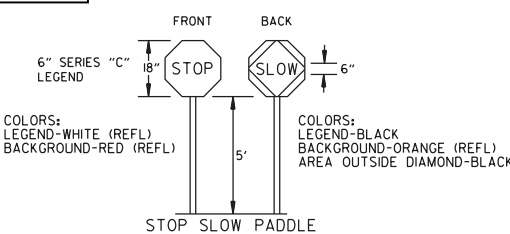
VERTICAL DIFFERENTIAL	LOCATION	NON-INTERSTATE	
		TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE ⁽⁶⁾	STANDARD LANE CLOSURE ⁽⁶⁾
≤ 3"	EDGE OF TRAVELED LANE OR EDGE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

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



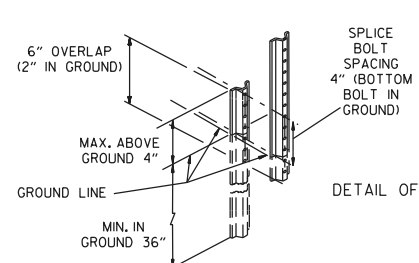
NOTE: MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

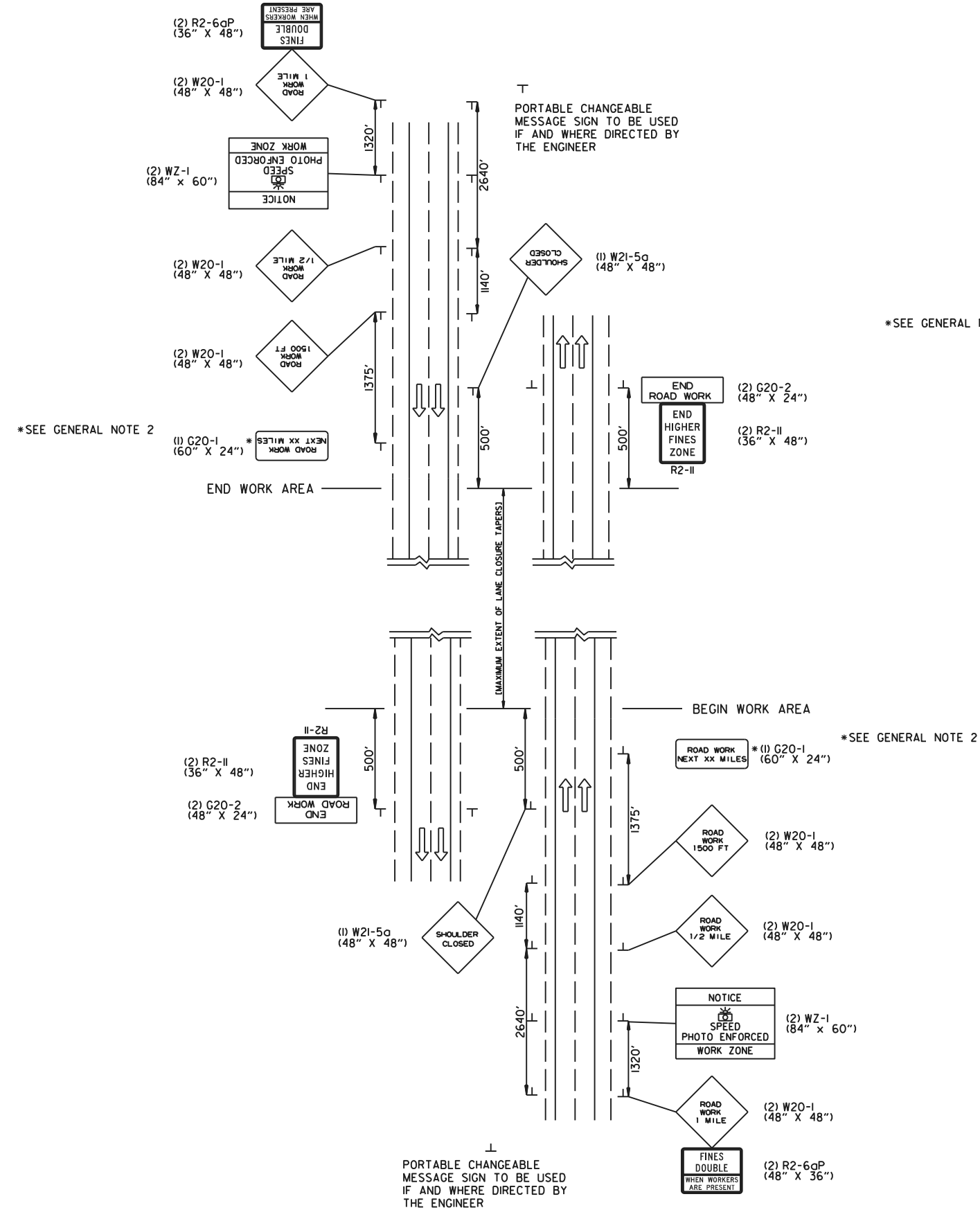
NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

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

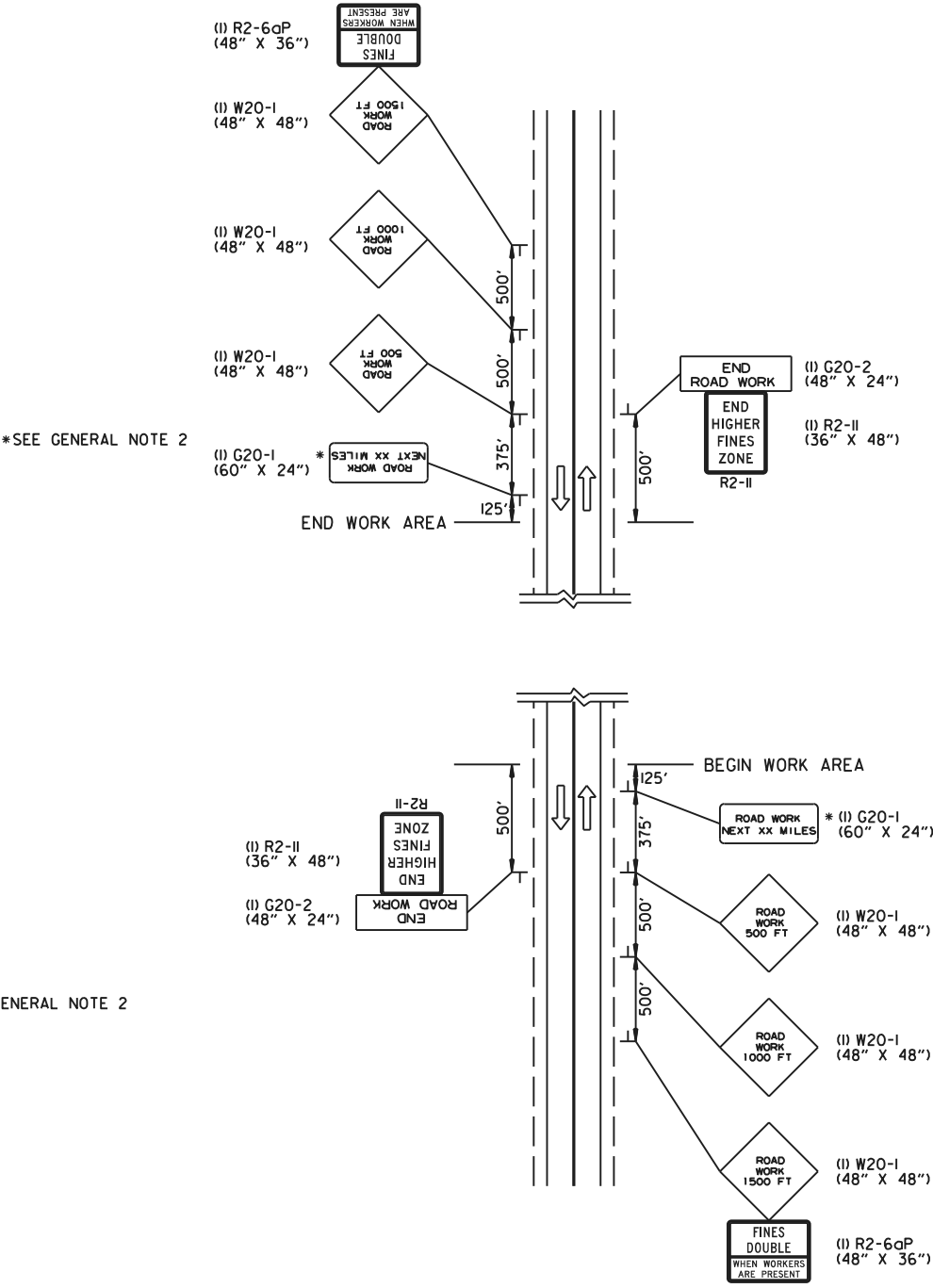


08-14-25	ADDED R2-6aP AND R2-11		ARKANSAS STATE HIGHWAY COMMISSION	
05-22-25	REVISED TRAFFIC CONTROL DEVICES AND NOTES, ADDED NOTE 12		STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	
08-12-21	REVISED TRAFFIC CONTROL DEVICES AND NOTES			
05-20-21	REVISED NOTE 10			
02-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS			
DATE	REV	DESCRIPTION		
DATE EFFECTIVE		STANDARD DRAWING	TC-3	
08-14-2025				

NOTE : W20-1(VARIOUS DISTANCE) ADVANCE SIGNS
TO BE REPLACED AS NEEDED BY EQUIVALENT W20-5 SIGNS
AS WORKING AREA SHIFTS.



(A) TYPICAL APPLICATION - ADVANCE WARNING SIGNS AT BEGINNING AND
END OF JOB (FULLY CONTROLLED ACCESS FACILITIES) (ALL STAGES)



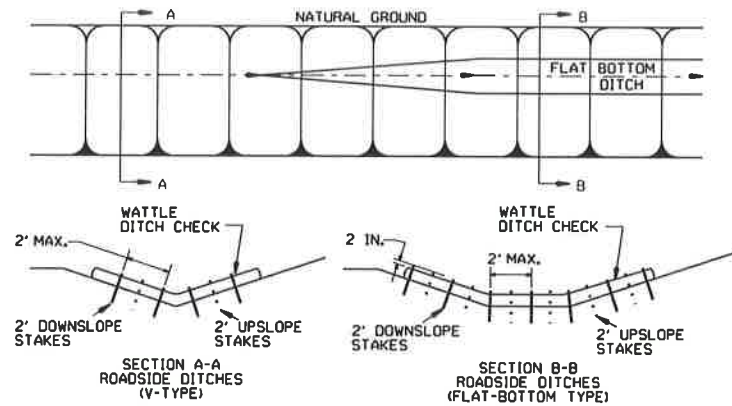
(B) TYPICAL APPLICATION - ADVANCE WARNING SIGNS AT BEGINNING AND
END OF JOB (NON-FULLY CONTROLLED ACCESS FACILITIES) (ALL STAGES)

- GENERAL NOTES:
1. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 2. THE G20-1 SIGN SHOULD BE INSTALLED 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 OR 1500 FT) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS. THE DISTANCE DISPLAYED ON THE G20-1 SIGN SHALL BE STATED TO THE NEAREST WHOLE MILE.
 3. 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, THIS DEVICE SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR PORTABLE CHANGEABLE MESSAGE SIGNS.
 4. PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

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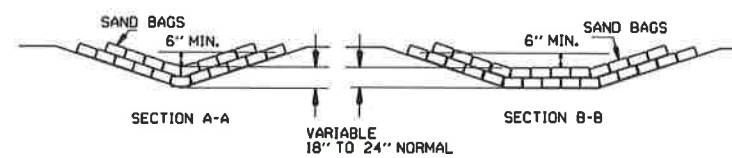
GENERAL NOTES

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

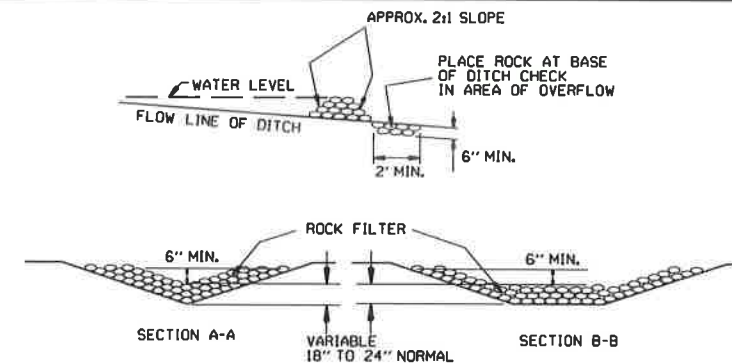


WATTLE DITCH CHECK (E-1)

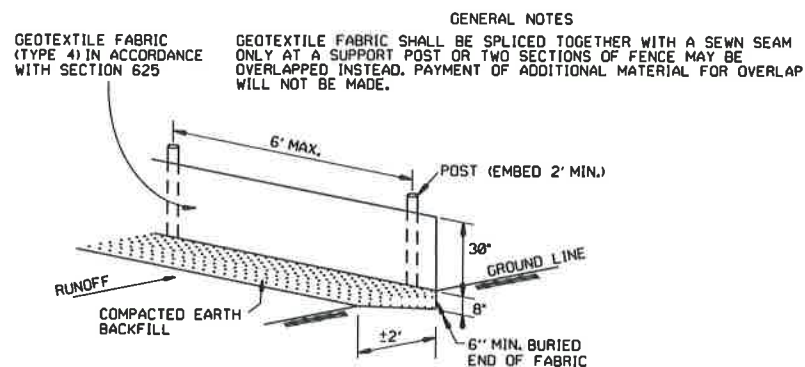
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS. PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.



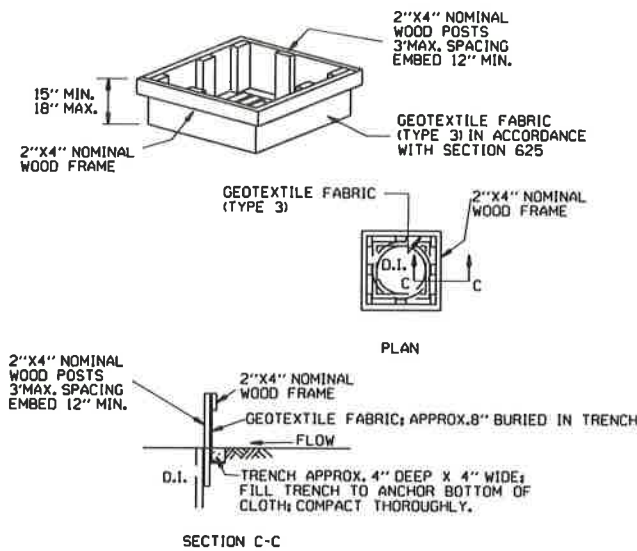
SAND BAG DITCH CHECK (E-5)



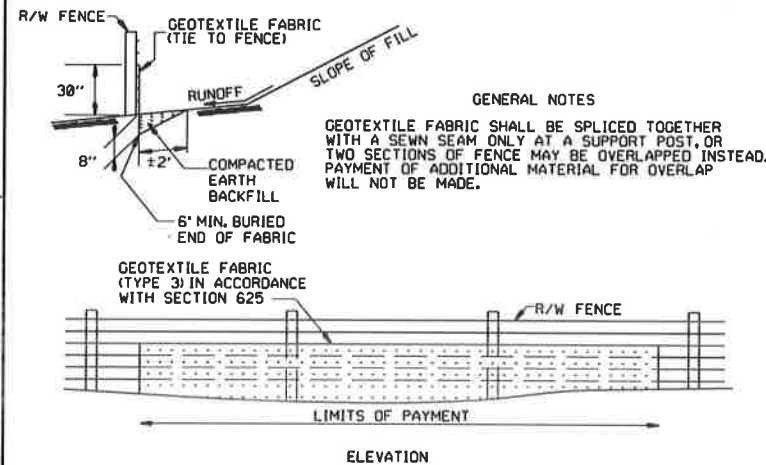
ROCK DITCH CHECK (E-6)



SILTS FENCE (E-11)

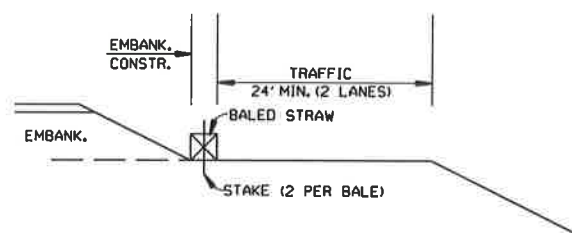


DROP INLET SILTS FENCE (E-7)

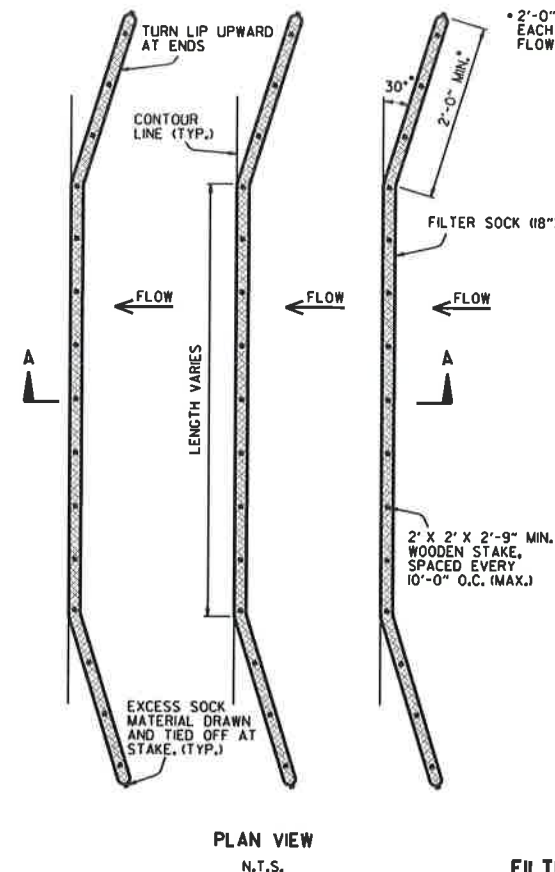


SILTS FENCE ON R/W FENCE (E-4)

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

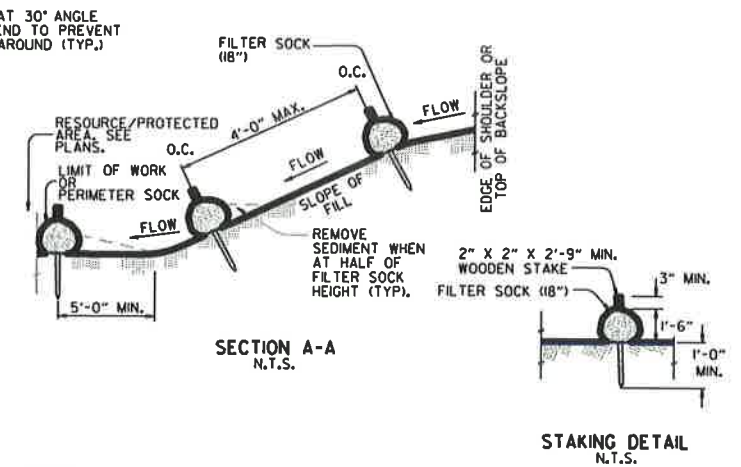


BALED STRAW FILTER BARRIER (E-2)



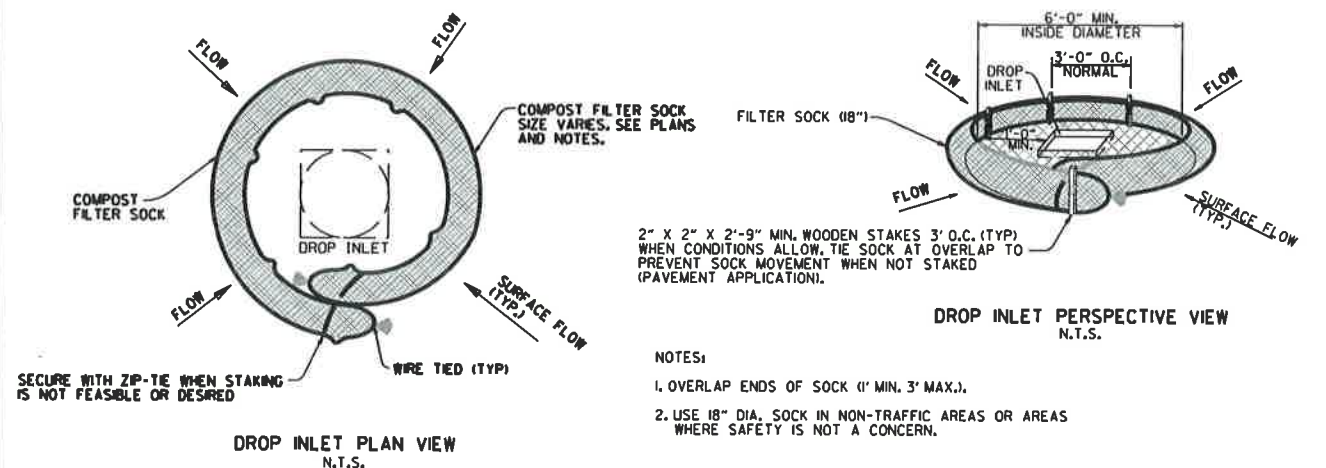
PLAN VIEW
N.T.S.

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.
3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBSIDIARY TO "FILTER SOCK (18\"/>
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.
5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.



DROP INLET PLAN VIEW
N.T.S.

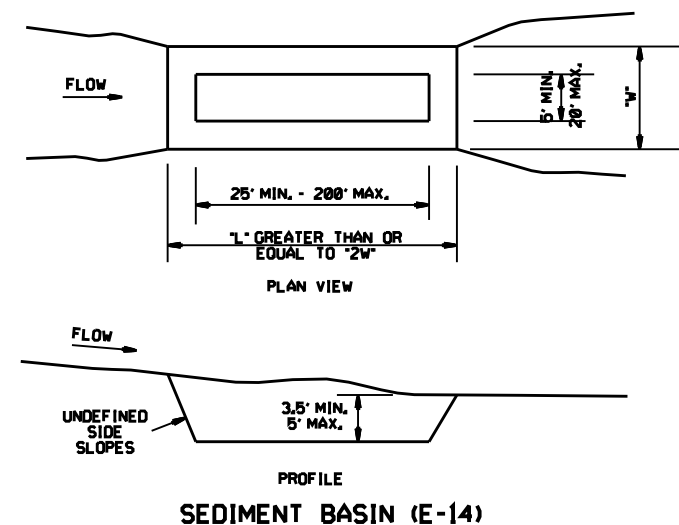
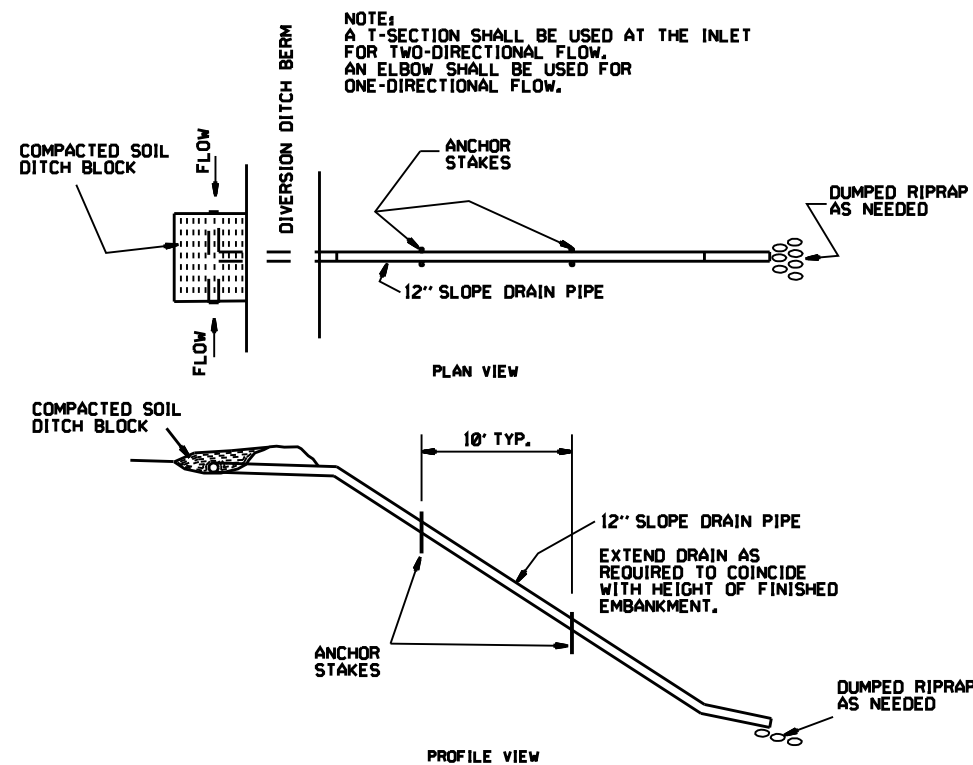
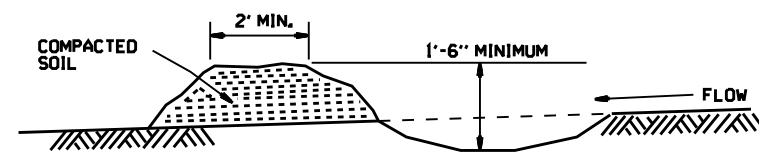
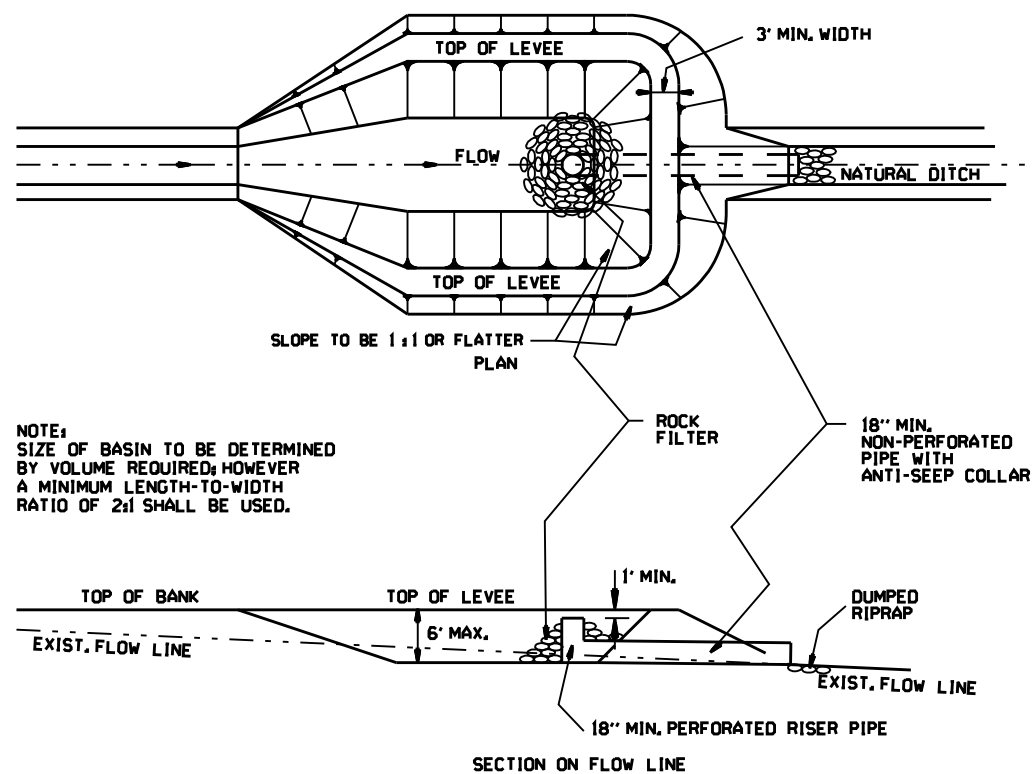
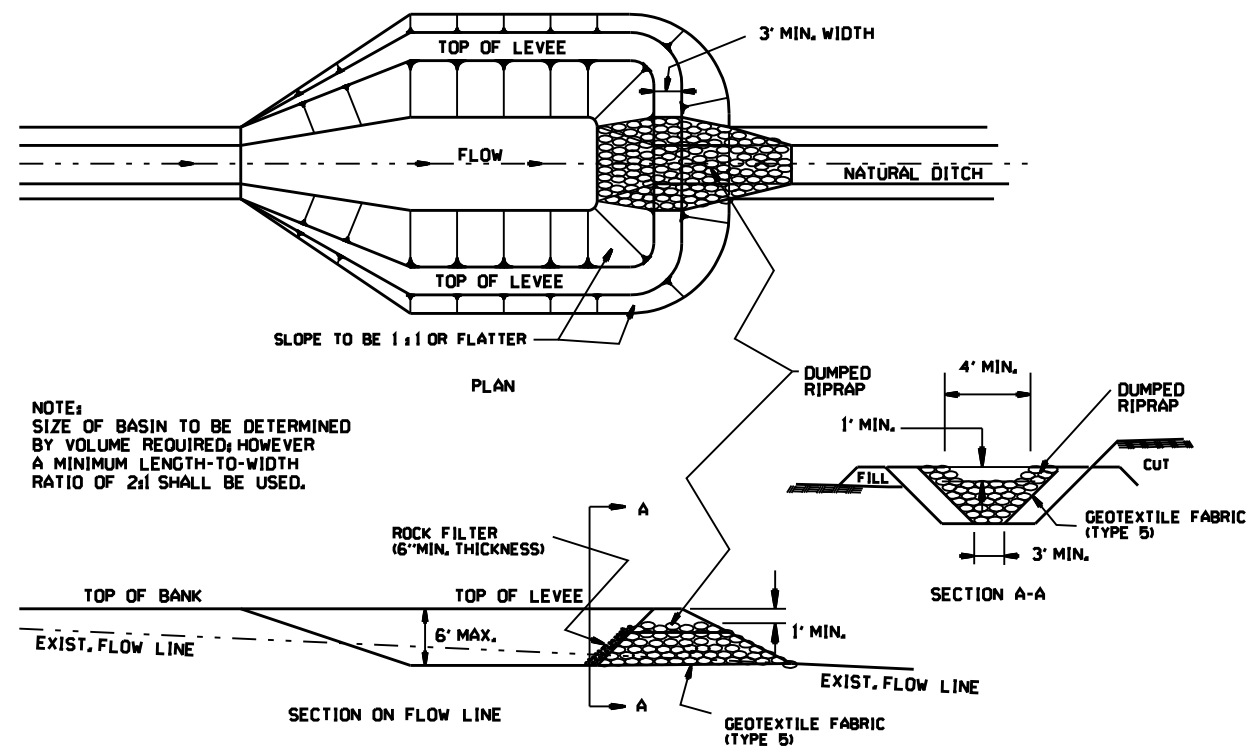
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).
2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

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

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

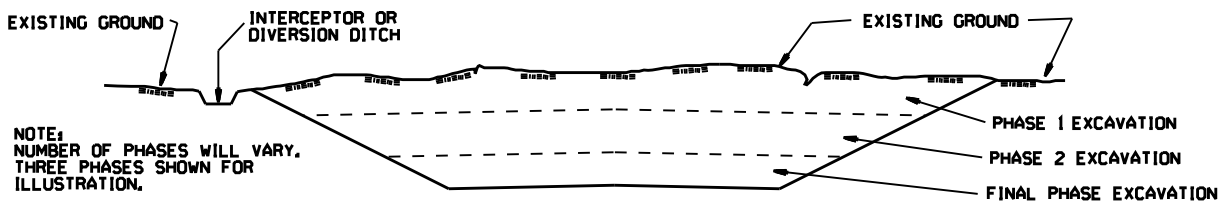


ARKANSAS STATE HIGHWAY COMMISSION			
TEMPORARY EROSION CONTROL DEVICES			
STANDARD DRAWING TEC-2			
6-2-94	Revised E-8 & E-12r Added E-14 & Deleted E-13		
4-1-93	ISSUED		
DATE	REVISION		FILMED

CLEARING AND GRUBBING

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

EXCAVATION

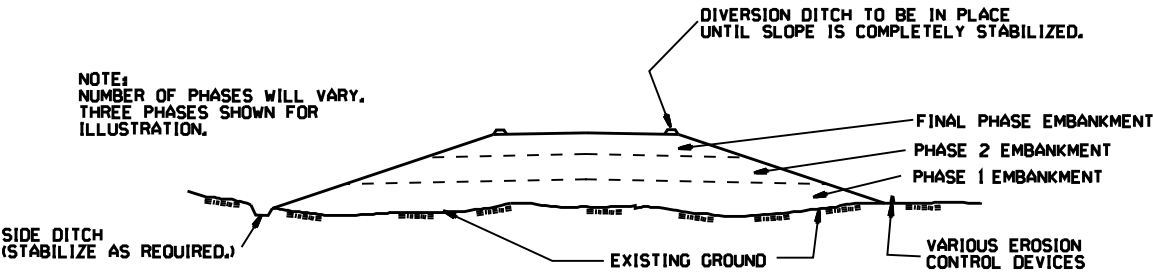


GENERAL NOTE

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

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

EMBANKMENT



GENERAL NOTE

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

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

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