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.		061390	1	52
				(2)	CROOKED CREEK CHANNEL IMPVTS. (I-30) (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR CROOKED CREEK

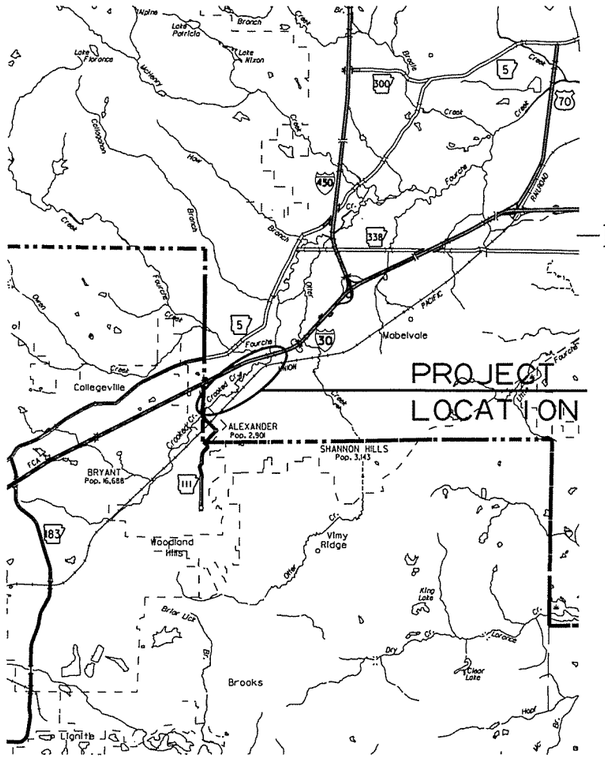
CROOKED CREEK
CHANNEL IMPVTS. (I-30)(S)

PULASKI COUNTY

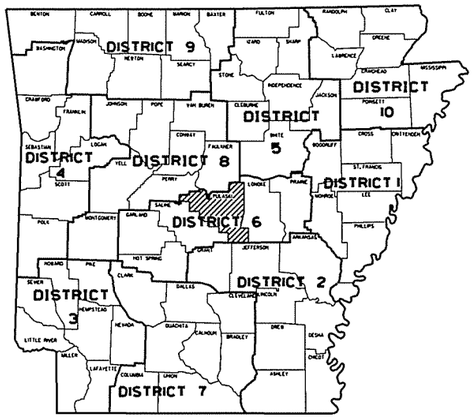
ROUTE I-30 SECTION 23

JOB 061390

FED. AID PROJ. NHPP-9253(67)

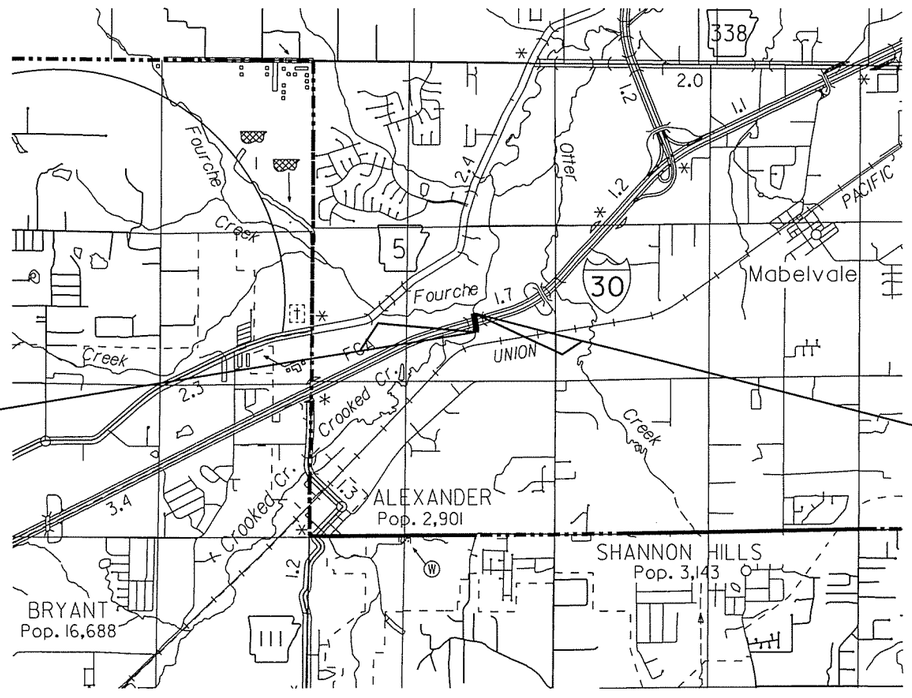


VICINITY MAP



ARK. HWY. DIST. NO. 6

NOT TO SCALE



STA. 129+00.00
BEGIN JOB 061390

STA. 135+37.02
END JOB 061390

T 1 S

R 13 W

N

STA. 130+91 ON CROOKED CREEK
4 BRIDGES ON I-30
BR. #A2804, L.M. 127.52
RETAIN

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 34°38′40"	N 34°38′43"	N 34°38′52"
LONGITUDE	W 92°26′44"	W 92°25′44"	W 92°25′31"

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7836
M. E. BANKS

5-6-16

DEPUTY DIRECTOR
AND CHIEF ENGINEER

P.E. 061390

061390

4/22/2016

HYD061390.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
05-25-16				6	ARK.			
06-9-16				JOB NO.		061390	2	52
				(2) INDEX OF SHEETS, GOV. SPECIFICATIONS, AND GENERAL NOTES				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-9-16

INDEX OF SHEETS

NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1	AGGREGATE BASE COURSE
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 061390	AIRPORT CLEARANCE REQUIREMENTS
JOB 061390	BIDDING REQUIREMENTS AND CONDITIONS
JOB 061390	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 061390	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 061390	CARGO PREFERENCE ACT REQUIREMENTS
JOB 061390	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 061390	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 061390	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 061390	ISSUANCE OF PROPOSALS
JOB 061390	MANDATORY ELECTRONIC CONTRACT
JOB 061390	PLASTIC PIPE
JOB 061390	SHORING FOR CULVERTS
JOB 061390	SOIL STABILIZATION
JOB 061390	STORM WATER POLLUTION PREVENTION PLAN
JOB 061390	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 061390	UTILITY ADJUSTMENTS
JOB 061390	WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THIS PROJECT IS COVERED UNDER A SECTION 404 INDIVIDUAL PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. 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.

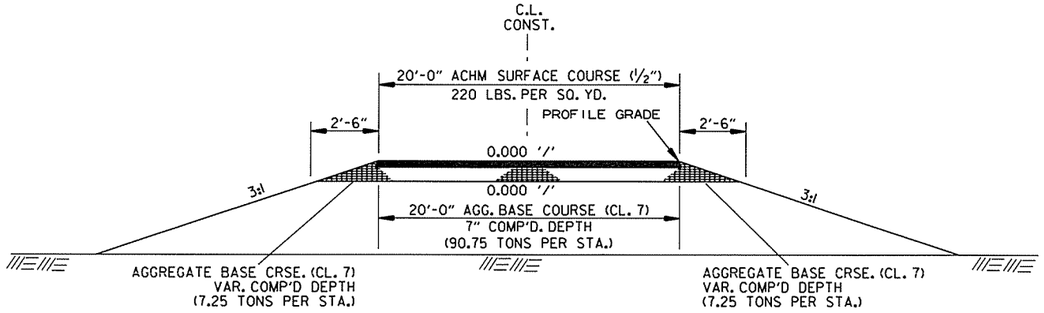
HYD061390.DGN 4/15/2016

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

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.		061390	3	52

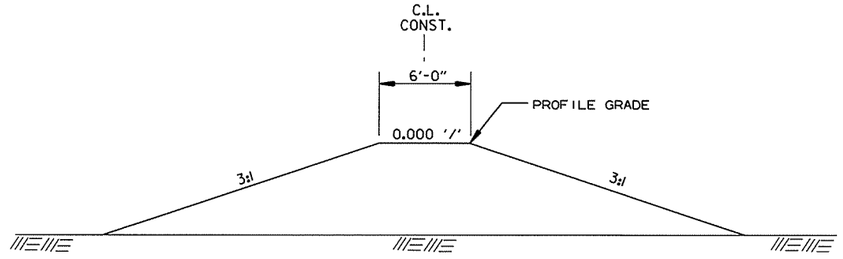
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16



PAVED 20' BERM

STA. 203+81 - STA. 207+54.92



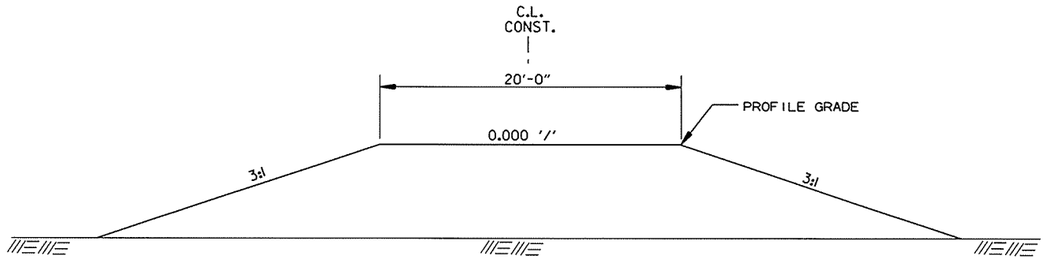
6' BERM

STA. 207+73.45 - STA. 220+00.00
AND DITCH BLOCK WITH FLOODGATE

NOTES:

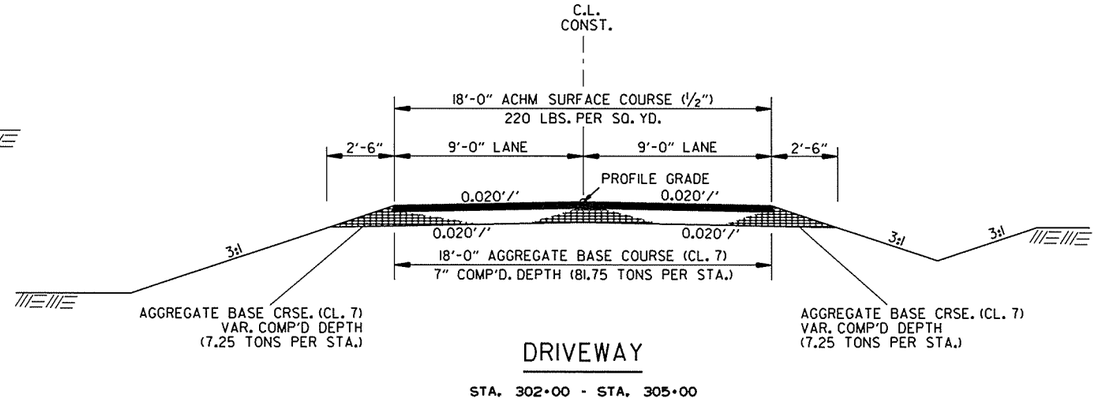
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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.



20' BERM

STA. 201+00 - STA. 203+81



DRIVEWAY

STA. 302+00 - STA. 305+00

4/15/2016

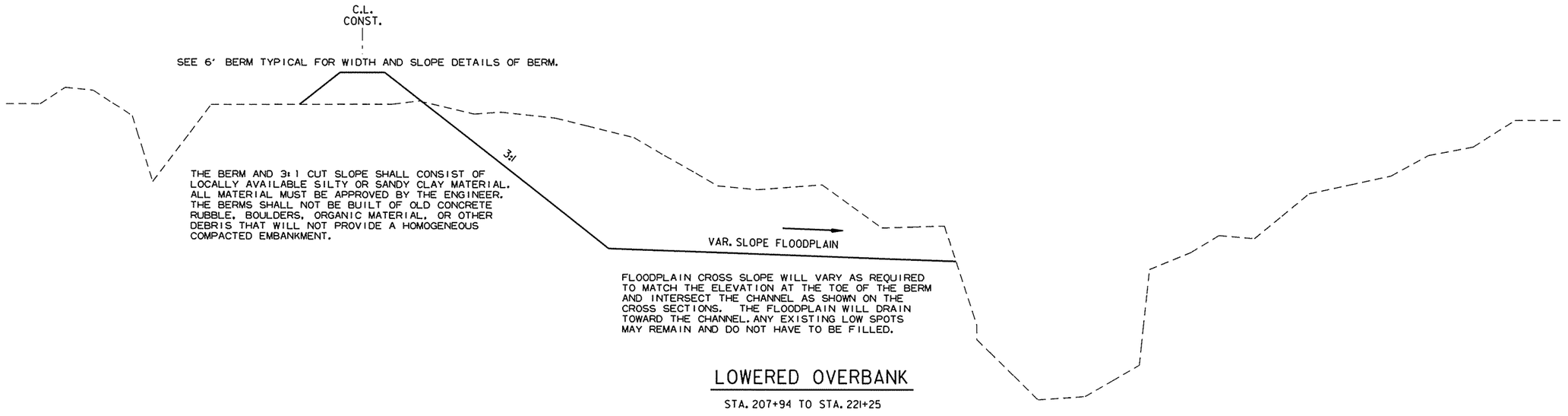
HYD061390.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	4	52

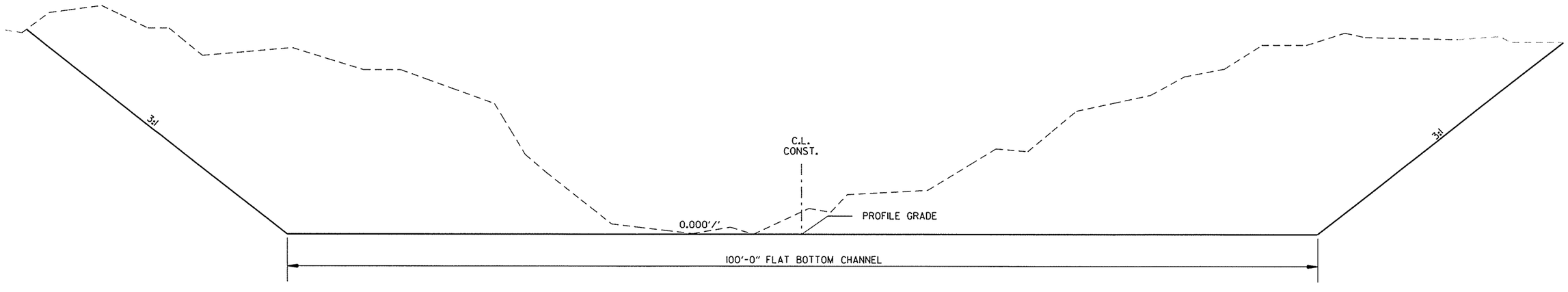
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16



LOWERED OVERBANK

STA. 207+94 TO STA. 221+25



CROOKED CREEK

STA. 129+00 TO STA. 135+37.02

4/15/2016

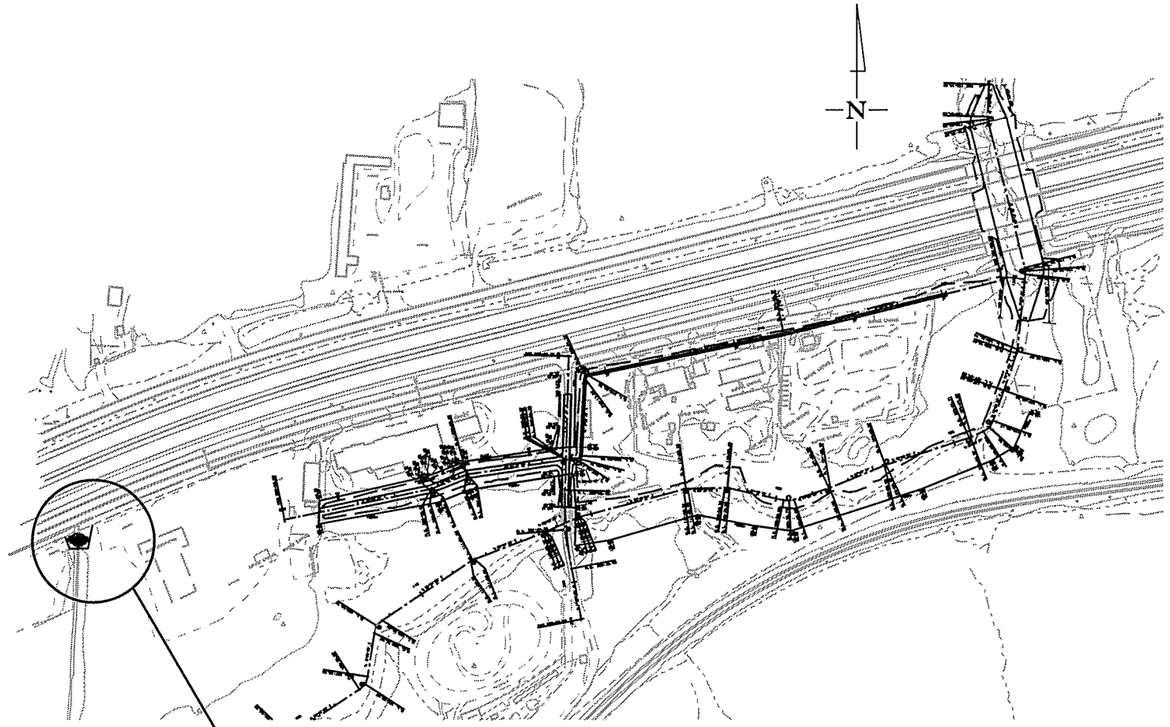
HYD061390.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	5	52

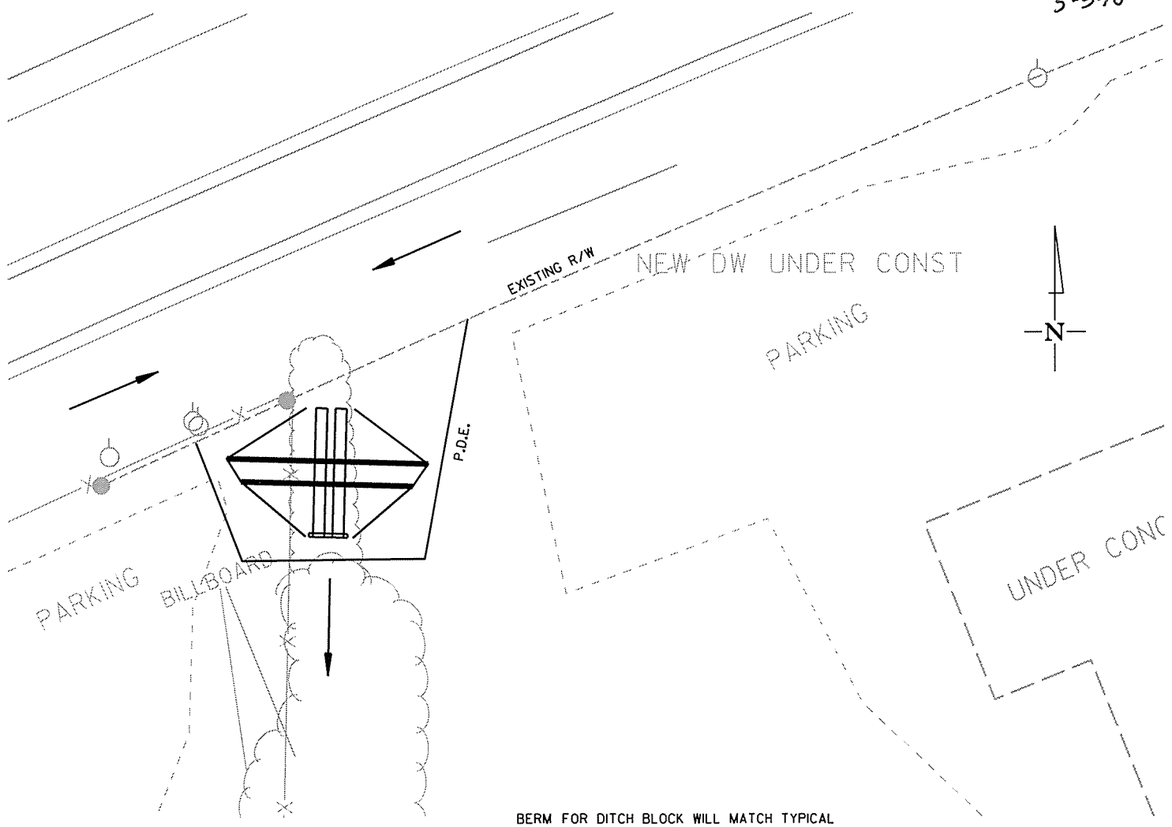
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
5-5-16

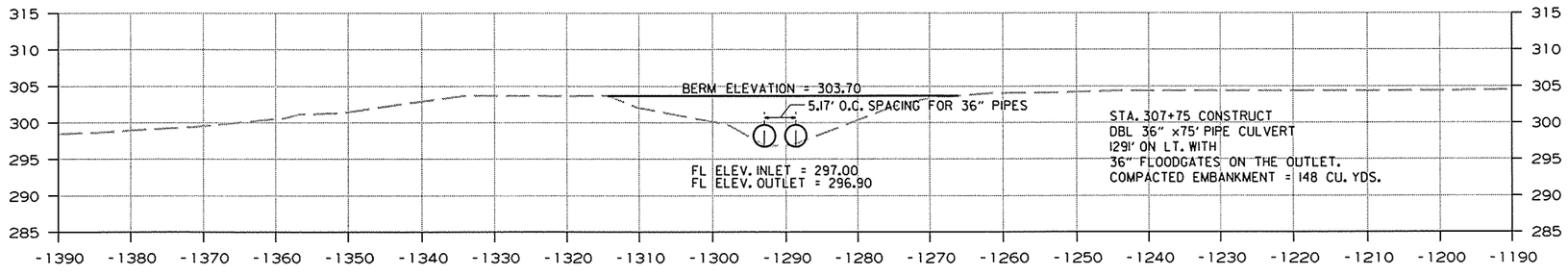


DITCH BLOCK/AUTOMATIC FLOODGATE LOCATION

FLOODGATE LOCATION IS NOT SHOWN ON PLANS, STA. 307+75 FROM DRIVEWAY ALIGNMENT AT OFFSET 1291' LT. CONSTRUCT A DBL 36" x75' PIPE CULVERT WITH FLOODGATES ON THE OUTLET.



BERM FOR DITCH BLOCK WILL MATCH TYPICAL FOR THE 6' BERM WITH 3:1 SIDE SLOPES. TOP OF BERM ELEVATION FOR DITCH BLOCK IS 303.70
36" PIPE SPACING WILL BE 5.17' O.C.



8/14/2014

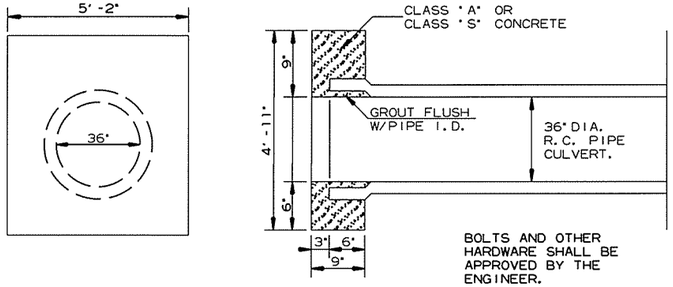
HYD061390.DGN

SPECIAL DETAILS

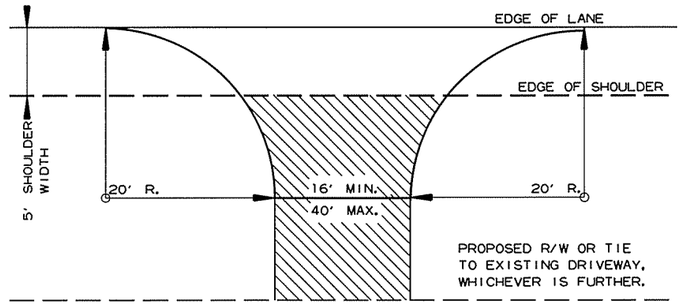
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	6	52

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16



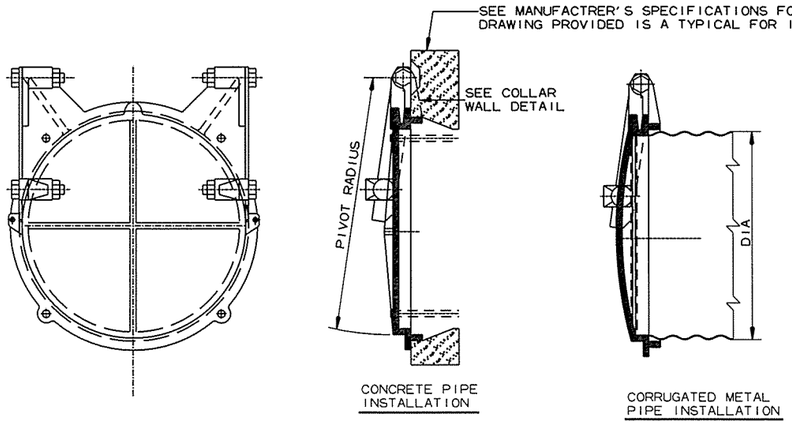
R.C. PIPE COLLAR WALL DETAILS



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

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

DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)



CONCRETE PIPE INSTALLATION

CORRUGATED METAL PIPE INSTALLATION

TYPICAL AUTOMATIC FLOODGATE DETAILS

THE 36" FLOODGATE DIMENSIONS AND MOUNTING HARDWARE WILL BE AS REQUIRED BY THE MANUFACTURER'S SPECIFICATIONS.

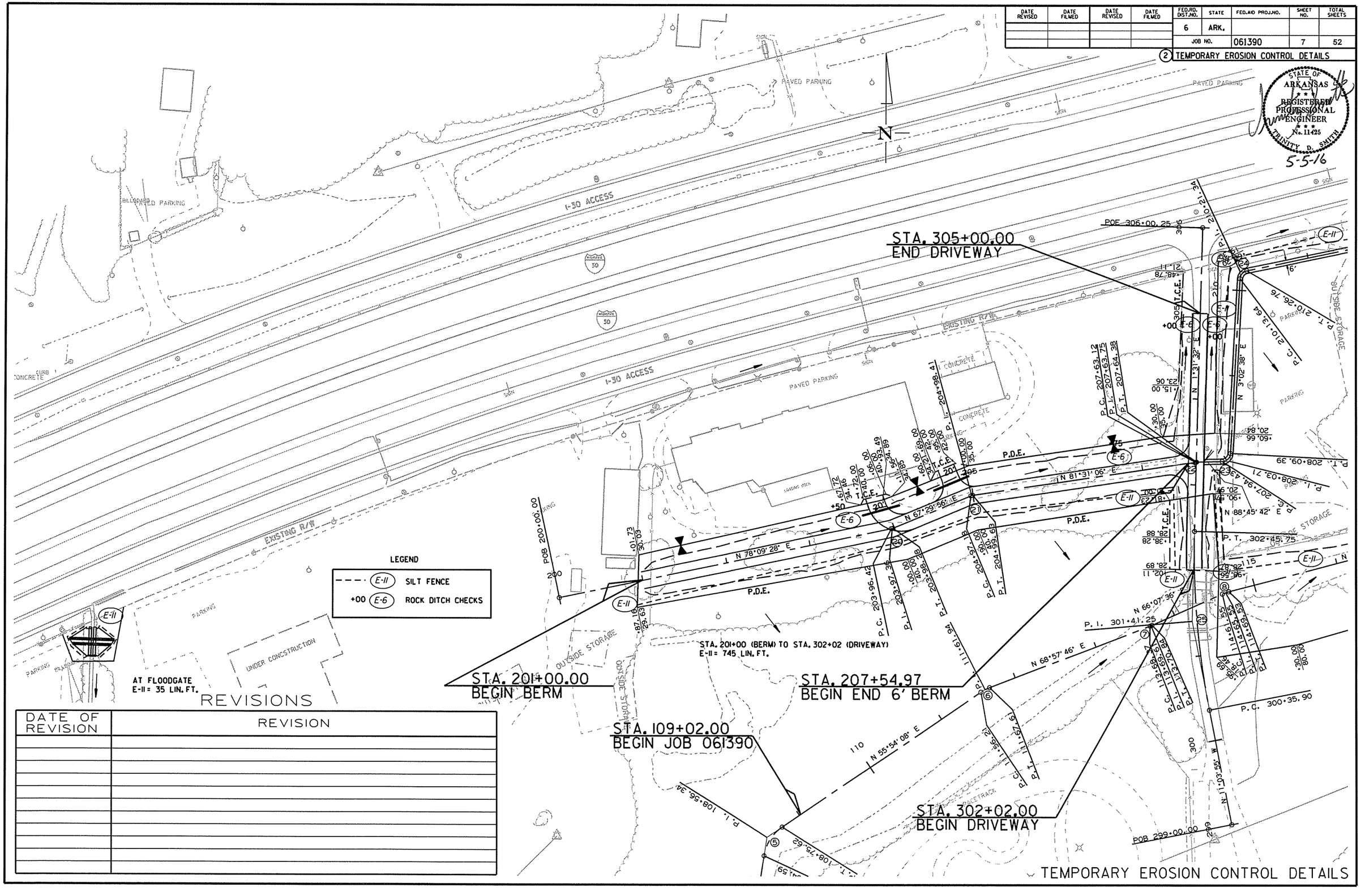
8/14/2014

HYD061390.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	7	52

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16



REVISIONS

DATE OF REVISION	REVISION

4/15/2016

HYD061390.DGN

TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

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.		061390	8	52

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

STA. 209+50 TO STA. 221+25
E-II = 1205 LIN. FT.

STA. 305+00.00
END DRIVEWAY

STA. 221+25.00
END BERM

STA. 129+00.00
BEGIN CROOKED CREEK

STA. 114+60 TO STA. 129+00
E-II = 1510 LIN. FT.

STA. 302+02.00
BEGIN DRIVEWAY

LEGEND

- E-II SILT FENCE
- +00 E-6 ROCK DITCH CHECKS

I-30 ACCESS

OUTSIDE STORAGE

PAVED PARKING

EXISTING R/W

4/15/2016

HY0061390.DGN

TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	9	52

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

LEGEND

- E-11 SILT FENCE
- +00 E-6 ROCK DITCH CHECKS

STA. 129+00 TO STA. 135+37.02
E-11 = 1280 LIN. FT.

STA. 135+37.02
END CROOKED CREEK
END JOB 061390

STA. 129+00.00
BEGIN CROOKED CREEK

REVISIONS

DATE OF REVISION	REVISION

4/15/2016

HYD061390.DGN

TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	10	52

(2) MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC

STAGE 1
REMOVE OVERBANK MATERIAL
CONSTRUCT BERM UP TO DRIVEWAY

STAGE 2
CLOSE DRIVEWAY
RECONSTRUCT DRIVEWAY

END OF JOB
PLACE FINAL 2" ACHM SURFACE ON DRIVEWAY

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

STA. 305+00.00
END DRIVEWAY

36 TRAFFIC DRUMS
20' O.C. FOR DRIVEWAYS

STA. 201+00.00
BEGIN BERM

STA. 109+02.00
BEGIN JOB 061390

STA. 302+02.00
BEGIN DRIVEWAY

ROAD CLOSED

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

8' BARR. TYP. III RT.

8' BARR. TYP. III LT.

MAINTENANCE OF TRAFFIC ALL STAGES

4/19/2016

HY0061390.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.		061390	11	52

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)	
										RIGHT	LEFT
			LIN. FT. - EACH				NO.	SQ. FT.	EACH	LIN. FT.	
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	1	16.0			
R11-2	ROAD CLOSED	48"x30"		2	2	2	2	20.0			
	TRAFFIC DRUMS			36	36	36			36		
	TYPE III BARRICADE-RT. (8')			2	2	2				16	
	TYPE III BARRICADE-LT. (8')			2	2	2					16
TOTALS:								36.0	36	16	16

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
202+00	204+00	BERM	2	2
205+00	208+00	BERM	3	3
210+00	221+25	BERM	12	12
129+00	135+37	CROOKED CREEK	7	7
TOTALS:			24	24

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CONCRETE DRIVEWAYS	WALKS	SIGN FOUNDATIONS	BUILDINGS	SIGNS	WELL	SEPTIC SYSTEM	CANOPY	ROCK COLUMNS	LUMINAIRE POLES	CONCRETE WALLS	CONCRETE SLABS	ROCK WALLS	BILLBOARDS
			SQ. YD.	SQ. YD.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN. FT.	SQ. YD.	LIN. FT.	EACH
201+20		WELL AND WELL HOUSE ON LT.				1		1								
207+98		SIGNS ON LT.			2		3									
208+00		BUILDING WITH SEPTIC SYSTEM ON LT.				1			1							
210+55		LUMINAIRE ON RT.										1				
211+60		SIGN ON LT.			2		1									
211+60		SHED ON RT.				1										
211+80		SHED ON RT.				1										
212+00		WELL AND WELL HOUSE ON RT.				1		1								
212+00		CARPORT				1										
212+05		SHED ON RT.				1										
212+30		BUILDING WITH SEPTIC SYSTEM ON RT.		10		1			1							
212+80		SHED ON RT.				1										
212+80		CARPORT ON RT.				1										
212+90		SHED ON RT.				1										
212+90		CARPORT ON RT.				1										
213+05		SIGNS ON RT.			2		4									
213+12		BUILDING ON RT.				1										
214+12		CANOPY ON RT.								1						
214+12		BUILDING WITH CANOPY ON RT.				1										
214+50		SHED				1										
214+85		SHED				1										
215+25		BILLBOARD ON RT.			1											1
215+30		SHED ON RT.				1										
215+30		CONCRETE WALLS ON RT.											220			
215+30		CONCRETE SLAB ON RT.												176		
215+80		ROCK WALL ON RT.													34	
216+10		ROCK BUILDING				1			1							
216+35		BUILDING ON RT.				1										
216+60		ROCK COLUMN ON LT.									1					
216+70		CONCRETE DRIVEWAY ON LT.	470													
216+90		ROCK COLUMN ON LT.									1					
217+75		LUMINAIRE ON RT.										1				
217+95		SIGN ON RT.			2		1									
218+20		LUMINAIRE ON RT.										1				
TOTALS:			470	10	9	19	9	2	3	1	2	3	220	176	34	1

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
207+40		6' CHAIN LINK FENCE AND GATES ON LT.	210	2
207+40		WIRE FENCE ON RT.	90	
207+70		METAL GATE ON RT.		1
207+90	211+25	6' CHAIN LINK FENCE ON LT. AND RT.	750	
211+20		SECURITY GATE ON LT		1
211+25	212+08	6' CHAIN LINK FENCE ON LT.	410	
212+75	213+45	6' CHAIN LINK FENCE ON RT.	80	
213+50		CHAIN LINK GATES		2
213+65	214+85	6' CHAIN LINK FENCE	130	
214+85	215+00	6' CHAIN LINK FENCE AND GATE ON LT.	360	2
216+60		METAL GATE ON LT.		1
216+90		METAL GATE ON LT.		1
TOTALS:			2030	10

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
211+29	18" X 50' RCP ON LT.	1
212+79	24" X 60' CMP ON LT.	1
213+56	24" X 60' CMP ON LT.	1
214+84	24" X 60' CMP ON LT.	1
216+68	30" X 50' CMP ON LT.	1
TOTAL:		5

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

4/15/2016

HYD061390.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.		061390	12	52

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL							
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						13.40	13.40	273.4					
ENTIRE	PROJECT	STAGE 1	13.40	26.80	13.40	1366.8	13.40				12	4780			181
ENTIRE	PROJECT	STAGE 2													
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.								5.00	5.00	102.0	6	1000	300	300	337
TOTALS:			13.40	26.80	13.40	1366.8	13.40	18.40	18.40	375.4	18	5780	300	300	518

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

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

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

SELECTED PIPE BEDDING

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

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

FENCING

STATION	STATION	LOCATION	* 5' CHAIN LINK FENCE	* 20'-0" GATES
			LIN. FT.	EACH
201+17	208+85	BERM ON LT.	680	
203+88		BERM ON LT.		1
204+83		BERM ON LT.		1
TOTALS:			680	2

* DENOTES ALTERNATE BID ITEM.

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 18"	STANDARD DRAWINGS
			FEET	SQ. YD.	TON	TON	LIN. FT.	
203+88	LT.	BERM	20	64.12	7.05	26.18	36	PCC-1, PCM-1, PCP-1, PCP-2
204+83	LT.	BERM	20	77.45	8.52	31.63	36	PCC-1, PCM-1, PCP-1, PCP-2
303+26	LT.	DRIVEWAY	20	821.90	90.41	368.38		
302+00	CL	DRIVEWAY	18	600.00	66.00	288.75		
* ENTIRE	PROJECT	TEMPORARY DRIVES - TO BE USED IF AND				30.00		
		WHERE DIRECTED BY THE ENGINEER						
TOTALS:				1563.47	171.98	744.94	72	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....95.1% MIN. AGGR.....4.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	CROOKED CREEK	8671	6	
ENTIRE	PROJECT	EARTH BERM	67322	5068	
ENTIRE	PROJECT	DRIVEWAY	207	352	
ENTIRE	PROJECT	APPROACHES	265	105	
		6' DITCH BLOCK FOR FLOODGATES		148	
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			100
		DIRECTED BY THE ENGINEER			
TOTALS:			76465	5679	100

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

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERT ALTERNATES		AUTOMATIC FLOODGATES	STD. DWG. NOS.
		ALT. 1 (CLASS III)	ALT. 2, 3, AND 4 (WITH CLASS III ALT. 1)		
		36"	36"	36"	
		LIN. FT.	LIN. FT.	EACH	
	DBL 36" PIPE CULVERT WITH FLOODGATE	68	68	2	PCC-1, PCM-1, SPECIAL DETAIL
TOTALS:		68	68	2	

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

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

4/15/2016

HYD061390.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
05-25-16				6	ARK.			
06-9-16				JOB NO.		061390	13	52
				(2) SUMMARY OF QUANTITIES AND REVISIONS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
6-9-16

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		24	STATION
201	GRUBBING		24	STATION
202	REMOVAL AND DISPOSAL OF WELL		2	EACH
202	REMOVAL AND DISPOSAL OF FENCE		2030	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES		10	EACH
202	REMOVAL AND DISPOSAL OF CANOPY		1	EACH
202	REMOVAL AND DISPOSAL OF SEPTIC SYSTEM		3	EACH
202	REMOVAL AND DISPOSAL OF ROCK WALLS		34	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE WALLS		220	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		470	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALKS		10	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE SLABS		176	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		9	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		5	EACH
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLES		3	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS		19	EACH
202	REMOVAL AND DISPOSAL OF ROCK COLUMNS		2	EACH
202	REMOVAL AND DISPOSAL OF BILLBOARDS		1	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		9	EACH
210	UNCLASSIFIED EXCAVATION		76465	CU. YD.
210	COMPACTED EMBANKMENT		5679	CU. YD.
SP & 210	SOIL STABILIZATION		100	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		745	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		164	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		8	TON
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SS & 604	SIGNS		36	SQ. FT.
SS & 604	BARRICADES		32	LIN. FT.
SS & 604	TRAFFIC DRUMS		36	EACH
* 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	68	LIN. FT.
* 606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	68	LIN. FT.
* 606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	68	LIN. FT.
* 606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	68	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		72	LIN. FT.
606	SELECTED PIPE BEDDING		20	CU. YD.
616	36" AUTOMATIC FLOODGATES		2	EACH
* 619	5' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)	680	LIN. FT.
* 619	5' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)	680	LIN. FT.
* 619	20' STEEL GATES	(ALTERNATE NO. 1)	2	EACH
* 619	20' ALUMINUM GATES	(ALTERNATE NO. 2)	2	EACH
620	LIME		27	TON
620	SEEDING		13.40	ACRE
SS & 620	MULCH COVER		31.80	ACRE
620	WATER		1742.2	M.GAL.
621	TEMPORARY SEEDING		18.40	ACRE
621	SILT FENCE		5780	LIN. FT.
621	SEDIMENT BASIN		300	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		300	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		518	CU. YD.
621	ROCK DITCH CHECKS		18	CU. YD.
623	SECOND SEEDING APPLICATION		13.40	ACRE
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
5/25/2016	REMOVED SPS "DISADVANTAGED BUSINESS ENTERPRISE SET-ASIDE PROJECT" AND "DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES"	2, 13
6/9/2016	ADDED "ISSUANCE OF PROPOSALS" SP	2, 13

4/15/2016

HY0061390.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.		061390	14	52

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

SURVEY CONTROL COORDINATES

Project Name: shyd6_432
Date: 6/18/2012
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	2033369.8577	1184519.7325	300.41	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 1, RTK ELEV
2	2033330.5722	1184365.7146	290.40	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 2, RTK ELEV
3	2033251.5972	1183815.3908	299.74	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 3, RTK ELEV
4	2033068.5213	1183018.9587	299.99	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 4, RTK ELEV
5	2032806.4224	1182201.8198	302.62	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 5, RTK ELEV
6	2032538.7142	1181551.7702	305.97	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 6, RTK ELEV
7	2032208.7528	1181457.0836	305.22	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 7, RTK ELEV
8	2032496.2226	1182086.2524	301.54	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 8, RTK ELEV
9	2032712.1508	1182709.3550	300.39	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 9, RTK ELEV
10	2032829.5402	1183260.2308	297.36	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 10, RTK ELEV
11	2033039.6622	1184005.9000	299.50	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 11, RTK ELEV
12	2033257.6134	1184680.0685	300.66	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 12, RTK ELEV
13	2032774.5852	1184680.3285	300.41	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 13, RTK ELEV
14	2032307.9955	1183265.7300	294.04	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 14, RTK ELEV
15	2031945.6328	1182923.6291	298.42	CTL	5/8" Rebar with 2" Aluminum Cap STAMPED PN: 15, RTK ELEV
100	2033796.3868	1186923.2624	318.83	GPS	AHTD GPS MONUMENT 600051, RTK ELEV
101	2033689.6238	1185262.7556	324.64	GPs	AHTD GPS MONUMENT 600051A, RTK ELEV

*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).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999621733 HAS BEEN USED TO COMPUTE THE GROUND COORDINATES LISTED ABOVE.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME 6-432GI.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 600051-600051A
CONVERGENCE ANGLE: 00-14-20 LEFT AT LT: 34-38-46.54 LG: 092-25-36.49
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

BERM

POINT NO.	TYPE	STATION	NORTHING	EASTING
8064	POB	200+00.00	2032442.6363	1182523.7985
8065	PC	203+96.42	2032523.9898	1182911.7842
8067	PT	203+98.28	2032524.5382	1182913.5590
8068	PC	204+97.18	2032562.3869	1183004.9294
8070	PT	204+99.63	2032563.0388	1183007.2814
8071	PC	207+63.12	2032601.9014	1183267.8890
8073	PT	207+64.38	2032602.0084	1183269.1478
8074	PC	207+94.43	2032602.6578	1183299.1894
8076	PT	208+09.39	2032612.1244	1183308.9592
8077	PC	210+13.64	2032816.0817	1183319.8050
8079	PT	210+26.76	2032825.3401	1183327.7497
8080	PI	215+55.31	2032933.2295	1183845.1765
8081	POE	221+52.27	2033075.7854	1184424.8664

CROOKED CREEK

POINT NO.	TYPE	STATION	NORTHING	EASTING
8005	POB	100+00.00	2031544.9878	1182240.3592
8006	PC	100+87.63	2031593.8411	1182313.1063
8008	PT	100+91.63	2031595.9379	1182316.5160
8009	PC	101+85.39	2031641.8144	1182398.2830
8011	PT	102+12.47	2031660.6710	1182417.2628
8012	PC	104+42.77	2031860.7772	1182531.2548
8014	PT	104+66.36	2031877.8198	1182547.2506
8015	PC	106+76.82	2031993.3586	1182723.1571
8017	PT	107+18.55	2032027.4276	1182745.1076
8018	PC	108+34.59	2032142.0725	1182763.0295
8020	PT	108+75.62	2032175.7541	1182784.3991
8021	PC	111+56.21	2032333.0600	1183016.7570
8023	PT	111+67.61	2032338.3233	1183026.8388
8024	PC	113+68.37	2032410.3892	1183214.2142
8026	PT	113+70.84	2032411.3345	1183216.5013
8027	PC	114+61.55	2032448.0462	1183299.4503
8029	PT	114+69.53	2032450.6797	1183306.9686
8030	PC	117+53.91	2032523.0114	1183581.9972
8032	PT	117+65.60	2032524.6421	1183593.5463
8033	PC	118+63.33	2032526.9258	1183691.2529
8035	PT	118+75.58	2032525.7171	1183703.4092
8036	PC	120+20.82	2032493.7990	1183845.1004
8038	PT	120+48.03	2032495.1558	1183871.9396
8039	PC	121+44.85	2032525.8514	1183963.7689
8041	PT	121+48.10	2032526.9808	1183966.8149
8042	PC	123+03.90	2032585.8647	1184111.0597
8044	PT	123+07.72	2032587.1705	1184114.6432
8045	PC	125+41.71	2032658.8365	1184337.3922
8047	PT	125+47.82	2032661.0594	1184343.0826
8048	PC	125+82.62	2032675.6771	1184374.6608
8050	PT	126+22.17	2032704.0821	1184400.6890
8051	PC	127+06.84	2032783.7211	1184429.4228
8053	PT	127+07.69	2032784.5248	1184429.7051
8054	PC	128+10.61	2032881.9171	1184462.9802
8056	PT	128+21.79	2032892.8094	1184465.3867
8057	PC	130+20.70	2033090.6115	1184486.3649
8059	PT	130+38.39	2033108.1681	1184485.1115
8060	PC	134+37.02	2033494.5822	1184387.1816
8062	PT	134+51.00	2033508.4326	1184385.6739
8063	POE	135+37.02	2033594.4135	1184388.3701

DRIVEWAY

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	299+00.00	2032179.2463	1183310.2177
8001	PC	300+35.90	2032312.6197	1183284.1345
8003	PT	302+45.75	2032521.3223	1183266.7196
8004	POE	306+00.25	2032875.6994	1183276.1576

4/29/2016

HYD061390.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	15	52

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
CROOKED CREEK								
1	100+89.63	100+87.63	100+91.63	4°35'17" RT.	114°35'30"	2.00	4.00	N/A
2	101+99.27	101+85.39	102+12.47	31°02'11" LT.	114°35'30"	13.88	27.08	N/A
3	104+54.79	104+42.77	104+66.36	27°02'02" RT.	114°35'30"	12.02	23.59	N/A
4	106+98.99	106+76.82	107+18.55	47°49'03" LT.	114°35'30"	22.17	41.73	N/A
5	108+56.34	108+34.59	108+75.62	47°01'02" RT.	114°35'30"	21.75	41.03	N/A
6	111+61.94	111+56.21	111+67.61	13°03'39" RT.	114°35'30"	5.72	11.40	N/A
7	113+69.61	113+68.37	113+70.84	2°50'10" LT.	114°35'30"	1.24	2.48	N/A
8	114+65.55	114+61.55	114+69.53	9°08'18" RT.	114°35'30"	4.00	7.97	N/A
9	117+59.78	117+53.91	117+65.60	13°23'46" RT.	114°35'30"	5.87	11.69	N/A
10	118+69.49	118+63.33	118+75.58	14°02'02" RT.	114°35'30"	6.15	12.25	N/A
11	120+34.77	120+20.82	120+48.03	31°10'41" LT.	114°35'30"	13.95	27.21	N/A
12	121+46.48	121+44.85	121+48.10	3°43'24" LT.	114°35'30"	1.63	3.25	N/A
13	123+05.81	123+03.90	123+07.72	4°22'18" RT.	114°35'30"	1.91	3.81	N/A
14	125+44.77	125+41.71	125+47.82	7°00'18" LT.	114°35'30"	3.06	6.11	N/A
15	126+03.50	125+82.62	126+22.17	45°19'15" LT.	114°35'30"	20.87	39.55	N/A
16	127+07.26	127+06.84	127+07.69	0°58'34" LT.	114°35'30"	0.43	0.85	N/A
17	128+16.22	128+10.61	128+21.79	12°48'34" LT.	114°35'30"	5.61	11.18	N/A
18	130+29.64	130+20.70	130+38.39	20°16'31" LT.	114°35'30"	8.94	17.69	N/A
19	134+44.06	134+37.02	134+51.00	16°01'02" RT.	114°35'30"	7.03	13.98	N/A

45,RTK ELEV

PN:4
PD:STD AHTD MON STAMPED PN:4,RTK ELEV

SURVEY BASELINE

POE 306+00.25

P.I. 210+21.34

BERM CL. N 78°13'19" E 528.56'

PN:10
PD:STD AHTD MON STAMPED PN:10,RTK ELEV

P.T. 210+26.76

P.C. 210+13.64

CL. DRIVEWAY E 305

STA. 207+54.97 20' BERM
STA. 303+24.92 DRIVEWAY
Δ = 79° 59' 34"

STA. 305+00.00
END DRIVEWAY

STA. 207+73.45 6' BERM
STA. 303+26.89 DRIVEWAY
Δ = 87° 14' 10"

PN:9
PD:STD AHTD MON STAMPED PN:9,RTK ELEV

P.I. 204+98.41

CL. BERM N 81°31'06" E 263.49'

P.C. 207+63.12
P.I. 207+63.75
P.T. 207+64.38

N 1°31'32" E 354.50'

N 3°02'38" E 204.25'

30.05'

BERM CL.

P.T. 208+09.39
P.I. 208+03.71
P.C. 207+94.43

N 88°45'42" E

P.T. 302+45.75

STA. 201+00.00
BEGIN 20' BERM

POB 200+00.00

CL. BERM N 78°09'28" E 396.42'

N 67°29'56" E 98.90'

P.C. 203+96.42
P.I. 203+97.36
P.T. 203+98.28

P.C. 204+97.18
P.T. 204+99.63

SURVEY BASELINE

P.I. 301+41.25

N 66°07'36" E 90.71'

CL. DRIVEWAY W

P.C. 113+69.27
P.I. 113+69.84
P.T. 113+70.84

P.C. 114+61.55
P.I. 114+63.53
P.T. 114+63.53

P.C. 300+35.90

PN:14
PD:STD AHTD MON STAMPED PN:14,RTK ELEV

N 11°03'55" W 135.90'

POB 299+00.00

N 68°57'46" E 200.76'

CL. CROOKED CREEK E

P.C. 111+56.28
P.I. 111+61.94
P.T. 111+67.61

N 55°54'08" E 280.60'

P.I. 108+56.34

P.C. 108+34.59
P.I. 108+75.62
P.T. 108+75.62

N 75°15'54" E 284.38'

CL. CROOKED CREEK E

P.C. 117+53.91
P.I. 117+59.78
P.T. 117+65.60

N 88°39'40" E

P.C. 118+63.33
P.I. 118+69.49
P.T. 118+75.58

S 77°18'19" E 145.24'

P.C. 120+20.82
P.I. 120+34.77
P.T. 120+48.03

STA. 302+00.00
BEGIN DRIVEWAY

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
BERM								
20	203+97.36	203+96.42	203+98.28	10°39'31" LT.	572°57'28"	0.93	1.86	N/A
21	204+98.41	204+97.18	204+99.63	14°01'10" RT.	572°57'28"	1.23	2.45	N/A
22	207+63.75	207+63.12	207+64.38	7°14'36" RT.	572°57'28"	0.63	1.26	N/A
23	208+03.71	207+94.43	208+09.39	85°43'04" LT.	572°57'28"	9.28	14.96	N/A
24	210+21.34	210+13.64	210+26.76	75°10'41" RT.	572°57'28"	7.70	13.12	N/A

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
DRIVEWAY								
25	301+41.25	300+35.90	302+45.75	12°35'28" RT.	6°00'00"	105.35	209.85	N/A

SURVEY CONTROL DETAILS

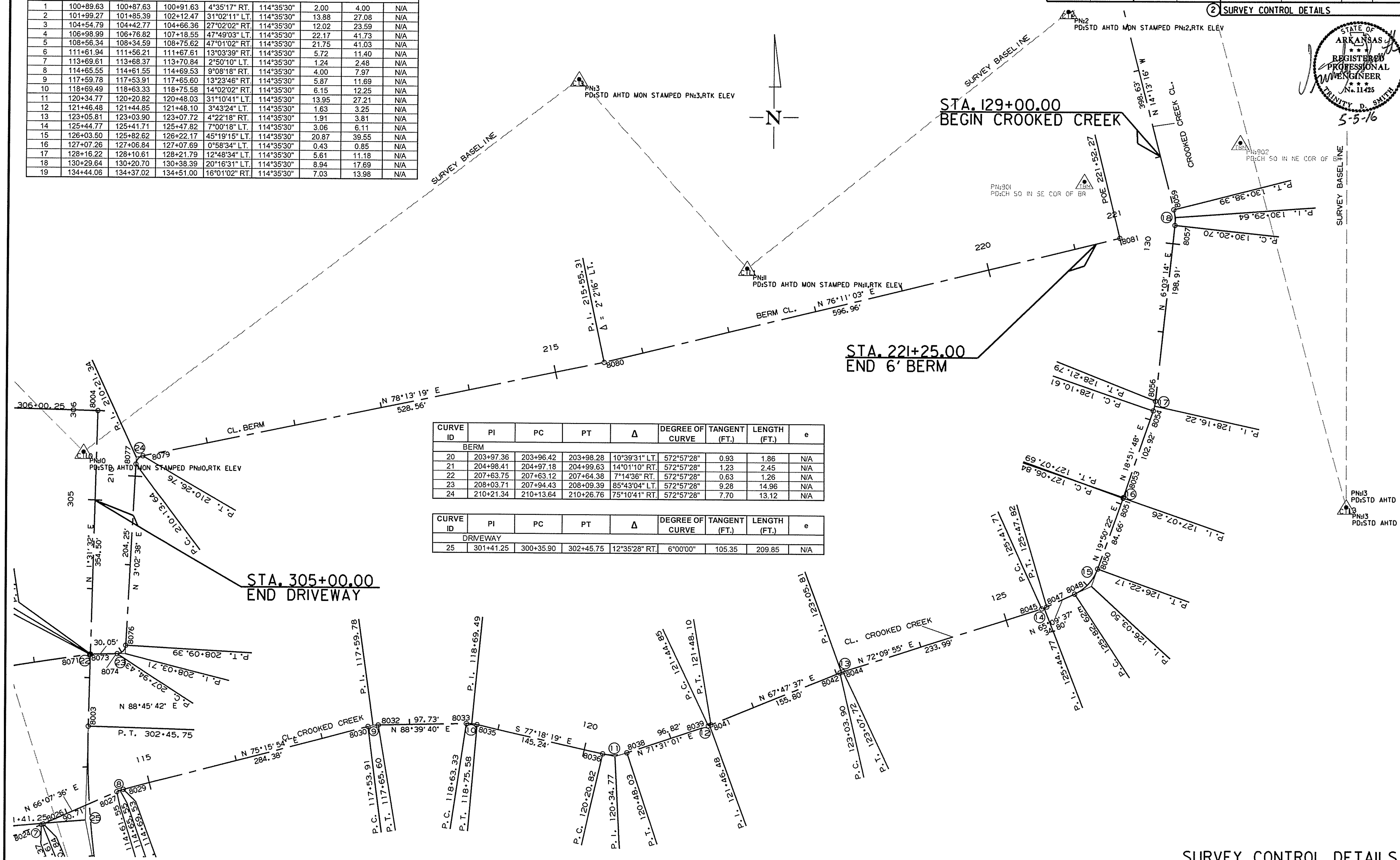
4/29/2016

HYD061390.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.		061390	16	52

(2) SURVEY CONTROL DETAILS

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
CROOKED CREEK								
1	100+89.63	100+87.63	100+91.63	4°35'17" RT.	114°35'30"	2.00	4.00	N/A
2	101+99.27	101+85.39	102+12.47	31°02'11" LT.	114°35'30"	13.88	27.08	N/A
3	104+54.79	104+42.77	104+66.36	27°02'02" RT.	114°35'30"	12.02	23.59	N/A
4	106+98.99	106+76.82	107+18.55	47°49'03" LT.	114°35'30"	22.17	41.73	N/A
5	108+56.34	108+34.59	108+75.62	47°01'02" RT.	114°35'30"	21.75	41.03	N/A
6	111+61.94	111+56.21	111+67.61	13°03'39" RT.	114°35'30"	5.72	11.40	N/A
7	113+69.61	113+68.37	113+70.84	2°50'10" LT.	114°35'30"	1.24	2.48	N/A
8	114+65.55	114+61.55	114+69.53	9°08'18" RT.	114°35'30"	4.00	7.97	N/A
9	117+59.78	117+53.91	117+65.60	13°23'46" RT.	114°35'30"	5.87	11.69	N/A
10	118+69.49	118+63.33	118+75.58	14°02'02" RT.	114°35'30"	6.15	12.25	N/A
11	120+34.77	120+20.82	120+48.03	31°10'41" LT.	114°35'30"	13.95	27.21	N/A
12	121+46.48	121+44.85	121+48.10	3°43'24" LT.	114°35'30"	1.63	3.25	N/A
13	123+05.81	123+03.90	123+07.72	4°22'18" RT.	114°35'30"	1.91	3.81	N/A
14	125+44.77	125+41.71	125+47.82	7°00'18" LT.	114°35'30"	3.06	6.11	N/A
15	126+03.50	125+82.62	126+22.17	45°19'15" LT.	114°35'30"	20.87	39.55	N/A
16	127+07.26	127+06.84	127+07.69	0°58'34" LT.	114°35'30"	0.43	0.85	N/A
17	128+16.22	128+10.61	128+21.79	12°48'34" LT.	114°35'30"	5.61	11.18	N/A
18	130+29.64	130+20.70	130+38.39	20°16'31" LT.	114°35'30"	8.94	17.69	N/A
19	134+44.06	134+37.02	134+51.00	16°01'02" RT.	114°35'30"	7.03	13.98	N/A



CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
BERM								
20	203+97.36	203+96.42	203+98.28	10°39'31" LT.	572°57'28"	0.93	1.86	N/A
21	204+98.41	204+97.18	204+99.63	14°01'10" RT.	572°57'28"	1.23	2.45	N/A
22	207+63.75	207+63.12	207+64.38	7°14'36" RT.	572°57'28"	0.63	1.26	N/A
23	208+03.71	207+94.43	208+09.39	85°43'04" LT.	572°57'28"	9.28	14.96	N/A
24	210+21.34	210+13.64	210+26.76	75°10'41" RT.	572°57'28"	7.70	13.12	N/A

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
DRIVEWAY								
25	301+41.25	300+35.90	302+45.75	12°35'28" RT.	6°00'00"	105.35	209.85	N/A

SURVEY CONTROL DETAILS

4/29/2016

HY061390.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.		061390	17	52

(2) SURVEY CONTROL DETAILS

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
CROOKED CREEK								
1	100+89.63	100+87.63	100+91.63	4°35'17" RT.	114°35'30"	2.00	4.00	N/A
2	101+99.27	101+85.39	102+12.47	31°02'11" LT.	114°35'30"	13.88	27.08	N/A
3	104+54.79	104+42.77	104+66.36	27°02'02" RT.	114°35'30"	12.02	23.59	N/A
4	106+98.99	106+76.82	107+18.55	47°49'03" LT.	114°35'30"	22.17	41.73	N/A
5	108+56.34	108+34.59	108+75.62	47°01'02" RT.	114°35'30"	21.75	41.03	N/A
6	111+61.94	111+56.21	111+67.61	13°03'39" RT.	114°35'30"	5.72	11.40	N/A
7	113+69.61	113+68.37	113+70.84	2°50'10" LT.	114°35'30"	1.24	2.48	N/A
8	114+65.55	114+61.55	114+69.53	9°08'18" RT.	114°35'30"	4.00	7.97	N/A
9	117+59.78	117+53.91	117+65.60	13°23'46" RT.	114°35'30"	5.87	11.69	N/A
10	118+69.49	118+63.33	118+75.58	14°02'02" RT.	114°35'30"	6.15	12.25	N/A
11	120+34.77	120+20.82	120+48.03	31°10'41" LT.	114°35'30"	13.95	27.21	N/A
12	121+46.48	121+44.85	121+48.10	3°43'24" LT.	114°35'30"	1.63	3.25	N/A
13	123+05.81	123+03.90	123+07.72	4°22'18" RT.	114°35'30"	1.91	3.81	N/A
14	125+44.77	125+41.71	125+47.82	7°00'18" LT.	114°35'30"	3.06	6.11	N/A
15	126+03.50	125+82.62	126+22.17	45°19'15" LT.	114°35'30"	20.87	39.55	N/A
16	127+07.26	127+06.84	127+07.69	0°58'34" LT.	114°35'30"	0.43	0.85	N/A
17	128+16.22	128+10.61	128+21.79	12°48'34" LT.	114°35'30"	5.61	11.18	N/A
18	130+29.64	130+20.70	130+38.39	20°16'31" LT.	114°35'30"	8.94	17.69	N/A
19	134+44.06	134+37.02	134+51.00	16°01'02" RT.	114°35'30"	7.03	13.98	N/A

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
BERM								
20	203+97.36	203+96.42	203+98.28	10°39'31" LT.	572°57'28"	0.93	1.86	N/A
21	204+98.41	204+97.18	204+99.63	14°01'10" RT.	572°57'28"	1.23	2.45	N/A
22	207+63.75	207+63.12	207+64.38	7°14'36" RT.	572°57'28"	0.63	1.26	N/A
23	208+03.71	207+94.43	208+09.39	85°43'04" LT.	572°57'28"	9.28	14.96	N/A
24	210+21.34	210+13.64	210+26.76	75°10'41" RT.	572°57'28"	7.70	13.12	N/A

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

STA. 135+37.02
END CROOKED CREEK
END JOB 061390

POE 135+37.02
135
86.02'
N 1°47'46" E
8063
8062
P.T. 134+51.00
P.I. 134+44.06
P.C. 134+37.02
8060

PN:1
PD:STD AHTD MON STAMPED PN:1,RTK ELEV
PN:2
PD:STD AHTD MON STAMPED PN:2,RTK ELEV
SURVEY BASELINE
CL. CROOKED CREEK
398.63'
N 1°47'16" W
PN:902
PD:CH SQ IN NE COR OF BR
PN:901
PD:CH SQ IN SE COR OF BR
POE 221+52.27
221
8081
8059
P.T. 130+38.39
P.I. 130+29.64
P.C. 130+20.70
8057
130
N 6°03'14" E
198.91'
SURVEY BASELINE
PN:12
PD:STD AHTD MON STAMPED PN:12,RTK ELEV

STA. 129+00.00
BEGIN CROOKED CREEK

P.T. 128+21.79
P.C. 128+10.61
8056
P.I. 128+16.22
8054
N 18°51'49" E
102.92'
P.T. 127+07.69
P.C. 127+06.84
8053
127+07.26
0.22'
0.99'
8052
11.71'
47.82'

PN:13
PD:STD AHTD MON STAMPED PN:13,RTK ELEV

SURVEY BASELINE
PN:3
PD:STD AHTD MON STAMPED PN:3,RTK ELEV
SURVEY BASELINE
P.I. 215+55.31
Δ = 2° 2'16" LT.
220
CL. BERM
N 76°11'03" E
596.96'
PN:11
PD:STD AHTD MON STAMPED PN:11,RTK ELEV
215
CL. BERM
N 78°13'19" E
528.56'
8080
8079
ON STAMPED PN:10,RTK ELEV
P.T. 210+26.76
210+13.64

STA. 221+25.00
END 6' BERM

SURVEY CONTROL DETAILS

4/29/2016
HYD061390.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.		061390	18	52

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

STA. 207+94.00
BEGIN LOWERED OVERBANK

ENTIRE PROJECT IS IN A SPECIAL FLOOD HAZARD AREA

CROOKED CREEK

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

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
CROOKED CREEK								
1	100+89.63	100+87.63	100+91.63	4°35'17" RT.	114°35'30"	2.00	4.00	N/A
2	101+99.27	101+85.39	102+12.47	31°02'11" LT.	114°35'30"	13.88	27.08	N/A
3	104+54.79	104+42.77	104+66.36	27°02'02" RT.	114°35'30"	12.02	23.59	N/A
4	106+98.99	106+76.82	107+18.55	47°49'03" LT.	114°35'30"	22.17	41.73	N/A
5	108+56.34	108+34.59	108+75.62	47°01'02" RT.	114°35'30"	21.75	41.03	N/A
6	111+61.94	111+56.21	111+67.61	13°03'39" RT.	114°35'30"	5.72	11.40	N/A
7	113+69.61	113+68.37	113+70.84	2°50'10" LT.	114°35'30"	1.24	2.48	N/A
8	114+65.55	114+61.55	114+69.53	9°08'18" RT.	114°35'30"	4.00	7.97	N/A
9	117+59.78	117+53.91	117+65.60	13°23'46" RT.	114°35'30"	5.87	11.69	N/A
10	118+69.49	118+63.33	118+75.58	14°02'02" RT.	114°35'30"	6.15	12.25	N/A
11	120+34.77	120+20.82	120+48.03	31°10'41" LT.	114°35'30"	13.95	27.21	N/A
12	121+46.48	121+44.85	121+48.10	3°43'24" LT.	114°35'30"	1.63	3.25	N/A
13	123+05.81	123+03.90	123+07.72	4°22'18" RT.	114°35'30"	1.91	3.81	N/A
14	125+44.77	125+41.71	125+47.82	7°00'18" LT.	114°35'30"	3.06	6.11	N/A
15	126+03.50	125+82.62	126+22.17	45°19'15" LT.	114°35'30"	20.87	39.55	N/A
16	127+07.26	127+06.84	127+07.69	0°58'34" LT.	114°35'30"	0.43	0.85	N/A
17	128+16.22	128+10.61	128+21.79	12°48'34" LT.	114°35'30"	5.61	11.18	N/A
18	130+29.64	130+20.70	130+38.39	20°16'31" LT.	114°35'30"	8.94	17.69	N/A
19	134+44.06	134+37.02	134+51.00	16°01'02" RT.	114°35'30"	7.03	13.98	N/A

340 330 320 310 300 290 280 270 260 250

108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00

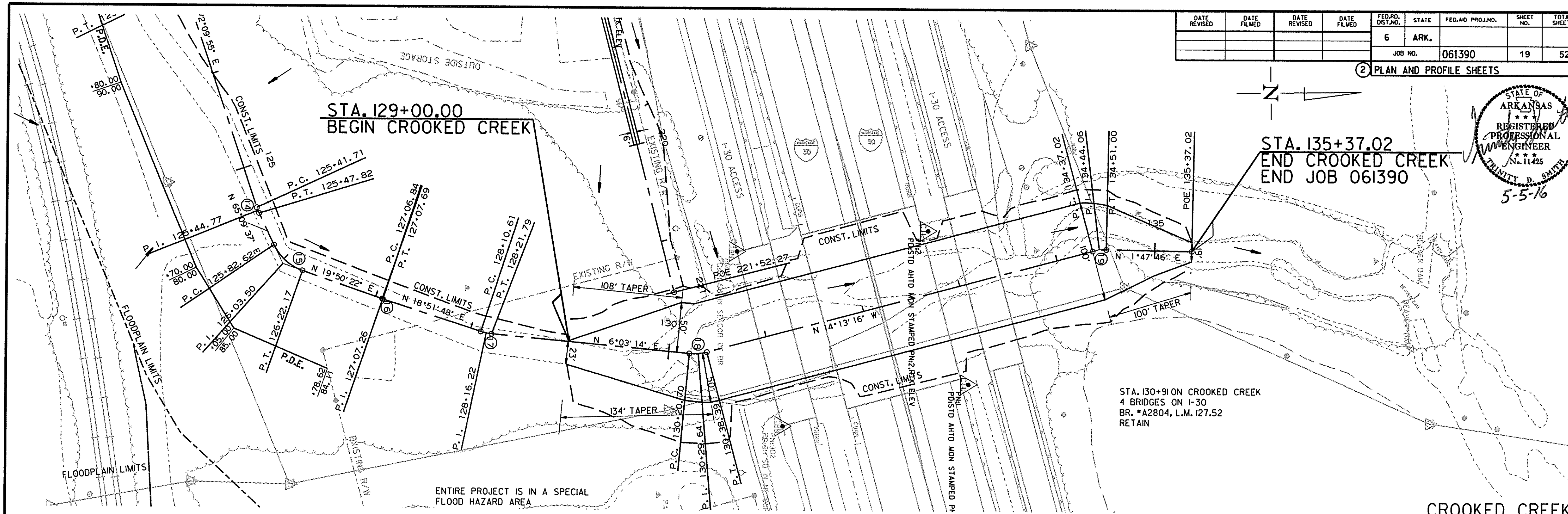
11/8/2011

HYD061390.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.		061390	19	52

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 5-5-16

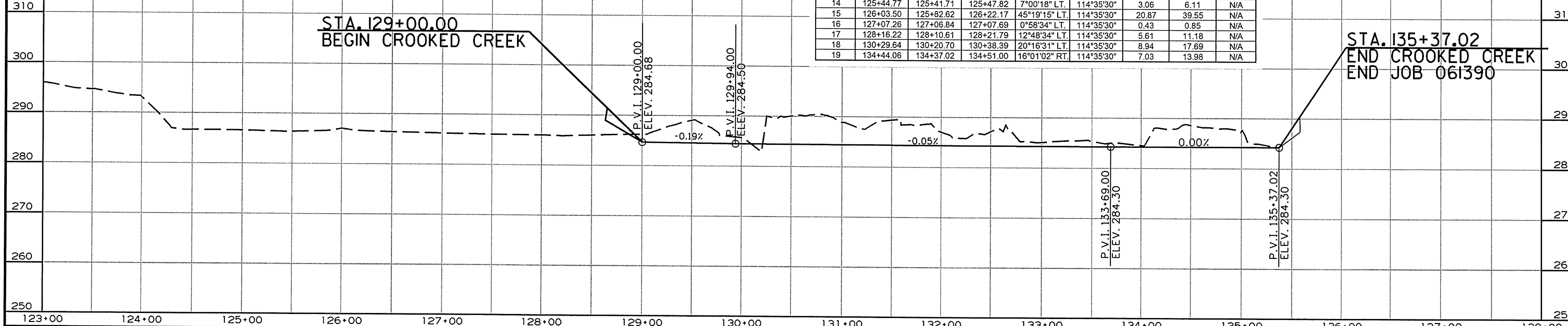


CROOKED CREEK

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

CROOKED CREEK AT STA. 129+00-STA. 135+37.02 IS CLASSIFIED AS PERENNIAL. THE TOP OF CHANNEL ELEVATION IS 297 FT. MSL REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
CROOKED CREEK								
1	100+89.63	100+87.63	100+91.63	4°35'17" RT.	114°35'30"	2.00	4.00	N/A
2	101+99.27	101+85.39	102+12.47	31°02'11" LT.	114°35'30"	13.88	27.08	N/A
3	104+54.79	104+42.77	104+66.36	27°02'02" RT.	114°35'30"	12.02	23.59	N/A
4	106+98.99	106+76.82	107+18.55	47°49'03" LT.	114°35'30"	22.17	41.73	N/A
5	108+56.34	108+34.59	108+75.62	47°01'02" RT.	114°35'30"	21.75	41.03	N/A
6	111+61.94	111+56.21	111+67.61	13°03'39" RT.	114°35'30"	5.72	11.40	N/A
7	113+69.61	113+68.37	113+70.84	2°50'10" LT.	114°35'30"	1.24	2.48	N/A
8	114+65.55	114+61.55	114+69.53	9°08'18" RT.	114°35'30"	4.00	7.97	N/A
9	117+59.78	117+53.91	117+65.60	13°23'46" RT.	114°35'30"	5.87	11.69	N/A
10	118+69.49	118+63.33	118+75.58	14°02'02" RT.	114°35'30"	6.15	12.25	N/A
11	120+34.77	120+20.82	120+48.03	31°10'41" LT.	114°35'30"	13.95	27.21	N/A
12	121+46.48	121+44.85	121+48.10	3°43'24" LT.	114°35'30"	1.63	3.25	N/A
13	123+05.81	123+03.90	123+07.72	4°22'18" RT.	114°35'30"	1.91	3.81	N/A
14	125+44.77	125+41.71	125+47.82	7°00'18" LT.	114°35'30"	3.06	6.11	N/A
15	126+03.50	125+82.62	126+22.17	45°19'15" LT.	114°35'30"	20.87	39.55	N/A
16	127+07.26	127+06.84	127+07.69	0°58'34" LT.	114°35'30"	0.43	0.85	N/A
17	128+16.22	128+10.61	128+21.79	12°48'34" LT.	114°35'30"	5.61	11.18	N/A
18	130+29.64	130+20.70	130+38.39	20°16'31" LT.	114°35'30"	8.94	17.69	N/A
19	134+44.06	134+37.02	134+51.00	16°01'02" RT.	114°35'30"	7.03	13.98	N/A



6/27/2014

HYD061390.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.		061390	20	52

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

REMOVAL OF FENCE AND GATES

STA.	STA.	TYPE	UNITS LIN. FT.	GATE EACH
207+40		6' CHAIN LINK	210	2
207+40		WIRE FENCE	90	
207+70		METAL GATE		1
207+90	211+25	6' CHAIN LINK	750	
211+20		SECURITY GATE		1
211+25	212+08	6' CHAIN LINK	410	

STA. 203+88 INSTALL
18"x36' LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.

STA. 204+83 INSTALL
18"x36' LT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

STA. 305+66 IN PLACE
18" X 40' CM PIPE CULVERT
RETAIN

STA. 201+00.00
BEGIN 20' BERM

STA. 207+54.97 20'BERM
STA. 303+24.92 DRIVEWAY
Δ = 79° 59' 34"

STA. 207+73.45 6'BERM
STA. 303+26.89 DRIVEWAY
Δ = 87° 14' 10"

WIRE FENCE

STA.	STA.	TYPE	LIN. FT.	20' GATE EACH
201+17	208+85	5' CHAIN LINK	680	
203+88				1
204+83				1

REMOVAL OF FENCE AND GATES

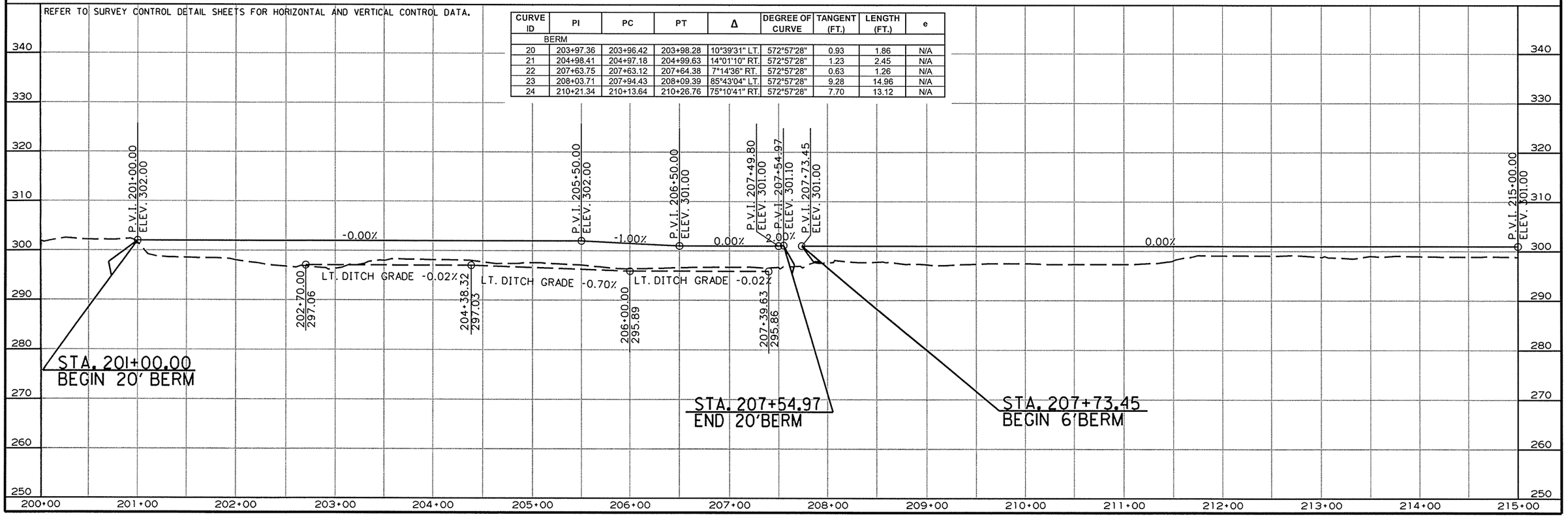
STA.	STA.	TYPE	LIN. FT.	GATE EACH
212+75	213+45	6' CHAIN LINK	80	
213+50		CHAIN LINK GATE		1
213+65	214+85	6' CHAIN LINK	130	2
214+85	215+00	6' CHAIN LINK	360	2

STA. 301+82 IN PLACE
DBL 60" X 30" RC PIPE CULVERT ON RT.
AND 48" X 36' CM PIPE CULVERT ON RT.
RETAIN

BERM

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

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
BERM								
20	203+97.36	203+96.42	203+98.28	10°39'31" LT.	572°57'28"	0.93	1.86	N/A
21	204+98.41	204+97.18	204+99.63	14°01'10" RT.	572°57'28"	1.23	2.45	N/A
22	207+63.75	207+63.12	207+64.38	7°14'36" RT.	572°57'28"	0.63	1.26	N/A
23	208+03.71	207+94.43	208+09.39	85°43'04" LT.	572°57'28"	9.28	14.96	N/A
24	210+21.34	210+13.64	210+26.76	75°10'41" RT.	572°57'28"	7.70	13.12	N/A



6/27/2014

HYD061390.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.		061390	21	52

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

STA. 211+29 IN PLACE
18" X 50' RC PIPE CULVERT ON LT.
UNCLASSIFIED EXCAVATION = 46.2 CU. YDS.
REMOVE

STA. 212+79 IN PLACE
24" X 60' CM PIPE CULVERT ON LT.
UNCLASSIFIED EXCAVATION = 56.48 CU. YDS.
REMOVE

STA. 213+56 IN PLACE
24" X 60' CM PIPE CULVERT ON LT.
UNCLASSIFIED EXCAVATION = 55.7 CU. YDS.
REMOVE

STA. 214+84 IN PLACE
24" X 60' CM PIPE CULVERT ON LT.
UNCLASSIFIED EXCAVATION = 57.2 CU. YDS.
REMOVE

STA. 215+79 IN PLACE
18" X 66' CM PIPE CULVERT ON LT.
RETAIN

STA. 216+68 IN PLACE
30" X 50' RC PIPE CULVERT ON LT.
UNCLASSIFIED EXCAVATION = 48.4 CU. YDS.
REMOVE

REMOVAL OF GATES

STA.	SIDE	TYPE	LIN. FT.	GATE EACH
216+60	LT.	METAL GATE		1
216+90	LT.	METAL GATE		1

STA. 220+00.00
END 6' BERM

STA. 221+25.00
END LOWERED OVERBANK

BERM

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

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
BERM								
20	203+97.36	203+96.42	203+98.28	10°39'31" LT.	572°57'28"	0.93	1.86	N/A
21	204+98.41	204+97.18	204+99.63	14°01'10" RT.	572°57'28"	1.23	2.45	N/A
22	207+63.75	207+63.12	207+64.38	7°14'36" RT.	572°57'28"	0.63	1.26	N/A
23	208+03.71	207+94.43	208+09.39	85°43'04" LT.	572°57'28"	9.28	14.96	N/A
24	210+21.34	210+13.64	210+26.76	75°10'41" RT.	572°57'28"	7.70	13.12	N/A

P.V.I. 210+00.00
ELEV. 301.00
0.00%
P.V.I. 219+62.70
ELEV. 301.00
P.V.I. 220+00.00
ELEV. 292.75
-2.18%

STA. 220+00.00
END 6' BERM

STA. 221+25.00
END LOWERED OVERBANK

6/27/2014

HYD061390.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	22	52

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
5-5-16

STA. 301+30 IN PLACE
TRI. 24" X 25' RC PIPE CULVERT
RETAIN

STA. 301+62 IN PLACE
48" X 36' CM PIPE CULVERT
RETAIN

STA. 301+82 IN PLACE
DBL. 60" X 30' RC PIPE CULVERT
RETAIN

STA. 302+00.00
BEGIN DRIVEWAY

STA. 207+54.97 20' BERM
STA. 303+24.92 DRIVEWAY
Δ = 79° 59' 34"

STA. 207+73.45 6' BERM
STA. 303+26.89 DRIVEWAY
Δ = 87° 14' 10"

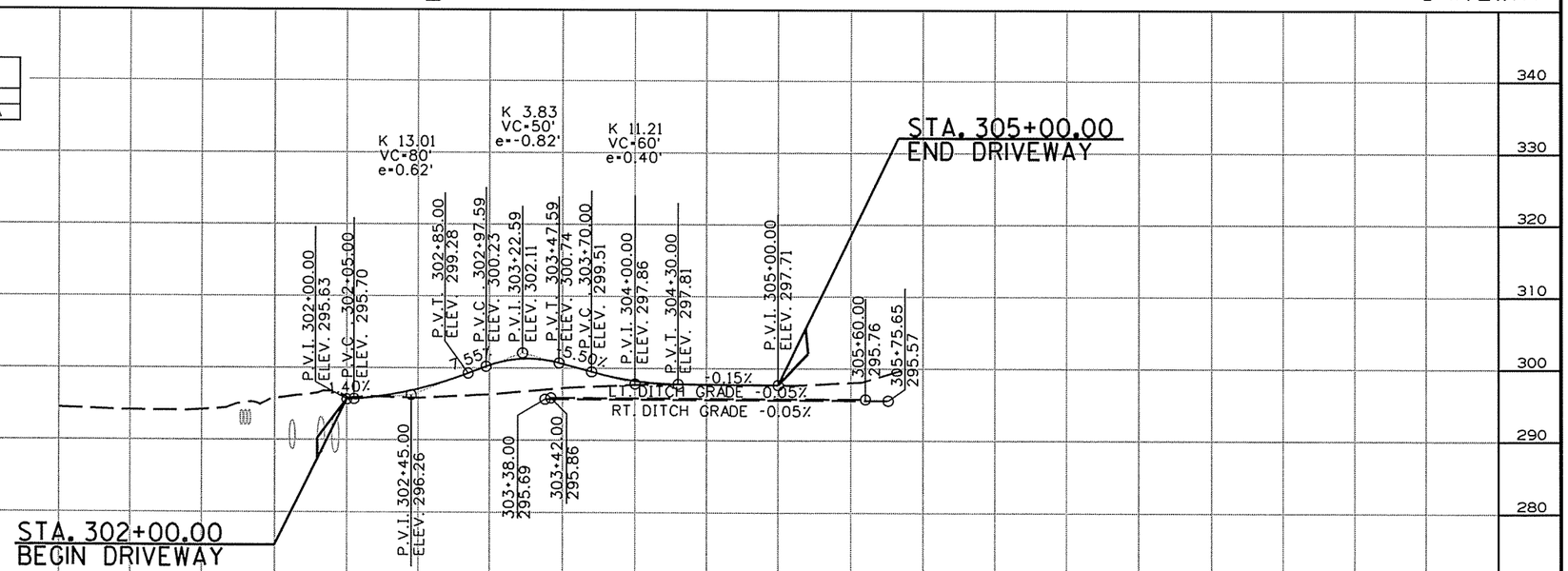
STA. 305+00.00
END DRIVEWAY

STA. 305+66 IN PLACE
18" X 40' CM PIPE CULVERT
RETAIN

DRIVEWAY

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

CURVE ID	PI	PC	PT	Δ	DEGREE OF CURVE	TANGENT (FT.)	LENGTH (FT.)	e
DRIVEWAY								
25	301+41.25	300+35.90	302+45.75	12°35'28" RT.	6°00'00"	105.35	209.85	N/A



6/27/2014

HY0061390.DGN

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	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

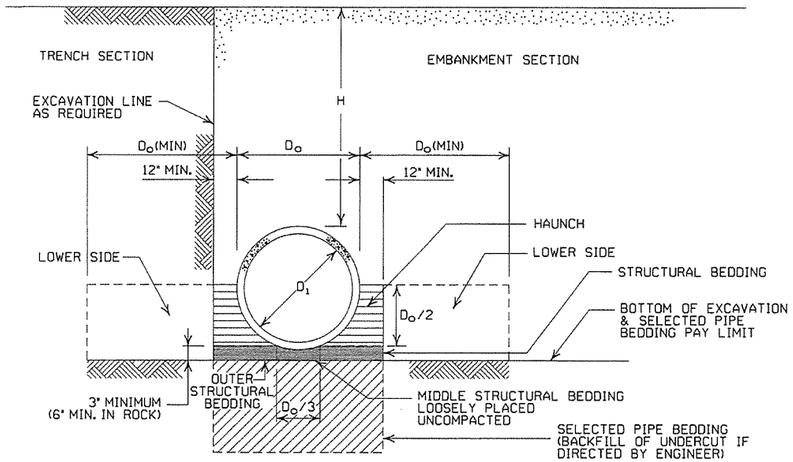
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS 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

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

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

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

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

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

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

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

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

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

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

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

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

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 MINUMUM 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
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM 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 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION		INSTALLATION		INSTALLATION		INSTALLATION
				TYPE 1		TYPE 1		TYPE 1		TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2		15	0.060	2		15
18	21x15	3	0.064	2		15	0.060	2		15
21	24x18	3	0.064	2.25		15	0.060	2.25		15
24	28x20	3	0.064	2.5		15	0.075	2.5		15
30	35x24	3	0.079	3		12	0.075	3		12
36	42x29	3½	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	0.164	3		15
66	77x52	8	0.168	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			

CONSTRUCTION SEQUENCE

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

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

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

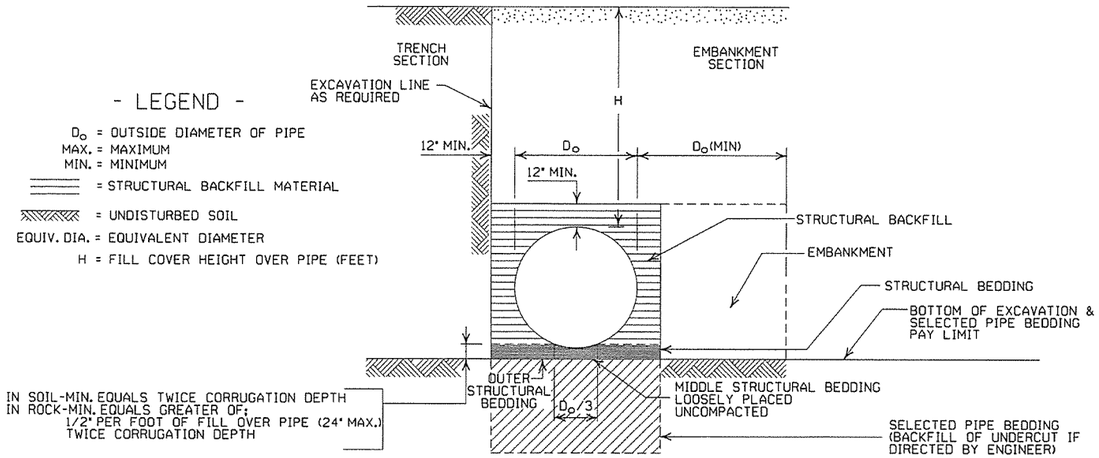
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
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

- LEGEND -

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



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. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" 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."

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
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 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

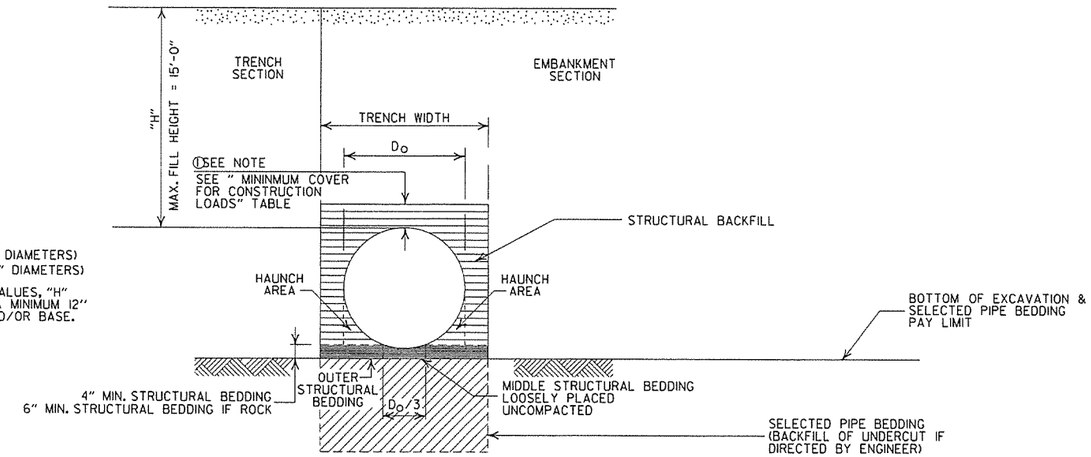
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

①NOTE:
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	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)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS 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.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >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"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

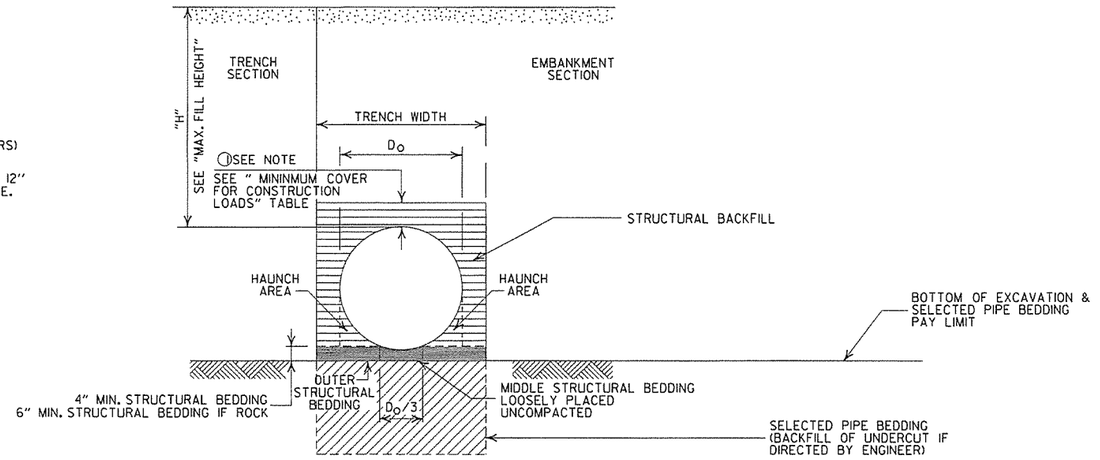
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM 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"

②MINIMUM 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

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS 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.

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

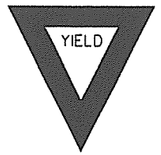
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

R1-1

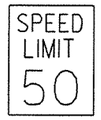
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

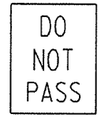
W3-5

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

W3-5a

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

R4-1

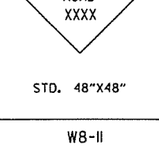


STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

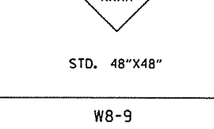
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



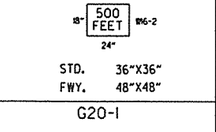
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



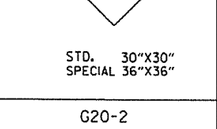
48"X30"

RII-3A



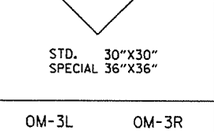
60"X30"

RII-4



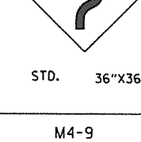
60"X30"

RSP-1



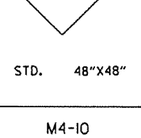
48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

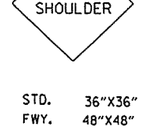


STD. 36"X36"
FWY. 48"X48"

WI-3

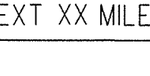
STD. 48"X48"

WI-4



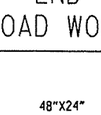
STD. 48"X48"

WI-6



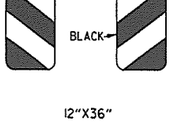
STD. 48"X24"
SPECIAL 60"X30"

WI-8



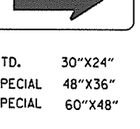
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



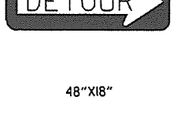
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

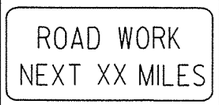
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

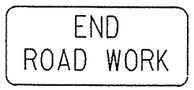
STD. 36"X36"
FWY. 48"X48"

G20-1



60"X24"

G20-2

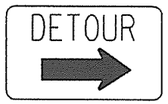


48"X24"

OM-3L OM-3R

12"X36"

M4-9

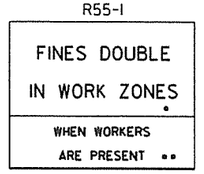


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.

2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.

3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.

• 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.

• 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.

6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.

7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.

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

9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.

10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

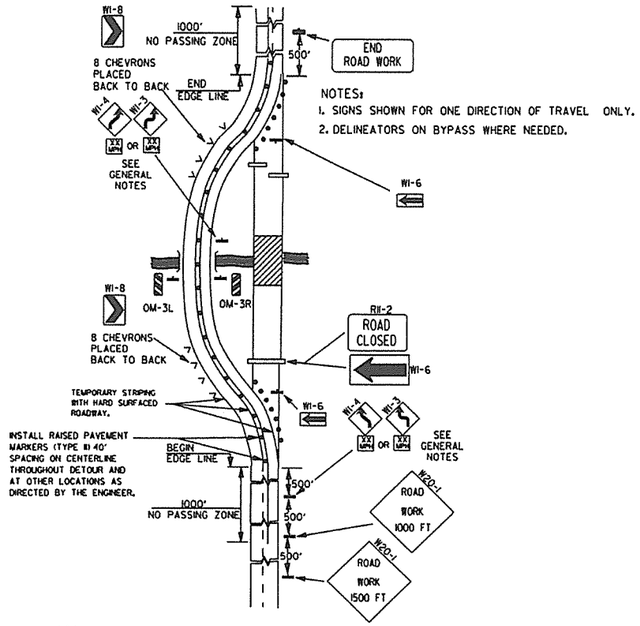
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-94	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

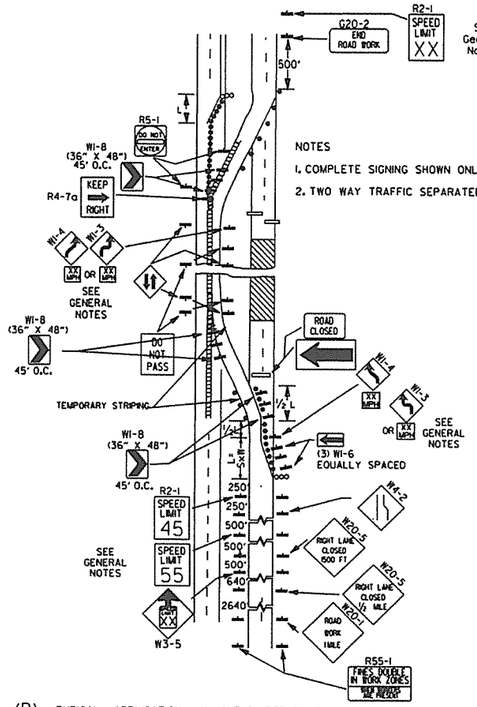
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



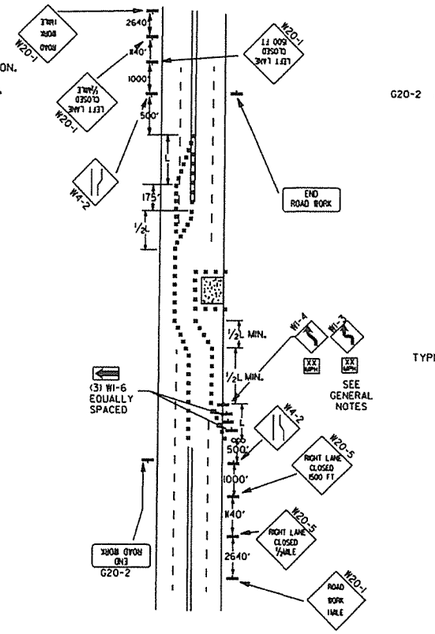
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

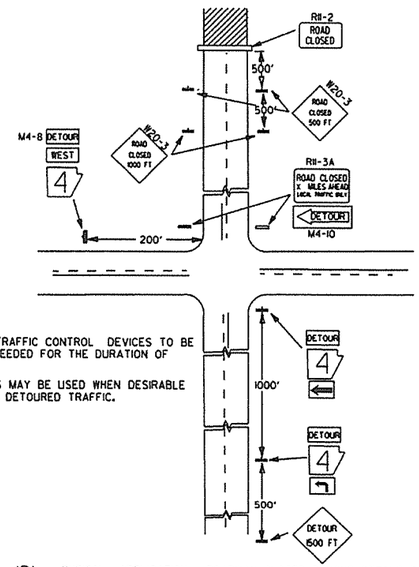


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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

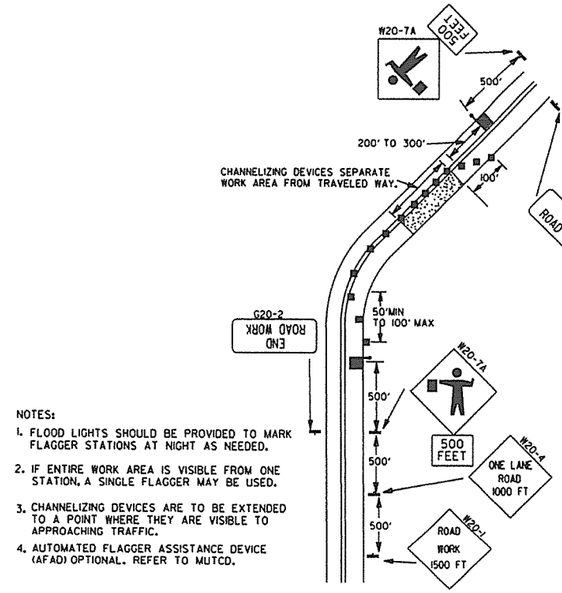


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



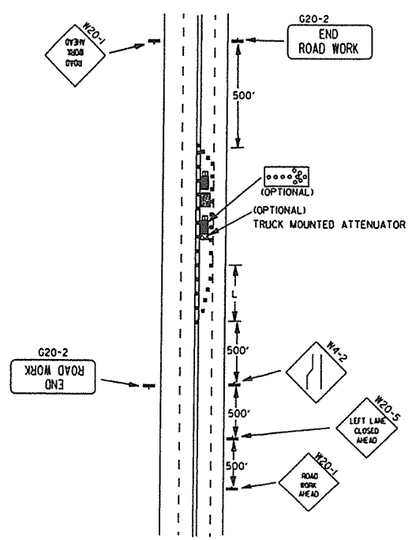
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



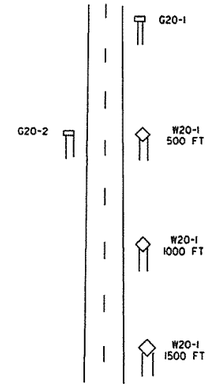
NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

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

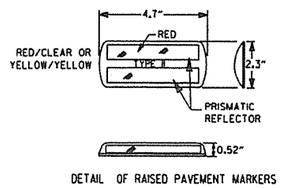


(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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



TYPICAL ADVANCE WARNING SIGN PLACEMENT



DETAIL OF RAISED PAVEMENT MARKERS

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

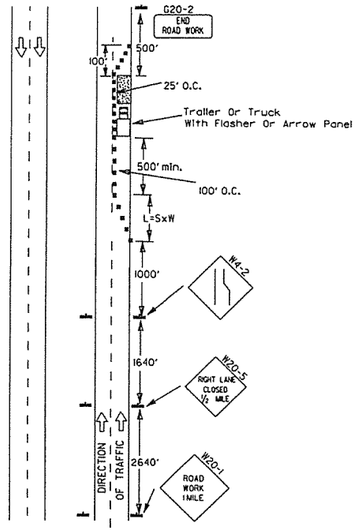
GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE 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.

DATE	REVISION	FILMED
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 (G) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

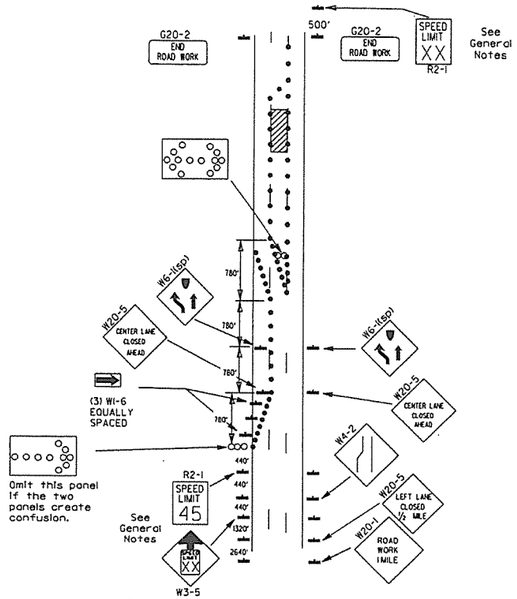
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

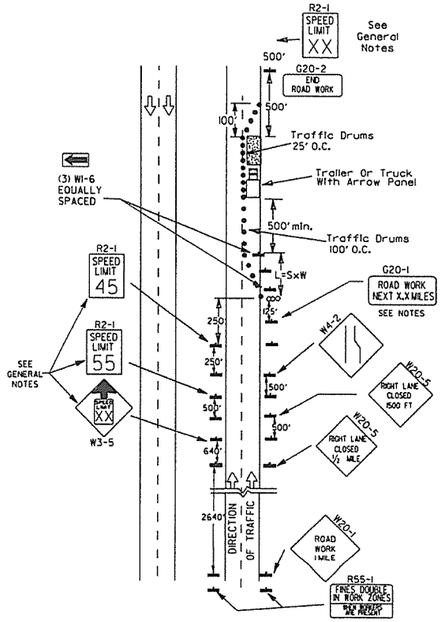
STANDARD DRAWING TC-2



(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.



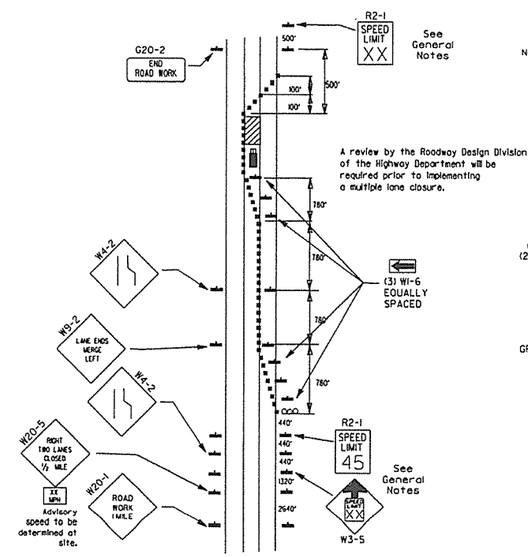
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

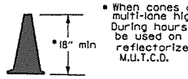
GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match orignal speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

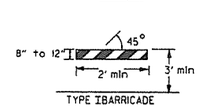


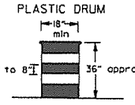
(D) Typical application - closing multiple lanes of a multilane highway.

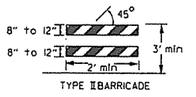
Channelizing devices

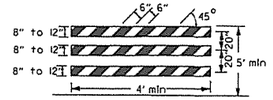


* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

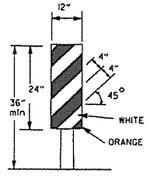








NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

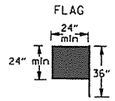


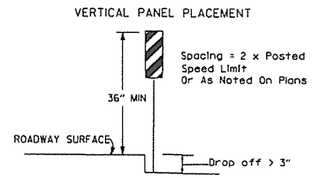
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

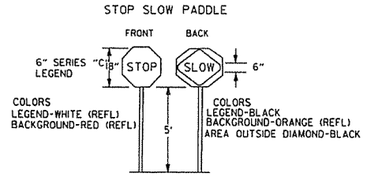
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical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

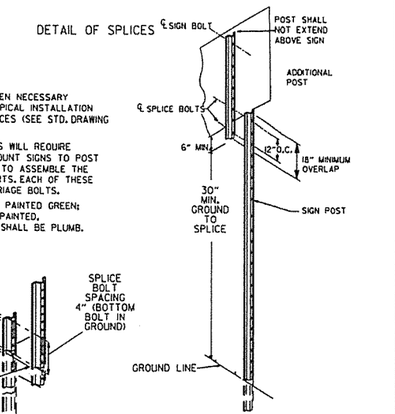
* When shown on the plans concrete barrier will be used.

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









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

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

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

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	

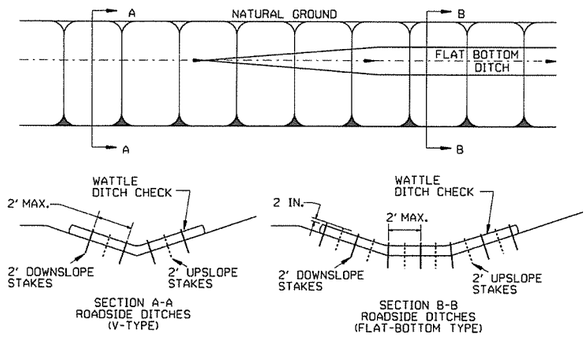
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

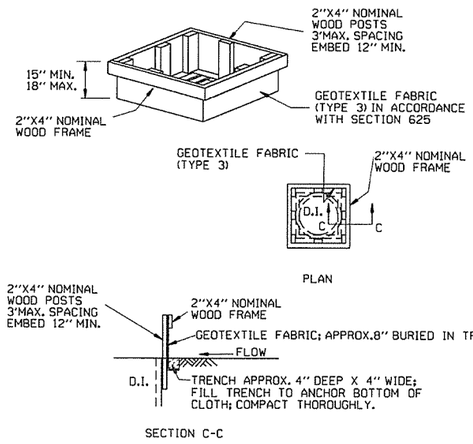
STANDARD DRAWING TC-3

GENERAL NOTES

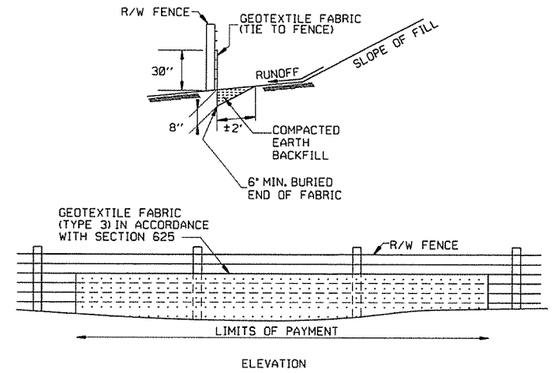
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

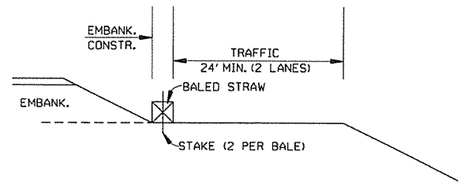
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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.

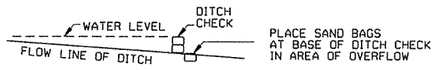
2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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.

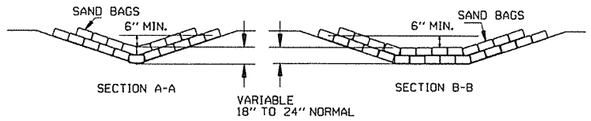


BALED STRAW FILTER BARRIER (E-2)

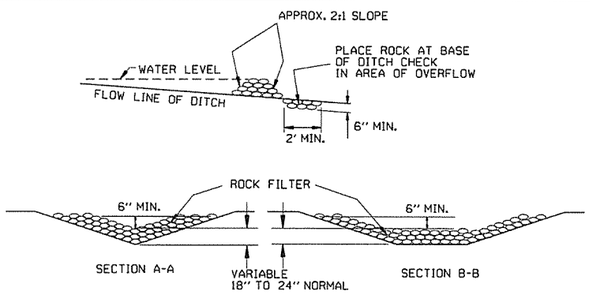
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS.



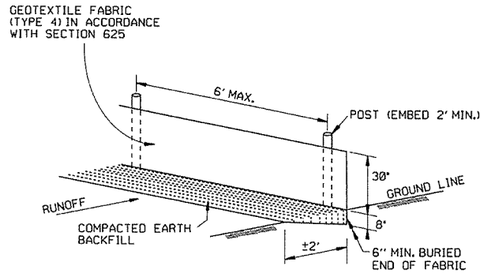
PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

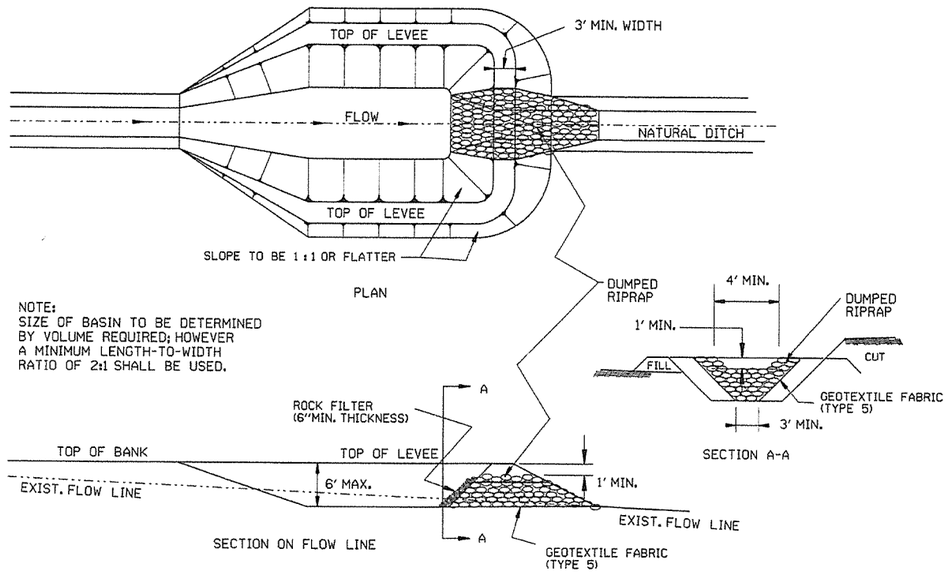
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

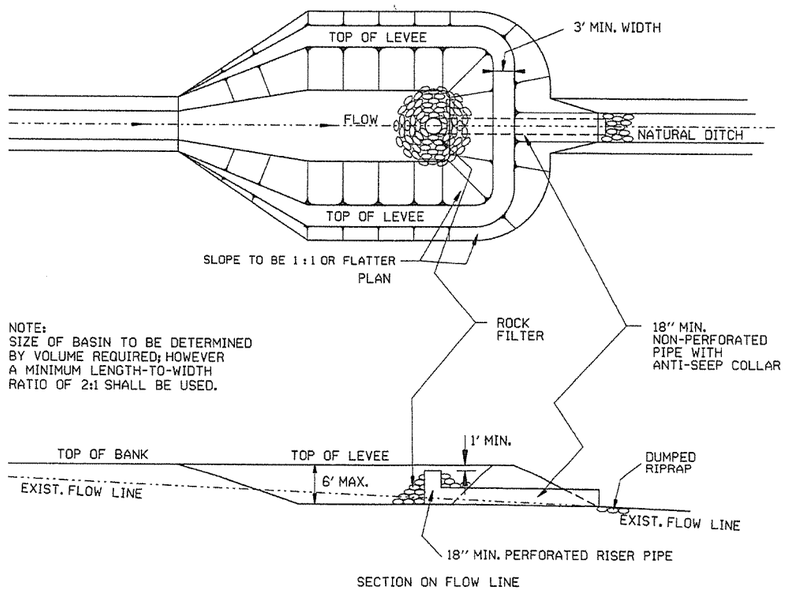
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

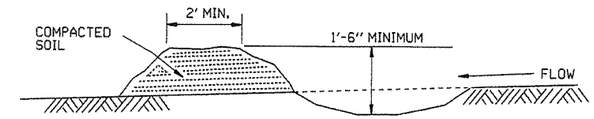
STANDARD DRAWING TEC-1



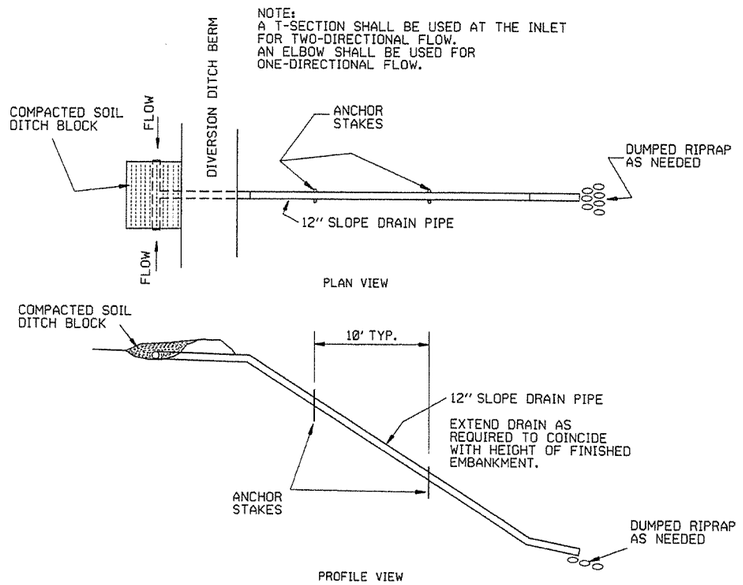
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



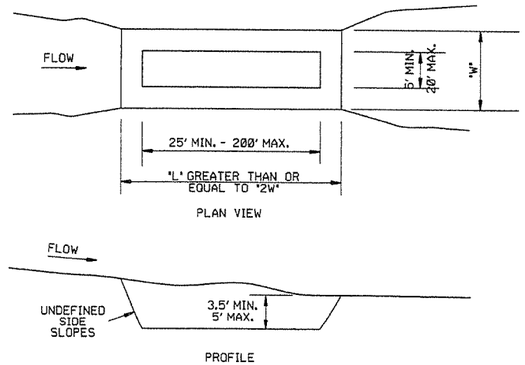
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

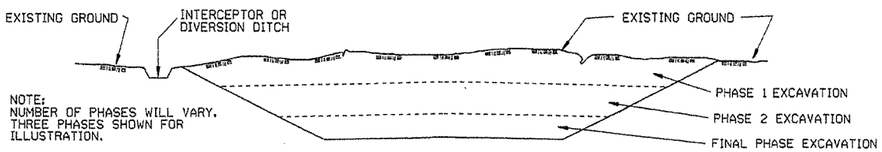
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



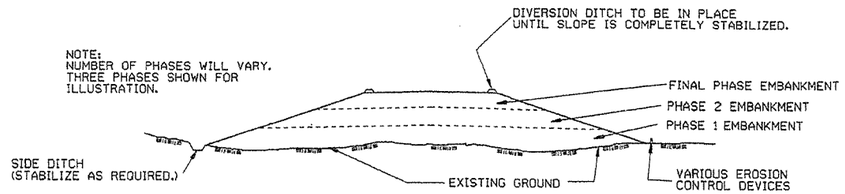
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

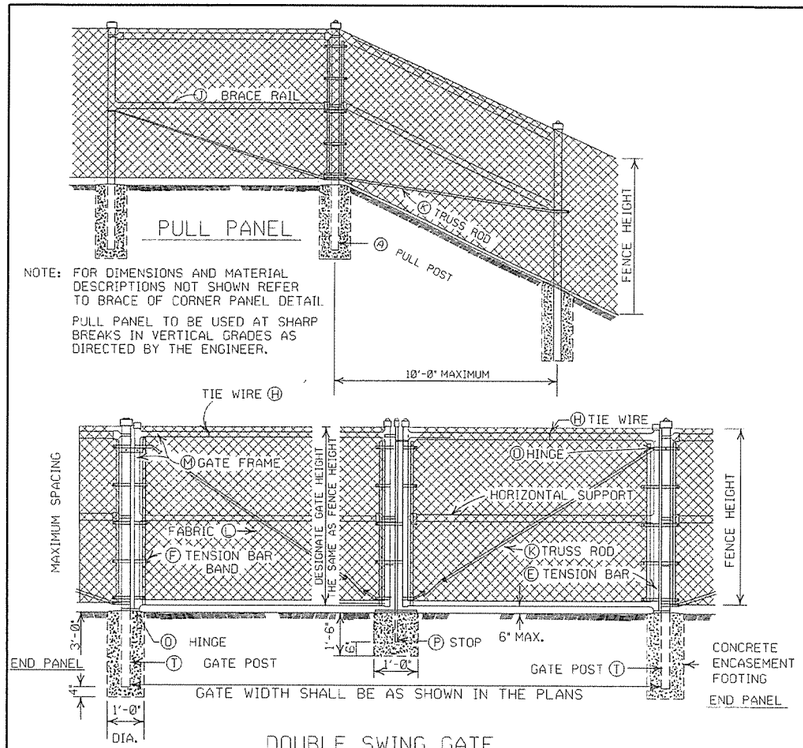
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

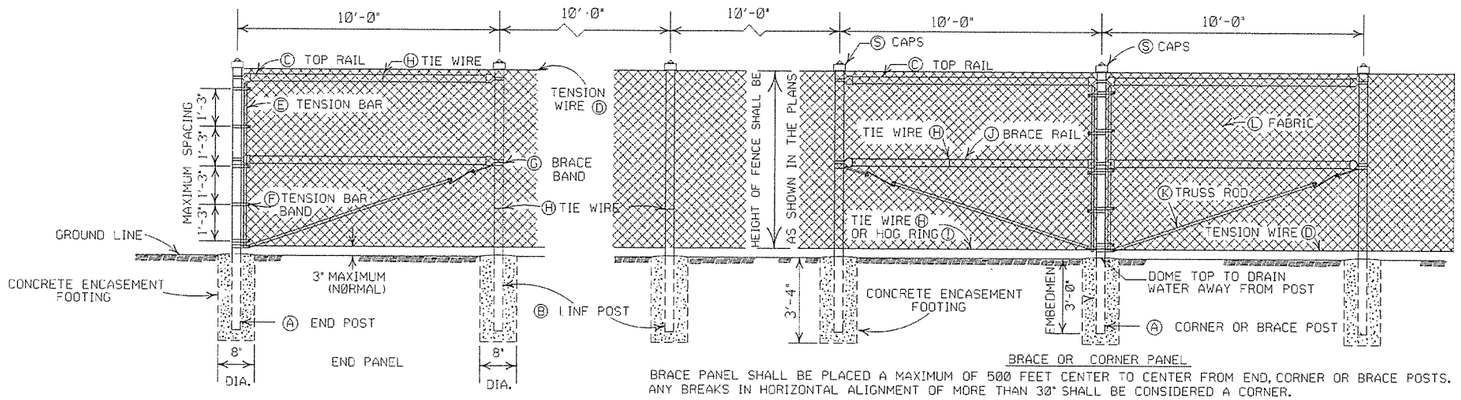


NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL.

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.

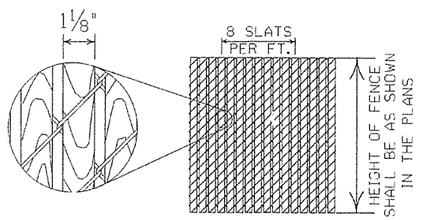
DOUBLE SWING GATE

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS (LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.								

HEIGHT OF FENCE FABRIC	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND BOLT SIZE
6' AND LESS	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.					

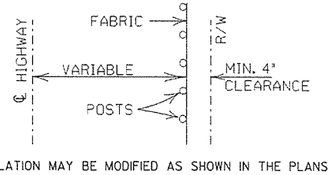
HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅜" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING
OVER 6' TO 12' INCL.								

HEIGHT OF FENCE FABRIC	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH OVER 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.						4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS.
9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11 30 89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

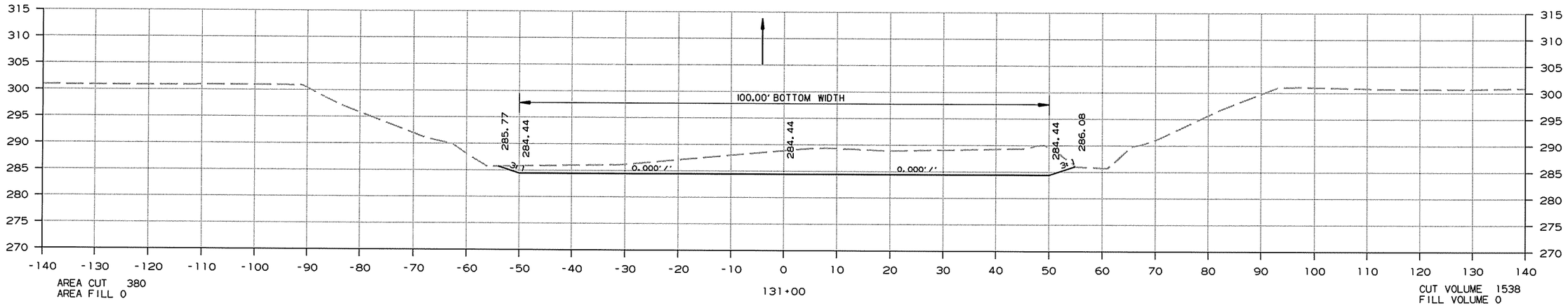
ARKANSAS STATE HIGHWAY COMMISSION

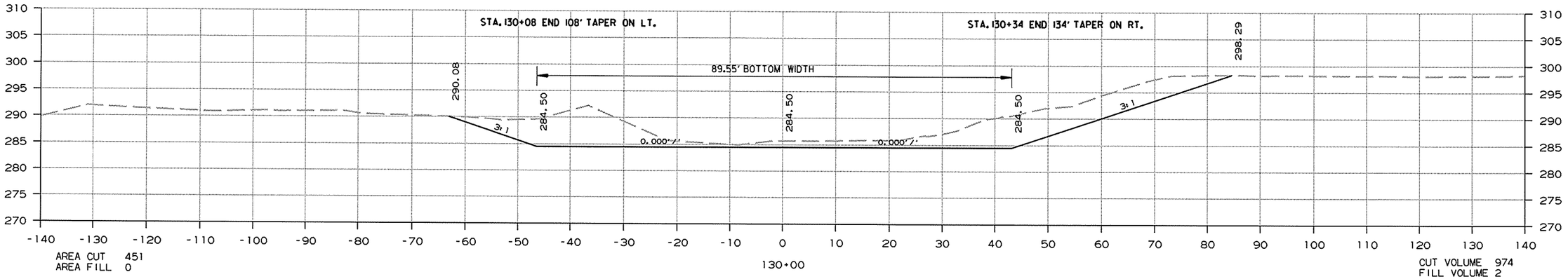
CHAIN LINK FENCE

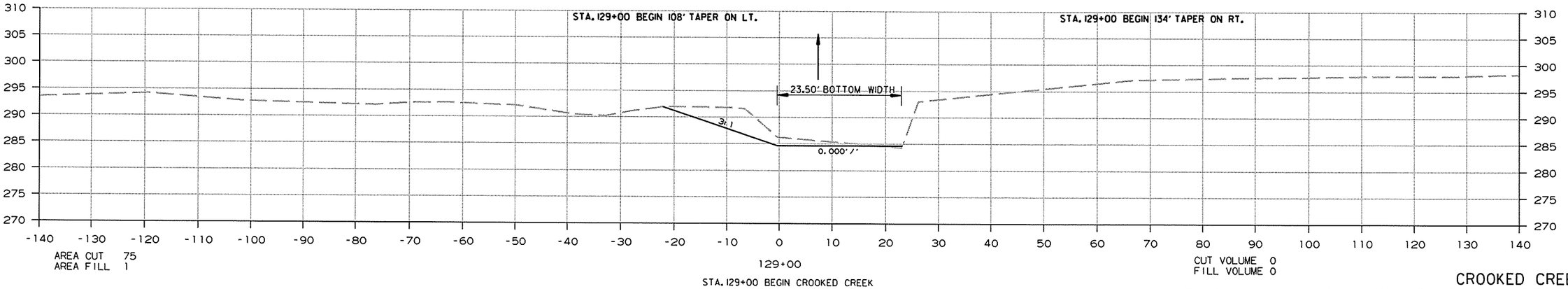
STANDARD DRAWING WF-3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	34	52

(2) CROSS SECTIONS







STA. 129+00 BEGIN CROOKED CREEK

CROOKED CREEK

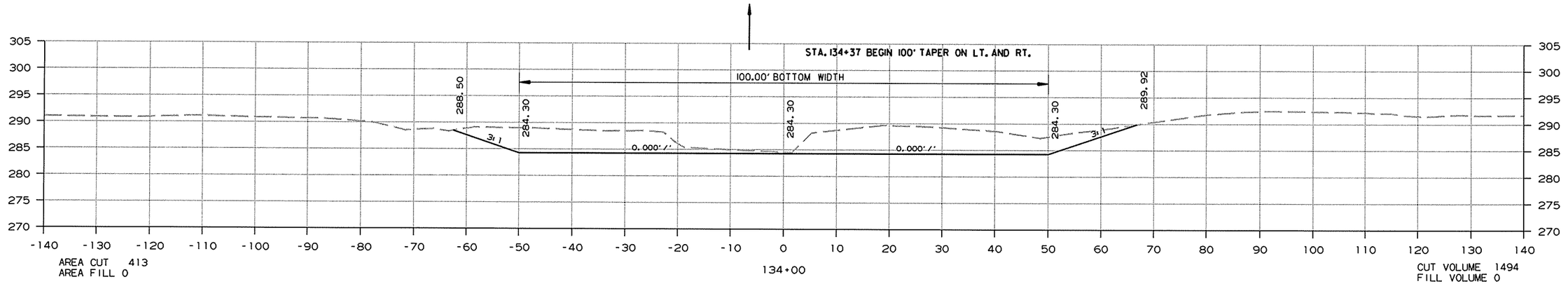
CROSS SECTION STA. 129+00 TO STA. 131+00

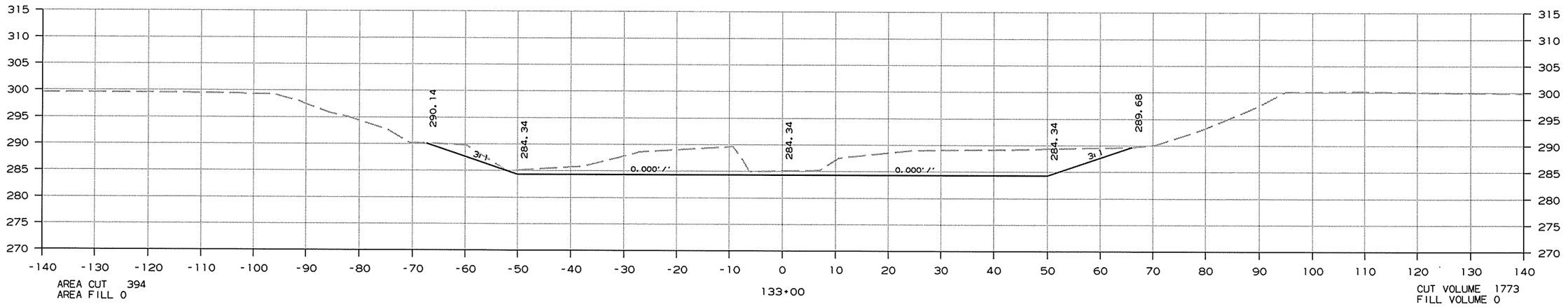
4/19/2016

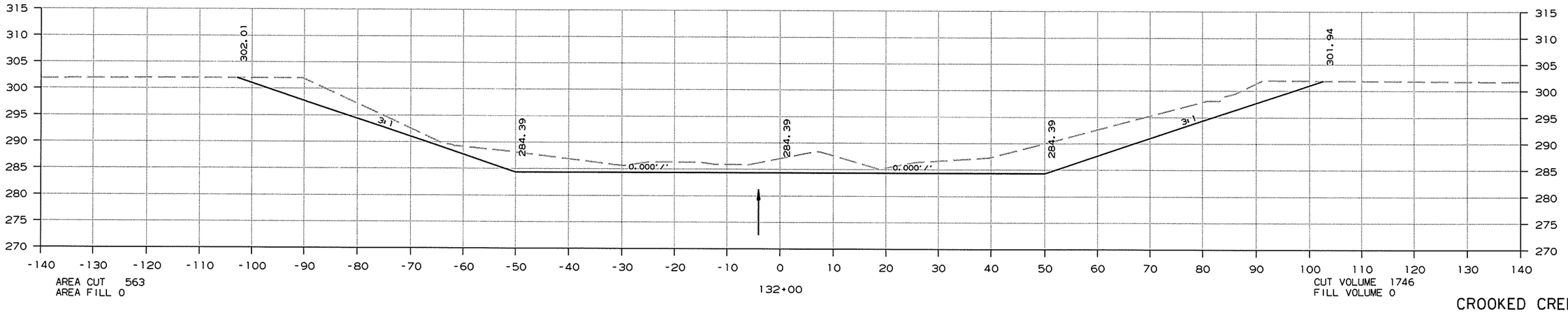
HY0061390.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	35	52

(2) CROSS SECTIONS







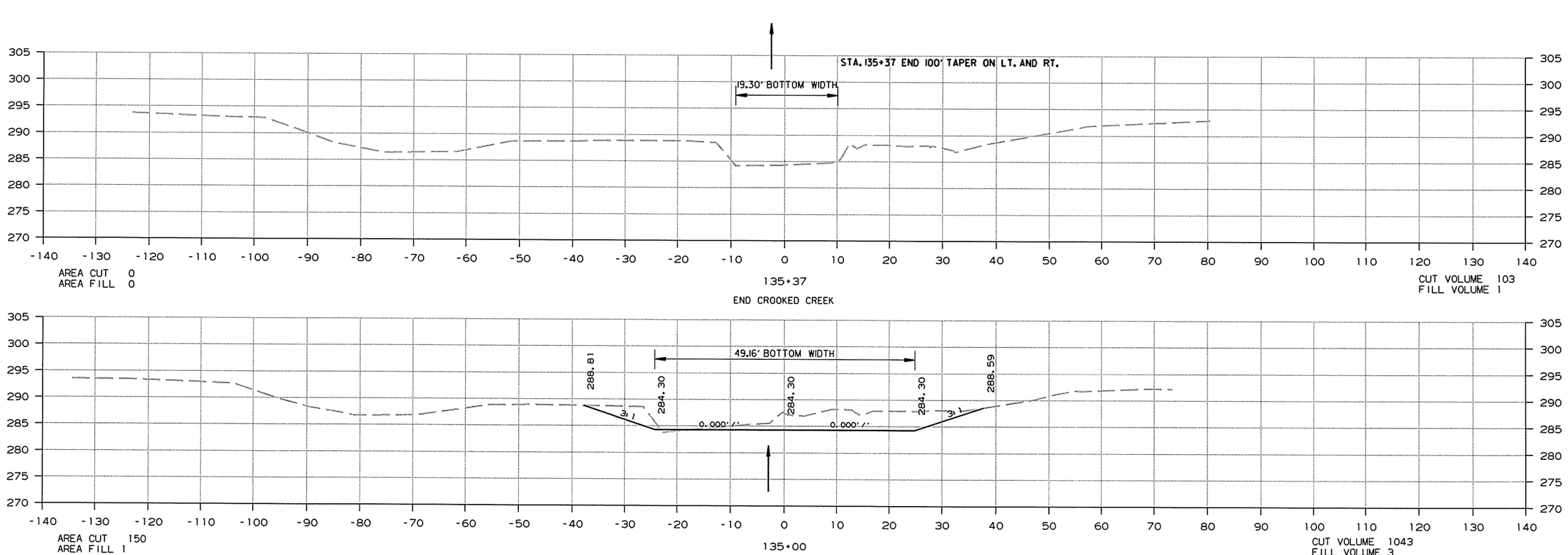
CROOKED CREEK
CROSS SECTION STA. 132+00 TO STA. 134+00

4/19/2016

HYD061390.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.		061390	36	52

(2) CROSS SECTIONS



CROOKED CREEK

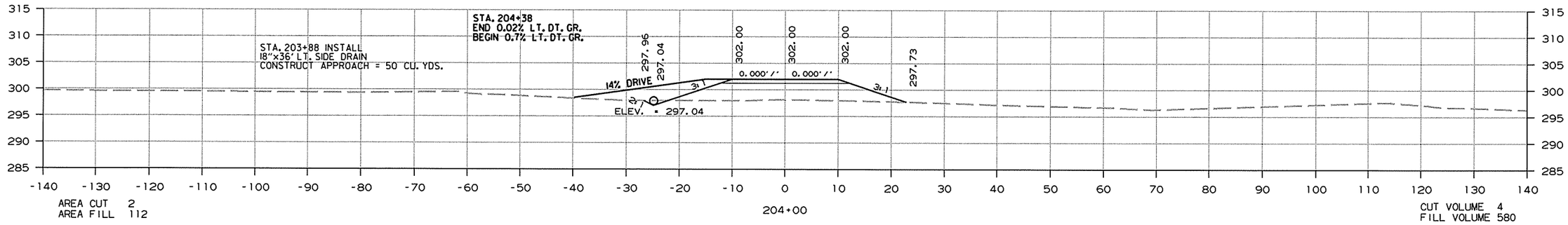
CROSS SECTION STA. 135+00 TO STA. 135+37

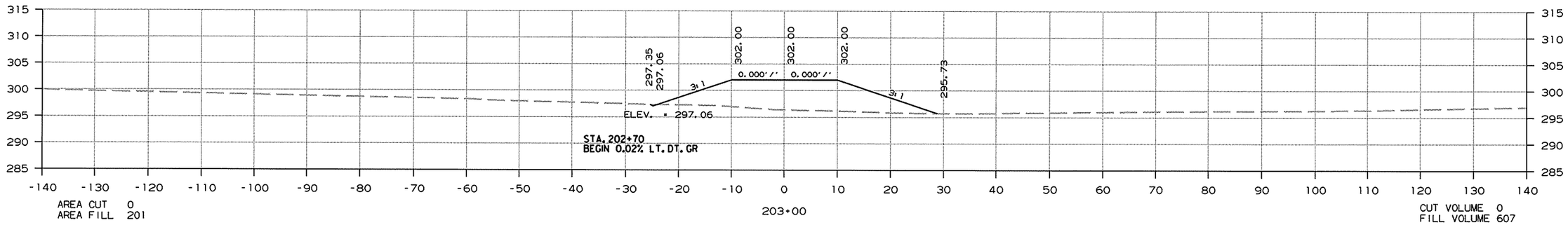
4/19/2016

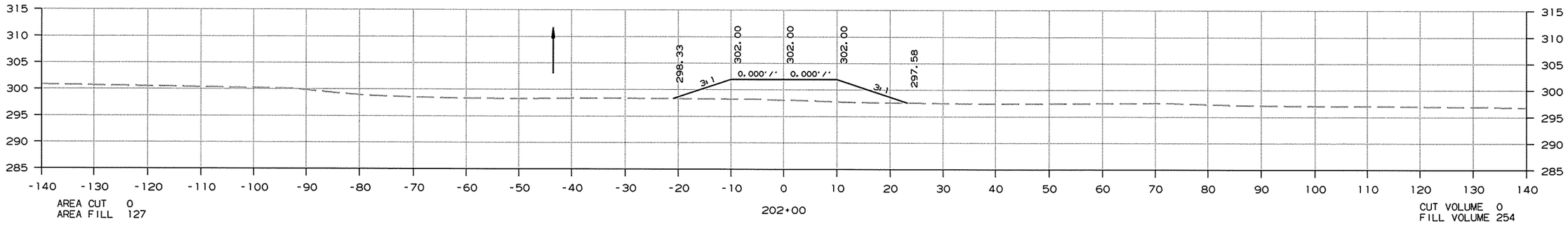
HYD061390.DGN

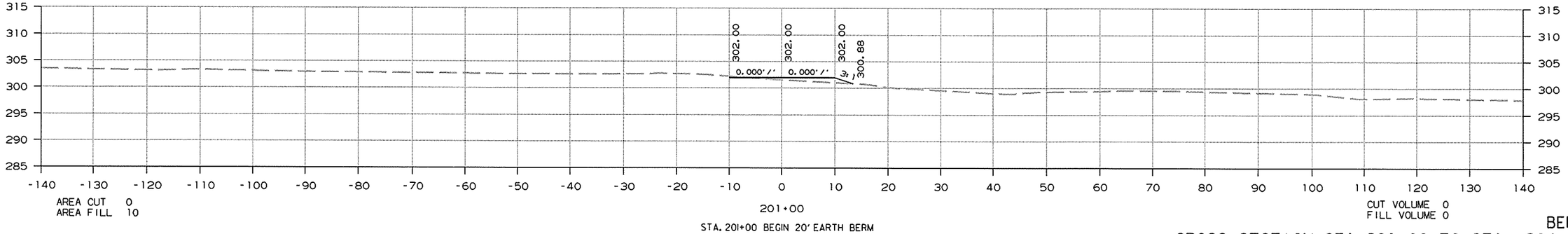
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	37	52

(2) CROSS SECTIONS









STA. 201+00 BEGIN 20' EARTH BERM

BERM

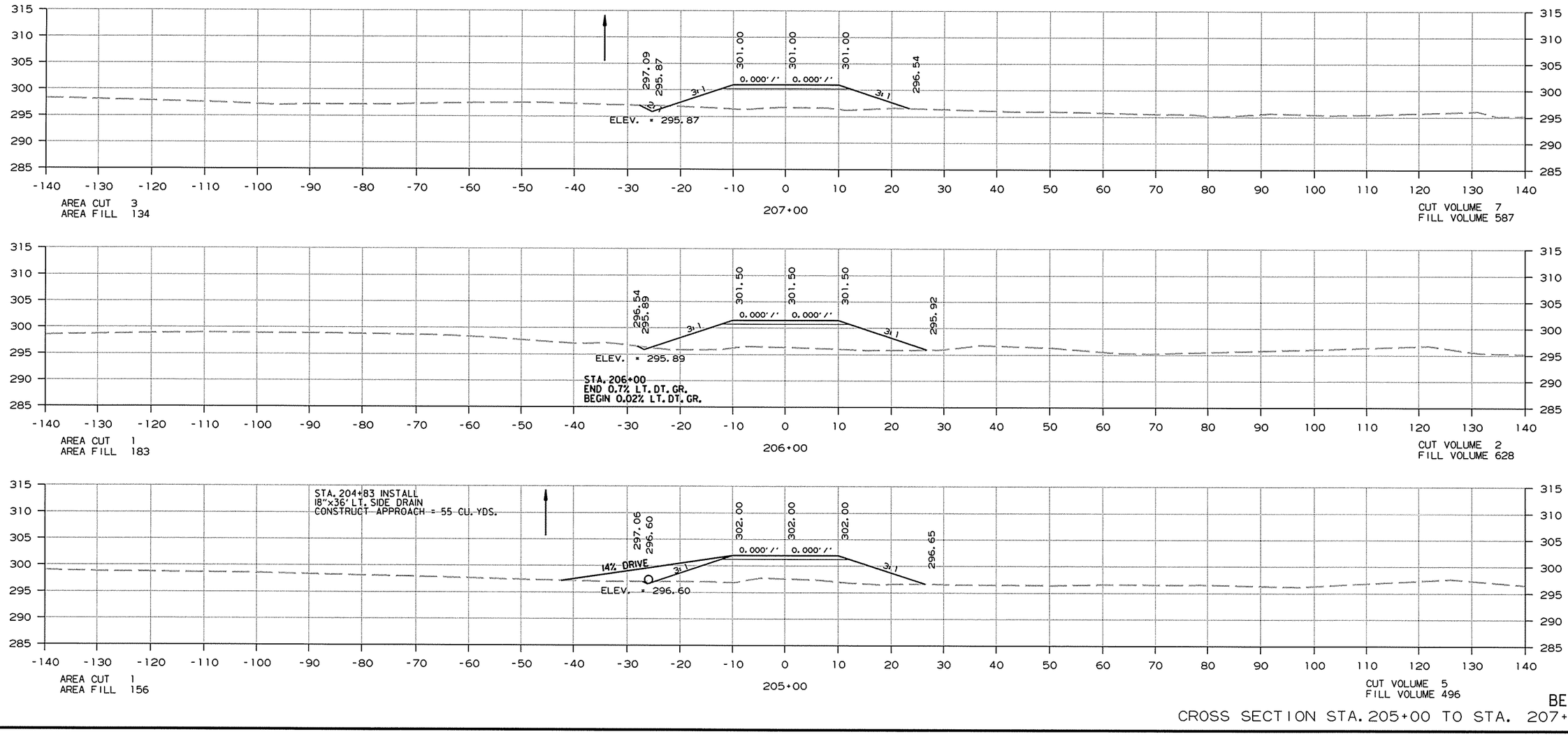
CROSS SECTION STA. 201+00 TO STA. 204+00

4/25/2016

HY0061390.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.		061390	38	52

(2) CROSS SECTIONS



BERM

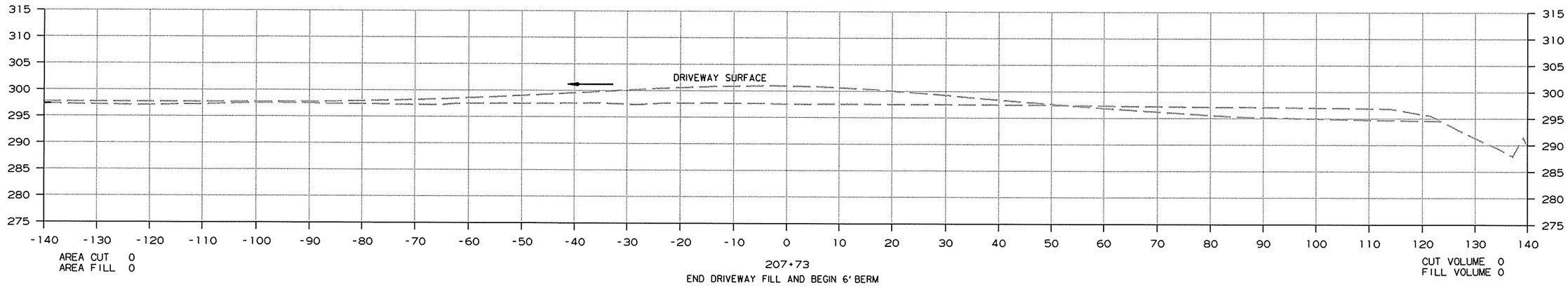
CROSS SECTION STA. 205+00 TO STA. 207+00

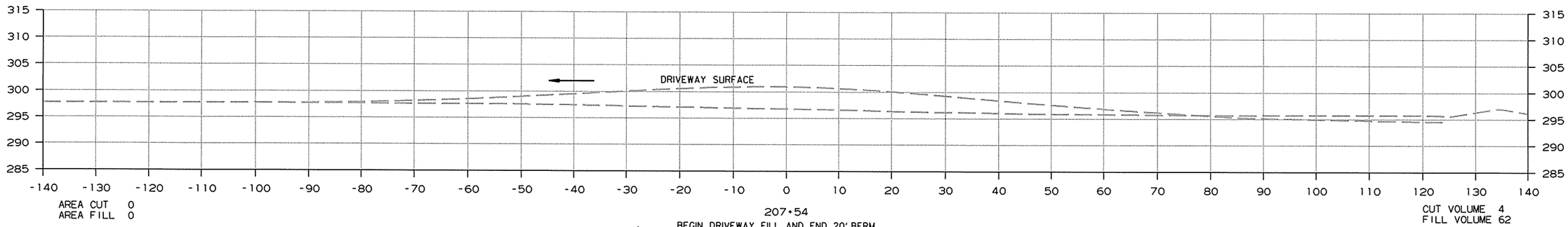
4/25/2016

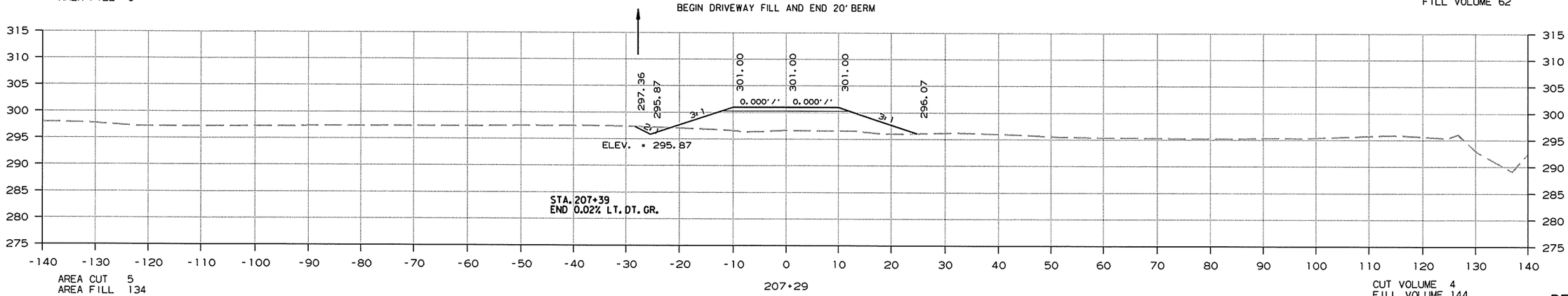
HYD061390.DGN

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.		061390	39	52

(2) CROSS SECTIONS







BERM

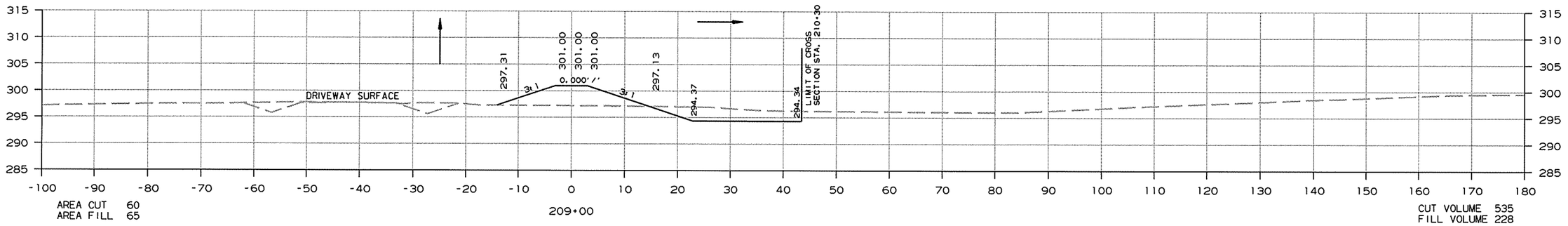
CROSS SECTION STA. 207+29 TO STA. 207+91

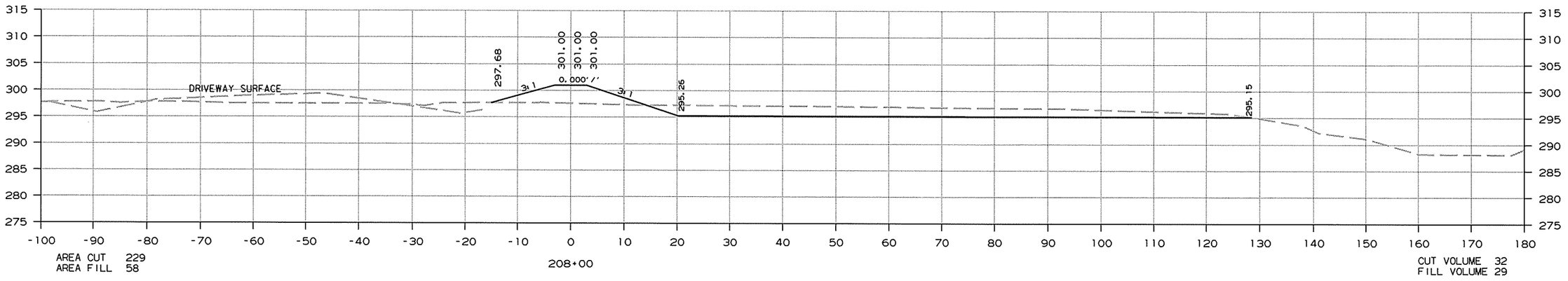
4/25/2016

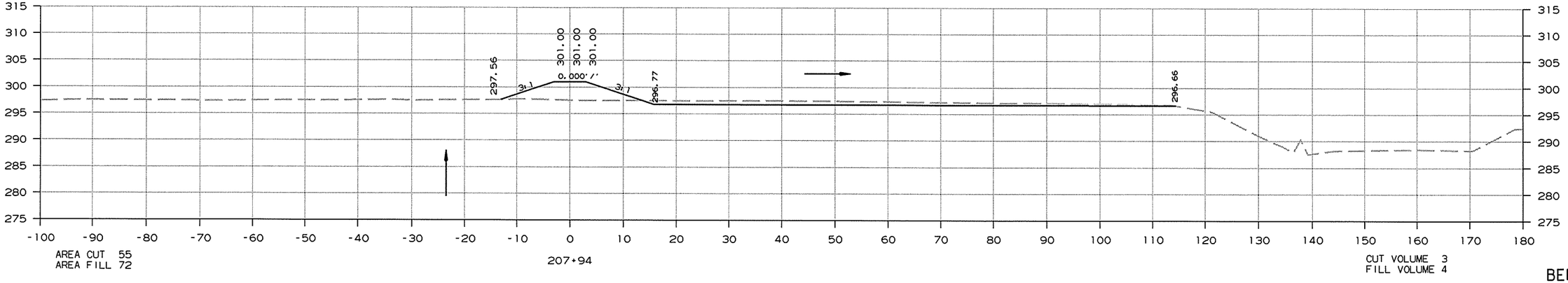
HYD061390.DGN

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.		061390	40	52

(2) CROSS SECTIONS







BERM

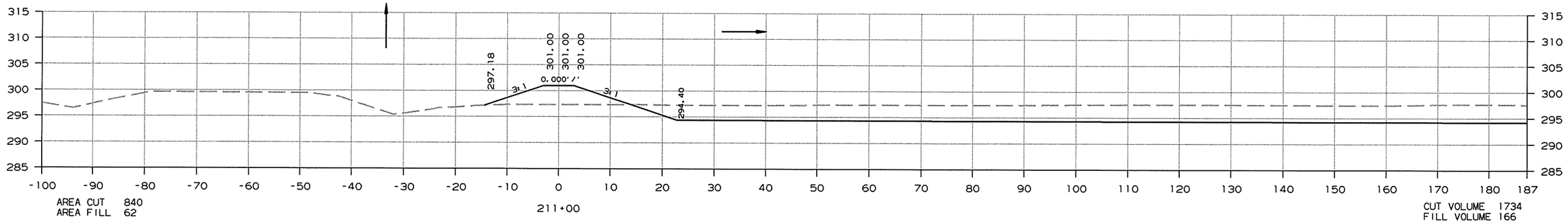
CROSS SECTION STA. 207+94 TO STA. 209+00

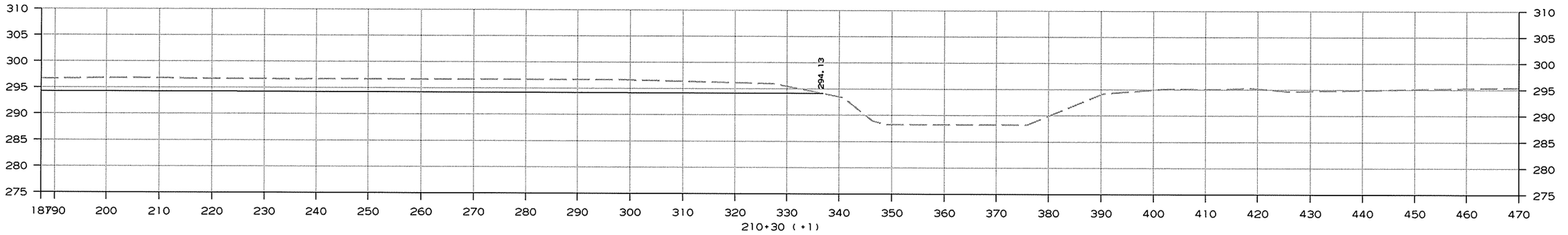
4/25/2016

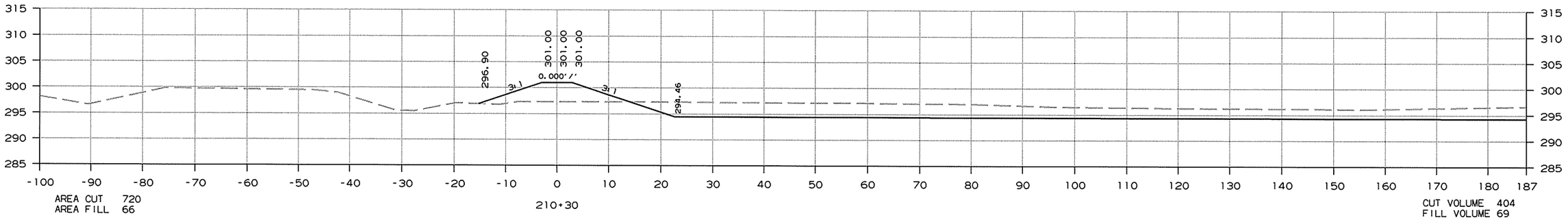
HY0061390.DGN

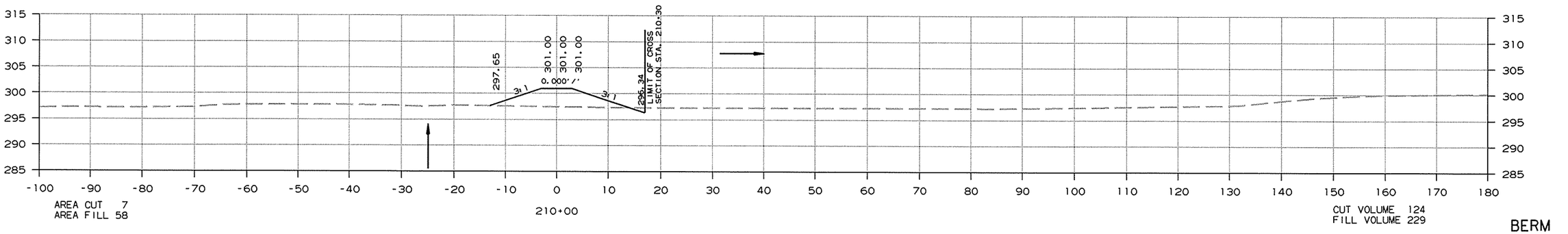
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	41	52

(2) CROSS SECTIONS









BERM

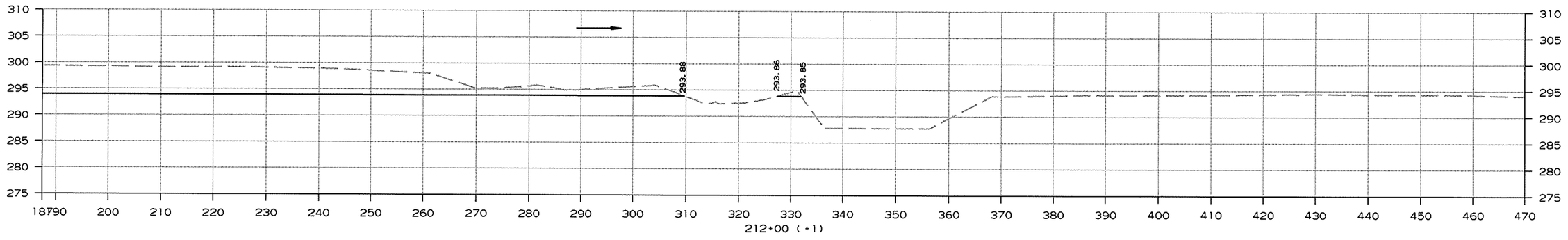
CROSS SECTION STA. 210+00 TO STA. 211+00

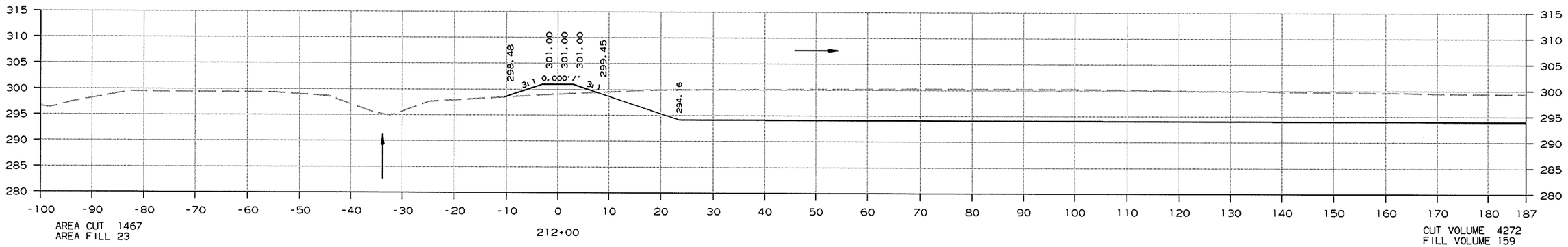
4/25/2016

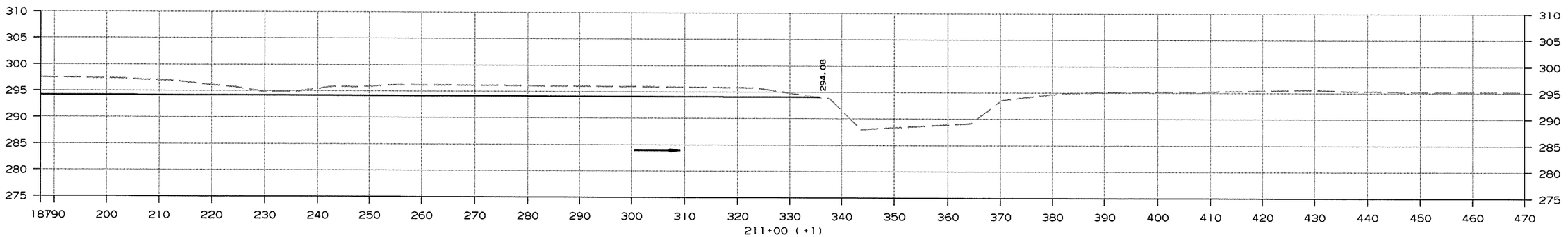
HYD061390.DGN

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.		061390	42	52

(2) CROSS SECTIONS







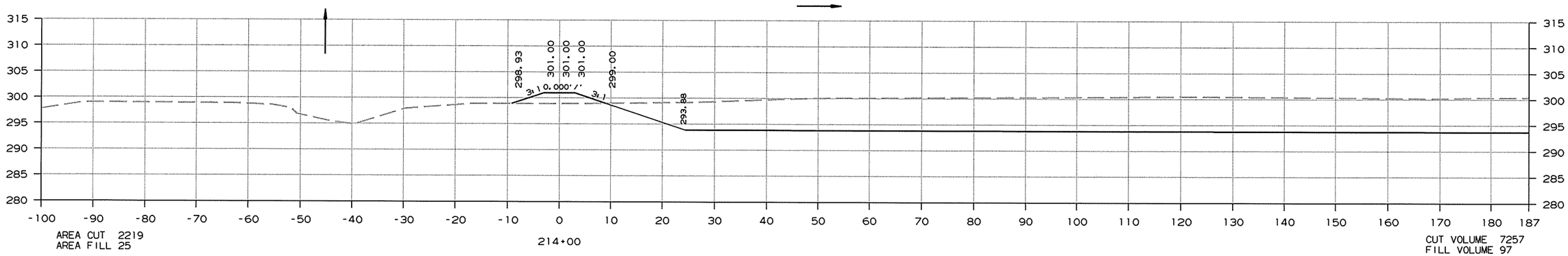
BERM
CROSS SECTION STA. 211+00 TO STA. 212+00

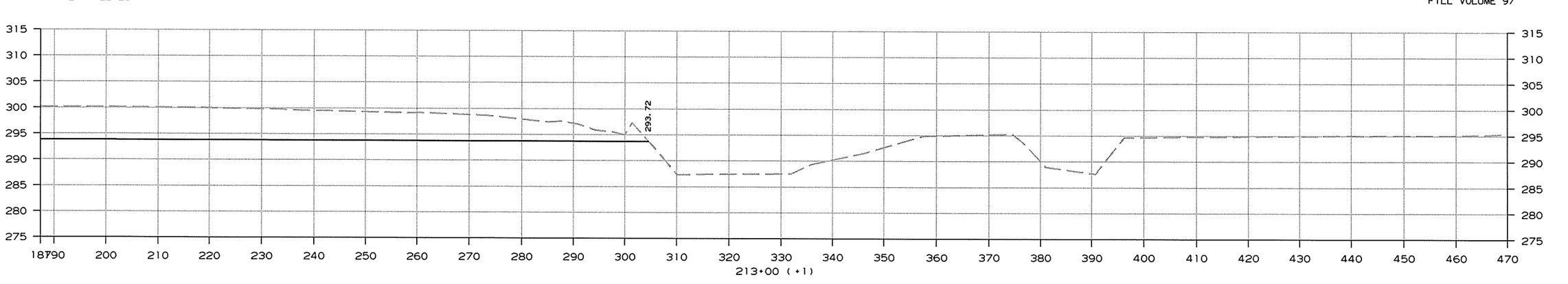
4/25/2016

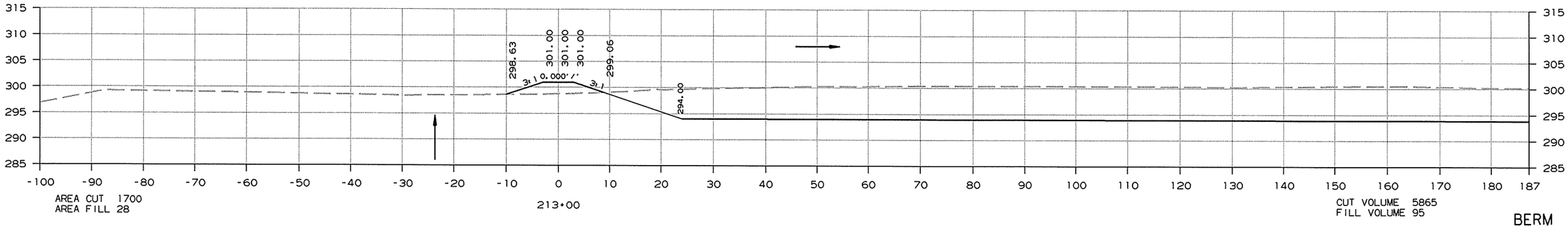
HYD061390.DGN

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.		061390	43	52

(2) CROSS SECTIONS







BERM

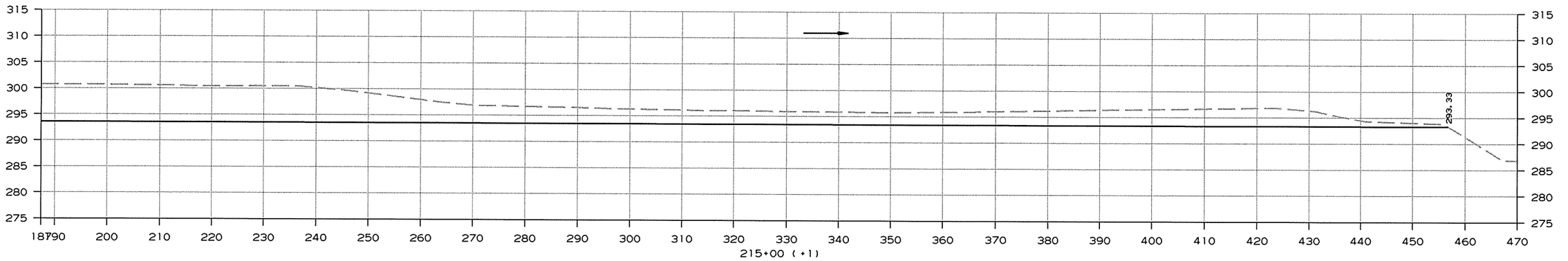
CROSS SECTION STA. 213+00 TO STA. 214+00

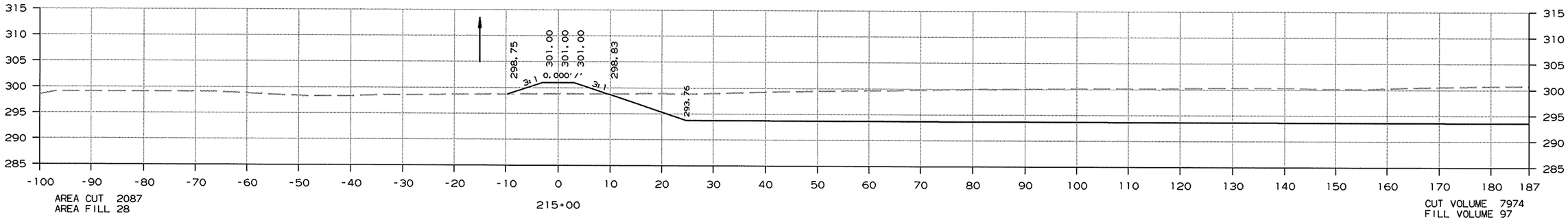
4/25/2016

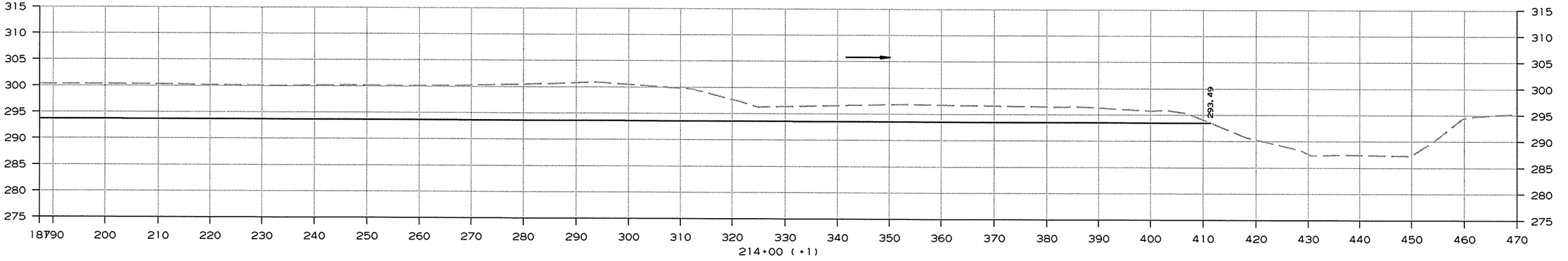
HYD061390.DGN

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.		061390	44	52

(2) CROSS SECTIONS







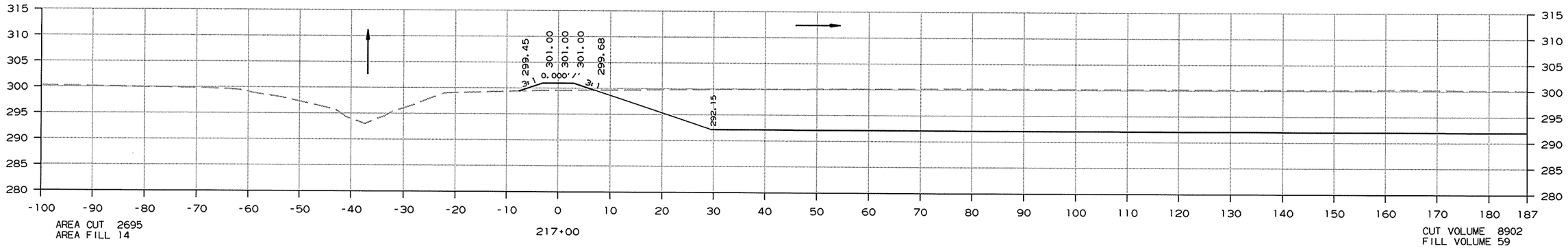
BERM
CROSS SECTION STA. 214+00 TO STA. 215+00

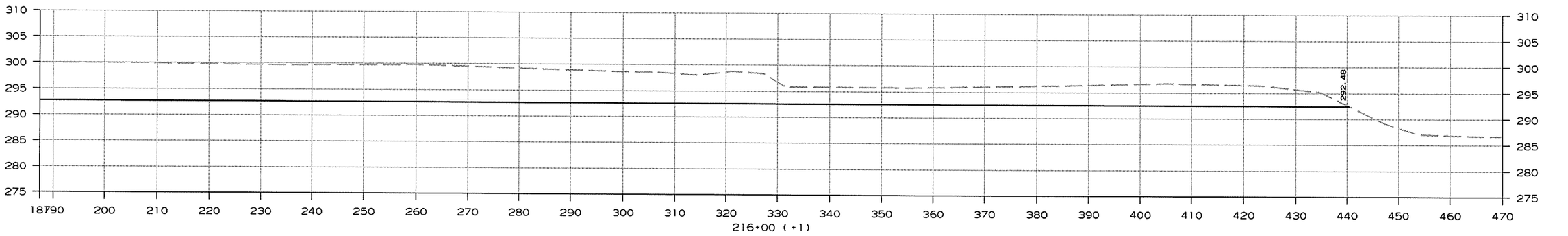
4/25/2016

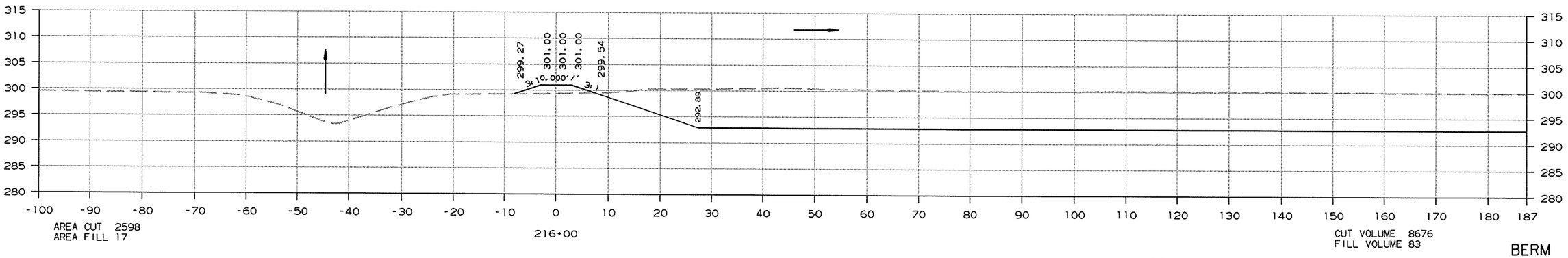
HYD061390.DGN

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.		061390	45	52

(2) CROSS SECTIONS







BERM

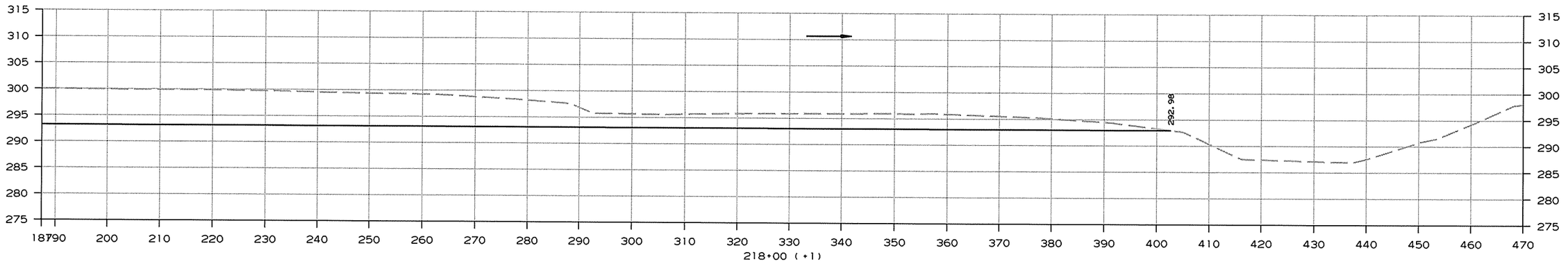
CROSS SECTION STA. 216+00 TO STA. 217+00

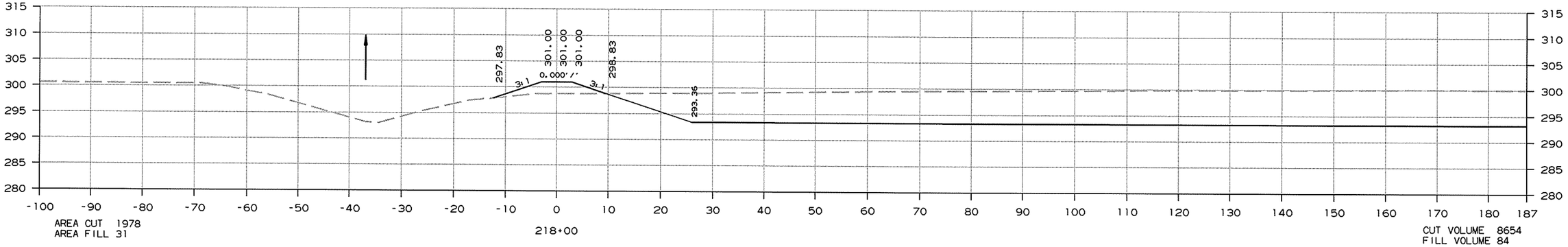
4/25/2016

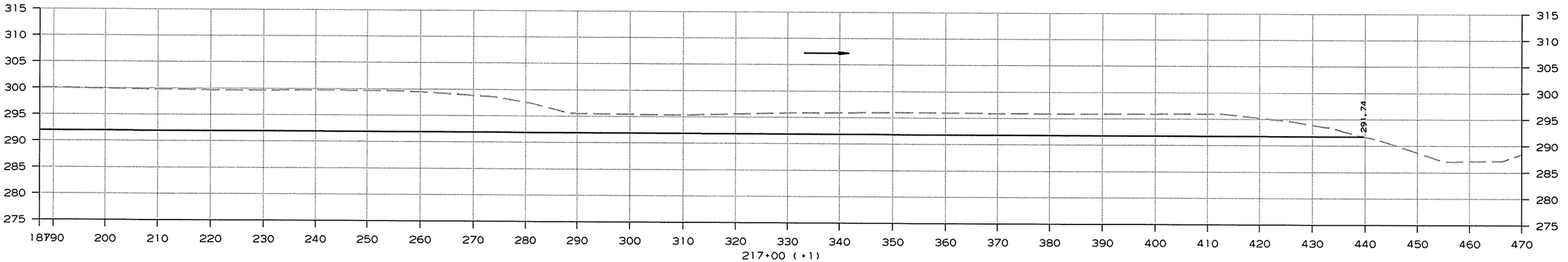
HYD061390.DGN

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.		061390	46	52

(2) CROSS SECTIONS







BERM

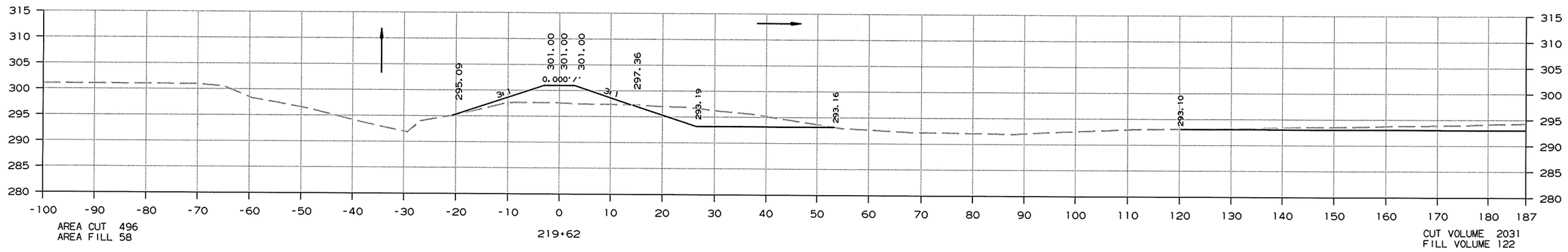
CROSS SECTION STA. 217+00 TO STA. 218+00

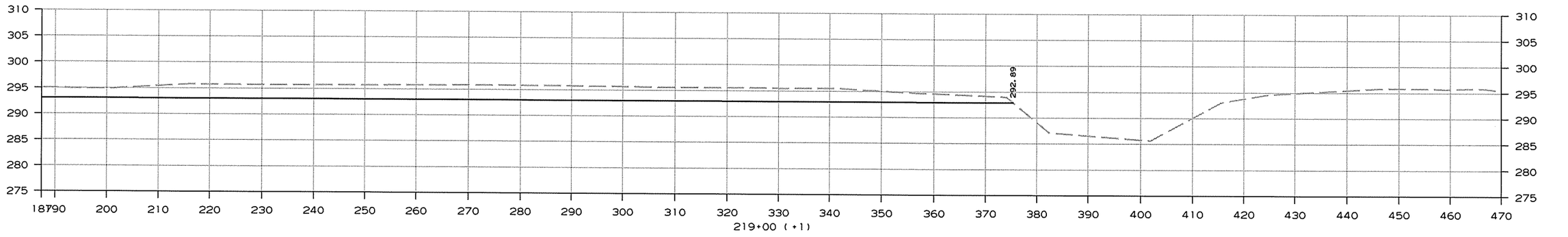
4/25/2016

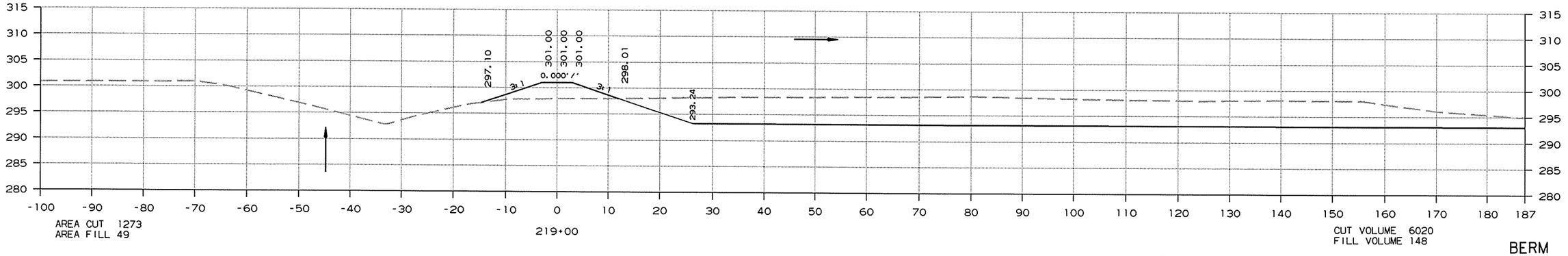
HY0061390.DGN

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.		061390	47	52

(2) CROSS SECTIONS







BERM

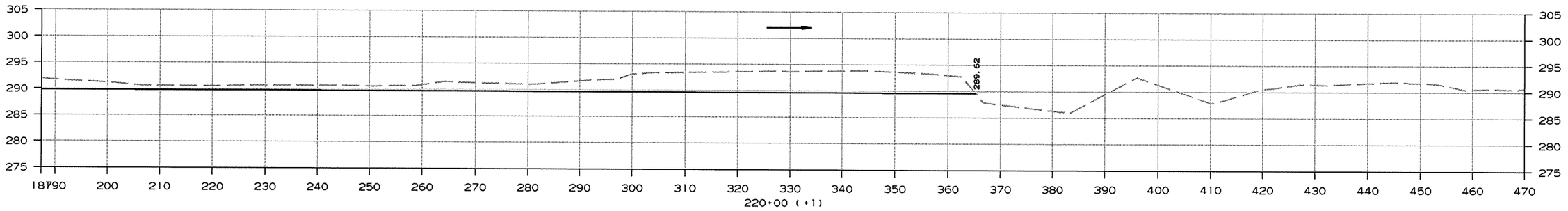
CROSS SECTION STA. 219+00 TO STA. 219+62

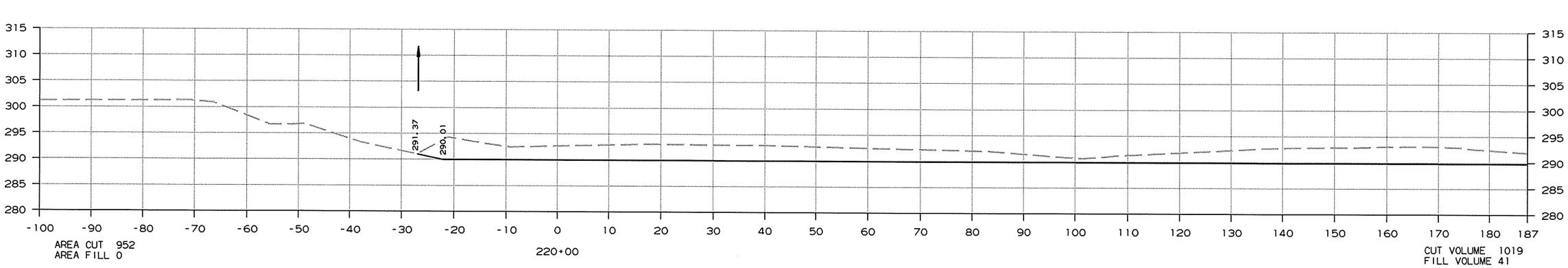
4/25/2016

HYD061390.DGN

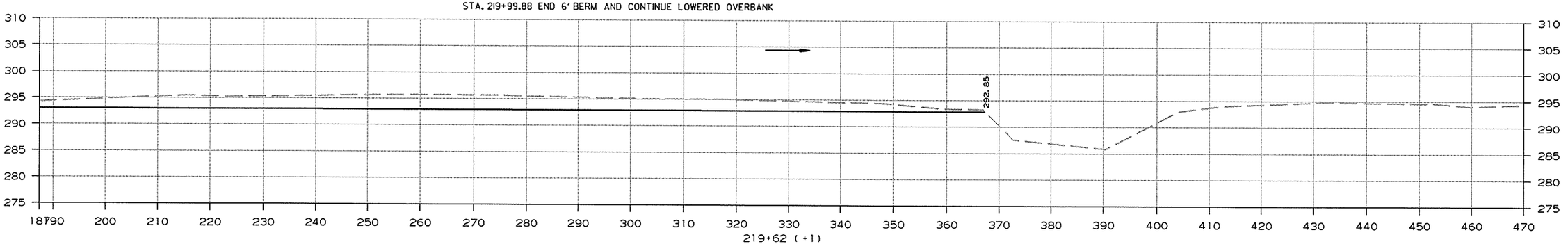
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	48	52

(2) CROSS SECTIONS





STA. 219+99.88 END 6' BERM AND CONTINUE LOWERED OVERBANK



BERM

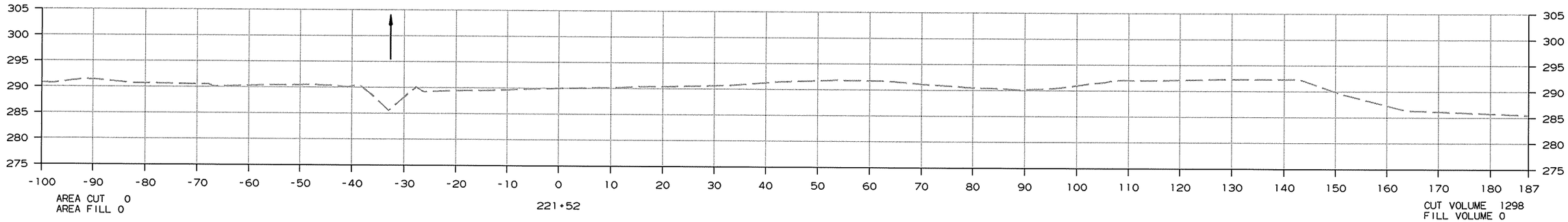
CROSS SECTION STA. 219+62 TO STA. 220+00

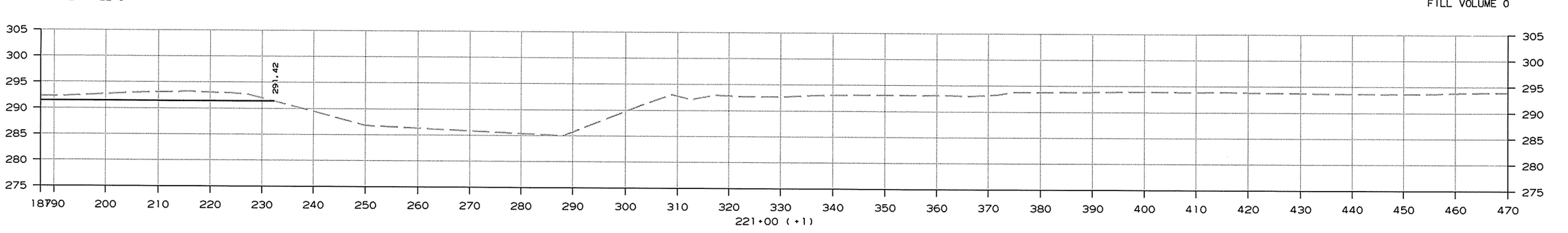
4/25/2016

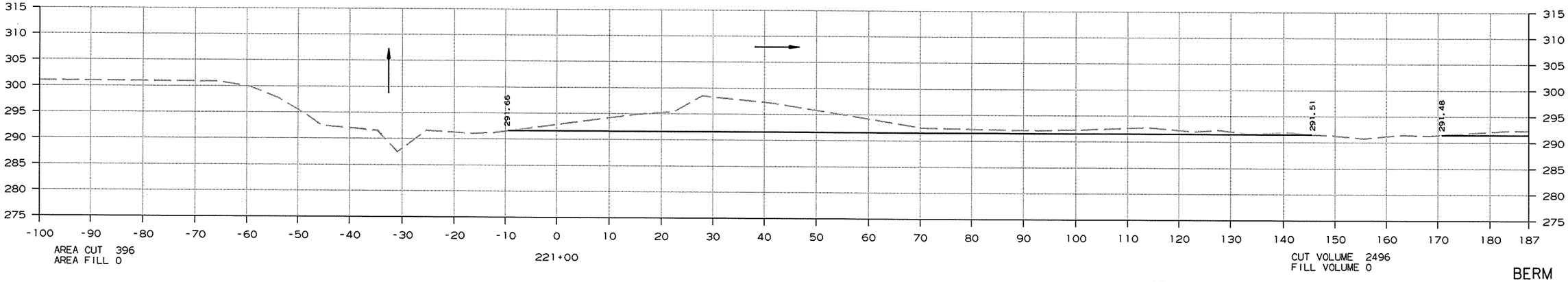
HYD061390.DGN

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.		061390	49	52

(2) CROSS SECTIONS







BERM

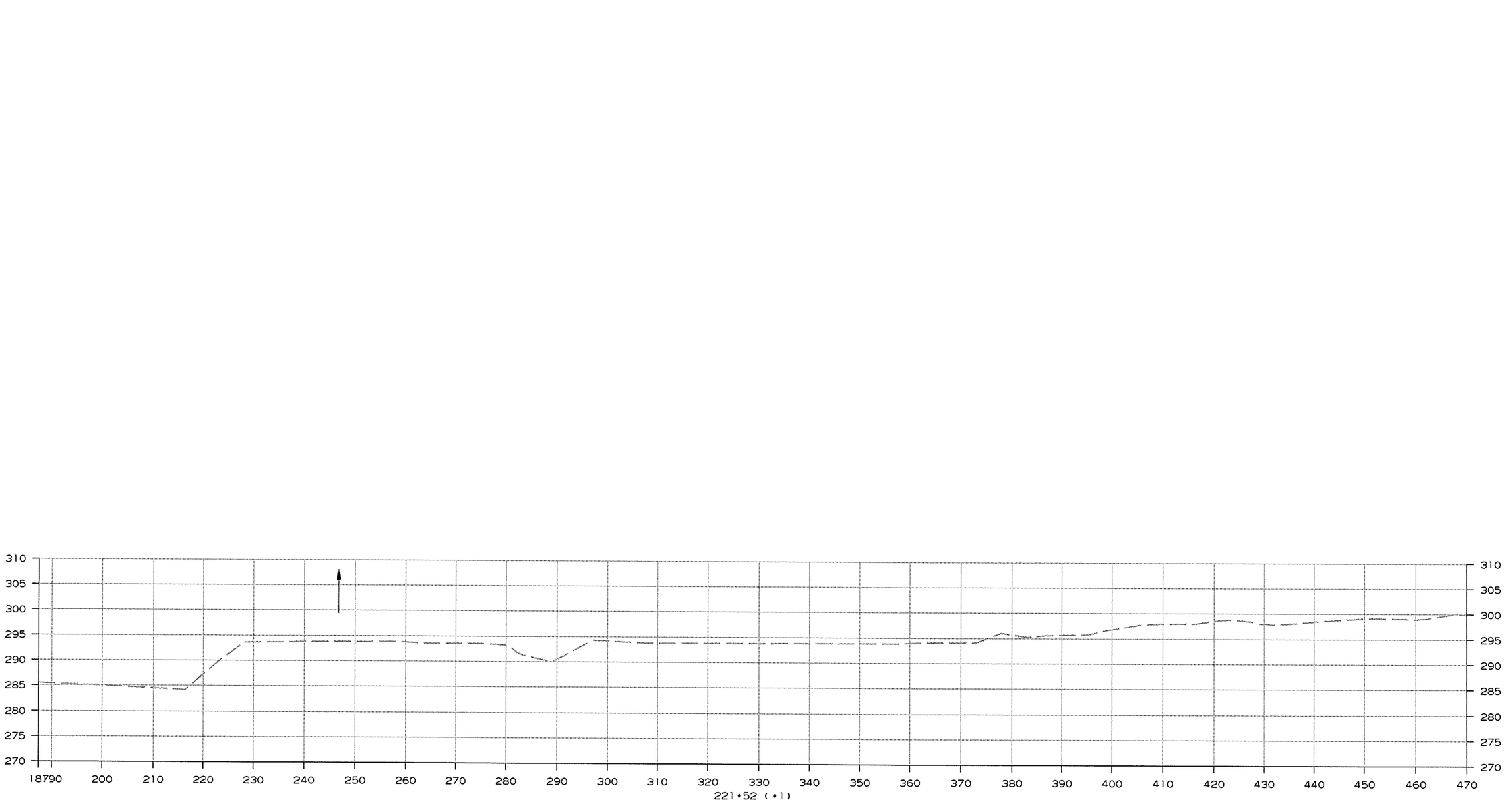
CROSS SECTION STA. 221+00 TO STA. 221+52

4/25/2016

HYD061390.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.		061390	50	52

(2) CROSS SECTIONS



END LOWERED OVERBANK

BERM

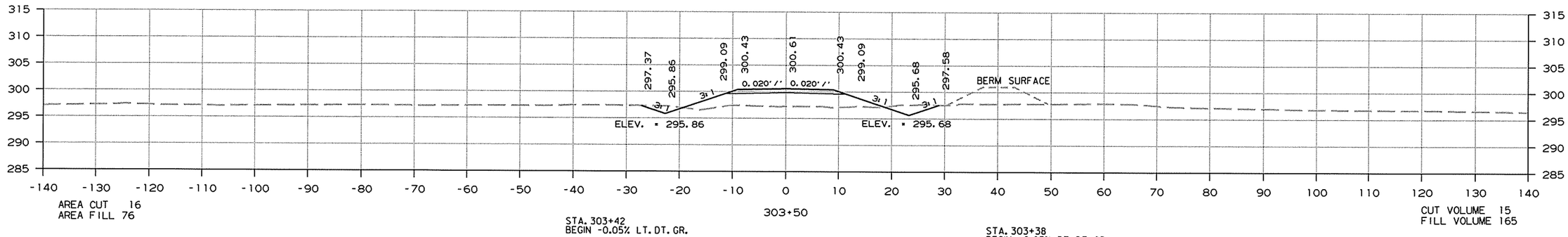
CROSS SECTION STA. 221+52 TO STA. 221+52

4/25/2016

HYD061390.DGN

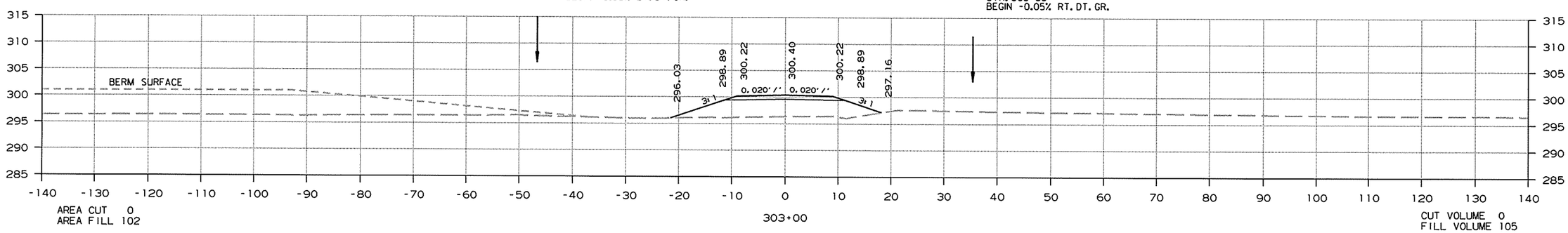
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061390	51	52

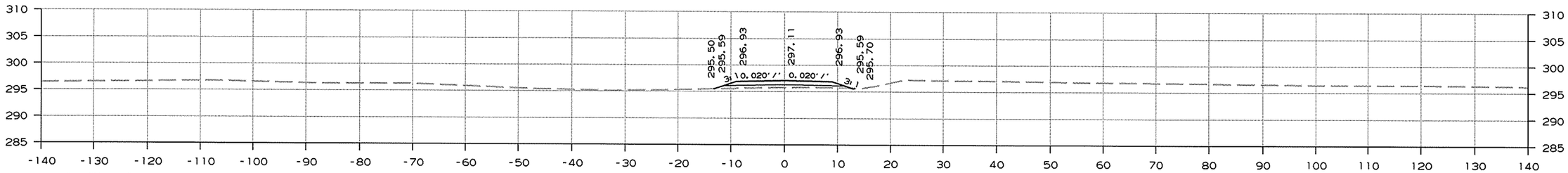
(2) CROSS SECTIONS

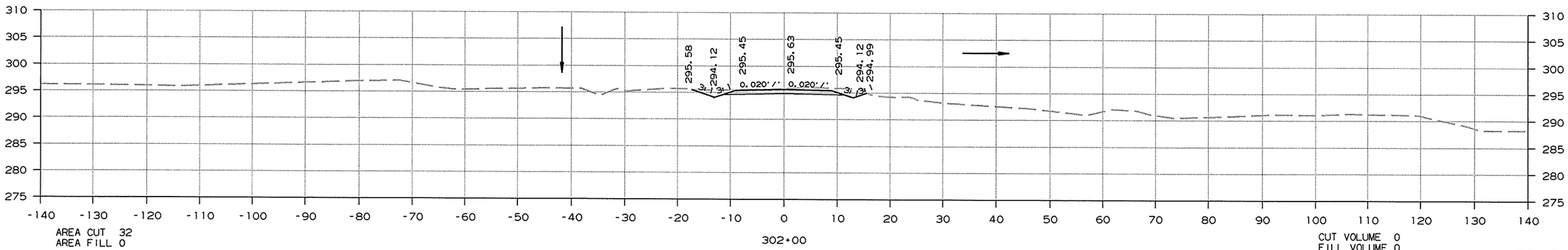


STA. 303+42
BEGIN -0.05% LT. DT. GR.

STA. 303+38
BEGIN -0.05% RT. DT. GR.







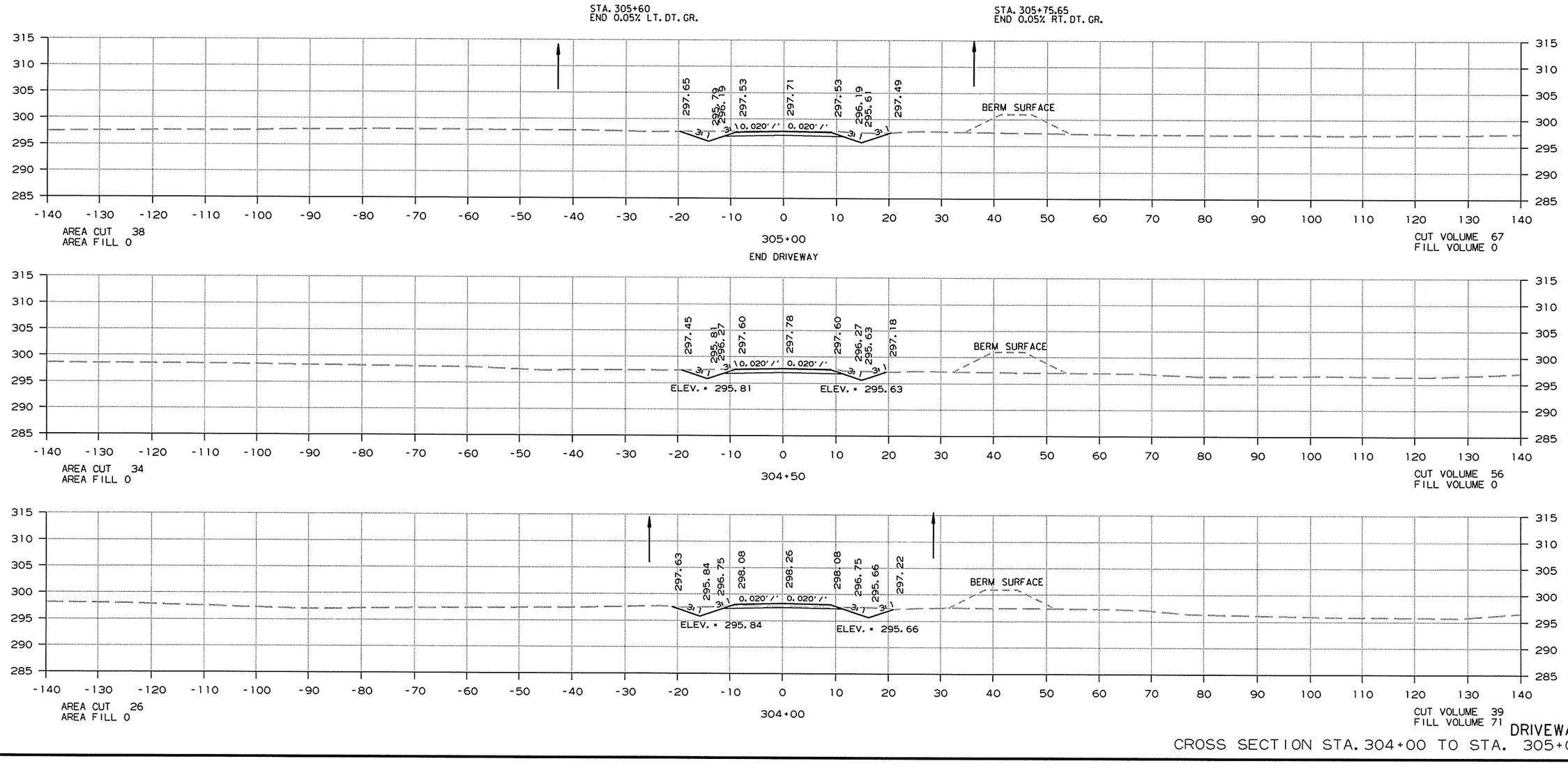
DRIVEWAY
CROSS SECTION STA. 302+00 TO STA. 303+50

5/2/2016

HYD061390.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.		061390	52	52

(2) CROSS SECTIONS



DRIVEWAY

CROSS SECTION STA. 304+00 TO STA. 305+00

5/2/2016

HYD061390.DGN