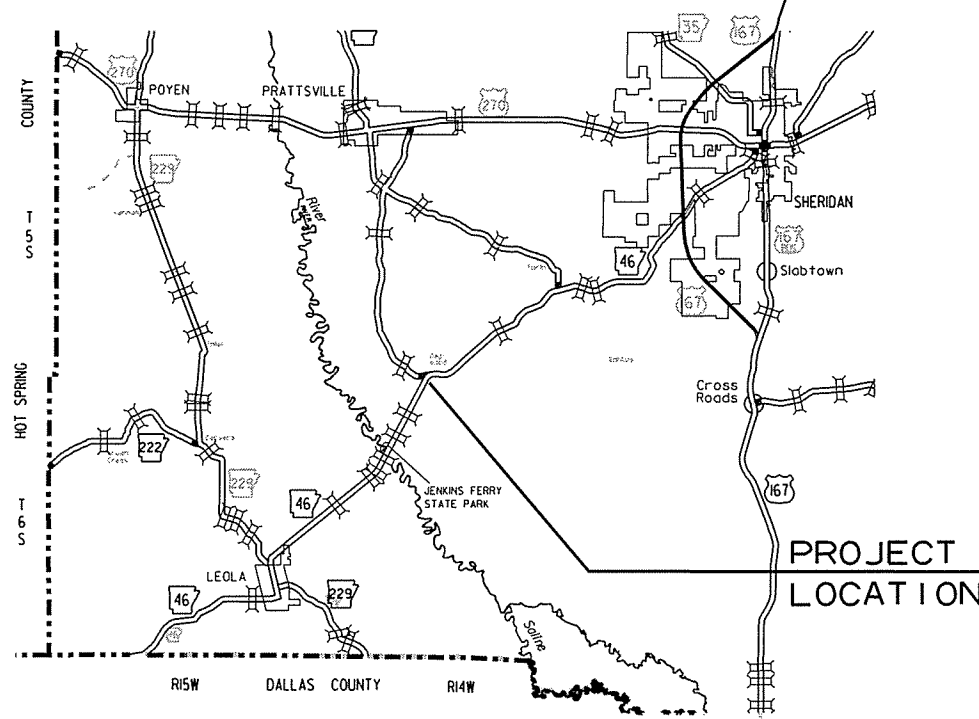


ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		1	57
② MOORE'S SLOUGH TRIBUTARY STR. & APPRS. (S)								

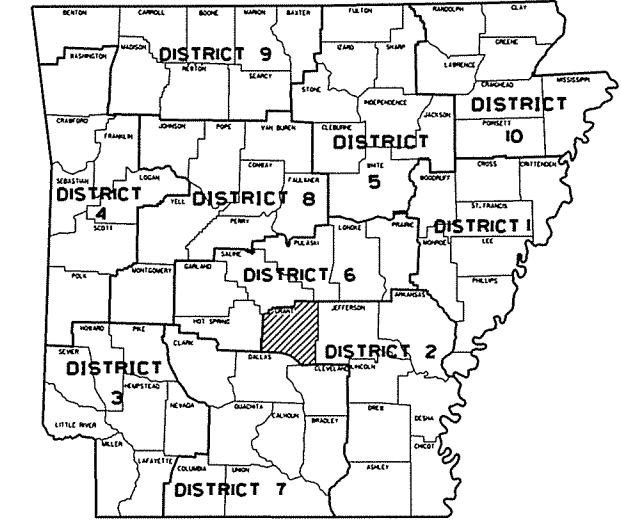


VICINITY MAP

MOORE'S SLOUGH TRIBUTARY STR. & APPRS. (S)

GRANT COUNTY
ROUTE 291 SECTION 1
JOB 020543

FED. AID PROJ. STPR-0027(23)



AR. HWY. DIST. NO. 2

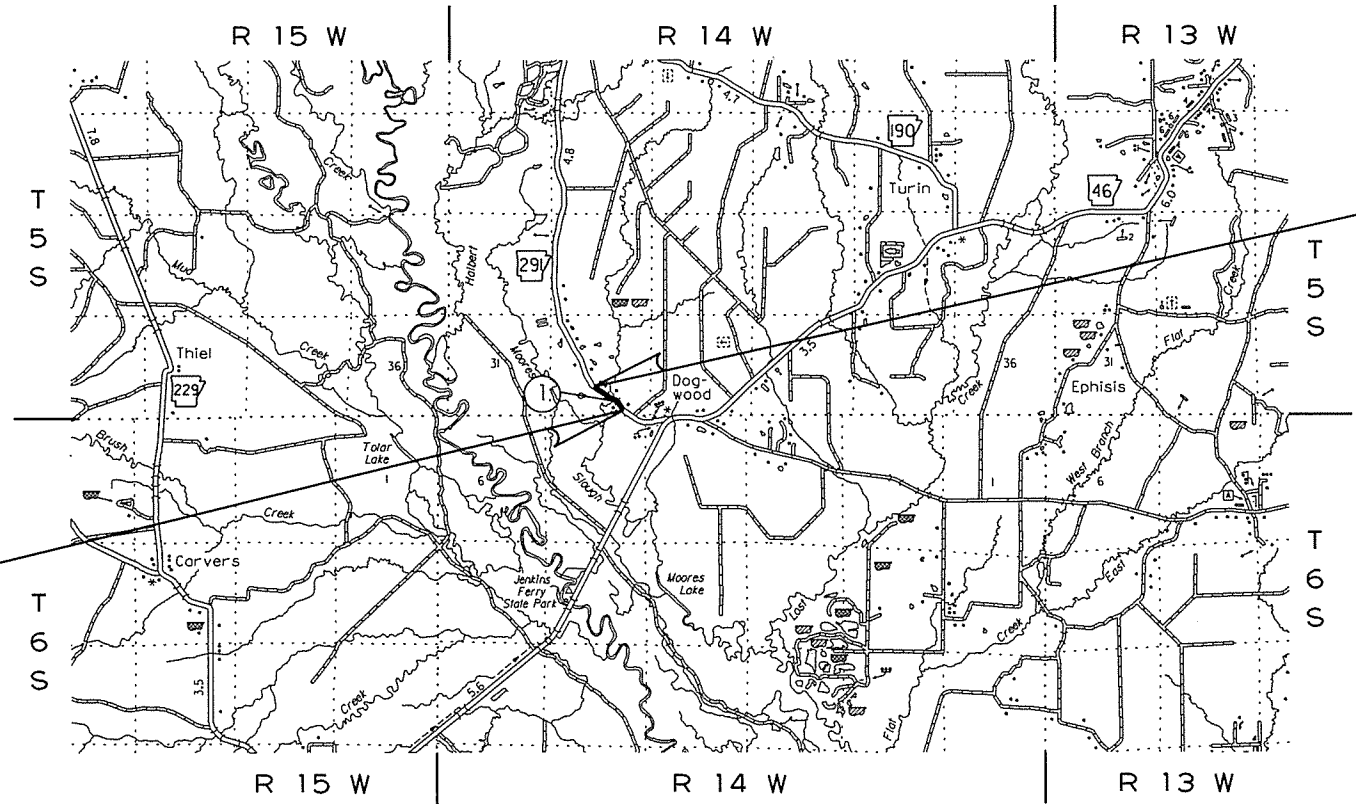
NOT TO SCALE

STRUCTURES OVER 20' -0" SPAN

- ① STA. 112+00 CONST.
TRP. 12' X 8' X 56'
R. C. BOX CULVERT
W/ 3:1 WINGS LT. & RT.
ROADWAY SPAN 38' -7"
Q25=1400 CFS, DA = 3.7 SQ. MI.

STA. 106+52.82
BEGIN JOB 020543
L.M. 0.58

BEGINNING	LAT. = N 34° 14' 19"	LONG. = W 92° 32' 18"
MID-POINT	LAT. = N 34° 14' 23"	LONG. = W 92° 32' 23"
ENDING	LAT. = N 34° 14' 25"	LONG. = W 92° 32' 28"



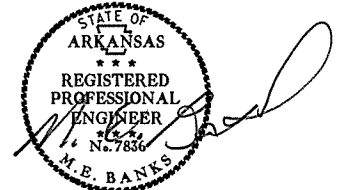
• DESIGN TRAFFIC DATA •

DESIGN YEAR	2035
2015 ADT	400
2035 ADT	500
2035 DHV	55
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	9%
DESIGN SPEED	40 MPH

STA. 116+19.11
END JOB 020543



APPROVED



4-24-15
DEPUTY DIRECTOR
AND CHIEF ENGINEER

GROSS LENGTH OF PROJECT	966.29	FEET	OR	0.83	MILES
NET " " ROADWAY	927.71	" "	" "	0.176	"
NET " " BRIDGES	38.58	" "	" "	0.007	"
NET " " PROJECT	966.29	" "	" "	0.83	"

P.E. 020543

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10-21-15				6	ARK.			
						JOB NO. 020543	2	57

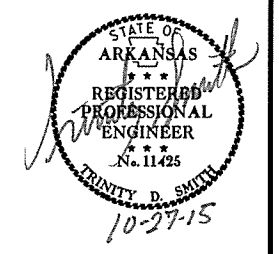
② INDEX, GOVERN. SPECS., AND GENERAL NOTES

INDEX OF SHEETS

SHEET NO.	TITLE	DRAWING NO.	DATE
1	TITLE SHEET		
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES		
3 - 5	TYPICAL SECTIONS OF IMPROVEMENT		
6 - 13	SPECIAL DETAILS		
14 - 16	TEMPORARY EROSION CONTROL DETAILS		
17 - 20	MAINTENANCE OF TRAFFIC DETAILS		
21	PERMANENT PAVEMENT MARKING DETAILS		
22 - 26	QUANTITIES		
27	SUMMARY OF QUANTITIES AND REVISIONS		
28 - 29	SURVEY CONTROL DETAILS		
30 - 33	PLAN AND PROFILE SHEETS		
34	MAILBOX DETAILS	MB-1	11/18/04
35	PRECAST CONCRETE BOX CULVERTS	PBC-1	1/28/15
36	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1	2/27/14
37	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1	2/27/14
38	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1	2/27/14
39	PLASTIC PIPE CULVERT (PVC F949)	PCP-2	2/27/14
40	PAVEMENT MARKING DETAILS	PM-1	9/12/13
41	DETAILS OF PIPE UNDERDRAIN	PU-1	4/10/03
42	REINFORCED CONCRETE BOX CULVERT DETAILS	RCB-1	7/26/12
43	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	RCB-2	11/20/03
44	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2	10/18/96
45	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	9/2/15
46	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	9/2/15
47	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	9/2/15
48	TEMPORARY EROSION CONTROL DEVICES	TEC-1	12/15/11
49	TEMPORARY EROSION CONTROL DEVICES	TEC-2	6/2/94
50	TEMPORARY EROSION CONTROL DEVICES	TEC-3	11/3/94
51	WIRE FENCE TYPE C AND D	WF-4	8/22/02
52 - 57	CROSS SECTIONS		

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
108-1	LIQUIDATED DAMAGES
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB 020543	BIDDING REQUIREMENTS AND CONDITIONS
JOB 020543	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 020543	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 020543	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 020543	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 020543	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 020543	MANDATORY ELECTRONIC CONTRACT
JOB 020543	NESTING SITES OF MIGRATORY BIRDS
JOB 020543	PLASTIC PIPE
JOB 020543	SHORING FOR CULVERTS
JOB 020543	SOIL STABILIZATION
JOB 020543	STORM WATER POLLUTION PREVENTION PLAN
JOB 020543	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 020543	UTILITY ADJUSTMENTS
JOB 020543	WARM MIX ASPHALT



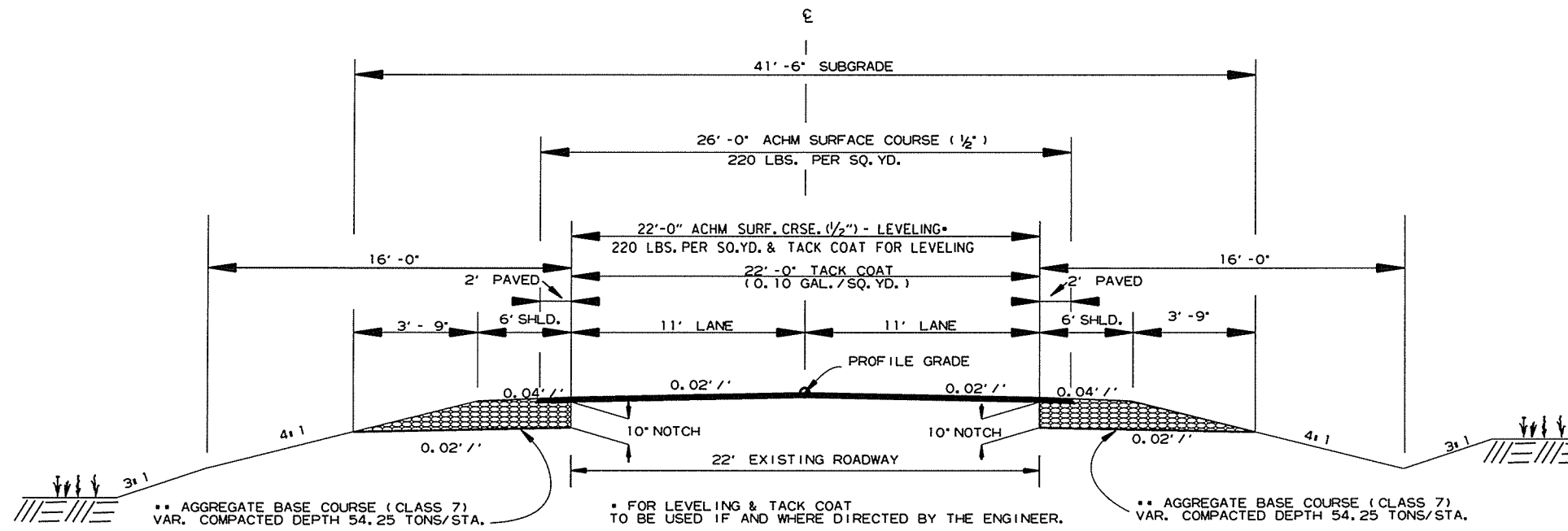
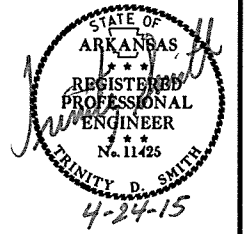
GENERAL NOTES

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

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		3	57

2 TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT
NOTCH & WIDENING
STA. 106+52.82 TO STA. 111+54.00
STA. 112+42.00 TO STA. 116+19.11

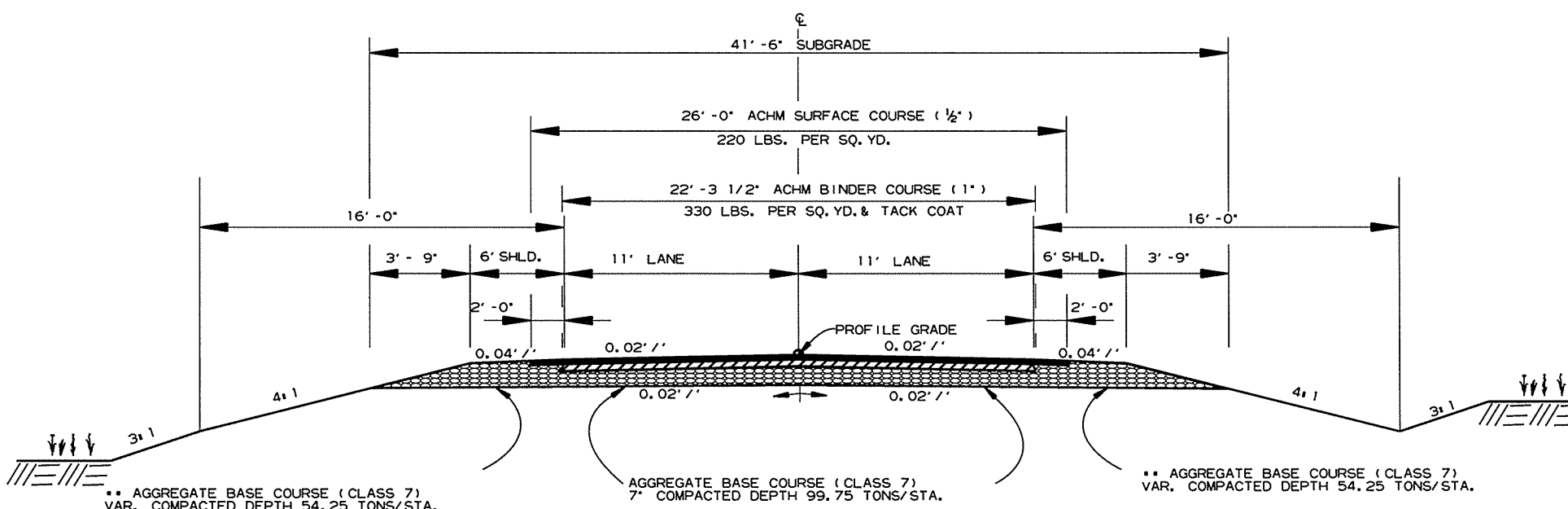
NOTES:
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 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.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE 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.

AFTER PLACING FINAL 2" OF SURFACE COURSE, THE EXISTING SLOPE SHALL BE REDRESSED AS DIRECTED BY THE ENGINEER PRIOR TO SEEDING IN ORDER TO MAINTAIN A UNIFORM SLOPE. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.



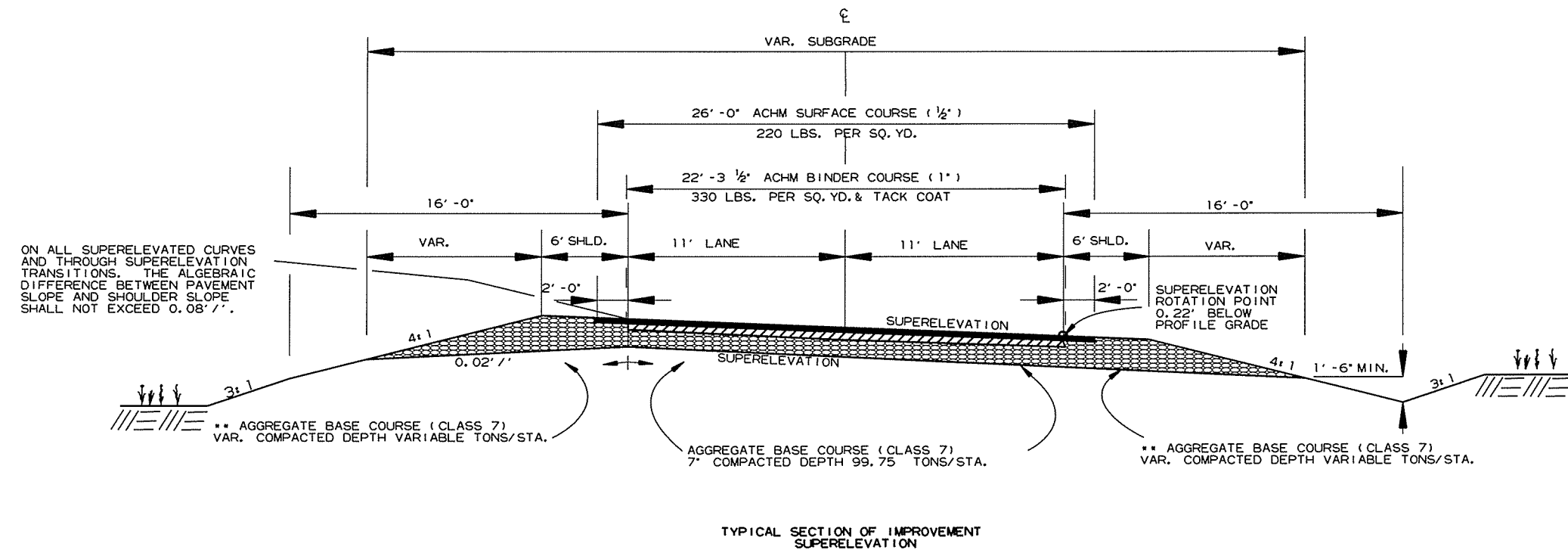
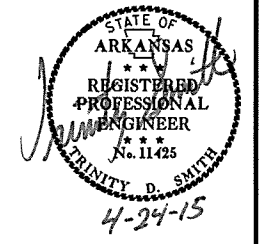
TYPICAL SECTION OF IMPROVEMENT
FULL DEPTH
STA. 111+54.00 TO STA. 112+42.00

TYPICAL SECTIONS OF IMPROVEMENT

4/21/2015
R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		4	57
				JOB NO.	020543			

2 TYPICAL SECTIONS OF IMPROVEMENT



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

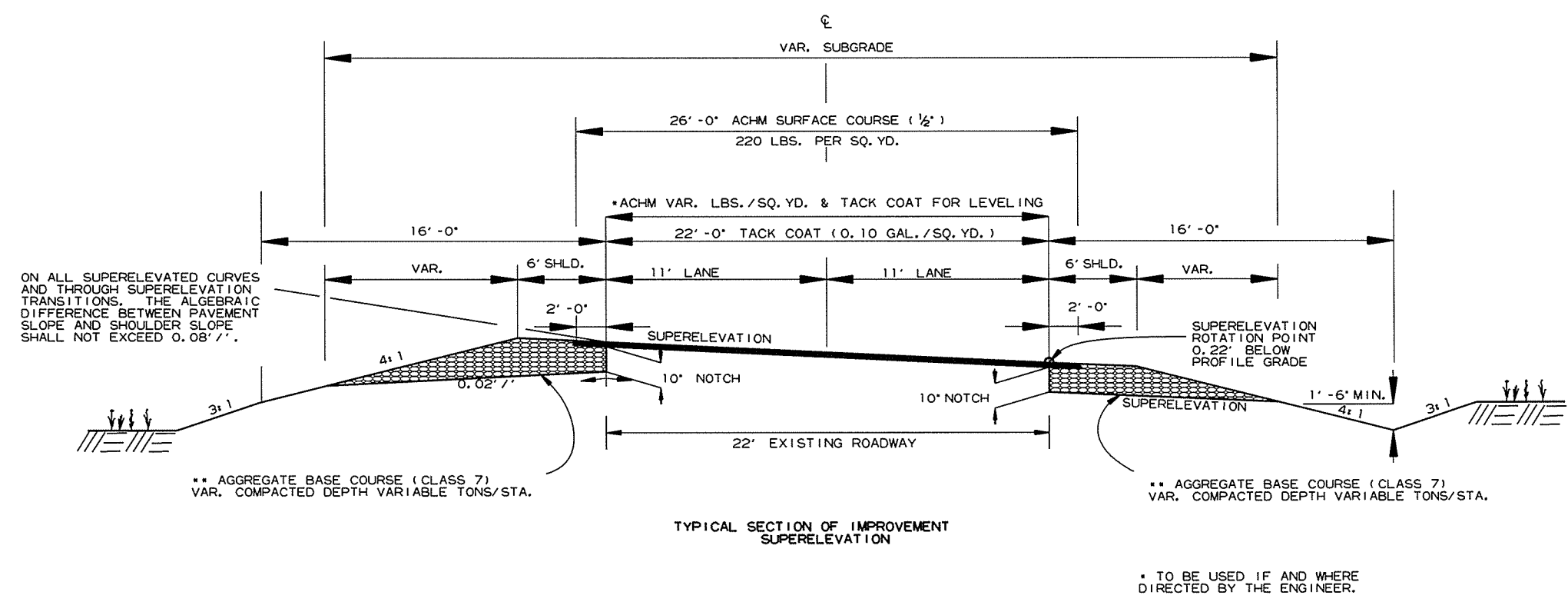
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

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** THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE UNDER THE PROPOSED SHOULDER AT NO ADDITIONAL COST TO THE DEPARTMENT. MEASUREMENT WILL BE BASED UPON CALCULATIONS FROM THE PLAN DIMENSIONS.



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

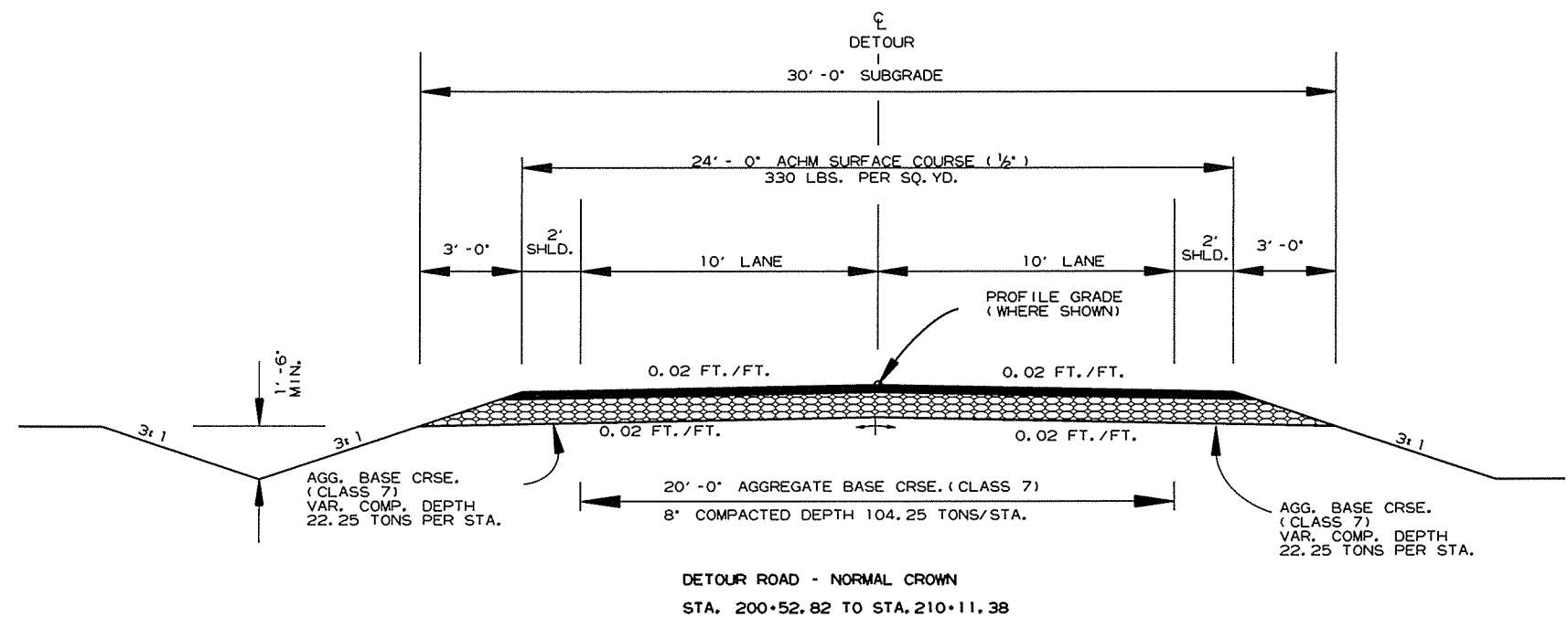
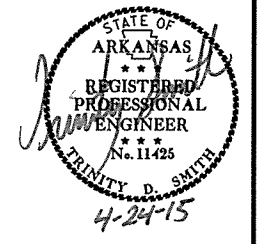
TYPICAL SECTIONS OF IMPROVEMENT

4/2/2015

R020543.DGN

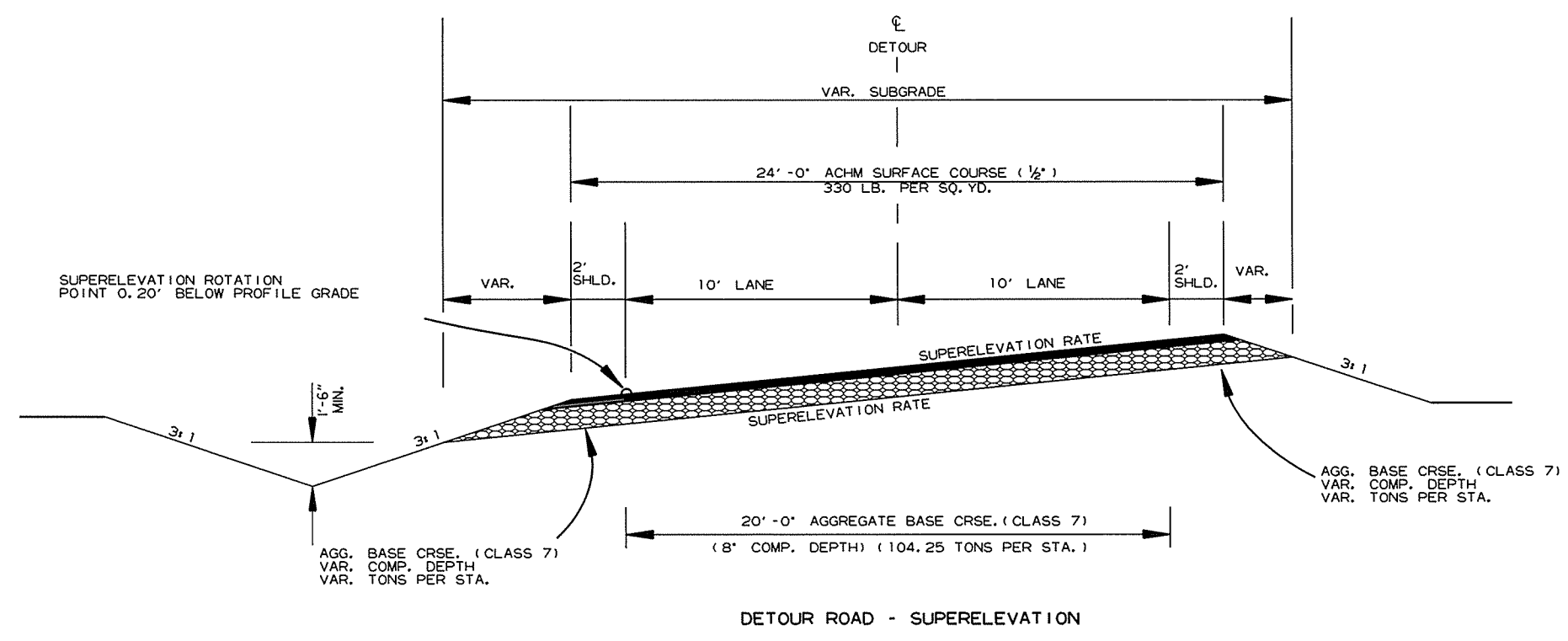
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 020543							5	57

2 TYPICAL SECTIONS OF IMPROVEMENT



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

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



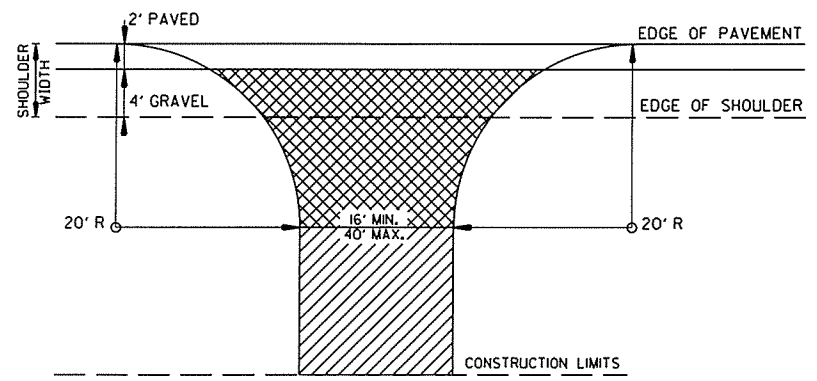
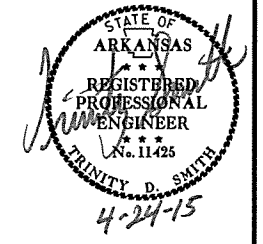
TYPICAL SECTIONS OF IMPROVEMENT

4/2/2015

R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		6	57

2 SPECIAL DETAILS

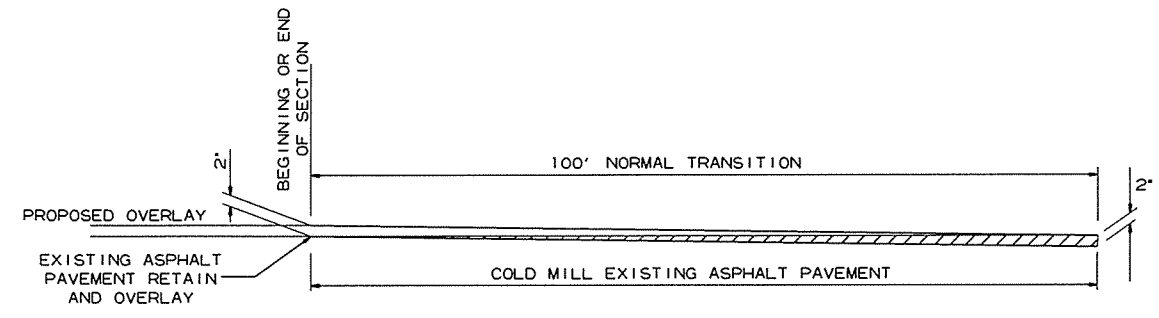


A.C.H.M. SURFACE COURSE (1/2") (220 LBS./SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH)

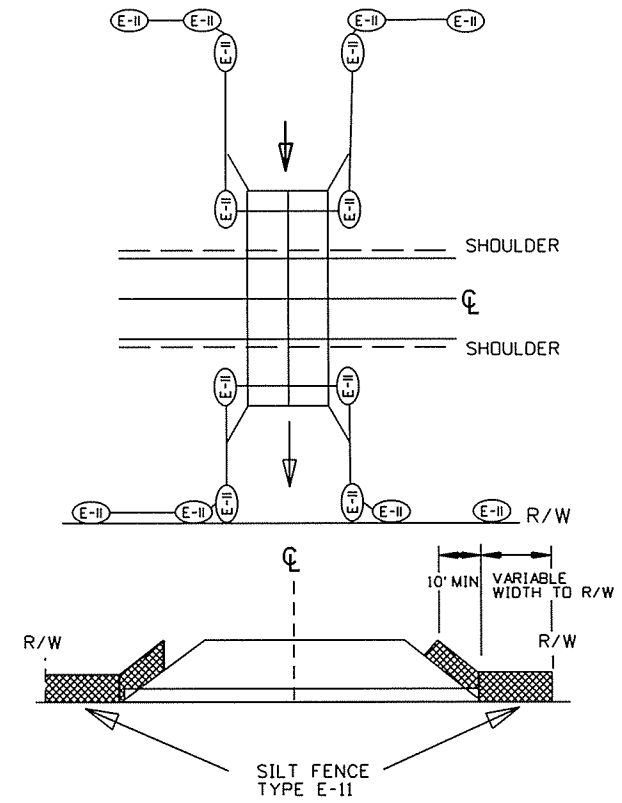
AGGREGATE BASE COURSE (CLASS 7) 9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY

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

DETAIL FOR DRIVEWAY TURNOUTS



DETAIL FOR TRANSITIONS



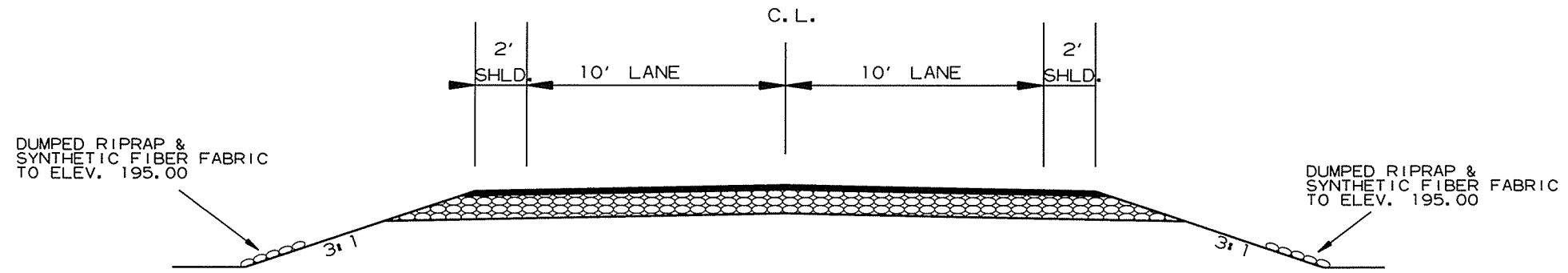
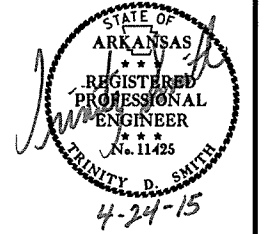
DETAILS OF SILT FENCE AT BOX CULVERTS

4/2/2015

R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 020543							7	57

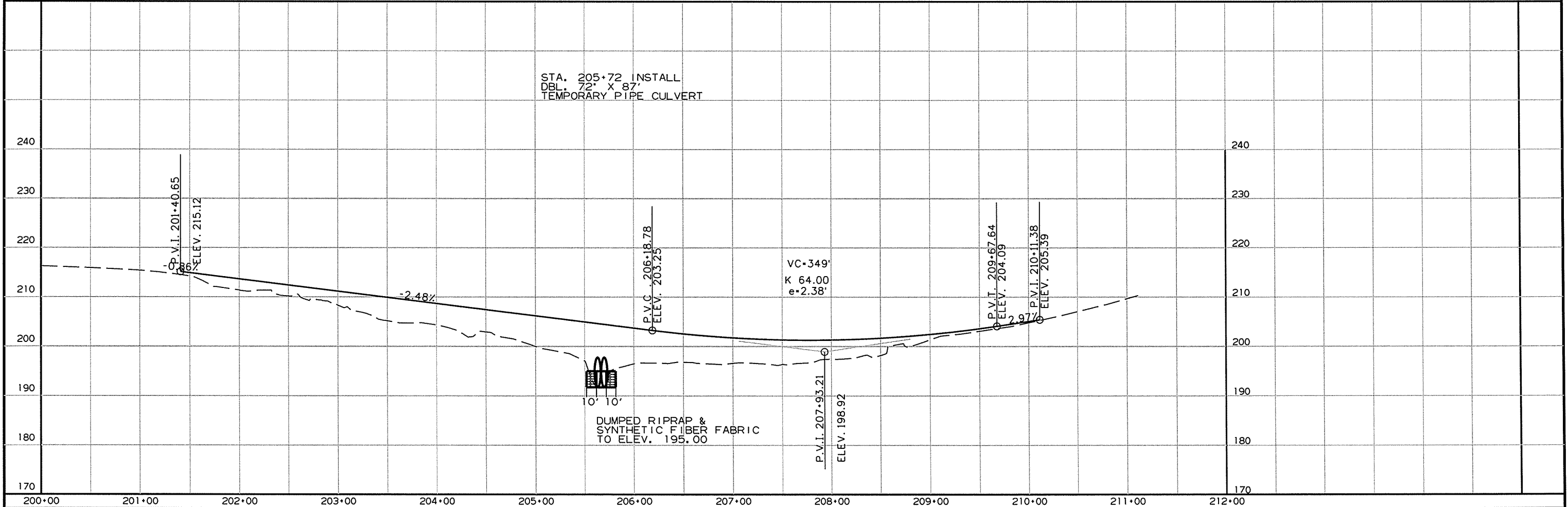
② SPECIAL DETAILS



THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE PERENNIAL STREAM BANK ELEVATION IS 197.00 FT. MSL.

TYPICAL SECTIONS OF IMPROVEMENT - DETOUR ROAD
STA. 205+71.81

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



4/7/2015

ZBRODR.CEL

MID-SECTION

R.C. BOX SECTION		DESIGN FILL DEPTH (FT.)		CLEAR SPAN (FT.)		CLEAR HEIGHT (FT.)		TOP SLAB THK.		BOTTOM SLAB THK.		SIDE WALL THK.		INTERIOR WALL THK.		OVER ALL WIDTH		OVER ALL HEIGHT		SECTION LENGTH (FT.)		TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL "f0"		INTERIOR WALL REINFORCING STEEL "f1"		TOP SLAB DISTRIBUTION REINF. STEEL "g"		BOTTOM SLAB DISTRIBUTION REINF. STEEL "e"		SIDE WALL DISTRIBUTION REINF. STEEL "d1"		INTERIOR WALL DISTRIBUTION REINF. STEEL "d2"						
D	S	H	T	B	C	W	OW	OH	SL	a	Bent b	c	SPACING	NO. REQ'D	d	Bent b1	f	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D				
A	2	12	8	13.5	13.5	7.5	8	38'-7"	10'-3"	56	4	38'-3"	8	39'-1"	8	38'-3"	17	39	4	38'-3"	4	39'-1"	4	38'-3"	14	48	5	7	192	9'-11"	4	12	224	9'-11"	4	8	113	4	8	113	4	12	16	4	12	32

INLET SLOPE SECTION(S)

R.C. BOX SECTION		DESIGN FILL DEPTH (FT.)		CLEAR SPAN (FT.)		CLEAR HEIGHT (FT.)		TOP SLAB THK.		BOTTOM SLAB THK.		SIDE WALL THK.		INTERIOR WALL THK.		OVER ALL WIDTH		OVER ALL HEIGHT		SECTION LENGTH (FT.)		TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL "f0"		INTERIOR WALL REINFORCING STEEL "f1"		TOP SLAB DISTRIBUTION REINFORCING STEEL "g"		BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e"		SIDE WALL DISTRIBUTION REINFORCING STEEL "d1"		INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2"					
D	S	H	T	B	C	W	OW	OH	SL	a	Bent b	c	SPACING	NO. REQ'D	d	Bent b1	f	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D			
	2	12	8																																										

INLET SKEWED END SECTION

SKEW (DEGREE)		SLOPE		DESIGN FILL DEPTH (FT.)		CLEAR SPAN (FT.)		CLEAR HEIGHT (FT.)		SECTION LENGTH		TOP SLAB THK.		HDWL THK.		BOTTOM SLAB THK.		SIDE WALL THK.		INTERIOR WALL THK.		OVER ALL WIDTH		OVER ALL HEIGHT		TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINFORCING STEEL		BOTTOM SLAB DISTRIBUTION REINFORCING STEEL		SIDE WALL DISTRIBUTION REINFORCING STEEL		INTERIOR WALL DISTRIBUTION REINFORCING STEEL					
SK	SL	D	S	H	T	B	C	W	OW	OH	SL	a	Bent b	c	SPACING	NO. REQ'D	d	Bent b1	f	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D					

INLET WINGWALL TABLE

OVER ALL WIDTH		CLEAR HEIGHT		FOOTING THK.		WING WALL THK.		BOX SKEW (DEG.)		SLOPE		HDWL LENGTH		HEEL		WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END		WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL		CLASS "S" CONCRETE (Includes apron)		REINFORCING STEEL (Includes apron and laps if required)	
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.											
38'-7"	8'-0"	0'-9"	0'-8"	0	3:1	37'-4"	2'-0"	8'-10"	2'-8"	30	30	3'-2"	4'-3 7/8"	4'-3 7/8"	1'-4"	1'-4"	21'-0"	21'-0"	24'-4 3/8"	24'-4 3/8"	13.86	1280											

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

Min. Bar Lap Length

#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table

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

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.

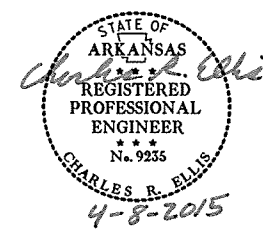
For additional information and outlet sections, see Sheet 2 of 2.

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

Bar Lap - Add one long lap for each Slope Section, and one additional long lap for Slope Sections greater than 40'-0" in length.

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.



TABULAR DATA BY: SWP DATE: 04/06/2015
 CHECKED BY: DBJ DATE: 4/7/15



OUTLET WINGWALL TABLE

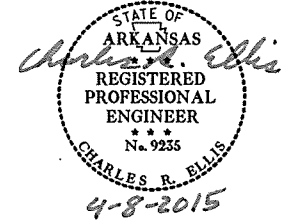
Table with columns for OVER ALL WIDTH, CLEAR HEIGHT, FOOTING THK., WING WALL THK., BOX SKEW (DEG.), SLOPE, HDWL LENGTH, HEEL, WALL HEIGHT, WINGWALL ANGLE (DEGREE), WING A, WING B, FOOTING DIMENSION PARALLEL WITH HDWL, LENGTH OF WINGWALLS, LENGTH OF FOOTING HEEL, CLASS "S" CONCRETE, and REINFORCING STEEL.

Min. Bar Lap Length table with columns #4 through #8 and values 1'-9", 2'-2", 2'-7", 3'-6", 4'-7".

Bar Pin Dia. Table with columns #4 through #8 and values 3", 3 3/4", 4 1/2", 5 1/4", 6".

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

DATE REVISED, DATE FILMED, FEDERAL PROJECT NO., STATE, SHEET NO., TOTAL SHEETS, JOB NO., SPECIAL DETAILS.



TABULAR DATA BY: SWP DATE: 04/06/2015 CHECKED BY: DBS DATE: 4/7/15

OUTLET SKEWED END SECTION

Table with columns for SKEW (DEGREE), SLOPE, DESIGN FILL DEPTH (FT.), CLEAR SPAN (FT.), CLEAR HEIGHT (FT.), SECTION LENGTH, TOP SLAB THK., HDWL THK., BOTTOM SLAB THK., SIDE WALL THK., INTERIOR WALL THK., OVER ALL WIDTH, OVER ALL HEIGHT, TOP SLAB REINFORCING STEEL, BOTTOM SLAB REINFORCING STEEL, SIDE WALL REINFORCING STEEL, INTERIOR WALL REINFORCING STEEL, TOP SLAB DISTRIBUTION REINFORCING STEEL, BOTTOM SLAB DISTRIBUTION REINFORCING STEEL, SIDE WALL DISTRIBUTION REINFORCING STEEL, INTERIOR WALL DISTRIBUTION REINFORCING STEEL.

CLASS "S" CONCRETE (includes HDWL) and REINFORCING STEEL (GR. 60) (includes HDWL) table with columns CU. YDS. and LBS.

OUTLET SLOPE SECTIONS

Table with columns for R.C. BOX SECTION, DESIGN FILL DEPTH (FT.), CLEAR SPAN (FT.), CLEAR HEIGHT (FT.), TOP SLAB THK., BOTTOM SLAB THK., SIDE WALL THK., INTERIOR WALL THK., OVER ALL WIDTH, OVER ALL HEIGHT, SECTION LENGTH (FT.), TOP SLAB REINFORCING STEEL, BOTTOM SLAB REINFORCING STEEL, SIDE WALL REINFORCING STEEL, INTERIOR WALL REINFORCING STEEL, TOP SLAB DISTRIBUTION REINFORCING STEEL, BOTTOM SLAB DISTRIBUTION REINFORCING STEEL, SIDE WALL DISTRIBUTION REINFORCING STEEL, INTERIOR WALL DISTRIBUTION REINFORCING STEEL.

CLASS "S" CONCRETE and REINFORCING STEEL table with columns CU. YDS. PER LIN. FT., LBS. PER LIN. FT., ADTL. REINF. PER LONG. LAP LOCATION, ADDITIONAL CONCRETE FOR HDWL, TOTAL ADTL. REINF. FOR HDWL.

Bar Lap - Add one long lap for each Slope Section, and one additional long lap for Slope Sections greater than 40'-0" in length.

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.



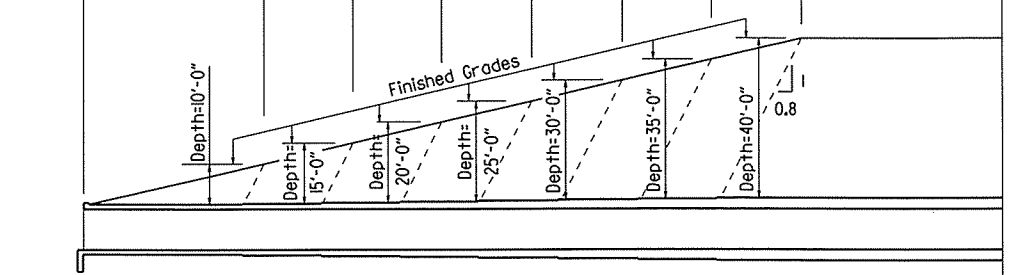
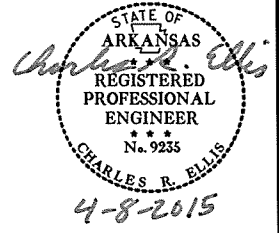
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543	10	57	

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"

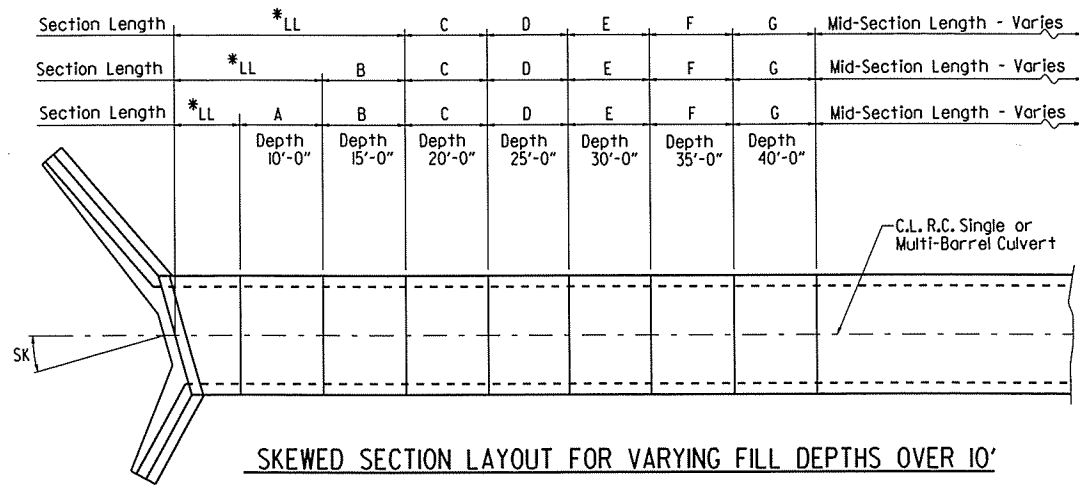
Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

* 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.

SPECIAL DETAILS



Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies



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 5 with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have 3/4" 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.

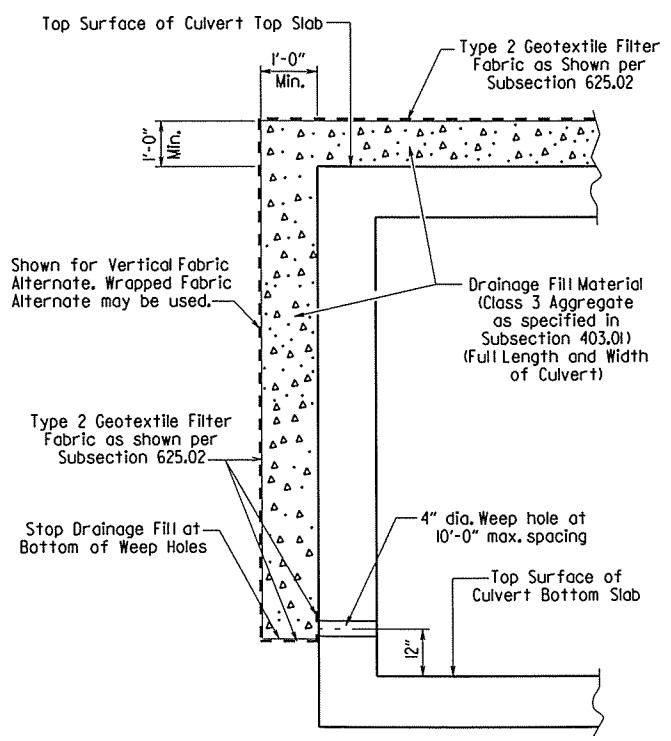
Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

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 normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise. 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 5 Concrete.

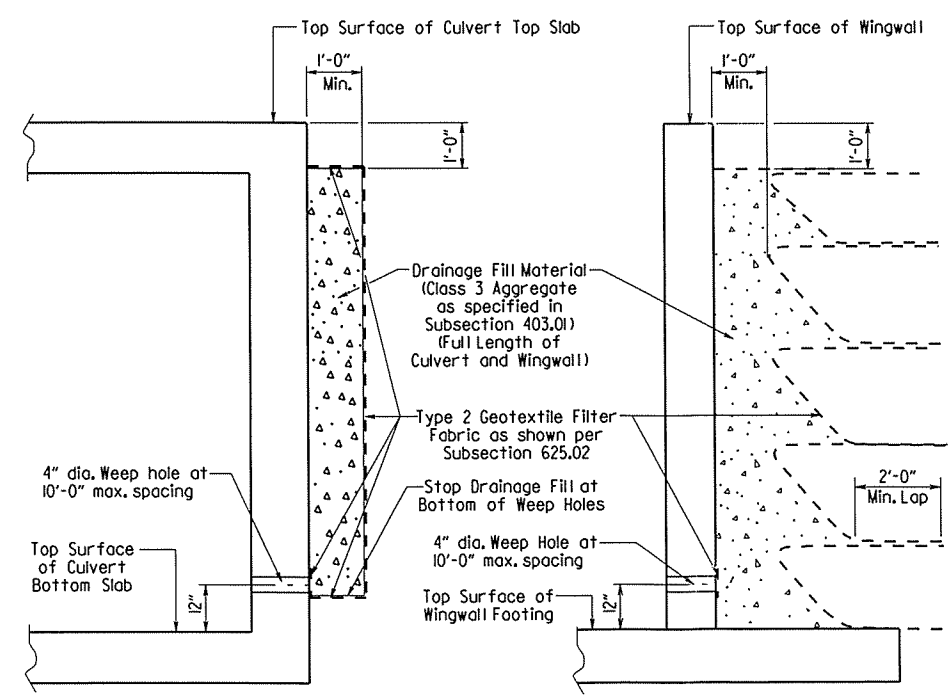
When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class 5 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)

For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

WINGWALL & CULVERT DRAINAGE DETAIL

SHEET 1 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
GENERAL NOTES &
LONGITUDINAL SECTION LENGTH SCHEDULE
SPECIAL DETAILS

V:\114\Culvert-General.dgn

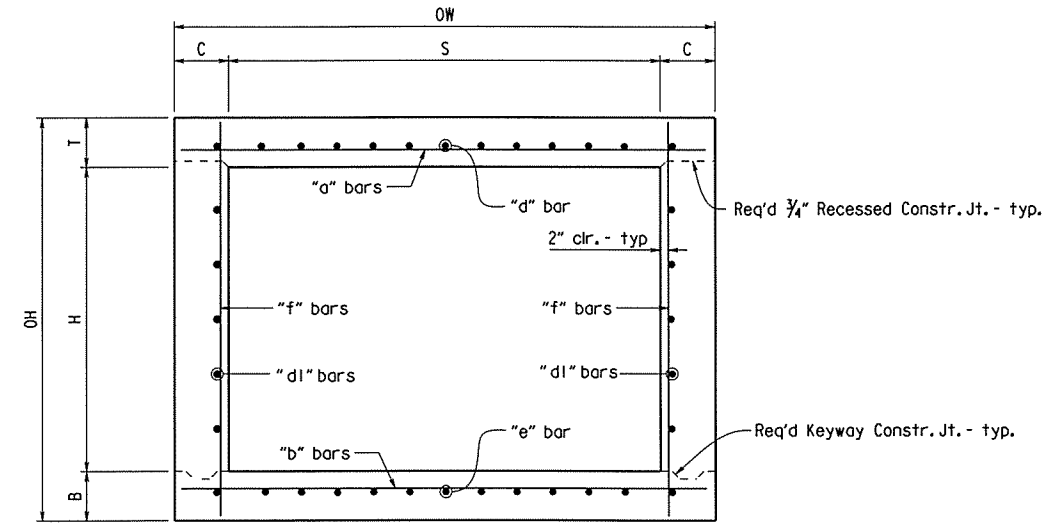


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543	11	51	

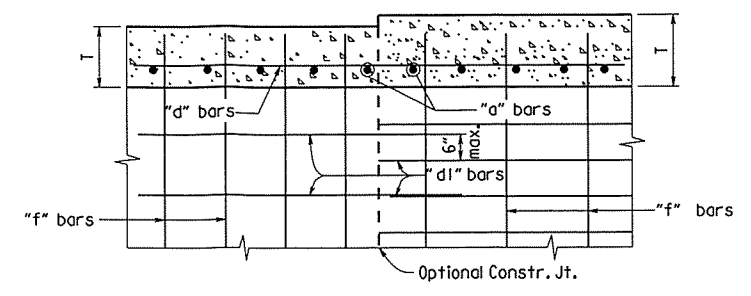
1 SPECIAL DETAILS



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

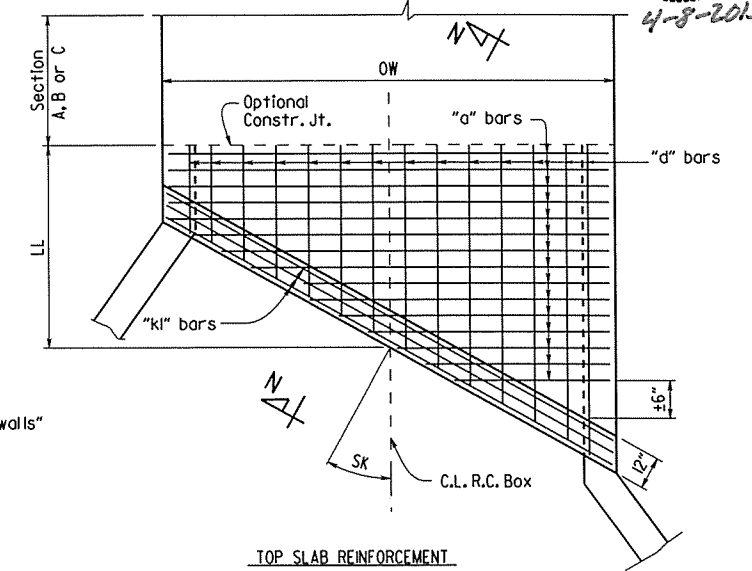


TYPICAL SECTION M-M

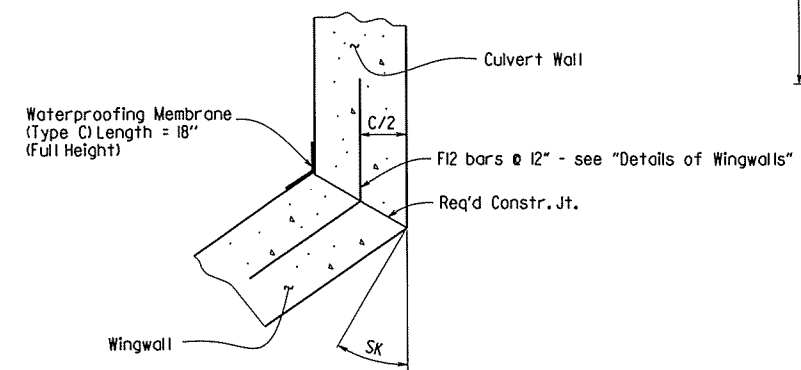


LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

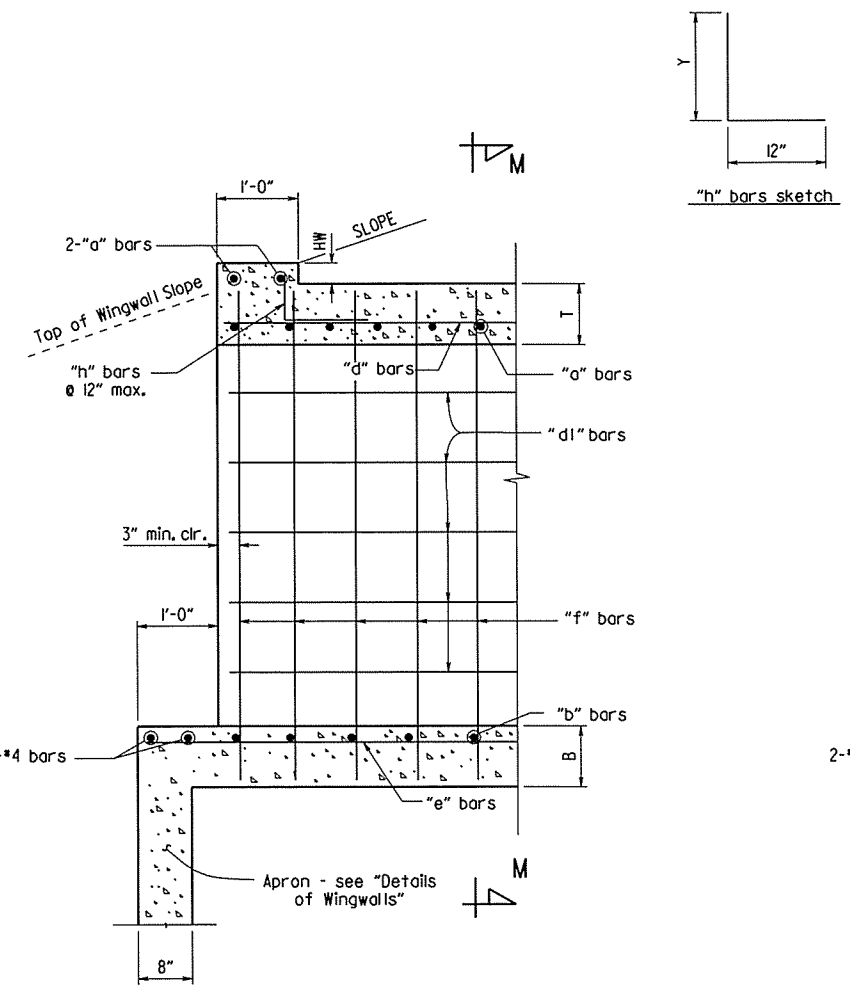


TOP SLAB REINFORCEMENT



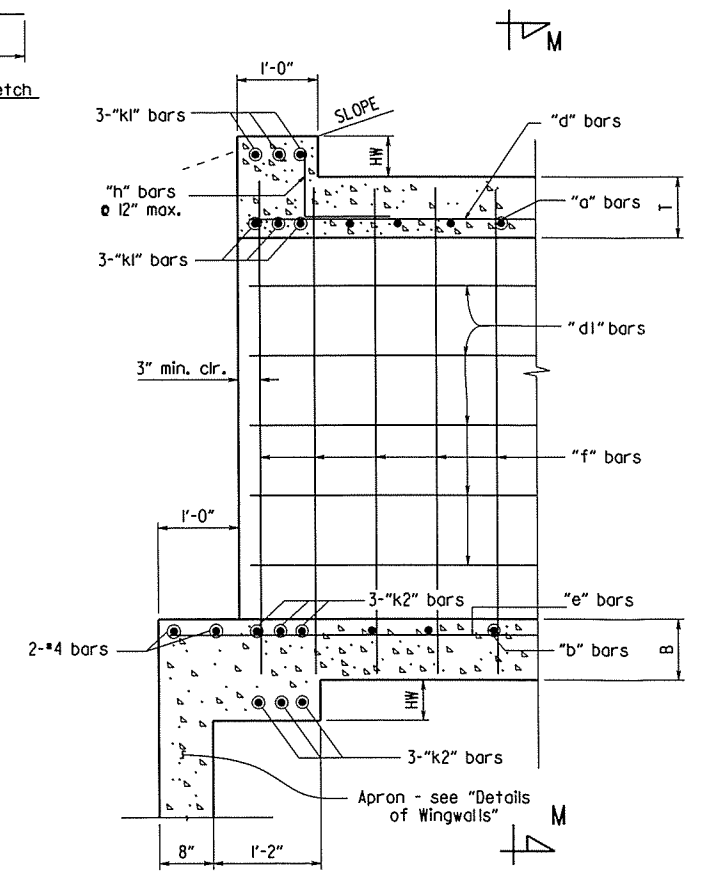
WINGWALL ATTACHMENT

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



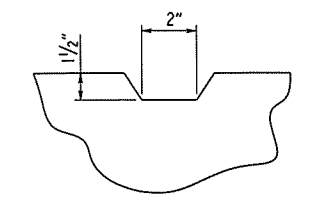
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



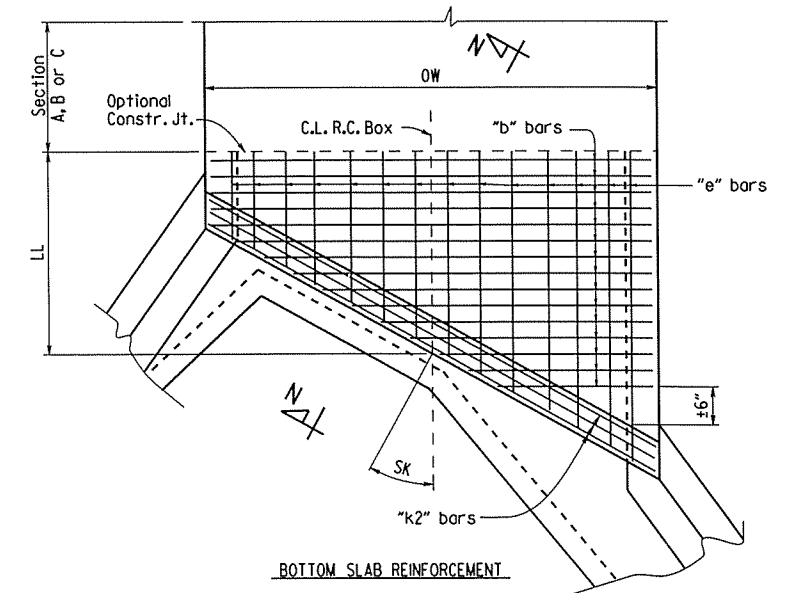
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



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

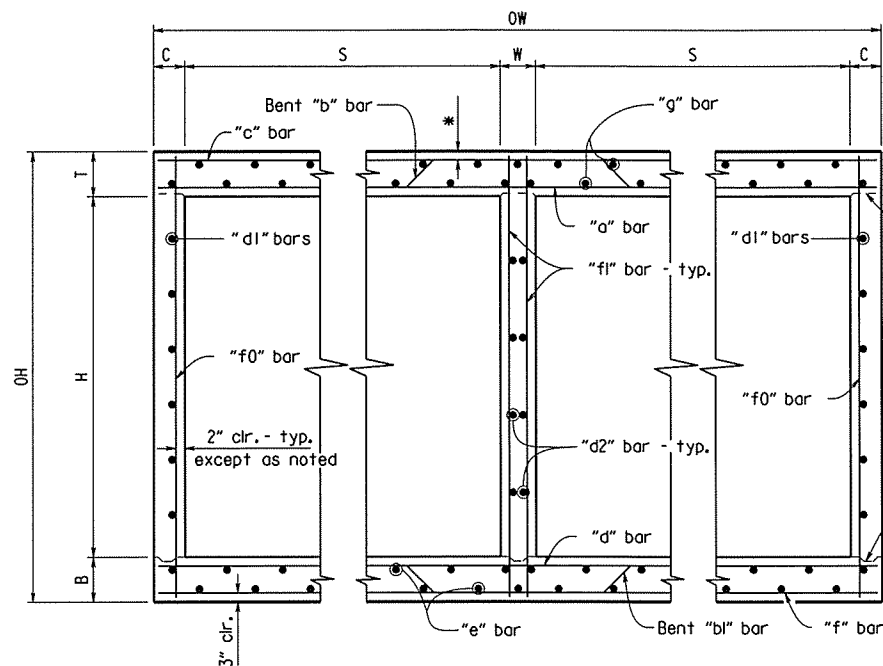
SPECIAL DETAILS



Culvert-General.dgn

*2" clr. for fill depth (D) greater than 2 ft.
 2 1/2" clr. 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.

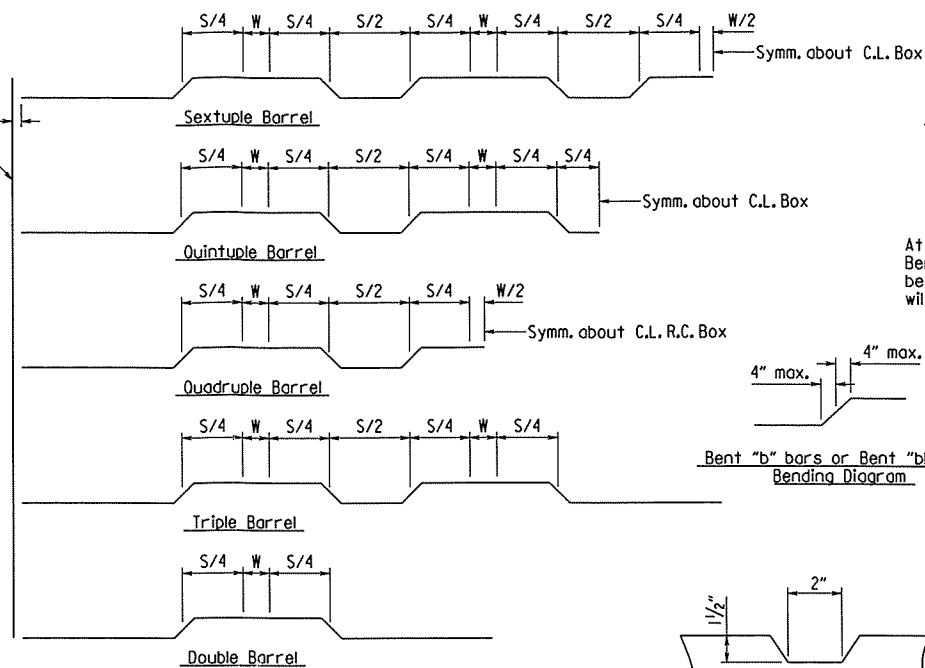


TYPICAL SECTION M-M

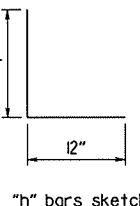
Top Slab
 Straight "c" bars shall alternate with Bent "b" bars in top.
 Straight "a" bars shall alternate with Bent "b" bars in bottom.

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

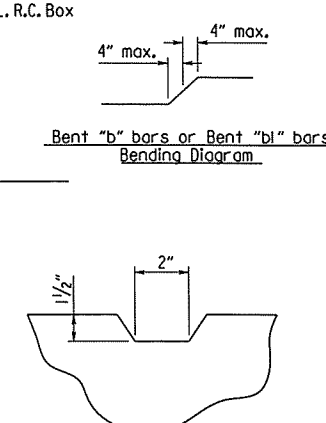
2" cir. - typ.
 Outside Face of R.C. Box
 Req'd 3/4" Recessed Constr. Jt. - typ.
 Req'd Keyway Constr. Jt. - typ.



Bent "b" bars or Bent "bl" bars sketch



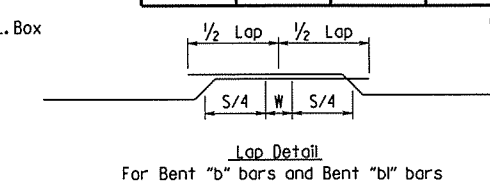
"h" bars sketch



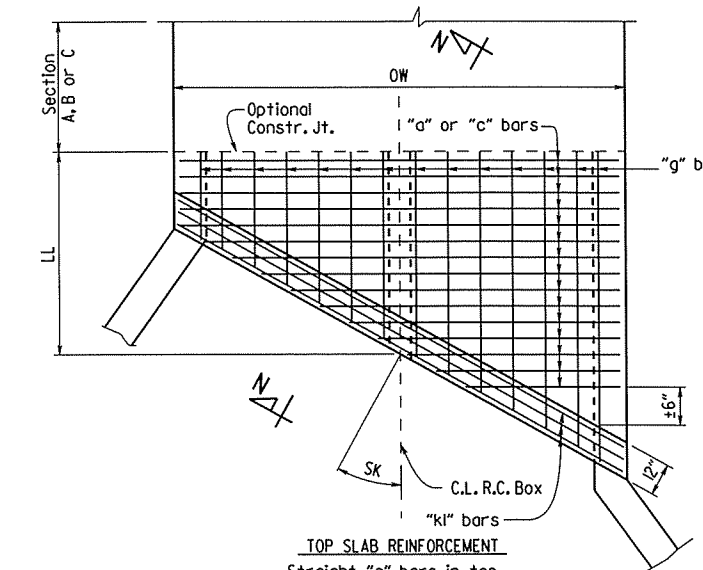
TYPICAL KEYWAY DETAIL (All Construction Joints)

DATE REVISION	DATE FILMED	REVISION	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		12	57

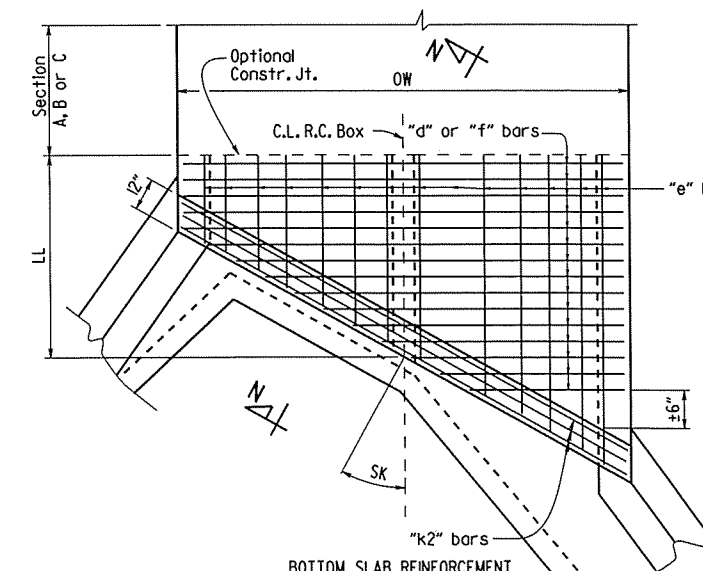
STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 9255
 CHARLES R. ELLIS
 4-8-2015



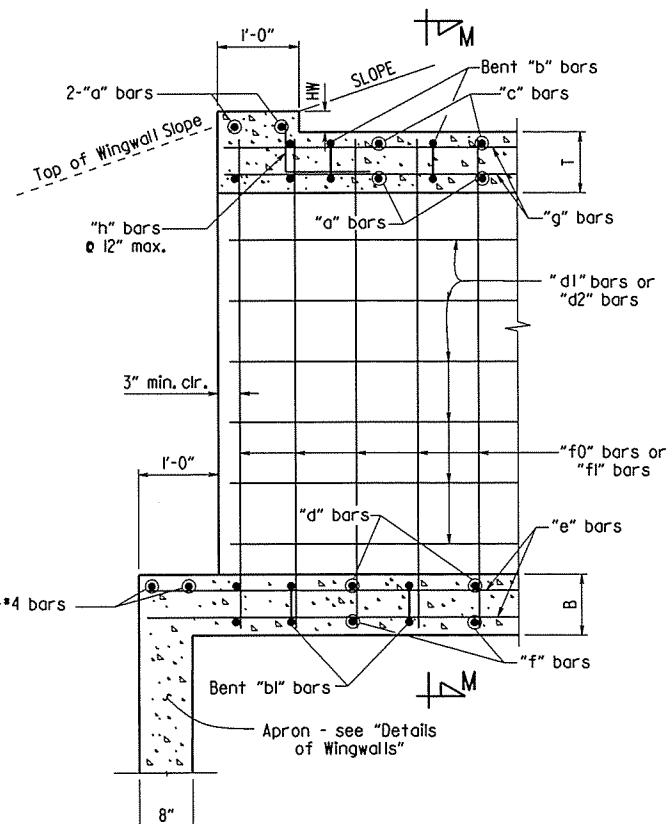
At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.



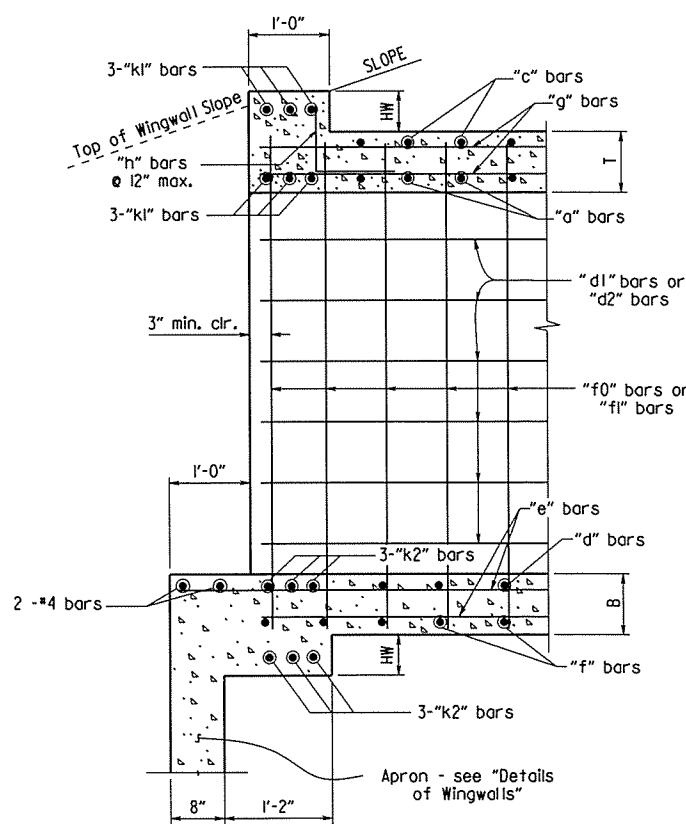
TOP SLAB REINFORCEMENT
 Straight "c" bars in top.
 Straight "a" bars in bottom.



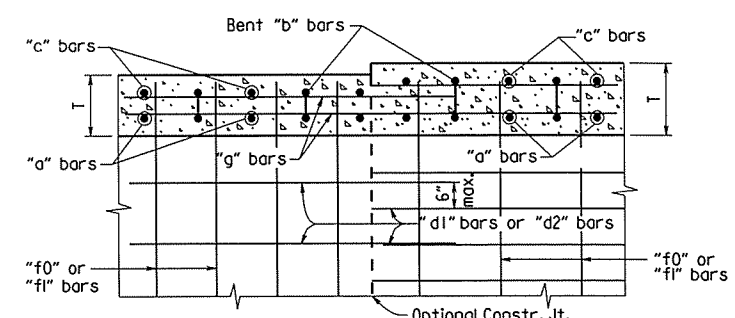
SKewed END SECTION DETAILS
 Straight "d" bars in top.
 Straight "f" bars in bottom.



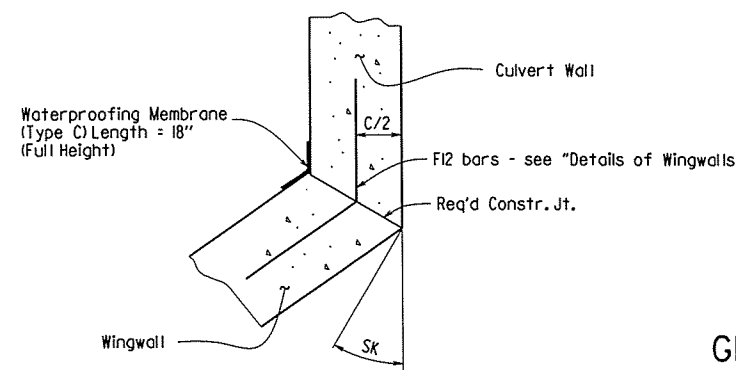
PART LONGITUDINAL SECTION (Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N (Skewed Ends)



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



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

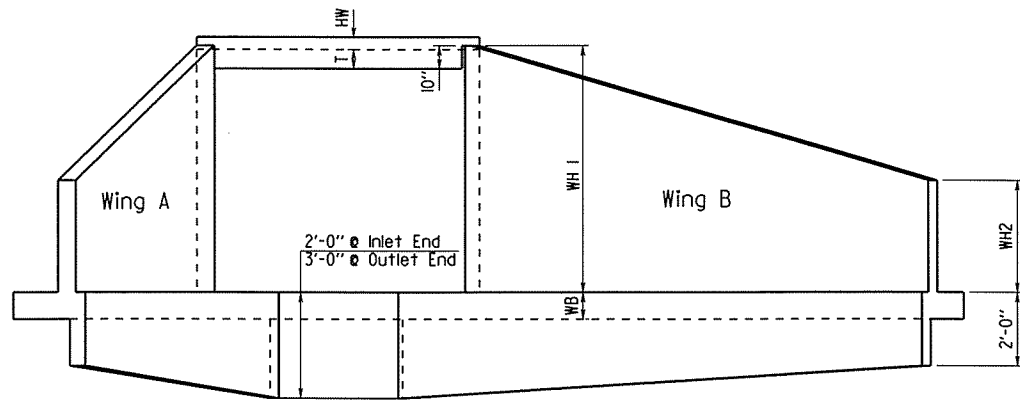
SHEET 3 OF 4
 GENERAL DETAILS OF R.C. BOX CULVERT
 DETAILS OF MULTI-BARREL R.C. BOX CULVERT
 SPECIAL DETAILS

Culvert-General.dgn

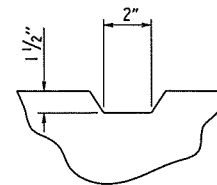
DATE REVISION	DATE FILMED	DATE REVISION	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543	13	57	

1 SPECIAL DETAILS

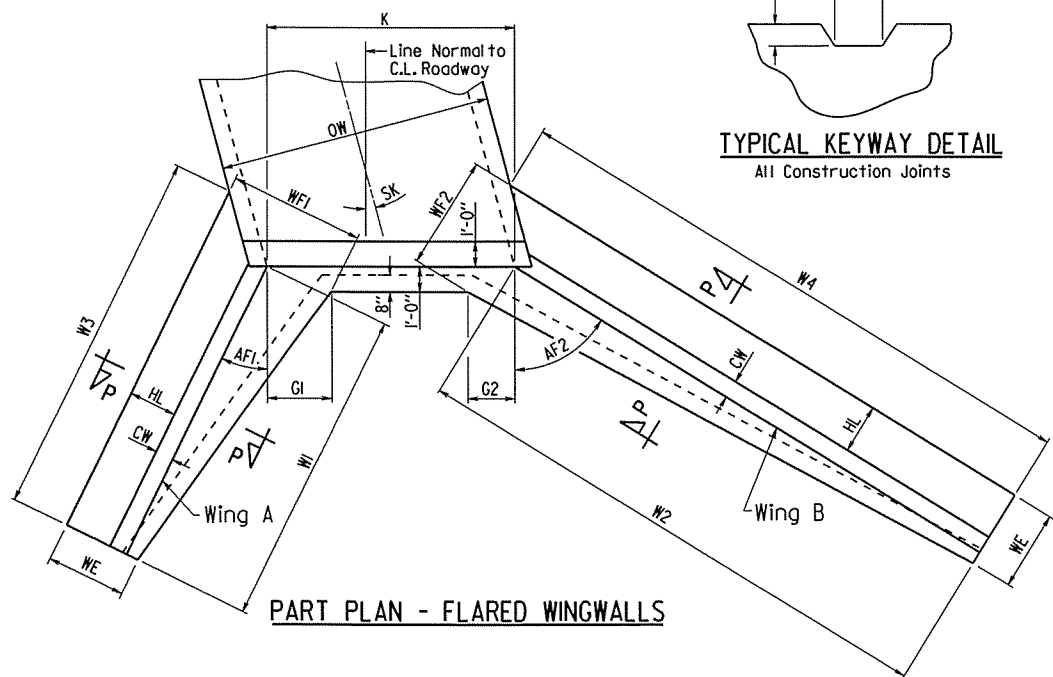
STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 9235
 CHARLES R. ELLIS
 4-8-2015



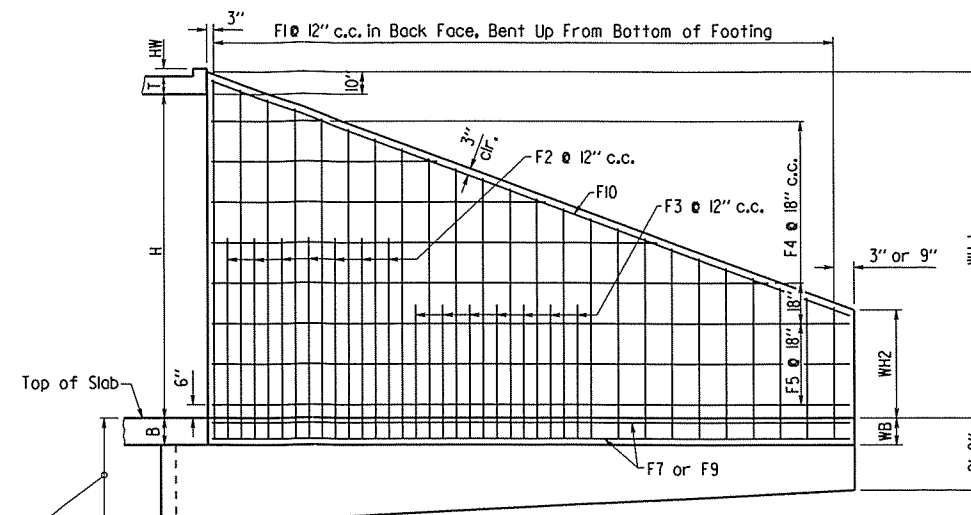
END ELEVATION
 Flared Wingwalls Shown



TYPICAL KEYWAY DETAIL
 All Construction Joints

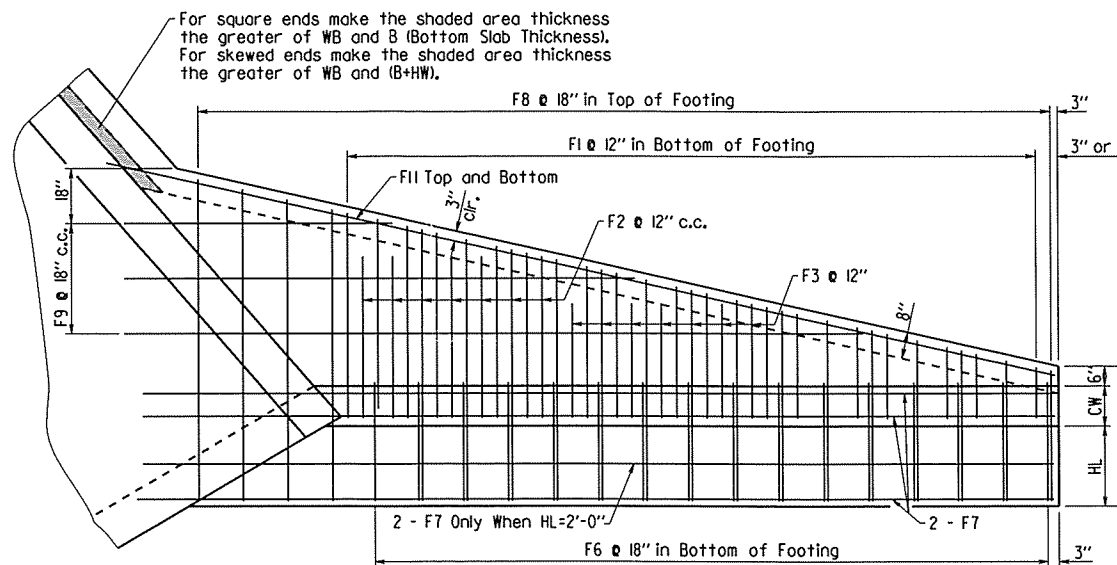


PART PLAN - FLARED WINGWALLS



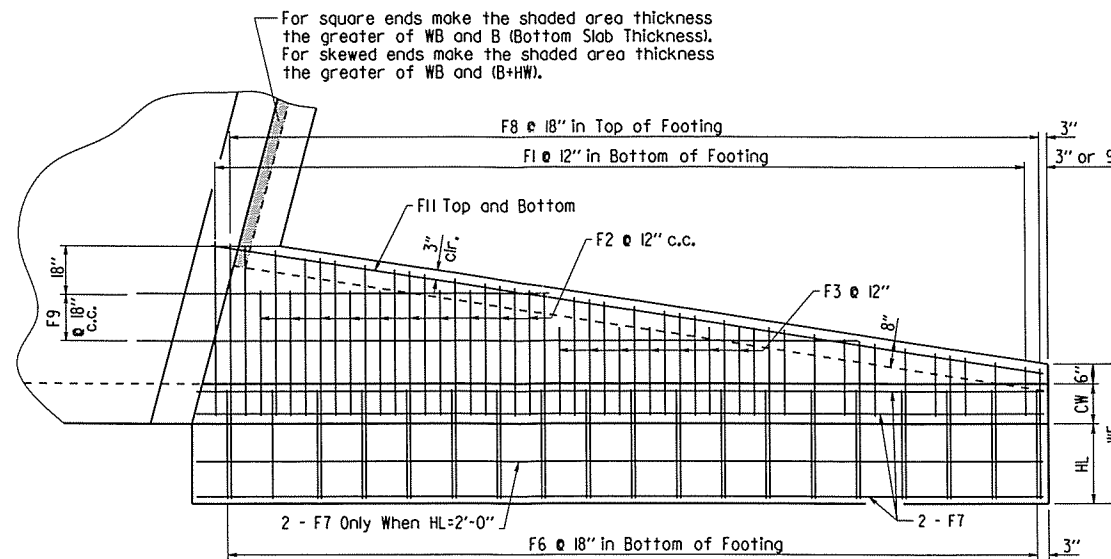
WINGWALL ELEVATION
 Showing Back Face Reinforcement

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

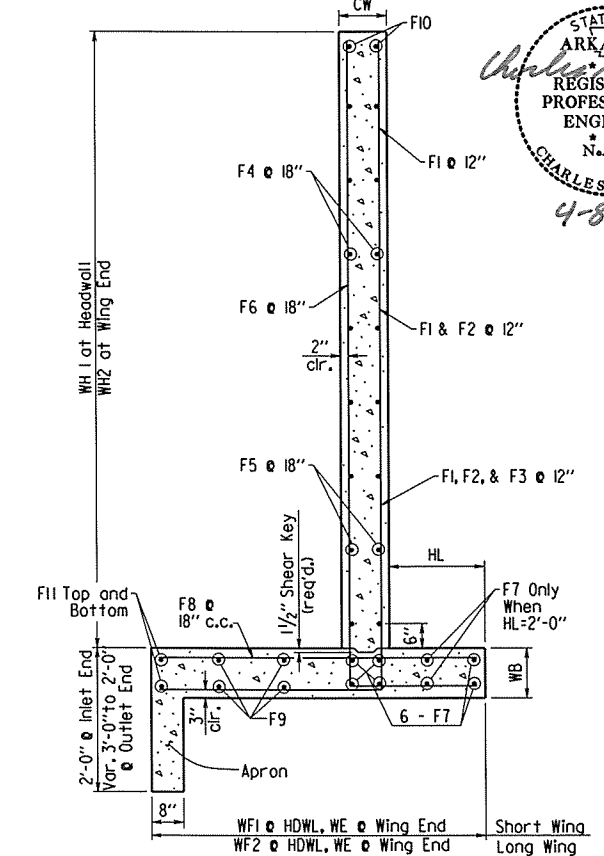


PLAN - FLARED WINGWALLS
 Showing Footing Reinforcement

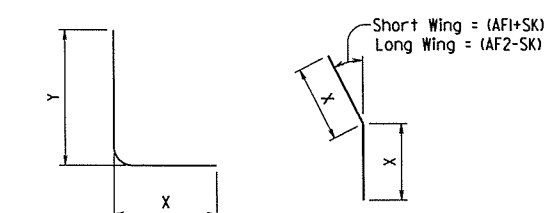
For square ends make the shaded area thickness the greater of WB and B (Bottom Slab Thickness). For skewed ends make the shaded area thickness the greater of WB and (B+HW).



PLAN - PARALLEL WINGWALLS
 Showing Footing Reinforcement

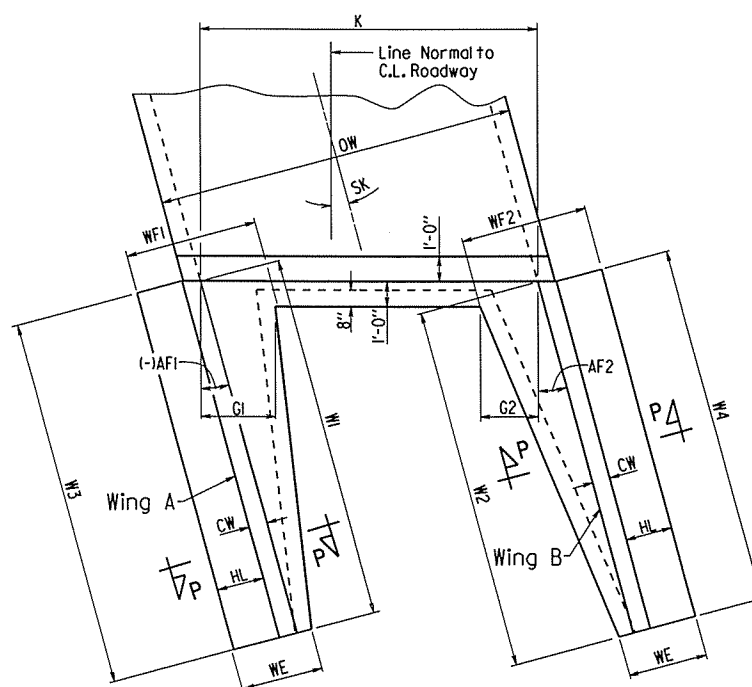


WINGWALL SECTION P-P

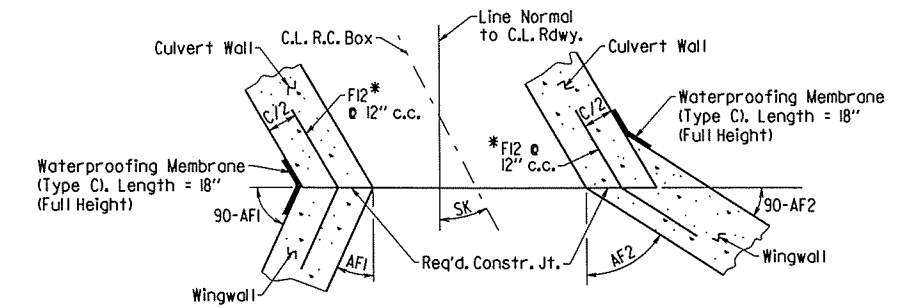


F1, F2, F3, & F6 BARS * F12 BAR

* F12 is a straight bar for parallel wingwalls



PART PLAN - PARALLEL WINGWALLS



CONSTRUCTION JOINTS
 Flared Wingwalls Shown

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

Culvert-General.dgn



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		14	57

EROSION CONTROL GENERAL NOTES

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

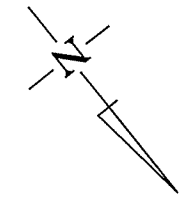
REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

CLEARING AND GRUBBING

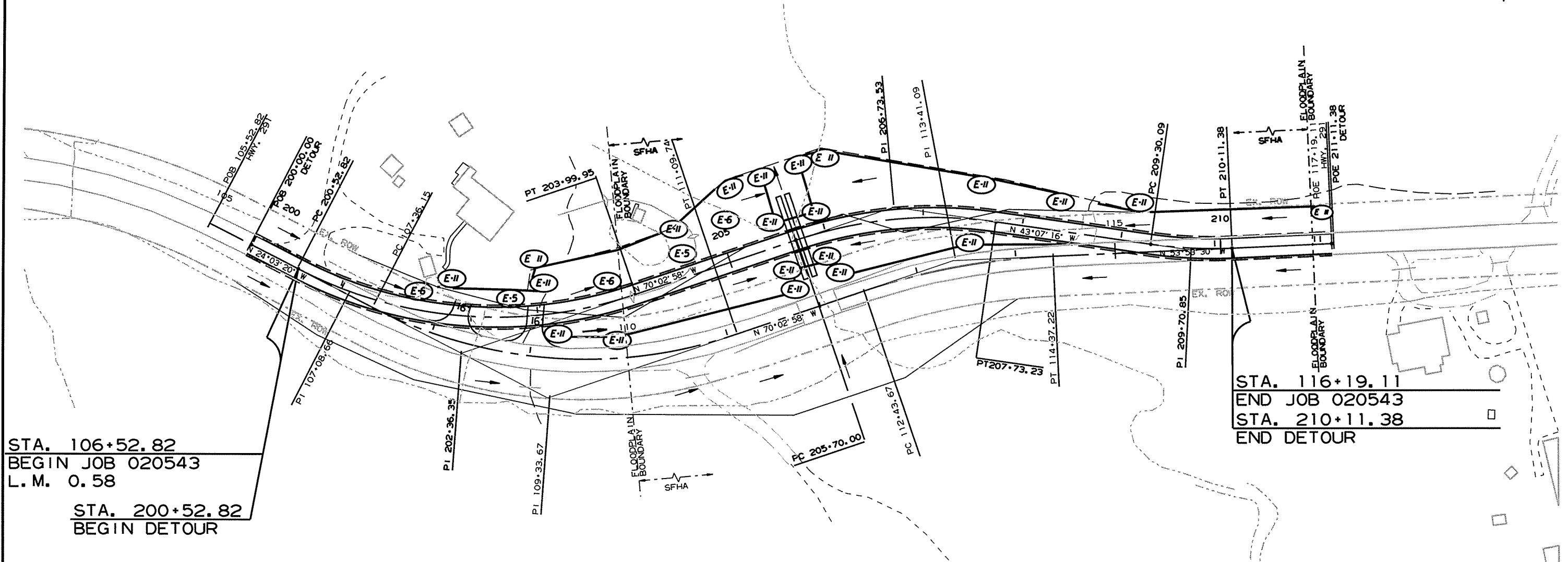
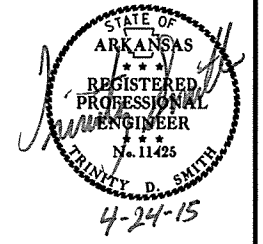
STA. 106+52.82 - STA. 116+19.11 LT. & RT. 10 STA.

SILT FENCE (E-11)

STA. 108+00 - STA. 117+19 LT. OF DETOUR 1050'
 STA. 109+00 - STA. 114+00 RT. OF DETOUR 550'



② TEMPORARY EROSION CONTROL DETAILS



STA. 106+52.82
 BEGIN JOB 020543
 L. M. 0.58
 STA. 200+52.82
 BEGIN DETOUR

STA. 116+19.11
 END JOB 020543
 STA. 210+11.38
 END DETOUR

SAND BAG DITCH CHECKS (E-5)

STA.	LT.	INSTALLATION	BAGS
108+50	LT.	1 INSTALLATION	22 BAGS
111+00	LT.	1 INSTALLATION	22 BAGS

ROCK DITCH CHECKS (E-6)

STA.	LT.	INSTALLATION	CU. YDS.
107+50	LT.	1 INSTALLATION	3 CU. YDS.
110+00	LT.	1 INSTALLATION	3 CU. YDS.
111+30	LT.	1 INSTALLATION	3 CU. YDS.

REVISIONS

DATE OF REVISION	REVISION

**STAGE I
 TEMPORARY EROSION CONTROL DETAILS**

EROSION CONTROL GENERAL NOTES

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

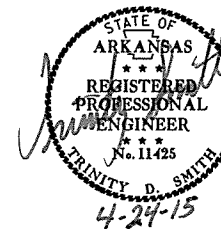
REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SILT FENCE (E-11)

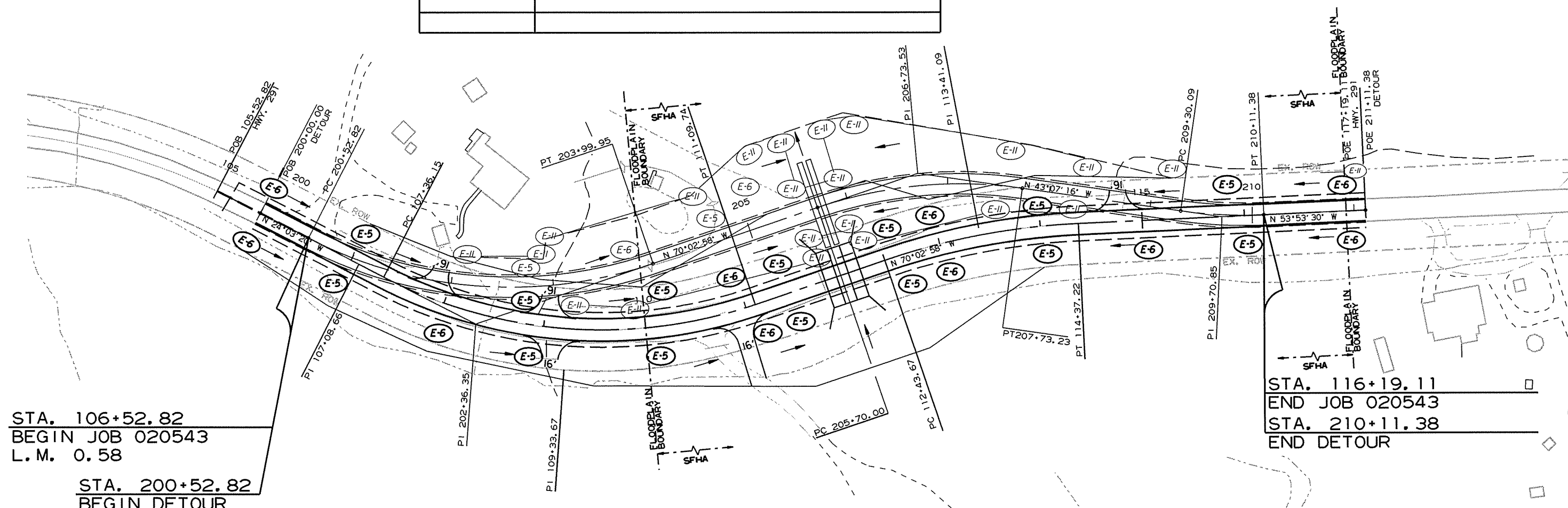
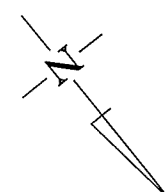
STA. 108+00 - STA. 117+19 LT. OF DETOUR RETAIN
 STA. 109+00 - STA. 114+00 RT. OF DETOUR RETAIN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		15	57
				JOB NO.		020543		

2 TEMPORARY EROSION CONTROL DETAILS



REVISIONS	
DATE OF REVISION	REVISION



STA. 106+52.82
 BEGIN JOB 020543
 L.M. 0.58

STA. 200+52.82
 BEGIN DETOUR

STA. 116+19.11
 END JOB 020543
 STA. 210+11.38
 END DETOUR

SAND BAG DITCH CHECKS (E-5)

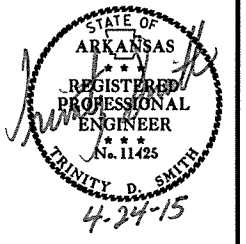
STA.	LT. & RT.	INSTALLATIONS	BAGS	RETAIN
STA. 108+50	LT.	1	44	RETAIN
STA. 111+00	LT.	1	44	RETAIN
STA. 107+00	LT. & RT.	2	44	RETAIN
STA. 109+00	LT. & RT.	2	44	RETAIN
STA. 110+00	LT. & RT.	2	44	RETAIN
STA. 111+50	LT. & RT.	2	44	RETAIN
STA. 112+50	LT. & RT.	2	44	RETAIN
STA. 114+00	LT. & RT.	2	44	RETAIN
STA. 116+00	LT. & RT.	2	44	RETAIN

ROCK DITCH CHECKS (E-6)

STA.	LT. & RT.	INSTALLATIONS	CU. YDS.	RETAIN
STA. 107+50	LT.	1	6	RETAIN
STA. 110+00	LT.	1	3	RETAIN
STA. 111+30	LT.	1	3	RETAIN
STA. 106+00	LT. & RT.	2	6	RETAIN
STA. 108+00	RT.	1	3	RETAIN
STA. 111+00	LT. & RT.	2	6	RETAIN
STA. 113+00	LT. & RT.	2	6	RETAIN
STA. 115+00	RT.	1	3	RETAIN
STA. 117+00	LT. & RT.	2	6	RETAIN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		16	57

② TEMPORARY EROSION CONTROL DETAILS



EROSION CONTROL GENERAL NOTES

THE QUANTITIES AND LOCATIONS OF THE EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SILT FENCE (E-11)

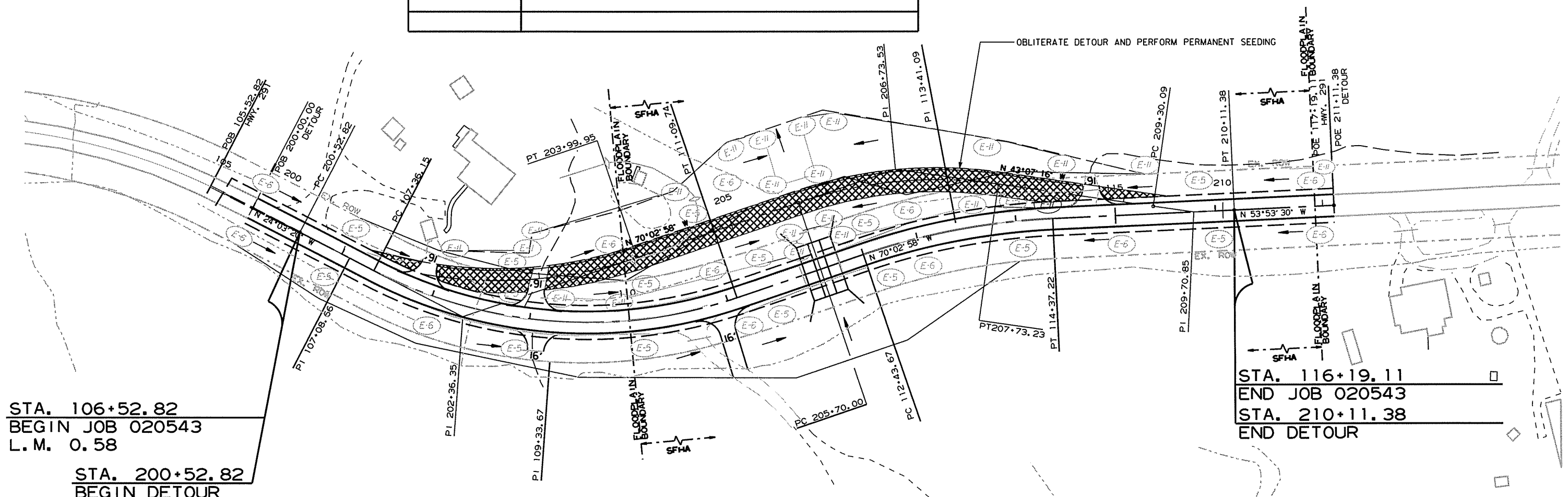
STA. 108+00 - STA. 117+19 LT. OF DETOUR RETAIN
 STA. 109+00 - STA. 114+00 RT. OF DETOUR RETAIN

REVISIONS

DATE OF REVISION	REVISION

NOTE: THE CONTRACTOR SHALL RECONSTRUCT THE POND BETWEEN STA. 108+85 AND STA. 111+10 ON THE LT. ONCE THE DETOUR HAS BEEN OBLITERATED. AS DIRECTED BY THE ENGINEER. NO DIRECT PAYMENT WILL BE MADE FOR THIS WORK BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER PAY ITEMS IN THE CONTRACT.

OBLITERATE ROADWAY



STA. 106+52.82
 BEGIN JOB 020543
 L.M. 0.58

STA. 200+52.82
 BEGIN DETOUR

STA. 116+19.11
 END JOB 020543
 STA. 210+11.38
 END DETOUR

SAND BAG DITCH CHECKS (E-5)

STA.	LT. & RT.	INSTALLATION	RETAIN
STA. 108+50	LT.	1 INSTALLATION	RETAIN
STA. 111+00	LT.	1 INSTALLATION	RETAIN
STA. 107+00	LT. & RT.	2 INSTALLATIONS	44 BAGS
STA. 109+00	LT. & RT.	2 INSTALLATIONS	44 BAGS
STA. 110+00	LT. & RT.	2 INSTALLATIONS	44 BAGS
STA. 111+50	LT. & RT.	2 INSTALLATIONS	44 BAGS
STA. 112+50	LT. & RT.	2 INSTALLATIONS	44 BAGS
STA. 114+00	LT. & RT.	2 INSTALLATIONS	44 BAGS
STA. 116+00	LT. & RT.	2 INSTALLATIONS	44 BAGS

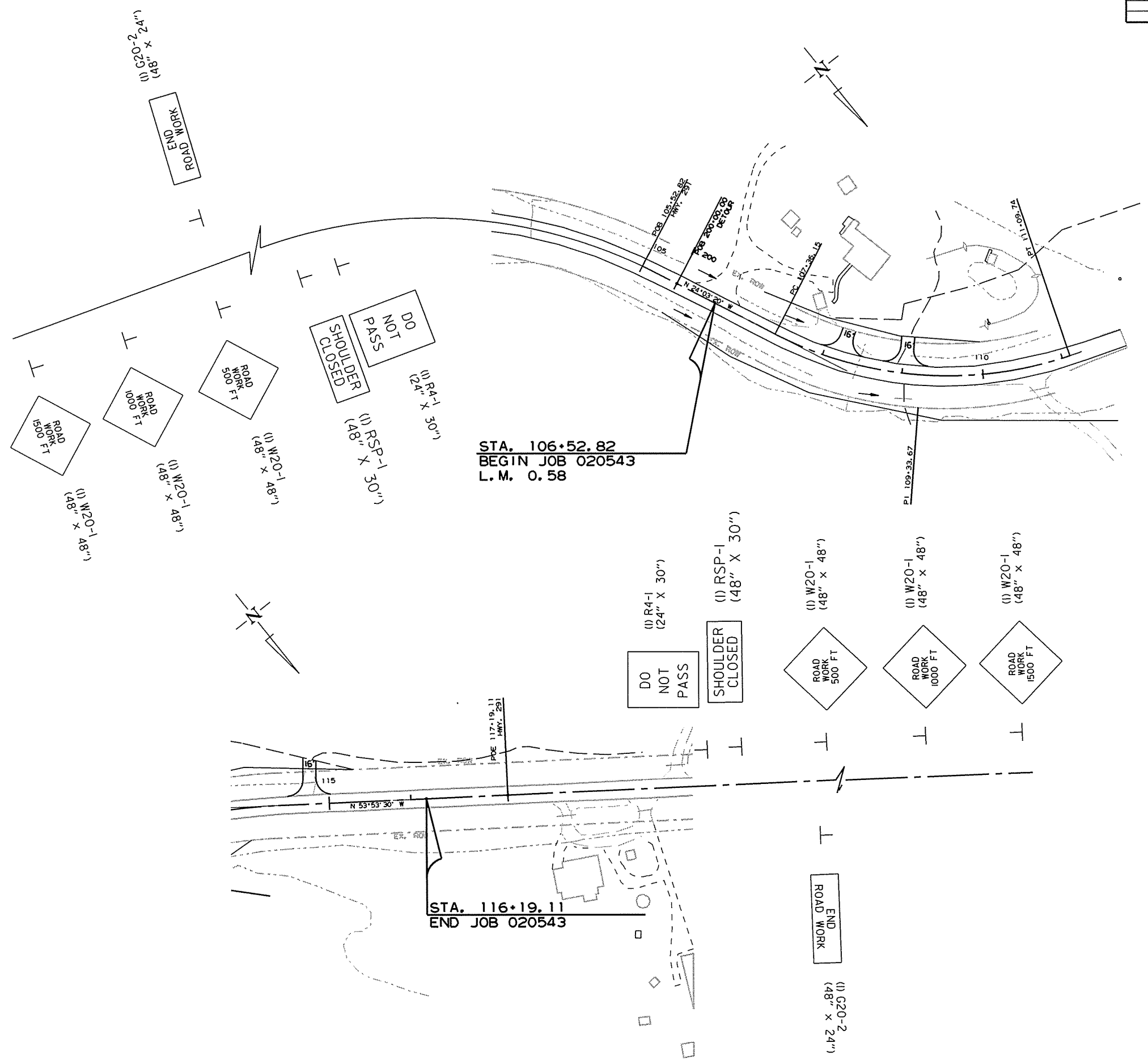
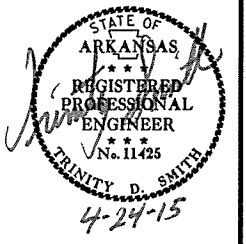
ROCK DITCH CHECKS (E-6)

STA.	LT. & RT.	INSTALLATION	RETAIN
STA. 107+50	LT.	1 INSTALLATION	RETAIN
STA. 110+00	LT.	1 INSTALLATION	RETAIN
STA. 111+30	LT.	1 INSTALLATION	RETAIN
STA. 106+00	LT. & RT.	2 INSTALLATIONS	6 CU. YDS.
STA. 108+00	RT.	1 INSTALLATION	3 CU. YDS.
STA. 111+00	LT. & RT.	2 INSTALLATIONS	6 CU. YDS.
STA. 113+00	LT. & RT.	2 INSTALLATIONS	6 CU. YDS.
STA. 115+00	RT.	1 INSTALLATION	3 CU. YDS.
STA. 117+00	LT. & RT.	2 INSTALLATIONS	6 CU. YDS.

STAGE 3
 TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		17	57
				JOB NO.		020543		

② MAINTENANCE OF TRAFFIC DETAILS



ADVANCE WARNING SIGNS
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		18	57

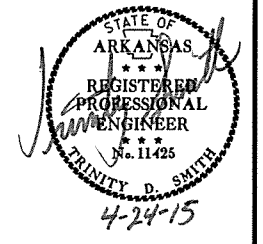
SEQUENCING

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY PIPES, CROSS-DRAINS, DETOUR ROADWAY AND TEMPORARY DRIVEWAYS.

STAGE 2: SHIFT TRAFFIC TO DETOUR REMOVE EXISTING BRIDGE STRUCTURE. CONSTRUCT NEW R.C. BOX CULVERT, AND FULL DEPTH PAVEMENT. COMPLETE LEVELING, NOTCH AND WIDENING, AND OVERLAY. PERFORM FINAL STRIPING AND PERMANENT SEEDING.

STAGE 3: SHIFT TRAFFIC TO PROPOSED ROADWAY, COMPLETE CONNECTIONS. OBLITERATE DETOUR ROADWAY AND COMPLETE PERMANENT SEEDING.

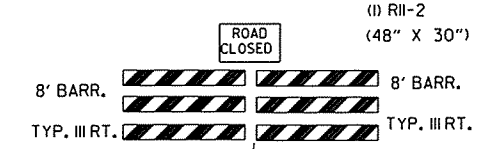
② MAINTENANCE OF TRAFFIC DETAILS



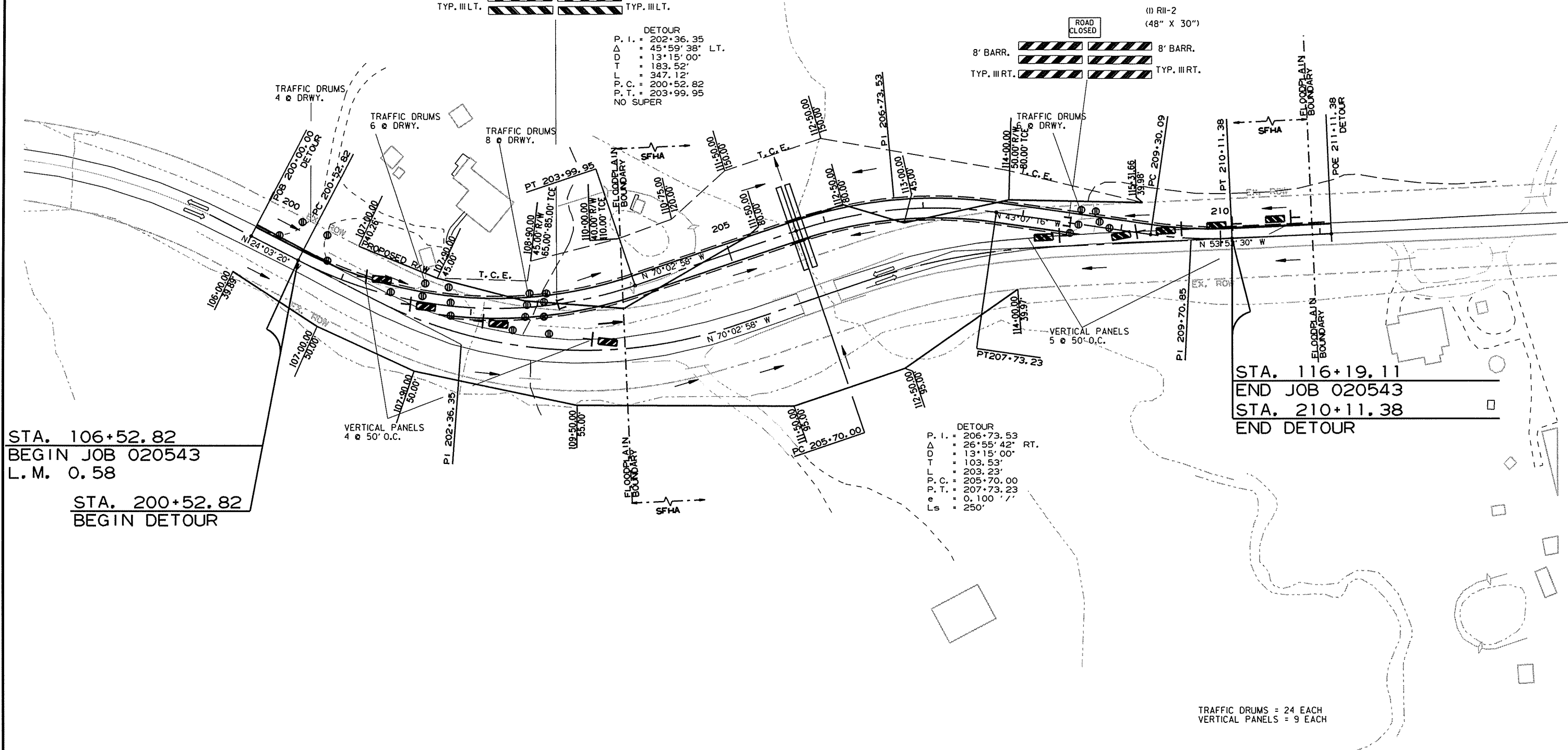
DETOUR
 P. I. = 209+70.85
 Δ = 10°46'13.9" LT.
 D = 13'15" 00.0"
 T = 40.76'
 L = 81.29'
 P. C. = 205+70.00
 P. T. = 207+73.23
 NO SUPER



DETOUR
 P. I. = 202+36.35
 Δ = 45°59'38" LT.
 D = 13'15" 00"
 T = 183.52'
 L = 347.12'
 P. C. = 200+52.82
 P. T. = 203+99.95
 NO SUPER



DETOUR
 P. I. = 206+73.53
 Δ = 26°55'42" RT.
 D = 13'15" 00"
 T = 103.53'
 L = 203.23'
 P. C. = 205+70.00
 P. T. = 207+73.23
 e = 0.100
 Ls = 250'



TRAFFIC DRUMS = 24 EACH
 VERTICAL PANELS = 9 EACH

STAGE I
 MAINTENANCE OF TRAFFIC DETAILS

4/1/2015

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SEQUENCING

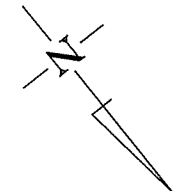
STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY PIPES, CROSS-DRAINS, DETOUR ROADWAY AND TEMPORARY DRIVEWAYS.

STAGE 2: SHIFT TRAFFIC TO DETOUR REMOVE EXISTING BRIDGE STRUCTURE, CONSTRUCT NEW R.C. BOX CULVERT, AND FULL DEPTH PAVEMENT. COMPLETE LEVELING, NOTCH AND WIDENING, AND OVERLAY. PERFORM FINAL STRIPING AND PERMANENT SEEDING.

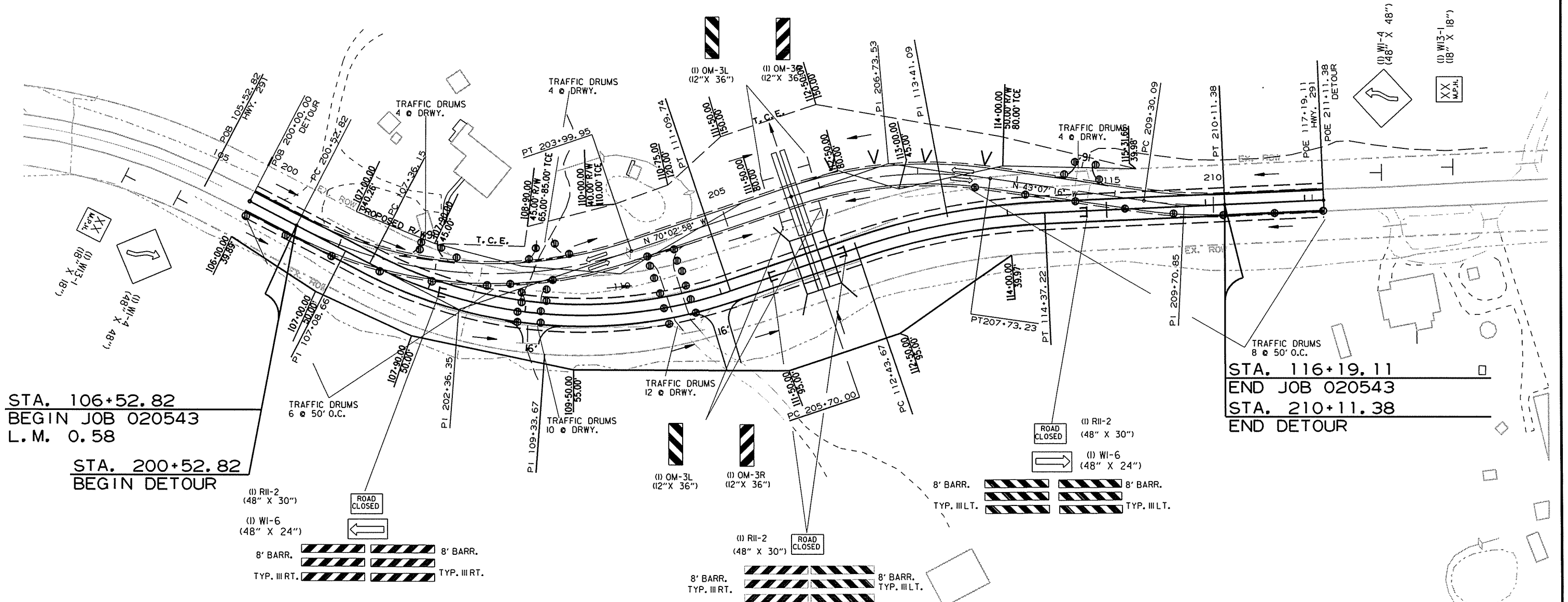
STAGE 3: SHIFT TRAFFIC TO PROPOSED ROADWAY, COMPLETE CONNECTIONS. OBLITERATE DETOUR ROADWAY AND COMPLETE PERMANENT SEEDING.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		19	57

2 MAINTENANCE OF TRAFFIC DETAILS



(B) W1-8
(18" X 24")
8 CHEVRONS
PLACED
BACK TO BACK



TRAFFIC DRUMS = 48 EACH

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

STA. 106+52.82
BEGIN JOB 020543
L.M. 0.58

STA. 200+52.82
BEGIN DETOUR

STA. 116+19.11
END JOB 020543
STA. 210+11.38
END DETOUR

4/8/2015


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SEQUENCING

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. CONSTRUCT TEMPORARY PIPES, CROSS-DRAINS, DETOUR ROADWAY AND TEMPORARY DRIVEWAYS.

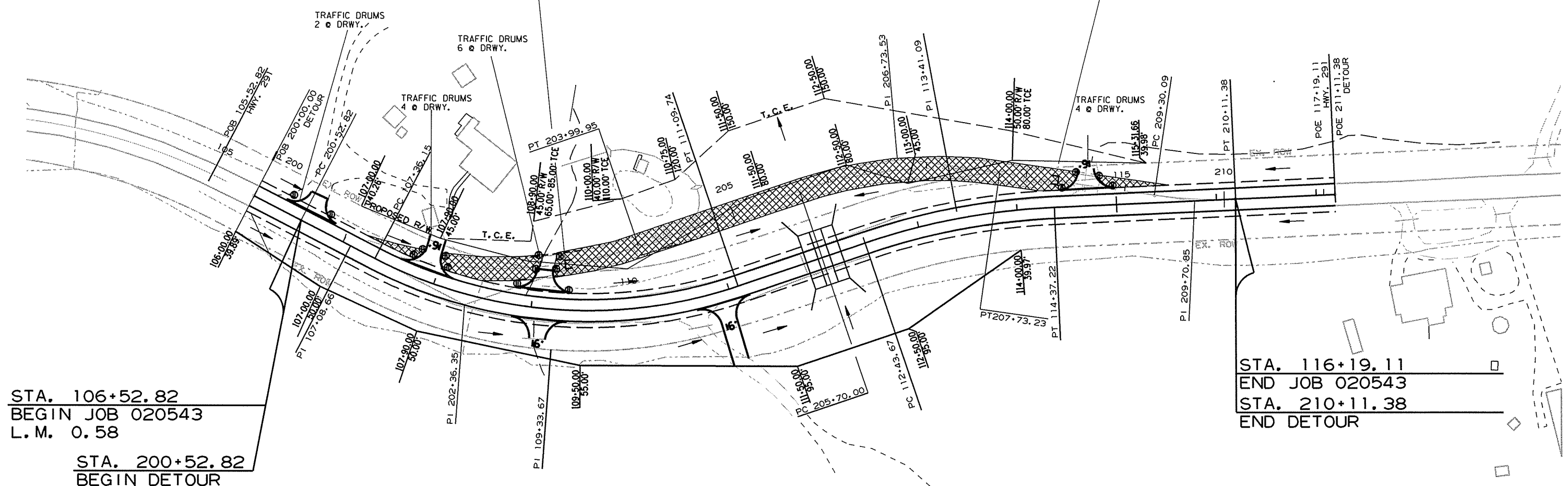
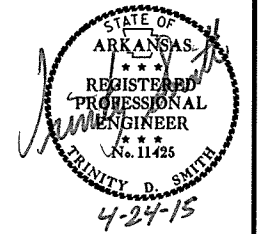
STAGE 2: SHIFT TRAFFIC TO DETOUR REMOVE EXISTING BRIDGE STRUCTURE, CONSTRUCT NEW R.C. BOX CULVERT, AND FULL DEPTH PAVEMENT. COMPLETE LEVELING, NOTCH AND WIDENING, AND OVERLAY. PERFORM FINAL STRIPING AND PERMANENT SEEDING.

STAGE 3: SHIFT TRAFFIC TO PROPOSED ROADWAY, COMPLETE CONNECTIONS, OBLITERATE DETOUR ROADWAY AND COMPLETE PERMANENT SEEDING.

 OBLITERATE ROADWAY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		20	57
				JOB NO.	020543			

② MAINTENANCE OF TRAFFIC DETAILS



STA. 106+52.82
 BEGIN JOB 020543
 L.M. 0.58

STA. 200+52.82
 BEGIN DETOUR

STA. 116+19.11
 END JOB 020543
 STA. 210+11.38
 END DETOUR

TRAFFIC DRUMS = 16 EACH

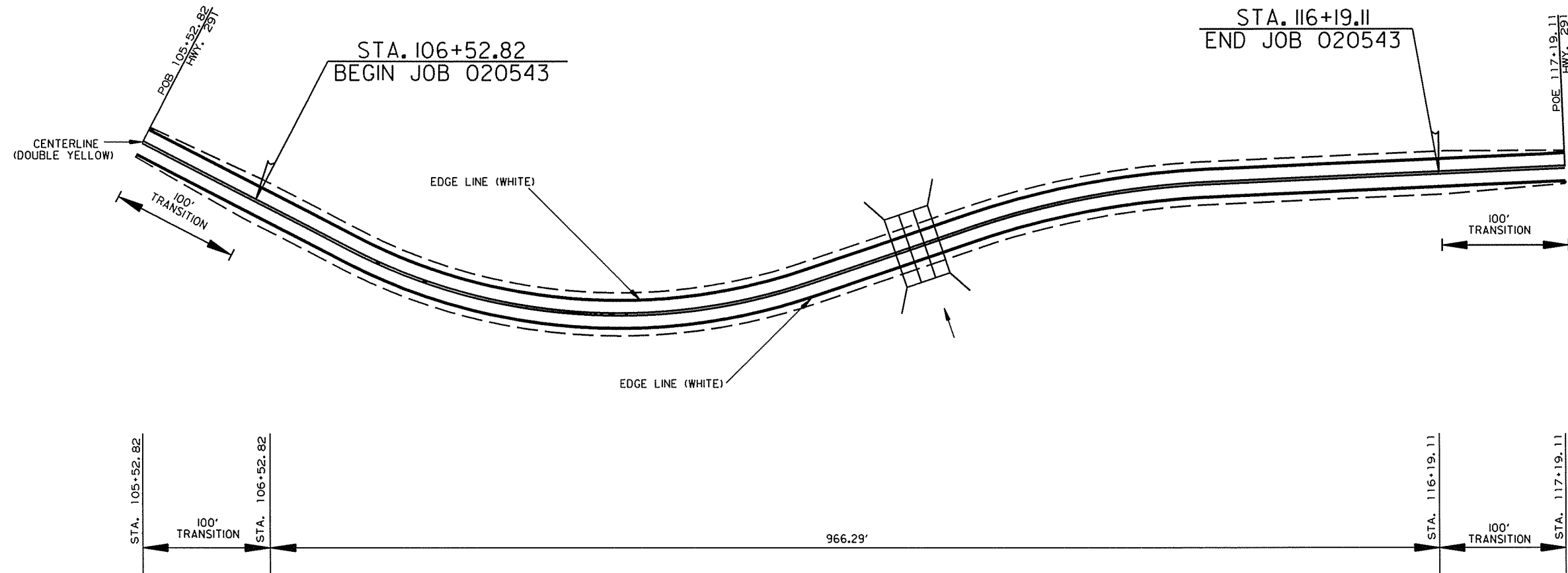
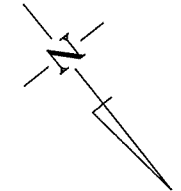
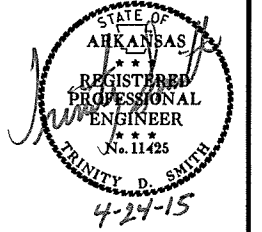
STAGE 3
 MAINTENANCE OF TRAFFIC DETAILS

4/8/2015

r020543.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		21	57

② PERMANENT PAVEMENT MARKING DETAILS



DETOUR
CONSTRUCTION PAVEMENT MARKINGS
RT. AND LT. EDGE LINES = 1918 LIN. FT.
DBL. CENTERLINE = 1918 LIN. FT.

FINAL STRIPING

REFLECTORIZED PAINT PAVEMENT MARKINGS:
RT. AND LT. EDGE LINES = 2333 LIN. FT. WHITE
DBL. CENTERLINE = 2333 LIN. FT. YELLOW

THE 4" 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.

TOTALS
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 1408 LIN. FT.

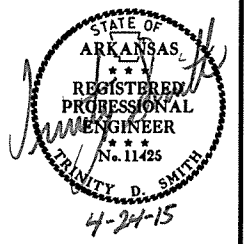
PERMANENT PAVEMENT MARKING DETAILS

4/20/2015

r020543.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		22	57
				JOB NO.		020543		

2 QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES, CONSTRUCTION PAVEMENT MARKINGS, AND PERMANENT PAVEMENT MARKINGS

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS EACH	VERTICAL PANELS EACH	BARRICADES (TYPE III)		REMOVAL OF PERMANENT PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS LIN. FT.	CONSTRUCTION PAVEMENT MARKINGS	REFLECTORIZED PAINT PAVEMENT MARKING		
								NO.	SQ.FT.			RIGHT	LEFT				WHITE (4")	YELLOW (4")	
W20-1	ROAD WORK 1500 FT.	48"X48"	2	2	2	2	2	2	32.0										
W20-1	ROAD WORK 1000 FT.	48"X48"	2	2	2	2	2	2	32.0										
W20-1	ROAD WORK 500 FT.	48"X48"	2	2	2	2	2	2	32.0										
G20-2	END ROAD WORK	48"X24"	2	2	2	2	2	2	16.0										
R11-2	ROAD CLOSED	48"X30"	2	2	2	2	2	2	20.0										
R4-1	DO NOT PASS	24"X30"	2	2	2	2	2	2	10.0										
RSP-1	SHOULDER CLOSED	48"X30"	2	2	2	2	2	2	20.0										
W1-4	CURVE	48"X48"		2		2	2	2	32.0										
W1-6	ARROW	48"X24"	2	2	2	2	2	2	16.0										
W1-8	CHEVRON	18"X24"		8		8	8	8	64.0										
W13-1	SPEED LIMIT	24"X24"	2	2	2	2	2	2	8.0										
OM-3L	OBJECT MARKER LT.	12"X36"		2		2	2	2	6.0										
OM-3R	OBJECT MARKER RT.	12"X36"		2		2	2	2	6.0										
	TRAFFIC DRUMS		30	48			48			48									
	VERTICAL PANELS		9				9				9								
	TYPE III BARRICADE-RT. (8')		2	4			4					32							
	TYPE III BARRICADE-LT. (8')		2	4			4						32						
	REMOVAL OF PERMANENT PAVEMENT MARKINGS												1408						
	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS													1566					
	CONSTRUCTION PAVEMENT MARKINGS														3836				
	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")																2333		
	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")																	2333	
TOTALS:									294.0	48	9	32	32	1408	1566	3836	2333	2333	

THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

* THE 4" 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.

4/20/2015
R020543.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 020543	23	57

② QUANTITIES



CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
106+52	116+19	10	10
TOTALS:		10	10

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING CU.YD.
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.	50
TOTAL:	50

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
ENTIRE PROJECT	2	2
TOTALS:	2	2

BENCH MARKS

LOCATION	BENCH MARKS EACH
STA. 112+00 R.C. BOX CULVERT HEADWALL ON RT.	1

SHOWN FOR INFORMATIONAL PURPOSES ONLY. BENCH MARKS TO BE FURNISHED, PLACED AND RECORDED BY STATE FORCES.

SOIL STABILIZATION

LOCATION	SOIL STABILIZATION TON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER	100
TOTAL:	100

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

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO SOIL CLASS	COLOR
109+00	6' RT.	0-5	16	4	A-4(0)	BROWN
109+00	24' RT.	0-5	ND	NP	A-4(0)	BROWN
115+00	5' LT.	0-5	26	11	A-6(6)	BROWN
115+00	21' LT.	0-5	23	9	A-4(4)	BROWN
109+00	24' RT.	0-5'	24	10	A-4(3)	BROWN

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

4" PIPE UNDERDRAINS

LOCATION	4" PIPE UNDERDRAINS LIN.FT.	UNDERDRAIN OUTLET PROTECTORS EACH
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER	500	4
TOTALS:	500	4

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		24	57

② QUANTITIES

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

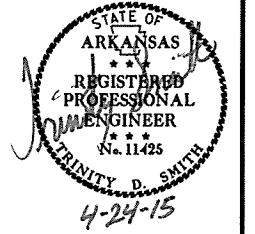
LOCATION	ASPHALT CONC. PATCHING FOR MAINT. OF TRAFFIC	TACK COAT
	TON	GALLON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	5	9
TOTALS:	5	9

BASIS OF ESTIMATE:
 ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC = 25 TONS PER MI.
 TACK COAT = 50 GAL. PER MI.
 QUANTITIES ESTIMATED.
 SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

ACHM PATCHING OF EXISTING ROADWAY

LOCATION	ACHM PATCHING OF EXISTING ROADWAY
	TON
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER.	50
TOTAL:	50

QUANTITY ESTIMATED.
 SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.



FENCING ITEMS

STATION	STATION	SIDE	REMOVAL AND DISPOSAL OF FENCE	WIRE FENCE (TYPE D)
			LIN. FT.	LIN. FT.
111+26	111+80	LT.	126	140
TOTALS:			126	140

REMOVAL OF EXISTING BRIDGE STRUCTURE

STATION	STATION	DESCRIPTION	LUMP SUM
111+78.46	112+17.41	BRIDGE NO. M3245 CONSISTING OF CONC. DECK W / ASPHALT OVERLAY, 2 SPAN TIMBER SUBSTRUCTURE (SITE NO. 1)	1.00
TOTAL:			1.00

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	DESCRIPTION	SIDE	GUARDRAIL	PIPE CULVERTS
				LIN. FT.	EACH
109+06		18"X22' CM SIDE DRAIN	RT.		1
110+64		18"X24' CM SIDE DRAIN	LT.		1
111+04	111+80	GUARDRAIL AT EX. BRIDGE END	RT.	76	
111+52	111+78	GUARDRAIL AT EX. BRIDGE END	LT.	26	
112+19	112+44	GUARDRAIL AT EX. BRIDGE END	RT.	25	
112+16	112+92	GUARDRAIL AT EX. BRIDGE END	LT.	76	
114+77		20"X7"X22' ARCH CM SIDE DRAIN	LT.		1
TOTALS:				203	3

NOTE: QUANTITIES SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL INCLUDE THE REMOVAL AND DISPOSAL OF ANY TERMINAL ANCHOR POST.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	DESCRIPTION	LENGTH	WIDTH	COLD MILLING ASPHALT PAVEMENT
			LIN. FT.		SQ. YD.
105+52.82	106+52.82	MAIN LANES	100	22	244
116+19.11	117+19.11	MAIN LANES	100	22	244
TOTAL:					488

TEMPORARY CULVERTS

STATION	DESCRIPTION	18" TEMPORARY CULVERT	72" TEMPORARY CULVERT
		LIN. FT.	
107+86	INSTALL 18" TEMPORARY CULVERT LT. SIDE DRAIN	34	
109+30	INSTALL 18" TEMPORARY CULVERT LT. SIDE DRAIN	42	
110+93	INSTALL 18" TEMPORARY CULVERT LT. SIDE DRAIN	42	
205+72	INSTALL DBL. 72" X 87' TEMPORARY CULVERT DETOUR LANES		174
TOTALS:		118	174

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		25	57
				JOB NO. 020543				

PERMANENT EROSION CONTROL

STATION	STATION	LOCATION	SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION
			ACRE	TON	ACRE	M. GAL.	ACRE
106+52.82	116+19.11	MAIN LANES	1.34	3	1.34	136.7	1.34
ENTIRE	PROJECT	DETOUR OBLITERA	1.41	3	1.41	143.8	1.41
ENTIRE	PROJECT	IF AND WHERE DIR BY THE ENGINEER	1.00	2	1.00	102.0	1.00
TOTALS:			3.75	8	3.75	382.5	3.75

BASIS OF ESTIMATE:

LIME 2 TONS PER ACRE SEEDING;
WATER 102.0 M.GAL. PER ACRE SEEDING

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

② QUANTITIES



DRIVEWAYS & TURNOUTS- BASE & SURFACING

STATION	SIDE	LOCATION	DESCRIPTION	WIDTH	EXTENSION LENGTH	TURNOUT AREA	TOTAL DRIVEWAY AREA	AGGREGATE BASE COURSE (CLASS 7) (9" COMP. DEPTH)	ACHM SURFACE COURSE (1/2") (PG 64-22) (220 LB./SQ. YD.)	18" SIDE DRAIN
				LIN. FT.	LN.	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.
106+56	LT.	MAIN LANES	DRIVEWAY	20	8	64	82	43.05	7.04	34
107+86	LT.	MAIN LANES	DRIVEWAY	16	15	55	82	43.05	6.05	34
109+03	LT.	MAIN LANES	DRIVEWAY	16	15	55	82	43.05	6.05	30
109+14	RT.	MAIN LANES	DRIVEWAY	16	15	55	82	43.05	6.05	38
110+93	RT.	MAIN LANES	DRIVEWAY	16	42	55	130	68.25	6.05	56
114+77	LT.	MAIN LANES	DRIVEWAY	16	14	55	80	42.00	6.05	28
TOTALS:							538	282.45	37.29	220

BASIS OF ESTIMATE:

VOLUME CONTROL: ACHM SURFACE COURSE (1/2"): MIN. AGGR. 94.7%, ASPHALT BINDER (PG 64-22) 5.3%

Nmax= 115 GYRATIONS FOR PG 64-22

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

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

DUMPED RIPRAP & FILTER BLANKET

STATION	STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
			CU. YD.	SQ. YD.
ENTIRE	PROJECT	DETOUR LANES	22	43
TOTALS:			22	43

TEMPORARY EROSION CONTROL

STATION	STATION	LOCATION	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	*SEDIMENT BASIN (E-14)	*OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL AND DISPOSAL	TEMPORARY SEEDING	MULCH COVER	WATER
			BAG	CU. YD.	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	ACRE	ACRE
100+04.92	132+21.10	MAIN LANES STAGE 1	44	9	1600	32	32		1.05	1.05	21.4
100+04.92	132+21.10	MAIN LANES STAGE 2	308	30							
ENTIRE	PROJECT	IF AND WHERE DIRECTED BY THE ENGINEER	22					100	1.00	1.00	20.4
TOTALS :			374	39	1600	32	32	100	2.05	2.05	41.8

BASIS OF ESTIMATE:

WATER20.4 M.G. / ACRE OF TEMPORARY SEEDING

SAND BAG DITCH CHECKS..... 22 BAGS / LOCATION

ROCK DITCH CHECKS3 CU. YD./ LOCATION

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

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

QUANTITIES

4/21/2015

R020543.DGN

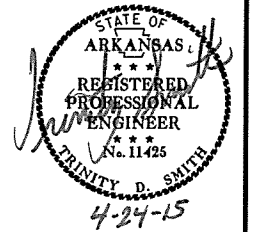
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				6	ARK.			
				JOB NO.	020543		26	57

② QUANTITIES

EARTHWORK

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	CU. YD.
106+52.82	116+19.11	MAIN LANES	2240	709
ENTIRE PROJECT		DETOUR CONSTRUCTION	105	5105
ENTIRE PROJECT		DETOUR REMOVAL	5834	56
ENTIRE PROJECT		DRIVEWAYS		107
ENTIRE PROJECT		TEMPORARY DRIVEWAYS		100
TOTALS:			8179	6077

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



STRUCTURES OVER 20'-0" SPAN

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	CLASS "S" CONCRETE - ROADWAY	REINFORCING STEEL ROADWAY - (GRADE 60)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER	DUMPED RIPRAP	FILTER BLANKET	STANDARD DRAWINGS NUMBERS
					CU. YD.	POUND	CU. YD.	SQ. YD.	M. GAL.	CU. YD.	SQ. YD.	
112+00	CONST. TRP. R.C. BOX CULVERT W/3:1 WINGS LT. & RT.	12	8	56	252.69	29690	107	19	0.2	26	50	RCB-1, RCB-2, PBC-1, SPECIAL DETAILS
TOTALS:					252.69	29690	107	19	0.2	26	50	

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)			TACK COAT			ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")				
				LIN. FT.	TONS/STA.	TON	AVERAGE WIDTH	SQ. YD.	GAL. PER SQ. YD.	GALLON	AVERAGE WIDTH	SQ. YD.	LBS. PER SQ. YD.	(PG 64-22) TON	AVERAGE WIDTH	SQ. YD.	LBS. PER SQ. YD.	(PG 64-22) TON
105+52.82	106+52.82	MAIN LANES TRANSITION	100.00	54.25	54.25	22.00	244.44	0.10	24.44				22.00	244.44	220.00	26.89		
106+52.82	111+54.00	MAIN LANES - NOTCH & WIDEN	501.18	108.50	543.78								26.00	1447.85	220.00	159.26		
111+54.00	112+42.00	MAIN LANES - FULL DEPTH	88.00	208.25	183.26	22.29	217.95	0.03	6.54	22.29	217.95	330.00	35.96	254.22	220.00	27.96		
112+42.00	116+19.11	MAIN LANES - NOTCH & WIDEN	377.11	108.50	409.16								26.00	1089.43	220.00	119.84		
116+19.11	117+19.11	MAIN LANES TRANSITION	100.00	54.25	54.25	22.00	244.44	0.10	24.44				22.00	244.44	220.00	26.89		
201+40.65	210+11.38	DETOUR LANES	870.73	148.75	1295.21								24.00	2321.95	330.00	383.12		
ENTIRE PROJECT		MAIN LANES - LEVELING	500.00			22.00	1222.22	0.10	122.22				22.00	1222.22	220.00	134.44		
ENTIRE PROJECT		ADDITIONAL FOR TEMPORARY DRIVEWAYS			100.00													
ENTIRE PROJECT		ADDITIONAL FOR SUPERELEVATION			685.00													
ENTIRE PROJECT		MAIN LANES - METHOD OF RAISING GRADE	200.00			22.00	488.89	0.10	48.89	22.00	488.89	220.00	53.78					
TOTALS:					3324.91		2417.94		226.53		706.84		89.74	6824.55		878.40		

VOLUME CONTROL: ACHM SURFACE COURSE (1/2"): MIN. AGGR. 94.7%, ASPHALT BINDER (PG 64-22) 5.3%
 ACHM BINDER COURSE (1"): MIN. AGGR. 95.7%, ASPHALT BINDER (PG 64-22) 4.3%
 NMAX= 115 GYRATIONS FOR PG 64-22

4/20/2015

R020543.DGN

QUANTITIES

SUMMARY OF QUANTITIES

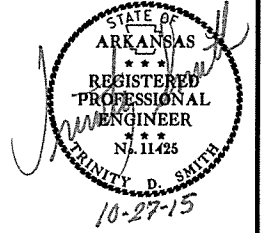
ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	10	STATION
201	GRUBBING	10	STATION
202	REMOVAL AND DISPOSAL OF FENCE	126	LIN. FT.
202	REMOVAL AND DISPOSAL OF GUARDRAIL	203	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	3	EACH
210	UNCLASSIFIED EXCAVATION	8179	CU.YD.
210	COMPACTED EMBANKMENT	6077	CU.YD.
SP& 210	SOIL STABILIZATION	100	TON
303	AGGREGATE BASE COURSE (CLASS 7)	3607	TON
SS& 401	TACK COAT	236	GALLON
SP,SS& 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	86	TON
SP,SS& 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	4	TON
SP,SS& 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	867	TON
SP,SS& 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	49	TON
412	COLD MILLING ASPHALT PAVEMENT	488	SQ.YD.
SP& 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	5	TON
SP& 415	ACHM PATCHING OF EXISTING ROADWAY	50	TON
601	MOBILIZATION	1.00	LUMP SUM
SP& 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	18" TEMPORARY CULVERT	118	LIN. FT.
603	72" TEMPORARY CULVERT	174	LIN. FT.
SS& 604	SIGNS	294	SQ.FT.
SS& 604	BARRICADES	64	LIN.FT.
SS& 604	TRAFFIC DRUMS	48	EACH
SS& 604	VERTICAL PANELS	9	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	3836	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	1408	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	1566	LIN. FT.
SP,SS&606	18" SIDE DRAIN	220	LIN.FT.
606	SELECTED PIPE BEDDING	50	CU.YD.
611	4" PIPE UNDERDRAINS	500	LIN.FT.
611	UNDERDRAIN OUTLET PROTECTORS	4	EACH
619	WIRE FENCE (TYPE D)	140	LIN. FT.
620	LIME	8	TON
620	SEEDING	3.75	ACRE
SS& 620	MULCH COVER	5.80	ACRE
620	WATER	424.5	M.GAL.
621	TEMPORARY SEEDING	2.05	ACRE
621	SILT FENCE	1600	LIN.FT.
621	SAND BAG DITCH CHECKS	374	BAG
621	ROCK DITCH CHECKS	39	CU. YD.
621	SEDIMENT BASIN	32	CU.YD.
621	OBLITERATION OF SEDIMENT BASIN	32	CU.YD.
621	SEDIMENT REMOVAL AND DISPOSAL	100	CU.YD.
623	SECOND SEEDING APPLICATION	3.75	ACRE
624	SOLID SODDING	19	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	2	EACH
637	MAILBOX SUPPORTS (SINGLE)	2	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")	2333	LIN.FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")	2333	LIN.FT.
816	FILTER BLANKET	93	SQ. YD.
816	DUMPED RIPRAP	48	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	107	CU. YD.
802	CLASS S CONCRETE - ROADWAY	252.69	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	29690	POUND

REVISIONS

DATE	REVISION	SHEET NUMBER(S)
10/21/15	ADD SUPPLEMENTAL SPECIFICATION "401-1 TACK COATS" AND ADDED SS& TO PAY ITEM "TACK COAT"	2, 27

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10-21-15				6	ARK.			
						020543	27	57

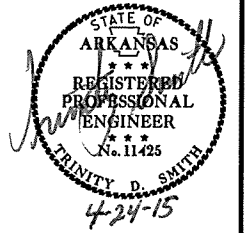
2 SUMMARY OF QUANTITIES AND REVISIONS



10/21/2015
R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	020543
								28
								57

2 SURVEY CONTROL DETAILS



SURVEY CONTROL COORDINATES

Project Name: s020543
 Date: 7/8/2013
 Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL,
 270011 - 270011A PROJECTED TO GROUND.
 Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1884372.2204	1150351.5572	216.509	CTL	+5/8" Rebar with 2" Aluminum Cap stamped PN: 1
2	1884760.3496	1149805.2905	216.950	CTL	+5/8" Rebar with 2" Aluminum Cap stamped PN: 2
3	1885211.3312	1149560.2505	209.647	CTL	+5/8" Rebar with 2" Aluminum Cap stamped PN: 3
4	1885420.0460	1149084.5758	201.314	CTL	+5/8" Rebar with 2" Aluminum Cap stamped PN: 4
5	1885799.2865	1148531.9125	230.540	CTL	+5/8" Rebar with 2" Aluminum Cap stamped PN: 5
6	1886337.0585	1148072.1631	235.968	CTL	+5/8" Rebar with 2" Aluminum Cap stamped PN: 6
100	1893698.3705	1146654.4898	236.605	GPS	+AHTD CAP GPS 270011
101	1891399.0837	1146484.6723	245.423	GPS	+AHTD CAP GPS 270011A
1500	1885386.8642	1149130.1537	200.353	RP	+60 D MAG NL RESECT REFERENCE
1501	1885410.6302	1149145.5820	199.934	RP	+60 D MAG NL RESECT REFERENCE
1502	1885471.3564	1149058.7706	201.941	RP	+RESECT REFERENCE
1503	1885447.7884	1149044.9084	202.211	RP	+60 D MAG NL RESECT REFERENCE
1504	1885842.0301	1148505.0792	231.474	RP	+RESECT REFERENCE
1505	1885860.1587	1148528.8842	231.644	RP	+RESECT REFERENCE
1506	1885812.1796	1148598.4282	231.473	RP	+RESECT REFERENCE
1507	1885781.4850	1148582.0618	230.747	RP	+RESECT REFERENCE
1508	1885241.2177	1149516.4648	207.596	RP	+RESECT REFERENCE
1509	1885192.6676	1149586.0517	210.808	RP	+RESECT REFERENCE
1510	1885174.2320	1149560.6555	208.719	RP	+RESECT REFERENCE
1511	1885214.7435	1149502.0975	206.349	RP	+RESECT REFERENCE
1512	1884713.1895	1149840.9665	216.865	RP	+RESECT REFERENCE
1513	1884731.9971	1149861.6543	215.806	RP	+RESECT REFERENCE
1514	1884806.0625	1149811.1150	215.875	RP	+RESECT REFERENCE
1515	1884790.9622	1149786.0638	216.732	RP	+RESECT REFERENCE
1516	1884394.2692	1150323.4428	216.623	RP	+RESECT REFERENCE
1517	1884369.5901	1150303.9772	216.665	RP	+RESECT REFERENCE
1518	1884317.1946	1150372.5070	216.708	RP	+RESECT REFERENCE
1519	1884351.1856	1150401.5275	216.247	RP	+RESECT REFERENCE

C.L. CONST.

POINT NAME	STATION	POINT TYPE	EASTING	NORTHING	ELEVATION
8000	105+52.82	POB	1149768.63	1884850.69	0.00
8001	107+08.66	P. I.	1149705.11	1884992.99	215.39
8002	107+36.15	P. C.	1149693.90	1885018.09	214.91
8003	111+09.74	P. T.	1149427.72	1885265.85	204.56
8004	112+43.67	P. C.	1149301.84	1885311.55	201.84
8005	114+37.22	P. T.	1149131.55	1885402.20	200.76
8006	117+19.11	POE	1148903.81	1885568.32	210.64

C.L. DETOUR

POINT NAME	STATION	POINT TYPE	EASTING	NORTHING	ELEVATION
8007	200+00.00	POB	1149749.40	1884893.77	216.26
8008	200+52.82	P. C.	1149727.87	1884942.00	215.87
8009	203+99.95	P. T.	1149480.55	1885172.21	208.68
8010	205+70.00	P. C.	1149320.70	1885230.23	204.46
8011	207+73.23	P. T.	1149152.62	1885341.12	201.28
8012	209+30.09	P. C.	1149045.40	1885455.62	203.09
8013	210+11.38	P. T.	1148984.60	1885509.39	205.39
8006	211+11.38	POE	1148903.81	1885568.32	210.31

*Note - Rebar and Cap - Standard -" Rebar with 2" Aluminum Cap stamped
 *(standard markings common to all caps), or as indicated
 (other markings indicated in the point description of the individual point).
 ALL DISTANCES ARE GROUND.
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
 A PROJECT CAF OF 0.9999144164 HAS BEEN USED TO COMPUTE THE ABOVE LISTED GROUND COORDINATES.
 THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
 GRID DISTANCE = GROUND DISTANCE X CAF.
 GROUND COORDINATES ARE PROJECTED FROM AR. STATE PLANE GRID COORDINATES BY SCALING ALL X,Y
 COORDINATE VALUES WITH THE INVERSE (1/X) OF THE COMBINED ADJUSTMENT FACTOR (CAF) ABOUT X=0, Y=0.

GRID COORDINATES ARE STORED UNDER FILE NAME: s020543gi.ct1
 HORIZONTAL DATUM: NAD 83 (1997)
 VERTICAL DATUM: NAVD 88 ELEVATIONS FOR POINTS 1-6, 100-101, WERE ESTABLISHED BY 3-WIRE LEVEL TECHNIQUES
 FROM NGS BENCHMARKS.

POSITIONAL ACCURACY:
 HORIZONTAL-GPS(POINTS 100-101): 1.0 CM 10 PPM, PRIMARY CONTROL(POINTS 1-6): 2.0 CM 20 PPM
 VERTICAL-POSITIONAL ACCURACY IS THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT

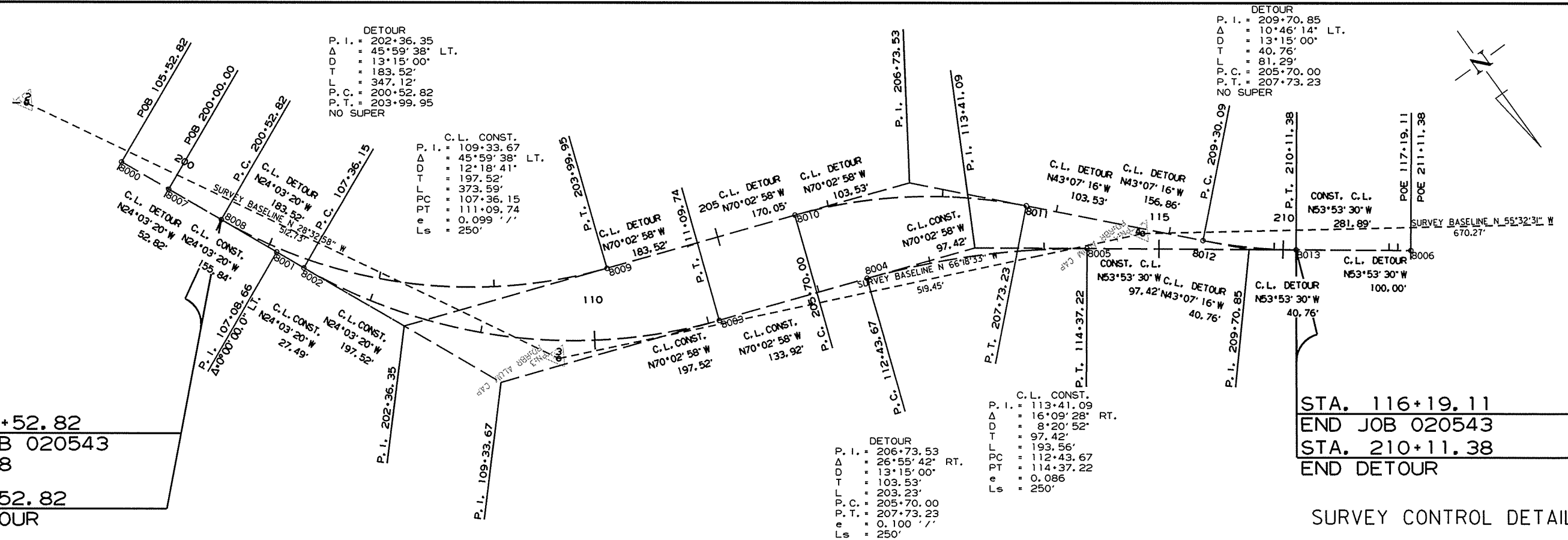
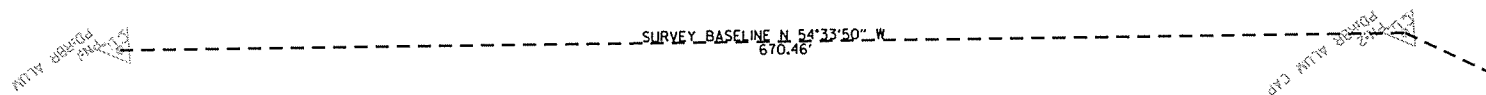
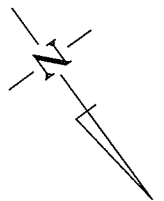
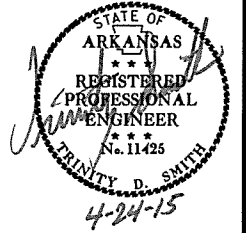
BASIS OF BEARING:
 ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: 270011 - 270011A
 CONVERGENCE ANGLE: 00 18 12.73 LEFT AT PN: 5
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

LT: 34-14-27.5 LG: 092-32-32.4

GRID NORTHING: 1885637.8930 GRID EASTING: 1148433.6170
 GROUND NORTHING: 1885799.2865 GROUND EASTING: 1148531.9125

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 020543							29	57

② SURVEY CONTROL DETAILS



STA. 116+19.11
END JOB 020543
STA. 210+11.38
END DETOUR

SURVEY CONTROL DETAILS

1/29/2014
r020543.dgn

NOTE: THE CONTRACTOR SHALL RECONSTRUCT THE POND BETWEEN STA. 108+85 AND STA. 111+10 ON THE LT. ONCE THE DETOUR HAS BEEN OBLITERATED, AS DIRECTED BY THE ENGINEER. NO DIRECT PAYMENT SHALL BE MADE FOR THIS WORK BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER PAY ITEMS IN THE CONTRACT.

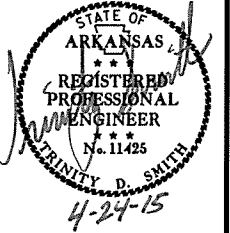
P. I. = 109+33.67
 Δ = 45°59'38" LT.
 T = 12°18'41"
 L = 197.82'
 PC = 373.59'
 PT = 107+36.15
 e = 0.099 %
 Ls = 250'

STA. 111+78.46 - 112+17.41 IN PLACE
 22' CLEAR ROADWAY X 39' LENGTH
 BRIDGE NO. M3245 CONSISTING OF A
 CONCRETE DECK WITH ASPHALT OVERLAY
 AND 2 SPAN TIMBER SUBSTRUCTURE STRINGERS,
 GIRDERS, ABUTMENTS, COLUMNS, CAPS, REMOVE
 AS EXISTING BRIDGE STRUCTURE SITE NO. 1 = 100 LUMP SUM

STA. 114+77 IN PLACE
 20" X 7" X 22' ARCH CM
 PIPE CULVERT LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" X 28' PIPE CULVERT
 LT. SIDE DRAIN
 CONST. APPRS. = 20 CU.YD.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 020543							30	57

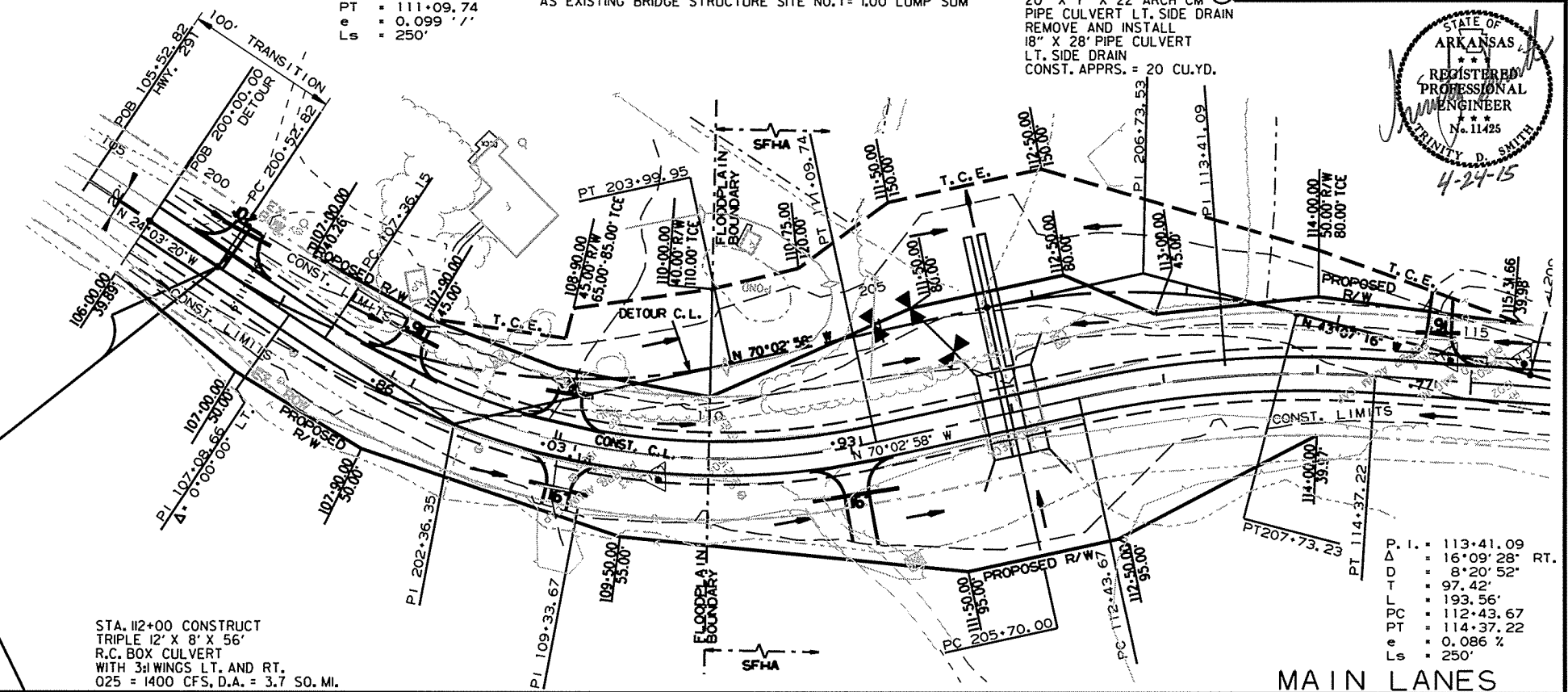
PLAN AND PROFILE



STA. 105+56 INSTALL 18" X 34' PIPE CULVERT LT. SIDE DRAIN CONST. APPRS. = 10 CU.YD.
 STA. 107+86 INSTALL 18" X 34' PIPE CULVERT LT. SIDE DRAIN CONST. APPRS. = 10 CU.YD.
 STA. 109+03 INSTALL 18" X 30' PIPE CULVERT LT. SIDE DRAIN CONST. APPRS. = 10 CU.YD.

FENCE ITEMS

STA.	STA.	SIDE	TYPE (D)
111+26	111+80	LT.	126 LIN.FT.



STA. 106+52.82
 BEGIN JOB 020543
 L.M. 0.58

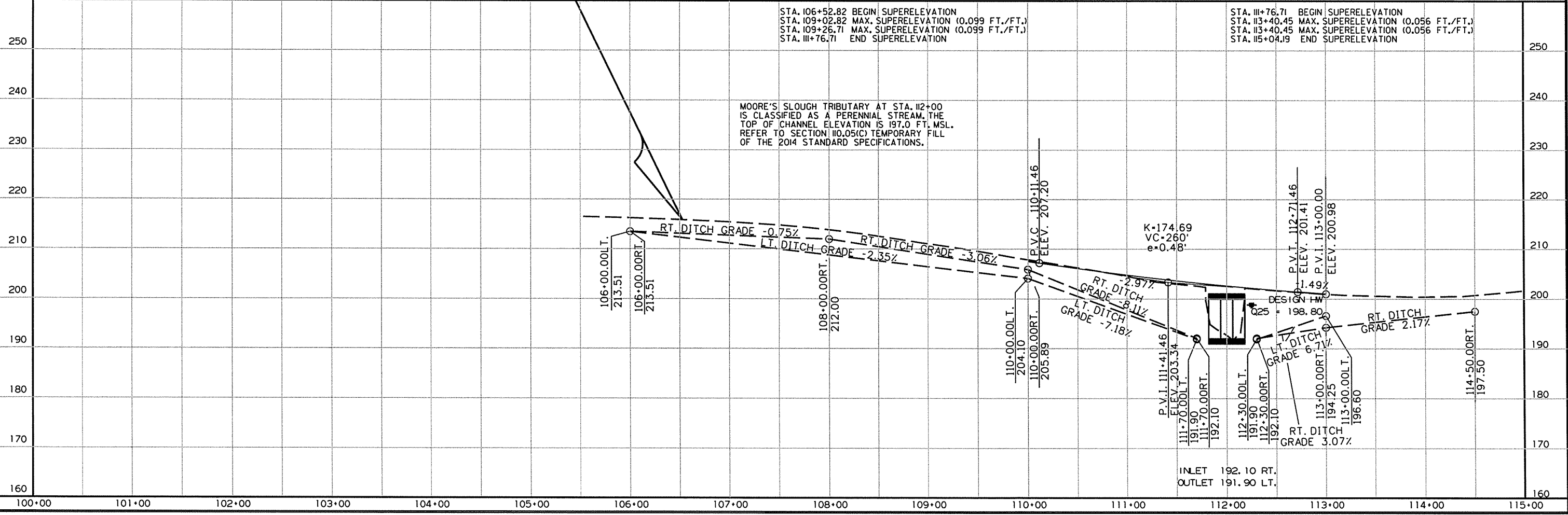
STA. 109+06 IN PLACE
 18" X 22' CM PIPE CULVERT
 RT. SIDE DRAIN
 REMOVE AND INSTALL
 STA. 109+14 18" X 38'
 PIPE CULVERT RT. SIDE DRAIN
 CONST. APPRS. = 15 CU.YD.

STA. 110+64 IN PLACE
 18" X 24' CM PIPE CULVERT
 RT. SIDE DRAIN
 REMOVE AND INSTALL
 STA. 110+93 18" X 56'
 PIPE CULVERT RT. SIDE DRAIN
 CONST. APPRS. = 40 CU.YD.

STA. 112+00 CONSTRUCT
 TRIPLE 12' X 8' X 56'
 R.C. BOX CULVERT
 WITH 3 WINGS LT. AND RT.
 Q25 = 1400 CFS, D.A. = 3.7 SO.MI.

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

MAIN LANES



STA. 106+52.82 BEGIN SUPERELEVATION
 STA. 109+02.82 MAX. SUPERELEVATION (0.099 FT./FT.)
 STA. 109+26.71 MAX. SUPERELEVATION (0.099 FT./FT.)
 STA. 111+76.71 END SUPERELEVATION

STA. 111+76.71 BEGIN SUPERELEVATION
 STA. 113+40.45 MAX. SUPERELEVATION (0.056 FT./FT.)
 STA. 113+40.45 MAX. SUPERELEVATION (0.056 FT./FT.)
 STA. 115+04.19 END SUPERELEVATION

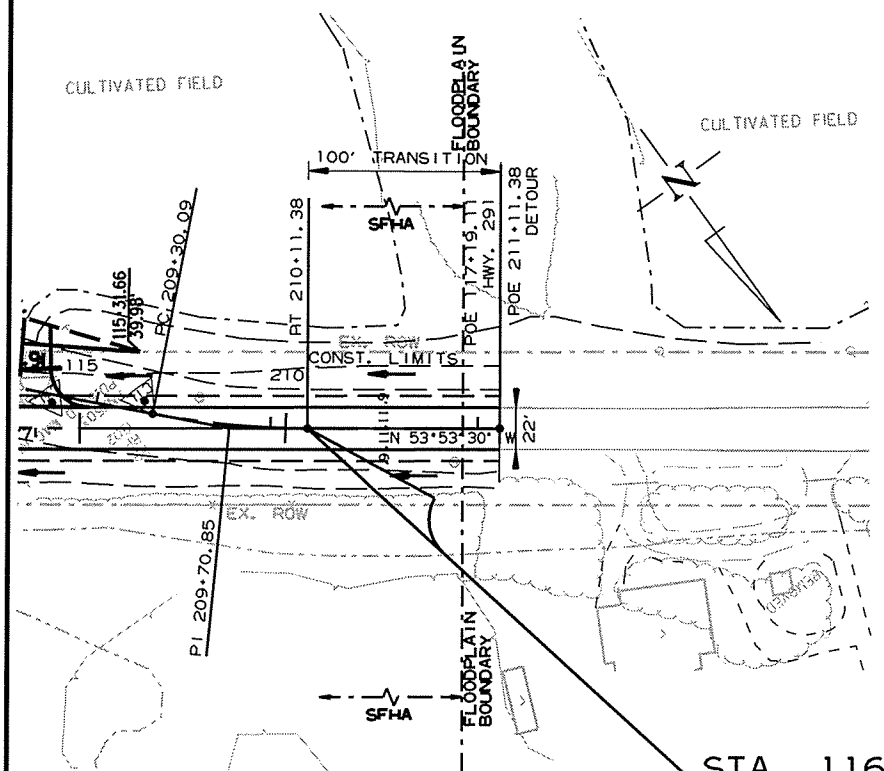
MOORE'S SLOUGH TRIBUTARY AT STA. 112+00
 IS CLASSIFIED AS A PERENNIAL STREAM, THE
 TOP OF CHANNEL ELEVATION IS 197.0 FT. MSL.
 REFER TO SECTION 110.05(C) TEMPORARY FILL
 OF THE 2014 STANDARD SPECIFICATIONS.

4/23/2015

R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020543	31	57

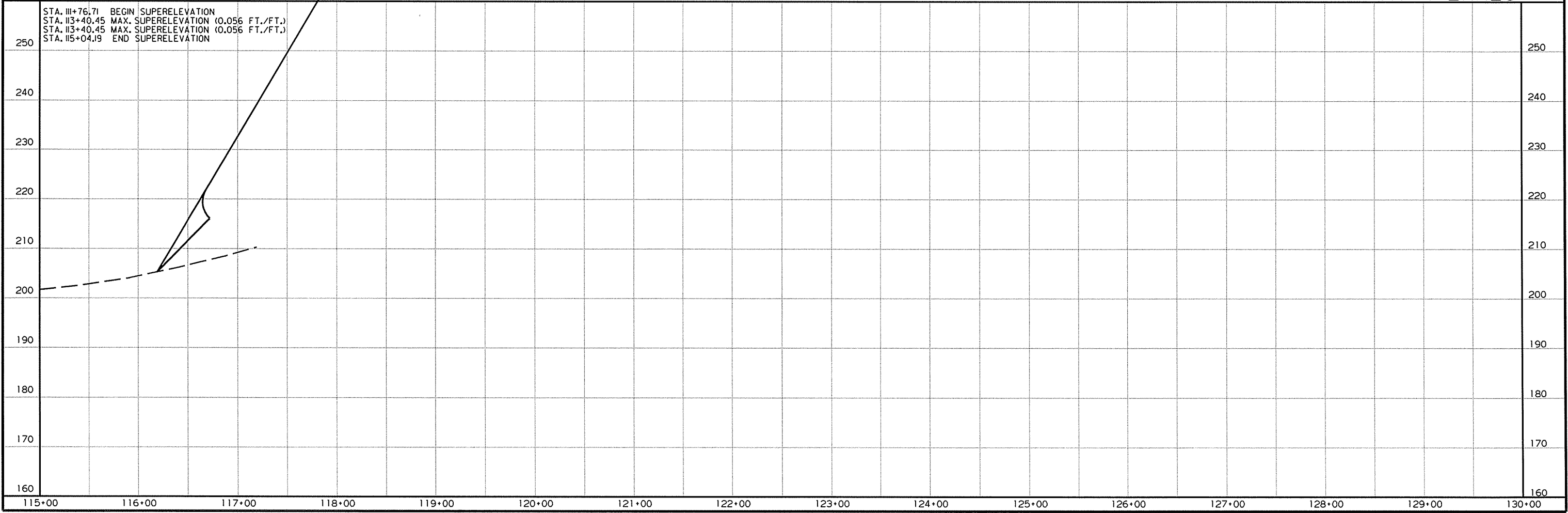
2 PLAN AND PROFILE



STA. 116+19.11
END JOB 020543

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

MAIN LANES



STA. 113+76.71 BEGIN SUPERELEVATION
STA. 113+40.45 MAX. SUPERELEVATION (0.056 FT./FT.)
STA. 113+40.45 MAX. SUPERELEVATION (0.056 FT./FT.)
STA. 115+04.19 END SUPERELEVATION

R020543.DGN 4/22/2015

NOTE: THE CONTRACTOR SHALL RECONSTRUCT THE POND BETWEEN STA. 108+85 AND STA. 111+10 ON THE LT. ONCE THE DETOUR HAS BEEN OBLITERATED, AS DIRECTED BY THE ENGINEER, NO DIRECT PAYMENT WILL BE MADE FOR THIS WORK BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER PAY ITEMS IN THE CONTRACT.

STA. 107+86 INSTALL
18" X 34' TEMP. PIPE
CULVERT LT. SIDE DRAIN
CONST. APPRS. = 15 CU. YD.

STA. 109+30 INSTALL
18" X 32' TEMP. PIPE
CULVERT TEMP. DRWY.
CONST. APPRS. = 15 CU. YD.

STA. 110+93 INSTALL
18" X 42' TEMP. PIPE
CULVERT LT. SIDE DRAIN
CONST. APPRS. = 70 CU. YD.

STA. 200+52.82
BEGIN DETOUR

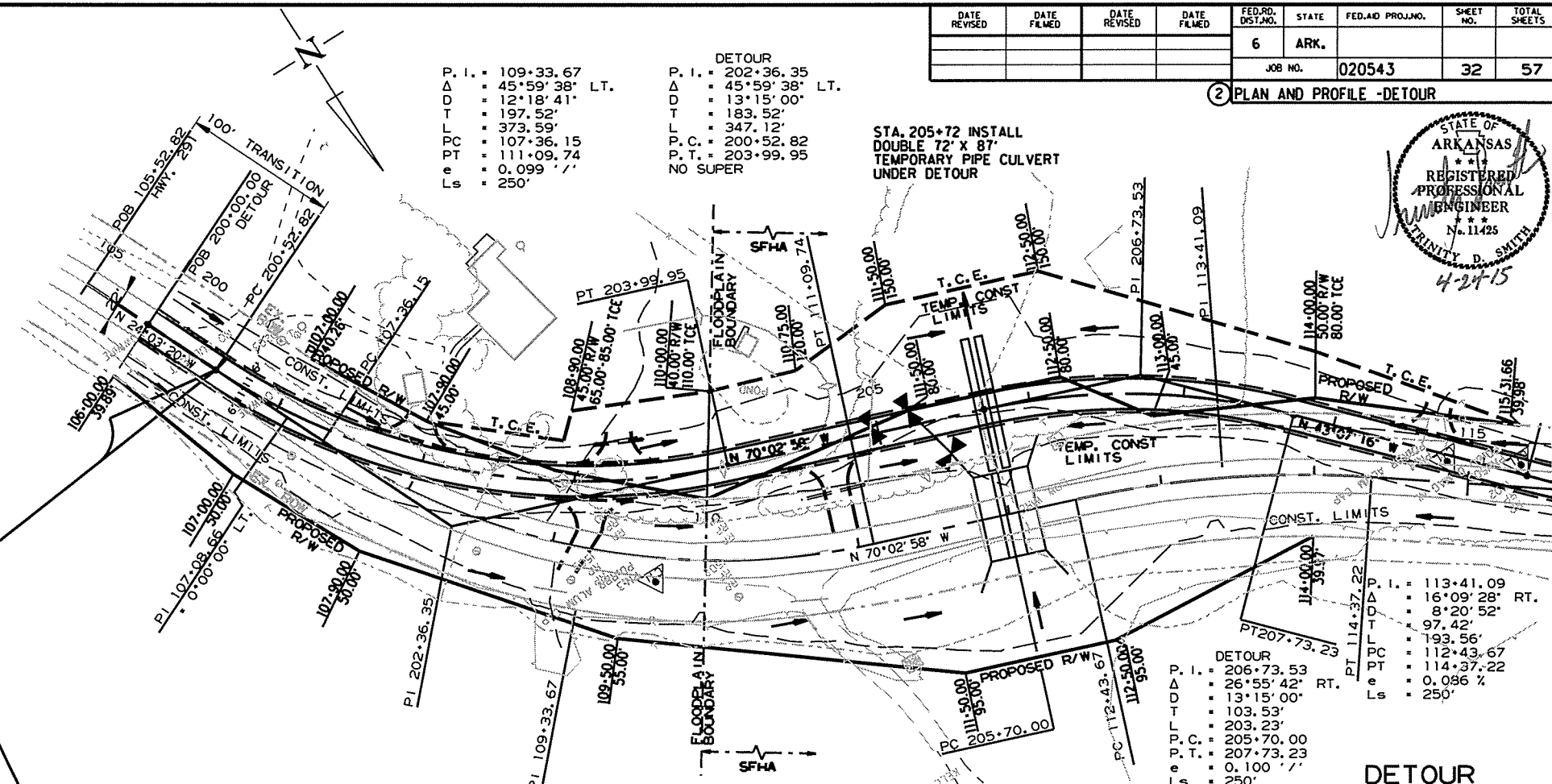
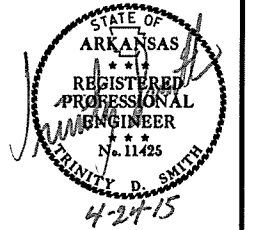
P. I. = 109+33.67
Δ = 45°59'38" LT.
D = 12°18'41"
T = 197.52'
L = 373.59'
PC = 107+36.15
PT = 111+09.74
e = 0.099 %
Ls = 250'

DETOUR
P. I. = 202+36.35
Δ = 45°59'38" LT.
D = 13°15'00"
T = 183.52'
L = 347.12'
P.C. = 200+52.82
P.T. = 203+99.95
NO SUPER

STA. 205+72 INSTALL
DOUBLE 72" X 87"
TEMPORARY PIPE CULVERT
UNDER DETOUR

2 PLAN AND PROFILE -DETOUR

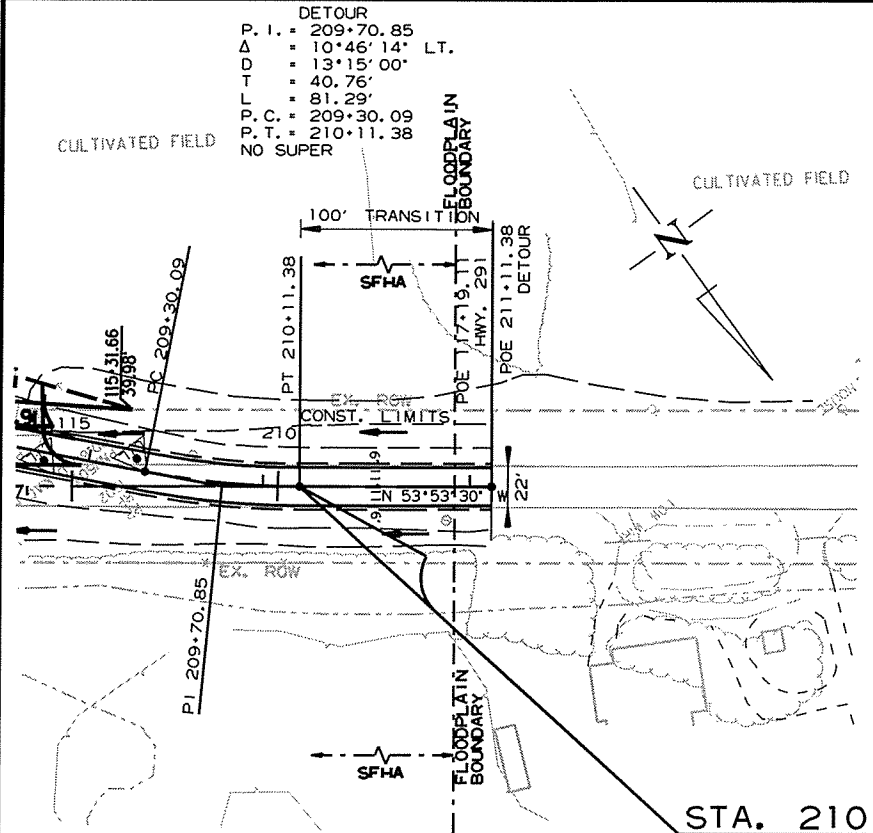
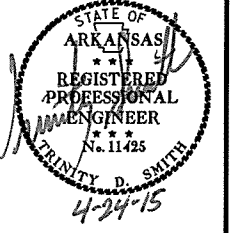
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				6	ARK.			
JOB NO. 020543							32	57



4/23/2015 R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		33	57

2 PLAN AND PROFILE -DETOUR

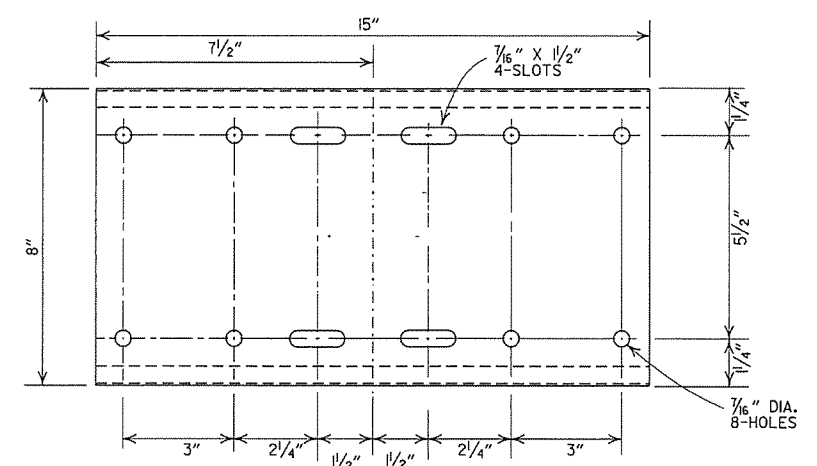


STA. 210+11.38
END DETOUR

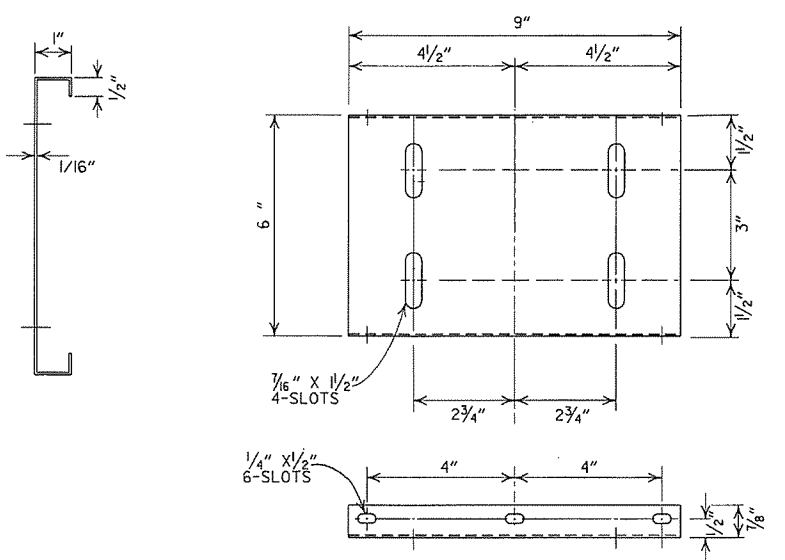
DETOUR



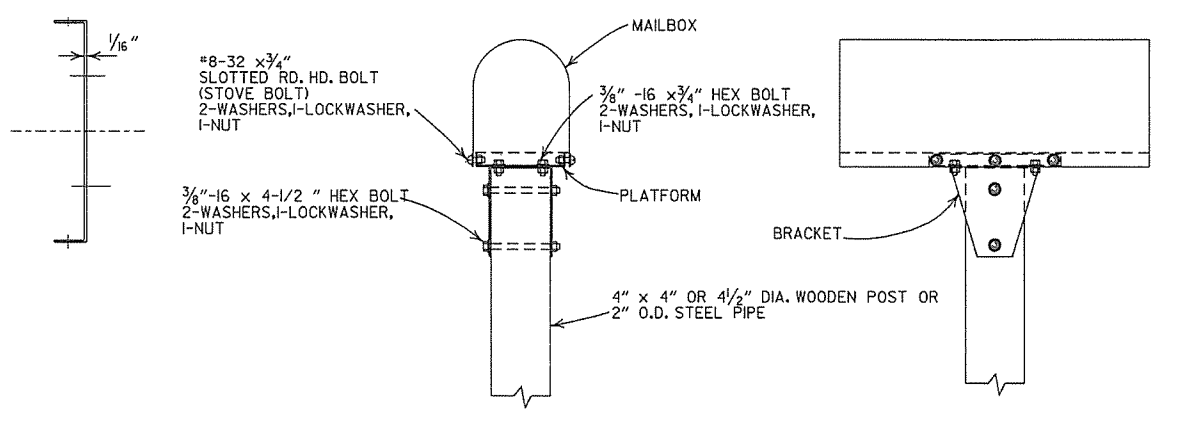
4/22/2015
R020543.DGN



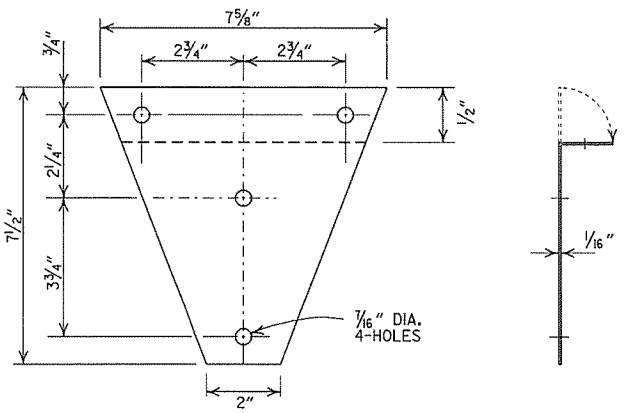
SHELF



PLATFORM

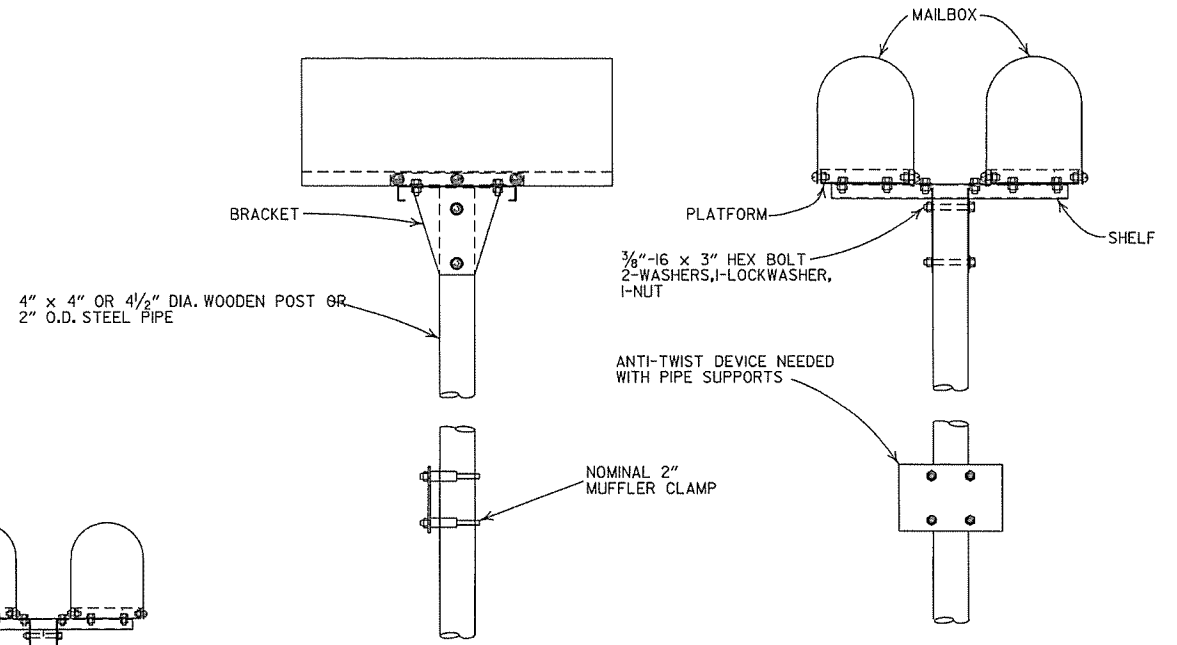


SINGLE INSTALLATION

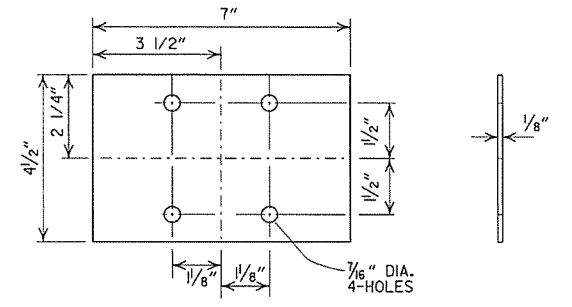


BRACKET

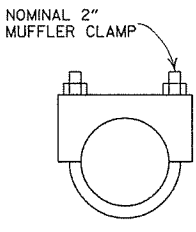
- GENERAL NOTES
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
 2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
 3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF 3/4" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X 3/4" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
 4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
 5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
 6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



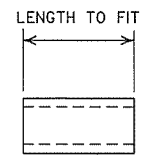
DOUBLE INSTALLATION



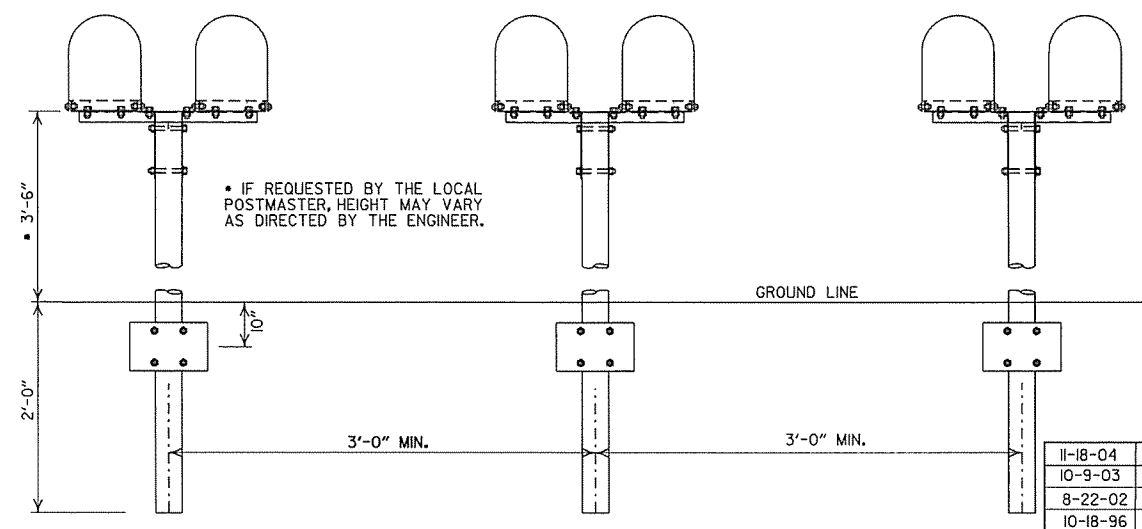
ANTI-TWIST PLATE



CLAMP



SPACER



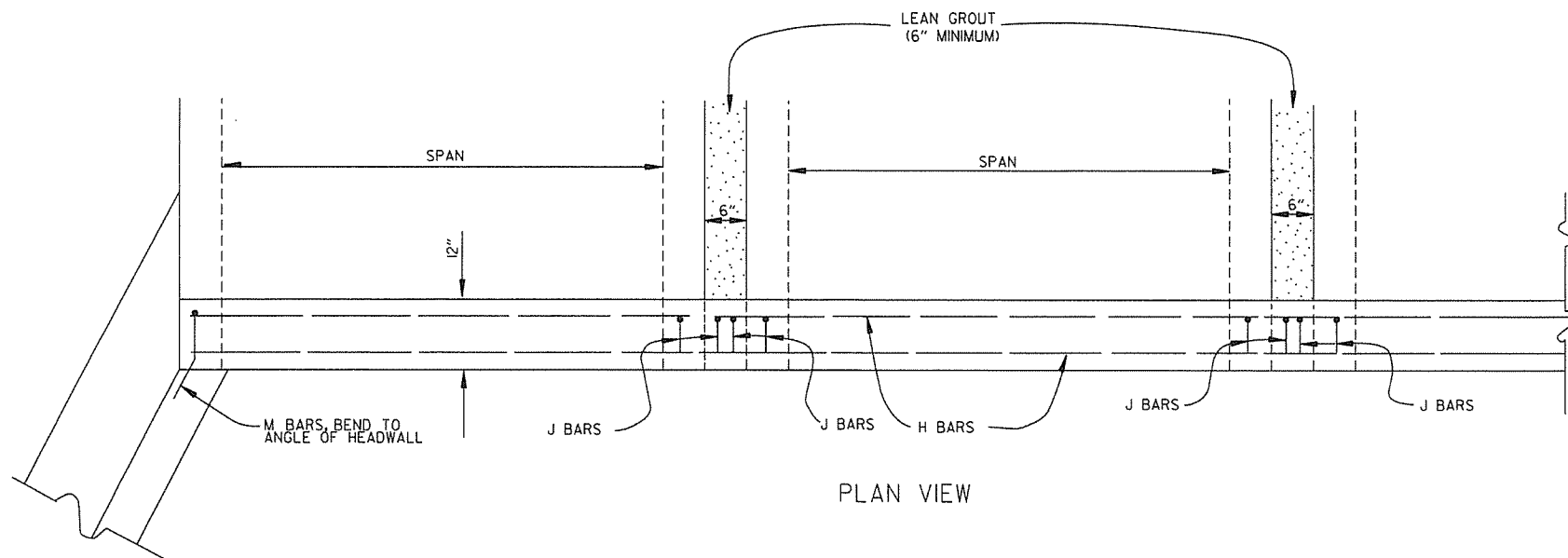
SPACING FOR MULTIPLE POST INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1



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 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.

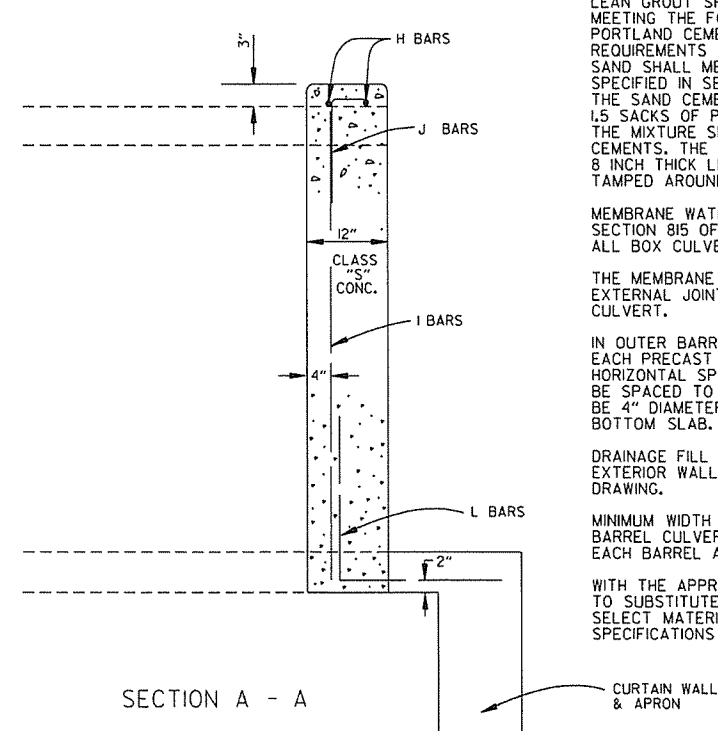
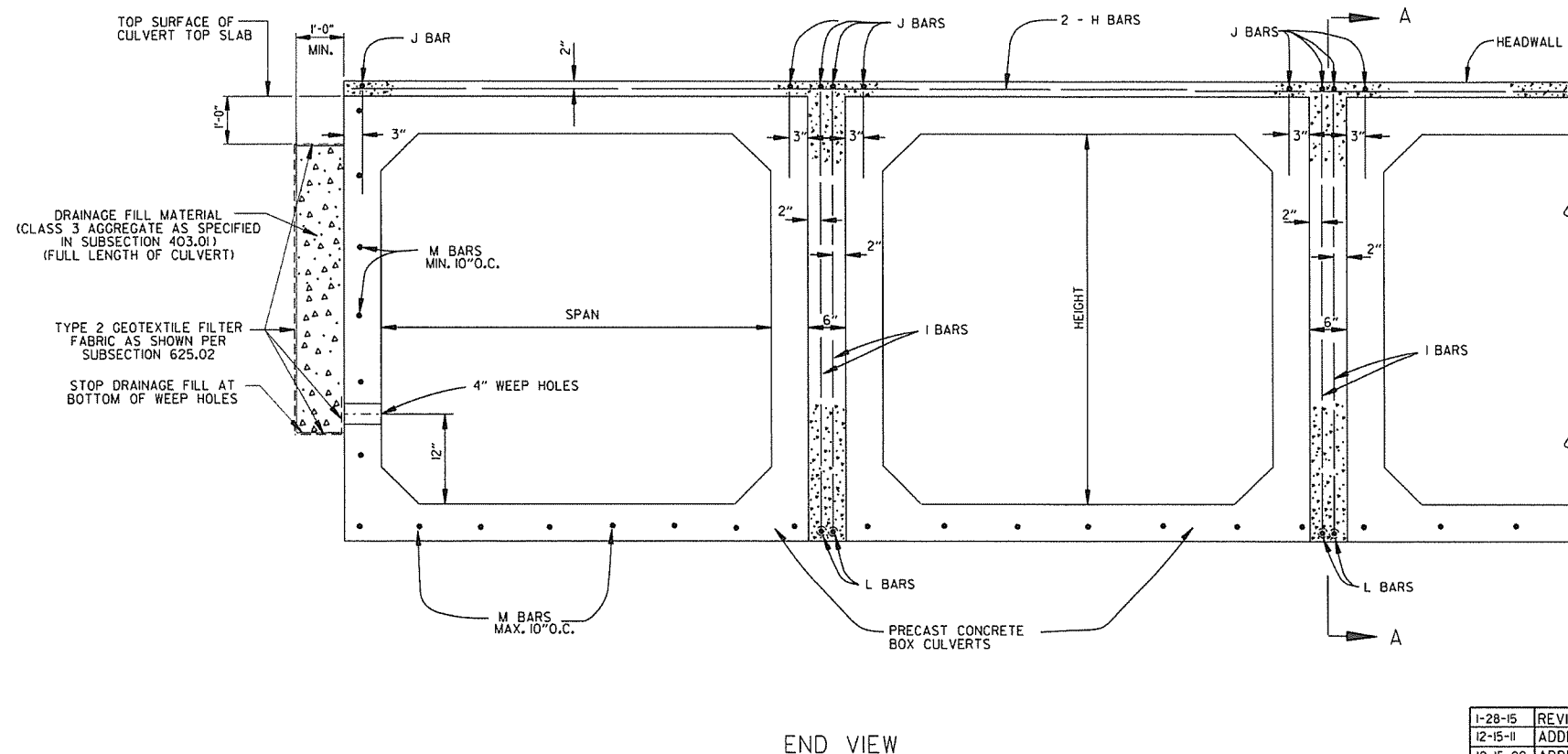
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.



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	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13 1/2	14
21	26	26	15 1/2	16
24	28 1/2	29	18	18
30	36 1/4	36	22 1/2	23
36	43 3/8	44	26 5/8	27
42	51 1/8	51	31 5/8	31
48	58 1/2	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	77 1/2	77
108	138	138	87 1/8	87
120	154	154	96 3/8	97
132	168 3/4	169	106 1/2	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)(ii).

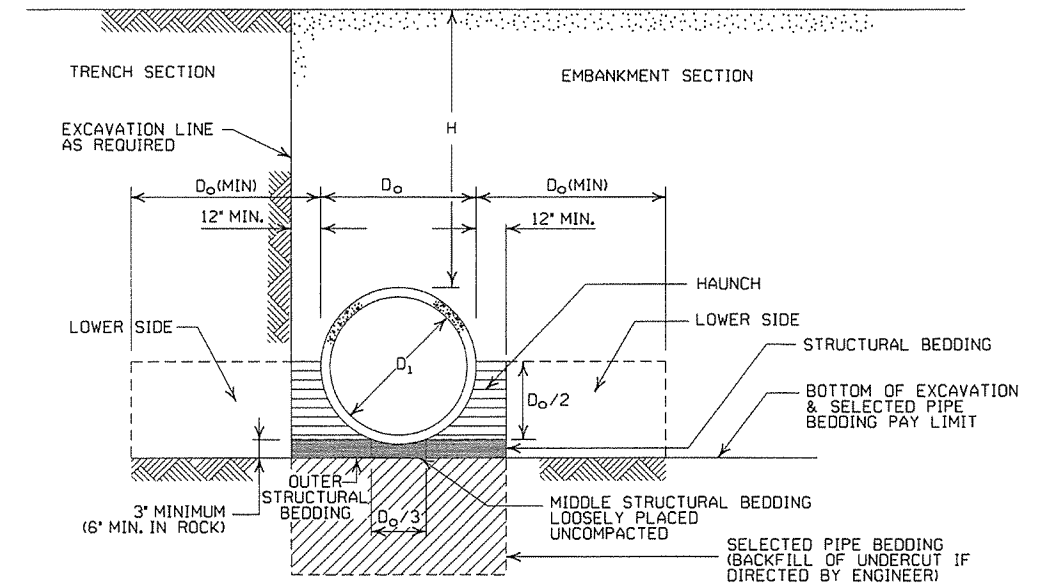
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -

- D_i = NORMAL INSIDE DIAMETER OF PIPE
- D_o = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- [Symbol] = 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 STATE HIGHWAY AND TRANSPORTATION DEPARTMENT 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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① 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 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

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 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM						
12	1	45	45	52		
18	2	30	30	39	41	
24	2	22	22	31	32	34
30	2		18	26	27	28
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

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

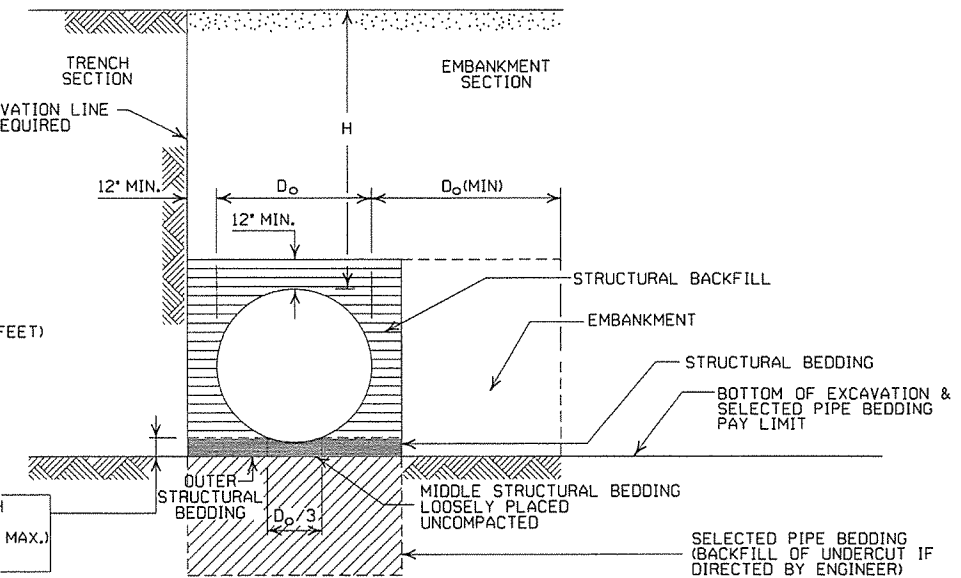
① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

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

- LEGEND -

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

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (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."

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1



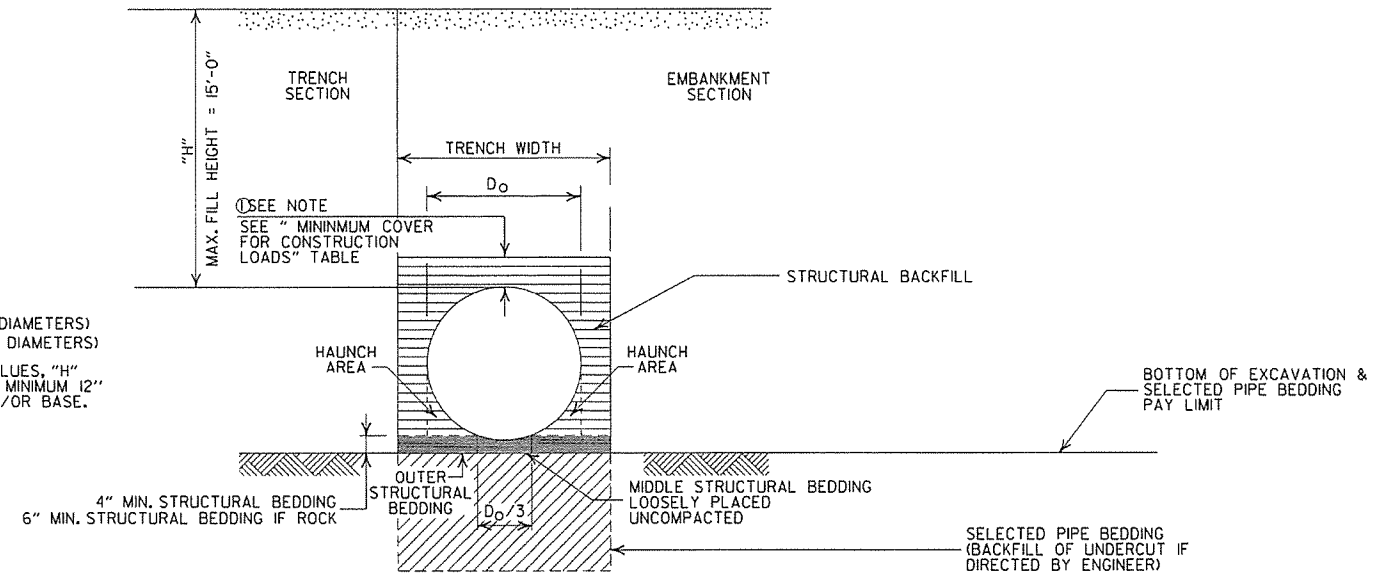
INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1/8 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.



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.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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.

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.)
- Ø = OUTSIDE DIAMETER OF PIPE
- MAX. = MAXIMUM
- MIN. = MINIMUM
- [Hatched pattern] = STRUCTURAL BACKFILL MATERIAL
- [Diagonal lines pattern] = UNDISTURBED SOIL

GENERAL NOTES


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

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1



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

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL. SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 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 PVC PIPE.

MAXIMUM FILL HEIGHT
BASED ON STRUCTURAL BACKFILL

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

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

MINIMUM TRENCH WIDTH
BASED ON FILL HEIGHT "H"

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

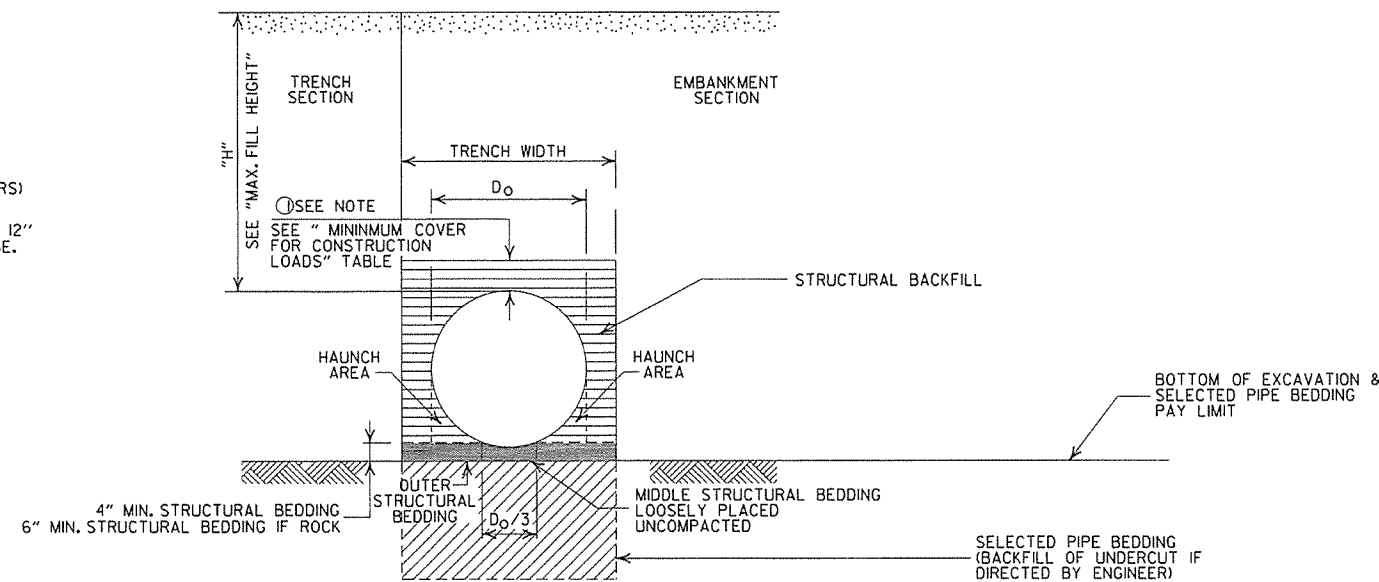
MULTIPLE INSTALLATION OF
PVC PIPES

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

MINIMUM COVER FOR
CONSTRUCTION LOADS

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

② 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

I. 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
===== = 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 AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

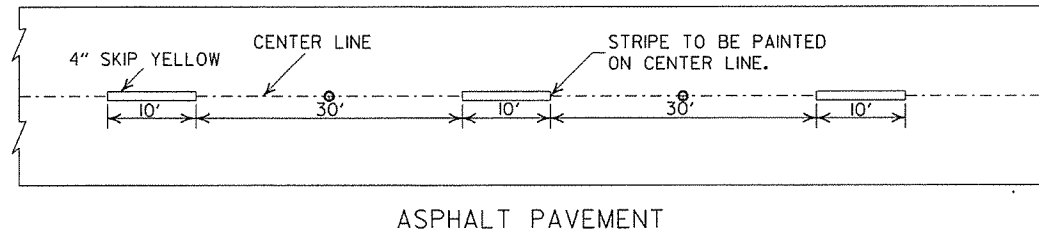
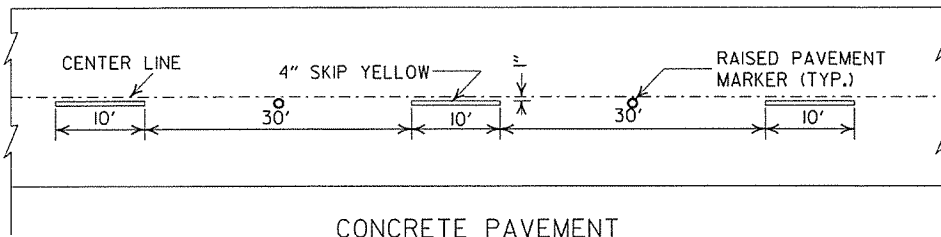
2-27-14	REVISED GENERAL NOTE I.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

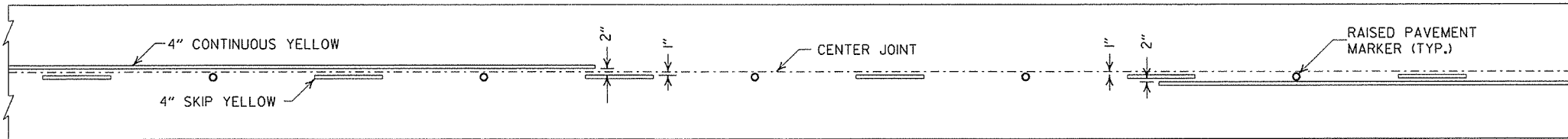
PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2

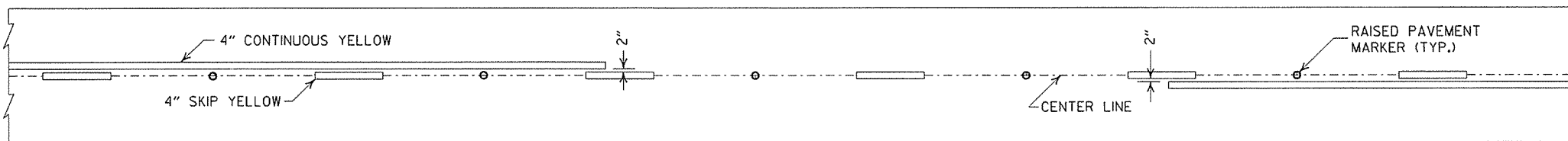




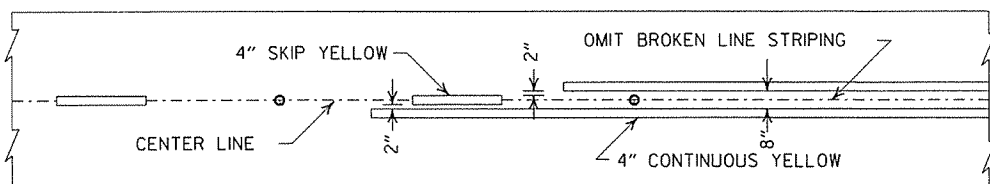
BROKEN LINE STRIPING



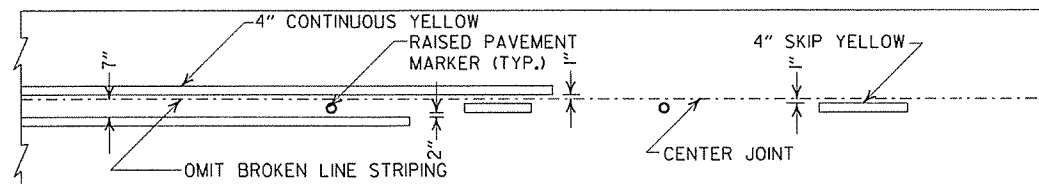
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

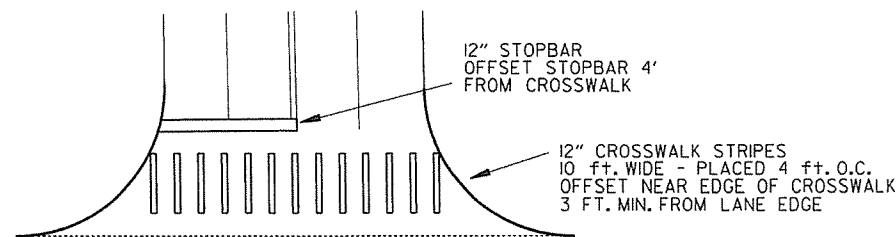


ASPHALT PAVEMENT



CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

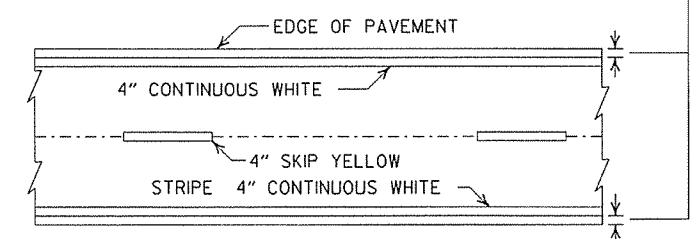


CROSSWALK AND STOPBAR DETAILS

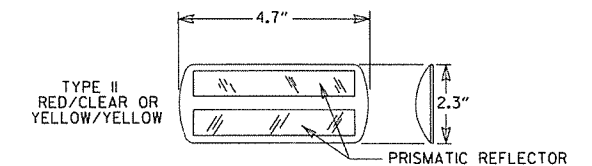
NOTES:

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

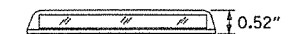
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

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

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

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

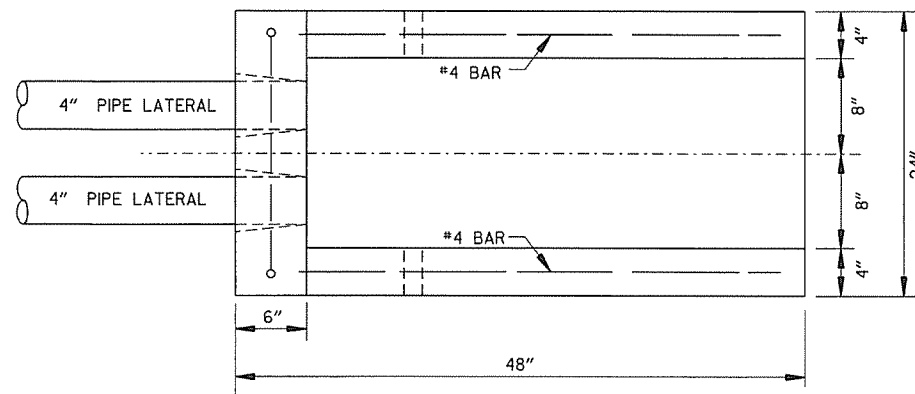
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED FLOWABLE PAV'T MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

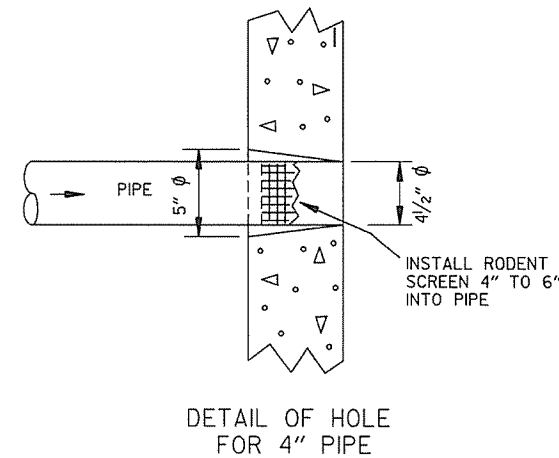
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

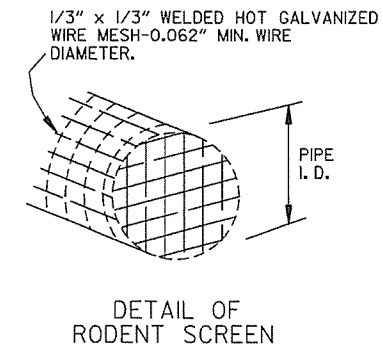
NOTE:
 1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH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



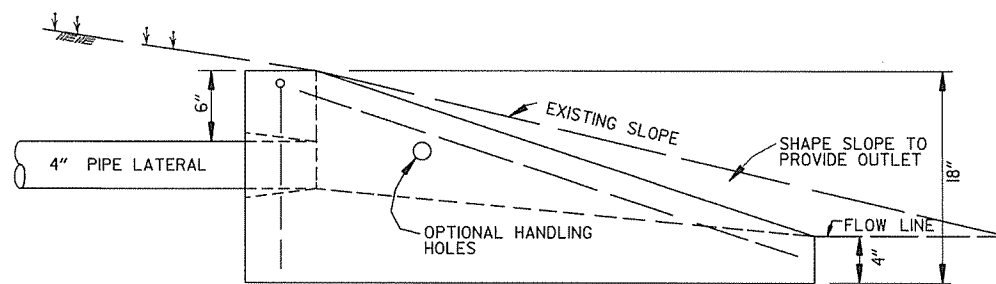
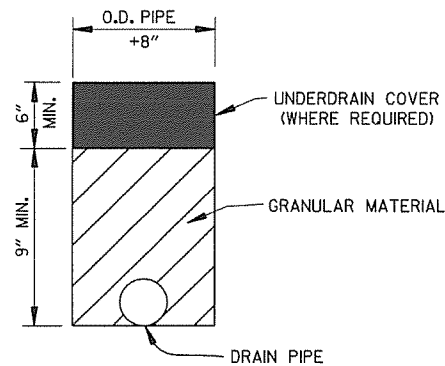
PLAN VIEW



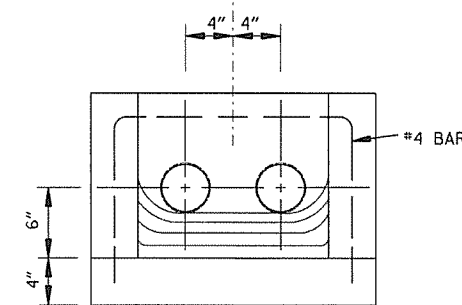
DETAIL OF HOLE FOR 4" PIPE



DETAIL OF RODENT SCREEN



SIDE VIEW

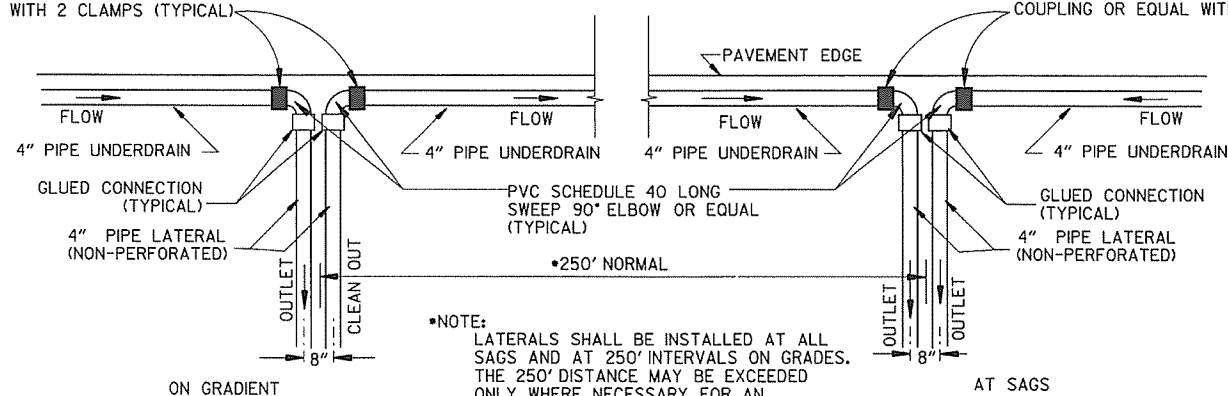


FRONT VIEW

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

UNDERDRAIN OUTLET PROTECTORS

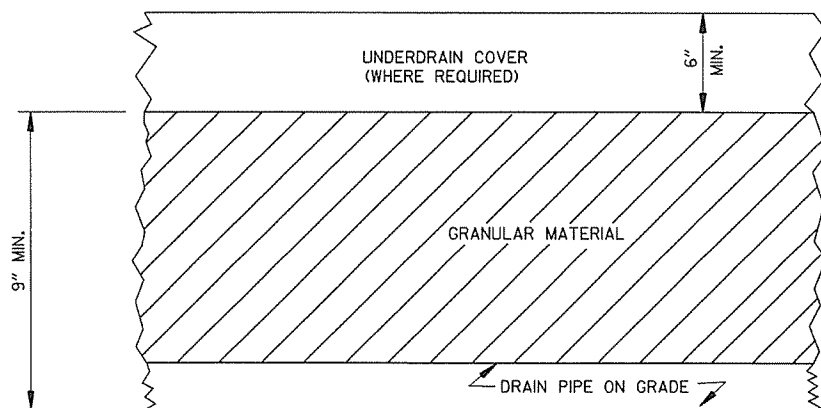
FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



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

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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



DETAILS OF PIPE UNDERDRAIN

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

ARKANSAS STATE HIGHWAY COMMISSION

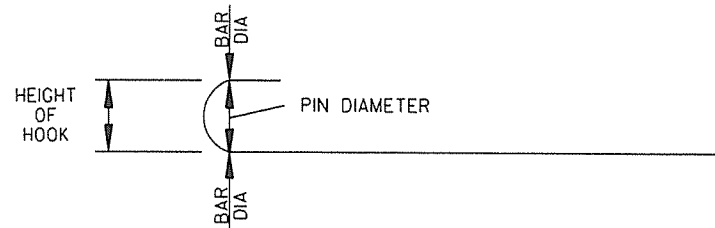
DETAILS OF PIPE UNDERDRAIN

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



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

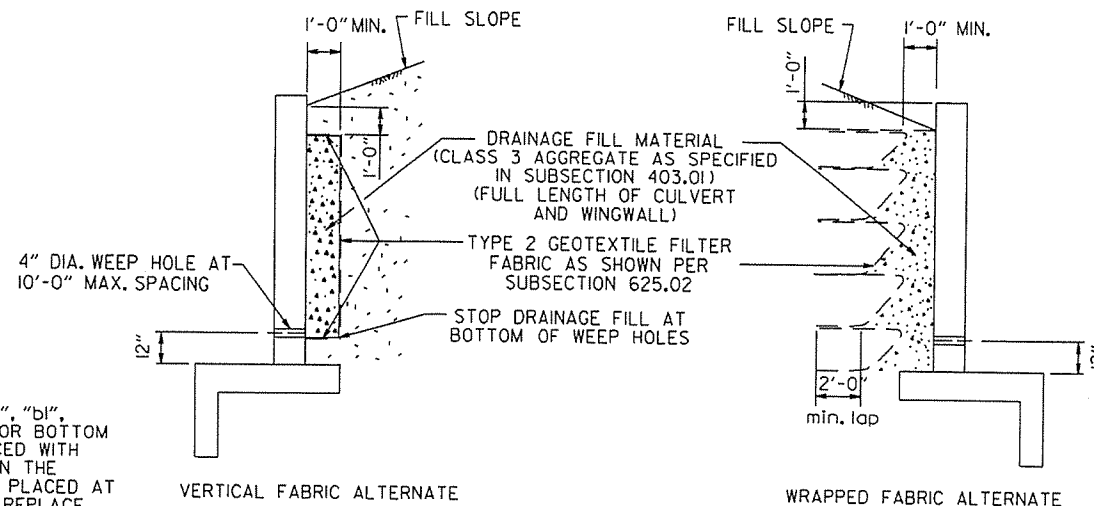
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

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

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

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

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

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

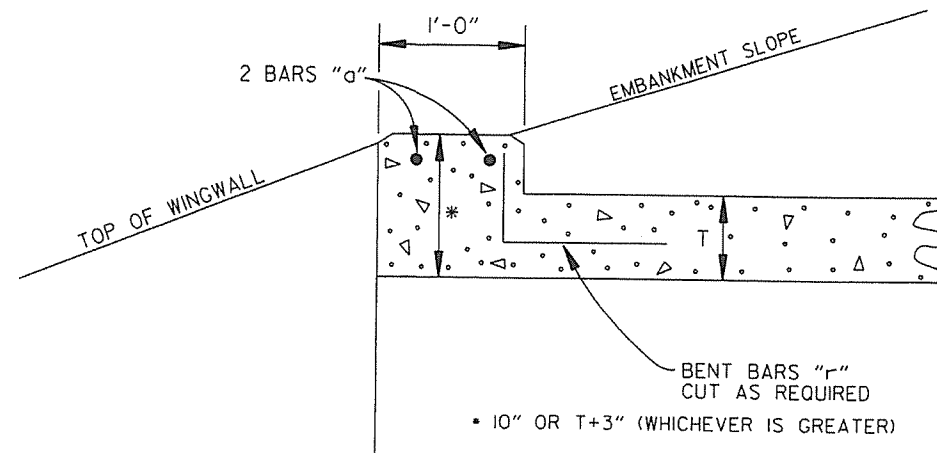
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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

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

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

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



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

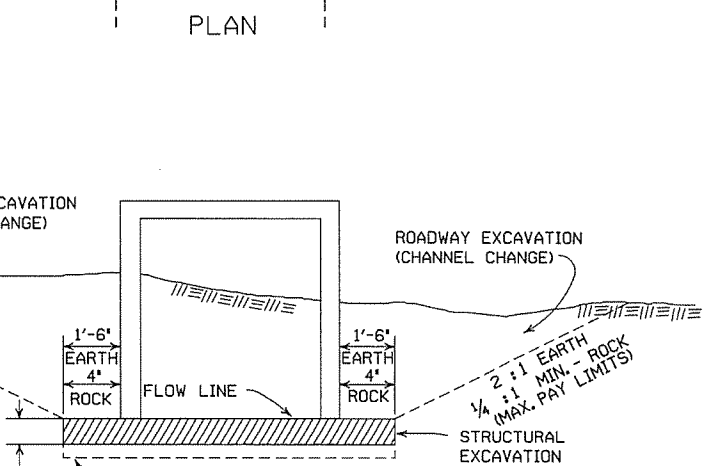
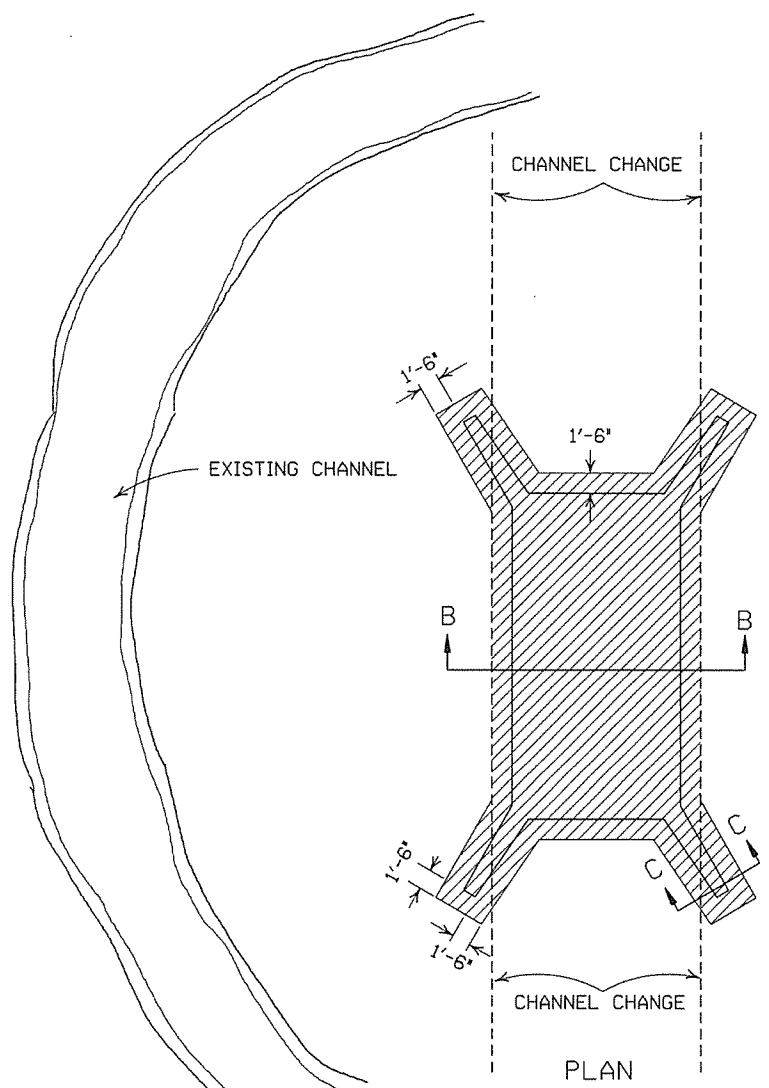
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
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	

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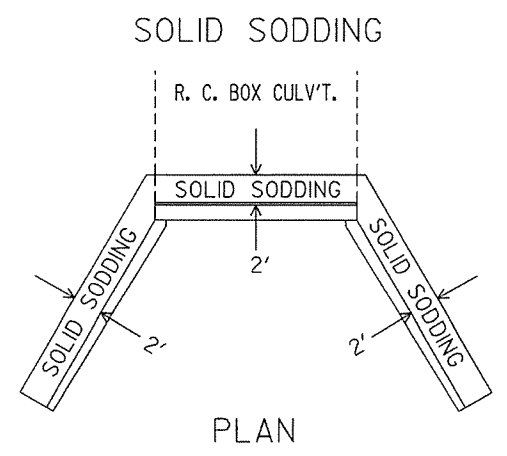
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



SECTION B-B
DETAILS FOR NEW CHANNELS

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



PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

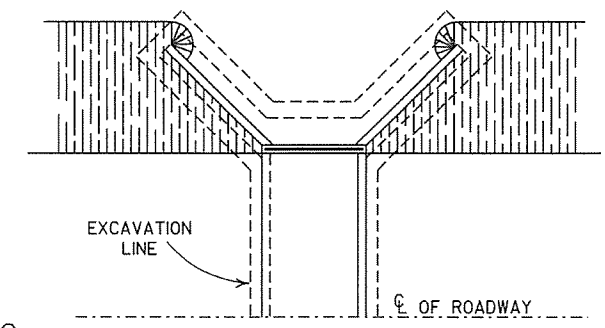
NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

GENERAL NOTES:

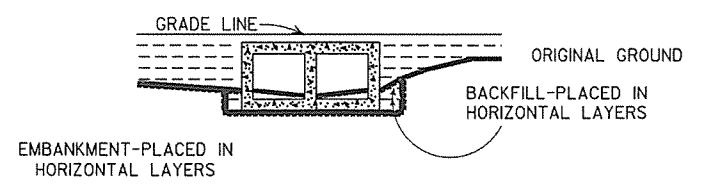
ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED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

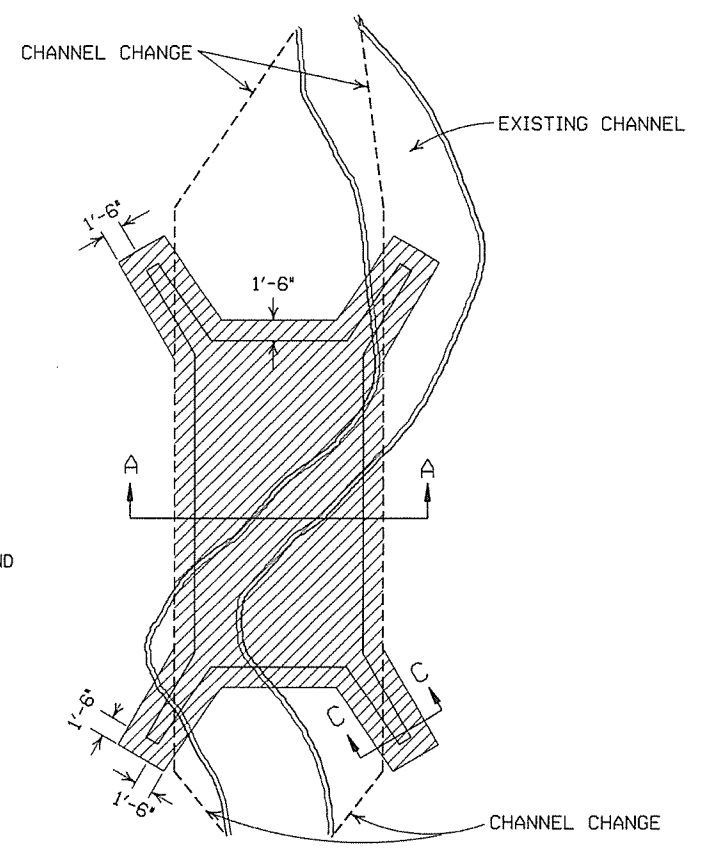


PLAN

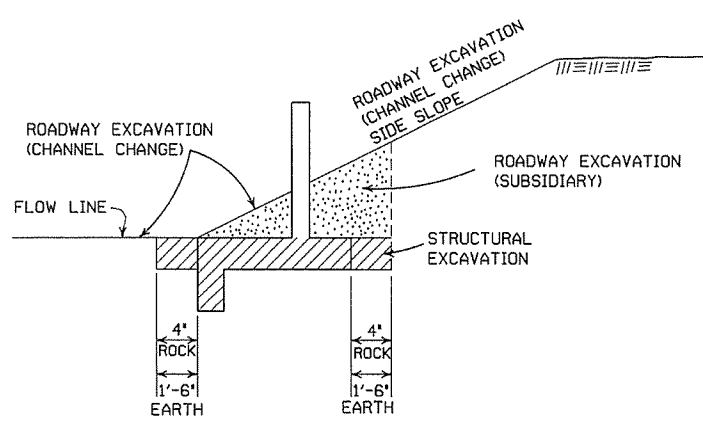


LONGITUDINAL SECTION

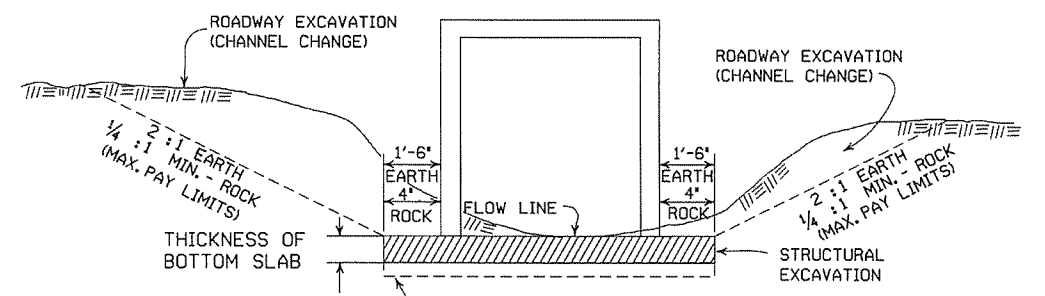
BACKFILL DETAILS FOR BOX CULVERT



PLAN



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

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

11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY	674-1-4-83
LIMIT NOTES:		
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		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)		Ls (FT)	
	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE	MINIMUM	DESIRABLE
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 30'	N.C.		0.021		0.026	200	0.031		0.037		0.043	
1° 45'	N.C.		0.025		0.036	200	0.043	225	0.049	250	0.054	300
2° 00'	R.C.		0.028	175	0.040	200	0.048	250	0.055	300	0.062	300
2° 15'	R.C.		0.031		0.045	250	0.053	300	0.061	350	0.078	350
2° 30'	R.C.		0.034		0.049		0.058		0.067		0.078	350
2° 45'	R.C.		0.037		0.053		0.063		0.072		0.091	350
3° 00'	R.C.	150	0.040	200	0.057		0.067	230	0.077	260	0.096	350
3° 15'	R.C.		0.043		0.061		0.072	245	0.082	275	0.098	360
3° 30'	R.C.		0.046		0.065	205	0.076	255	0.086	285	0.098	360
3° 45'	R.C.		0.049	200	0.069	215	0.080	265	0.090	295	0.100	360
4° 00'	R.C.		0.053		0.072	225	0.083	270	0.093	305		
4° 30'	R.C.		0.056		0.078	240	0.087	280	0.096	315		
5° 00'	R.C.		0.061		0.083	250	0.091	295	0.098	320		
5° 30'	R.C.		0.066	185	0.088	260	0.094	300				
6° 00'	R.C.		0.070	190	0.092	270	0.096	305				
6° 30'	R.C.		0.074	200	0.095	280	0.100	315				
7° 00'	R.C.		0.078	210	0.098	285						
7° 30'	R.C.		0.081	215	0.099	290						
8° 00'	R.C.		0.084	220	0.100	290						
8° 30'	R.C.		0.087	225								
9° 00'	R.C.		0.089	230								
10° 00'	R.C.	160	0.094	235								
11° 00'	R.C.		0.097	250								
12° 00'	R.C.	175	0.099	250								
13° 00'	R.C.	180	0.100	250								
14° 00'	R.C.	190										
15° 00'	R.C.	195										
16° 00'	R.C.	200										
17° 00'	R.C.	200										
18° 00'	R.C.	205										
19° 00'	R.C.	210										
20° 00'	R.C.	215										
21° 00'	R.C.	215										
22° 00'	R.C.	215										
23° 00'	R.C.	215										
24° 00'	R.C.	220										

D MAX = 24' 45'

ABBREVIATIONS

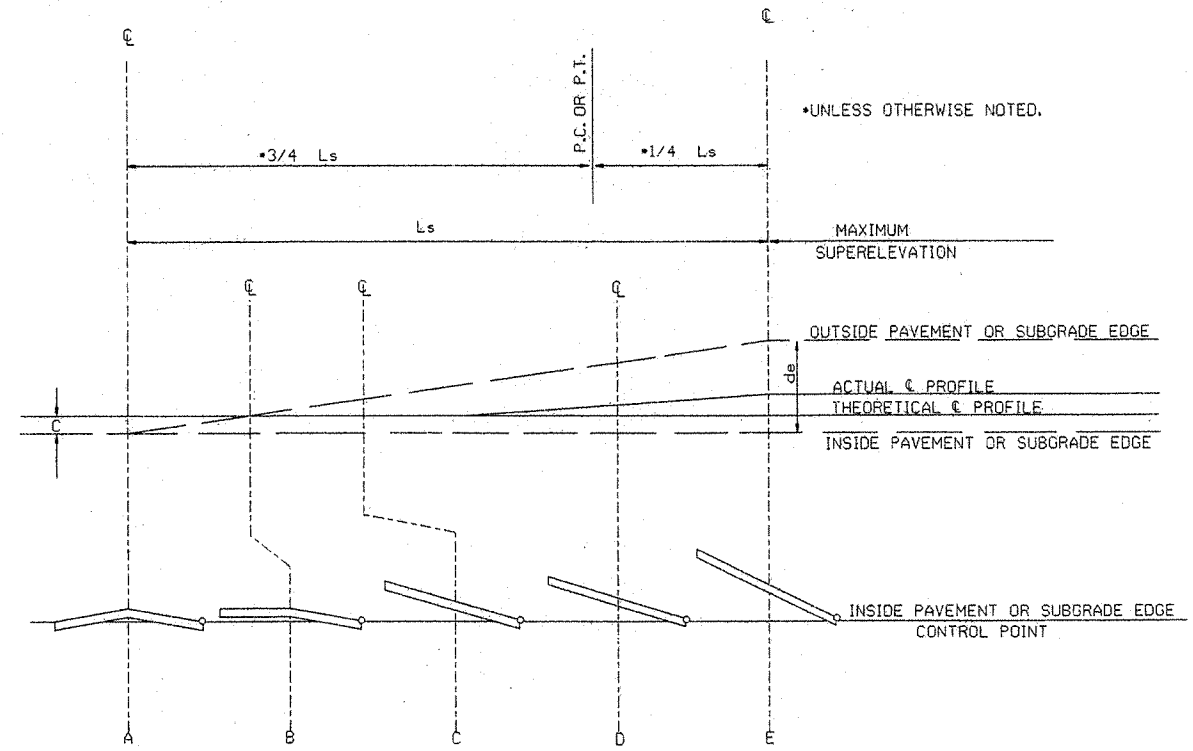
- NC - NORMAL CROWN
- RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
- e - RATE OF SUPERELEVATION (FT. PER FT.)
- Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
- L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
- d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)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

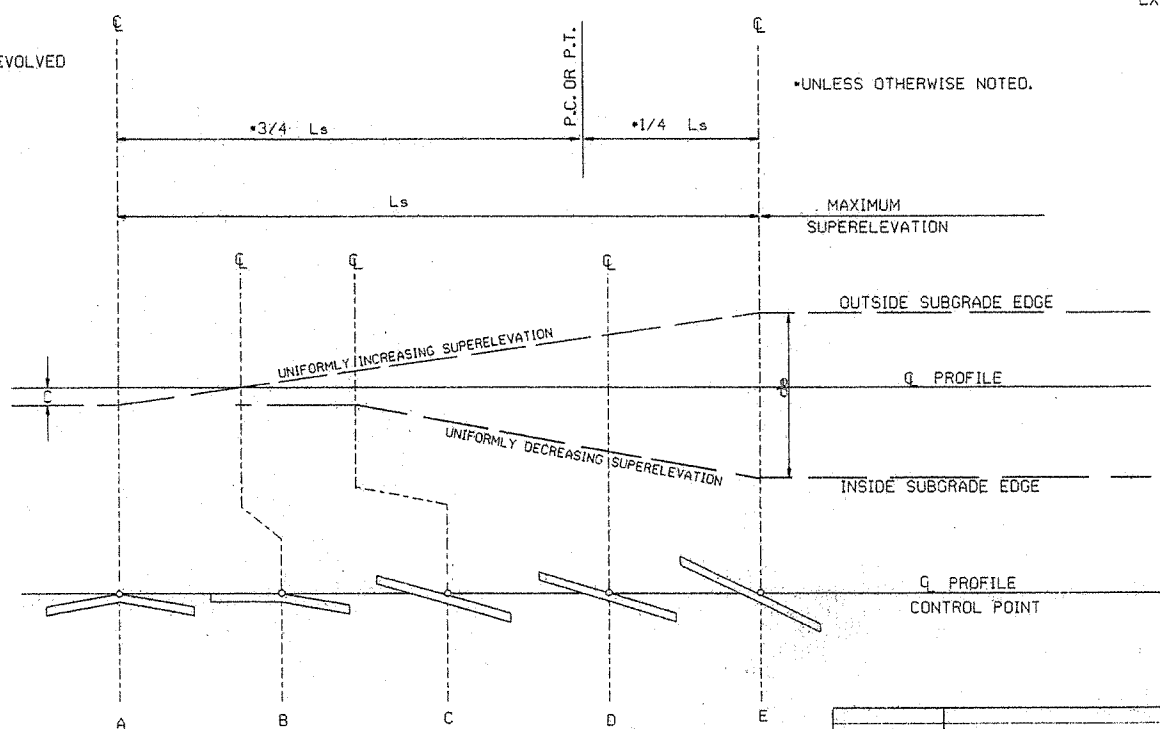
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



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

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

ADVANCE DISTANCES
(XXXX)


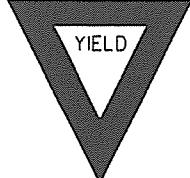
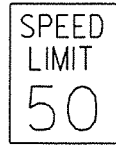


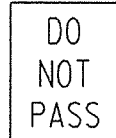



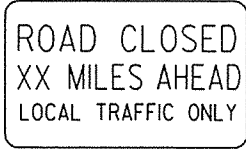
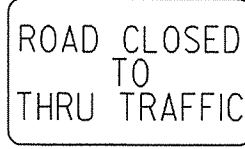

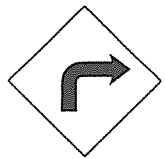

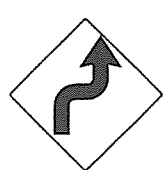

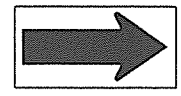
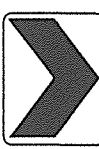
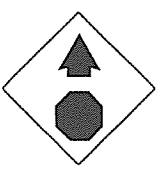
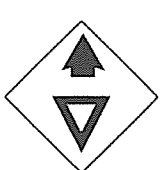
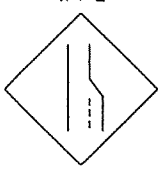

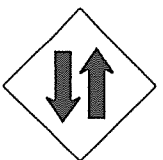











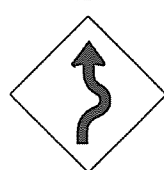
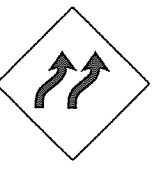


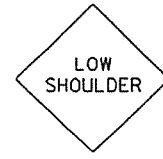

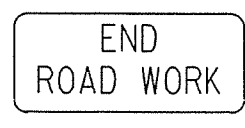
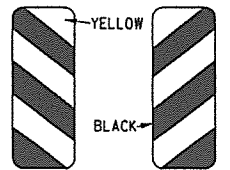
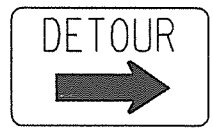
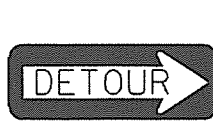
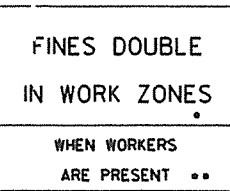
500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

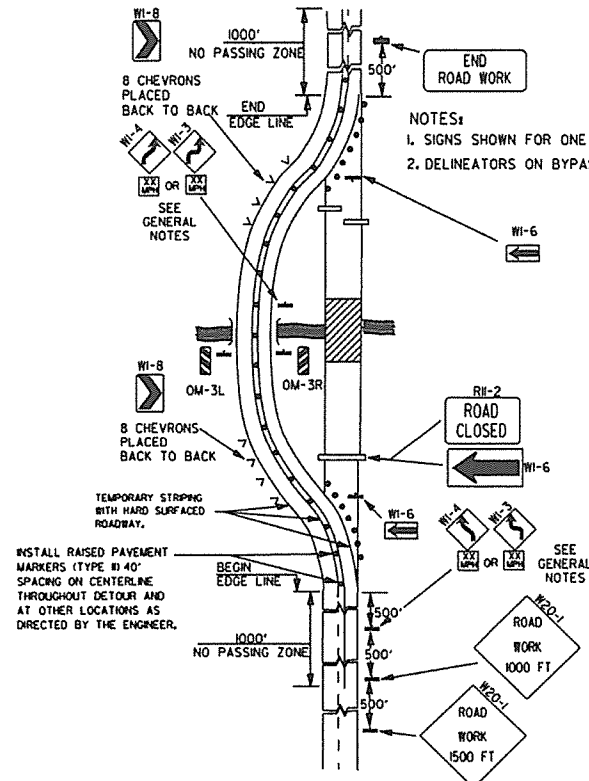
GENERAL NOTES:

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

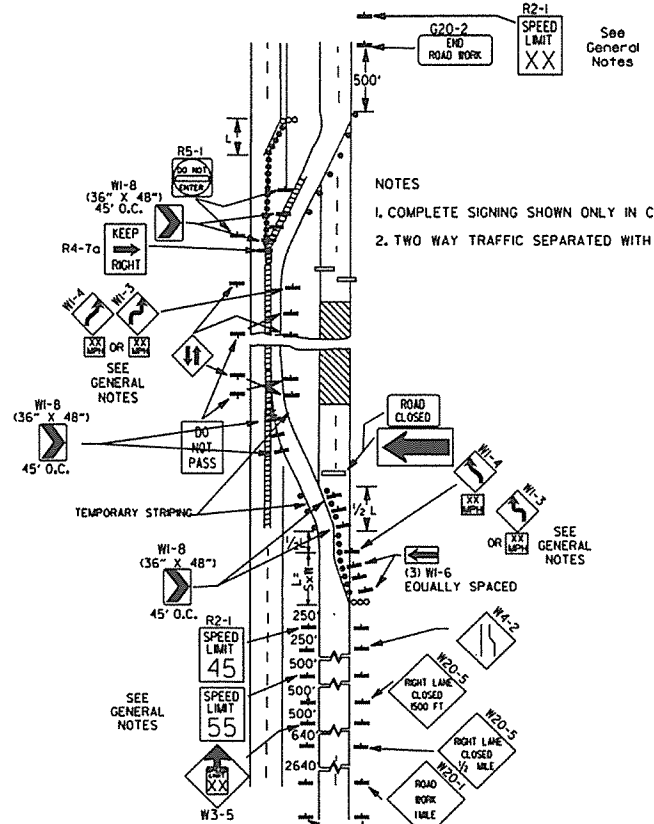
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12-15-81	REVISED W24-1	
1-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
1-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-5-78	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

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

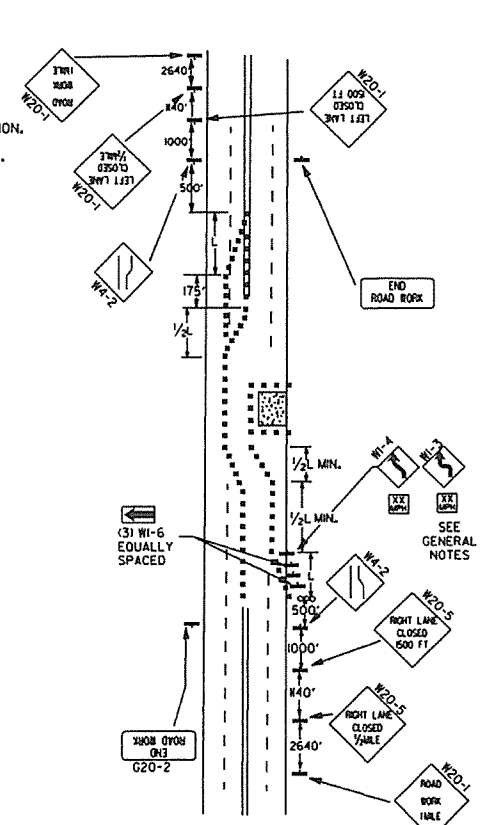
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>W1-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>



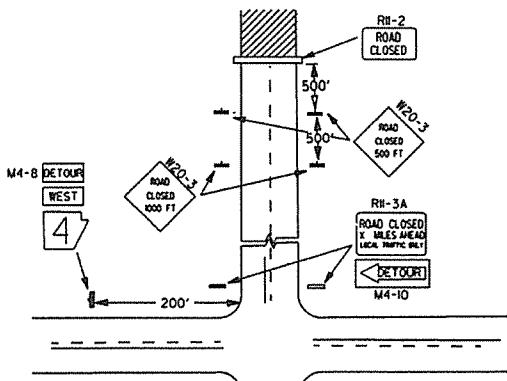
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



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

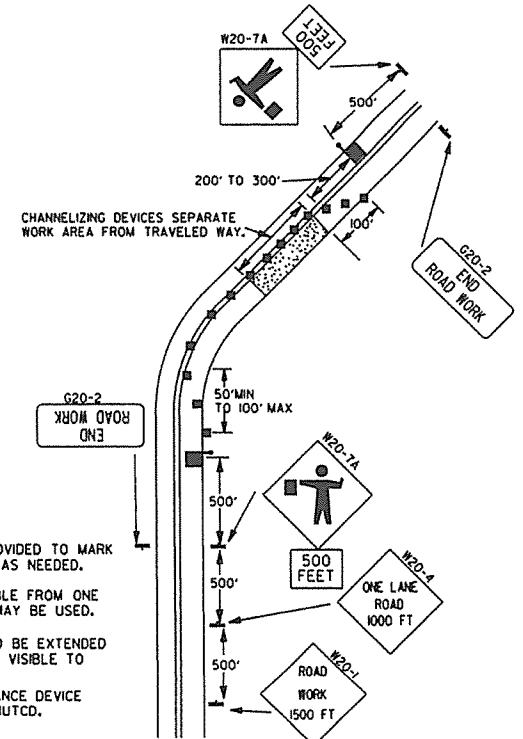


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

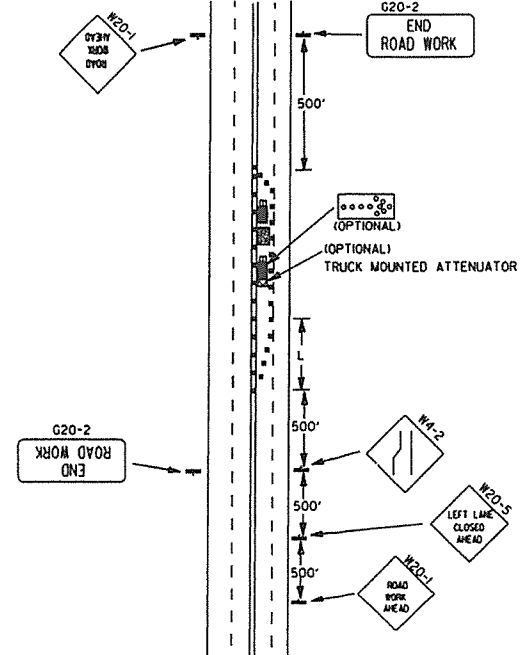


- NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

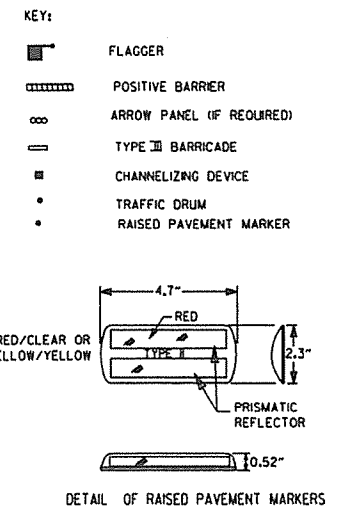
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(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.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:
L=5XW FOR SPEEDS OF 45MPH OR MORE.
L= $\frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

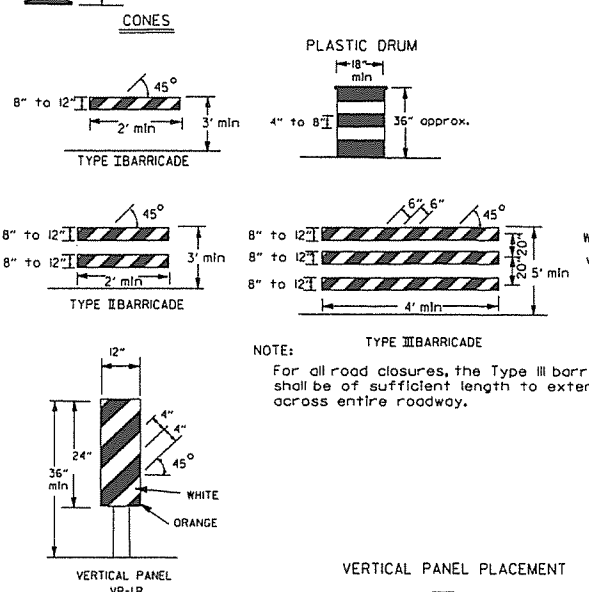
- GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE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

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

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-2

Channelizing devices

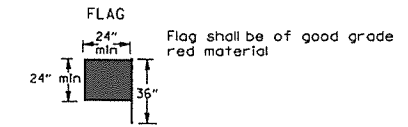
When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.



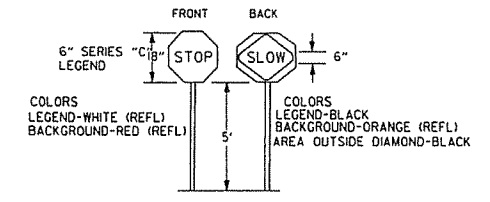
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

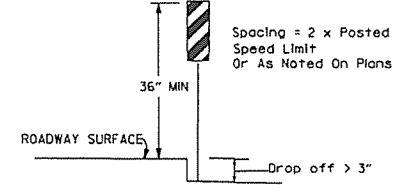
When shown on the plans concrete barrier will be used. When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



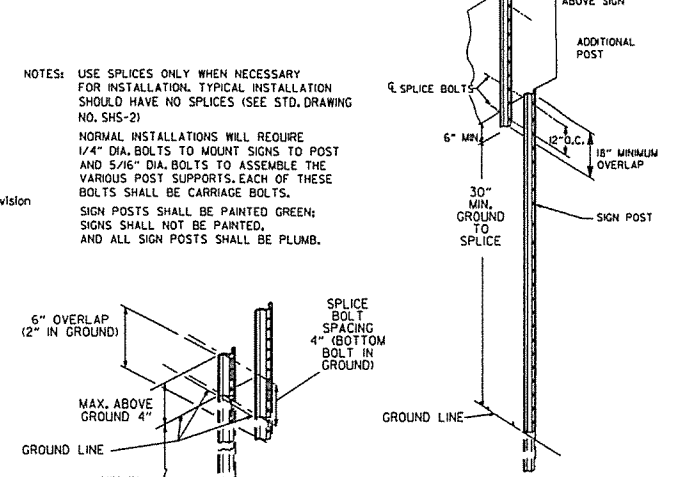
STOP SLOW PADDLE



VERTICAL PANEL PLACEMENT

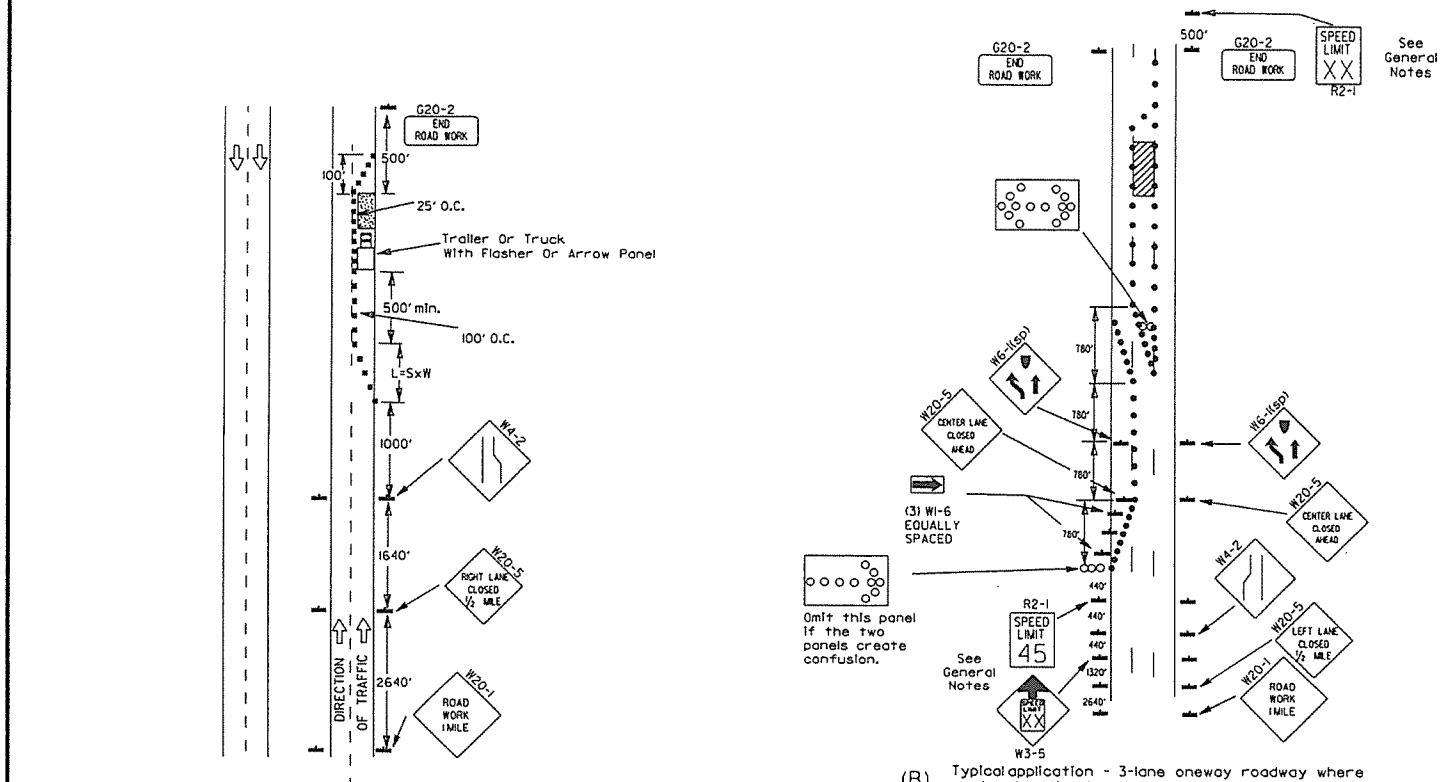


DETAIL OF SPLICES

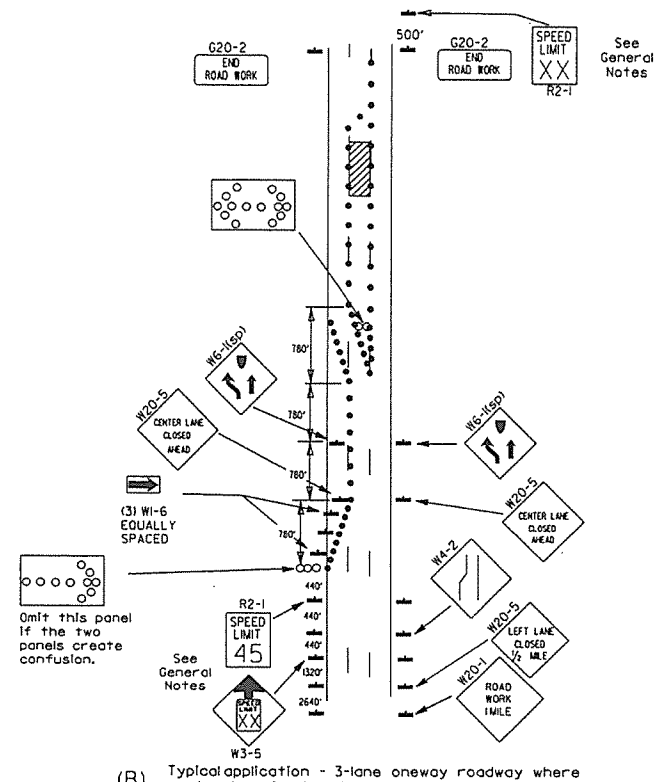


NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2) NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS, EACH OF THESE BOLTS SHALL BE CARRIAGE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

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



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

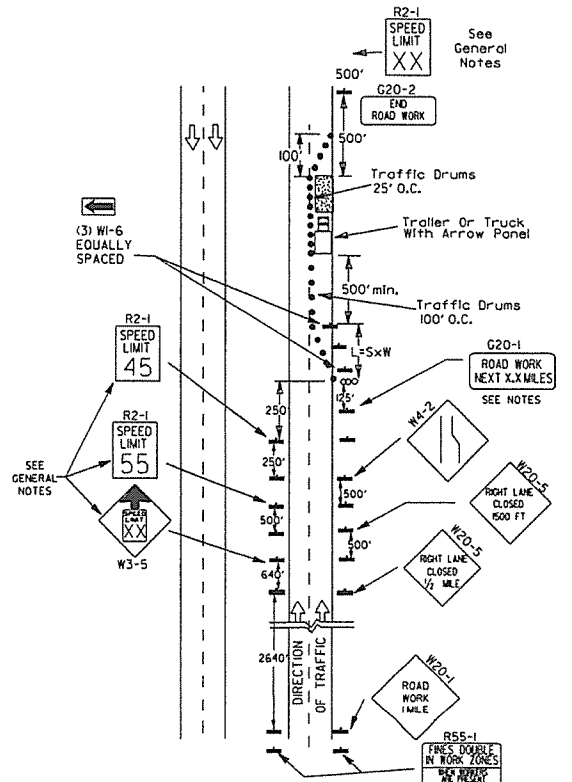


(B) Typical application - 3-lane oneway roadway where center lane is closed.

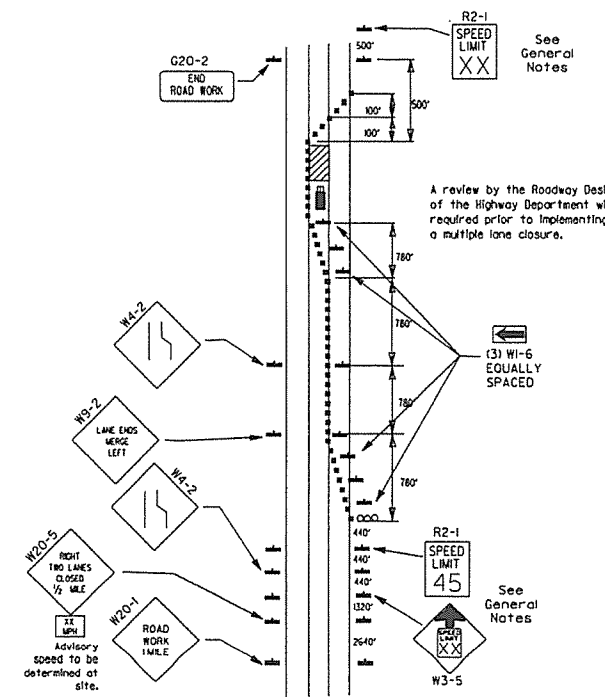
- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

GENERAL NOTES:

- A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
- When the existing speed limit is 55mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1(45) speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
- When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1(55) speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
- The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
- Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
- Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
- The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 1/2 mile in advance of the job limit. Additional W20-1(1/2 MILE) signs are not required in advance of lane closures that begin inside the project limits.
- Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
- All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual for Assessing Safety Hardware (MASH).
- Trolley mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

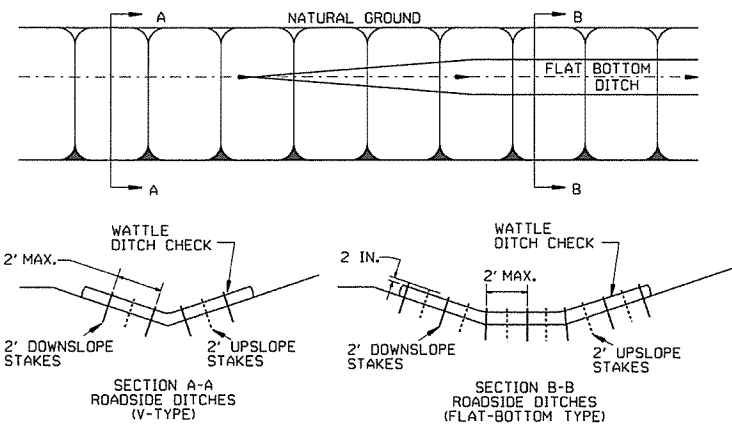


(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

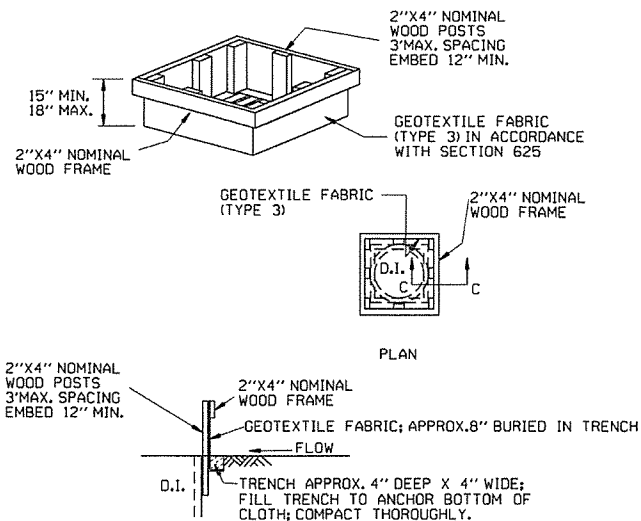


(D) Typical application - closing multiple lanes of a multilane highway.

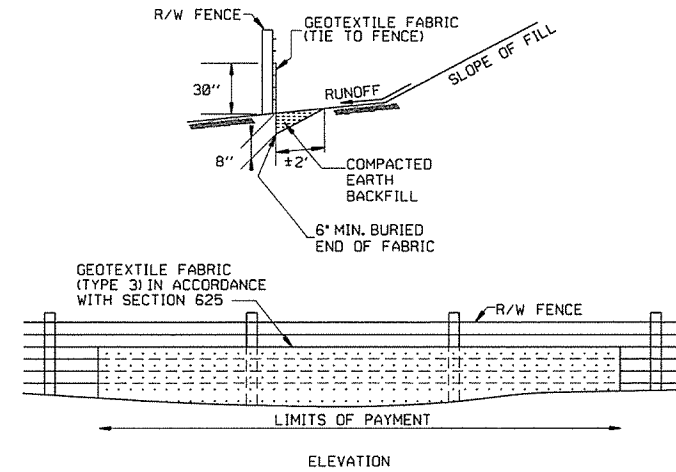
GENERAL NOTES
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



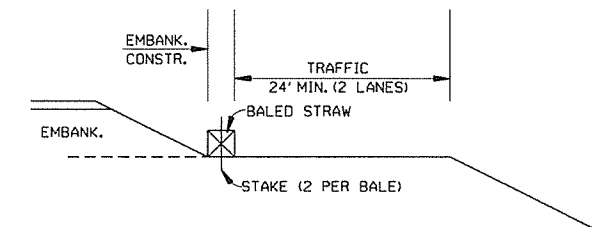
DROP INLET SILT FENCE (E-7)



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

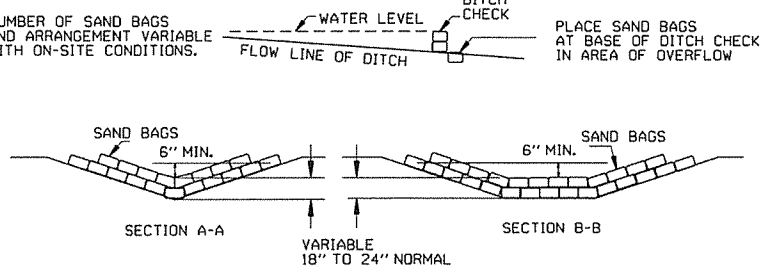
GENERAL NOTES
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

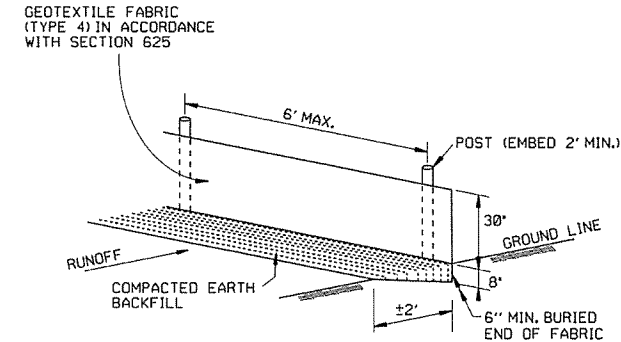


BALED STRAW FILTER BARRIER (E-2)

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

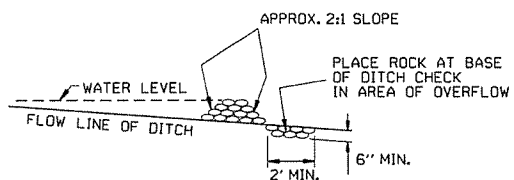


SAND BAG DITCH CHECK (E-5)

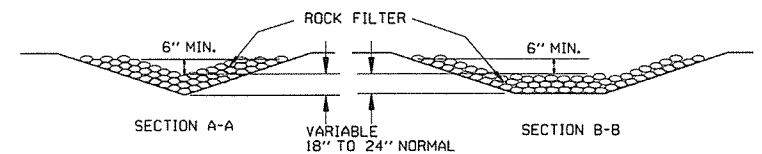


SILT FENCE (E-11)

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

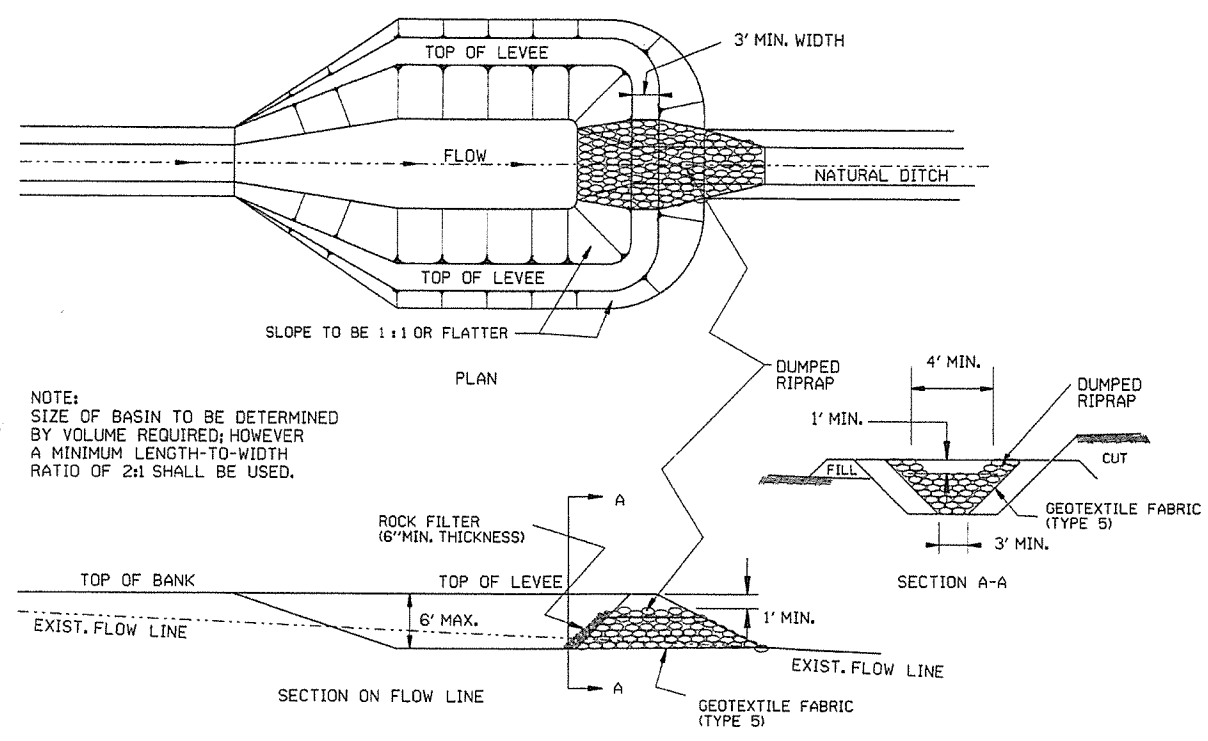


ROCK DITCH CHECK (E-6)

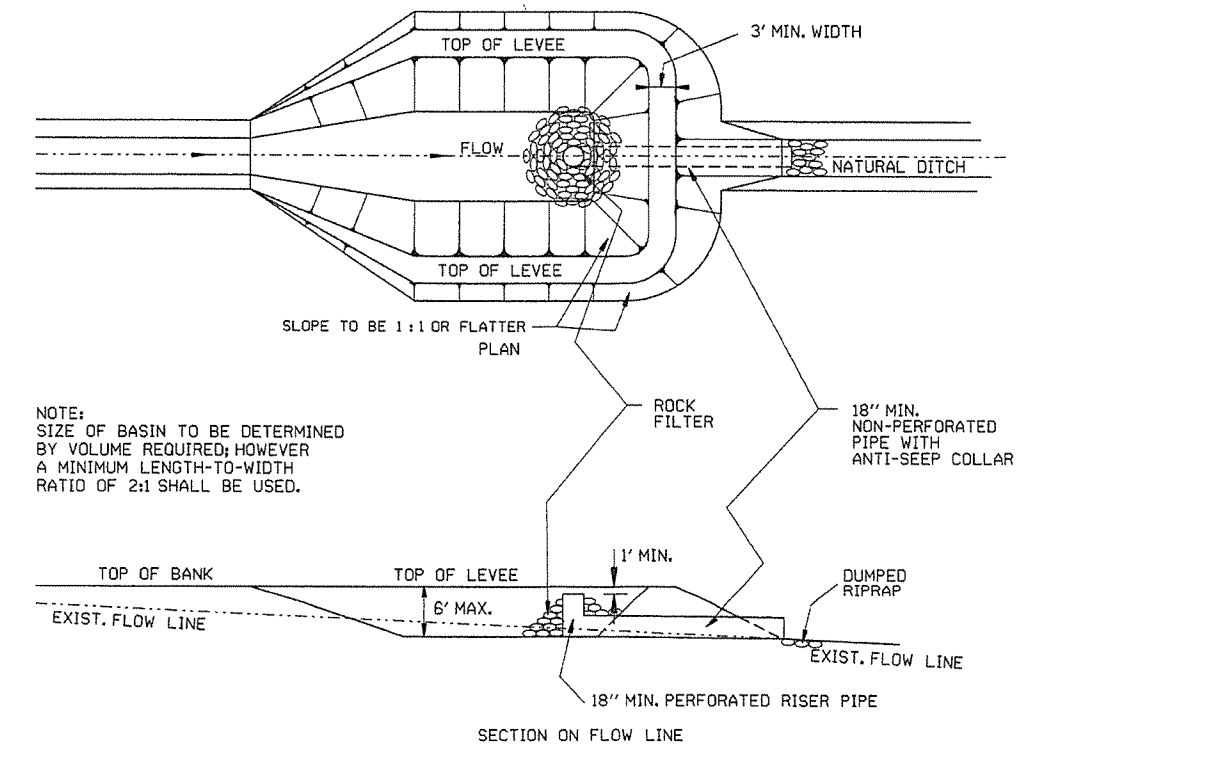


12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		ARKANSAS STATE HIGHWAY COMMISSION
11-18-98	ADDED NOTES		
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC		
6-2-94	REVISED E-1, 4,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

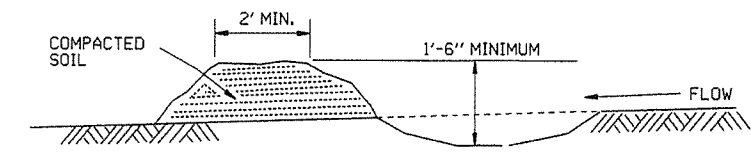
TEMPORARY EROSION CONTROL DEVICES
STANDARD DRAWING TEC-1



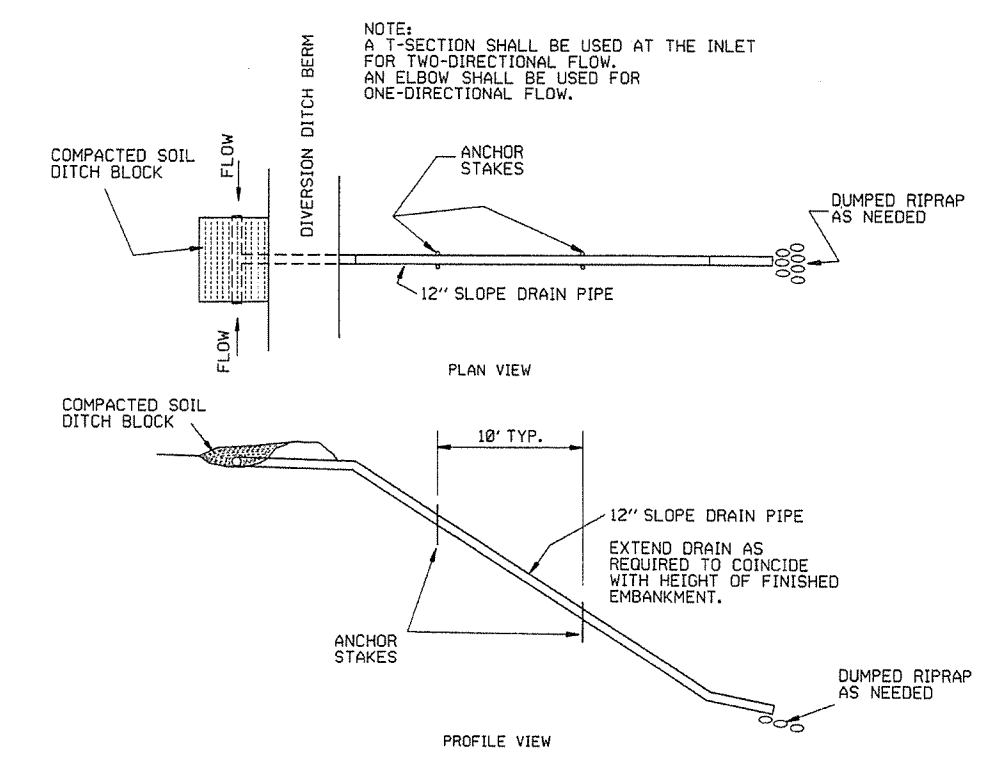
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



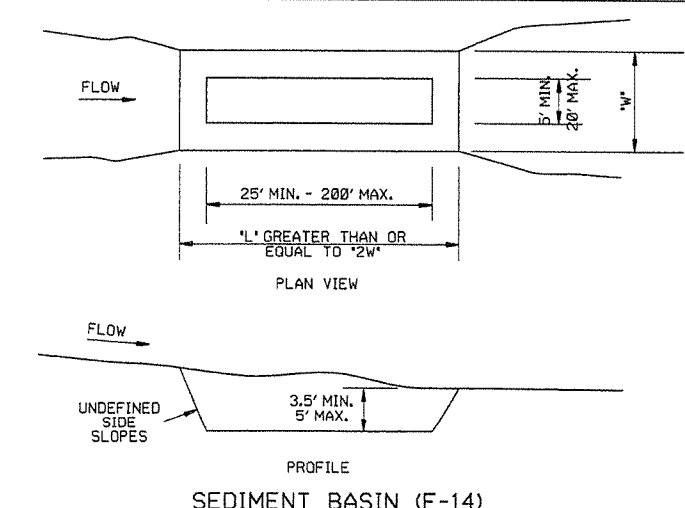
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



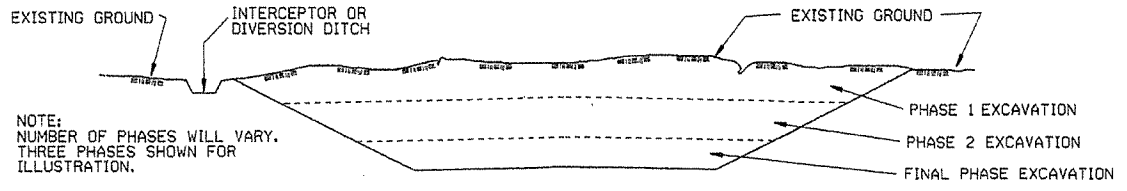
SEDIMENT BASIN (E-14)

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

CLEARING AND GRUBBING

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

EXCAVATION



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

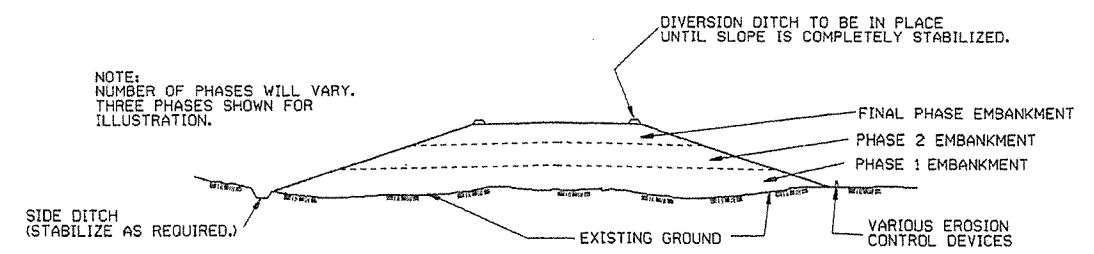
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



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

GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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

GENERAL NOTES:

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

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

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

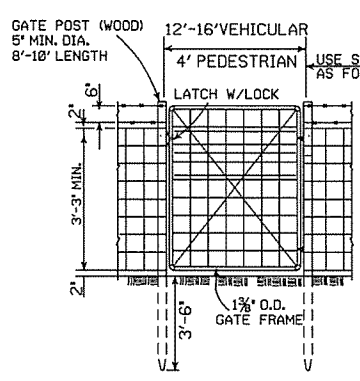
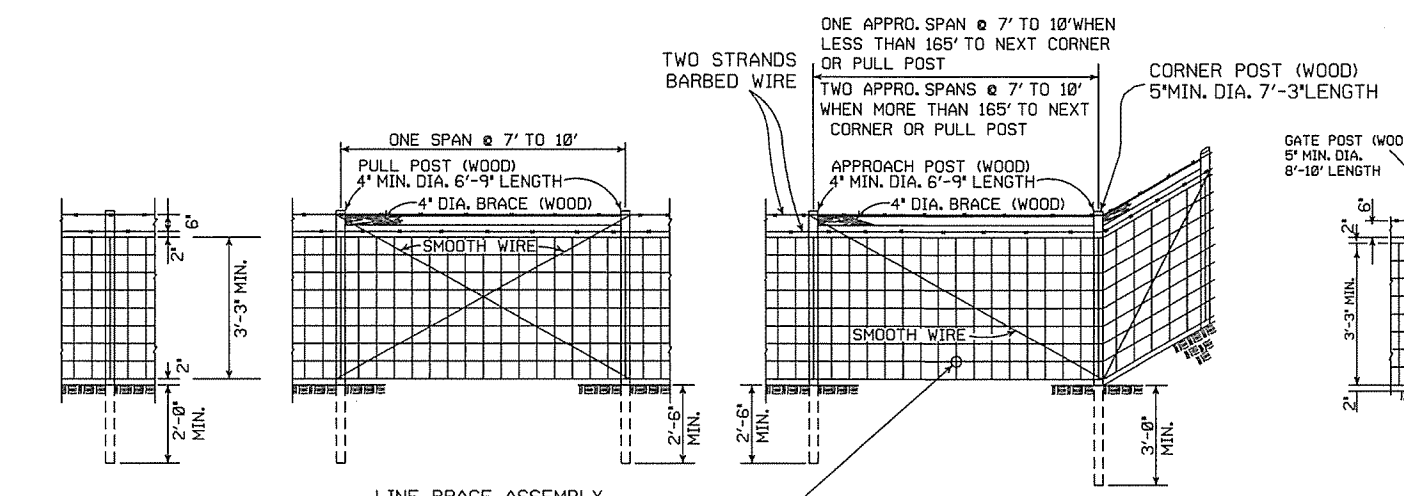
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED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

NOTE: USE 3/4" X 1 1/2" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.

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

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

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

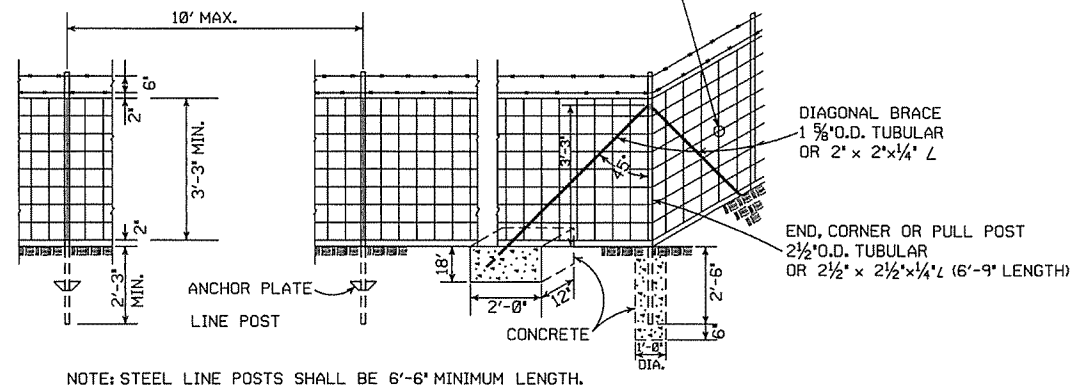


LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 33'

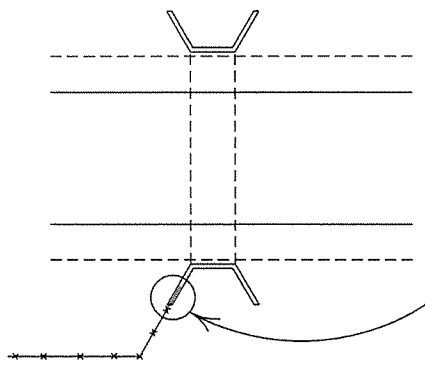
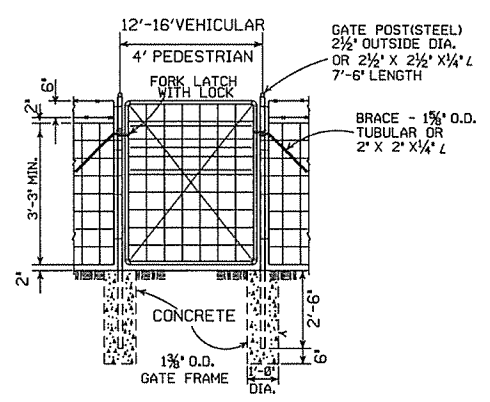
TYPE C FENCE (WOOD POSTS)

OTHER APPROVED TIES WILL BE PERMITTED



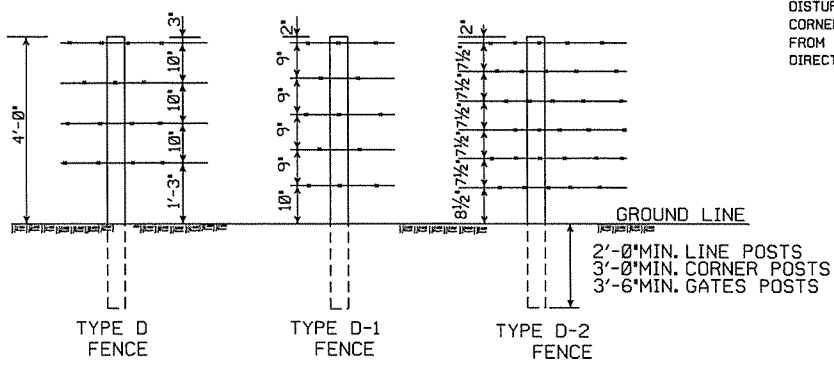
NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)



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

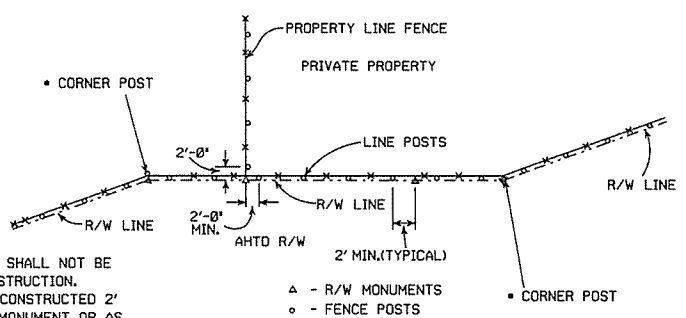
- 4 STRANDS BARBED WIRE (D)
- 5 STRANDS BARBED WIRE (D-1)
- 6 STRANDS BARBED WIRE (D-2)



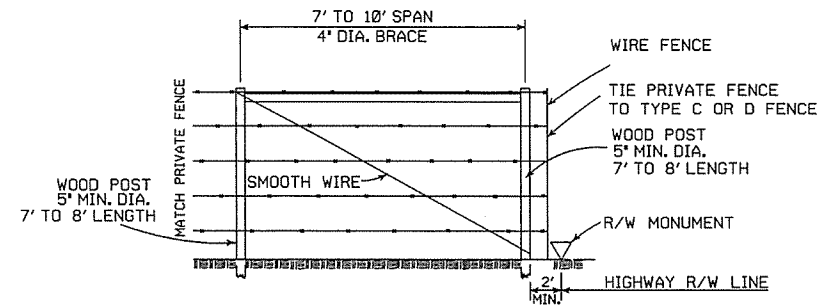
NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

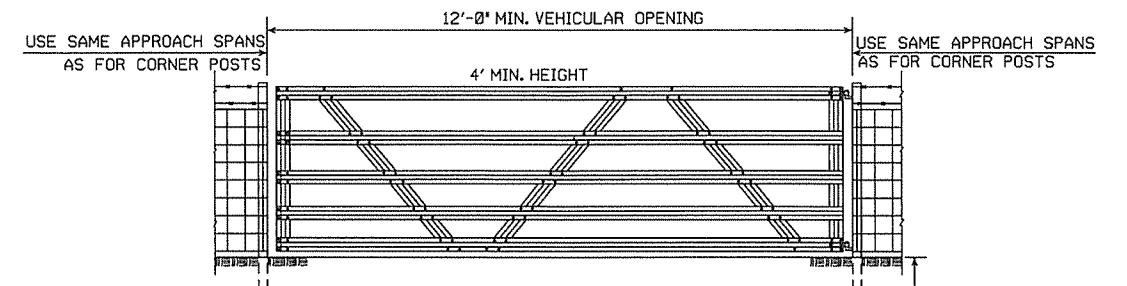
RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION



WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES (ALTERNATE TYPE)

OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

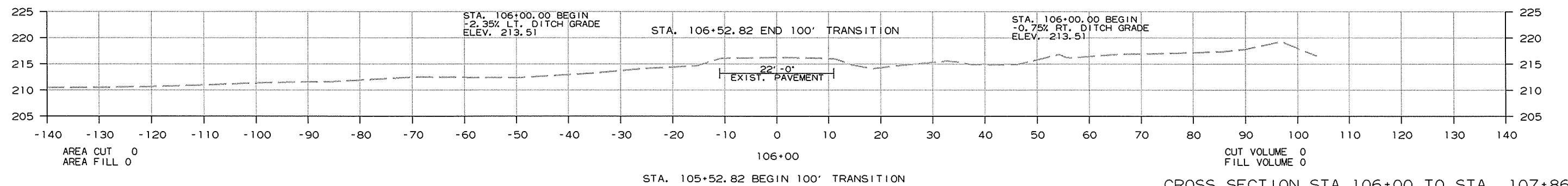
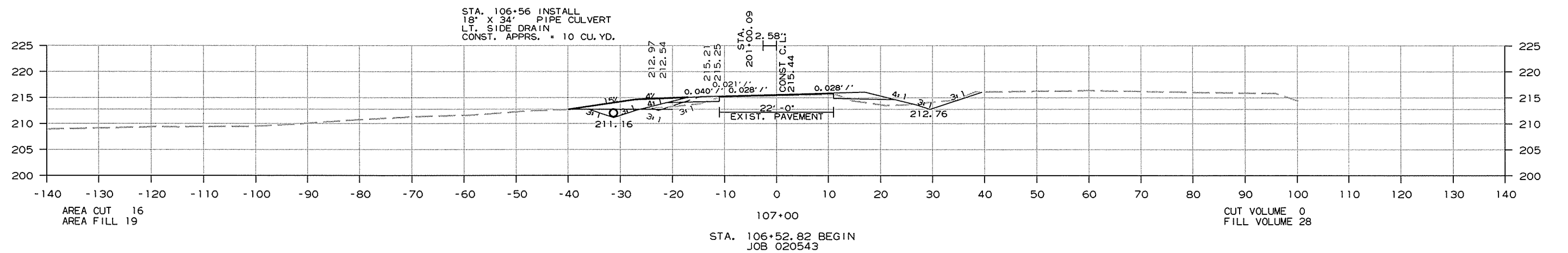
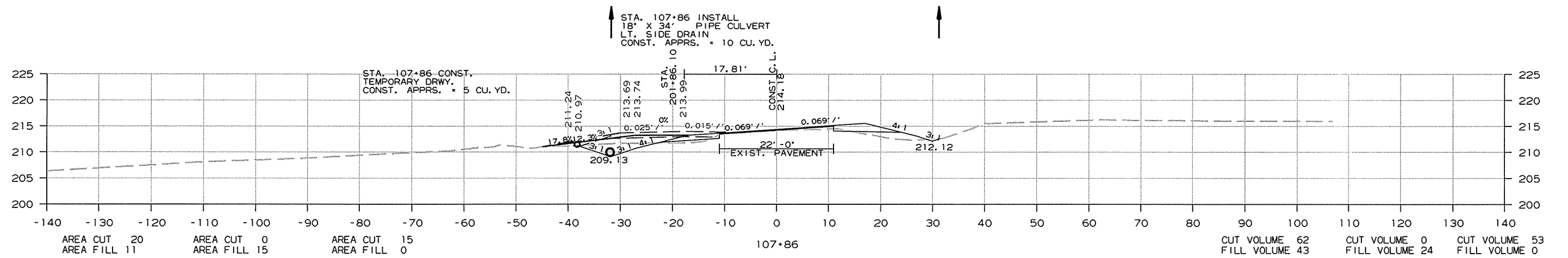
STANDARD DRAWING WF-4

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 020543							52	57

2 CROSS SECTIONS

MAIN LANES DET. CONST. DET. REMOVAL

MAIN LANES DET. CONST. DET. REMOVAL



4/10/2015
R020543.DGN

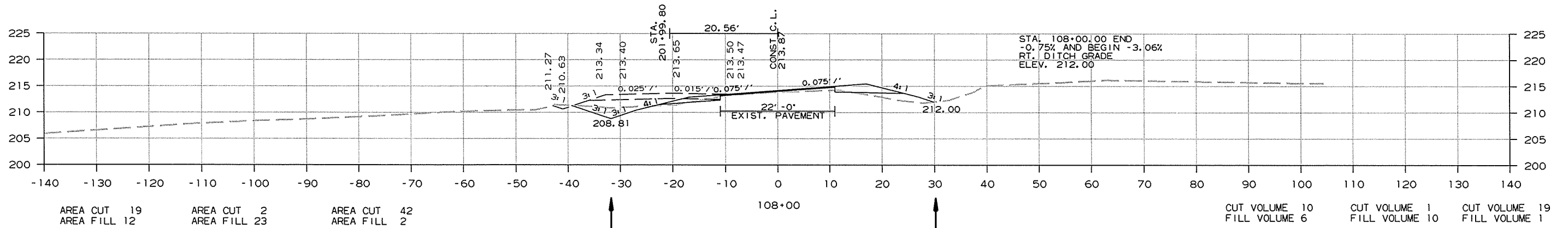
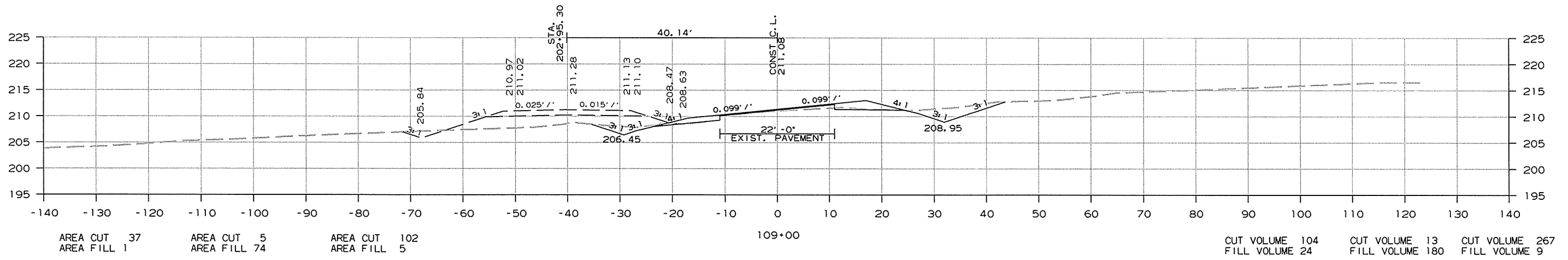
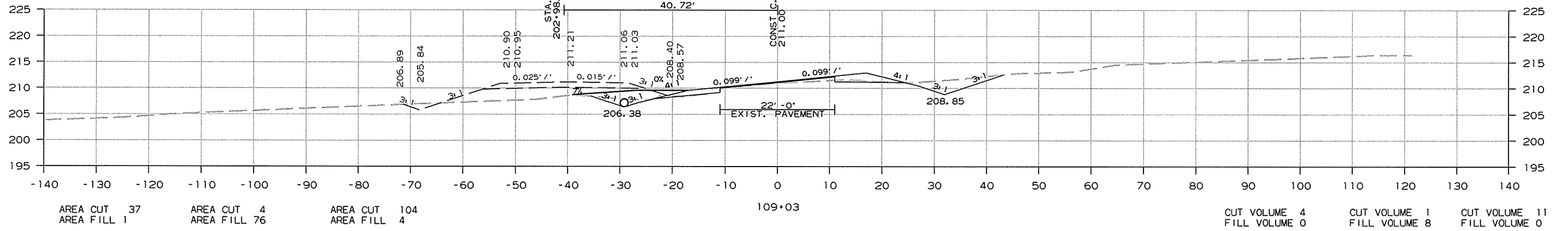
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	020543
							SHEET NO.	53
							TOTAL SHEETS	57

2 CROSS SECTIONS

MAIN LANES DET. CONST. DET. REMOVAL

MAIN LANES DET. CONST. DET. REMOVAL

STA. 109+03 INSTALL
18" X 30" PIPE CULVERT
LT. SIDE DRAIN
CONST. APPRS. = 12 CU. YD.



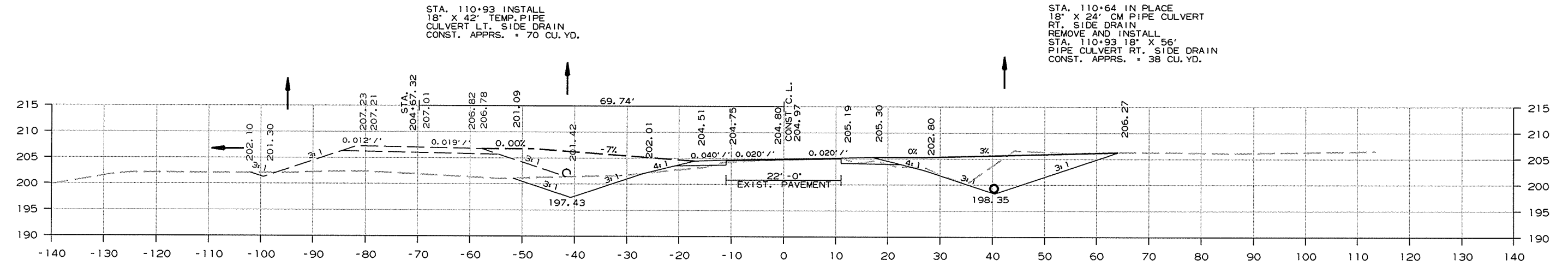
CROSS SECTION STA. 108+00 TO STA. 109+03

4/10/2015 R020543.DGN

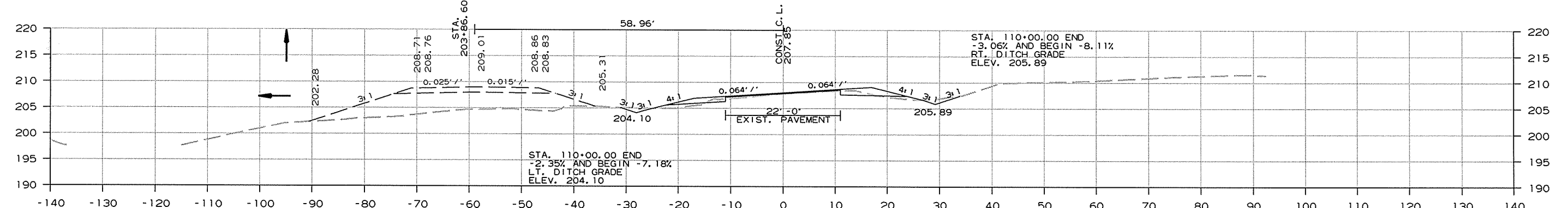
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 020543							54	57

2 CROSS SECTIONS

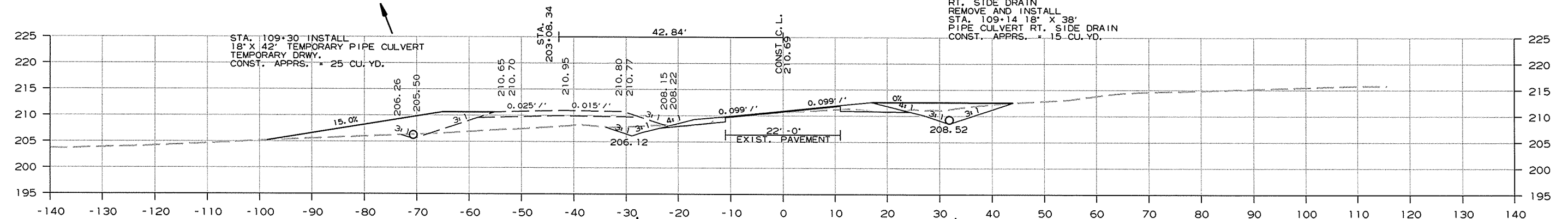
MAIN LANES DET. CONST. DET. REMOVAL MAIN LANES DET. CONST. DET. REMOVAL



AREA CUT 163 AREA CUT 2 AREA CUT 208 110+93 CUT VOLUME 303 CUT VOLUME 3 CUT VOLUME 670
 AREA FILL 7 AREA FILL 181 AREA FILL 2 FILL VOLUME 26 FILL VOLUME 575 FILL VOLUME 3



AREA CUT 13 AREA CUT 0 AREA CUT 181 110+00 CUT VOLUME 89 CUT VOLUME 3 CUT VOLUME 462
 AREA FILL 8 AREA FILL 153 AREA FILL 0 FILL VOLUME 13 FILL VOLUME 373 FILL VOLUME 0



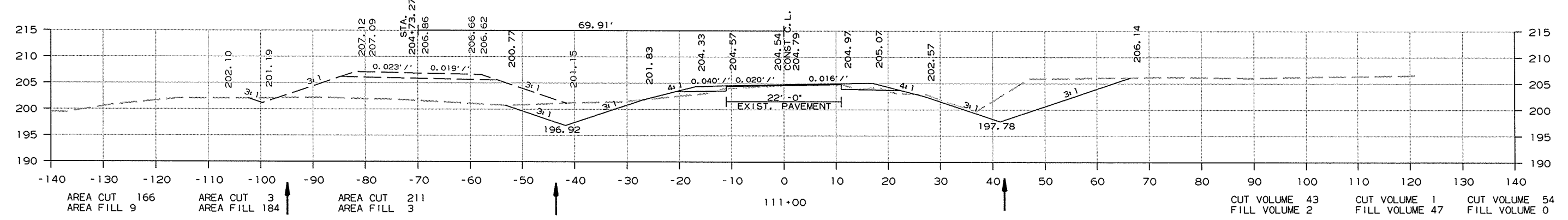
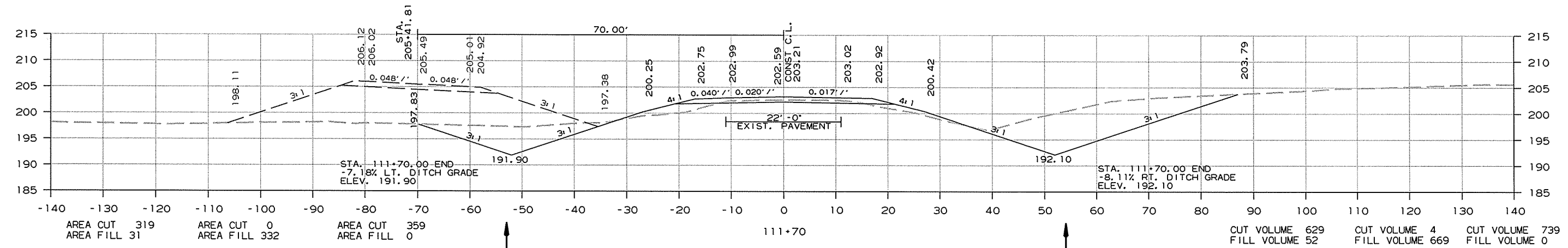
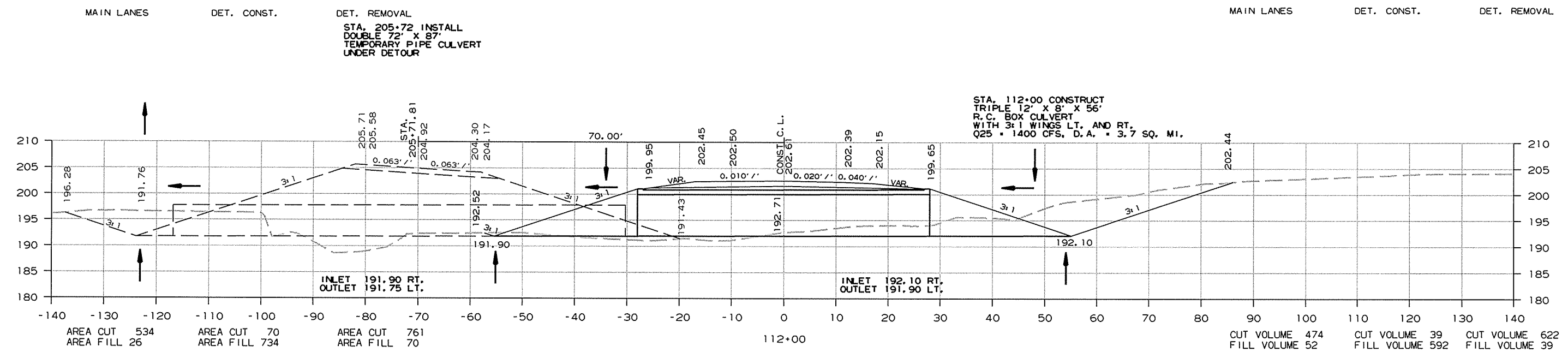
AREA CUT 43 AREA CUT 2 AREA CUT 109 109+14 CUT VOLUME 16 CUT VOLUME 1 CUT VOLUME 43
 AREA FILL 0 AREA FILL 81 AREA FILL 2 FILL VOLUME 0 FILL VOLUME 32 FILL VOLUME 1

CROSS SECTION STA. 109+14 TO STA. 110+93

4/10/2015 R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020543	55	57

2 CROSS SECTIONS



CROSS SECTION STA. 111+00 TO STA. 112+00

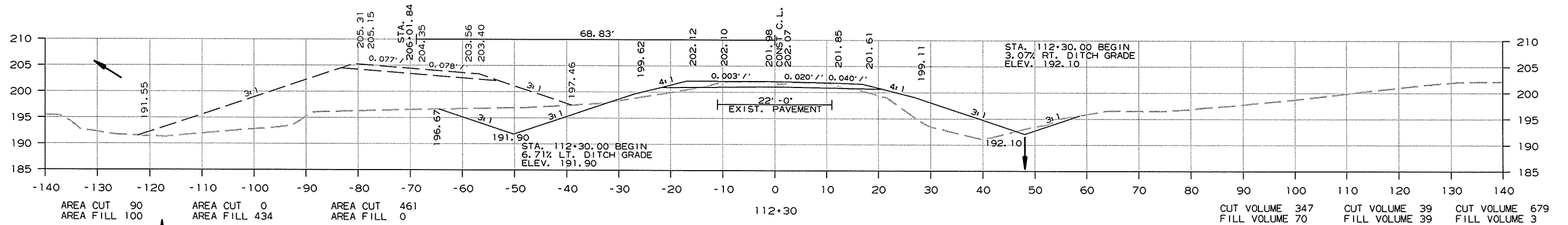
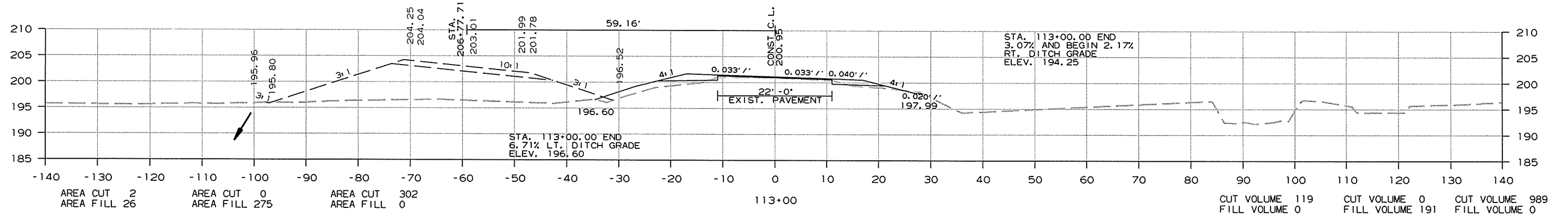
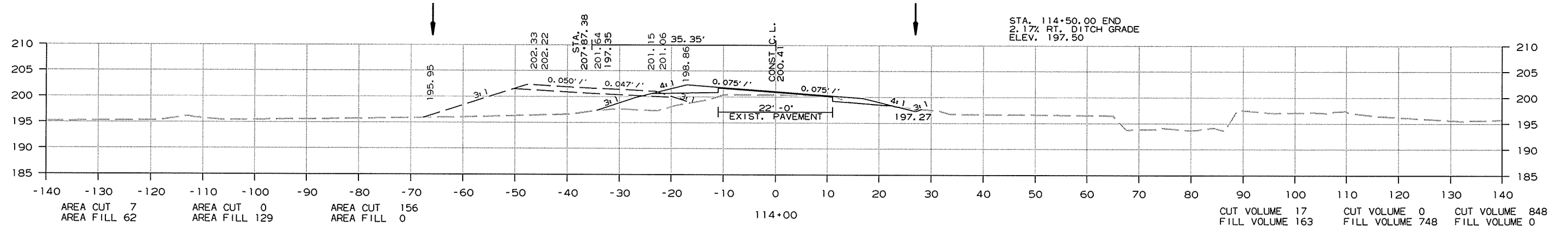
4/10/2015
R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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2 CROSS SECTIONS

MAIN LANES DET. CONST. DET. REMOVAL

MAIN LANES DET. CONST. DET. REMOVAL



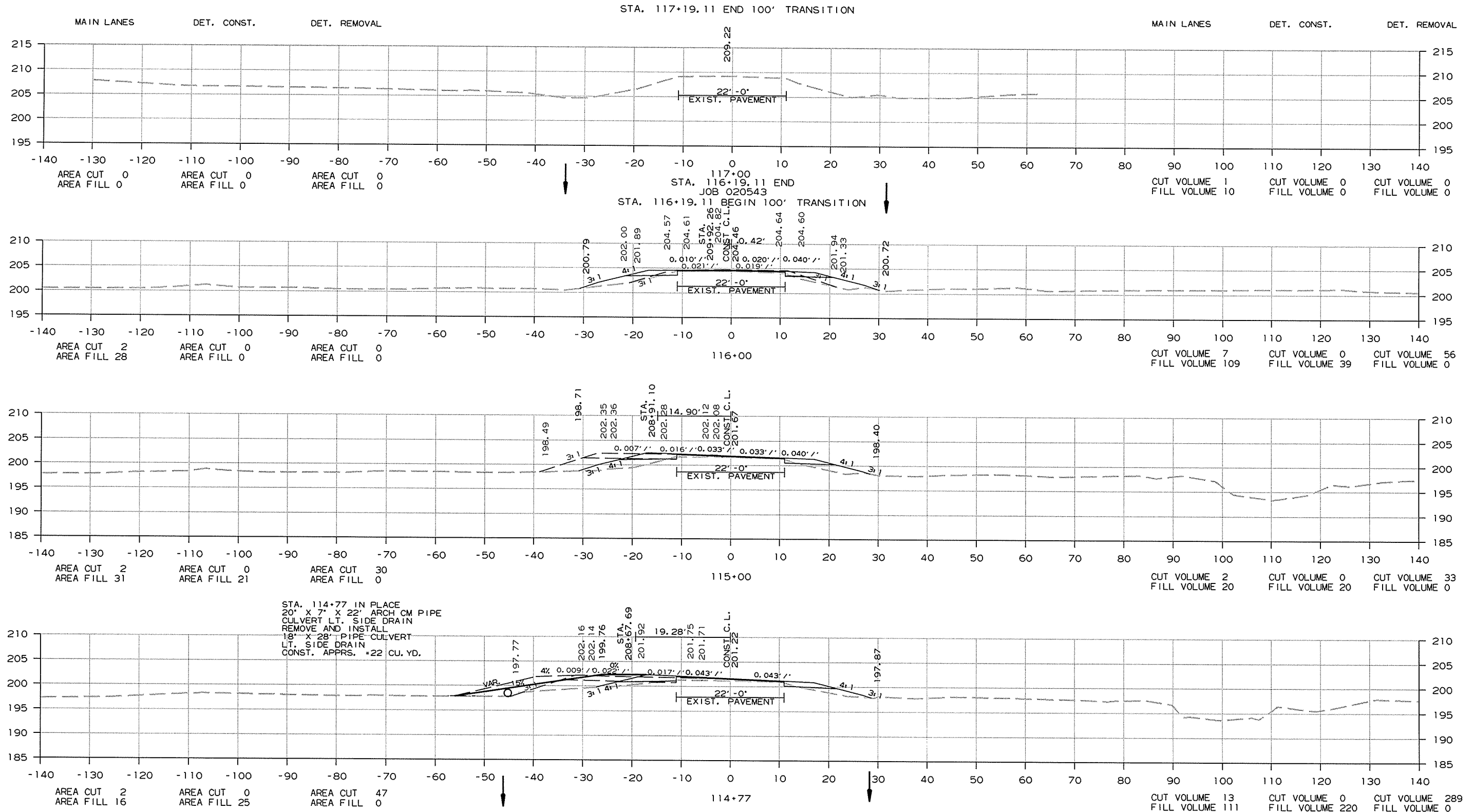
CROSS SECTION STA. 112+30 TO STA. 114+00

4/10/2015

R020543.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	020543		57	57

2 CROSS SECTIONS



CROSS SECTION STA. 114+77 TO STA. 117+00

4/10/2015
R020543.DGN