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.		100708	1	335
				(2)	HWY. 412 WEST - HWY. 49 (S)			

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

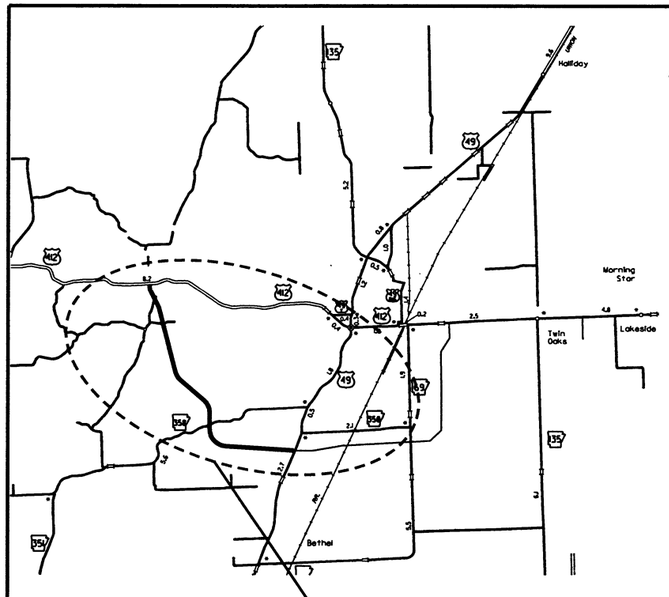
HWY. 412 WEST - HWY. 49 (S)

GREENE COUNTY

ROUTE 412 SECTION 8

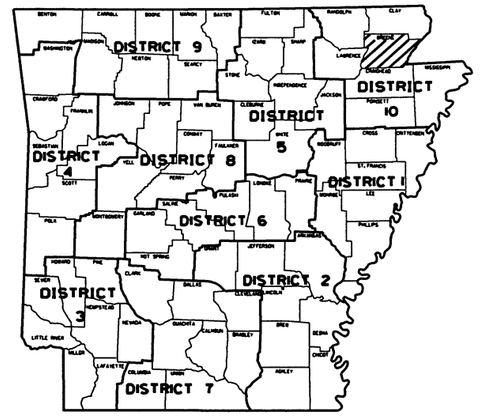
JOB 100708

FED. AID PROJ. NHPP-9332(13)



VICINITY MAP

NOT TO SCALE



ARK. HWY. DIST. NO. 10

STATION EQUATION - HWY. 412

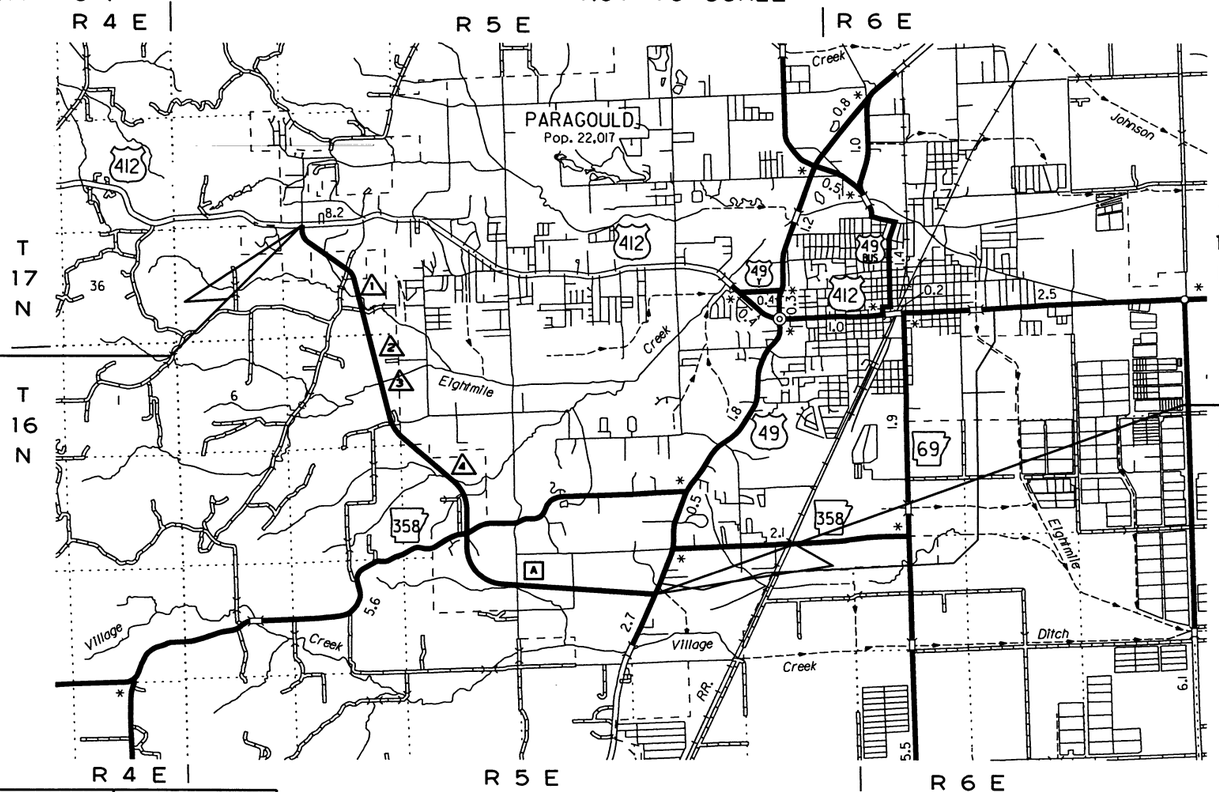
[A] STA. 300+82.22 BK. = STA. 301+06.16 AHD.

STA. 100+29.50
BEGIN JOB 100708

STRUCTURES OVER 20'-0" SPAN

1. STA. 144+43 CONSTRUCT TRIPLE 10' X 8' X 108' R.C. BOX (15° LT. FWD. SKEW) WITH 3:1 WINGS LT. & RT. Q50= 1740 CFS D.A.= 1136 ACRES SPAN = 33' - 2"
2. STA. 181+68 CONSTRUCT TRIPLE 6' X 3' X 87' R.C. BOX (10° LT. FWD. SKEW) WITH 3:1 WINGS LT. & RT. Q50= 280 CFS D.A.= 189 ACRES SPAN = 20' - 4"
3. STA. 187+15 CONSTRUCT TRIPLE 12' X 12' X 119' R.C. BOX WITH 3:1 WINGS LT. & RT. Q50= 3480 CFS D.A.= 2829 ACRES SPAN = 40' - 8"
4. STA. 241+82 CONSTRUCT TRIPLE 9' X 7' X 131' R.C. BOX (45° LT. FWD. SKEW) WITH 3:1 WINGS LT. & RT. Q50= 1440 CFS D.A.= 962 ACRES SPAN = 38' - 11"

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 36°04'03"	N 36°01'03"	N 36°03'09"
LONGITUDE	W 90°34'51"	W 90°31'50"	W 90°28'08"



GROSS LENGTH OF PROJECT	27324.41	FEET	OR	5.175	MILES
NET " " ROADWAY	27191.32	"	"	5.150	"
NET " " BRIDGES	133.09	"	"	0.025	"
NET " " PROJECT	27324.41	"	"	5.175	"

P.E. 100445

STA. 373+77.85
END JOB 100708

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2036
2016 ADT	6500
2036 ADT	8700
2036 DHV	957
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	11%
DESIGN SPEED	60 MPH

N

APPROVED

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

12-20-16

DEPUTY DIRECTOR
AND CHIEF ENGINEER

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.		100708	2	335

(2) INDEX OF SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
12-19-16

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2	INDEX OF SHEETS		
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4 - 7	TYPICAL SECTIONS OF IMPROVEMENT		
8 - 24	SPECIAL DETAILS		
25 - 54	TEMPORARY EROSION CONTROL DETAILS		
55 - 66	MAINTENANCE OF TRAFFIC DETAILS		
67 - 72	PERMANENT PAVEMENT MARKINGS		
73 - 79	QUANTITIES		
80	SUMMARY OF QUANTITIES AND REVISIONS		
81 - 100	SURVEY CONTROL DETAILS		
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133	SUMMARY OF SIGNALIZATION QUANTITIES		
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148	PRECAST CONCRETE BOX CULVERTS	PBC-1	1-28-15
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152	PLASTIC PIPE CULVERT (PVC F949)	PCP-2	2-27-14
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167	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	9-02-15
168	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	9-02-15
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174	WIRE FENCE TYPE C AND D	WF-4	8-22-02
175 - 335	CROSS SECTIONS		

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

9/9/2016

R100708.DGN

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1/12/17				6	ARK.			
				JOB NO.		100708	3	335

(2) GOVERNING SPECS. AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
1-12-17

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 - TRAINING PROGRAM - JOB 100708
FHWA-1273__ SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__ SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____ CONTRACTOR'S LICENSE
102-2_____ ISSUANCE OF PROPOSALS
108-1_____ LIQUIDATED DAMAGES
108-2_____ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1_____ AGGREGATE BASE COURSE
400-1_____ TACK COATS
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
620-1_____ MULCH COVER
JOB 100708__ AIRPORT CLEARANCE REQUIREMENTS
JOB 100708__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 100708__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100708__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100708__ CABINET DRAWER ASSEMBLY
JOB 100708__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 100708__ CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 100708__ DELAY IN RIGHT OF WAY OCCUPANCY
JOB 100708__ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 100708__ EDGE CARD VIDEO PROCESSOR
JOB 100708__ ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 100708__ ELECTRICAL CONDUCTORS -IN-CONDUIT
JOB 100708__ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100708__ LED TRAFFIC SIGNAL HEAD
JOB 100708__ LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)
JOB 100708__ LOOP WIRING REVISION 1.4
JOB 100708__ MANDATORY ELECTRONIC CONTRACT
JOB 100708__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 100708__ PARTNERING REQUIREMENTS
JOB 100708__ PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS
JOB 100708__ PLASTIC PIPE
JOB 100708__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 100708__ REQUIREMENTS OF LIABILITY INSURANCE
JOB 100708__ SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 100708__ SHORING FOR CULVERTS
JOB 100708__ SOIL STABILIZATION
JOB 100708__ STREET NAME SIGN (MAST ARM MOUNTED)
JOB 100708__ STORM WATER POLLUTION PREVENTION PLAN
JOB 100708__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100708__ TRAFFIC SIGNAL CONTROLLER (MODIFICATION)
JOB 100708__ UTILITY ADJUSTMENTS
JOB 100708__ VALUE ENGINEERING
JOB 100708__ VIDEO DETECTOR (COLOR)
JOB 100708__ 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. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. 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.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
7. THIS PROJECT IS COVERED UNDER AN INDIVIDUAL SECTION 404 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.

9/9/2016

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				6	ARK.			
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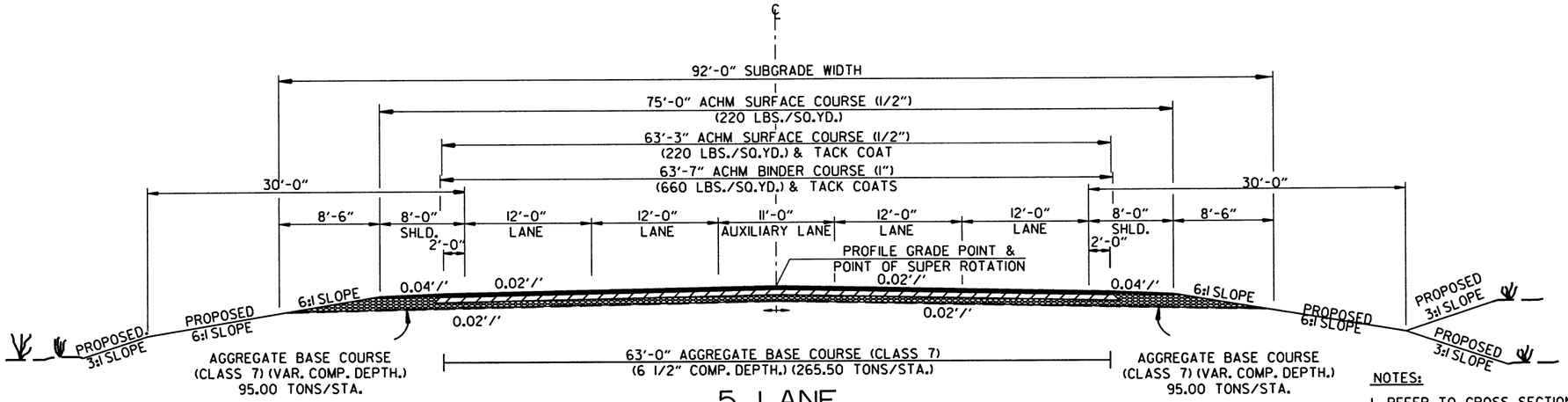
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16



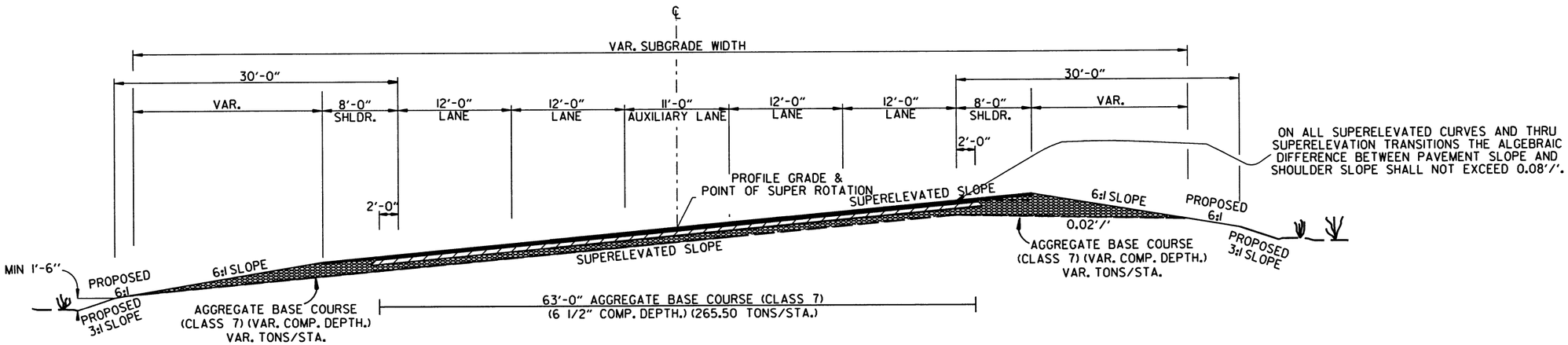
5 LANE
TANGENT SECTION

STA. 100+29.50-STA. 102+00.00

STA. 104+32.23 TO 120+00.00 TRANSITION FROM 5 LANE SECTION TO FUTURE 4 LANE DIVIDED SECTION

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



SEE PAVEMENT SECTION ABOVE

5 LANE
SUPERELEVATED SECTION

STA. 102+00.00-STA. 104+36.23

11/10/2016

R100708.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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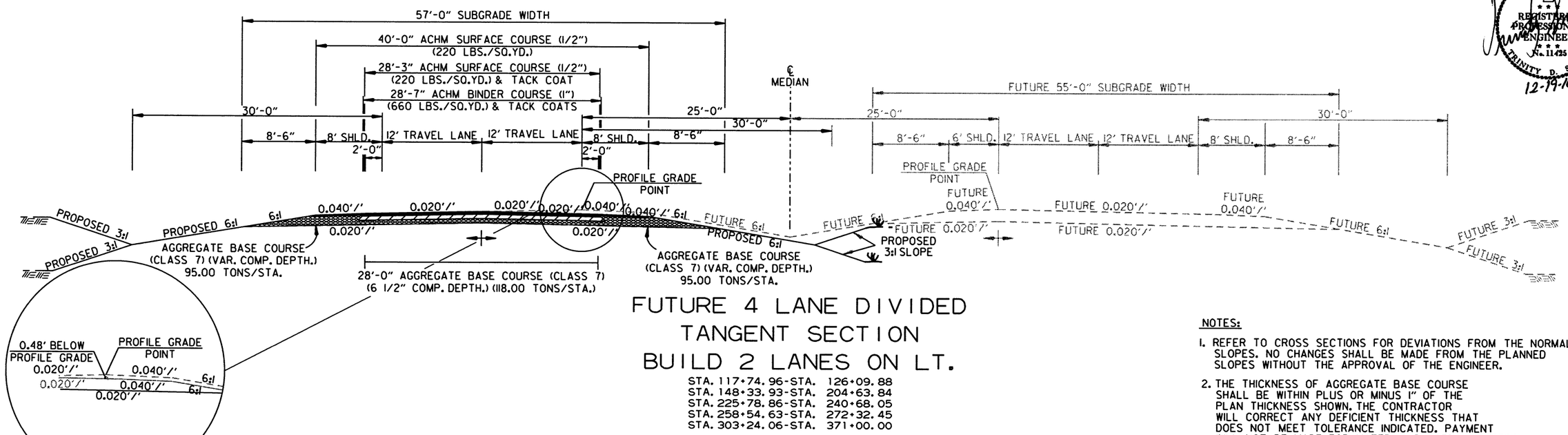
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

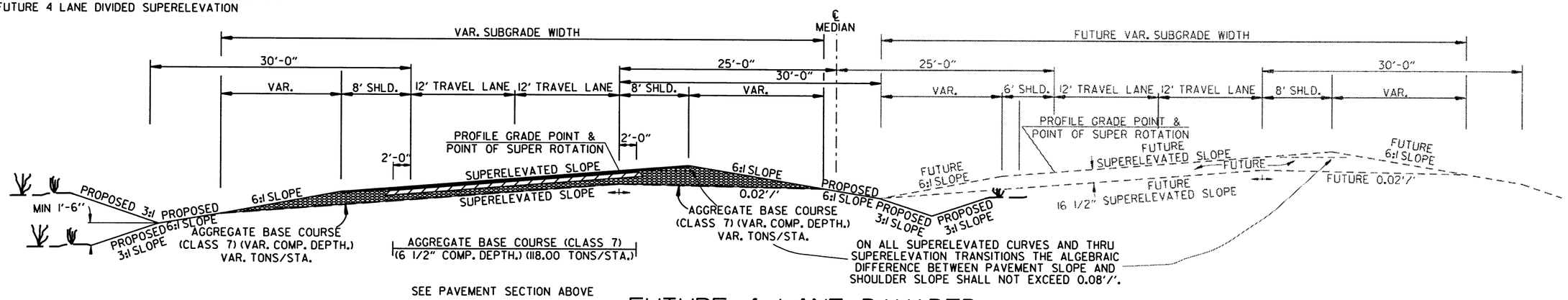


FUTURE 4 LANE DIVIDED TANGENT SECTION BUILD 2 LANES ON LT.

STA. 117+74.96-STA. 126+09.88
STA. 148+33.93-STA. 204+63.84
STA. 225+78.86-STA. 240+68.05
STA. 258+54.63-STA. 272+32.45
STA. 303+24.06-STA. 371+00.00

STA. 363+71.00 TO STA. 371+91.00
TRANSITION FROM 2-LANE TO 3-LANE

STA. 100+29.31-106+41.18 TRANSITION TO 5 LANE SUPERELEVATION
FROM FUTURE 4 LANE DIVIDED SUPERELEVATION



FUTURE 4 LANE DIVIDED SUPERELEVATION SECTION BUILD 2 LANES ON LT.

STA. 106+35.71-STA. 117+74.96
STA. 126+09.88-STA. 148+33.93
STA. 204+63.84-STA. 225+78.86
STA. 240+68.05-STA. 258+54.63
STA. 272+32.45-STA. 303+24.06

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

11/10/2016

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TYPICAL SECTIONS OF IMPROVEMENT

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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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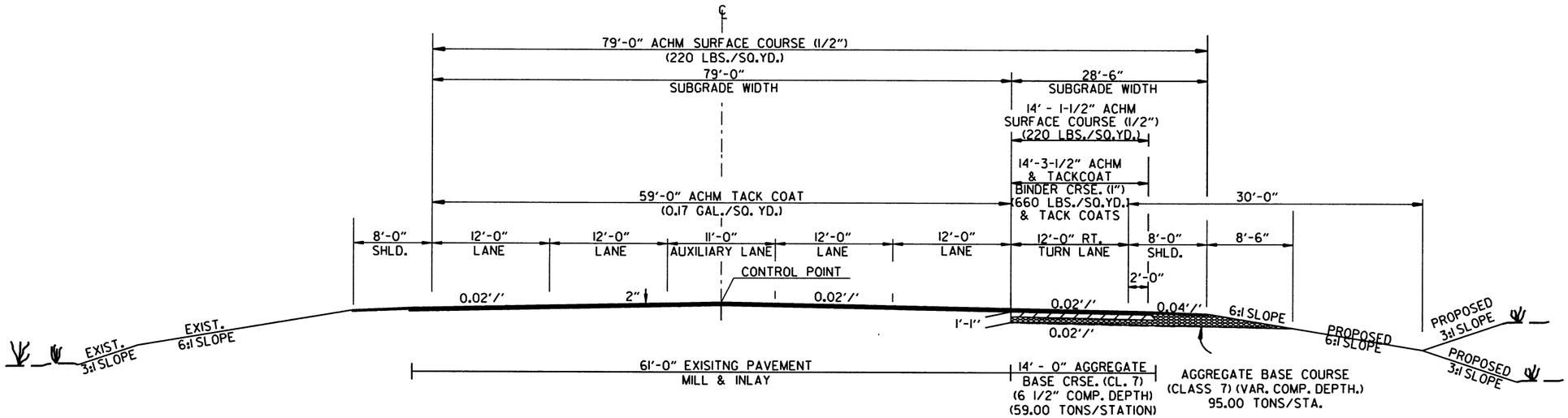
TRINITY D. SMITH
12-19-16



HWY. 412 EXISTING NOTCH AND WIDEN RT.

STA. 15+00.00 TO STA. 24+72.45

NOTES

1. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
4. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
5. PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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(2) TYPICAL SECTIONS OF IMPROVEMENT

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REGISTERED PROFESSIONAL ENGINEER
No. 11425
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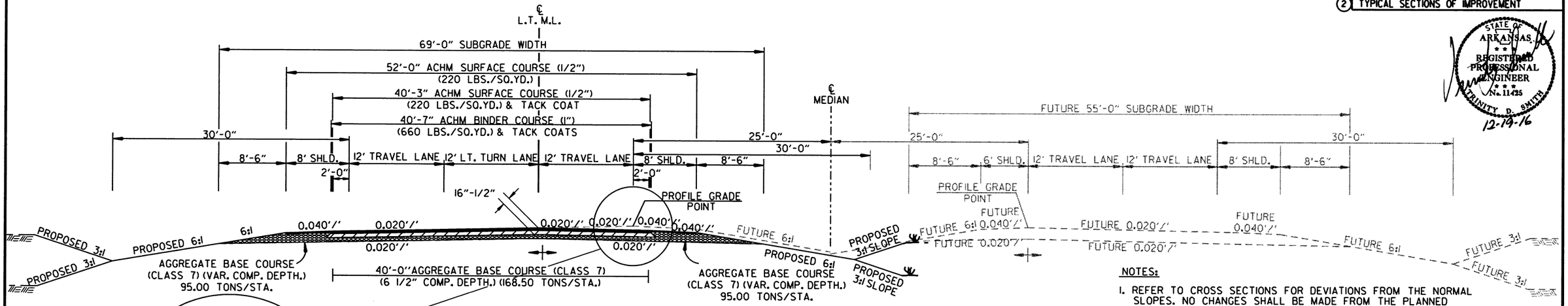
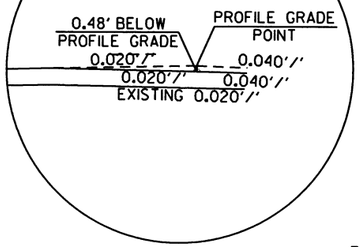
12-19-16





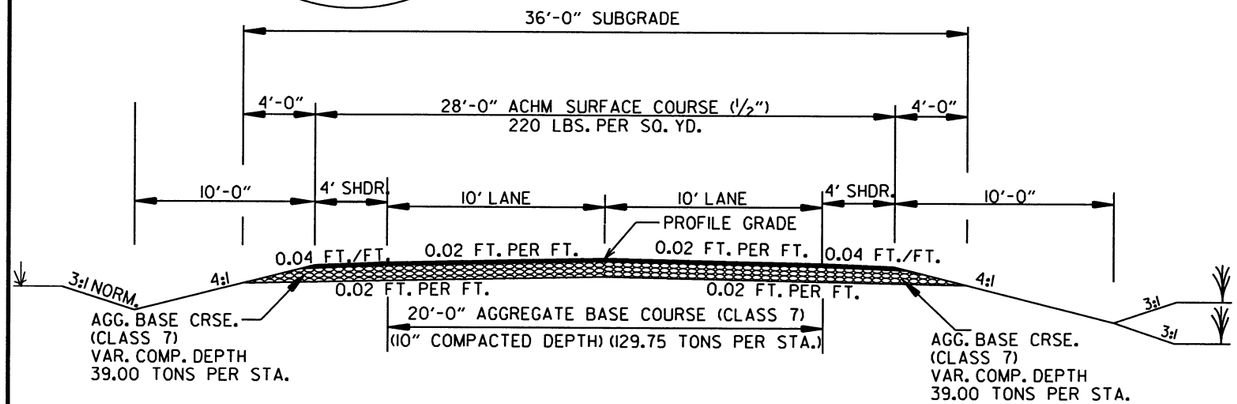
C.L. CONST.

FUTURE 4 LANE DIVIDED TANGENT SECTION BUILD 2 LANES ON LT. W/LT. TURN LANE

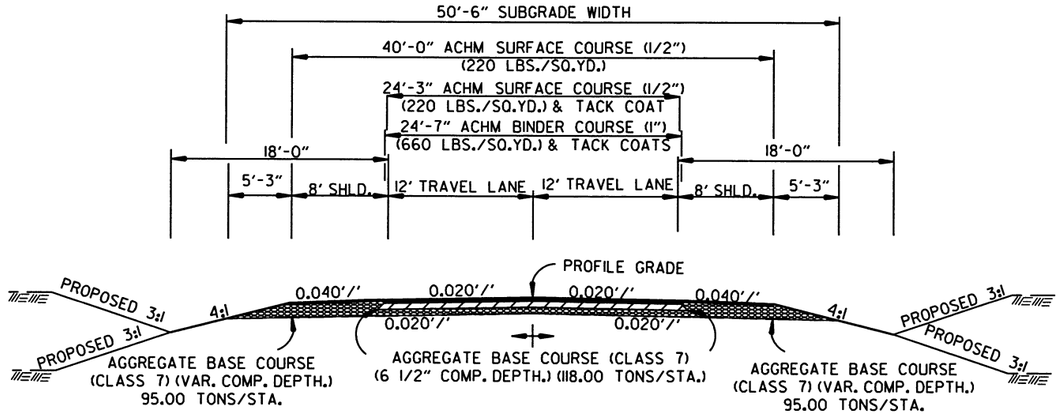
STA. 363+71.00 - STA. 373+77.85

NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



PINE KNOT RD. STA. 1+38.95 - 16+66.89, WALLCOTT RD. 101+00.00 - 8+88.28 WESTBROOK RD. STA. 0+57.00 - STA. 3+01.70, SPRING GROVE RD. STA. 0+90.14 - STA. 8+90.19, SOUTH ROCKING CHAIR RD. STA. 2+95.46 - STA. 8+54.60, BROWN'S CHAPEL RD. STA. 8+35.67 - STA. 16+09.72



HWY. 358

STA. 5+00.00-STA. 26+50.00

11/10/2016

R100708.DGN

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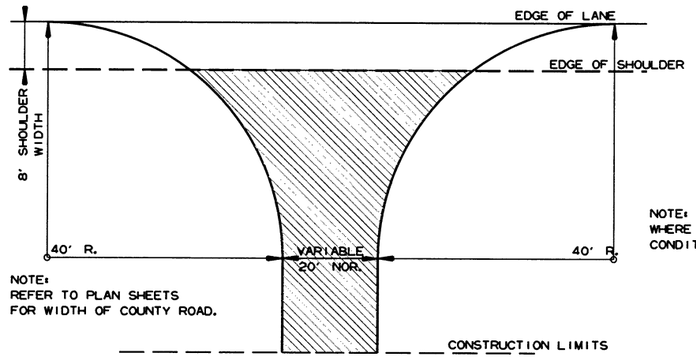
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	8	335

(2) SPECIAL DETAILS

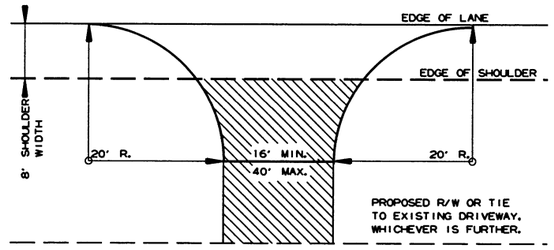


NOTE:
REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

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

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

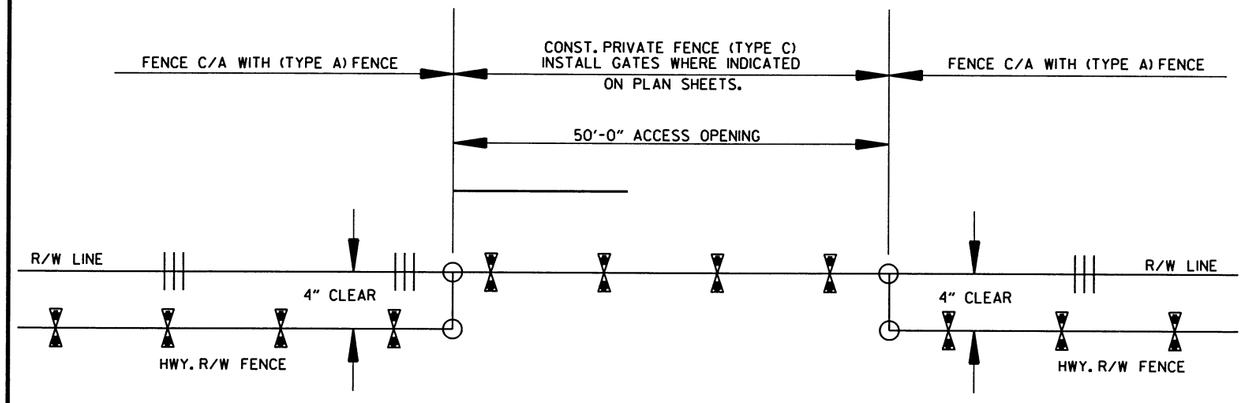
DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION



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

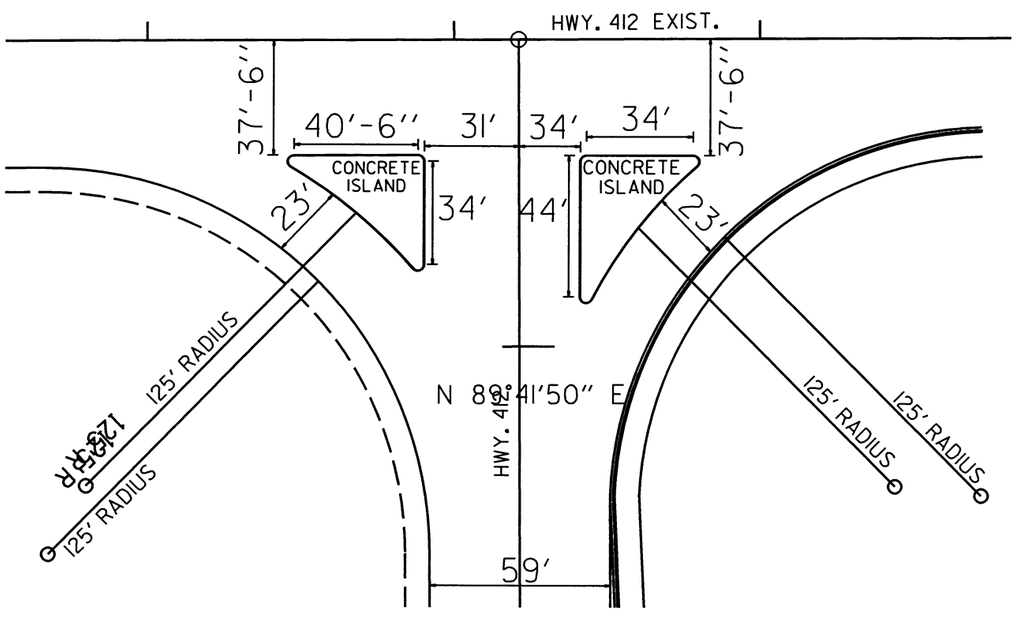
ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING, OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)



DETAIL OF ACCESS OPENINGS
(NO SCALE)

NOTE: USE 2' RADII ON ALL CORNERS OF CONCRETE ISLANDS



DETAIL OF ISLANDS
INTERSECTION OF HWY. 412 - HWY. 412 EXISTING

SPECIAL DETAILS

12/19/2016

R100708.DGN

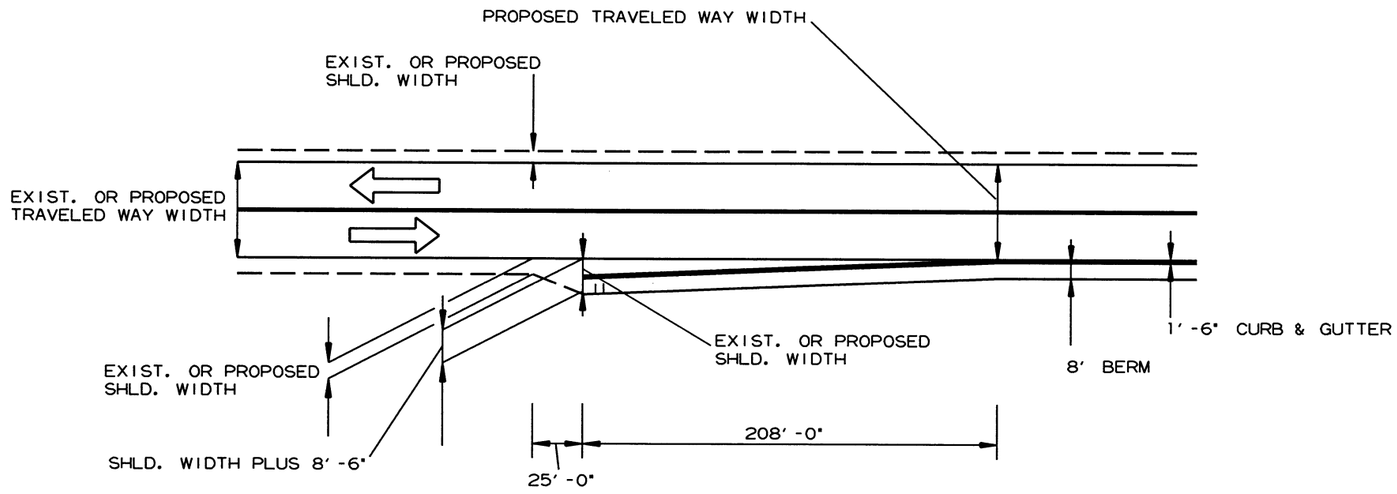
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	9	335

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

UNDERCUT AND BACKFILL

STA. 218+00 TO STA. 220+00
STA. 257+14 TO 259+69



TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION

STA. 101+48.37 TO STA. 103+56.11

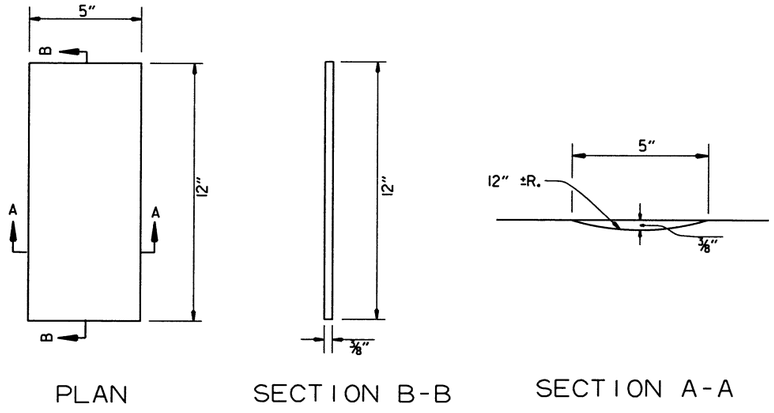
12/19/2016

R100708.DGN

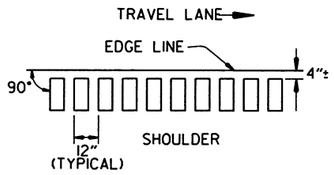
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	10	335

(2) SPECIAL DETAILS

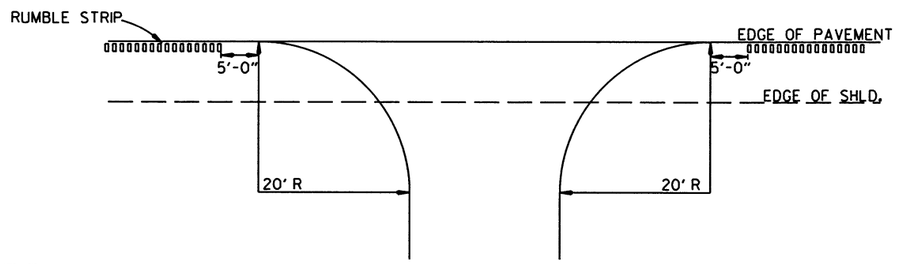
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16



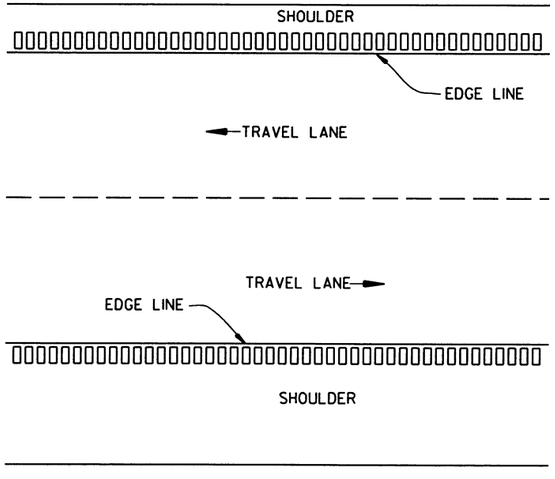
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



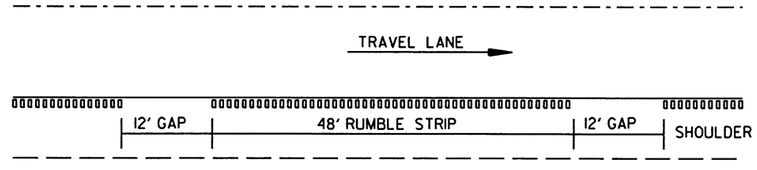
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

1. RUMBLE STRIPS SHALL NOT BE INSTALLED ON CURB SECTIONS, BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. THE 4" OFFSET FROM THE EDGE LINE MAY BE INCREASED TO AVOID LONGITUDINAL JOINTS. IN ALL CASES, THE LATERAL DEVIATION FROM THE PLANNED OFFSET SHOULD BE KEPT TO A MINIMUM.
4. RUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPS HAVE NOT BEEN CONSTRUCTED.
5. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

12/19/2016

R100708.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	11	335

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
32'-8"	8'-0"	0'-9"	0'-8"	15	3:1	32'-5 1/4"	2'-0"	8'-10"	2'-8"	15	45	3'-2"	4'-1 5/8"	4'-6 1/4"	1'-3"	1'-7 1/2"	19'-0"	26'-0"	22'-3 3/8"	29'-3 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
14.41	1321

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS VARY	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS VARY	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F4 LENGTHS
WING A	4	12	19	L	Min 3'-10"	4	12	7	L	4'-10"	-	-	-	L	-	4	18	8	Min	1'-11"
				X	Max 10'-8"				X	1'-5"				X	-				Max	15'-9"
				Y	Min 0'-9"				Y	3'-6"				Y	-					
					Max 1'-9"															
					Min 3'-2"															
					Max 9'-0"															
WING B	4	12	26	L	Min 3'-9"	4	12	9	L	5'-1"	-	-	-	L	-	4	18	8	Min	2'-8"
					Max 11'-0"														Max	21'-7"
				X	Min 0'-9"				X	1'-8"				X	-					
					Max 2'-1"															
				Y	Min 3'-1"				Y	3'-6"				Y	-					
					Max 9'-0"															

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8 LENGTHS	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS
WING A	4	18	4	18'-8"	4	18	13	L	Min 5'-5"	4	8	23'-1"	4	18	13	Min	2'-8"	-	-	-	Min
									Max 11'-3"							Max	3'-8"				-
								X	Min 2'-4"												
									Max 2'-4"												
								Y	Min 3'-2"												
									Max 9'-0"												
WING B	4	18	4	25'-8"	4	18	18	L	Min 5'-3"	4	8	30'-1"	4	18	18	Min	2'-8"	4	18	2	Min
									Max 11'-3"							Max	4'-0"				31'-5"
								X	Min 2'-4"												
									Max 2'-4"												
								Y	Min 3'-0"												
									Max 9'-0"												

WING	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	2	19'-6"	4	2	20'-3"	6	12	8	L 3'-4"	551
										X 1'-8"	
WING B	4	2	26'-3"	4	2	28'-10"	6	12	8	L 3'-4"	770
										X 1'-8"	

MID-SECTION BAR LAP TABLE

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

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-2-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 7/11/2016
CHECKED BY: JAC DATE: 9/1/2016

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

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

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
15	3:1	10	10	8	6'-5"	9.5	3	10.5	8	8	32'-8"	9'-8"

TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D
4	4	Max 32'-4"	22	4	4	Max 32'-4"	22
		Min 6'-1"				Min 6'-1"	
		32'-4"	6			32'-4"	6

BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
5	4	Max 32'-4"	22	5	7	Max 32'-4"	13
		Min 6'-1"				Min 6'-1"	
		32'-4"	6			32'-4"	4

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH
5	5	31	9'-4"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH
4	12	28	9'-4"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY
4	11	71	Max 10'-7"
			Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY
4	10	71	Max 10'-7"
			Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH
4	12	8	LONG 10'-5"
		8	SHORT 2'-0"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
4	12	16	LONG 7'-8"
		16	SHORT 4'-9"

"k1" HDWL BARS SIZE	"k1" LENGTH	"k1" NO. REQ'D	"k2" HDWL BARS SIZE	"k2" LENGTH	"k2" NO. REQ'D
4	33'-6"	6	4	33'-6"	6

"h" HDWL BARS SIZE	"h" LENGTH	"h" Y	"h" NO. REQ'D
4	1'-8"	0'-8"	35

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
18.57	3434

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION D	DESIGN FILL DEPTH (FT.) S	CLEAR SPAN (FT.) H	CLEAR HEIGHT (FT.) T	TOP SLAB THK. B	BOTTOM SLAB THK. C	SIDE WALL THK. W	INTERIOR WALL THK. OW	OVER ALL WIDTH OH	OVER ALL HEIGHT SL	SECTION LENGTH (FT.)

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

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

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" Y	"h" LENGTH	"h" NO. REQ'D

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL
A	10	10	8	10.5	11.5	11	8	33'-2"	9'-10"	95.17

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D
4	32'-10"	7	33'-5"	5	32'-10"	14	81

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
4	32'-10"	5	33'-5"	5	32'-10"	10	114

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
6	10	228	9'-6"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	380	9'-6"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	10	77

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	9	89

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	10	20

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	32

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
303.61	40593

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 144+50

SPECIAL DETAILS

LRFD

Ver. Ll14 bl00708.cl.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	12	336

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 7/11/2016
CHECKED BY: JAC DATE: 9/1/2016

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	OUTLET	OUTLET
32'-8"	8'-0"	0'-9"	0'-8"	15	3:1	32'-5 1/4"	2'-0"	8'-10"	2'-8"	15	45	3'-2"	4'-1 5/8"	4'-6 1/4"	1'-3"	1'-7 1/2"	19'-0"	26'-0"	22'-3 3/8"	29'-3 3/8"	CU.YD	LBS.
																					15.70	1321

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS VARY	F2	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS VARY	F3	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F4	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS VARY	F5	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS VARY	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS VARY	F9	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS VARY	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS VARY	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS VARY	F12	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	19	L	Min 3'-10"	4	12	7	L 4'-10"		-	-	-	L -		4	18	8	Min 1'-11"		4	18	13	Min 2'-8"		4	18	13	L Min 5'-5"		4	8	23'-1"	4	18	13	Min -		-	-	-	Min -		4	2	19'-6"	4	2	20'-3"	6	12	8	L 3'-4"		551
					Max 10'-8"														Max 1'-11"					Max 2'-8"					Max 11'-3"								Max -					Max -										X 1'-8"		
				X	Min 0'-9"				X 1'-5"					X -														X Min 2'-4"																										
					Max 1'-9"																									Max 2'-4"																										
				Y	Min 3'-2"				Y 3'-6"					Y -															Y Min 3'-2"																										
					Max 9'-0"																									Max 9'-0"																										
WING B	4	12	26	L	Min 3'-9"	4	12	9	L 5'-1"		-	-	-	L -		4	18	8	Min 2'-8"		4	18	4	Min 2'-8"		4	18	18	L Min 5'-3"		4	8	30'-1"	4	18	18	Min 2'-8"		4	2	Min 31'-5"		4	2	26'-3"	4	2	28'-10"	6	12	8	L 3'-4"		770
					Max 11'-0"														Max 2'-4"					Max 2'-4"					Max 11'-3"								Max 2'-4"					Max 31'-5"										X 1'-8"		
				X	Min 0'-9"				X 1'-8"					X -														X Min 2'-4"																										
					Max 2'-1"																									Max 2'-4"																										
				Y	Min 3'-1"				Y 3'-6"					Y -															Y Min 3'-0"																										
					Max 9'-0"																									Max 9'-0"																										

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																																																			
15	3:1	10	10	8	6'-5"	9.5	3	10.5	8	8	32'-8"	9'-8"	4	4	Max 32'-4" / Min 6'-1" / 32'-4"	22 / 6		4	4	Max 32'-4" / Min 6'-1" / 32'-4"	22 / 6	5	4	Max 32'-4" / Min 6'-1" / 32'-4"	22 / 6	5	7	Max 32'-4" / Min 6'-1" / 32'-4"	13 / 4	5	5	31	9'-4"	4	12	28	9'-4"	4	11	71	Max 10'-7" / Min 1'-10"	4	10	71	Max 10'-7" / Min 1'-10"	4	12	8	LONG 10'-5" / SHORT 2'-0"	4	12	16	LONG 7'-8" / SHORT 4'-9"

"k1" HDWL BARS SIZE	"k1" LENGTH	"k1" NO. REQ'D	"k2" HDWL BARS SIZE	"k2" LENGTH	"k2" NO. REQ'D	"h" HDWL BARS SIZE	"h" LENGTH	"h" Y	"h" NO, REQ'D
4	33'-6"	6	4	33'-6"	6	4	1'-8"	0'-8"	35

CLASS "S" CONCRETE (Includes HDWL.) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL.) LBS.
18.57	3434

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																																			

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D

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

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

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

TRIPLE BARREL BOX CULVERT
Sta. 144+50

SPECIAL DETAILS

Ver. 1.14 bi00708_ci.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	13	335

① SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
4-18-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 03/17/16
CHECKED BY: JAC DATE: 4/11/16

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
20'-4"	3'-0"	0'-9"	0'-8"	10	3:1	19'-7 5/8"	1'-0"	3'-10"	1'-0"	20	40	2'-2"	2'-2"	2'-2"	0'-2"	0'-2 -1/4"	9'-0"	11'-0"	10'-10 5/8"	12'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
4.15	354

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS			REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	9	L	Min	2'-2"	-	-	-	-	-	-	-	-	4	18	2	Min	4	18	2	8'-8"	4	18	6	L	Min	2'-11"	4	6	11'-9"	4	18	6	Min	-	-	-	-	4	2	9'-0"	4	2	10'-0"	6	12	3	L	3'-4"	163
					Max	4'-8"												5'-2"								X	Max	5'-3"							1'-8"														
				X	Min	0'-9"												Max									Min	1'-4"							Max												X	1'-8"	
					Max	0'-9"												5'-2"									Max	1'-4"							1'-8"														
				Y	Min	1'-6"																				Y	Min	1'-8"																				
					Max	4'-0"																					Max	4'-0"																				
WING B	4	12	11	L	Min	2'-1"	-	-	-	-	-	-	-	-	4	18	2	Min	4	18	2	10'-8"	4	18	8	L	Min	2'-7"	4	6	13'-9"	4	18	7	Min	-	-	-	-	4	2	10'-11"	4	2	12'-3"	6	12	3	L	3'-4"	191
					Max	4'-8"												6'-4"								X	Max	5'-3"							1'-8"												X	1'-8"	
				X	Min	0'-9"												Max									Min	1'-4"							Max														
					Max	0'-9"												6'-4"									Max	1'-4"							1'-8"														
				Y	Min	1'-5"																				Y	Min	1'-4"																				
					Max	4'-0"																					Max	4'-0"																				

MID-SECTION BAR LAP TABLE

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

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

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

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINF. STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
10	3:1	5	6	3	3'-10"	8	3	9	6	8	20'-4"	4'-5"	5	7	Max 20'-0" Min 8'-9" 20'-0"	4	5	6	Max 20'-0" Min 8'-9" 20'-0"	4	4	8.5	Max 20'-0" Min 8'-9" 20'-0"	3	4	11	Max 20'-0" Min 8'-9" 20'-0"	3	4	9	11	4'-1"	4	12	20	4'-1"	4	12	41	Max 5'-5" Min 1'-10"	4	12	41	Max 5'-5" Min 1'-10"	4	12	3	LONG 5'-4" SHORT 1'-11"	4	12	6	LONG 4'-3" SHORT 3'-0"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
5.44	938

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

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
4	20'-4"	6	4	20'-4"	6	4	1'-7"	0'-7"	22

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
D	DESIGN FILL DEPTH (FT.)	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
HD	LBS.				

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
D	DESIGN FILL DEPTH (FT.)	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D
A	5	6	3	8	9	6	8	20'-4"	4'-5"	79.33	4	20'-0"	7	20'-4"	5	20'-0"	17	55	4	20'-0"	4	20'-4"	4	20'-0"	17	55	4	9	210	4'-1"	4	12	316	4'-1"	4	12	41	4	12	41	4	12	6	4	12	12

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)
CU. YDS.	LBS.
105.20	13476

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 181+60

SPECIAL DETAILS

Ver. Jul4 bl00708_c2.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	14	335

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
4-18-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 03/17/16
CHECKED BY: JAC DATE: 4/11/16

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
20'-4"	3'-0"	0'-9"	0'-8"	10	3:1	19'-7 5/8"	1'-0"	3'-10"	1'-0"	20	40	2'-2"	2'-2"	2'-2"	0'-2"	0'-2 1/4"	9'-0"	11'-0"	10'-10 5/8"	12'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
4.86	354

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS
WING A	4	12	9	L	Min 2'-2"									4	18	2	Min	4	18	2	8'-8"	4	18	6	L	Min 2'-11"
					Max 4'-8"												5'-8"									Max 5'-3"
				X	Min 0'-9"	-	-	-	X -	-	-	-	X -				Max								X	Min 1'-4"
					Max 0'-9"												5'-2"									Max 1'-4"
				Y	Min 1'-6"				Y -				Y -												Y	Min 1'-8"
					Max 4'-0"												5'-2"									Max 4'-0"
WING B	4	12	11	L	Min 2'-1"									4	18	2	Min	4	18	2	10'-8"	4	18	8	L	Min 2'-7"
					Max 4'-8"												6'-4"									Max 5'-3"
				X	Min 0'-9"	-	-	-	X -	-	-	-	X -				Max								X	Min 1'-4"
					Max 0'-9"												6'-4"									Max 1'-4"
				Y	Min 1'-5"				Y -				Y -												Y	Min 1'-4"
					Max 4'-0"																					Max 4'-0"

WING	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8 LENGTHS	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS.)
WING A		4	6	11'-9"	4	18	6	Min	1'-8"				Min	4	2	9'-0"	4	2	10'-0"	6	12	3	L 3'-4"	163
									-				-											
									Max				Max										X 1'-8"	
									1'-8"				-											
WING B		4	6	13'-9"	4	18	7	Min	1'-8"				Min	4	2	10'-11"	4	2	12'-3"	6	12	3	L 3'-4"	191
									-				-											
									Max				Max										X 1'-8"	
									1'-8"				-											

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

OUTLET SKEWED END SECTION

| SK | SL | D | S | H | LL | T | HD | B | C | W | OW | OH | TOP SLAB REINFORCING STEEL "a" SIZE | "a" SPACING | "a" LENGTHS VARY | "a" NO. REQ'D | "c" SIZE | "c" SPACING | "c" LENGTHS VARY | "c" NO. REQ'D | BOTTOM SLAB REINFORCING STEEL "d" SIZE | "d" SPACING | "d" LENGTHS VARY | "d" NO. REQ'D | "f" SIZE | "f" SPACING | "f" LENGTHS VARY | "f" NO. REQ'D | SIDE WALL REINFORCING STEEL "f0" SIZE | "f0" SPACING | "f0" NO. REQ'D | "f0" LENGTH | INTERIOR WALL REINFORCING STEEL "f1" SIZE | "f1" SPACING | "f1" NO. REQ'D | "f1" LENGTH | TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE | "g" SPACING | "g" NO. REQ'D | "g" LENGTHS VARY | BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE | "e" SPACING | "e" NO. REQ'D | "e" LENGTHS VARY | SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE | "d1" SPACING | "d1" NO. REQ'D | "d1" LENGTH | INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE | "d2" SPACING | "d2" NO. REQ'D | "d2" LENGTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	15	335

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
39'-3"	12'-0"	1'-1"	1'-0"	0	3:1	37'-4"	2'-0"	12'-10"	4'-0"	30	30	3'-6"	6'-6"	6'-6"	3'-5 1/2"	3'-5 1/2"	30'-6"	30'-6"	33'-9 3/8"	33'-9 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
34.97	2626

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	31	L	Min 5'-8"	6	12	11	L 10'-3"	4	12	7	L 6'-1"	4	18	10	Min	4	18	6	30'-2"
					Max 17'-3"												5'-7"				
				X	Min 1'-1"				X 3'-0"				X 2'-4"				Max				
					Max 4'-0"												26'-4"				
				Y	Min 4'-8"				Y 7'-4"				Y 3'-10"								
					Max 13'-4"																
WING B	4	12	31	L	Min 5'-8"	6	12	11	L 10'-3"	4	12	7	L 6'-1"	4	18	10	Min	4	18	6	30'-2"
					Max 17'-3"												5'-7"				
				X	Min 1'-1"				X 3'-0"				X 2'-4"				Max				
					Max 4'-0"												26'-4"				
				Y	Min 4'-8"				Y 7'-4"				Y 3'-10"								
					Max 13'-4"																

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	21	L	Min 7'-3"	4	8	34'-7"	4	18	21	Min	4	18	4	Min	4	2	31'-3"	4	2	33'-7"	6	12	12	L 3'-4"	1313
					Max 15'-11"							3'-0"				17'-8"											
				X	Min 2'-8"							Max				Max										X 1'-8"	
					Max 2'-8"							5'-11"				33'-4"											
				Y	Min 4'-8"																						
					Max 13'-4"																						
WING B	4	18	21	L	Min 7'-3"	4	8	34'-7"	4	18	21	Min	4	18	4	Min	4	2	31'-3"	4	2	33'-7"	6	12	12	L 3'-4"	1313
					Max 15'-11"							3'-0"				17'-8"											
				X	Min 2'-8"							Max				Max										X 1'-8"	
					Max 2'-8"							5'-11"				33'-4"											
				Y	Min 4'-8"																						
					Max 13'-4"																						

MID-SECTION BAR LAP TABLE

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

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-2-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 7/11/2016
CHECKED BY: JLC DATE: 9-1-2016

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

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

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH			Max / Min				Max / Min				Max / Min				Max / Min	

SIDE WALL REINF. STEEL "f0" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINF. STEEL "f1" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIDE WALL DISTRIBUTION REINF. STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" SIZE	SPACING	NO. REQ'D	LENGTH
											Max / Min				Max / Min				LONG / SHORT				LONG / SHORT

"k1" HDWL BARS SIZE	LENGTH	NO. REQ'D	"k2" HDWL BARS SIZE	LENGTH	NO. REQ'D	"h" HDWL BARS SIZE	LENGTH	Y	NO. REQ'D

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

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINF. LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D
A	10	12	12	11	12.5	11.5	8	39'-3"	13'-11 1/2"	22	4	38'-11"	8	39'-8"	4	38'-11"	14	18

BOTTOM SLAB REINF. LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	38'-11"	7	39'-9"	4	38'-11"	9	29	6	4.5	116	13'-8"	4	12	88	13'-8"	4	10	95	4	8.5	107

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	9	32	4	12	48

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	Y	LENGTH	NO. REQ'D
3"	52	4	0'-10"	1'-10"	41

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
94.77	14674
TOTAL	
94.77	14674

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINF. LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D
B	15	12	12	15	17	20	8	40'-8"	14'-8"	75	4	40'-4"	8	41'-4"	8	40'-4"	12	75

BOTTOM SLAB REINF. LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	40'-4"	7	41'-6"	7	40'-4"	12	75	6	6.5	276	14'-4"	4	12	300	14'-4"	5	11	89	4	6.5	143

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	5.5	54	4	12	48

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
456.79	61498

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 187+15

SPECIAL DETAILS

Ver. 1.14 b100708_c3.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	116	335

① SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-2-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 7/11/2016
CHECKED BY: JAC DATE: 9-1-2016

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AP2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
39'-3"	12'-0"	1'-1"	1'-0"	0	3:1	37'-4"	2'-0"	12'-10"	4'-0"	30	30	3'-6"	6'-6"	6'-6"	3'-5 1/2"	3'-5 1/2"	30'-6"	30'-6"	33'-9 3/8"	33'-9 3/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
36.50	2626

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY		F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY		F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS		F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	31	L	Min	5'-8"	6	12	11	L	10'-3"		4	12	7	L	6'-1"		4	18	10	Min		4	18	6	30'-2"	4	18	21	L	Min	7'-3"	4	8	34'-7"	4	18	21	Min		4	18	4	Min		4	2	31'-3"	4	2	33'-7"	6	12	12	L	3'-4"	1313
					Max	17'-3"																	5'-7"								Max	15'-11"											3'-0"			17'-8"									
				X	Min	1'-1"				X	3'-0"					X	2'-4"														Min	2'-8"																						X	1'-8"	
					Max	4'-0"																	Max								Max	2'-8"											Max			33'-4"									
				Y	Min	4'-8"				Y	7'-4"					Y	3'-10"														Min	4'-8"																								
					Max	13'-4"																	26'-4"								Max	13'-4"											5'-11"												
WING B	4	12	31	L	Min	5'-8"	6	12	11	L	10'-3"		4	12	7	L	6'-1"		4	18	10	Min		4	18	6	30'-2"	4	18	21	L	Min	7'-3"	4	8	34'-7"	4	18	21	Min		4	18	4	Min		4	2	31'-3"	4	2	33'-7"	6	12	12	L	3'-4"	1313
					Max	17'-3"																	5'-7"								Max	15'-11"											3'-0"			17'-8"									
				X	Min	1'-1"				X	3'-0"					X	2'-4"														Min	2'-8"																						X	1'-8"	
					Max	4'-0"																	Max								Max	2'-8"											Max			33'-4"									
				Y	Min	4'-8"				Y	7'-4"					Y	3'-10"														Min	4'-8"																								
					Max	13'-4"																	26'-4"								Max	13'-4"											5'-11"												

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH			Max				Max				Max				Max													Max																	

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	17	335

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
38'-11"	7'-0"	0'-9"	0'-8"	45	3:1	52'-9 5/8"	2'-0"	7'-10"	2'-4"	0	60	3'-2"	3'-5 3/4"	4'-2 1/4"	0'-9 3/4"	1'-3 5/8"	16'-6"	33'-0"	18'-0 5/8"	39'-10 3/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
15.82	1388

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F4 LENGTHS	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	17	L	Min 3'-4"	4	12	3	L 3'-5"	-	-	-	L -	4	18	6	Min		4	18	4	16'-2"
					Max 9'-0"												3'-4"					
				X	Min 0'-9"				X 1'-0"				X -				Max					
					Max 1'-1"												12'-4"					
				Y	Min 2'-8"				Y 2'-6"				Y -									
					Max 8'-0"																	
WING B	4	12	33	L	Min 3'-4"	4	12	6	L 4'-0"	-	-	-	L -	4	18	6	Min		4	18	4	32'-8"
					Max 9'-8"												6'-10"					
				X	Min 0'-9"				X 1'-7"				X -				Max					
					Max 1'-9"												24'-10"					
				Y	Min 2'-8"				Y 2'-6"				Y -									
					Max 8'-0"																	

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8 LENGTHS	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS VARY	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	11	L	Min 5'-3"	4	8	18'-11"	4	18	11	Min		-	-	-	Min		4	2	16'-11"	4	2	17'-4"	6	12	7	L 3'-4"	450
					Max 10'-3"							2'-8"					-												
			X	Min 2'-4"								Max					Max										X 1'-8"		
				Max 2'-4"								3'-0"					-												
			Y	Min 3'-0"																									
				Max 8'-0"																									
WING B	4	18	22	L	Min 5'-1"	4	8	40'-9"	4	18	23	Min		4	18	2	Min		4	2	33'-0"	4	2	36'-7"	6	12	7	L 3'-4"	938
					Max 10'-3"							2'-8"					52'-2"												
			X	Min 2'-4"								Max					Max										X 1'-8"		
				Max 2'-4"								3'-8"					52'-2"												
			Y	Min 2'-10"																									
				Max 8'-0"																									

MID-SECTION BAR LAP TABLE

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

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-2-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 7/11/2016
CHECKED BY: JAC DATE: 9/1/2016

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

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

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

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH
45	3:1	10	12	7	21'-5"	12	5	12.5	9.5	8	38'-11"	9'-0 1/2"

TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" LENGTH	"a" NO. REQ'D	"c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" LENGTH	"c" NO. REQ'D
5	5	Max	38'-7"	87	7	7	Max	38'-7"	63
		Min	2'-4"				Min	2'-4"	
			38'-7"	5				38'-7"	4

BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" LENGTH	"d" NO. REQ'D	"f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" LENGTH	"f" NO. REQ'D
6	4	Max	38'-7"	109	6	8	Max	38'-7"	55
		Min	2'-4"				Min	2'-4"	
			38'-7"	6				38'-7"	3

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH
6	10	53	8'-9"

INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH
4	12	90	8'-9"

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	"g" LENGTH
4	9	101	Max	40'-9"
			Min	1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	"e" LENGTH
4	8.5	101	Max	40'-9"
			Min	1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH
4	11	8	LONG 40'-1"
		8	SHORT 2'-5"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
4	12	14	LONG 27'-8"
		14	SHORT 15'-0"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL.) LBS.
81.21	17121

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
8	54'-8"	6	8	54'-8"	6	4	2'-1"	1'-1"	57

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL

LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	"b" SIZE	"b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	"b1" SIZE	"b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D

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

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL
A	10	12	7	12	12.5	9.5	8	38'-11"	9'-0 1/2"	88.17

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	"b" SIZE	"b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D
4	38'-7"	8	39'-3"	7	38'-7"	16	66

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	"b1" SIZE	"b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D
4	38'-7"	8	39'-3"	5	38'-7"	10	105

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
6	10	210	8'-8"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	352	8'-8"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	9	101

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	8.5	107

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	11	16

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	28

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
326.12	52148

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 241+68

SPECIAL DETAILS

LRFD

Ver. 1.14 b100708_c4.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	10	335

① SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-2-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 7/11/2016
CHECKED BY: JAC DATE: 9/1/2016

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AP1	AP2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
38'-11"	7'-0"	0'-9"	0'-8"	45	3:1	52'-9 5/8"	2'-0"	7'-10"	2'-4"	0	60	3'-2"	3'-5 3/4"	4'-2 1/4"	0'-9 3/4"	1'-3 5/8"	16'-6"	33'-0"	18'-0 5/8"	39'-10 3/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
17.68	1388

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	17	L	Min	3'-4"	4	12	3	L 3'-5"	-	-	-	L -	4	18	6	Min	4	18	4	16'-2"	4	18	11	L	Min	5'-3"	4	8	18'-11"	4	18	11	Min	-	-	-	Min	4	2	16'-11"	4	2	17'-4"	6	12	7	L	3'-4"	450
					Max	9'-0"												3'-4"									X	Max	10'-3"							2'-8"													
				X	Min	0'-9"				X 1'-0"				X -														Max 2'-4"							-												X	1'-8"	
					Max	1'-1"												Max																		Max													
				Y	Min	2'-8"				Y 2'-6"				Y -													Y	Min 3'-0"							-													
					Max	8'-0"												12'-4"										Max 8'-0"							3'-0"													
WING B	4	12	33	L	Min	3'-4"	4	12	6	L 4'-0"	-	-	-	L -	4	18	6	Min	4	18	4	32'-8"	4	18	22	L	Min	5'-1"	4	8	40'-9"	4	18	23	Min	4	18	2	Min	4	2	33'-0"	4	2	36'-7"	6	12	7	L	3'-4"	938
					Max	9'-8"												6'-10"										Max 10'-3"							2'-8"				52'-2"									
				X	Min	0'-9"				X 1'-7"				X -														Max 2'-4"							Max												X	1'-8"	
					Max	1'-9"												Max																		3'-8"													
				Y	Min	2'-8"				Y 2'-6"				Y -													Y	Min 2'-10"							52'-2"													
					Max	8'-0"												24'-10"										Max 8'-0"																					

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINF. STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH	CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH		
45	3:1	10	12	7	21'-5"	12	5	12.5	9.5	8	38'-11"	9'-0 1/2"	5	5	Max 38'-7" / Min 2'-4" / 38'-7"	87 / 5	7	7	Max 38'-7" / Min 2'-4" / 38'-7"	63 / 4	6	4	Max 38'-7" / Min 2'-4" / 38'-7"	109 / 6	6	8	Max 38'-7" / Min 2'-4" / 38'-7"	55 / 3	6	10	53	8'-9"	4	12	90	8'-9"	4	9	101	Max 40'-9" / Min 1'-10"	4	8.5	101	Max 40'-9" / Min 1'-10"	4	11	8	LONG 40'-1" / SHORT 2'-5"	4	12	14	LONG 27'-8" / SHORT 15'-0"	81.21	17121

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO, REQ'D
8	54'-8"	6	8	54'-8"	6	4	2'-1"	1'-1"	57

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	LENGTH = OW - 4" + BENDS SPACING	LENGTH = OW - 4" + BENDS NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	BOTTOM SLAB REINFORCING STEEL SPACING	BOTTOM SLAB REINFORCING STEEL NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D	CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
	D	S	H	T	B	C	W	OW	OH	SL																																													
HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
---	---	---	---	---	---

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

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

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

TRIPLE BARREL BOX CULVERT
Sta. 241+68

SPECIAL DETAILS

Ver. 1.14 bl00708_c4.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	19	335

① SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
4-18-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 03/17/16
CHECKED BY: JAC DATE: 4/11/16

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
17'-8"	4'-0"	0'-9"	0'-8"	0	3:1	16'-8"	1'-0"	4'-10"	1'-4"	30	30	2'-2"	2'-5 3/4"	2'-5 3/4"	0'-4 3/8"	0'-4 3/8"	12'-0"	12'-0"	13'-10 5/8"	13'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
5.06	454

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F2	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F3	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	F12	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	12	X	Min 2'-6"				L -					L -		4	18	4	Min 3'-10"	4	18	2	11'-8"	4	18	8	L Min 3'-2"		4	6	14'-9"	4	18	8	Min 1'-8"	-	-	-	Min -	4	2	12'-0"	4	2	13'-4"	6	12	4	L 3'-4"		227
					Max 6'-0"									X -					Max 9'-0"								X Min 1'-4"												Max -								X 1'-8"		
				Y	Min 0'-9"				X -					Y -													Y Min 1'-11"																						
					Max 1'-1"																						Max 5'-0"																						
WING B	4	12	12	X	Min 2'-6"				L -					L -		4	18	4	Min 3'-10"	4	18	2	11'-8"	4	18	8	L Min 3'-2"		4	6	14'-9"	4	18	8	Min 1'-8"	-	-	-	Min -	4	2	12'-0"	4	2	13'-4"	6	12	4	L 3'-4"		227
					Max 6'-0"									X -					Max 9'-0"								X Min 1'-4"												Max -								X 1'-8"		
				Y	Min 0'-9"				X -					Y -													Y Min 1'-11"																						
					Max 1'-1"																						Max 5'-0"																						

MID-SECTION BAR LAP TABLE

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

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

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

INLET SKEWED END SECTION

SKEW (DEGREE) SK	SLOPE SL	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	SECTION LENGTH LL	TOP SLAB THK. T	HDWL DEPTH HD	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
															Max				Max						Max														Max				Max										
															Min				Min						Min														Min										

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D

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

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
3"	23	4	0'-7"	1'-7"	19

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	
0.16	43

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

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

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
A	10	8	4	9.0	10	6.0	8	17'-8"	5'-7"	117	4	17'-4"	6	17'-6"	5	17'-4"	15	93	4	17'-4"	5	17'-7"	4	17'-4"	9	156	4	7.5	374	5'-3"	4	12	234	5'-3"	4	12	35	4	11	39	4	12	8	4	12	8

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
150.10	21193

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
DOUBLE BARREL BOX CULVERT
Sta. 305+00

SPECIAL DETAILS

Ver. Ll4 b00708_c5.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	20	335

① SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
4-18-16
CHARLES R. ELLIS

TABULAR DATA BY: TMG DATE: 03/17/16
CHECKED BY: JAC DATE: 4/11/16

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
17'-8"	4'-0"	0'-9"	0'-8"	0	3:1	16'-8"	1'-0"	4'-10"	1'-4"	30	30	2'-2"	2'-5 3/4"	2'-5 3/4"	0'-4 3/8"	0'-4 3/8"	12'-0"	12'-0"	13'-10 5/8"	13'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
5.74	454

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS			F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS			F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	12	L	Min	2'-6"	-	-	-	L	-		-	-	-	L	-		4	18	4	Min
					Max	6'-0"																3'-10"
				X	Min	0'-9"				X	-					X	-					Max
					Max	1'-1"																9'-0"
				Y	Min	1'-10"				Y	-					Y	-					
					Max	5'-0"																
WING B	4	12	12	L	Min	2'-6"	-	-	-	L	-		-	-	-	L	-		4	18	4	Min
					Max	6'-0"																3'-10"
				X	Min	0'-9"				X	-					X	-					Max
					Max	1'-1"																9'-0"
				Y	Min	1'-10"				Y	-					Y	-					
					Max	5'-0"																

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS
WING A	4	18	2	11'-8"	4	18	8	L	Min	3'-2"	4	6	14'-9"	4	18	8	Min	-	-	-	Min
									Max	6'-3"							1'-8"				-
								X	Min	1'-4"							Max				Max
									Max	1'-4"							2'-0"				-
								Y	Min	1'-11"											
									Max	5'-0"											
WING B	4	18	2	11'-8"	4	18	8	L	Min	3'-2"	4	6	14'-9"	4	18	8	Min	-	-	-	Min
									Max	6'-3"							1'-8"				-
								X	Min	1'-4"							Max				Max
									Max	1'-4"							2'-0"				-
								Y	Min	1'-11"											
									Max	5'-0"											

WING	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	2	12'-0"	4	2	13'-4"	6	12	4	L	3'-4"	227
										X	1'-8"	
WING B	4	2	12'-0"	4	2	13'-4"	6	12	4	L	3'-4"	227
										X	1'-8"	

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

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

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

OUTLET SKEWED END SECTION

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

SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
											Max				Max				LONG				
											Min				Min				SHORT				

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

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D

"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D

"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																	

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
TOTAL	
0.16	43

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
HD					
3"	23	4	0'-7"	1'-7"	19

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

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
DOUBLE BARREL BOX CULVERT
Sta. 305+00

SPECIAL DETAILS

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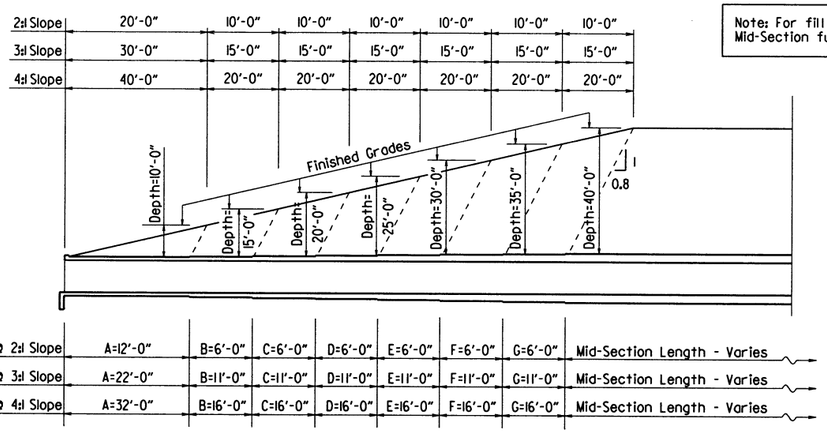
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	2	335

① SPECIAL DETAILS

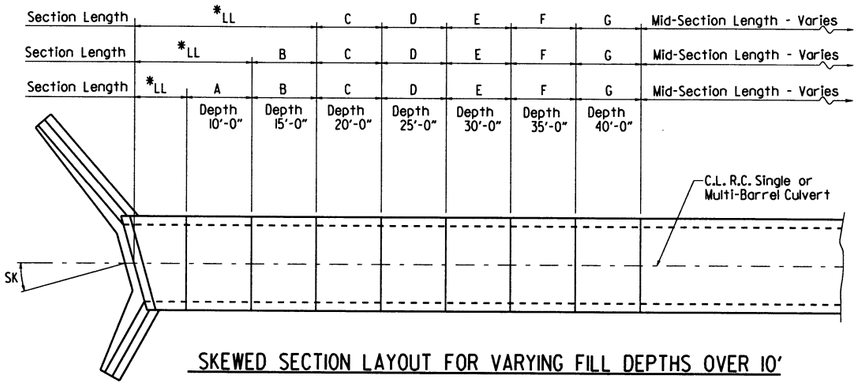


Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

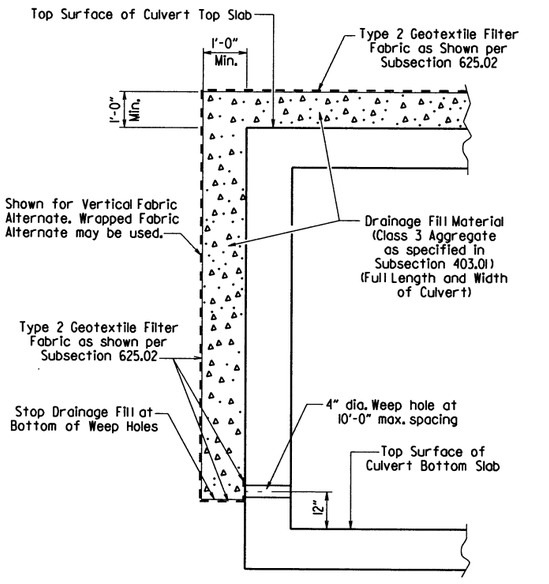
Lengths for Non-Skewed Boxes

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



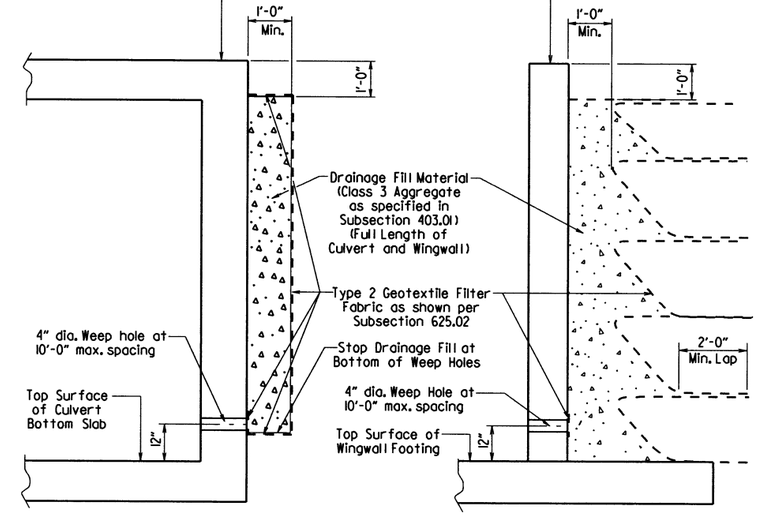
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
4-18-16
CHARLES R. ELLIS



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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



VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

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

WINGWALL & CULVERT DRAINAGE DETAIL

GENERAL NOTES:

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

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

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

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

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

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

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

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

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

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

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

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

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

SPECIAL DETAILS

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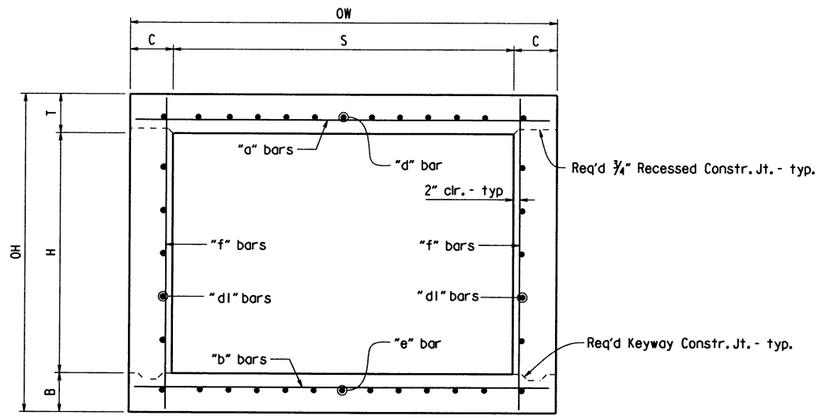
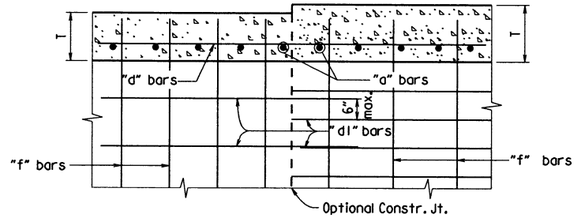
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	22	335

SPECIAL DETAILS

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



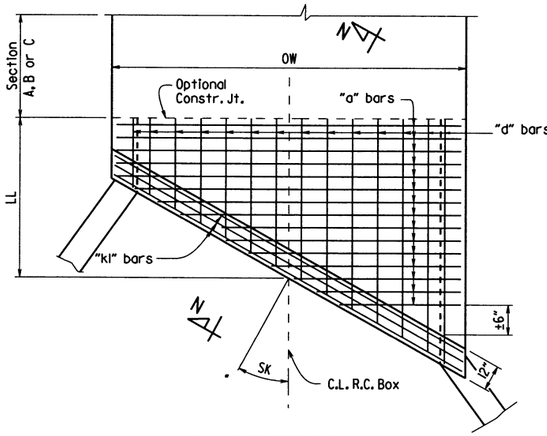
TYPICAL SECTION M-M



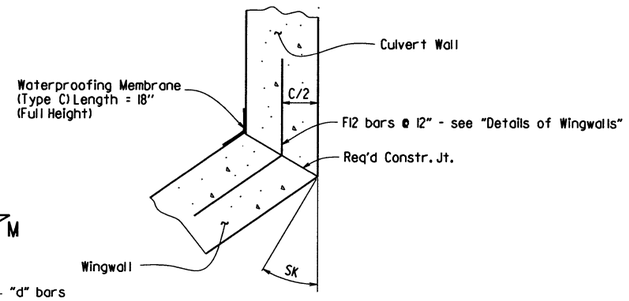
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

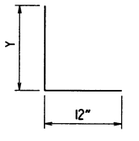


TOP SLAB REINFORCEMENT

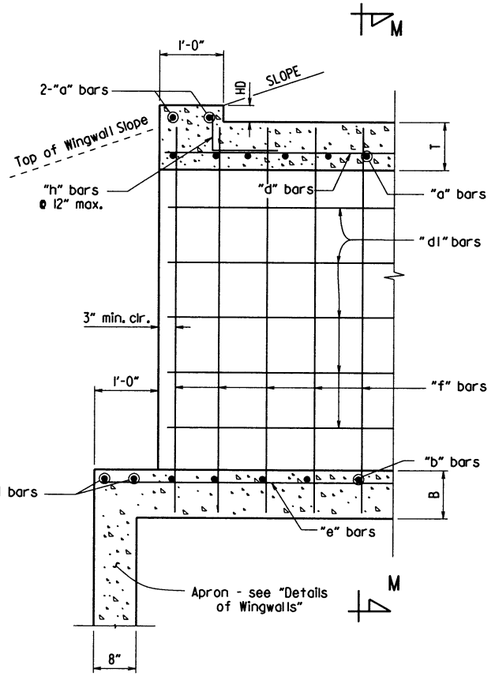


WINGWALL ATTACHMENT

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

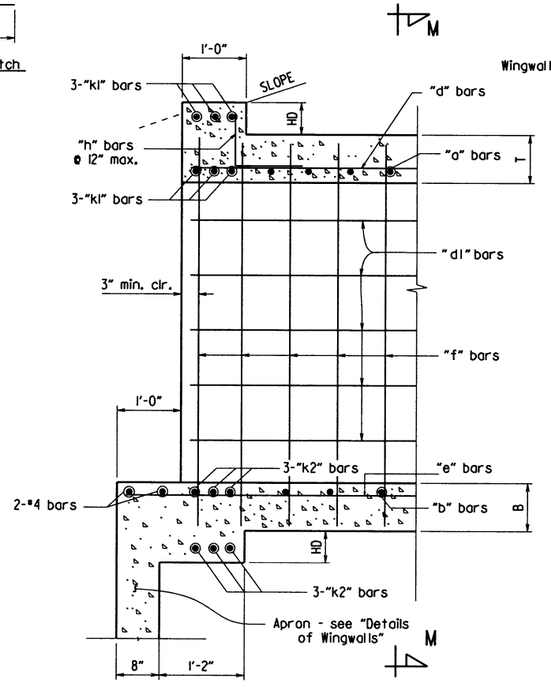


"h" bars sketch



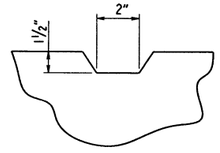
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



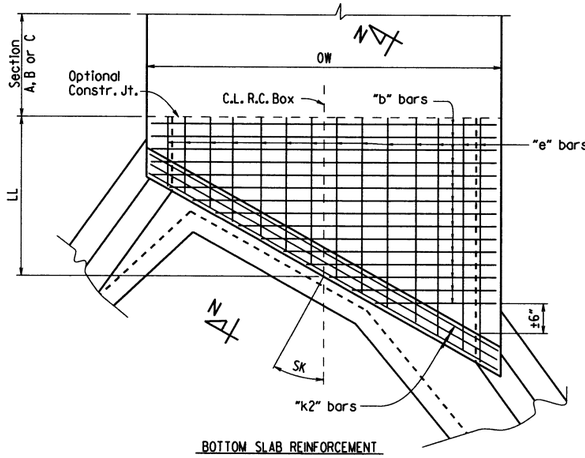
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

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

DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
4-18-16
CHARLES R. ELLIS

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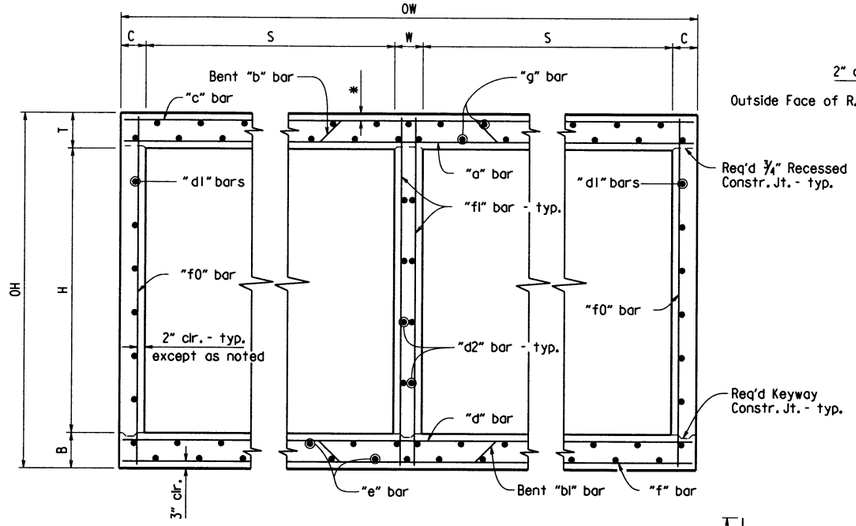
DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	23	355

SPECIAL DETAILS

*2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.

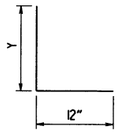
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



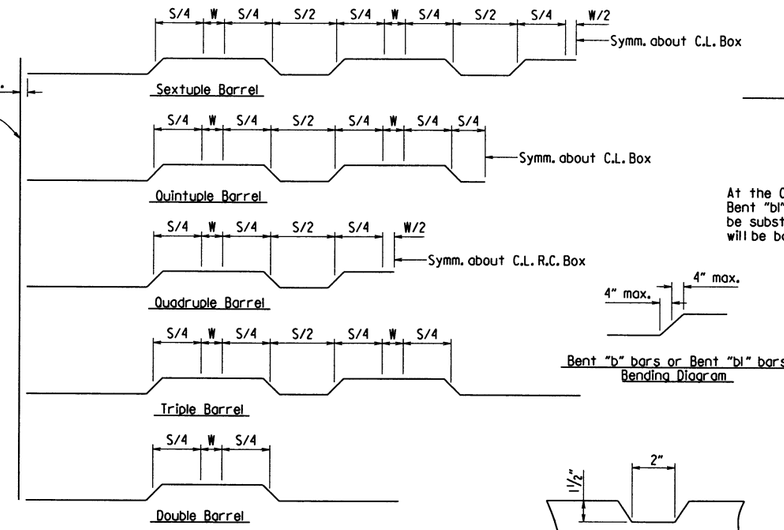
TYPICAL SECTION M-M

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

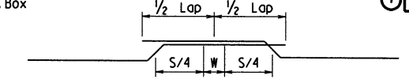
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



"h" bars sketch



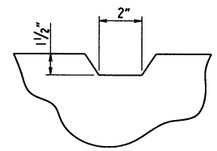
Bent "b" bars or Bent "b1" bars sketch



Lap Detail
For Bent "b" bars and Bent "b1" bars

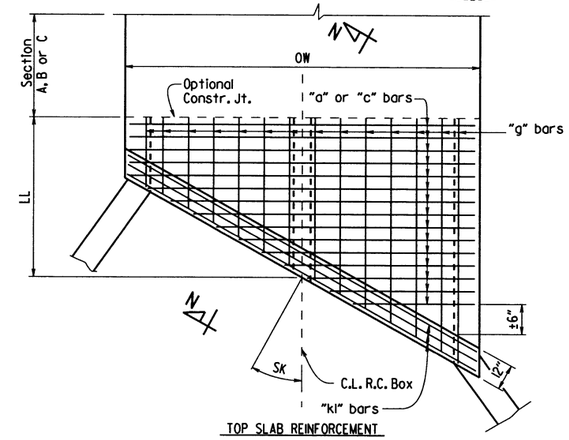
At the Contractor's option in lieu of providing Bent "b" or Bent "b1" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "b1" bar.

Bent "b" bars or Bent "b1" bars Bending Diagram

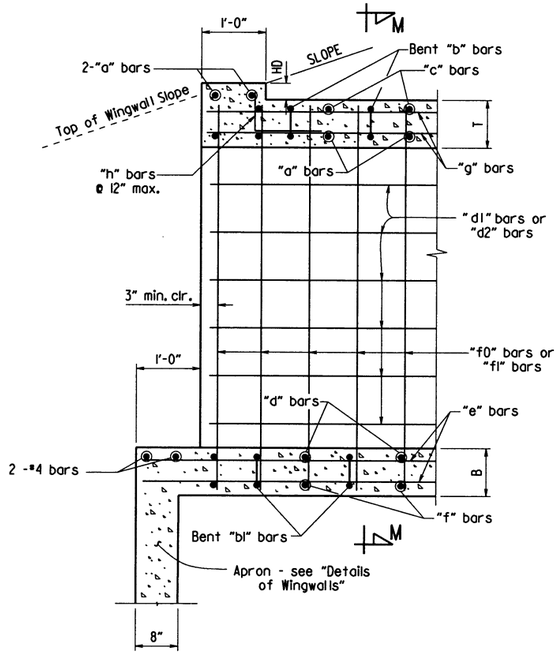


TYPICAL KEYWAY DETAIL

(All Construction Joints)

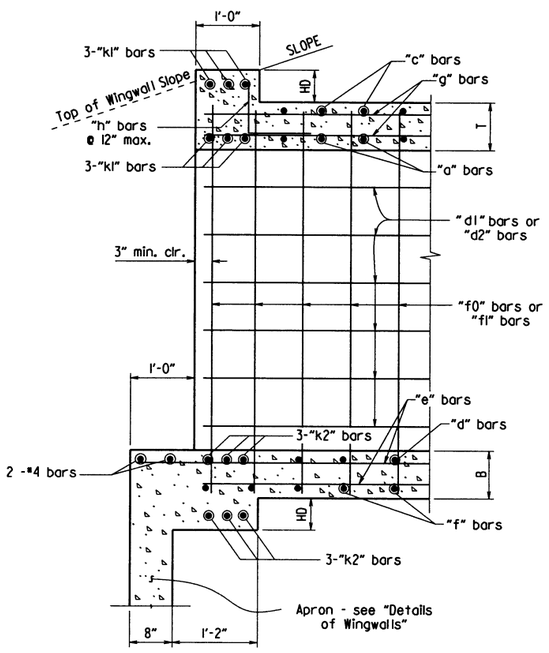


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



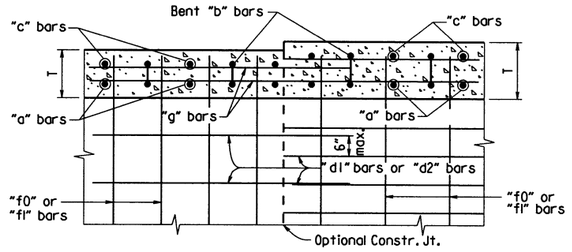
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

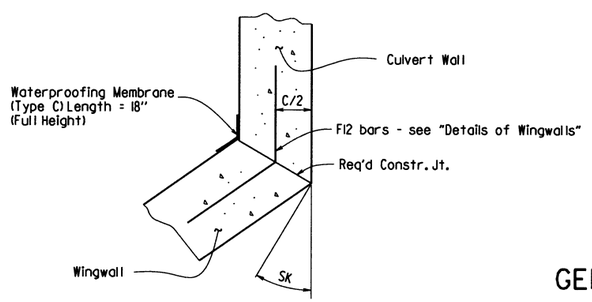
(Skewed Ends)



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

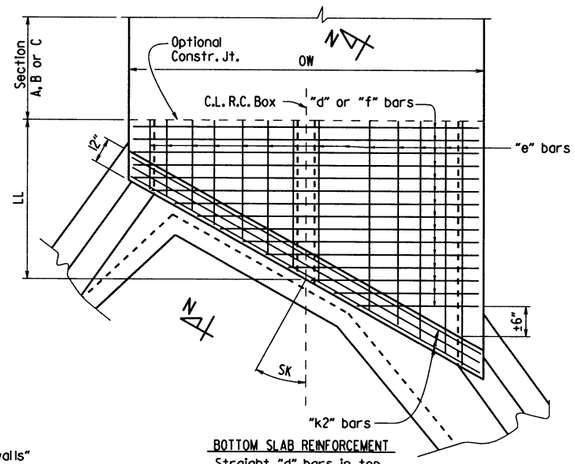
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

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



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

SKEWED END SECTION DETAILS

STATE OF ARKANSAS
Charles R. Ellis
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9-18-16
CHARLES R. ELLIS

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

LRFD

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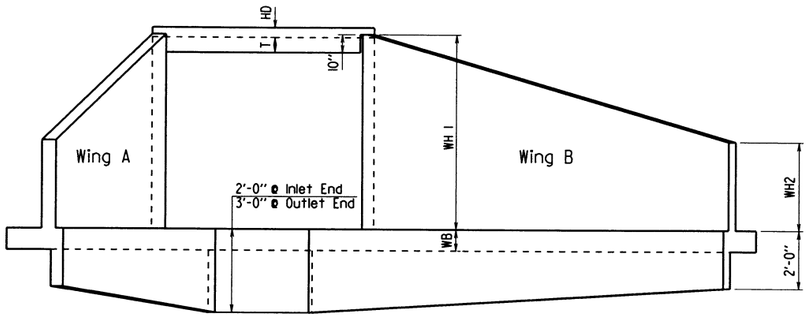
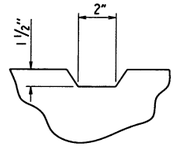
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	24	335

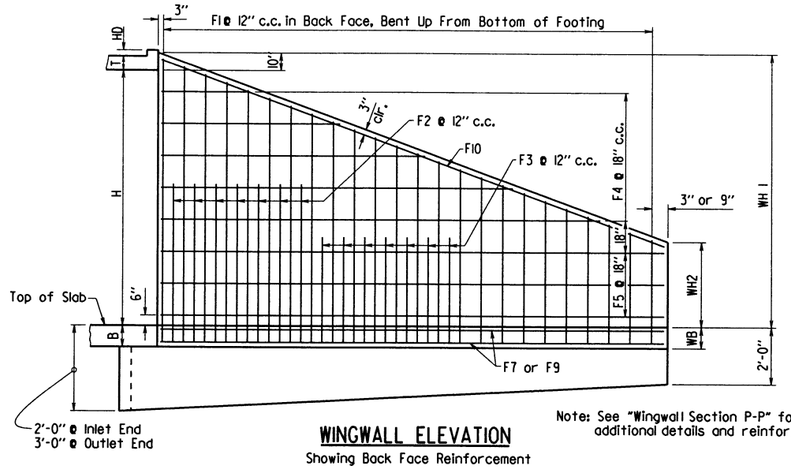
SPECIAL DETAILS



END ELEVATION
Flared Wingwalls Shown

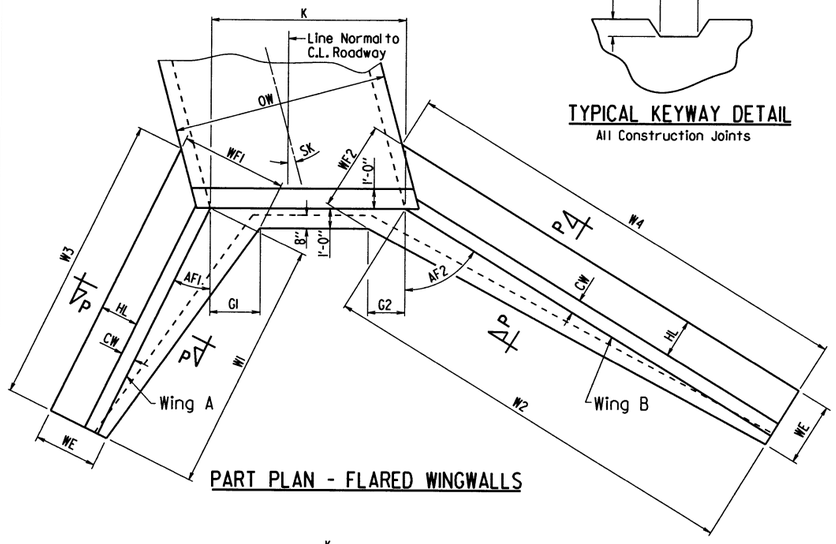


TYPICAL KEYWAY DETAIL
All Construction Joints

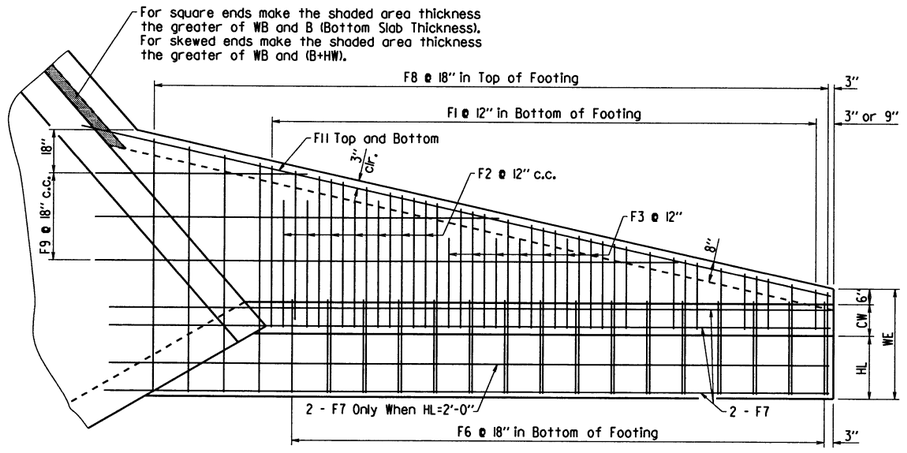


WINGWALL ELEVATION
Showing Back Face Reinforcement

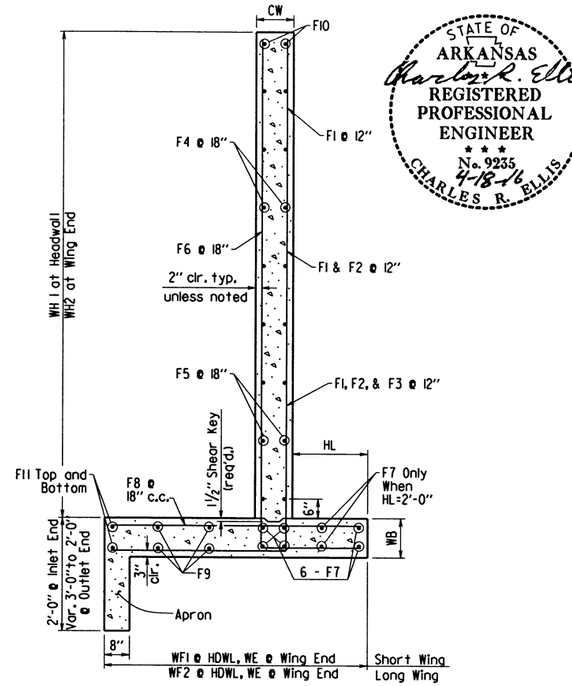
Note: See "Wingwall Section P-P" for additional details and reinforcing.



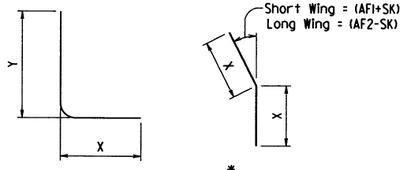
PART PLAN - FLARED WINGWALLS



PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



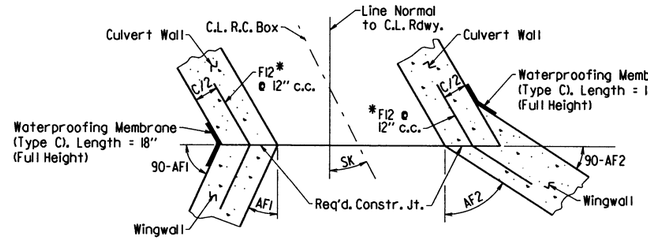
WINGWALL SECTION P-P



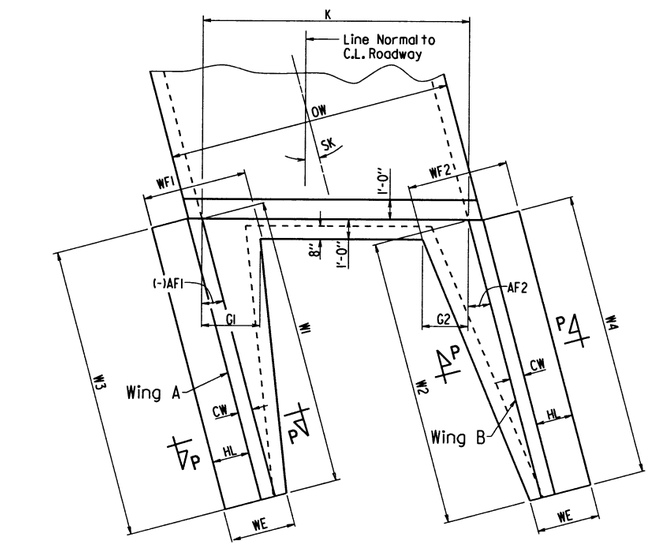
F1, F2, F3, & F6 BARS

*F12 BAR

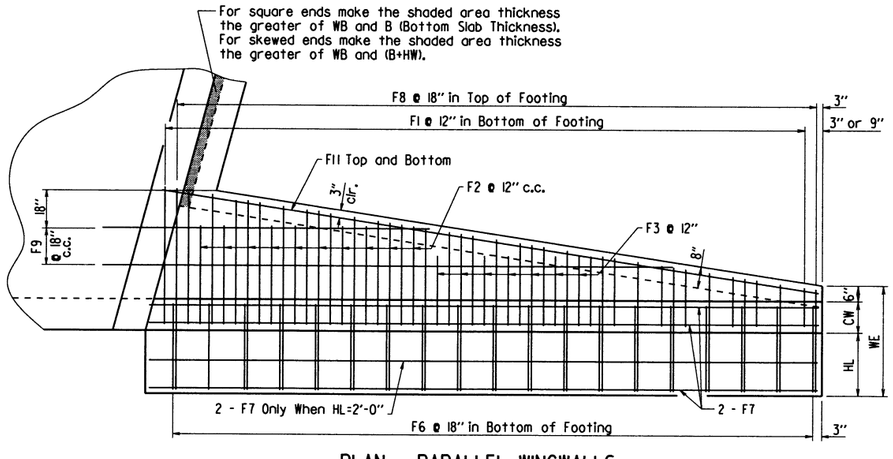
*F12 is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS
Flared Wingwalls Shown



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement

STATE OF ARKANSAS
Charles R. Ellis
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No. 9235
4-18-16
CHARLES R. ELLIS

SHEET 4 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF WINGWALLS

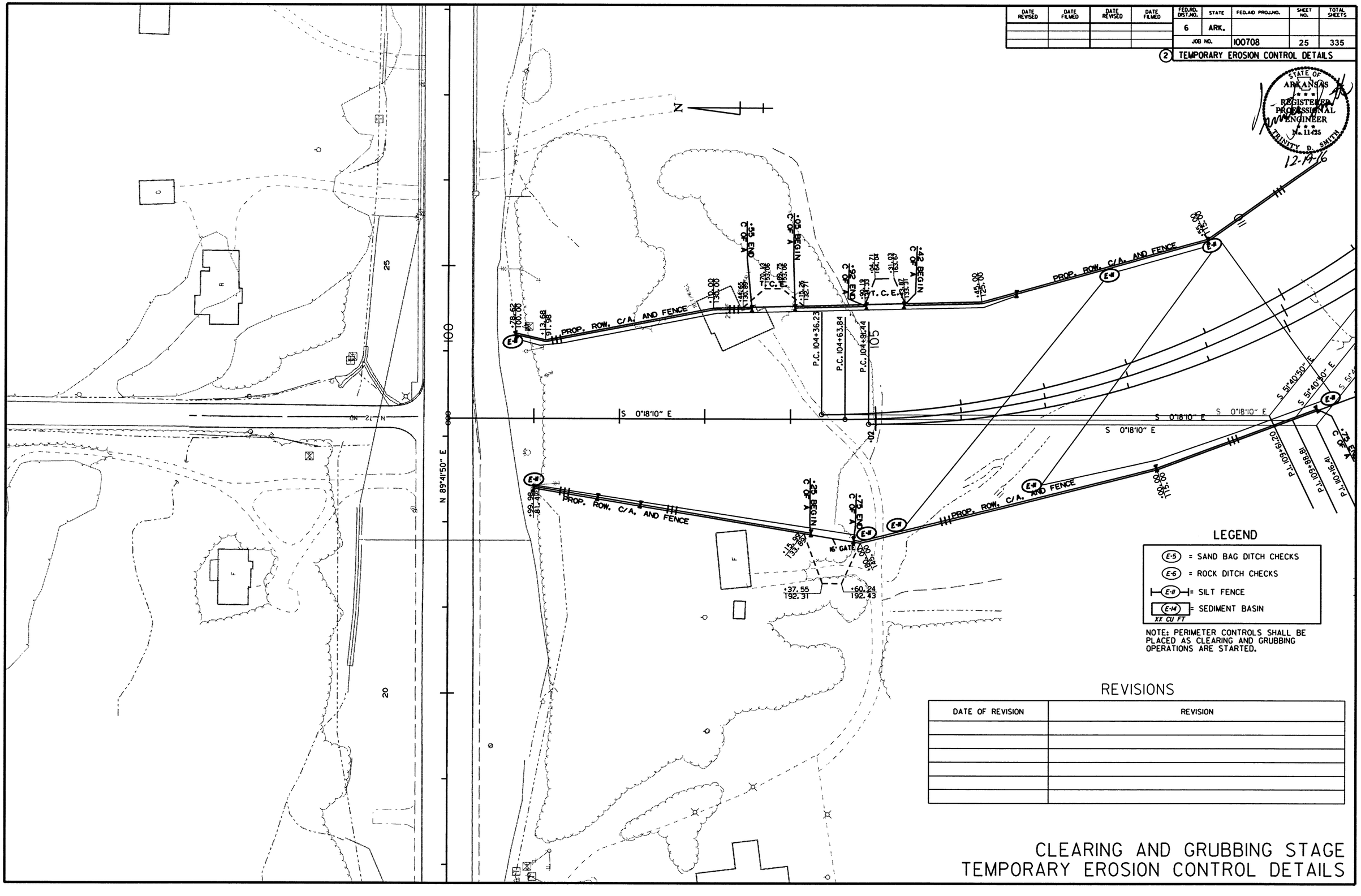
SPECIAL DETAILS

b100708_culvert.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.		100708	25	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16



REVISIONS

DATE OF REVISION	REVISION

9/13/2016

R100708.DGN

CLEARING AND GRUBBING STAGE
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.		100708	26	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

PROP. ROW, C/A, AND FENCE
S 51°40'50" E
S 0°18'10" E
P.I. 109+61.20
P.I. 109+88.81
P.I. 110+16.41
P.T. 114+14.86
P.T. 114+42.16
P.T. 114+70.07
P.C. 28+12.38
P.C. 8+92.43
25' BUFFER ZONE
.75 BEGIN C OF A
.75 END C OF A
.25 BEGIN C OF A
.25 END C OF A
.50 BEGIN C OF A
.50 END C OF A
.60 BEGIN C OF A
.60 END C OF A
.90 BEGIN C OF A
.90 END C OF A
.10 BEGIN C OF A
.10 END C OF A
-99.00 115.00
-75.00 125.00
-55.00 135.00
-35.00 145.00
-67.00 106.42
-19.00 126.65
-79.76 117.76
-74.84 133.00
-40.24 168.24
-40.24 218.24
-40.24 240.24
-40.24 290.24
-40.24 340.24
-40.24 390.24
-40.24 440.24
-40.24 490.24
-40.24 540.24
-40.24 590.24
-40.24 640.24
-40.24 690.24
-40.24 740.24
-40.24 790.24
-40.24 840.24
-40.24 890.24
-40.24 940.24
-40.24 990.24
-40.24 1040.24
-40.24 1090.24
-40.24 1140.24
-40.24 1190.24
-40.24

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.		100708	27	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

P.I. 137+41.49
P.I. = 137+41.49
Δ = 29°44'00.1" RT.
D = 1°45'00.0"
T = 869.12'
L = 1699.05'
S 51°40'50" E
S 21°56'50" E
P.T. 145+71.43
P.C. 7+60.15
P.T. 8+82.28
P.C. 8+21.36
P.T. 6+46.85
N 68°03'02" E
PROP. ROW, C/A, AND FENCE
25' BUFFER ZONE
T.C.E.
WHITCOTT ROAD
SHEDS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

9/13/2016

R100708.DGN

CLEARING AND GRUBBING STAGE
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.		100708	28	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN, XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

N

S 21°56'50" E

PROP. ROW, C/A, AND FENCE

P.I. 1+94.60

P.C. 0+89.48

EIGHT MILE CREEK

16' GATE

25' BUFFER ZONE

.75 C OF A END

.25 C OF A BEGIN

9/13/2016

R100708.DGN

CLEARING AND GRUBBING STAGE
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.		100708	29	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

PROP. ROW, C/A, AND FENCE

POND

MAC GROVE ROAD

9/13/2016

R100708.DGN

CLEARING AND GRUBBING STAGE 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.		100708	30	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

9/13/2016

R100708.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.		100708	31	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

P.I. 255+92.13
P.I. 2+30.76
P.I. 6+74.77
P.I. 113+13.85
P.C. 274+04.04
S 0°00'00" W
S 37°50'51" E
S 0°30'36" W
OPEN STORAGE
POND
PROP. ROW, C/A, AND FENCE

9/13/2016
R100708.DGN

CLEARING AND GRUBBING STAGE
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.		100708	32	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

EQUATION
STA. 300+82.22 BK.
STA. 301+06.16 AHD.

9/13/2016

R100708.DGN

CLEARING AND GRUBBING STAGE
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.		100708	33	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

S 81°44'05" E

PROP. ROW, C/A, AND FENCE

25' BUFFER ZONE

E-11

E-14

.75 END C OF A

.25 BEGIN C OF A

100.00 120.00

100.00 105.00

80.00 125.00

80.00 105.00

100.00 110.00

80.00 95.00

100.00 90.00

100.00 24.00

N 0°03'24" E

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

9/13/2016

R100708.DGN

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5 = SAND BAG DITCH CHECKS

E-6 = ROCK DITCH CHECKS

E-11 = SILT FENCE

E-14 = SEDIMENT BASIN
XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

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.		100708	34	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

345

350

355

25' BUFFER ZONE

PROP. ROW, C/A, AND FENCE

S 81°44'05" E

+22.50 END C OF A

+75.00 BEGIN C OF A

+100.00 135.00

+43.50 END C OF A

+93.50 BEGIN C OF A

+50 END C OF A

+00 BEGIN C OF A

+80.15 105.27

+49.00 END C OF A

+98 BEGIN C OF A

+71.36 117.09

+45.00 95.00

+11 END C OF A

+50.00 95.00

+61 BEGIN C OF A

PROP. ROW, C/A, AND FENCE

+30.00 195.00

2S/F

9/13/2016

R100708.DGN

CLEARING AND GRUBBING STAGE
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.		100708	35	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

EXIT REALITY

PROP. ROW, C/A, AND FENCE

105.88 +20.00

365

370

375

PARAGOULD CYCLE

S 81°44'05" E

S 81°44'05" E

178.60 +100.00

181.80 +43.20

E-14

E-11

E-14

E-14

E-14

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.		100708	36	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

P.I. 8+04.46
P.T. 12+86.39
S 10°42'34" E
P.C. 6+66.36
P.T. 9+41.24
N 71°53'36" E
P.C. 0+43.85
POB 0+00.00
S 41°10'08" E
PROP. ROW, C/A. AND FENCE
P.I. 24+17.72
P.C. 22+41.82
P.T. 25+90.89
N 89°20'48" E
P.I. 1+78.06
P.T. 3+07.51

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

9/13/2016
R100708.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.		100708	37	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

PINE KNOT ROAD

WALCOTT ROAD

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

9/13/2016

R100708.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.		100708	38	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

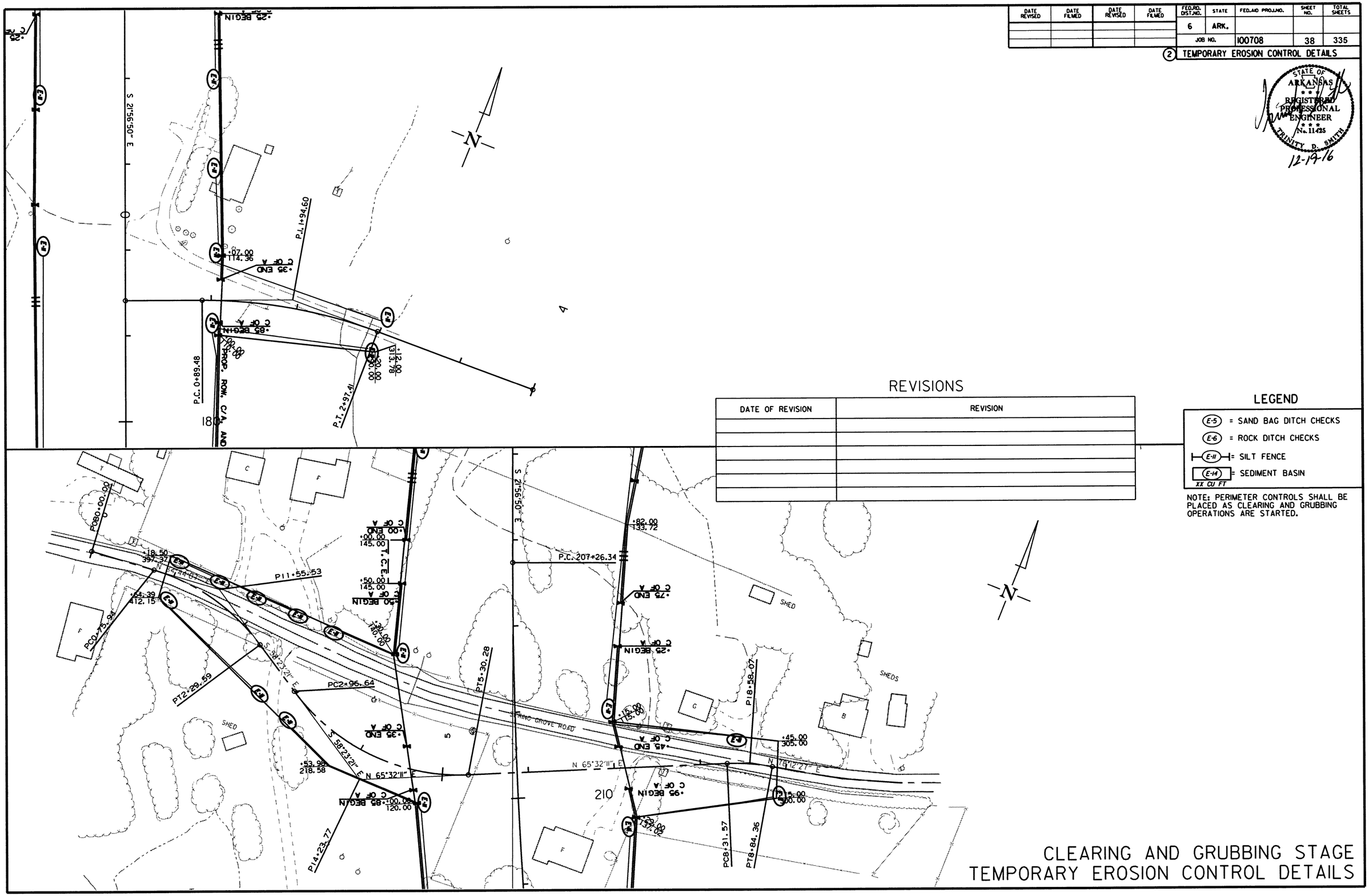
REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.



CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

9/13/2016

R100708.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.		100708	39	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

9/13/2016

R100708.DGN

CLEARING AND GRUBBING STAGE
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.		100708	40	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-13-16

STA. 100+00.00 (HWY. 412)
STA. 23+21.13 (HWY. 412 EXISTING)
Δ = 90°00'00.00"

EXISTING HWY. 412

72ND STREET ON 2L N

N 89°41'50" E

CONST. LIMITS

PROP. ROW, C/A, AND FENCE

S 0°18'10" E

P.C. 104+36.23

P.C. 104+63.84

P.C. 105+39.44

P.T. 105+43.00

P.T. 105+01.16

P.T. 104+76.16

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

= OBLITERATE

REVISIONS

DATE OF REVISION	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN 2/15/2016

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.		100708	41	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

= OBLITERATE

REVISIONS

DATE OF REVISION	REVISION

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 0°18'10" E
S 51°40'50" E
P.I. 109+61.20
P.I. 109+88.81
P.I. 110+16.41
P.T. 4+14.86
P.T. 114+42.16
P.T. 114+70.07
2251 CU.FT.
E-14
P.C. 28+72.38
P.T. 28+92.43
16'
25' BUFFER ZONE
120
125
130
135

R100708EROSION CONTROL.DGN2/15/2016

STAGE I
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.		100708	42	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

P.I. 137+41.49
P.I. = 137+41.49
Δ = 29°44'00.1" RT.
D = 1°45'00.0"
T = 869.12'
L = 1699.05'
S 51°40'50" E
S 21°56'50" E
2425 CU.FT. E-14
17600 CU.FT. E-14
3355 CU.FT. E-14
6911 CU.FT. E-14
CONST. LIMITS
PROP. ROW, C/A, AND FENCE
25' BUFFER ZONE
P.T. 145+71.43
P.T. 8+82.28
P.C. 8+21.36
P.T. 6+46.85
P.C. 7+60.15
N 68°00'02" E
TAILWATER RIDGE RD.
WEEDS
.75 END C OF A
.25 BEGIN C OF A
.25 END C OF A
.75 BEGIN C OF A
E-5 = SAND BAG DITCH CHECKS
E-6 = ROCK DITCH CHECKS
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN XX CU FT

REVISIONS

DATE OF REVISION	REVISION

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.
= OBLITERATE

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN2/15/2016

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.	100708		43	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

▨ = OBLITERATE

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 21°56'50" E
16' GATE
4000 CU. FT.
20815 CU. FT.
3165 CU. FT.
3400 CU. FT.
EIGHT MILE CREEK
BUFFER ZONE
P.C. 0+89.48
P.I. 1+94.60
P.I. 2+97.42

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN2/15/2016

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.		100708	44	335

(2) TEMPORARY EROSION CONTROL DETAILS

STA. 156+00 CONSTRUCT
DBL. 36" X 190' R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 2 BEDDING)
D.A. = 45 AC. Q50= 80 CFS
36" R.C. PIPE = 380 LIN. FT.
36" R.C. FES = 4 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
POND
S 21°56'50" E
S 37°50'51" E
3120 CU.FT.
1600 CU.FT.
1565 CU.FT.
950 CU.FT.
SPRING GROVE ROAD
P.C. 207+26.34
T.C.E.
P.I. 215+26.68
PC8+31.57
PT8+84.36
SIGN

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

= OBLITERATE

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708ERDSION CONTROL.DGN 2/15/2016

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.		100708	45	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

XXX = OBLITERATE

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 37°50'51" E
CULTIVATED FIELD
9950 CU.FT.
4250 CU.FT.
1700 CU.FT.
25' BUFFER ZONE
15' GATE
P.C. 243+30.55
P.T. 255+92.13

R100708EROSION CONTROL.DGN 2/15/2016

STAGE I 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.		100708	46	335

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 181+60 CONSTRUCT TRIPLE 6' X 3' X 160' R.C. BOX CULVERT WITH 31° WINGS LT & RT. ON A 10° LT. FWD. SKEW D.A. = 189 AC. Q50= 280 CFS

STA. 187+15 CONSTRUCT TRIPLE 12' X 10' X 203' R.C. BOX CULVERT WITH 31° WINGS LT & RT. D.A. = 2829 AC. Q50= 3480 CFS

PROP. ROW, C/A, AND FENCE

CONST. LIMITS

OPEN STORAGE

POND

5060 CU. FT.

2225 CU. FT.

2885 CU. FT.

2535 CU. FT.

S 0°00'00" W

S 37°50'51" E

S 0°30'36" W

P.I. 255+92.13

P.I. 2+30.76

P.I. 113+13.83

P.C. 214+04.04

100' R

37.00'

15

16

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN
- = OBLITERATE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN 2/15/2016

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.		100708	47	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

= OBLITERATE

EQUATION
STA. 300+82.22 BK.
STA. 301+06.16 AHD.

R100708EROSION CONTROL.DGN 2/15/2016

STAGE I
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.		100708	48	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

N

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

= OBLITERATE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
25' BUFFER ZONE
S 81°44'05" E
5241 CU. FT.
2940 CU. FT.
3132 CU. FT.
16'
.00
.75 END C OF A
.25 BEGIN C OF A
.58 BEGIN C OF A
.85 END C OF A
.57 END C OF A
.07 BEGIN C OF A
100.00 120.00
100.00 105.00
50.00 105.00
100.00 140.00
80.00 125.00
13.00 110.00
15.00 90.00
24.00
315
320
325
330
335
340
345
40' R
15

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN 12/15/2016

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.		100708	49	335

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

= OBLITERATE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

S 81°44'05" E

CONST. LIMITS

PROP. ROW, C/A, AND FENCE

25' BUFFER ZONE

24'

2S/F

N

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTRDL.DGN 2/15/2016

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.		100708	50	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

N

PROP. ROW, C/A, AND FENCE

CONST. LIMITS

S 81°44'05" E

STA. 373+78.76
END JOB 100708

125' R

100' R

E-11

E-14

B/C

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN
- = OBLITERATE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN 2/15/2016

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.		100708	51	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN, XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

WALLCOTT ROAD

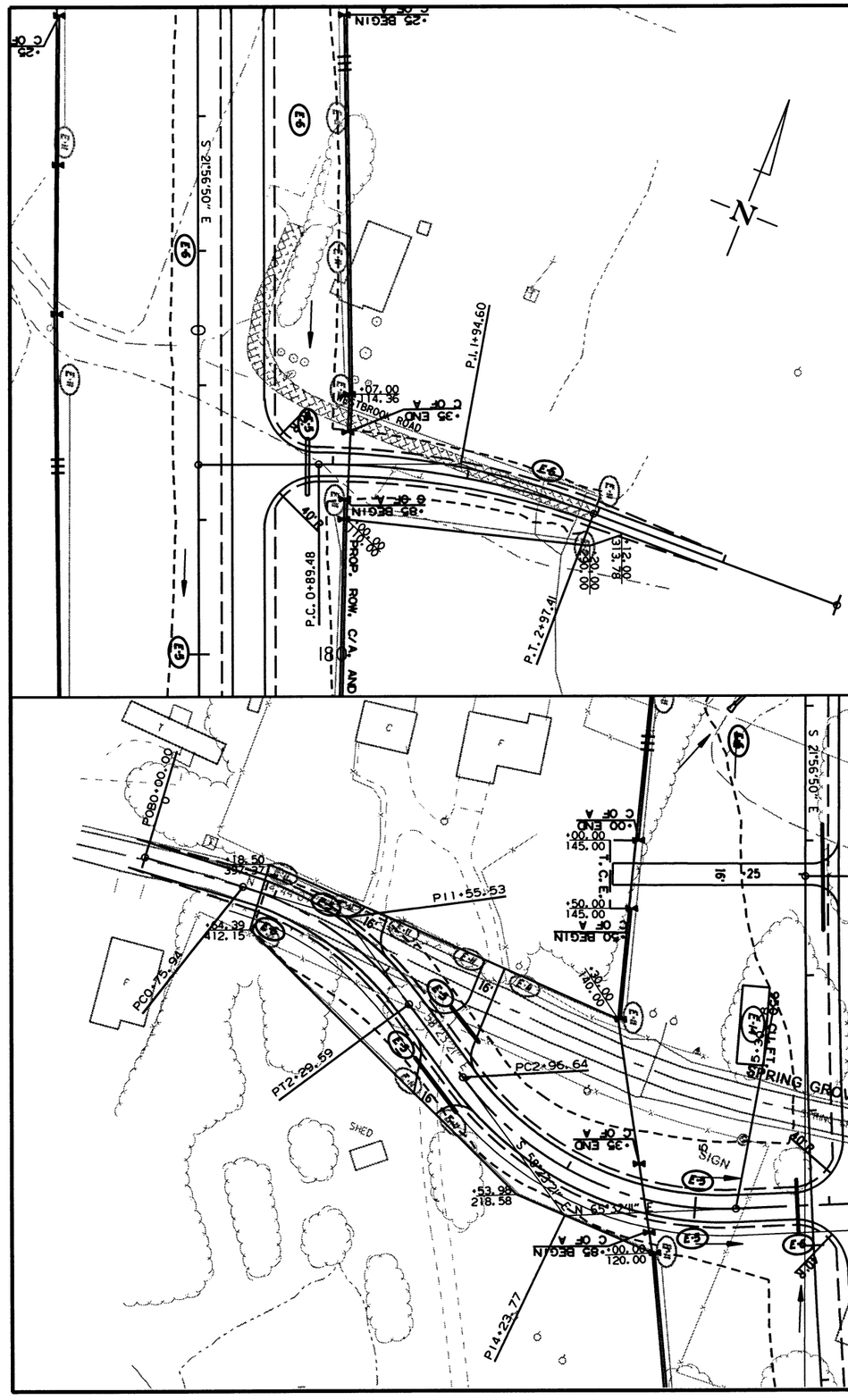
STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN2/15/2016

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.		100708	52	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16



LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

▨ = OBLITERATE

REVISIONS

DATE OF REVISION	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN 2/15/2016

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.		100708	53	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

= OBLITERATE

P.I. 8+04.16
P.T. 12+86.39
P.C. 6+66.36
P.T. 9+41.28
P.C. 22+41.82
P.I. 24+17.72
P.T. 25+90.89
P.I. 1+78.06
CONST. LIMITS
PROP. ROW, C/A. AND FENCE
N 71°53'36" E
N 89°20'48" E
P.O. 0+43.85
POB 0+00.00
SIGN

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL.DGN 2/15/2016

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.		100708	54	335

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE
- (E-14) XX CU FT = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

= OBLITERATE

STAGE I
TEMPORARY EROSION CONTROL DETAILS

R100708EROSION CONTROL..DGN 8/15/2016

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.		100708	55	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 100+00.00 (HWY. 412)
STA. 23+21.13 (HWY. 412 EXISTING)
Δ = 90°00'00.00"

STA. 100+29.50
BEGIN JOB 100708

14 VERTICAL PANELS (50' O.C.)

(1) G20-2 (48" x 24") END ROAD WORK

(1) G20-2 (48" x 24") END ROAD WORK

(1) G20-2 (48" x 24") END ROAD WORK

(1) W20-1 (48" x 48") ROAD WORK AHEAD

(1) W20-1 (48" x 48") ROAD WORK 500 FT

(1) W20-1 (48" x 48") ROAD WORK 1000 FT

(1) W20-1 (48" x 48") ROAD WORK 1500 FT

(1) W20-1 (48" x 48") ROAD WORK 1500 FT

(1) R11-2 (48" X 30") ROAD CLOSED

32' BARR. TYP. III RT.
32' BARR. TYP. III LT.

72ND STREET ON 72 N

EXISTING HWY. 412

CONST. LIMITS

PROP. ROW, C/A, AND FENCE

N 89°41'50" E

S 0°18'10" E

S 51°40'50" E

ATHLETIC COURT

SPIGOT

16' GATE

9/22/2016

R100708.DGN

HWY. 412 STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	56	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 134+84.39 (HWY. 412)
STA. 18+33.37 (PINE KNOT RD.)
Δ = 90°21'48.96"

STA. 5+00.00
BEGIN HWY. 358

STA. 26+50.00
END HWY. 358

HWY. 358

(I) RII-2 (48" X 30") 24' BARR. TYP. III LT. ROAD CLOSED

(I) C20-2 (48" X 24") END ROAD WORK

(I) W20-1 (48" X 48") ROAD WORK AHEAD

TRAFFIC DRUMS @ 40' O.C.

P.C. 0+43.85
P.I. 1+78.06
P.T. 3+07.51
P.C. 6+66.36
P.T. 9+41.28
P.C. 22+41.82
P.I. 24+17.72
P.I. 25+90.89
P.T. 12+86.39
P.I. 8+04.46

CONST. LIMITS
PROP. ROW, C/A. AND FENCE
N 71°53'36" E
50' R
16'
20'
24" HDPE FILLED CHANNAK
24" HDPE FILLED CMP
PROP. ROW, C/A. AND FENCE
TEL PEDASTOOL
CABLE TV PEDASTOOL
WATER LINE
SIGN
HOME
BARN
SHED
GRAVEL DRIVE
POB
POE

9/22/2016

R100708.DGN

HWY. 358 STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	57	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 134+84.39 (HWY. 412)
STA. 8+33.37 (PINE KNOT RD.)
Δ = 90°21'48.96"

STA. 16+66.89
END PINE KNOT RD.

STA. 1+38.94
BEGIN PINE KNOT RD.

PINE KNOT ROAD

PINE KNOT RD.

STA. 101+00.00
BEGIN WALCOTT RD.

WALCOTT ROAD

STA. 152+59.44 (HWY. 412)
STA. 6+72.07 (WALCOTT RD.)
Δ = 90°3'7.92"

STA. 8+88.28
END WALCOTT RD.

WALCOTT RD. STAGE I
MAINTENANCE OF TRAFFIC DETAILS

9/22/2016

R100708.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.		100708	58	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 178+59.00 (HWY. 412)
STA. 0+00.00 (WESTBROOK RD.)
Δ = 90°0'34.20"

STA. 2+97.41
END WESTBROOK RD.

WESTBROOK RD.

STA. 0+92.04
BEGIN SPRING GROVE RD.

STA. 209+70.18 (HWY. 412)
STA. 6+11.94 (SPRING GROVE RD.)
Δ = 90°3'33.48"

STA. 8+84.36
END SPRING GROVE RD.

SPRING GROVE RD. STAGE I
MAINTENANCE OF TRAFFIC DETAILS

9/22/2016

R100708.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.		100708	59	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
12-14-16

STA. 3+78.71
BEGIN SOUTH ROCKINGCHAIR RD.

STA. 309+57.59 (HWY. 412)
STA. 6+56.36 (SOUTH ROCKINGCHAIR RD.)
Δ = 98°17'58.56"

STA. 9+30.81
END SOUTH ROCKINGCHAIR RD.

SOUTH ROCKINGCHAIR RD.

STA. 10+24.29
BEGIN BROWN'S CHAPEL RD.

STA. 336+78.41 (HWY. 412)
STA. 11+94.68 (BROWN'S CHAPEL RD.)
Δ = 98°12'31.32"

STA. 15+14.61
END BROWN'S CHAPEL RD.

BROWN'S CHAPEL RD. STAGE I
MAINTENANCE OF TRAFFIC DETAILS

9/22/2016

R100708.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.		100708	60	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

EXIT REALITY

PROP INLET

CURB

STATLER ROAD

(1) W20-1 (48" x 48")

ROAD WORK 1500 FT

SPRINKLER HEAD

ROAD WORK 1000 FT

ROAD WORK 500 FT

END ROAD WORK

(1) G20-2 (48" x 24")

WOOD POST

PARAGOULD CYCLE

PROP. ROW, C/A, AND FENCE

STA. 373+77.85
END JOB 100708

CONST. LIMITS

S 81°44'05" E

125' R

100' R

(2) R11-2 (48" X 30")

ROAD CLOSED

36' BARR. TYP. MLT.

SEWER CLEAN OUT

B/C

FIRST UNITED PENTECOSTAL CHURCH

CHANGED TO 3B/WEB/MTL PO

26 MTL PO

ARKANSAS EQUIPMENT

GATE

TOWER

6' CHN LNK 3 BARB

6' CHN LNK 1 BARB

ROAD WORK 500 FT

(1) W20-1 (48" x 48")

ELECTRIC GATE KEY

6' CHN LNK 3BARB SLIDE 30 FOOT LONG

ROAD WORK 1000 FT

6' CHN LNK 1BRB IRAZR WIR

ROAD WORK 1500 FT

9/22/2016

R100708.DGN

HWY. 412 STAGE I
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	61	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 100+00.00 (HWY. 412)
STA. 23+21.13 (HWY. 412 EXISTING)
Δ = 90°00'00.00"

STA. 100+29.50
BEGIN JOB 100708

CONST. LIMITS
PROP. ROW, C/A, AND FENCE
END ROAD WORK
(1) G20-2 (48" x 24")
(1) W20-1 (48" x 48")
ROAD WORK AHEAD
ROAD WORK 500 FT
ROAD WORK 1000 FT
ROAD WORK 1500 FT
16' GATE
S 0°18'10" E
N 89°41'50" E
S 51°40'50" E
P.I. 109+61.20
P.I. 109+88.18
P.I. 110+16.41

HWY. 412 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

12/9/2016
R100708.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.		100708	62	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

(1) G20-2 (48" x 24")
END ROAD WORK
ROAD WORK AHEAD
(1) W20-1 (48" x 48")
(1) R11-2 (48" X 30")
24' BARR. TYP. III LT.
ROAD CLOSED
24' BARR. TYP. III RT.
TRAFFIC DRUMS @ 40' O.C.
= OBLITERATE
CONST. LIMITS
PROP. ROW, C/A, AND FENCE
P.I. 8+04.46
P.T. 12+86.39
P.C. 6+66.36
P.T. 9+41.24
P.I. 24+17.72
P.C. 22+41.82
P.T. 25+90.89
P.O.B.
P.O.C.
N 71°53'36" E
N 89°20'48" E
S 10°23'24" E
50' R
40' R
HWY. 358

12/9/2016
R100708.DGN

HWY. 358 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	63	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

= OBLITERATE

PINE KNOT RD.

WALLCOTT RD. STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

12/9/2016

R100708.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.		100708	64	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

= OBLITERATE

WESTBROOK RD.

SRPING GROVE RD. STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

12/9/2016

R100708.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.		100708	65	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

SOUTH ROCKINGCHAIR RD.

BROWN'S CHAPEL STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

12/9/2016

R100708.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.		100708	66	335

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

EXIT REALITY

(1) W20-1 (48" x 48") ROAD WORK 1500 FT

(1) W20-1 (48" x 48") ROAD WORK 1000 FT

(1) W20-1 (48" x 48") ROAD WORK 500 FT

PROP. ROW, C/A, AND FENCE

CONST. LIMITS

365

370

375

+20.00 185.00

+100.00 118.00

+143.93 181.00

+69.72

+91.00

STA. 373+78.76
END JOB 100708

125' R

100' R

S 81°44'05" E

S 81°44'05" E

END ROAD WORK

(1) G20-2 (48" x 24")

PARAGOULD CYCLE

SEWER CLEAN OUT

FIRST UNITED PENTECOSTAL CHURCH

PROP. ROW, C/A, AND FENCE

+59.50 159.50

+74.91 346.53

+41.44 271.99

+02.79 363.85

+84.17 441.69

ARKANSAS EQUIPMENT

(1) G20-2 (48" x 24") END ROAD WORK

REMOVE EXISTING CONC. BASE, ABANDOND ELECTRIC GATE KEY

ROAD WORK 500 FT (1) W20-1 (48" x 48")

ROAD WORK 1000 FT (1) W20-1 (48" x 48")

ROAD WORK 1500 FT (1) W20-1 (48" x 48")

12/9/2016

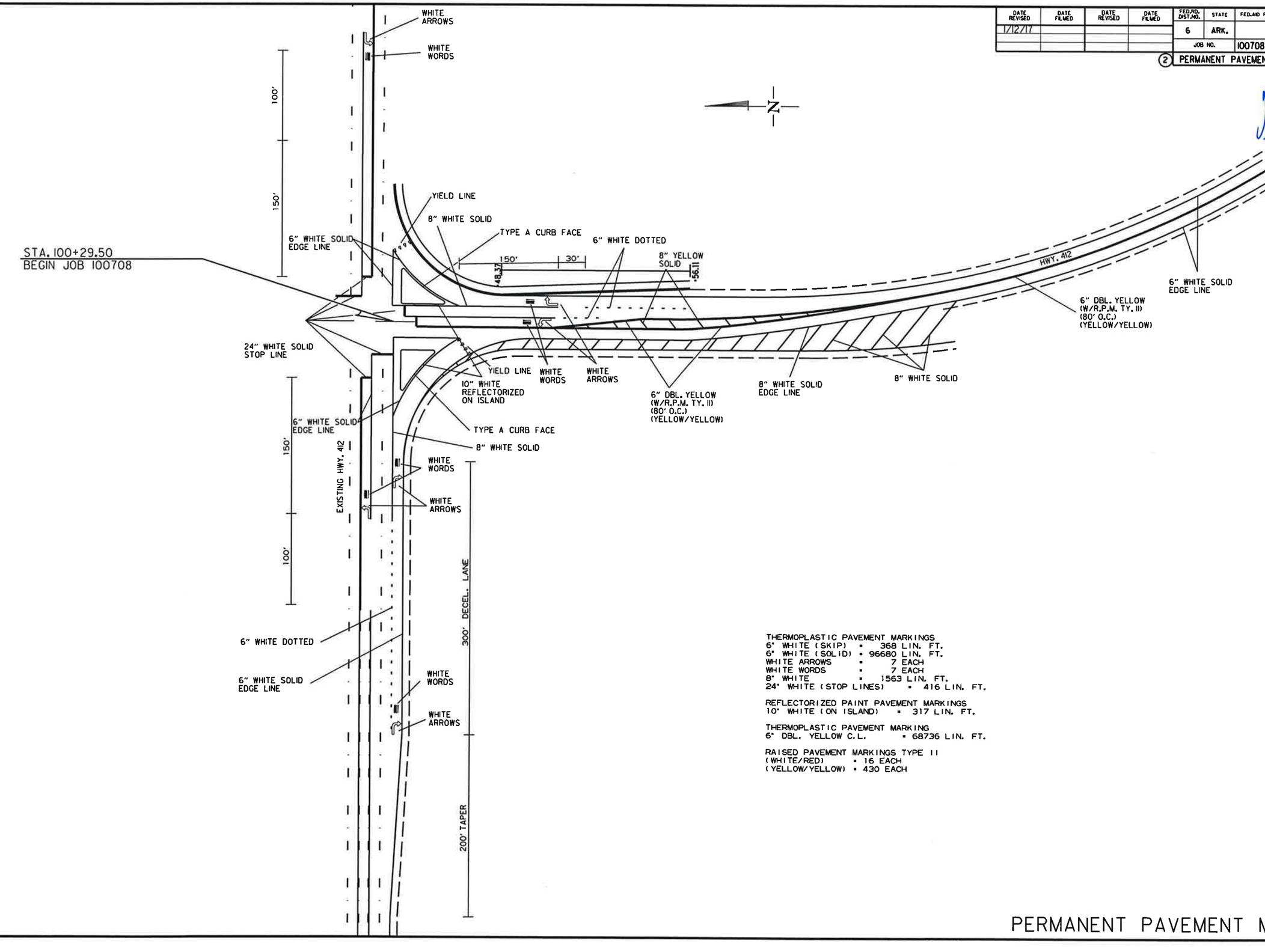
R100708.DGN

HWY. 412 STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	67	335

(2) PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17



THERMOPLASTIC PAVEMENT MARKINGS
6" WHITE (SKIP) = 368 LIN. FT.
6" WHITE (SOLID) = 96680 LIN. FT.
WHITE ARROWS = 7 EACH
WHITE WORDS = 7 EACH
8" WHITE = 1563 LIN. FT.
24" WHITE (STOP LINES) = 416 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKINGS
10" WHITE (ON ISLAND) = 317 LIN. FT.

THERMOPLASTIC PAVEMENT MARKING
6" DBL. YELLOW C.L. = 68736 LIN. FT.

RAISED PAVEMENT MARKINGS TYPE II
(WHITE/RED) = 16 EACH
(YELLOW/YELLOW) = 430 EACH

1/4/2017

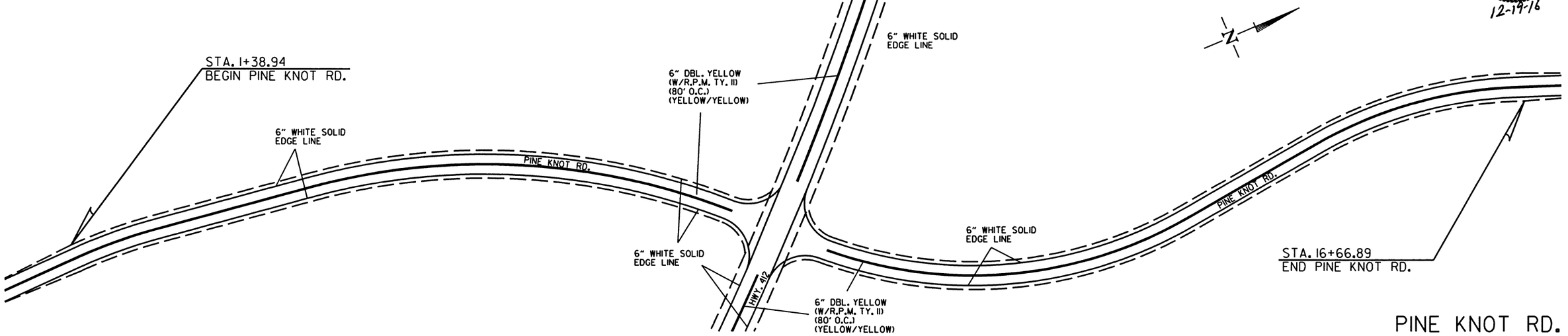
R100708.DGN

HWY. 412
PERMANENT PAVEMENT MARKINGS

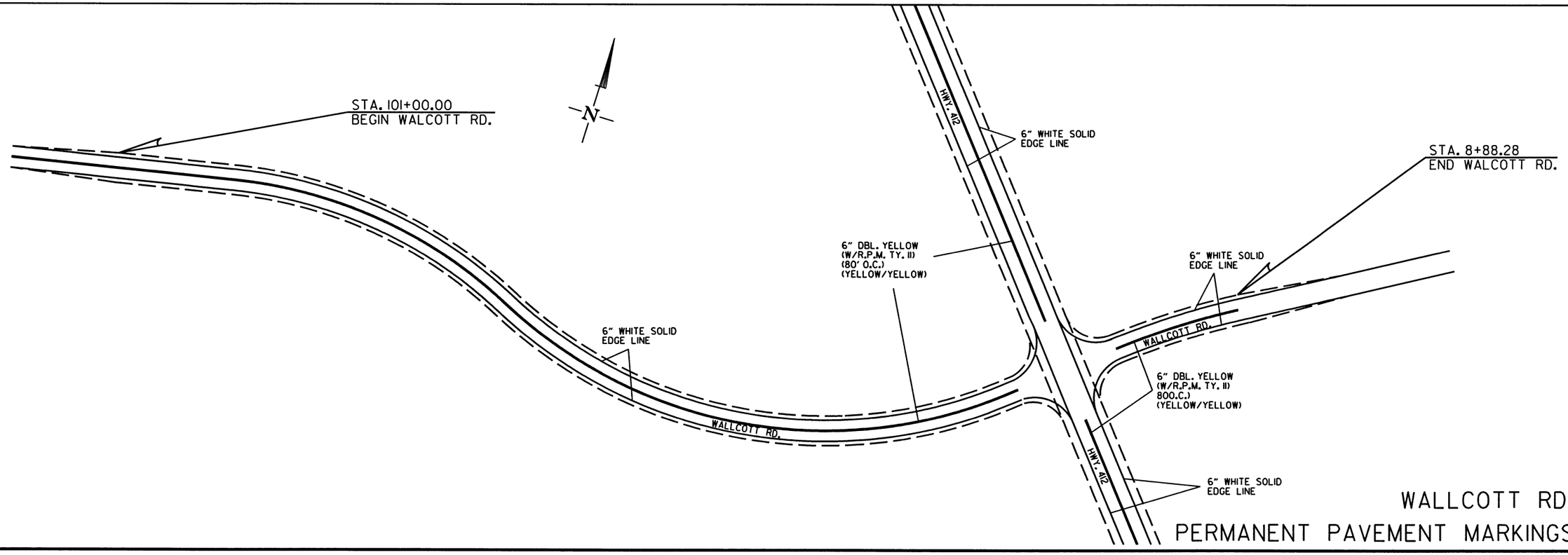
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	68	335

(2) PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16



PINE KNOT RD.



WALLCOTT RD.

PERMANENT PAVEMENT MARKINGS

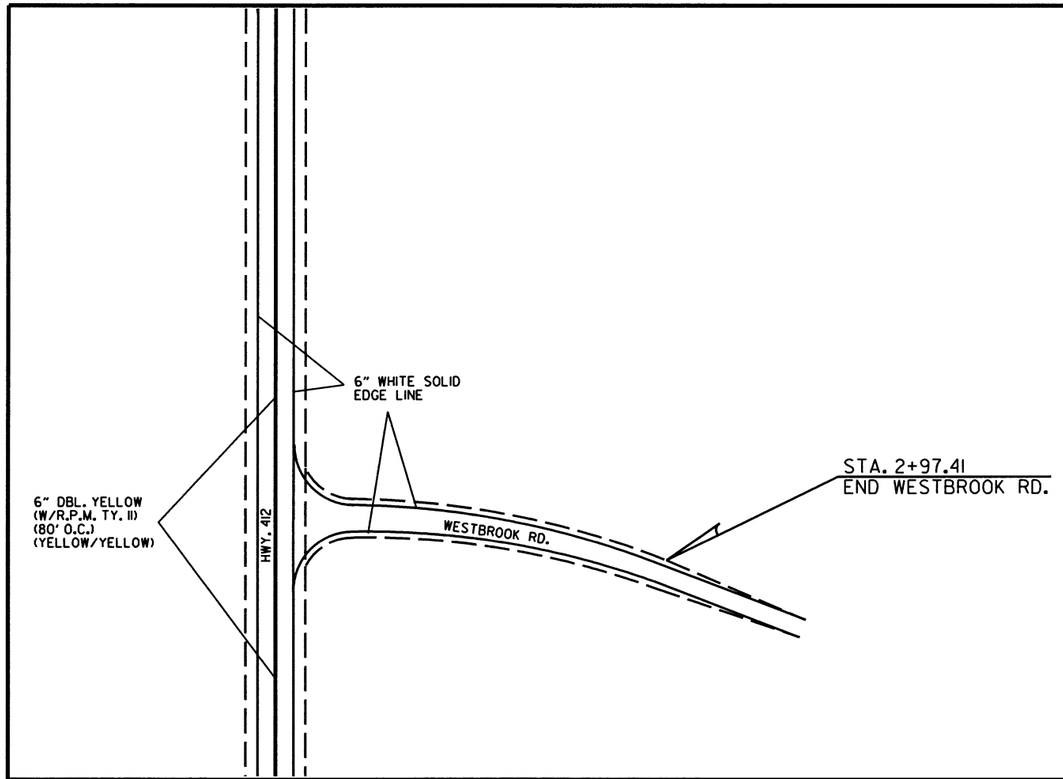
12/14/2016

R100708.DGN

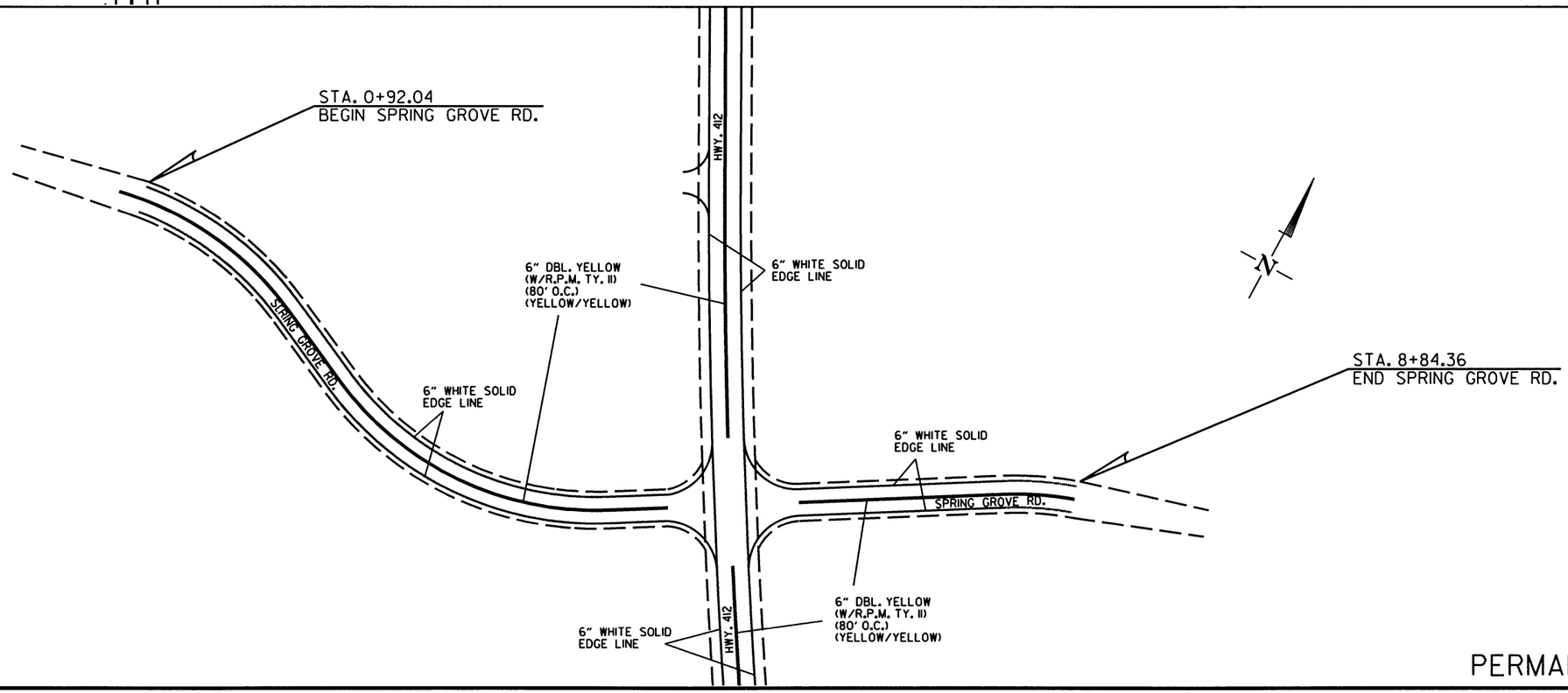
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	69	335

(2) PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16



WESTBROOK RD.



SPRING GROVE RD.
PERMANENT PAVEMENT MARKINGS

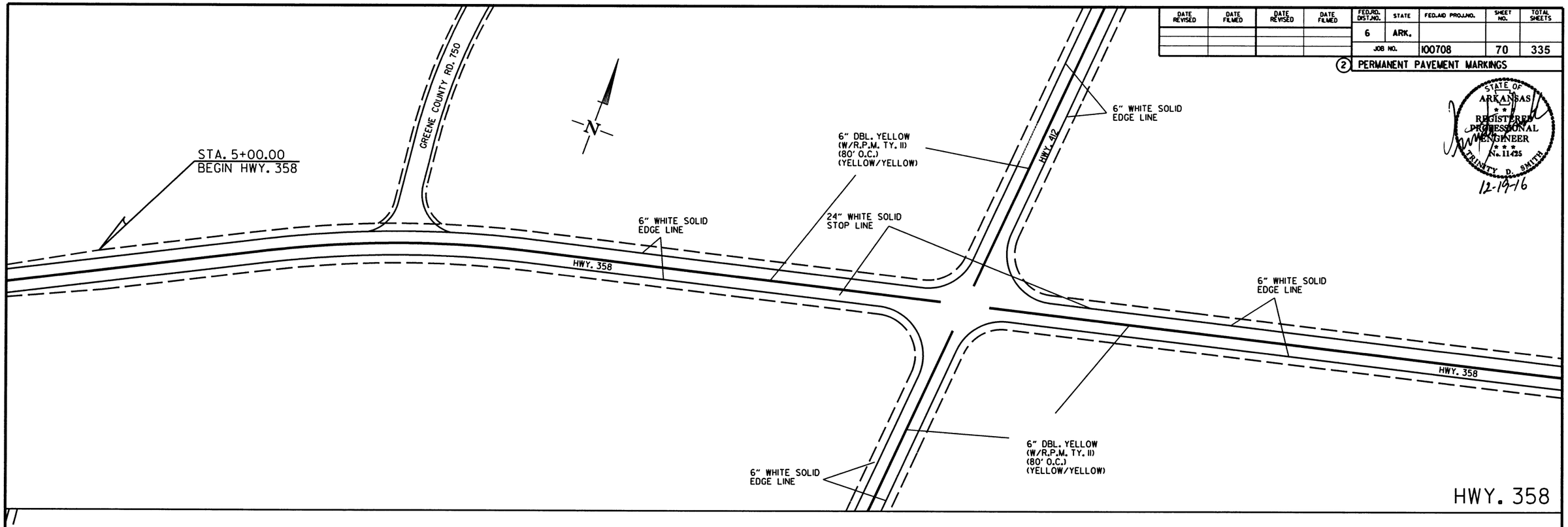
12/14/2016

R100708.DGN

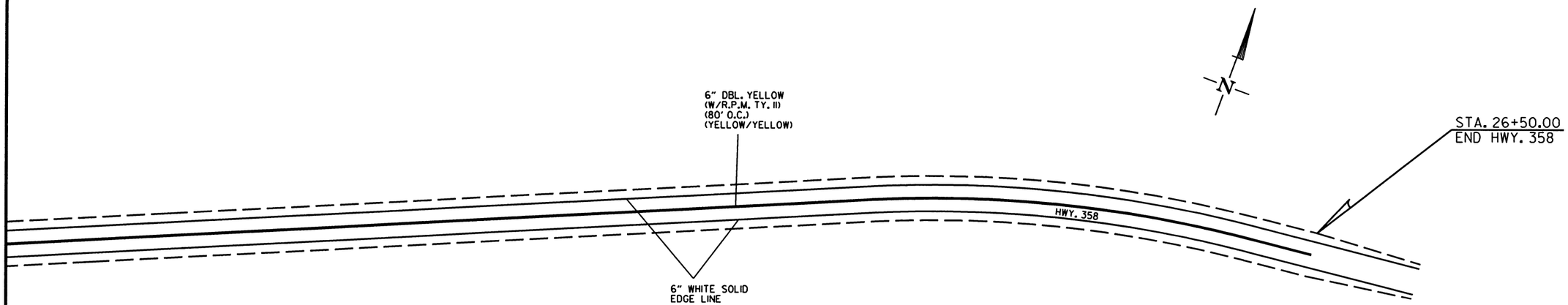
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	70	335

(2) PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-13-16



HWY. 358



HWY. 358
PERMANENT PAVEMENT MARKINGS

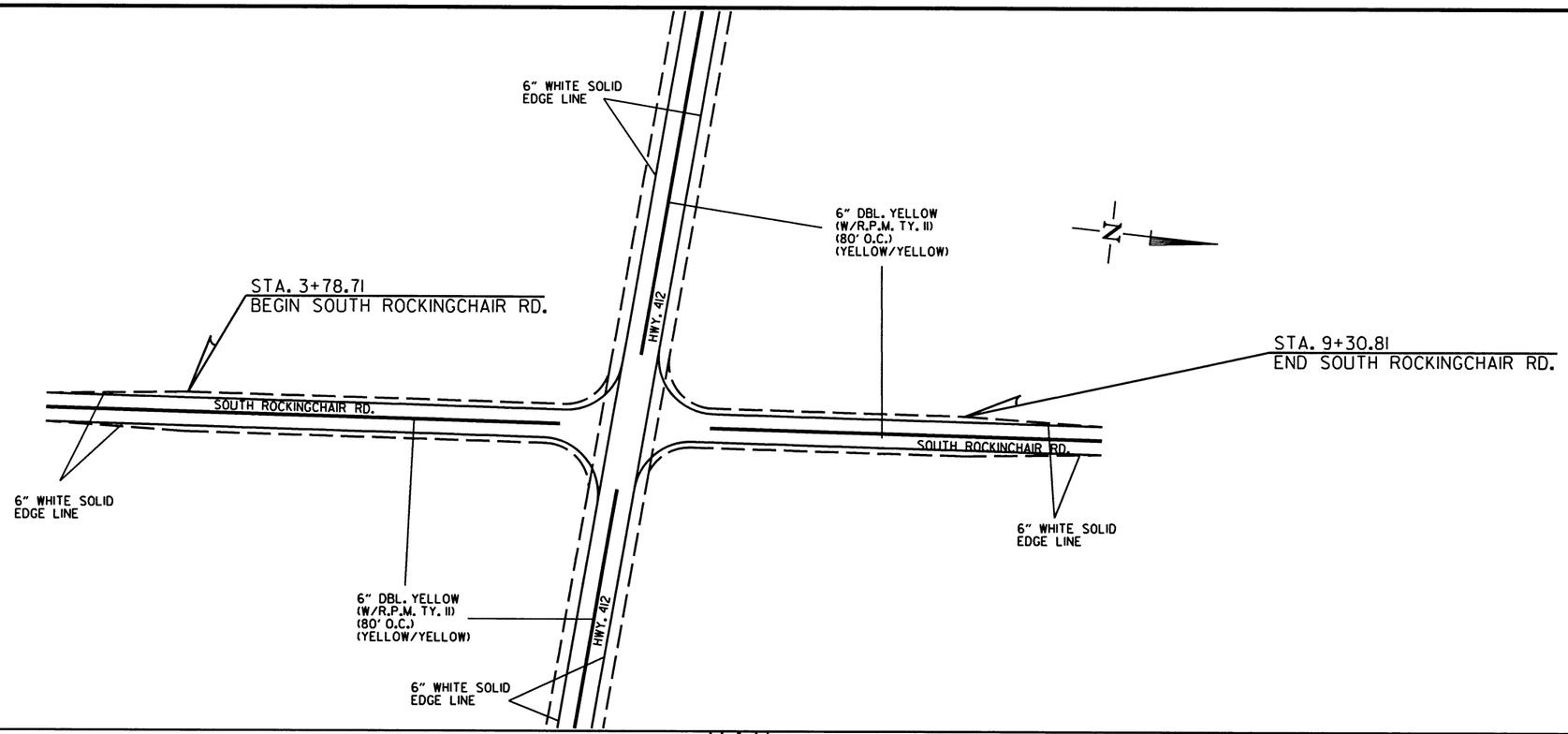
12/14/2016

R100708.DGN

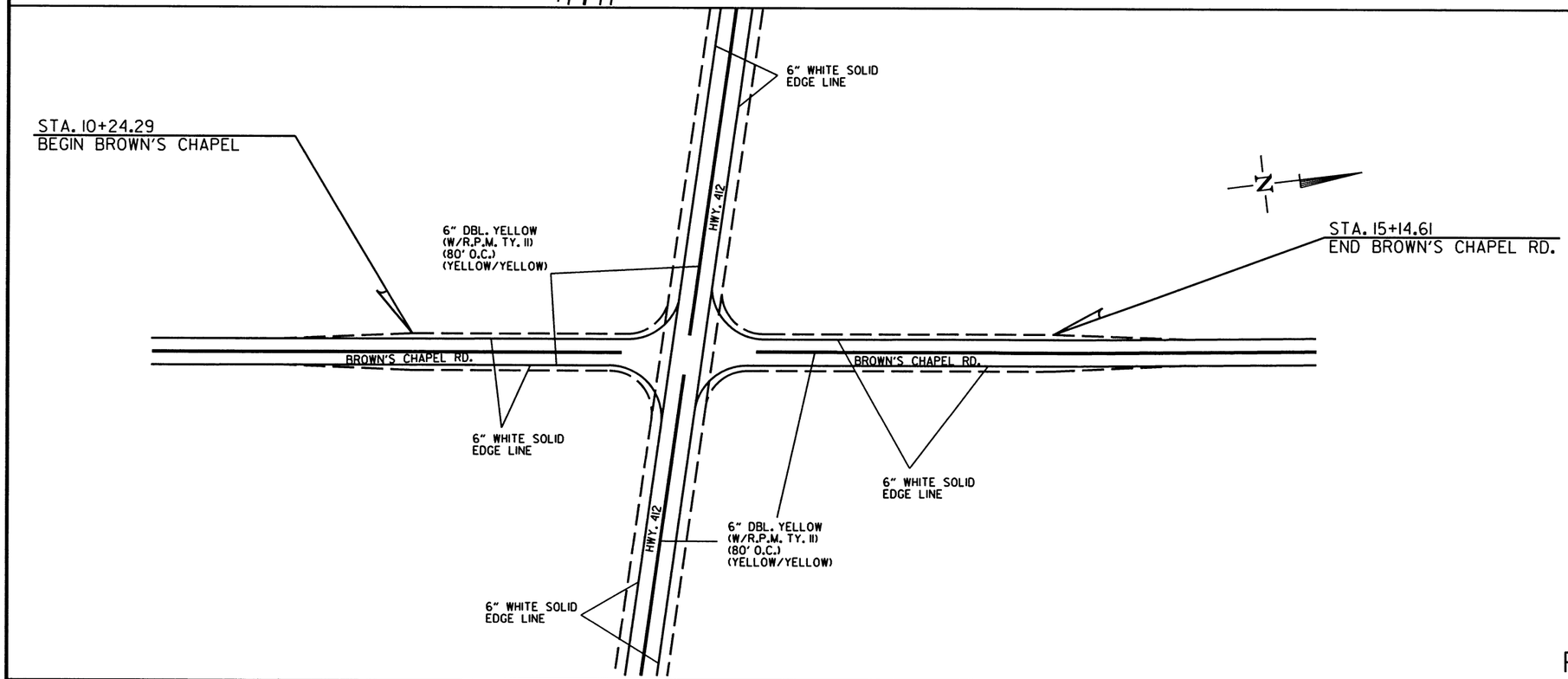
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	71	335

(2) PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-12-16



SOUTH ROCKINGCHAIR RD.



BROWN'S CHAPEL RD.
PERMANENT PAVEMENT MARKINGS

12/14/2016

R100708.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.		100708	72	335

(2) PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

EXISTING HWY. 412

STA. 373+77.85
END JOB 100708

24" WHITE SOLID STOP LINE

6" DBL. YELLOW (W/R.P.M. TY. II) (80' O.C.) (YELLOW/YELLOW)

WHITE ARROWS

WHITE WORDS

.91 00

.69 72

HWY. 412

6" WHITE DOTTED

6" WHITE SOLID EDGE LINE

6" WHITE SOLID

HWY. 412

WHITE WORDS

WHITE ARROWS

6" WHITE SOLID (W/R.P.M. TY. II) (80' O.C.) (WHITE/RED)

EXISTING HWY. 412

12/14/2016

R100708.DGN

HWY. 412
PERMANENT PAVEMENT MARKINGS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	73	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
										RIGHT	LEFT
			LIN. FT. - EACH			NO.	SQ. FT.	EACH		LIN. FT.	LIN. FT.
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4	4	64.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4	4	64.0				
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4	4	64.0				
W20-1	ROAD WORK AHEAD	48"x48"	10	10	10	10	160.0				
G20-2	END ROAD WORK	48"x24"	14	14	14	14	112.0				
R11-2	ROAD CLOSED	48"x30"	34	17	34	34	340.0				
R4-1	DO NOT PASS	24"x30"	10	10	10	10	50.0				
	VERTICAL PANELS		27		27			27			
	TRAFFIC DRUMS		130	155	155				155		
	TYPE III BARRICADE (24')		30	26	30					720	720
	TYPE III BARRICADE (36')		4		4					144	144
TOTALS:							854.0	27	155	864	864

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING						
		TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	6" WHITE	6" YELLOW	8" WHITE	10" WHITE	24" WHITE	WORDS	ARROWS
	LIN. FT. - EACH	EACH		LIN. FT.				LIN. FT.	EACH	
THERMOPLASTIC PAVEMENT MARKING WHITE SOLID (6")	96680			96680						
THERMOPLASTIC PAVEMENT MARKING WHITE SKIP (6")	368			368						
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	68736				68736					
THERMOPLASTIC PAVEMENT MARKING WHITE (8")	1563					1563				
THERMOPLASTIC PAVEMENT MARKING WHITE SOLID (10")	317						317			
THERMOPLASTIC PAVEMENT MARKING WHITE SOLID (24")	416							416		
THERMOPLASTIC PAVEMENT MARKING WORDS	7								7	
THERMOPLASTIC PAVEMENT MARKING ARROWS	7									7
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)	16	16								
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)	430		430							
TOTALS:		16	430	97048	68736	1563	317	416	7	7

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

NOTE: THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT.
THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
00+38.94	01+38.94	PINE KNOT RD.	20.00	222.22
16+60.37	17+60.37	PINE KNOT RD.	20.00	222.22
99+00.00	100+00.00	WALCOTT RD.	20.00	222.22
09+00.00	10+00.00	WALCOTT RD.	20.00	222.22
02+97.41	03+97.41	WESTBROOK RD.	20.00	222.22
00+00.00	00+92.04	SPRING GROVE RD.	20.00	222.22
08+56.38	09+56.38	SPRING GROVE RD.	20.00	222.22
13+96.38	14+96.38	GREENE COUNTY RD. 750	20.00	222.22
03+00.00	04+00.00	HWY. 358	20.00	222.22
26+17.73	27+17.73	HWY. 359	20.00	222.22
02+76.87	03+76.87	SOUTH ROCKINGCHAIR RD.	20.00	222.22
09+00.00	10+00.00	SOUTH ROCKINGCHAIR RD.	20.00	222.22
09+00.00	10+00.00	BROWN'S CHAPEL RD.	20.00	222.22
15+14.58	16+14.58	BROWN'S CHAPEL RD.	20.00	222.22
15+00.00	24+72.45	HWY. 412 EXISTING	61.00	6591.05
TOTAL:				9702.13

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
114+61	115+44	HWY. 412 BYPASS RT.	135
114+61	116+16	HWY. 412 BYPASS LT.	201
131+58	132+42	HWY. 412 BYPASS RT.	117
131+58	131+97	HWY. 412 BYPASS LT.	131
135+24	135+74	HWY. 412 BYPASS RT.	97
135+17	135+98	HWY. 412 BYPASS LT.	133
150+24	149+93	HWY. 412 BYPASS RT.	100
150+30	150+74	HWY. 412 BYPASS LT.	117
0+85	0+37	WALLCOTT ROAD RT.	136
0+97	3+65	WALLCOTT ROAD LT.	715
3+03	8+21	WALLCOTT ROAD LT.	467
156+01	159+59	HWY. 412 BYPASS LT.	402
158+98	159+48	HWY. 412 BYPASS LT.	93
159+59	162+76	HWY. 412 BYPASS RT.	339
170+72	171+11	HWY. 412 BYPASS LT.	113
171+11	171+52	HWY. 412 BYPASS RT.	114
205+83	206+28	HWY. 412 BYPASS RT.	124
206+28	206+82	HWY. 412 BYPASS LT.	140
207+73	211+22	HWY. 412 BYPASS RT.	669
207+95	208+59	HWY. 412 BYPASS RT.	233
210+03	211+22	HWY. 412 BYPASS LT.	737
211+59	213+04	HWY. 412 BYPASS LT.	162
213+04	215+25	HWY. 412 BYPASS RT.	262
220+49	222+25	HWY. 412 BYPASS CENTERLINE	289
237+24	238+58	HWY. 412 BYPASS CENTERLINE	258
238+80	239+78	HWY. 412 BYPASS LT.	98
239+78	241+24	HWY. 412 BYPASS RT.	201
265+30	265+57	HWY. 412 BYPASS CENTERLINE	317
268+34	269+19	HWY. 412 BYPASS CENTERLINE	280
269+39	269+69	HWY. 412 BYPASS LT.	119
269+83	271+90	HWY. 412 BYPASS LT.	333
271+65	272+10	HWY. 412 BYPASS RT.	63
271+96	272+25	HWY. 412 BYPASS CENTERLINE	334
278+31	277+93	HWY. 412 BYPASS CENTERLINE	406
283+55	289+02	HWY. 412 BYPASS LT.	527
286+52	287+75	HWY. 412 BYPASS RT.	203
303+27	309+40	HWY. 412 BYPASS LT.	737
307+53	308+60	HWY. 412 BYPASS RT.	193
322+91	323+22	HWY. 412 BYPASS CENTERLINE	234
338+45	338+65	HWY. 412 BYPASS CENTERLINE	163
342+75	342+78	HWY. 412 BYPASS LT.	65
353+53	356+20	HWY. 412 BYPASS CENTERLINE	483
359+30	359+40	HWY. 412 BYPASS LT.	73
360+32	360+46	HWY. 412 BYPASS RT.	168
360+62	360+74	HWY. 412 BYPASS RT.	142
361+00	361+13	HWY. 412 BYPASS RT.	146
360+55	361+35	HWY. 412 BYPASS RT.	82
361+18	361+24	HWY. 412 BYPASS LT.	71
361+32	361+50	HWY. 412 BYPASS RT.	200
362+80	363+26	HWY. 412 BYPASS CENTERLINE	370
TOTAL:			12292

9/7/2016

R100708.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
1/13/17				JOB NO.		100708	74	335
				(2) QUANTITIES				

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			1000	5
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			1000	5

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	SELECTED MATERIAL CLASS SM-1	* SOIL STABILIZATION
			CU. YD.			TON
ENTIRE	PROJECT	HWY. 412 BYPASS	278226	361665		
218+00	220+00	HWY. 412 BYPASS - POND	4171		4171	
259+69	257+14	HWY. 412 BYPASS - POND	451		451	
ENTIRE	PROJECT	APPROACHES	1055	12255		
		EXISTING HWY. 412	26	1635		
		PINE KNOT ROAD	4297	3085		
		WALLCOTT ROAD	2365	2330		
		WESTBROOK ROAD	454			
		SPRING GROVE ROAD	6064	259		
		GREENE COUNTY ROAD	2424	1907		
		HWY. 358	5800	17284		
		HWY. 358 DRIVE	4217	496		
		SOUTH ROCKING CHAIR ROAD	387	403		
		BROWN'S CHAPEL ROAD	353	478		
		JETTON DRIVE	1456	2685		
ENTIRE	PROJECT	CHANNEL CHANGE	2800			
ENTIRE	PROJECT	OBLITERATION OF EXIST. ROADWAY	2332			
* ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER				1000
TOTALS:			316878	404482	4622	1000

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
145+00.00	152+00.00	LT. HWY. 412 BYPASS	700.00	622.22
153+00.00	157+00.00	LT. HWY. 412 BYPASS	400.00	355.56
155+68.00	158+00.00	RT. HWY. 412 BYPASS	232.00	206.22
179+00.00	181+51.01	RT. HWY. 412 BYPASS	251.01	223.12
179+00.00	181+51.01	LT. HWY. 412 BYPASS	251.01	223.12
181+79.93	184+00.00	RT. HWY. 412 BYPASS	220.07	195.62
181+96.72	184+00.00	LT. HWY. 412 BYPASS	203.28	180.69
202+00.00	204+18.00	LT. HWY. 412 BYPASS	218.00	193.78
219+00.00	225+13.00	RT. HWY. 412 BYPASS	613.00	544.89
220+00.00	224+32.00	LT. HWY. 412 BYPASS	432.00	384.00
250+00.00	251+10.33	LT. HWY. 412 BYPASS	110.33	98.07
273+00.00	279+65.00	RT. HWY. 412 BYPASS	665.00	591.11
278+00.00	279+00.00	LT. HWY. 412 BYPASS	100.00	88.89
288+00.00	291+00.00	LT. HWY. 412 BYPASS	300.00	266.67
299+00.00	304+85.04	RT. HWY. 412 BYPASS	585.04	520.04
305+15.05	312+00.00	LT. HWY. 412 BYPASS	684.95	608.84
310+23.94	312+71.00	RT. HWY. 412 BYPASS	247.06	219.61
318+00.00	319+00.00	LT. HWY. 412 BYPASS	100.00	88.89
319+00.00	321+44.00	RT. HWY. 412 BYPASS	244.00	216.89
328+14.94	329+23.94	LT. HWY. 412 BYPASS	109.00	96.89
335+00.00	336+00.00	RT. HWY. 412 BYPASS	100.00	88.89
345+00.00	347+00.00	RT. HWY. 412 BYPASS	200.00	177.78
349+00.00	352+00.00	RT. HWY. 412 BYPASS	300.00	266.67
349+00.00	352+00.00	LT. HWY. 412 BYPASS	300.00	266.67
7+00.00	8+51.32	LT. PINE KNOT ROAD	151.32	134.51
7+00.00	8+51.32	RT. PINE KNOT ROAD	151.32	134.51
0+42.71	1+42.71	LT. WALLOTT ROAD	100.00	88.89
5+79.34	6+63.06	LT. WALLOTT ROAD	83.72	74.42
7+42.71	8+42.71	LT. WALLOTT ROAD	100.00	88.89
1+00.00	2+63.52	LT. SPRING GROVE ROAD	163.52	145.35
7+00.00	8+56.38	LT. SPRING GROVE ROAD	156.38	139.00
TOTAL:				7530.70

NOTE: AVERAGE WIDTH = 8'-0"

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
2+25	PINE KNOT RD. RT	1
2+33	PINE KNOT RD. RT	1
6+26	PINE KNOT RD. RT	1
0+49	WALLCOTT RD. LT	1
5+32	WALLCOTT RD. LT	2
2+56	WESTBROOK RD. CENTER	1
2+87	WESTBROOK RD. CENTER	1
4+31	SPRINGGROVE RD. LT	1
10+28	HWY. 358 RT.	1
15+39	HWY. 358 RT.	1
5+17	SOUTH ROCKING CHAIR RD. LT	2
5+25	SOUTH ROCKING CHAIR RD. LT	2
9+69	BROWN'S CHAPEL RD. CENTER	1
TOTALS:		16

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

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND SQ.YD.
100+45	HWY. 412 BYPASS RT.	B	33
100+56	HWY. 412 BYPASS LT.	B	49
TOTAL:			82

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL											
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	DIVERSION DITCH	SLOPE DRAIN (E-12) PIPE FOR SLOPE DRAINS	SLOPE DRAIN (E-12) DUMPED RIPRAP	SEDIMENT BASIN	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	(E-5) BAG	(E-6) CU.YD.	(E-11) LIN. FT.	(E-8) LIN. FT.	LIN. FT.	CU.YD.	(E-14) CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						86.24	86.24	1759.3			88437						3275
ENTIRE	PROJECT	STAGE 1	57.02	114.04	57.02	5816.0	57.02				2794	477					7048	7048	7334
ENTIRE	PROJECT	OBLITERATION AREAS	1.45	2.90	1.45	147.9	1.45												
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.								20.00	20.00	408.0	512	87	5000	8000	1000	100			185
TOTALS:			58.47	116.94	58.47	5963.9	58.47	106.24	106.24	2167.3	3306	564	93437	8000	1000	100	7048	7048	10794

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
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

9/7/2016

R100708.DGN

QUANTITIES

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A) LIN. FT.	WIRE FENCE (TYPE C) LIN. FT.	* 16'-0" GATES EACH
100+79	103+55	LT. HWY. 412	281		
104+05	104+90	LT. HWY. 412	84		
105+42	113+75	LT. HWY. 412	743		
113+75	114+25	LT. HWY. 412		50	1
114+25	117+75	LT. HWY. 412	349		
117+75	118+25	LT. HWY. 412		50	1
118+25	129+75	LT. HWY. 412	1175		
129+75	130+25	LT. HWY. 412		50	1
130+25	133+05	LT. HWY. 412	289		
133+55	134+60	LT. HWY. 412	109		
135+10	139+75	LT. HWY. 412	480		
140+25	144+50	LT. HWY. 412	458		
145+00	148+75	LT. HWY. 412	387		1
148+75	149+25	LT. HWY. 412		50	1
149+25	152+35	LT. HWY. 412	311		
152+85	153+75	LT. HWY. 412	87		
154+25	160+75	LT. HWY. 412	651		
161+25	169+75	LT. HWY. 412	853		
169+75	170+25	LT. HWY. 412		50	1
170+25	174+75	LT. HWY. 412	451		
175+25	178+35	LT. HWY. 412	310		
178+85	181+67	LT. HWY. 412	292		1
181+97	183+75	LT. HWY. 412	185		
183+25	186+75	LT. HWY. 412	308		
187+50	189+75	LT. HWY. 412	276		1
189+75	190+25	LT. HWY. 412		50	1
190+25	194+75	LT. HWY. 412	454		
195+25	204+75	LT. HWY. 412	951		
204+75	205+25	LT. HWY. 412		50	
205+25	208+75	LT. HWY. 412	252		
208+75	209+25	LT. HWY. 412		50	1
209+25	209+45	LT. HWY. 412	125		
209+95	213+75	LT. HWY. 412	376		
214+25	220+75	LT. HWY. 412	638		
221+25	222+75	LT. HWY. 412	148		
223+25	227+75	LT. HWY. 412	451		
227+75	228+25	LT. HWY. 412		50	1
228+25	230+75	LT. HWY. 412	251		
231+25	236+75	LT. HWY. 412	552		
237+25	242+44	LT. HWY. 412	569		
243+05	264+90	LT. HWY. 412	7310		1
267+36	293+75	LT. HWY. 412	2867		
294+25	300+82	LT. HWY. 412	820		1
301+06	304+85	LT. HWY. 413	226		
305+15	306+75	LT. HWY. 412	144		
306+75	307+25	LT. HWY. 412		50	
307+25	309+30	LT. HWY. 412	205		1
309+80	314+75	LT. HWY. 412	498		
315+25	322+75	LT. HWY. 412	751		
322+75	323+25	LT. HWY. 412		50	1
323+25	331+75	LT. HWY. 412	851		
331+75	332+25	LT. HWY. 412		50	1
332+25	336+50	LT. HWY. 412	427		
337+00	337+75	LT. HWY. 412	76		
a337+75	338+25	LT. HWY. 412		50	1
a338+25	341+25	LT. HWY. 412	301		
a341+25	341+75	LT. HWY. 412		50	1
a341+75	346+25	LT. HWY. 412	451		
a346+25	346+75	LT. HWY. 412		50	1
a346+75	351+43.50	LT. HWY. 412	469		
351+43.50	351+93.50	LT. HWY. 412		50	1
351+93.50	354+50	LT. HWY. 412	256		
355+00	373+43.93	LT. HWY. 412	1843		
100+99.98	103+75	RT. HWY. 412	487		
104+25	104+84	RT. HWY. 412	64		
105+34	111+75	RT. HWY. 412	713		
112+25	114+13	RT. HWY. 412	217		
114+63	117+75	RT. HWY. 412	315		
118+25	124+75	RT. HWY. 412	652		
124+75	125+25	RT. HWY. 412		50	1
125+25	133+05	RT. HWY. 412	764		
133+55	134+60	RT. HWY. 412	104		
135+10	139+75	RT. HWY. 412	451		
139+75	140+25	RT. HWY. 412		50	1
140+25	144+04	RT. HWY. 412	405		1
144+62	145+75	RT. HWY. 412	182		
146+25	152+28	RT. HWY. 412	604		
152+78	153+75	RT. HWY. 412	94		
153+75	154+25	RT. HWY. 412		50	1
154+25	159+75	RT. HWY. 412	555		
160+25	168+75	RT. HWY. 412	860		
169+25	174+75	RT. HWY. 412	550		
175+25	181+51	RT. HWY. 412	677		1
181+80	183+75	RT. HWY. 412	256		
184+25	186+83	RT. HWY. 412	313		
187+46	189+75	RT. HWY. 412	274		1
189+75	190+25	RT. HWY. 412		50	1
190+25	194+75	RT. HWY. 412	451		
195+25	204+75	RT. HWY. 412	953		
205+25	207+00	RT. HWY. 412	176		
207+50	209+35	RT. HWY. 412	190		
209+85	212+75	RT. HWY. 412	281		
213+25	218+25	RT. HWY. 412	513		
219+75	222+75	RT. HWY. 412	646		
223+25	227+75	RT. HWY. 412	498		
228+25	229+75	RT. HWY. 412	166		
230+25	231+75	RT. HWY. 412	151		
232+25	236+75	RT. HWY. 412	450		
237+25	241+30	RT. HWY. 412	439		
241+94	269+32	RT. HWY. 412	2927		1
270+12.67	293+75	RT. HWY. 412	3619		
294+25	301+75	RT. HWY. 412	1214		
301+75	302+25	RT. HWY. 412		50	1
302+25	304+85	RT. HWY. 412	603		
305+15	309+50	RT. HWY. 412	748		1
310+00	319+75	RT. HWY. 412	1307		
320+25	322+75	RT. HWY. 412	256		
322+75	323+25	RT. HWY. 412		50	1
323+25	329+75	RT. HWY. 412	664		
329+75	330+25	RT. HWY. 412		50	1
330+25	336+55	RT. HWY. 412	1046		
337+05	337+75	RT. HWY. 412	72		
337+75	338+25	RT. HWY. 412		50	1
338+25	341+57	RT. HWY. 412	333		
341+57	342+07	RT. HWY. 412		50	1
342+07	346+49	RT. HWY. 412	499		
346+49	346+99	RT. HWY. 412		50	1
346+99	353+11	RT. HWY. 412	650		
353+61	371+85		2325		
TOTALS:			**60055**	**1300**	**35**

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS LIN.FT.
101+87	103+67	RT. HWY. 412 BYPASS	180
104+33	109+67	RT. HWY. 412 BYPASS	534
110+29	113+99	RT. HWY. 412 BYPASS	370
114+63	117+68	RT. HWY. 412 BYPASS	305
118+31	132+98	RT. HWY. 412 BYPASS	1467
133+63	134+27	RT. HWY. 412 BYPASS	64
135+37	145+65	RT. HWY. 412 BYPASS	1028
143+31	152+05	RT. HWY. 412 BYPASS	874
153+11	159+67	RT. HWY. 412 BYPASS	656
160+31	168+69	RT. HWY. 412 BYPASS	838
169+33	174+65	RT. HWY. 412 BYPASS	532
175+30	183+66	RT. HWY. 412 BYPASS	836
184+30	194+67	RT. HWY. 412 BYPASS	1037
195+33	204+68	RT. HWY. 412 BYPASS	935
205+30	206+94	RT. HWY. 412 BYPASS	164
207+57	209+23	RT. HWY. 412 BYPASS	166
210+23	212+67	RT. HWY. 412 BYPASS	244
213+30	218+17	RT. HWY. 412 BYPASS	487
218+83	222+68	RT. HWY. 412 BYPASS	385
223+31	227+68	RT. HWY. 412 BYPASS	437
228+32	229+67	RT. HWY. 412 BYPASS	135
230+30	231+67	RT. HWY. 412 BYPASS	137
232+31	236+67	RT. HWY. 412 BYPASS	436
237+30	266+64	RT. HWY. 412 BYPASS	2934
270+59	293+65	RT. HWY. 412 BYPASS	2306
294+30	a30906	RT. HWY. 412 BYPASS	1476
310+11	a31966	RT. HWY. 412 BYPASS	955
320+33	a33624	RT. HWY. 412 BYPASS	1591
337+30	a35299	RT. HWY. 412 BYPASS	1569
353+72	a37223	RT. HWY. 412 BYPASS	1851
104+13	104+82	LT. HWY. 412 BYPASS	69
105+51	117+66	LT. HWY. 412 BYPASS	1215
118+32	132+98	LT. HWY. 412 BYPASS	1466
133+63	134+30	LT. HWY. 412 BYPASS	67
135+38	139+67	LT. HWY. 412 BYPASS	429
140+32	152+04	LT. HWY. 412 BYPASS	1172
153+14	153+68	LT. HWY. 412 BYPASS	54
154+34	160+68	LT. HWY. 412 BYPASS	634
164+33	174+67	LT. HWY. 412 BYPASS	1034
175+33	178+04	LT. HWY. 412 BYPASS	271
179+14	183+67	LT. HWY. 412 BYPASS	453
184+33	194+67	LT. HWY. 412 BYPASS	1034
195+33	209+14	LT. HWY. 412 BYPASS	1381
210+25	213+66	LT. HWY. 412 BYPASS	341
214+33	220+67	LT. HWY. 412 BYPASS	634
221+33	222+66	LT. HWY. 412 BYPASS	133
223+33	230+66	LT. HWY. 412 BYPASS	733
231+33	236+67	LT. HWY. 412 BYPASS	534
237+33	266+65	LT. HWY. 412 BYPASS	2932
269+08	293+62	LT. HWY. 412 BYPASS	2454
294+30	309+02	LT. HWY. 412 BYPASS	1472
310+12	314+67	LT. HWY. 412 BYPASS	455
315+33	336+23	LT. HWY. 412 BYPASS	2090
337+33	354+37	LT. HWY. 412 BYPASS	1704
355+11	372+65	LT. HWY. 412 BYPASS	1754
TOTAL:			**49444**

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	25	50
DIRECTED BY THE ENGINEER		
TOTALS:	**25**	**50**

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

QUANTITIES

(2) QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.ROD. DIST.NO.	STATE
				6	ARK.

JOB NO.	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
100708		75	335

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11435 BRENTLEY D. SMITH
12-14-16

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	76	335

(2) QUANTITIES

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
117+00.00	127+00.00	LT. HWY. 412 BYPASS	1000.00	9.00	1000.00	444.44	5.60
128+00.00	129+00.00	LT. HWY. 412 BYPASS	100.00	9.00	100.00	44.44	0.56
143+00.00	144+04.16	RT. HWY. 412 BYPASS	104.16	9.00	104.16	46.29	0.58
143+00.00	144+50.73	LT. HWY. 412 BYPASS	150.73	9.00	150.73	66.99	0.84
156+96.00	160+00.00	LT. HWY. 412 BYPASS	304.00	9.00	304.00	135.11	1.70
185+00.00	186+82.88	LT. HWY. 412 BYPASS	182.88	9.00	182.88	81.28	1.02
187+46.20	189+00.00	RT. HWY. 412 BYPASS	153.80	9.00	153.80	68.36	0.86
187+46.20	189+00.00	LT. HWY. 412 BYPASS	153.80	9.00	153.80	68.36	0.86
204+00.00	209+00.00	LT. HWY. 412 BYPASS	500.00	9.00	500.00	222.22	2.80
205+00.00	207+00.00	RT. HWY. 412 BYPASS	200.00	9.00	200.00	88.89	1.12
241+00.00	242+35.85	LT. HWY. 412 BYPASS	135.85	9.00	135.85	60.38	0.76
242+02.11	243+00.00	RT. HWY. 412 BYPASS	97.89	9.00	97.89	43.51	0.55
251+30.00	252+00.00	LT. HWY. 412 BYPASS	70.00	9.00	70.00	31.11	0.39
279+65.00	281+00.00	RT. HWY. 412 BYPASS	135.00	9.00	135.00	60.00	0.76
291+00.00	292+38.00	RT. HWY. 412 BYPASS	138.00	9.00	138.00	61.33	0.77
302+00.00	305+00.00	LT. HWY. 412 BYPASS	300.00	9.00	300.00	133.33	1.68
318+23.94	319+00.00	RT. HWY. 412 BYPASS	76.06	9.00	76.06	33.80	0.43
336+78.00	338+00.00	LT. HWY. 412 BYPASS	122.00	9.00	122.00	54.22	0.68
336+78.00	338+00.00	RT. HWY. 412 BYPASS	122.00	9.00	122.00	54.22	0.68
6+66.44	7+00.00	SPRING GROOVE ROAD	33.56	9.00	33.56	14.92	0.19
1+00.00	3+00.00	PINE KNOT RD.	200.00	9.00	200.00	88.89	1.12
TOTALS:					**4279.73**	**1902.09**	**23.95**

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
100+28	103+56	EXIST. HWY. 412 RT.	643
TOTAL:			**643**

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	600
ENGINEER	
TOTAL:	**600**

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
144+40	R.C. BOX CULVERT	1
181+66	R.C. BOX CULVERT	1
187+15	R.C. BOX CULVERT	1
241+76	R.C. BOX CULVERT	1
305+00	R.C. BOX CULVERT	1
TOTAL:		**5**

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

STRUCTURES

STATION	LOCATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III)								REINFORCED CONCRETE PIPE CULVERT (CLASS IV)	FLARED END SECTIONS FOR R.C. PIPE CULVERTS								SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
			18"	24"	30"	36"	48"	54"	84"	59"X36"	30"	18"	24"	30"	36"	48"	54"	84"	59"X36"									
			LIN. FT.									EACH								LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
126+90	HWY. 412	CONST. DBL. 54" X 198' R.C. PIPE CLVT. ON 45° R.F.S.						396									4									74	0.93	FES-1, FES-2, PCC-1
128+94	HWY. 412	CONST. 24" X 113' R.C. PIPE CLVT. ON 15 R.F.S.		113									2													16	0.20	FES-1, FES-2, PCC-1
155+86	HWY. 412	CONST. DBL. 36" X 176' R.C. PIPE CLVT. ON 45 L.F.S.				352									4											36	0.45	FES-1, FES-2, PCC-1
205+47	HWY. 412	CONST. 30" X 257' R.C. PIPE CLVT. ON 45° R.F.S.									257			2												26	0.33	FES-1, FES-2, PCC-1
225+10	HWY. 412	CONST. 24" X 112' R.C. PIPE CLVT. ON 45° R.F.S.		112									2													16	0.20	FES-1, FES-2, PCC-1
245+00	HWY. 412	CONST. 24" X 98' R.C. PIPE CLVT.		98									2													16	0.20	FES-1, FES-2, PCC-1
251+15	HWY. 412	CONST. QUAD. 48" X 122' R.C. PIPE CLVT.					488									8										144	1.81	FES-1, FES-2, PCC-1
279+54	HWY. 412	CONST. 24" X 146' R.C. PIPE CLVT. ON 15° R.F.S.		146									2													16	0.20	FES-1, FES-2, PCC-1
292+06	HWY. 412	CONST. DBL. 36" X 164' R.C. PIPE CLVT. WITH 50° R.F.S				328									4											36	0.45	FES-1, FES-2, PCC-1
305+00	HWY. 412	CONST. DBL. 8' X 4' X 114' R.C. BOX CLVT.																		8	4	117	161.22	22187	76	19	0.24	RCB-1, RCB-2, SPECIAL DETAILS
312+42	HWY. 412	CONST. DBL. 48" X 105' R.C. PIPE CLVT. ON 35° R.F.S.					210									4										62	0.78	FES-1, FES-2, PCC-1
319+28	HWY. 412	CONST. 24" X 81' R.C. PIPE CLVT. ON 8° R.F.S.		81									2													16	0.20	FES-1, FES-2, PCC-1
321+45	HWY. 412	CONST. TRI. 59" X 36" X 79' R.C. ARCH PIPE CLVT.								237									6							66	0.83	FES-1, FES-2, PCC-1
327+58	HWY. 412	CONST. 36" X 88' R.C. PIPE CLVT. ON 22° L.F.S.				88									2											34	0.43	FES-1, FES-2, PCC-1
336+22	HWY. 412	CONST. DBL. 24" X 80' R.C. PIPE CLVT. ON 8° R.F.S.		160									4													18	0.23	FES-1, FES-2, PCC-1
336+36	HWY. 413	CONST. 24" X 81' R.C. PIPE CLVT. ON 8° R.F.S.		81									2													16	0.20	FES-1, FES-2, PCC-1
345+42	HWY. 412	CONST. DBL. 30" X 89' R.C. PIPE CLVT.			178									4												28	0.35	FES-1, FES-2, PCC-1
350+65	HWY. 412	CONST. DBL. 24" X 86' R.C. PIPE CLVT.		172									4													18	0.23	FES-1, FES-2, PCC-1
2+25	PINE KNOT RD.	84" R.C. PIPE CLVT. LT. ON A 40° R.F.S.							78									2								172	2.17	FES-1, FES-2, PCC-1
6+50	PINE KNOT RD.	CONST. DBL. 48" X 67' R.C. PIPE CLVT. ON A 24° L.F.S.					67									4										62	0.78	FES-1, FES-2, PCC-1
5+77	WALLCOTT RD.	CONST. DBL. 24" X 42' R.C. PIPE CLVT.		84									4													18	0.23	FES-1, FES-2, PCC-1
13+00	HWY. 357	CONST. 24" X 57' R.C. PIPE CLVT.		57									2													16	0.20	FES-1, FES-2, PCC-2
15+45	HWY. 358	CONST. 30" X 128' R.C. PIPE CLVT.			128									2												26	0.33	FES-1, FES-2, PCC-1
4+43	COUNTY ROAD 750	CONST. 18" X 134' R.C. PIPE CLVT.	134									2														10	0.13	FES-1, FES-2, PCC-1
5+25	S. ROCKINGCHAIR RD.	CONST. DBL. 48" PIPE CLVT. ON ON 15° L.F.S.					156									4										124	1.56	FES-1, FES-2, PCC-1
SUBTOTALS:			**134**	**1104**	**306**	**768**	**921**	**396**	**78**	**237**	**257**	**2**	**26**	**8**	**10**	**20**	**4**	**2**	**6**				**161.22**	**22187**	**76**	**1085**	**13.66**	
STRUCTURES OVER 20' - 0" SPAN																												
144+43		CONST. TRI. 10' X 8' X 108' R.C. BOX CLVT. ON 15° L.F.S.																		10	8	108	370.86	50103	142	35	0.44	RCB-1, RCB-2, SPECIAL DETAILS
181+68		CONST. TRI. 6' X 3' X 87' R.C. BOX CLVT. ON 10° L.F.S.																		6	3	87	125.09	16060	55	18	0.23	RCB-1, RCB-2, SPECIAL DETAILS
187+15		CONST. TRI. 12' X 12' X 119' R.C. BOX CLVT.																		12	12	119	717.80	96098	225	40	0.50	RCB-1, RCB-2, SPECIAL DETAILS
241+82		CONST. TRI. 12' X 7' X131' R.C. BOX CLVT. ON A 45° L.F.S.																		12	7	131	522.04	89166	211	43	0.54	RCB-1, RCB-2, SPECIAL DETAILS
SUBTOTALS:																							**1735.79**	**251427**	**633**	**136**	**1.71**	
TOTALS:			**134**	**1104**	**306**	**768**	**921**	**396**	**78**	**237**	**257**	**2**	**26**	**8**	**10**	**20**	**4**	**2**	**6**				**1897.01**	**273614**	**709**	**1221**	**15.37**	

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

9/7/2016

R100708.DGN

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS					STANDARD DRAWINGS
							18"	24"	30"	36"	21"X15"	
			FEET	SQ. YD.	TON	TON	LIN. FT.					
103+80	LT.	HWY. 412 BYPASS	16	199.95	21.99	81.65	30					PCC-1, PCM-1, PCP-1, PCP-2
104+50	RT.	HWY. 412 BYPASS	16	263.66	29.00	107.66	30					PCC-1, PCM-1, PCP-1, PCP-2
105+17	LT.	HWY. 412 BYPASS	16	173.67	19.10	70.92	34					PCC-1, PCM-1, PCP-1, PCP-2
110+00	RT.	HWY. 412 BYPASS	16	277.89	30.57	113.47	66					PCC-1, PCM-1, PCP-1, PCP-2
114+31	RT.	HWY. 412 BYPASS	16	224.68	24.71	91.74						
118+00	RT.	HWY. 412 BYPASS	16	233.74	25.71	95.44	32					PCC-1, PCM-1, PCP-1, PCP-2
118+00	LT.	HWY. 412 BYPASS	16	126.60	13.93	51.70	32					PCC-1, PCM-1, PCP-1, PCP-2
133+30	RT.	HWY. 412 BYPASS	16	251.89	27.71	102.86	34					PCC-1, PCM-1, PCP-1, PCP-2
133+30	LT.	HWY. 412 BYPASS	16	82.40	9.06	33.65	32					PCC-1, PCM-1, PCP-1, PCP-2
140+00	LT.	HWY. 412 BYPASS	16	116.57	12.82	47.60	30					PCC-1, PCM-1, PCP-1, PCP-2
146+00	RT.	HWY. 412 BYPASS	16	276.64	30.43	112.96						PCC-1, PCM-1, PCP-1, PCP-2
152+59	LT.	HWY. 412 BYPASS	17	206.43	22.71	84.29			51			PCC-1, PCM-1, PCP-1, PCP-2
152+59	RT.	HWY. 412 BYPASS	18	216.56	23.82	88.43			49			PCC-1, PCM-1, PCP-1, PCP-2
154+00	LT.	HWY. 412 BYPASS	16	139.73	15.37	57.06		58				PCC-1, PCM-1, PCP-1, PCP-2
160+00	RT.	HWY. 412 BYPASS	16	221.51	24.37	90.45	32					PCC-1, PCM-1, PCP-1, PCP-2
161+00	LT.	HWY. 412 BYPASS	16	119.50	13.15	48.80	44					PCC-1, PCM-1, PCP-1, PCP-2
169+00	RT.	HWY. 412 BYPASS	16	223.89	24.63	91.42	34					PCC-1, PCM-1, PCP-1, PCP-2
175+00	RT.	HWY. 412 BYPASS	16	220.46	24.25	90.02		32				PCC-1, PCM-1, PCP-1, PCP-2
175+00	LT.	HWY. 412 BYPASS	16	98.88	10.88	40.38	42					PCC-1, PCM-1, PCP-1, PCP-2
178+60	LT.	HWY. 412 BYPASS	17	204.17	22.46	83.37		28				PCC-1, PCM-1, PCP-1, PCP-2
184+00	RT.	HWY. 412 BYPASS	16	214.95	23.64	87.77						
195+00	RT.	HWY. 412 BYPASS	16	239.11	26.30	97.64	48					PCC-1, PCM-1, PCP-1, PCP-2
195+00	LT.	HWY. 412 BYPASS	16	157.17	17.29	64.18	42					PCC-1, PCM-1, PCP-1, PCP-2
205+00	RT.	HWY. 412 BYPASS	16	237.97	26.18	97.17						PCC-1, PCM-1, PCP-1, PCP-2
207+25	RT.	HWY. 412 BYPASS	16	288.04	31.68	117.62	80					PCC-1, PCM-1, PCP-1, PCP-2
209+70	LT.	HWY. 412 BYPASS	17	157.32	17.31	64.24		34				PCC-1, PCM-1, PCP-1, PCP-2
209+70	RT.	HWY. 412 BYPASS	18	171.58	18.87	70.06		38				PCC-1, PCM-1, PCP-1, PCP-2
213+00	RT.	HWY. 412 BYPASS	20	298.96	32.89	122.08	38					PCC-1, PCM-1, PCP-1, PCP-2
214+00	LT.	HWY. 412 BYPASS	16	99.57	10.95	40.66	38					PCC-1, PCM-1, PCP-1, PCP-2
218+50	RT.	HWY. 412 BYPASS	16	257.74	28.35	105.24		90				PCC-1, PCM-1, PCP-1, PCP-2
221+00	LT.	HWY. 412 BYPASS	16	113.41	12.48	46.31	34					PCC-1, PCM-1, PCP-1, PCP-2
223+00	RT.	HWY. 412 BYPASS	16	227.50	25.03	92.90	46					PCC-1, PCM-1, PCP-1, PCP-2
223+00	LT.	HWY. 412 BYPASS	16	99.93	10.99	40.80	32					PCC-1, PCM-1, PCP-1, PCP-2
228+00	RT.	HWY. 412 BYPASS	15	218.44	24.03	89.20	31					PCC-1, PCM-1, PCP-1, PCP-2
228+00	RT.	HWY. 412 BYPASS	16	218.44	24.03	89.20	32					PCC-1, PCM-1, PCP-1, PCP-2
230+00	RT.	HWY. 412 BYPASS	16	209.62	23.06	85.59						
231+00	LT.	HWY. 412 BYPASS	16	117.07	12.88	47.80	44					PCC-1, PCM-1, PCP-1, PCP-2
232+00	RT.	HWY. 412 BYPASS	16	210.74	23.18	86.05		36				PCC-1, PCM-1, PCP-1, PCP-2
237+00	LT.	HWY. 412 BYPASS	16	72.43	7.97	29.58		30				PCC-1, PCM-1, PCP-1, PCP-2
237+00	RT.	HWY. 412 BYPASS	16	211.04	23.21	86.17		32				PCC-1, PCM-1, PCP-1, PCP-2
294+00	LT.	HWY. 412 BYPASS	16	119.91	13.19	48.96	42					PCC-1, PCM-1, PCP-1, PCP-2
294+00	RT.	HWY. 412 BYPASS	20	417.69	45.95	170.56				188		PCC-1, PCM-1, PCP-1, PCP-2
315+00	LT.	HWY. 412 BYPASS	16	124.71	13.72	50.92	48					PCC-1, PCM-1, PCP-1, PCP-2
353+36	RT.	HWY. 412 BYPASS	24	303.33	33.37	123.86	40					PCC-1, PCM-1, PCP-1, PCP-2
354+78	LT.	HWY. 412 BYPASS	24	179.70	19.77	73.38	40					PCC-1, PCM-1, PCP-1, PCP-2
18+67	RT.	HWY. 358	16	1461.17	160.73	596.64	68					PCC-1, PCM-1, PCP-1, PCP-2
20+75	LT.	HWY. 358	16	60.94	6.70	24.88	28					PCC-1, PCM-1, PCP-1, PCP-2
22+75	RT.	HWY. 358	16	60.37	6.64	24.65	36					PCC-1, PCM-1, PCP-1, PCP-2
22+75	LT.	HWY. 358	16	86.66	9.53	73.38	28					PCC-1, PCM-1, PCP-1, PCP-2
6+00	LT.	PINE KNOT ROAD	16	105.08	11.56	42.91	32					PCC-1, PCM-1, PCP-1, PCP-2
12+09	LT.	PINE KNOT ROAD	16	244.48	26.89	99.83	32					PCC-1, PCM-1, PCP-1, PCP-2
16+23	LT.	PINE KNOT ROAD	16	70.40	7.74	28.75	34					PCC-1, PCM-1, PCP-1, PCP-2
0+00	LT.	WALLCOTT ROAD	16	109.77	12.07	44.82	34					PCC-1, PCM-1, PCP-1, PCP-2
0+75	RT.	WALLCOTT ROAD	16	78.01	8.58	31.85					34	PCC-1, PCM-1, PCP-1, PCP-2
1+70	LT.	SPRING GROVE ROAD	16	80.90	8.90	33.03					32	PCC-1, PCM-1, PCP-1, PCP-2
2+64	RT.	SPRING GROVE ROAD	16	167.77	18.45	68.51	32					PCC-1, PCM-1, PCP-1, PCP-2
2+64	LT.	SPRING GROVE ROAD	16	85.47	9.40	34.90	28					PCC-1, PCM-1, PCP-1, PCP-2
8+00	LT.	SPRING GROVE ROAD	16	73.99	8.14	30.21						PCC-1, PCM-1, PCP-1, PCP-2
8+31	RT.	SOUTH ROCKINGCHAIR ROAD	16	79.96	8.80	32.65					34	PCC-1, PCM-1, PCP-1, PCP-2
*		ENTIRE PROJECT TEMPORARY DRIVES				590.00						
TOTALS:				11610.16	1277.12	5368.82	1459	378	100	188	100	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

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

QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11785
TIMOTHY R. SMITH
1-12-17

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED
1/12/17			

(2) QUANTITIES

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	100708	77	335

JOB NO.

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.		100708	78	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
100+00	36	4	3.00	90	34	50.70	CL	0-5	25	10	A-2-4(0)	RD/BR
108+00	36	3	55.10	90	34	50.70	40'RT	0-2.3	30	13	A-6(9)	RD/BR
112+00	36	3	51.90	90	34	47.60	40'LT	0-5	38	21	A-6(16)	RD/BR
112+00	36	3	51.90	90	34	47.60	40'LT	0-5	29	12	A-6(8)	RD/BR
116+00	36	3	48.70	90	34	44.70	40'RT	0-2.5Z	37	16	A-6(16)	RD/BR
120+00	36	3	46.80	90	34	40.30	40'LT	0-2.0Z	35	15	A-6(15)	RD/BR
124+00	36	3	43.70	90	34	37.10	40'RT	0-5	25	4	A-4(3)	RD/BR
130+00	36	3	41.80	90	34	32.80	40'LT	0-2.0Z	26	3	A-4(2)	RD/BR
132+00	36	3	38.60	90	34	29.80	40'RT	0-5	ND	NP	A-4(0)	BROWN
135+00	36	3	36.50	90	34	27.30	40'RT	0-5	ND	NP	A-4(0)	BROWN
140+00	36	3	32.90	90	34	23.00	40'LT	0-5	ND	NP	A-4(0)	BROWN
144+00	36	3	29.00	90	34	21.60	40'RT	0-5	25	6	A-4(4)	BROWN
148+00	36	3	25.70	90	34	18.90	40'LT	0-2.3Z	28	7	A-4(6)	BROWN
151+50	36	3	22.10	90	34	18.30	28'RT	0-5	25	7	A-4(4)	BROWN
156+00	36	3	18.30	90	34	15.40	40'LT	0-5	27	4	A-4(3)	RD/BR
160+00	36	3	14.30	90	34	14.50	40'RT	0-5	39	20	A-6(20)	RD/BR
164+00	36	3	10.90	90	34	11.90	40'LT	0-5	31	15	A-6(14)	RD/BR
168+00	36	3	6.90	90	34	11.00	40'RT	0-5	39	22	A-6(22)	RED
172+00	36	3	3.50	90	34	8.40	40'LT	0-5	35	20	A-6(19)	BROWN
176+00	36	2	59.50	90	34	7.50	40'RT	0-5	34	16	A-6(15)	RD/BR
180+00	36	2	56.10	90	34	4.90	40'LT	0-5	33	16	A-6(14)	RD/BR
184+00	36	2	52.20	90	34	4.00	40'RT	0-5	26	6	A-4(4)	BROWN
188+00	36	2	48.80	90	34	1.40	40'LT	0-5	ND	NP	A-4(0)	BROWN
192+00	36	2	44.80	90	34	0.50	40'RT	0-5	ND	NP	A-4(0)	BROWN
198+00	36	2	41.40	90	33	57.80	40'LT	0-5	26	7	A-4(5)	RD/BR
200+00	36	2	37.40	90	33	57.00	40'RT	0-5	37	18	A-6(18)	RD/BR
204+00	36	2	34.60	90	33	54.30	40'LT	0-5	36	18	A-6(7)	RD/BR
209+40	36	2	28.70	90	33	52.80	40'RT	0-5	40	21	A-6(22)	RD/BR
221+50	36	2	19.90	90	33	45.80	40'LT	0-5	33	15	A-6(15)	RD/BR
224+00	36	2	16.20	90	33	43.80	40'RT	0-5	34	16	A-6(16)	RD/BR
228+00	36	2	13.60	90	33	40.10	40'LT	0-5	31	13	A-6(12)	RD/BR
232+00	36	2	9.90	90	33	37.90	40'RT	0-5	33	12	A-6(12)	BROWN
236+00	36	2	7.20	90	33	34.20	40'LT	0-5	27	6	A-4(5)	BROWN
240+00	36	2	3.60	90	33	32.00	40'RT	0-5	26	5	A-4(4)	RD/BR
244+00	36	2	0.90	90	33	28.40	40'LT	0-5	25	4	A-4(3)	RD/BR
248+00	36	1	57.00	90	33	27.00	CL	0-5	25	7	A-4(5)	BROWN
252+00	36	1	53.40	90	33	24.90	40'LT	0-5	28	7	A-4(6)	BROWN
256+00	36	1	49.40	90	33	25.60	40'RT	0-5	31	9	A-4(9)	BROWN
260+00	36	1	45.40	90	33	24.70	40'LT	0-5	36	13	A-6(14)	BROWN
264+00	36	1	41.50	90	33	25.70	40'RT	0-5	34	9	A-4(10)	RD/BR
269+00	36	1	36.10	90	33	24.90	40'LT	0-5	29	11	A-6(9)	RD/BR
269+40	36	1	36.10	90	33	24.90	40'LT	0-5	31	12	A-6(10)	RD/BR
272+00	36	1	33.50	90	33	28.00	40'RT	0-5	29	12	A-6(9)	RD/BR
276+00	36	1	29.60	90	33	25.80	40'RT	0-5	ND	NP	A-4(0)	BROWN
280+00	36	1	25.80	90	33	23.90	40'LT	0-5	28	13	A-6(8)	BROWN
284+00	36	1	21.90	90	33	22.80	40'RT	0-5	35	18	A-6(18)	RD/BR
288+00	36	1	19.20	90	33	19.20	40'LT	0-5	25	6	A-4(4)	BROWN
288+00	36	1	19.20	90	33	19.20	40'LT	0-5	28	4	A-4(4)	BROWN
296+00	36	1	14.60	90	33	11.50	40'LT	0-5	34	17	A-6(17)	BROWN
300+00	36	1	12.60	90	33	7.20	40'RT	0-5	ND	NP	A-4(0)	BROWN
304+00	36	1	12.80	90	33	2.20	40'LT	0-5	ND	NP	A-4(0)	BROWN
308+00	36	1	11.30	90	32	57.60	40'RT	0-5	30	5	A-4(5)	BROWN
312+00	36	1	11.50	90	32	52.60	40'LT	0-5	28	3	A-4(2)	BROWN
316+00	36	1	10.10	90	32	47.80	40'RT	0-5	32	14	A-6(14)	BROWN
320+00	36	1	10.20	90	32	43.00	40'LT	0-5	30	6	A-4(6)	BROWN
324+00	36	1	8.80	90	32	38.40	40'RT	0-5	32	8	A-4(8)	BROWN
328+00	36	1	9.00	90	32	33.40	40'LT	0-5	34	10	A-4(11)	RD/BR
332+00	36	1	7.60	90	32	28.70	40'RT	0-5	31	14	A-6(13)	RD/BR
336+50	36	1	7.70	90	32	23.20	40'LT	0-5	26	7	A-4(5)	BROWN
340+00	36	1	6.30	90	32	19.10	40'RT	0-5	36	19	A-6(18)	BROWN
344+00	36	1	6.50	90	32	14.20	40'LT	0-5	32	9	A-4(9)	BROWN
348+00	36	1	5.10	90	32	9.50	40'RT	0-5	37	13	A-6(14)	BROWN
352+00	36	1	5.20	90	32	4.60	40'LT	0-5	33	11	A-6(11)	BROWN
364+00	36	1	2.60	90	31	50.30	40'RT	0-5	44	27	A-7-6(28)	BROWN
364+00	36	1	2.60	90	31	50.30	40'RT	0-5	43	20	A-7-6(22)	BROWN
368+00	36	1	2.70	90	31	45.30	40'LT	0-5	35	18	A-6(18)	BROWN
374+00	36	1	1.00	90	31	38.30	40'RT	0-5	34	19	A-6(14)	BROWN

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	LOCATION	CONCRETE PAVEMENT	SEPTIC TANK	BUILDINGS
		SQ. YD.	EACH	EACH
103+50	LT. OF HWY. 412 BYPASS		1	1
132+00	HWY. 412 BYPASS	430		
132+50	HWY. 412 BYPASS		1	1
150+55	LT. OF HWY. 412 BYPASS			1
150+75	LT. OF HWY. 412 BYPASS			1
151+00	LT. OF HWY. 412 BYPASS		1	1
177+00	LT. OF HWY. 412 BYPASS		1	1
210+60	LT. OF HWY. 412 BYPASS		1	1
262+30	LT. OF HWY. 412 BYPASS			1
265+70	RT. OF HWY. 412 BYPASS	280		
360+00	RT. OF HWY. 412 BYPASS		1	1
361+00	LT. OF HWY. 412 BYPASS		1	1
19+50	LT. HWY. 358 BYPASS		1	1
TOTALS:		710	8	11

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
100+00	105+00	HWY. 412 BYPASS	5	5
114+00	136+00	HWY. 412 BYPASS	22	22
143+00	146+00	HWY. 412 BYPASS	3	3
147+00	152+00	HWY. 412 BYPASS	5	5
155+00	166+00	HWY. 412 BYPASS	11	11
170+00	172+00	HWY. 412 BYPASS	2	2
175+00	178+00	HWY. 412 BYPASS	3	3
186+00	188+00	HWY. 412 BYPASS	2	2
197+00	216+00	HWY. 412 BYPASS	19	19
219+00	284+00	HWY. 412 BYPASS	65	65
286+00	300+82	HWY. 412 BYPASS	15	15
301+06	355+00	HWY. 412 BYPASS	54	54
364+00	365+00	HWY. 412 BYPASS	1	1
TOTALS:			207	207

9/7/2016

R100708.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	79	335

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")									
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	TOTAL PG 64-22	TOTAL PG 70-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON	TON	TON
MAIN LANES																								
100+29.50	101+82.24	CONNECTION TO EXISTING 412	152.74	VAR.	696.56	VAR.	8118.44	0.05	405.92	VAR.	318.92	660.00	105.24	VAR.	3133.20	220.00	344.65	VAR.	1802.78	220.00		198.31	344.65	198.31
101+82.24	103+56.11	HWY. 412 BYPASS	173.87	VAR.	793.34	190.41	3678.51	0.05	183.93	63.58	1228.29	660.00	405.34	63.25	1221.92	220.00	134.64	63.25	1221.92	220.00		134.41	134.64	134.41
103+56.11	106+41.18	HWY. 412 BYPASS	285.07	455.50	1298.49	190.41	6031.13	0.05	301.56	63.58	2013.86	660.00	664.57	63.25	2003.41	220.00	220.38	75.00	2375.58	220.00		261.31	220.38	261.31
106+41.18	300+82.22	HWY. 412 BYPASS	19441.04	308.00	59878.40	113.99	246231.57	0.05	12311.58	28.58	61736.10	660.00	20372.91	28.25	61023.26	220.00	6712.56	40.00	86404.62	220.00		9504.51	6712.56	9504.51
301+06.06	363+71.00	HWY. 412 BYPASS	6264.94	308.00	19296.02	113.99	79348.95	0.05	3967.45	28.58	19694.67	660.00	6565.24	28.25	19664.95	220.00	2163.14	40.00	27844.18	220.00		3062.86	2163.14	3062.86
363+71.00	370+91.00	HWY. 412 BYPASS - TRANS. 2 TO 3 LANE	720.00	333.25	2399.40	127.99	10239.20	0.05	511.96	34.58	2766.40	660.00	912.91	34.25	2740.00	220.00	301.40	46.00	3680.00	220.00		404.80	301.40	404.80
370+91.00	372+28.40	HWY. 412 BYPASS	137.40	358.50	492.58	149.99	2289.85	0.05	114.49	40.58	619.52	660.00	204.44	40.25	614.48	220.00	67.59	52.00	793.67	220.00		87.33	67.59	87.33
372+28.40	373+50.77	CONNECTON TO HWY. 49	122.37	VAR.	1158.99	VAR.	13041.00	0.05	652.05	VAR.	332.44	660.00	109.71	VAR.	332.44	220.00	36.57	VAR.	1382.22	220.00		152.04	36.57	152.04
PINE KNOT ROAD																								
0+38.95	1+38.95	PINE KNOT RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
1+38.95	8+19.10	PINE KNOT RD.	680.15	207.75	1413.01									28.00	2116.02	220.00	232.76						232.76	
8+19.10	8+50.37	PINE KNOT RD. - TURNOUT	31.27	VAR.	81.28									VAR.	207.99	220.00	22.88						22.88	
8+90.37	9+24.90	PINE KNOT RD. - TURNOUT	34.53	VAR.	81.28									VAR.	207.99	220.00	22.88						22.88	
9+24.90	16+66.89	PINE KNOT RD.	741.99	207.75	1541.48									28.00	2308.41	220.00	253.93						253.93	
16+66.89	17+66.89	PINE KNOT RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
WALLCOTT ROAD																								
100+00.00	101+00.00	WALLCOTT RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
101+00.00	6+60.77	WALLCOTT RD.	1034.51	207.75	2149.19									28.00	3218.48	220.00	354.03						354.03	
6+60.77	6+89.07	WALLCOTT RD. - TURNOUT	28.30	VAR.	63.62									VAR.	132.06	220.00	14.53						14.53	
7+29.07	7+60.16	WALLCOTT RD. - TURNOUT	31.09	VAR.	63.62									VAR.	132.06	220.00	14.53						14.53	
7+60.16	8+88.28	WALLCOTT RD.	128.12	207.75	266.17									28.00	398.60	220.00	43.85						43.85	
8+88.28	9+88.28	WALLCOTT RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
WESTBROOK ROAD																								
0+89.48	2+97.41	WESTBROOK RD.	207.93	207.75	431.97									28.00	646.89	220.00	71.16						71.16	
2+97.41	3+97.41	WESTBROOK RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
SPRING GROVE ROAD																								
-0+07.96	0+92.04	SPRING GROVE RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
0+92.04	5+76.53	SPRING GROVE RD.	484.49	207.75	1006.53									28.00	1507.30	220.00	165.80						165.80	
5+76.53	6+03.83	SPRING GROVE RD. - TURNOUT	27.30	VAR.	67.87									VAR.	125.94	220.00	13.85						13.85	
6+43.82	6+76.10	SPRING GROVE RD. - TURNOUT	32.28	VAR.	67.84									VAR.	125.94	220.00	13.85						13.85	
6+76.10	8+84.36	SPRING GROVE RD.	208.26	207.75	432.66									28.00	647.92	220.00	71.27						71.27	
8+84.36	9+84.36	SPRING GROVE RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
HWY. 358																								
5+00.00	12+27.23	HWY. 358	727.23	308.00	2239.87	73.42	5932.58	0.05	296.63	24.58	1986.15	660.00	655.43	24.25	1959.48	220.00	215.54	40.00	3232.13	220.00	355.53		571.07	
11+52.18	12+25.28	HWY. 358	73.10	35.50	1365.79	79.50	645.72	0.05	32.29	27.67	224.74	660.00	74.16	26.50	215.24	220.00	23.68	38.75	314.74	220.00	34.62		58.30	
12+25.28	13+20.38	HWY. 358/HWY. 412 BYPASS INTERSECTION	95.10	VAR.	386.15	VAR.	3071.63	0.05	153.58	VAR.	1027.00	660.00	338.91	VAR.	3083.33	220.00	339.17	VAR.	3974.33	220.00	437.18		776.35	
13+84.72	15+36.04	HWY. 358/HWY. 412 BYPASS INTERSECTION	151.32	VAR.	350.26	VAR.	3281.67	0.05	164.08	VAR.	1030.44	660.00	340.05	VAR.	3106.59	220.00	341.72	VAR.	3907.60	220.00	429.84		771.56	
15+36.04	16+11.08	HWY. 358	75.04	35.50	1386.96	79.50	662.85	0.05	33.14	27.67	230.71	660.00	76.13	26.50	220.95	220.00	24.30	38.75	323.09	220.00	35.54		59.84	
15+36.04	26+50.00	HWY. 358	1113.96	109.50	1219.79	73.42	9087.44	0.05	454.37	24.58	3042.35	660.00	1003.98	24.25	3001.50	220.00	330.17	40.00	4950.93	220.00	544.60		874.77	
SOUTH ROCKINGCHAIR ROAD																								
2+78.71	3+78.71	SOUTH ROCKINGCHAIR RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
3+78.71	6+38.29	SOUTH ROCKINGCHAIR RD.	259.58	207.75	539.28									28.00	807.58	220.00	88.83						88.83	
6+38.29	6+73.35	SOUTH ROCKINGCHAIR RD. - TURNOUT	35.06	VAR.	76.73									VAR.	147.78	220.00	16.26						16.26	
7+13.35	7+48.20	SOUTH ROCKINGCHAIR RD. - TURNOUT	34.85	VAR.	76.73									VAR.	147.78	220.00	16.26						16.26	
7+48.20	9+30.81	SOUTH ROCKINGCHAIR RD.	182.61	207.75	508.36									28.00	568.12	220.00	62.49						62.49	
9+30.81	10+30.81	SOUTH ROCKINGCHAIR RD. - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
BROWN'S CHAPEL ROAD																								
9+24.29	10+24.29	BROWN'S CHAPEL ROAD - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
10+24.29	11+79.69	BROWN'S CHAPEL ROAD	155.40	207.75	322.84									28.00	483.47	220.00	53.18						53.18	
11+79.69	12+11.69	BROWN'S CHAPEL ROAD - TURNOUT	32.00	VAR.	71.42									VAR.	141.43	220.00	15.56						15.56	
12+51.69	12+82.69	BROWN'S CHAPEL ROAD - TURNOUT	31.00	VAR.	71.42									VAR.	141.43	220.00	15.56						15.56	
12+82.69	15+14.61	BROWN'S CHAPEL ROAD	231.92	207.75	481.81									28.00	721.53	220.00	79.37						79.37	
15+14.61	16+14.61	BROWN'S CHAPEL ROAD - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
COUNTY ROAD 750																								
-1+00.00	0+00.00	COUNTY ROAD 750 - TRANSITION	100.00	103.88	103.88									24.00	266.67	220.00	29.33						29.33	
0+00.00	13+32.69	COUNTY ROAD 750	1332.69	207.75	2768.66									28.00	4146.15	220.00	456.08						456.08	
13+32.69	13+84.01	COUNTY ROAD 750 - TURNOUT	51.32	VAR.	110.63									VAR.	189.48	220.00	20.84						20.84	
HWY. 412 EXISTING/ NOTCH																								
16+67.10	18+67.10	HWY. 412 EXISTING	200.00	120.25	240.50	73.21	133.33	0.05	6.67	7.15	158.89	660.00	52.43	7.07	157.11	220.00	17.28	73.00	1622.22	220.00	178.44		195.72	
18+67.10	24+72.45	HWY. 412 EXISTING	605.35	145.50	880.78	88.03	5921.00	0.05	296.05	14.29	981.16	660.00	317.18	14.13	950.40	220.00	104.54	79.00	5313.63	220.00	584.50		689.04	
ADDITIONAL FOR SUPERELEVATION																								
102+00.00	108+30.00	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	630.00	108.00	680.40																			
108+30.00	113+54.96	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	524.96	124.00	650.95																			
113+54.96	117+74.96	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	420.00	108.00	453.60																			
126+09.88	129+59.88	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	350.00	108.00	378.00																			
129+59.88	144+83.93	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	1524.05	124.00	1889.82																			
144+83.93	148+33.93	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	350.00	108.00	378.00																			
204+63.84	208+13.84	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	350.00	108.00	378.00																			
208+13.84	222+28.86	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	1415.02	124.00	1754.62																			
222+28.89	225+78.86	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	349.97	108.00	377.97																			
240+68.05	244+18.05	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	350.00	108.00	378.00																			
244+18.05	255+04.63	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	1086.58	124.00	1347.36																			
255+04.63	258+54.63	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	350.00	108.00	378.00																			
272+32.45	274+91.54	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	259.09	108.00	279.82																			
274+91.54	300+41.03	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	2549.49	124.00	3161.37																			
300+41.03	303+24.06	HWY. 412 BYPASS - 2 LANES SUPERELEVATION	283.03	108.00	305.67																			
TOTALS:					120816.42		397714.87		19885.75		97571.64		32198.63		125898.65		13849.04		149143.84		2600.25	13805.57	16449.29	13805.57

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

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QUANTITIES

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		207	STATION
201	GRUBBING		207	STATION
202	REMOVAL AND DISPOSAL OF FENCE		12292	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE PAVEMENT		710	SQ. YD.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		16	EACH
202	REMOVAL AND DISPOSAL OF SEPTIC TANK		8	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS		11	EACH
210	UNCLASSIFIED EXCAVATION		316878	CU. YD.
210	COMPACTED EMBANKMENT		404482	CU. YD.
SP & 210	SOIL STABILIZATION		1000	TON
302	SELECTED MATERIAL (CLASS SM-1)		4622	CU. YD.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		126185	TON
SS & 401	TACK COAT		19936	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		30879	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		1320	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		29892	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		922	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		718	TON
412	COLD MILLING ASPHALT PAVEMENT		9702	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		25	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		854	SQ. FT.
SS & 604	BARRICADES		1728	LIN. FT.
SS & 604	TRAFFIC DRUMS		155	EACH
SS & 604	VERTICAL PANELS		27	EACH
605	CONCRETE DITCH PAVING (TYPE B)		4280	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		134	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		1104	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		306	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		257	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		768	LIN. FT.
606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		921	LIN. FT.
606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		396	LIN. FT.
606	84" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		78	LIN. FT.
606	59" X 36" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)		237	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		1459	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		378	LIN. FT.
SP, SS, & 606	30" SIDE DRAIN		100	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN		188	LIN. FT.
SS & 606	21" X 15" SIDE DRAIN		100	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		26	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		8	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		10	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		20	EACH
606	54" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		4	EACH
606	84" FLARED END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	59" X 36" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS		6	EACH
606	SELECTED PIPE BEDDING		600	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS		5	EACH
611	4" PIPE UNDERDRAINS		1000	LIN. FT.
619	WIRE FENCE (TYPE A)		60055	LIN. FT.
619	WIRE FENCE (TYPE C)		1300	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO. 1)	35	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	35	EACH
620	LIME		117	TON
620	SEEDING		58.47	ACRE
SS & 620	MULCH COVER		164.71	ACRE
620	WATER		8170.5	M. GAL.
621	TEMPORARY SEEDING		106.24	ACRE
621	SILT FENCE		93437	LIN. FT.
621	SAND BAG DITCH CHECKS		3306	BAG
621	DIVERSION DITCH		8000	LIN. FT.
621	SEDIMENT BASIN		7048	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		7048	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		10794	CU. YD.
621	PIPE FOR SLOPE DRAINS		1000	LIN. FT.
621	ROCK DITCH CHECKS		564	CU. YD.
623	SECOND SEEDING APPLICATION		58.47	ACRE
624	SOLID SODDING		3123	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)		7531	SQ. YD.
632	CONCRETE ISLAND		82	SQ. YD.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		643	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		49444	LIN. FT.
SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)		1	EACH
SP	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)		1	EACH
704	VEHICLE DETECTOR-RACK MOUNT		1	EACH
SP	LOOP WIRING CLASS III (1C/16 A.W.G.)		424	LIN. FT.
704	FEEDER WIRE		1912	LIN. FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)		14	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)		4	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)		646	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)		306	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)		594	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)		526	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)		215	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)		20	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES		809	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")		20	LIN. FT.
710	NON-METALLIC CONDUIT (1")		767	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")		60	LIN. FT.
710	NON-METALLIC CONDUIT (2")		60	LIN. FT.
710	NON-METALLIC CONDUIT (3")		568	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1 HD)		6	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)		5	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (30')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60')		2	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (72')		1	EACH
SP	LED LUMINAIRE ASSEMBLY		4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)		1	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")		97048	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")		1563	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (10")		317	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")		416	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")		68736	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)		7	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)		7	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)		446	EACH
SP	18" STREET NAME SIGN		5	EACH
SP & 733	VIDEO DETECTOR (CLR)		8	EACH
733	VIDEO CABLE		1584	LIN. FT.
733	VIDEO MONITOR (CLR)		1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)		4	EACH
SP & 733	VIDEO EDGE CARD EXTENDER		2	EACH
SP & 733	VEHICLE DETECTOR RACK (24 CHANNEL)		1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		76	CU. YD.
802	CLASS S CONCRETE-ROADWAY		161.22	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)		22187	POUND
816	DUMPED RIPRAP		100	CU. YD.
	STRUCTURES OVER 20' SPAN			
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		633	CU. YD.
802	CLASS S CONCRETE-ROADWAY		1735.79	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)		251427	POUND

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
1/12/2017	REVISED QUANTITIES FOR 24" FLARED END SECTIONS FOR R.C. PIPE CULVERTS, REVISED QUANTITIES FOR 30" FLARED END SECTIONS FOR R.C. PIPE CULVERTS, REVISED QUANTITIES FOR 36" FLARED END SECTIONS FOR R.C. PIPE CULVERTS, REVISED QUANTITIES FOR THERMOPLASTIC PAVEMENT MARKINGS WHITE (6"), REVISED QUANTITIES FOR SOLID SODDING, REVISED QUANTITIES FOR WATER; REMOVED 22" X 14" SIDE DRAINS; ADDED 21" X 15" SIDE DRAINS; REVISED NOTES FOR PERMANENT PAVEMENT MARKINGS FOR 10" WHITE REFLECTORIZED PAINT IN PERMANENT PAVEMENT MARKING DETAILS; REVISED SIGNAL FACES FOR SIGNALS #4 AND #10 ON SIGNALIZATION PLAN SHEET, REVISED INTERVAL CHART FOR SIGNAL FACES #4 AND #10 ON SIGNALIZATION PLAN SHEET, REVISED THE QUANTITY FOR ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2"), AND REVISED THE QUANTITY FOR MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2"), REVISED QUANTITY FOR EROSION CONTROL MATTING (CLASS 3), REVISED THE QUANTITY FOR CONCRETE DITCH PAVING (TYPE B), REVISED THE QUANTITY FOR REMOVAL AND DISPOSAL OF CULVERTS, ADDED THE SPECIAL PROVISIONS "PRICE ADJUSTMENT FOR ASPHALT BINDER " AND "REQUIREMENTS OF LIABILITY INSURANCE", REVISED THE QUANTITY FOR 84" REINFORCED CONCRETE PIPE CULVERT (CLASS III), REVISED THE QUANTITY FOR SELECTED PIPE BEDDING, REVISED QUANTITIES FOR UNCLASSIFIED EXCAVATION, REVISED QUANTITIES FOR COMPACTED EMBANKMENT, REVISED THE QUANTITY FOR ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2"), REVISED QUANTITY FOR AGGREGATE BASE COURSE (CLASS 7), REVISED QUANTITIES FOR 48" REINFORCED CONCRETE PIPE CULVERT, REVISED QUANTITIES FOR 48" FLARED END SECTIONS FOR THE R.C. PIPE CULVERTS, ADDED PAY ITEM COLD MILLING ASPHALT PAVEMENT	3, 67, 73, 74, 76, 77, 79, 80, 121, 122, 124, 127, 140, 142, 283, 284, 326
1/13/2017	REVISED QUANTITIES FOR UNCLASSIFIED EXCAVATION, REVISED QUANTITIES FOR COMPACTED EMBANKMENT	74,80

SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
H. D. SMITH

DATE REVISED	DATE FILED	DATE RELEASED	DATE FILED	FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.	100708	80	335
1/13/17				JOB NO.				

2 SUMMARY OF QUANTITIES AND REVISIONS

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.		100708	81	335

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s100708
Date: 7/9/2012
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	634238.2847	1732202.3385	392.572	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 5.1' SOUTH OF BACK OF CURB, 30' NORTH OF EAST END OF CULVERT, 55' EAST OF CENTER OF DRIVEWAY, .5 BELOW SURFACE, RTK ELEVATION
2	634242.7174	1733091.8165	390.748	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 5.5' SOUTH OF BACK SIDE OF CURB, 32.5' EAST OF CENTER OF MANHOLE, 54.5' NORTH/WEST OF COMBINATION POLE, .3 BELOW SURFACE, RTK ELEVATION
3	634250.7289	1734068.8980	416.332	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 3.2' SOUTH OF BACK SIDE OF CURB, 52'NORTH/EASAT OF POWER POLE, 100' WEST OF CENTER OF DRIVEWAY, .3 BELOW SURFACE, RTK ELEVATION
4	633451.3109	1732231.4010	380.258	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 4 BELOW SURFACE, RTK ELEVATION
5	632996.8151	1732537.3299	376.301	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 47' WEST/NORTHWEST OF TRIPLE 20" OAK, 12' NORTH OF 10" BUSTED PINE, 38' WEST OF 12" WHITE OAK, .4 BELOW SURFACE, RTK ELEVATION
6	631849.3959	1733918.9216	348.033	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 19.5' SOUTH OF SOUTH END OF CULVERT, 21.5' EAST OF CENTERLINE, .6 BELOW SURFACE, RTK ELEVATION
7	631400.4447	1734047.8702	343.056	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 200' EAST TRIP BRACE, APPROX 200' EAST DOUBLE BRACE, .6 BELOW SURFACE, RTK ELEVATION
8	632367.9914	1734015.7037	383.901	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 6' WEST/NORTHWEST OF SOUTH END OF CULVERT, 22.5' EAST/NORTHEAST OF 24" GUM TREE, 25' WEST OF CENTERLINE, .4 BELOW SURFACE, RTK ELEVATION
9	631025.8477	1733549.8823	346.415	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 10' WEST OF FENCE CORNER, 28.5' WEST OF CENTERLINE, 10' UNDERGROUND MARKER ABOVE IS EAST NOT WEST, 69' NORTH OF NORTH END OF CULVERT, .4 BELOW SURFACE, RTK ELEVATION
10	630944.5037	1734384.8686	340.312	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 65' NORTH OF CREEK BANK, APPROX 450' SOUTH DECIDUOUS WOODLINE BRACE PROPERTY OWNER, .5 BELOW SURFACE, RTK ELEVATION
11	630722.2572	1734425.5070	348.027	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 35' EAST OF CLUSTER OF TREES, 35' WEST OF 26" WILLLOW OAK, .3 BELOW SURFACE, RTK ELEVATION
12	630168.7849	1734531.2319	342.138	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 8' SOUTH OF EDGE OF PAVEMENT, 6' NORTH OF FENCE, 12.5' EAST OF DITCH LINE, 1.0 BELOW SURFACE, RTK ELEVATION
13	630165.3168	1734977.6138	339.662	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 6.5' SOUTH OF EDGE OF PAVEMENT, 4' NORTH OF DITCH LINE, 27' EAST OF GRAVEL DRIVEWAY, .3 BELOW SURFACE, RTK ELEVATION
14	629631.4783	1734618.7648	343.712	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 100' EAST OF WET WETH SPRING, 175' SOUTHWEST OF SMALL CEDAR, APPROX 350' SOUTH SMALL HOUSE, .8 BELOW SURFACE, RTK ELEVATION
15	629257.8616	1734997.4229	371.184	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 75' EAST OF FENCE, 72' NORTH OF FORKED CEDAR, .4 BELOW SURFACE, RTK ELEVATION
16	629099.3290	1735453.3929	373.977	CTL	5/8" REBAR WITH 2" ALUMINUM CAP, RTK ELEVATION
100	633541.0135	1738667.3757	377.744	GPS	AHTD GPS 280006
101	632524.8204	1740226.6453	364.809	GPS	AHTD GPS 280006A
102	629473.2656	1769804.6334	261.420	GPS	AHTD GPS 280010
103	631508.3813	1751373.0416	292.459	GPS	AHTD GPS 280009
104	616203.4165	1747860.9758	295.828	GPS	AHTD GPS 280012
105	618217.5833	1748886.5360	340.204	GPS	AHTD GPS 280012A
106	638233.2095	1734202.7907	368.234	GPS	AHTD GPS 280016
107	638289.1763	1735978.0961	344.758	GPS	AHTD GPS 280016A
108	631655.3329	1750252.7105	294.718	GPS	AHTD GPS PAR2
800	628851.0063	1735196.7182	369.178	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 80' NORTH OF 14" CEDAR, APPROX 130' SOUTH OF 36" OAK, APPROX 200' EAST OF FENCE LINE, .6 BELOW SURFACE, RTK ELEVATION
801	628116.1057	1735420.1484	342.920	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 450' WEST OF METAL SHOP, APPROX 325' NORTH OF POWER POLE, APPROX 225' SOUTH OF FENCE WEST POST, .6 BELOW SURFACE, RTK ELEVATION
802	627559.9415	1735733.4262	335.203	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 180' SOUTH/SOUTHWEST OF POWER POLE, APPROX 150' NORTH OF NORTH EDGE OF DITCH LINE, .5 BELOW SURFACE, RTK ELEVATION
803	627776.1192	1736237.1307	333.523	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 20' NORTH OF CENTER WEST BROK RD, 22' WEST NORTHWEST OF PLASTIC CULVERT, 47.5' WEST SOUTHWEST OF FENCE CORNER, .7 BELOW SURFACE, RTK ELEVATION
804	627004.0472	1736054.3203	327.934	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 16' NORTH OF SOUTH EDGE OF FIELD, .4 BELOW SURFACE, RTK ELEVATION
805	627750.3045	1736687.9786	326.589	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 11.8 SOUTH OF EDGE OF PAVEMENT, 125' WEST OF WEST END OF CULVERT, .6 BELOW SURFACE, RTK ELEVATION
806	626457.7730	1736370.9528	327.989	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 83.5' EAST/NORTHEAST OF 32" TWN ELM, .5 BELOW SURFACE, RTK ELEVATION
807	625863.9348	1736682.5871	344.330	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 89' NORTH/NORTHWEST OF POWER POLE #122, 32' NORTH/WEST OF 5" CEDAR, APPROX 110' SOUTH OF 38" OAK, .3 BELOW SURFACE, RTK ELEVATION
808	625281.9767	1736608.9107	353.840	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 130' SOUTH/EAST OF 44" OAK, APPROX 174' NORTH OF GATE, .6 BELOW SURFACE, RTK ELEVATION
809	624851.0669	1736192.0903	393.302	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, NORTH EDGE OF GRAVEL ROAD, 26' SOUTH OF 12" PINE, 60' WEST/NORTHWEST OF MAILBOX #999, .5 BELOW SURFACE, RTK ELEVATION
810	624869.4299	1736989.3448	390.614	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 14.4' SOUTH OF EDGE OF PAVEMENT, 41' EAST OF TELEPHONE BOX, 3' NORTH OF FENCE, .4 BELOW SURFACE, RTK ELEVATION
811	624744.6865	1736711.5071	388.740	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 135'NORTH/EAST OF POWER POLE #3010, 35.5' WEST OF WEB FENCE, APPROX 140' SOUTH/EAST OF COMBINATION POLE, .4 BELOW SURFACE, RTK ELEVATION
812	624215.9121	1736788.9304	376.089	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 79' EAST OF NORTH/EAST CORNER OF PORCH, 79' NORTH/EAST OF SOUTH/EAST CORNER HOUSE, APPROX 120' WEST OF 22" OAK, .6 BELOW SURFACE, RTK ELEVATION
813	623736.4953	1737117.1666	365.951	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 2' SOUTH OF FENCE ROW, 52' NORTH OF 3" CEDAR, .4 BELOW SURFACE, RTK ELEVATION
814	623710.6500	1737490.2498	347.091	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 77' SOUTH OF FENCE ROW, 12.5' WEST OF 4" SWEETGUM TREE, .5 BELOW SURFACE, RTK ELEVATION

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999572089 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 s100445gi.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 - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 280006-280006A, 280009-280010, 280012-280012A, 280016-280016A
CONVERGENCE ANGLE: 0-51-43.2 RIGHT AT LT: 36-03-34.5 LG: 090-31-07.1
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

10/19/2016

R100708.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.		100708	82	335

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s100708
Date: 7/9/2012
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
815	623259.0191	1737544.9553	347.472	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 115' SOUTH/SOUTHEAST OF 26" OAK, 98' WEST OF 14" ELM, .4 BELOW SURFACE, RTK ELEVATION
816	621489.4694	1737836.7045	356.222	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 3' WEST OF FENCE STEEL POST, 25' NORTH OF CRAB APPLE, 24' NORTH OF WATER METER, .4 BELOW SURFACE, RTK ELEVATION
817	621015.1182	1737890.5271	367.459	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 70' EAST OF 5" PINE, 35' NORTH OF WOOD LINE, .3 BELOW SURFACE, RTK ELEVATION
818	621127.0867	1738195.7314	364.945	CTL	5/8" REBAR WITH 2" ALUMINUM CAP, RTK ELEVATION
819	621134.5473	1738812.6202	333.966	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 7.5' SOUTH OF COUNTY ROAD 750, APPROX 85' EAST OF CORROGATED METAL PIPE, 75' WEST OF SWEET GUM, .4 BELOW SURFACE, RTK ELEVATION
820	620582.3885	1738204.5951	344.240	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 400' SOUTH OF POWER POLE, 175' NORTHEAST POWER POLE DOUBLE GUY, .4 BELOW SURFACE, RTK ELEVATION
821	620034.2052	1738635.1056	362.202	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 28.5' WEST OF 6" PERSIMON TREE, 92.5' SOUTHEAST OF 36" OAK, .4 BELOW SURFACE, RTK ELEVATION
822	619495.6434	1738678.2154	379.963	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 19.5 NORTH OF EDGE OF PAVEMENT HWY 358, 57' SOUTHWEST OF TRIPPLE BOYSARC, APPROX 50' WEST OF GRAVEL DRIVE, .4 BELOW SURFACE, RTK ELEVATION
823	619031.9885	1737967.4952	389.984	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 15.4 SOUTH OF EDGE OF PAVEMENT HWY 358, 10.8 SOUTHEAST CENTER OF DROP INLET, 20.5 ' NORTH OF NORTH SIGN CORNER, .6 BELOW SURFACE, RTK ELEVATION
824	619669.5617	1739592.2278	379.304	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 16.5' SOUTH OF SOUTH EDGE OF PAVEMENT HWY 358, 11.5' NORTH OF PVC FENCE, .4 BELOW SURFACE, RTK ELEVATION
825	616783.1021	1740985.5392	317.670	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, N EDGE OF BEAN FIELD, APPROX 500' WEST ROC CHAIR ROAD, 130' EAST OF BEAN FIELD, .9 BELOW SURFACE, RTK ELEVATION
826	616403.1235	1741543.4917	316.182	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 12.5' WEST OF EDGE OF PAVEMENT ROCK CHAIR ROAD, 6.5' NORTH NORTHEAST OF CULVERT, .8 BELOW SURFACE, RTK ELEVATION
827	616283.7881	1742467.7317	307.594	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 150' SOUTH OF 48" OAK, NORTH EDGE OF FIELD, 1' BELOW SURFACE, RTK ELEVATION
828	615824.6440	1742852.6156	304.992	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 123' WEST OF FIRE HYDRANT, 6' SOUTH OF EDGE OF PAVEMENT, 91.5' WEST/SOUTHWEST OF 24" OAK STUMP, .9 BELOW SURFACE, RTK ELEVATION
829	615800.0876	1743440.4492	303.310	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 138' WEST/SOUTHWEST OF FIRE HYDRANT, 22' SOUTH OF EDGE OF PAVEMENT, 105' SOUTH/EAST OF POWER POLE, .8 BELOW SURFACE, RTK ELEVATION
830	615921.6515	1744182.1801	310.731	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 49' SOUTH/EAST OF FIRE HYDRANT, 55' WEST OF 14" OAK, .8 BELOW SURFACE, RTK ELEVATION
831	616637.3802	1744234.2706	313.732	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 6' EAST OF EDGE OF PAVEMENT BRN CHAP R, 78' NORTHWEST OF FIRE HYDRANT, 9' WEST OF DITCH LINE, .4 BELOW SURFACE, RTK ELEVATION
832	616192.7854	1745866.5720	325.332	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 3' WEST OF FENCE, 6' EAST OF DRIVE, .6 BELOW SURFACE, RTK ELEVATION
833	616176.5388	1746501.0483	326.738	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 60' WEST OF FENCE, EQUAL DIST BETWEEN BARNS, .5 BELOW SURFACE, RTK ELEVATION
834	616243.1143	1746972.4553	331.255	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 130' EAST OF FENCE, 250' NORTHWEST OF CEDAR, .7 BELOW SURFACE, FIX PD, RTK ELEVATION
835	615293.0206	1747595.3868	305.143	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 13.6' EAST OF PAVEMENT ON 49, .9 BELOW SURFACE, 13' SOUTH OF DRIVEWAY
836	614605.3247	1747132.7501	292.420	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 40' NORTH/NORTHEAST OF NORTH END OF CULVERT, 12' WEST OF EDGE OF PAVEMENT, 69' SOUTH/SOUTHEAST OF ROADWAY MARKER, .6 BELOW SURFACE
837	616919.3571	1748297.2548	300.155	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 8.0' EAST OF PAVEMENT ON 49, 43' NORTH/NORTHWEST OF NORTH END OF CULVERT, 53' SOUTH/SOUTHWEST OF COMBINATION POLE, .8 BELOW SURFACE
838	617859.2950	1748695.3465	322.458	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 1.2' EAST OF PAVEMENT ON 49, 69' SOUTH/SOUTHWEST OF SOUTH END OF CULVERT, 17' WEST OF CONCRETE DITCH, .5 BELOW SURFACE
839	616969.9540	1741546.9871	315.341	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 5.5' WEST OF EDGE OF PAVEMENT SOUTH ROCK CHAIR ROAD, 36' NORTH OF CULVERT, .4 BELOW SURFACE, RTK ELEVATION
840	615848.8707	1741591.8893	341.167	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 5' SOUTH OF EDGE OF PAVEMENT BRN CHAPP RD, 5.5' NORTH OF FENCE, 10.5' NORTH/EAST FIRE HYDRANT, .7 BELOW SURFACE, RTK ELEVATION
841	616069.1647	1748462.6892	291.583	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 55' NORTHWEST OF BRADFOFD PEAR, 150' SOUTH OF WODD LINE, 275' EAST OF METAL BUILDING, 1.0 BELOW SURFACE
842	616352.7867	1748703.1265	294.062	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, SOUTHEAST CORNER OF FIELD, 18' NORTH OF SEWER UTILITY MARKER, 175' WEST OF DITCH, .5 BELOW SURFACE
843	616343.0780	1749036.1250	295.276	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 27' EAST OF WOOD LINE, 100' SOUTH OF WOOD LINE, 300' NORTH OF WOOD LINE, .6 BELOW SURFACE
844	616452.7244	1749549.9566	300.255	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 35' EAST OF WOOD LINE, 150' NORTH OF WOOD LINE, 250' WEST OF WOOD LINE, .6 BELOW SURFACE
845	616355.8996	1749981.2403	293.651	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 75' SOUTH OF SWEET GUM, 45' EAST OF WOOD LINE, NORTHWEST CORNER OF SAGE FIELD, .5 BELOW SURFACE
846	616350.6402	1750458.0619	292.548	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 150' SOUTH OF SINGLE TREE, APPROX 500' EAST OF 845, .6 BELOW SURFACE
847	616627.7358	1751159.1377	291.274	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 250' SOUTH OF CEDER, .4 BELOW SURFACE
848	616723.3411	1751748.6358	284.014	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 28' WEST OF FENCE, 400' SOUTH OF GAS MARKER, .7 BELOW SURFACE
849	616696.1007	1752585.0990	280.280	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 200' SOUTH OF DITCH, APPROX 30' NORTHWEST OF METAL POWER POLE, .7 BELOW SURFACE
850	616602.3548	1753217.6796	280.105	CTL	5/8" X24" REBAR WITH 2" ALUINUMM CAP, APPROX 60' WEST OF WEST RAIL, 20' SOUTH OF DRAINAGE DITCH, 20' EAST OF SAME DITCH, .6 BELOW SURFACE
851	616841.7583	1753520.9693	277.297	CTL	5/8" X24" REBAR WITH 2" ALUINUMM CAP, 13' WEST CENTER GRAVEL ROAD, 59' NORTH OF POWER POLE, .8 BELOW SURFACE
852	617255.0116	1753677.3135	277.086	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 40' EAST OF EAST RAIL, 24' NORTHWEST OF STEEL POWER POLE, 33' WEST OF CENTER OF GAS LIGHT, .5 BELOW SURFACE
853	616526.6093	1753304.5208	279.581	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 38' EAST OF EAST RAIL, 16.5 NORTHWEST OF STEEL POWERPOLE, 35' WEST OF CENTERLINE GRAVEL ROAD, .8 BELOW SURFACE
854	616209.0816	1753198.4891	277.542	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 14' EAST OF CENTERLINE GRAVEL ROAD, 76' SOUTH OF TELEPHONE BOX, 4' WEST CENTER OF DITCH, .7 BELOW SURFACE

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999572089 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 s100445gi.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 - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 280006-280006A, 280009-280010, 280012-280012A, 280016-280016A
CONVERGENCE ANGLE: 0-51-43.2 RIGHT AT LT: 36-03-34.5 LG: 090-31-07.1
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

10/19/2016

R100708.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.		100708	83	335

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s100708
Date: 7/9/2012
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
855	615918.8972	1753160.2163	279.304	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 14' SOUTH OF CENTERLINE OF PAVEMENT CROWN 907, 49' SOUTH OF POWER POLE, 82.5' EAST/SOUTHEAST OF TELEPHONE BOX, .60 BELOW SURFACE
856	615921.6816	1753625.3161	276.658	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 15' SOUTH OF CENTERLINE OF PAVEMENT CROWN 907, 33.5 SOUTH/WEST OF MAIL BOX 103, 110.5 SOUTH/EAST OF POWER POLE, .60 BELOW SURFACE
857	616829.9765	1754398.0884	274.945	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, 222' NORTH OF SOUTH EDGE OF FIELD, 485' SOUTH/EAST OF STEELE POWER POLE, APPROX 1000' EAST OF EDGE OF GRAVEL, 1.5 BELOW SURFACE
858	616839.3196	1755281.8183	272.454	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 186' NORTH OF FIELD EDGE, 400' SOUTH OF FIELD EDGE, APPROX 2000' EAST OF EDGE OF GRAVEL, 1.7' BELOW SURFACE
859	616852.1318	1756172.8284	270.992	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 183' NORTH OF FIELD EDGE, 410' SOUTH OF FIELD EDGE, APPROX 3000' EAST OF EDGE OF GRAVEL, 1.5' BELOW SURFACE
860	616843.9893	1757069.7510	268.460	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, 196' NORTH OF FIELD EDGE, 423' SOUTH OF FIELD EDGE, APPROX 4000' EAST OF EDGE OF GRAVEL, 1.6' BELOW SURFACE
861	616868.5931	1757970.4504	267.016	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, IN PLOWED FIELD, 1.3' BELOW SURFACE
862	616872.3171	1758744.6273	267.008	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 5' EAST OF BREAK IN FIELDS, 1.5' BELOW SURFACE
863	616891.9743	1759341.4577	265.907	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, IN PLOWED FIELD, 1.6' BELOW SURFACE
865	616904.7365	1760029.9019	265.504	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 7' WEST OF EDGE OF PAVEMENT HIGHWAY 69, 74' NORTH/EAST OF 24" PECAN, 184' SOUTH OF COMBINATION POLE, .40 BELOW SURFACE
866	617395.5628	1760030.0981	266.346	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 7' WEST OF EDGE OF PAVEMENT HIGHWAY 69, 36.5' SOUTH/EAST OF POWER POLE, 39.5' SOUTH OF CENTER OF DRIVEWAY, .30 BELOW SURFACE
867	618194.7854	1760032.5294	265.893	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 5' WEST OF EDGE OF PAVEMENT HIGHWAY 69, 19.5'N/E OF N END OF CU, 19'E OF PP, .3 BELOW SURFACE
868	616213.8241	1760032.7349	265.539	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 4.4' WEST OF PAVEMENT, 81' NORTH OF TELEPHONE BOX AT HIGHWAY 69/CR 907, 192' SOUTH OF COMBINATION POLE
869	615259.8364	1760030.1051	263.354	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 9.5' WEST OF PAVEMENT, 16.5 NORTH/EAST OF NORTH END OF CULVERT, 24' SOUTH/EAST OF POWER POLE, .60 BELOW SURFACE
870	616949.6968	1760841.9484	262.109	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, APPROX 900' EAST OF HIGHWAY 69, 1.3' BELOW SURFACE
871	616960.1140	1761659.7809	261.514	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, IN GROWN UP FIELD, 13' NORTHEAST SMALL BRADFORD PEAR, 1.3' BELOW SURFACE
873	617142.6371	1762449.5926	261.051	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, IN GROWN UP FIELD
874	617471.1383	1763310.6054	258.851	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 1.4' BELOW SURFACE, 32' NORTH OF FENCE
875	618221.2447	1763692.7012	257.622	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, IN GROWN UP FIELD, 1.3' BELOW SURFACE, APPROX 125' NORTH OF DITCH
876	618862.5753	1763970.6208	257.241	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, 24' NORTH OF SOUTH FIELD EDGE, 75' WEST OF CENTER OF DITCH, 1.5 BELOW SURFACE, IN SOUTHEAST CORNER OF BEAN FIELD
877	620011.2762	1764099.1940	260.071	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, .7 BELOW SURFACE, 64' WEST/SOUTHWEST OF WELL PUMP, APPROX 46' NORTH OF CENTER OF CULVERT
878	620021.2385	1764524.4874	258.539	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 8. BELOW SURFACE, 7' NORTH OF NORTH EDGE OF LEVEE, 9' SOUTH OF NORTH EDGE OF ROAD
879	620044.8116	1764928.4881	257.825	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, .6 BELOW SURFACE, 10' NORTH OF NORTH EDGE OF LEVEE, 8' SOUTH OF NORTH EDGE OF ROAD
880	620048.3209	1763688.3468	260.420	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, .7 BELOW SURFACE, 7.7' NORTH OF SOUTH EDGE OF LEVEE, 9' SOUTH OF NORTH EDGE OF ROAD
881	620103.0408	1763273.8289	260.603	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, .7 BELOW SURFACE, 8' NORTH OF NORTH EDGE OF LEVEE, 7' SOUTH OF NORTH EDGE OF ROAD
882	620721.8959	1764073.8133	258.404	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, CENTER OF FIELD ROAD, APPROX 700' SOUTH OF POWER LINE, .70 BELOW SURFACE
883	621464.8030	1764190.2816	258.693	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, 27.7' EAST/NORTHEAST OF POWER POLE, APPROX 108' EAST OF NORTH/SOUTH FIELD ROAD, CENTER OF EAST/WEST FIELD ROAD, .70 BELOW SURFACE
884	622403.0774	1764090.6621	258.637	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 11' EAST OF WEST FIELD, 24' WEST OF EAST FIELD, APPROX 1000' NORTH OF POWER LINE, .80 BELOW SURFACE
885	623436.6059	1764107.5088	260.097	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 18' EAST OF WEST FIELD, 21' WEST OF EAST FIELD, APPROX 350' SOUTH OF EAST/WEST ROAD
886	624014.1720	1765066.8180	262.306	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, 40' WEST/SOUTHWEST OF POWER POLE, APPROX CENTER OF FIELD ROAD, .70 BELOW SURFACE
887	624859.9119	1765272.7607	264.011	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, CENTER OF LEVEE WEST OF CREEK, 15' WEST OF LEVEE EDGE, 15' EAST EDGE OF FIELD, .80 BELOW SURFACE
888	625409.2257	1765103.5295	262.583	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 4/10TH EAST OF SOUTH 8TH AVENUE, ON EVERETT DRIVE, 8' SOUTH OF NORTH ROAD EDGE, 7' NORTH OF FIELD EDGE, .8 BELOW SURFACE
889	626219.5747	1765133.3467	261.573	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, 133' SOUTH/SOUTHWEST OF DUAL POWER POLE, 1.2 BELOW SURFACE
890	626706.6652	1765265.7004	267.861	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, TOP OF LEVEE SOUTH OF CREEK, 13.5' EAST OF 16" OAK, 9.5 NORTH/WEST OF 12" WILD CHERRY, .80 BELOW SURFACE
891	626904.7826	1765284.1926	268.310	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, CENTER OF LEVEE, 33' NORTH/NORTHEAST OF SOUTH END OF CULVERT, 40' SOUTH OF NORTH END OF CULVERT, .80 BELOW SURFACE
892	627716.5648	1765317.3369	263.381	CTL	5/8" X48" REBAR WITH 2" ALUMINUM CAP, 103.5' WEST/NORTHWEST, OF NORTH/WEST CORNER OF OUT BUILDING, IN BEAN FIELD BEHIND HOUSE, 1.3 BELOW SURFACE
894	629313.3789	1765309.4590	265.303	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 67.5' WEST OF 5" CEDAR, 1.6 BELOW SURFACE
895	629302.5228	1764705.1062	266.500	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 8' SOUTH OF BACK SIDE OF CURB, 72' WEST OF POWER POLE, 81' EAST OF TELEPHONE BOX, .50 BELOW SURFACE
896	629286.3442	1763819.5862	270.281	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 8' SOUTH OF BACK SIDE OF CURB, 72' WEST OF POWER POLE, 81' EAST OF TELEPHONE BOX, .50 BELOW SURFACE
897	629325.5414	1765907.4144	264.846	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 7' SOUTH OF BACK SIDE OF CURB, 27.5' NORTH OF CONCRETE SIGN BASE, 88' WEST/NORTHWEST OF COMBINATION POLE, .40 BELOW SURFACE

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A PROJECT CAF OF 0.9999572089 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 s100445gi.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 280006-280006A, 280009-280010, 280012-280012A, 280016-280016A
CONVERGENCE ANGLE: 0-51-43.2 RIGHT AT LT: 36-03-34.5 LG: 090-31-07.1
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

10/19/2016

R100708.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.		100708	84	335

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s100708
Date: 7/9/2012
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
898	629340.9523	1766762.1138	263.788	CTL	5/8" X24" REBAR WITH 2" ALUMINUM CAP, 7' SOUTH OF BACK SIDE OF CURB, 26.5' NORTH/WEST OF COMBINATION POLE, 75' NORTH OF NORTH/WEST CORNER OF BLACK BUILDING, .60 BELOW SURFACE
900	629350.1406	1762184.6488	263.990	TBM	CHISLED SQUARE BACK EDGE OF CATCH BASIN IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF SOUTH 6TH AVENUE AND EAST KINGS HIGHWAY, 3' NORTHEAST OF CENTER OF MANHOLE, 35' NORTH OF CENTERLINE OF 412, 22' EAST OF THE CENTERLINE OF SOUTH 6TH AVE.
901	629339.3451	1763512.7947	274.755	BM	BRASS CAP ON TOP OF CONCRETE GUARD RAIL AT SOUTHWEST CORNER OF BRIDGE #05266 AT BRIDGE MILE, MARKER 412-9-0.83
902	629411.9962	1766428.7884	264.604	TBM	CHISLED SQUARE ON TOP OF CATCH BASIN ON THE SOUTH SIDE OF 412 AT INTERSECTION OF 412, AND SOUTH 18TH AVENUE, 15' NORTH OF SOUTH END OF CULVERT, 30' SOUTH OF CENTERLINE OF 412, 1.5' SOUTH OF CURB
960	625811.0348	1760087.3705	263.746	BM	NGS MARK K 187 BRASS CAP WEST OF HIGHWAY
961	628059.0641	1760094.9688	265.957	BM	NGS MARK L 187 BRASS CAP WEST OF HIGHWAY
962	629417.6457	1759411.0405	306.730	BM	NGS MARK PARAGOULD BM
963	633082.9435	1760997.0506	277.086	BM	NGS MARK L 32
964	634403.7318	1761387.2480	275.054	BM	NGS MARK O 8 4
965	636764.8693	1763649.7603	272.010	BM	NGS MARK M 187
966	639829.6930	1759086.9251	294.807	BM	NGS MARK FIRST AZ MK
967	640660.0515	1760469.7729	304.980	BM	NGS MARK Q 188
968	639811.2905	1756931.8619	349.190	BM	NGS MARK FIRST
969	624121.1213	1760062.2051	263.968	BM	NGS MARK A 324 AHTD GPS A 324
970	622936.9557	1760123.1951	262.088	BM	NGS MARK B 324 AHTD GPS B 324
971	618815.1636	1759737.4033	266.025	BM	NGS MARK C 324 AHTD CAP IN HEADWALL NORTH OF HIGHWAY
972	618661.9129	1755822.7817	273.298	BM	NGS MARK D 324 AHTD CAP IN HEADWALL NORTH OF HIGHWAY
973	618608.4482	1752475.8409	293.131	BM	NGS MARK E 324 AHTD CAP IN HEADWALL NORTH OF HIGHWAY
974	618603.2016	1748889.0095	341.274	BM	NGS MARK F 324
975	621728.0462	1749912.5025	373.500	BM	NGS MARK G 324
976	623908.2436	1749677.9835	334.850	BM	NGS MARK H 324
977	625040.8211	1744085.8794	310.792	BM	NGS MARK J 324
978	625064.1093	1739299.4520	360.937	BM	NGS MARK K 324 AHTD GPS K 324
979	625444.5448	1737625.6206	381.289	BM	NGS MARK L 324 AHTD GPS L 324
980	627546.2041	1737607.4500	325.053	BM	NGS MARK M 324
982	630318.5961	1733548.8038	356.629	BM	NGS MARK P 324 IN CONCRETE
983	634317.7261	1734765.4294	453.907	BM	NGS MARK Q 324 IN CONCRETE
984	634298.9602	1737320.7671	424.038	BM	NGS MARK R 324 IN CONCRETE
985	631615.4527	1744021.7937	367.625	BM	NGS MARK S 324
987	632246.2473	1752577.7332	288.647	BM	NGS MARK PARAPORT 1990
990	616798.7085	1748134.2136	297.047	BM	CHISLED SQUARE CL HEADWALL

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BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 280006-280006A, 280009-280010, 280012-280012A, 280016-280016A
CONVERGENCE ANGLE: 0-51-43.2 RIGHT AT LT: 36-03-34.5 LG: 090-31-07.1
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

10/19/2016

R100708.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.		100708	85	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

HWY. 412 BYPASS

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	634271.0009	1731851.1455
8001	PC	104+63.84	633807.1719	1731853.5960
8003	PT	114+42.46	632956.7024	1732268.2444
8004	PC	128+72.38	632070.0914	1733390.1079
8006	PT	145+71.43	630725.0686	1734396.8235
8007	PC	207+26.34	625016.2080	1736697.2408
8009	PT	223+16.36	623642.2112	1737487.2385
8010	PC	243+30.55	622051.7113	1738723.0652
8012	PT	255+92.13	620879.8972	1739124.8084
8013	PC	274+04.04	619067.9817	1739124.8084
8015	PT	a 301+52.47	617177.9602	1740760.1113
8016	PC	a 387+66.09	615939.6897	1749284.2554
8018	PT	a 394+55.41	616005.3730	1749963.7779
8019	PC	a 412+83.38	616609.7705	1751688.9370
8021	PT	a 417+29.38	616689.8623	1752125.8580
8022	PC	a 517+36.35	616946.1445	1762129.5462
8024	PT	a 536+91.42	618019.9161	1763624.8901
8025	PC	a 569+95.09	621122.2721	1764760.5006
8027	PT	a 588+82.27	622968.4615	1765108.3109
8028	PC	a 616+94.25	625779.7910	1765168.8288
8030	PT	a 627+64.57	626849.3758	1765141.8930
8031	PC	a 641+38.60	628219.8613	1765043.2134
8033	PT	a 647+51.47	628832.0379	1765015.5624
8034	POE	a 652+61.04	629341.5153	1765006.1890

PINE KNOT RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8035	POB	0+00.00	630889.6404	1733572.9480
8036	PC	1+40.38	631029.9626	1733576.8747
8038	PT	2+24.57	631113.5664	1733586.0065
8039	PC	3+83.33	631269.4784	1733615.9292
8041	PT	8+34.33	631652.6923	1733837.4619
8042	PC	8+92.43	631690.6549	1733881.4414
8044	PT	12+92.43	632046.7480	1734030.3499
8045	PC	14+37.83	632191.7342	1734020.6873
8047	PT	16+51.28	632399.8490	1734057.6125
8048	POE	17+73.76	632511.7974	1734107.3031

WALCOTT RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8049	POB	100+00.00	630310.5255	1733695.0430
8050	PC	102+12.39	630286.6567	1733906.0924
8052	PT	a 1+36.84	630170.6363	1734157.5835
8053	PC	a 1+46.25	630164.2093	1734164.4569
8055	PT	a 6+46.85	630077.4881	1734630.5767
8056	PC	a 7+60.15	630119.9325	1734735.6331
8058	PT	a 8+82.28	630155.8274	1734852.2056
8059	POE	a 10+26.64	630186.4075	1734993.2903

WESTBROOK RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8060	POB	0+00.00	627675.7517	1735625.5626
8061	PC	0+89.48	627709.2079	1735708.5501
8063	PT	2+97.41	627750.6484	1735911.1478
8064	POE	4+90.64	627754.5723	1736104.3418

SPRING GROVE RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8065	POB	0+00.00	624845.2053	1736237.9399
8066	PC	0+75.94	624852.1734	1736313.5591
8068	PT	2+29.59	624817.7592	1736460.5959
8069	PC	2+96.64	624782.6156	1736517.6967
8071	PT	5+30.28	624768.6267	1736741.6907
8072	PC	8+31.57	624893.3946	1737015.9296
8074	PT	8+84.36	624909.7883	1737066.0031
8075	PC	9+34.36	624920.0061	1737114.9445
8077	PT	9+98.83	624936.7010	1737177.1811
8078	POE	10+39.39	624949.3955	1737215.7017

GREENE COUNTY 750

POINT NO.	TYPE	STATION	NORTHING	EASTING
8079	POB	0+00.00	620788.5898	1738924.7750
8080	PC	1+11.97	620676.6213	1738923.7784
8082	PT	3+46.23	620449.2616	1738874.5258
8083	PC	9+39.94	619906.6193	1738633.6506
8085	PT	12+86.39	619567.6872	1738594.3552
8086	POE	13+96.38	619459.6114	1738614.7950

HWY. 358

POINT NO.	TYPE	STATION	NORTHING	EASTING
8087	POB	0+00.00	619042.9167	1737928.6256
8088	PC	6+66.36	619394.5577	1738494.6456
8090	PT	9+41.24	619510.3560	1738743.2169
8091	PC	22+41.82	619914.5637	1739979.3998
8093	PT	25+90.89	619971.2358	1740322.4696
8097	POE	26+72.76	619972.1695	1740404.3377

S. ROCKING CHAIR RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8098	POB	0+00.00	616407.7290	1741566.2041
8099	PC	9+34.77	617342.4981	1741565.6271
8101	PT	9+93.73	617401.4616	1741565.9129
8111	POE	11+85.76	617593.4751	1741567.7741

BROWN'S CHAPEL RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8112	POB	0+00.00	615844.1863	1743685.8393
8113	PC	2+77.81	615882.0344	1743961.0594
8115	PT	4+86.49	615986.0060	1744135.5776
8116	PC	5+43.74	616032.1646	1744169.4353
8118	PT	6+94.58	616173.1278	1744215.6684
8119	POE	20+56.70	617535.2423	1744217.0153

JETTON DRIVE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8120	POB	99+99.24	617413.9394	1740079.8341
8121	PC	101+91.65	617249.9211	1739979.2428
8122	PT	103+57.34	617235.5935	1739836.7003
8123	PC	112+44.26	617884.2472	1739231.8174
8124	PT	113+78.15	617945.5761	1739115.6011
8128	POE	114+29.24	617953.2522	1739065.0992

WEST TRANS. LT. LANE EDGE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8129	POB	100+00.00	634271.0300	1731856.6454
8130	PC	104+36.23	633834.8053	1731858.9501
8131	PT	114+14.86	632984.3358	1732273.5985
8132	POE	119+85.33	632630.6183	1732721.1711

WEST TRANS. RT. LANE EDGE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8133	POB	100+00.00	634270.9719	1731845.6456
8134	PC	104+91.44	633779.5385	1731848.2420
8135	PT	114+70.07	632929.0690	1732262.8904
8136	POE	120+14.67	632591.3900	1732690.1688

DRIVEWAY 358

POINT NO.	TYPE	STATION	NORTHING	EASTING
8137	POB	0+00.00	619797.9303	1739622.7015
8138	PC	0+43.85	619754.1953	1739625.8893
8139	PT	3+07.51	619496.0834	1739584.9437
8140	PC	4+67.93	619347.5520	1739524.3382
8141	PT	8+47.08	618985.9348	1739563.8721
8142	POE	9+27.87	618919.4948	1739609.8348

EXIST. HWY. 412 WEST END

POINT NO.	TYPE	STATION	NORTHING	EASTING
8143	POB	10+00.00	634264.0211	1730530.0325
8144	POE	36+88.49	634278.2250	1733218.4811

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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.		100708	86	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

25

100

N 89°41'50" E

20

STA. 100+00.00 (HWY. 412)
STA. 23+21.13 (HWY. 412 EXISTING)
Δ = 90°00'00.00"

EXISTING HWY. 412 CENTERLINE

8129
8000
8133

S 0°18'10" E

HWY. 412 BYPASS CENTERLINE

STA. 100+29.50
BEGIN JOB 100708

8130
8001
8134

P.C. 104+36.23
P.C. 104+63.84
P.C. 104+91.44

105

HWY. 412 BYPASS
LT. LANES

HWY. 412 BYPASS
RT. LANES

S 51°40'50" E

S 0°18'10" E

P.I. 109+61.20

P.I. 109+88.81

P.I. 110+16.41

110

10/19/2016

R100708.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.		100708	87	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

LT. LANES
PI = 109+61.20
Δ = 51°22'40.45"LT.
D = 5°15'00.0"
T = 524.97'
L = 978.63'
PC = 104+36.23
PT = 114+14.86
e = 0.100 '/'
Ls = 280' ENTERING CURVE
= 400' LEAVING CURVE

CENTERLINE
PI = 109+88.81
Δ = 51°22'40.40"LT.
D = 5°15'00.0"
T = 524.97'
L = 978.63'
PC = 104+63.84
PT = 114+14.46
e = 0.100 '/'
Ls = 280' ENTERING CURVE
= 400' LEAVING CURVE

RT. LANES
PI = 110+16.41
Δ = 51°22'40.45"LT.
D = 5°15'00.0"
T = 524.97'
L = 978.63'
PC = 104+91.44
PT = 114+70.41
e = 0.100 '/'
Ls = 280' ENTERING CURVE
= 400' LEAVING CURVE

PNA4 PORBR W/ALC

PNA5 PORBR W/ALC

SURVEY BASELINE

STA. 106+35.71
TIE STATION

S 0°18'10" E

S 51°40'50" E

P.I. 109+61.20
P.I. 109+88.81
P.I. 110+16.41

P.T. 114+14.86
P.T. 114+42.46
P.T. 114+70.07

8131
8003
8135

HWY. 412 BYPASS
LT. LANES

HWY. 412 BYPASS
RT. LANES

HWY. 412 BYPASS CENTERLINE

POE 119+85.33
POE 120+14.67
8132
8136

110
115
120
125
130
01
135

N

SURVEY BASELINE

8004

P.C. 8+92.43
P.T. 8+34.33

HWY. 412 BYPASS CENTERLINE

P.C. 128+72.38

PI = 137+41.49
Δ = 29°44'00.10"RT.
D = 1°45'00.0"
T = 869.12'
L = 1699.05'
PC = 128+72.38
PT = 145+71.44
e = 0.049 '/'
Ls = 350'

STA. 134+84.39 (HWY. 412)
STA. 8+33.37 (PINE KNOT RD.)
Δ = 90°21'48.96"

PINE KNOT RD. CENTERLINE

10/19/2016

R100708.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.		100708	88	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

P.I. 137+41.49

S 51°40'50" E

S 21°56'50" E

PNI7 PDS5/8"X24"REBAR W/ 2"ALUM CAP

PNI10 PDS5/8"X24"REBAR W/ 2"ALUM CAP

PNI11 PDS5/8"X24"REBAR W/ 2"ALUM CAP

P.T. 134.33

HWY. 412 BYPASS CENTERLINE

SURVEY BASELINE

SURVEY BASELINE

P.T. 145+71.43

PI = 137+41.49
Δ = 29°44'00.1"RT.
D = 1°45'00.0"
T = 869.12'
L = 1699.05'
PC = 128+72.38
PT = 145+71.44
e = 0.049 '/'
Ls = 350'

140 145 150

N 77

P.T. 8+82.28

P.I. 8+21.36

P.C. 7+60.15

N 68°00'02" E

150 155 160 165

HWY. 412 BYPASS CENTERLINE

S 21°56'50" E

S 21°56'50" E

PNI5 PDS5/8"X24"REBAR W/ 2"ALUM CAP

P.T. 6+46.85

PNI2 PDS5/8"X24"REBAR W/ 2"ALUM CAP

WALLCOTT RD. CENTERLINE

S

STA. 152+59.44 (HWY. 412)
STA. 6+72.07 (WALLCOTT RD.)
Δ = 90°3'7.92"

PNI4 PDS5/8"X24"REBAR W/ 2"ALUM CAP

SURVEY BASELINE

02" E

10/19/2016

R100708.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.		100708	89	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

P.I. 1+94.60

WESTBROOK RD. CENTERLINE

P.C. 0+89.48

STA. 178+59.00 (HWY. 412)
STA. 0+00.00 (WESTBROOK RD.)
Δ = 90°0'34.20"

165 170 175 180

TNB00 PDIS/8"X24"REBAR W/ 2"ALUM CAP

S 21°56'50" E

TNB01 PURBR W/ALC

SURVEY BASELINE

HWY. 412 BYPASS CENTERLINE

N

P.I. 2+97.4

P.C.

TNB02 PURBR W/ALC

TNB03 PURBR W/ACC

TNB06 PDIS/8"X24"REBAR

180 185 190 195

S 21°56'50" E

SURVEY BASELINE

HWY. 412 BYPASS CENTERLINE

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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.		100708	90	335

(2) SURVEY CONTROL DETAILS

PI = 215+26.49
Δ = 15°54'00.5"LT.
D = 1°00'00.0"
T = 800.15'
L = 1590.01'
PC = 207+26.34
PT = 223+16.36
e = 0.030 '/'
Ls = 350'

STA. 209+70.18 (HWY. 412)
STA. 6+11.94 (SPRING GROVE RD.)
Δ = 90°3'33.48"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

SURVEY BASELINE

195 200 205

P.C. 207+26.34

FND 5/8" REBAR W/ ALC

S 21°56'50" E

8007

SPRING GROVE RD. CENTERLINE

P15+30.28

HWY. 412 BYPASS CENTERLINE

FND 5/8" REBAR W/ 2" ALUM CAP

PC2+96.64

S 58°23'21" E

N 65°32'11" E

PT8+84.36

PC8+31.57

FND 5/8" REBAR W/ 2" ALUM CAP

PI = 215+26.49
Δ = 15°54'00.5"LT.
D = 1°00'00.0"
T = 800.15'
L = 1590.01'
PC = 207+26.34
PT = 223+16.36
e = 0.030 '/'
Ls = 350'

210 215 220 225

HWY. 412 BYPASS CENTERLINE

P.T. 223+16.36

FND 5/8" REBAR W/ 2" ALUM CAP

8009

S 37°50'51" E

S 21°56'50" E

S 37°50'51" E

SURVEY BASELINE

SURVEY BASELINE

P.I. 215+26.49

FND 5/8" REBAR W/ 2" ALUM CAP

10/19/2016

R100708.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.		100708	91	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

225 230 235 240

S 37°50'51" E

S 37°50'51" E

S 37°

SURVEY BASELINE

HWY. 412 BYPASS CENTERLINE

PK NAIL & PDS 5/8"X24" REBAR W/ 2" ALUM CAP

240 245 250 255

P.I. 249+10.62

S 37°50'51" E

S 0°00'00" W

8010

S 37°50'51" E

P.C. 243+30.55

HWY. 412 BYPASS CENTERLINE

PI = 249+10.62
Δ = 37°50'50.6"RT.
D = 3°00'00.0"
T = 654.77'
L = 1264.58'
PC = 243+30.55
PT = 255+92.13
e = 0.077 '/'
Ls = 350'

P.T. 255+92.13

AHTD ALC W-5/8 RBR

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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.		100708	92	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

PI = 249+10.62
Δ = 37°50'50.6"RT.
D = 3°00'00.0"
T = 654.77'
L = 1264.58'
PC = 243+30.55
PT = 255+92.13
e = 0.077 '/'
Ls = 350'

255 260 265

N

15

SURVEY BASELINE

8012

S 0°00'00" W

P.T. 255+92.13

0

P.I. 2+30.76

HWY. 412 BYPASS CENTERLINE

GREENE COUNTY RD. 750 CENTERLINE

S 0°30'36" W

STA. 268+36.89 (HWY. 412)
STA. 13+42.69 (HWY. 358)
Δ = 108°6'24.12"

HWY. 358 CENTERLINE

5

P.I. 6+74.77

N

PI = 290+34.14
Δ = 81°44'04.8"LT.
D = 3°00'00.0"
T = 1652.47'
L = 2724.49'
PC = 274+04.04
PT = 301+52.47
e = 0.077 '/'
Ls = 350'

280

270 275

P.C. 274+04.04

P.I. 11+13.83

S 0°00'00" W

8013

S 0°00'00" W

HWY. 412 BYPASS CENTERLINE

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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.		100708	93	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

PI = 290+34.14
Δ = 81°44'04.8"LT.
D = 3°00'00.0"
T = 1652.47'
L = 2724.49'
PC = 274+04.04
PT = 301+52.47
e = 0.077 '/'
Ls = 350'

285 290 295 100

HWY. 412 BYPASS CENTERLINE

S 81°44'05" E

P.C. 1014+91.65

SOUTH ROCKINGCHAIR RD. CENTERLINE

SURVEY BASELINE

PI = 290+34.14
Δ = 81°44'04.8"LT.
D = 3°00'00.0"
T = 1652.47'
L = 2724.49'
PC = 274+04.04
PT = 301+52.47
e = 0.077 '/'
Ls = 350'

P.T. 301+52.47

STA. 309+57.59 (HWY. 412)
STA. 6+56.36 (SOUTH ROCKINGCHAIR RD.)
Δ = 98°17'58.56"

300 305 310 315

S 81°44'05" E

S 81°44'05" E

EONBK 300+82.22
EONAHD 301+06.36

HWY. 412 BYPASS CENTERLINE

PN 839
PID 2.5" AHTD ALC W/5/8 RBR

5

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R100708.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.		100708	94	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

N

315 320 325 330

'05" E — S 81°44'05" E — S 81°44'05" E

HWY. 412 BYPASS CENTERLINE

N

15

BROWNS CHAPEL RD. CENTERLINE

N 0°03'24" E

STA. 336+78.41 (HWY. 412)
STA. 11+94.68 (BROWN'S CHAPEL RD.)
Δ = 98°12'31.32"

330 335 340 345

'05" E — S 81°44'05" E — S 81°44'05" E

PN:83
PD:2.5" AHTD ALC W/5/8 RBR

HWY. 412 BYPASS CENTERLINE

SURVEY BASELINE

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R100708.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.		100708	95	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

345 350 355 360

S 81°44'05" E

HWY. 412 BYPASS CENTERLINE

SURVEY BASELINE

PN:832
PD:2.5" AHTD ALC

PN:833
PD:5/8"X24"R

10/19/2016

R100708.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.		100708	96	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

365

370

375

S 81°44'05" E

S 81°44'05" E

PN:834
PD:2.5" AHTD ALC

PN:841
PD:5/8 x2

HWY. 412 BYPASS CENTERLINE

STA. 373+77.85
END JOB 100708

SURVEY BASELINE

SURVEY BASELINE

10/19/2016

R100708.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.		100708	97	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

CR 750 CENTERLINE

SURVEY BASELINE

P.I. 8+04.46

S 10°42'34" E

P.T. 12+86.39

HWY. 412 BYPASS CENTERLINE

HWY. 358 CENTERLINE

N 58°08'57" E

8088

8090

PN:8223
FD:2.9" AHTD ALUM W/5/8 RBR

P.C. 6+66.36

P.T. 9+41.24

PI = 8+04.46
Δ = 13°44'38.25"RT.
D = 5°00'00.0"
T = 524.97'
L = 274.88'
PC = 6+66.36
PT = 9+41.24
e = 0.079'/'
Ls = 303.80'

STA. 268+36.89 (HWY. 412)
STA. 13+42.69 (HWY. 358)
Δ = 108°6'24.12"

N 71°53'36" E

P.C. 0+43.85

POB 0+00.00

S 41°80.01" E

DRIVEWAY 358 CENTERLINE

SURVEY BASELINE

PN:8224
FD:5/8"X24"REBAR W/ 2"ALUM CAP

P.I. 1+78.06

P.T. 3+07.51

PI = 1+78.06
Δ = 26°21'57.47"RT.
D = 10°00'00.0"
T = 134.21'
L = 263.66'
PC = 0+43.85
PT = 3+07.51

P.I. 24+17.72

P.C. 22+41.82

PI = 24+17.72
Δ = 17°27'12.10"RT.
D = 5°00'00.0"
T = 175.90'
L = 349.07'
PC = 22+41.82
PT = 25+90.89
e = 0.061'/'
Ls = 233.65'

P.T. 25+90.89

POE 26+72.76

N 89°20'48" E

8091

8093

8097

10/19/2016

R100708.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.		100708	97A	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

HWY. 412 BYPASS CENTERLINE

S 0°00'00" W

P.I. 2+30.76

S 0°30'36" W

8079 — 8080 — 8082 — 8083 — 8085 — 8086

P.C. 1+11.97

P.T. 3+46.23

PI = 2+30.76
Δ = 23°25'34.17"RT.
D = 10°00'00.0"
T = 118.79'
L = 234.26'
PC = 1+11.97
PT = 3+46.23
e =
Ls =

S 23°56'10" W

CR 750 CENTERLINE

P.C. 9+39.94

PI = 11+18.64
Δ = 34°38'44.37"LT.
D = 10°00'00.0"
T = 178.71'
L = 346.46'
PC = 9+39.94
PT = 3+46.23
e =
Ls =

P.T. 12+86.38

P.I. 9+41.24

S 10°42'34" E

P.I. 8+04.46

HWY. 358 CENTERLINE

P.I. 11+18.64

HWY. 358 CENTERLINE

P.O.B. 0+00.00

8137 — S 4°10'08" E — 8138 — 8139 — S 22°11'49" W — 8140 — 8141 — S 34°40'31" E — 8142

P.I. 1+78.06

P.C. 0+43.85

P.C. 4+67.93

P.T. 3+07.51

PI = 1+78.06
Δ = 26°21'57.47"RT.
D = 10°00'00.0"
T = 134.21'
L = 263.66'
PC = 0+43.85
PT = 3+07.51

DRIVEWAY 358 CENTERLINE

PI = 6+74.77
Δ = 56°52'20.00"LT.
D = 15°00'00.0"
T = 206.84'
L = 379.15'
PC = 4+67.93
PT = 8+47.08

P.T. 8+47.08

POE 9+27.87

P.I. 6+74.77

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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.		100708	98	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

HWY. 412 BYPASS CENTERLINE

PINE KNOT RD. CENTERLINE

SURVEY BASELINE

P.I. 1+82.57

P.I. 6+17.64

P.I. 11+08.09

P.I. 15+46.69

STA. 134+84.39 (HWY. 412)
STA. 8+33.37 (PINE KNOT RD.)
Δ = 90°21'48.96"

8036 N 1°36'11" E 8038 N 10°51'51" E 8039 N 49°11'58" E 8041 8042 N 3°48'46" W 8045 N 23°56'06" E 8047

8044

PNI2 PD:5/8"X24"REBAR W/ 2"ALUM CAP

PNI3 PD:5/8"X24"REBAR W/ 2"ALUM CAP

PI = 1+82.57
Δ = 9°15'40.31"RT.
D = 11°00'00.0"
T = 42.19'
L = 84.19'
PC = 1+40.38
PT = 2+24.57
e = 0.061 '/'
Ls = 248.58'

PI = 6+17.64
Δ = 38°20'07.51"RT.
D = 8°30'00.0"
T = 234.31'
L = 451.00'
PC = 3+83.33
PT = 8+34.33
e = 0.061 '/'
Ls = 248.58'

PI = 11+08.09
Δ = 53°00'44.56"LT.
D = 13°15'00.0"
T = 215.66'
L = 400.09'
PC = 8+92.43
PT = 12+92.52
e = 0.071 '/'
Ls = 217.17'

PI = 15+46.69
Δ = 27°44'52.27"RT.
D = 13°00'00.0"
T = 108.86'
L = 213.45'
PC = 14+37.83
PT = 16+51.28

P.C. 3+83.33 · P.T. 8+34.33 · P.C. 8+92.43 · P.T. 12+92.52 · P.C. 14+37.83 · P.T. 16+51.28 · 2+24.57

100 · 5 · 10 · 135 · 15

P.I. 0+00.97 · P.I. 4+27.45 · P.I. 6+46.69 · P.I. 8+21.36

8049 S 83°32'51" E 8050 S 46°55'19" E 8052 8053 S 46°55'19" E N 68°00'02" E 8055 N 68°00'02" E 8056 8058 N 77°46'13" E 8059

P 324 IN CONCRETE

POB 100+00.00 · P.C. 102+12.39 · P.T. 1+36.84 · P.C. 1+46.25 · P.T. 6+46.85 · P.C. 7+60.15 · P.T. 8+82.28 · POE 10+26.64

PI = 0+00.97
Δ = 36°37'32.19"RT.
D = 13°00'00.0"
T = 145.87'
L = 281.74'
PC = 102+12.39
PT = 1+36.84
e = 0.046 '/'
Ls = 141.54'

PI = 4+27.45
Δ = 65°04'39.19"LT.
D = 13°00'00.0"
T = 281.20'
L = 500.60'
PC = 1+46.25
PT = 6+46.85
e = 0.083 '/'
Ls = 258.03'

PI = 8+21.36
Δ = 9°46'11.05"RT.
D = 8°00'00.0"
T = 60.21'
L = 122.12'
PC = 7+60.15
PT = 8+82.28
e = 0.020 '/'
Ls = 100.07'

STA. 101+00
BEGIN JOB 100708

EQUATION
STA. 103+57.29 BACK = STA. 0+00.00 AHEAD

WALLCOTT RD. CENTERLINE

STA. 152+59.44 (HWY. 412)
STA. 6+72.07 (WALLCOTT RD.)
Δ = 90°3'7.92"

STA. 8+88.28
END JOB 100708

SURVEY BASELINE

S 2°56'50" E

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SURVEY CONTROL DETAILS

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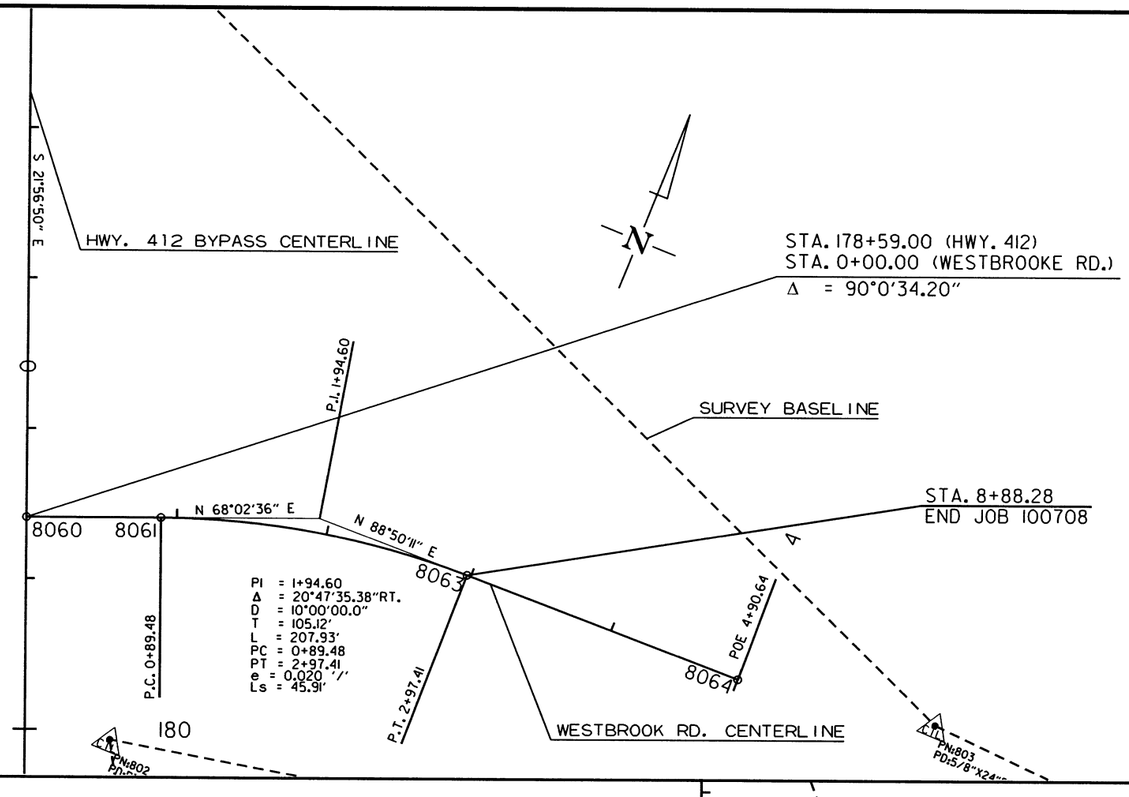
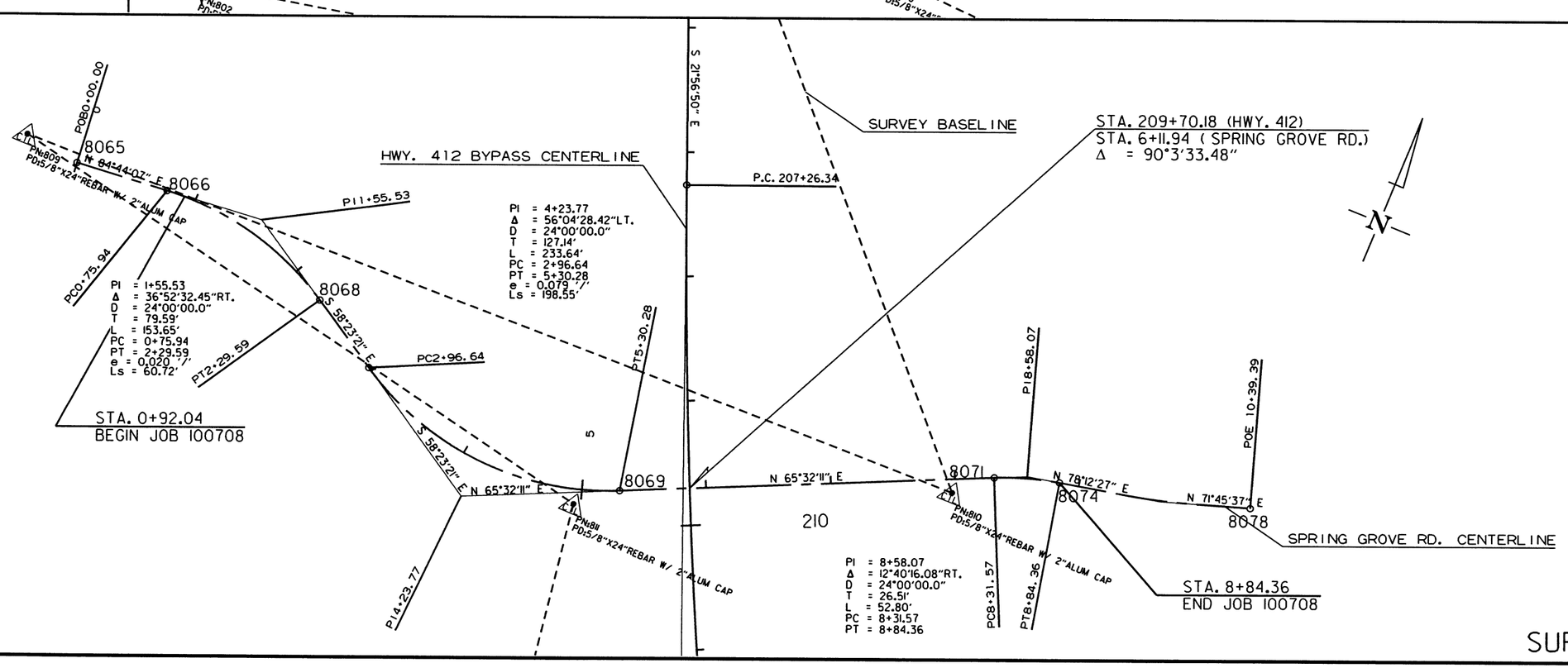
				JOB NO.		100708	99	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16





SURVEY CONTROL DETAILS

10/19/2016

R100708.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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JOB NO.		100708	100	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

SURVEY BASELINE

STA. 309+57.59 (HWY. 412)
STA. 6+56.36 (SOUTH ROCKINGCHAIR RD.)
Δ = 98°17'58.56"

S 81°44'05" E

HWY. 412 BYPASS CENTERLINE

5

10

POE 11+85.76

11

N 0°02'03" W

LTP#839
POI 2.5" AHTD ALC W/5/8 RBR

N 0°33'19" E

8111

310

STA. 3+78.71
BEGIN JOB 100708

SOUTH ROCKINGCHAIR RD. CENTERLINE

STA. 9+30.81
END JOB 100708

STA. 336+78.41 (HWY. 412)
STA. 11+94.68 (BROWNS CHAPEL RD.)
Δ = 98°12'31.32"

335

10

15

20

POE 20+56.70

BROWNS CHAPEL RD. CENTERLINE

N 0°03'24" E

8119

LTP#837
POI 2.5" AHTD ALC W/5/8 RBR

S 81°44'05" E

STA. 10+24.29
BEGIN JOB 100708

STA. 15+14.61
END JOB 100708

SURVEY BASELINE

HWY. 412 BYPASS CENTERLINE

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SURVEY CONTROL DETAILS

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				6	ARK.			
				JOB NO.		100708	100A	335

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

N

P.I. 290+56.51

S 81°44'05" E

105

8122

P.I. 103+57.34

8121

P.C. 101+91.65

JETTON DRIVE CENTERLINE

110

PI = 103+09.96
Δ = 105°28'45"RT.
D = 63°39'43.0"
T = 118.31'
L = 165.69'
PC = 101+91.65
PT = 103+57.34
NO SUPER

PI = 103+09.96
Δ = 38°21'26"RT.
D = 228°38'52.0"
T = 69.56'
L = 133.89'
PC = 112+44.26
PT = 113+78.15
NO SUPER

N 00°00'00" W

P.C. 112+44.26

P.I. 113+78.15

POE 114+29.24

8124

8128

8123

8120

100

P.I. 113+13.83

295

290

285

HWY. 412 BYPASS CENTERLINE

STA. 99+74.23
BEGIN JETTON DRIVE

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SURVEY CONTROL DETAILS

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				6	ARK.			
				JOB NO.		100708	101	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 103+80 INSTALL
18" x 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

CENTERLINE
PI = 109+88.81
Δ = 51°22'40.40"LT.
D = 5°15'00.0"
T = 524.97'
L = 978.63'
PC = 104+63.84
PT = 114+14.46
e = 0.100 '/'
Ls = 630' ENTERING CURVE
= 420' LEAVING CURVE

STA. 100+00.00 (HWY. 412)
STA. 23+21.13 (HWY. 412 EXISTING)
Δ = 90°00'00.00"

N 89°41'50" E

S 0°18'10" E

STA. 104+50 INSTALL
18" x 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

HWY. 412

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

STA. 100+29.50
BEGIN JOB 100708

STA. 102+00.00 BEGIN SUPERELEVATION (N.C.)
STA. 108+30.00 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 113+54.96 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 117+74.96 END SUPERELEVATION (0.020 FT./FT.)
STA. 121+24.96 END TRANSITION (N.C.)

P.V.I. 100+29.50
404.93

P.V.I. 102+00.42
404.99

0.04%

K=158.73
VC=600'
e=-2.84'

440 430 420 410 400 390 380 370

100+00 101+00 102+00 103+00 104+00 105+00

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				6	ARK.			
				JOB NO.		100708	102	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-12-16

STA. 105+17 INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 95 CU. YDS.

LT. LANES
PI = 109+61.20
Δ = 5°22'40"LT.
D = 5°15'00.0"
T = 524.97'
L = 978.63'
PC = 104+36.23
PT = 114+14.86
e = 0.100 '/'
Ls = 630' ENTERING CURVE
= 420' LEAVING CURVE

CENTERLINE
PI = 109+88.81
Δ = 5°22'40"LT.
D = 5°15'00.0"
T = 524.97'
L = 978.63'
PC = 104+63.84
PT = 114+42.46
e = 0.100 '/'
Ls = 630' ENTERING CURVE
= 420' LEAVING CURVE

RT. LANES
PI = 110+16.41
Δ = 5°22'40"LT.
D = 5°15'00.0"
T = 524.97'
L = 978.63'
PC = 104+91.44
PT = 114+70.07
e = 0.100 '/'
Ls = 630' ENTERING CURVE
= 420' LEAVING CURVE

STA. 118+00 INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

STA. 106+35.71
TIE STATION

STA. 110+00 INSTALL
18" x 66' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 925 CU. YDS.

STA. 114+31 CONSTRUCT
APPROACH ON RT. = 425 CU. YDS.

STA. 118+00 INSTALL
18" x 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 110 CU. YDS.

PROP. ROW, C/A. AND FENCE
CONST. LIMITS
EARTHWORK
S 0°18'10" E
S 51°40'50" E
S 51°49'50" E
P.C. 104+36.23
P.C. 104+63.84
P.C. 104+91.44
P.I. 109+61.20
P.I. 109+88.81
P.I. 110+16.41
P.T. 114+14.86
P.T. 114+42.46
P.T. 114+70.07

STA. 119+85.35 END LT. LANE ALG. - STA. 120+00.00 MAIN LANE ALG., 5.5' LT.
STA. 120+14.67 END RT. LANE ALG. - STA. 120+00.00 MAIN LANE ALG., 5.5' RT.

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

HWY. 412

STA. 102+00.00 BEGIN SUPERELEVATION (N.C.)
STA. 108+30.00 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 113+54.96 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 117+74.96 END SUPERELEVATION (0.020 FT./FT.)
STA. 121+24.96 END TRANSITION (N.C.)

P.V.I. 105+00.42
405.11
-3.74%
P.V.I. 106+35.71 BEGIN RML
400.17
-3.77% RT. LANE
-3.41% LT. LANE
K=158.73
VC=600'
e=-2.84'
P.V.I. 106+35.71
398.48
P.V.C. 108+37.92
392.48
RML
P.V.C. 108+37.92
392.55
P.V.T. 108+00.42
393.88
P.V.C. 109+31.89
391.80
RML
K=139.26
VC=525'
e=2.47'
K=140.37
VC=525'
e=2.46'
LML
K=157.66
VC=537'
e=2.29'
ML, LML, RML
P.V.I. 111+00.42
382.65
P.V.T. 113+68.95
382.65
0.00%
RML
K=154.03
VC=325'
e=-0.86'
P.V.I. 115+25.42
382.65
K=154.03
VC=325'
e=-0.86'
LML
K=154.03
VC=325'
e=-0.86'
ML, LML, RML
P.V.T. 116+87.92
379.23
-2.11%
-3.82% LT. OR RT.
-00.00 LT. OR RT.
LT. ELEV. 374.55
STA. 120+00.00
END RML, LML
25' RT. & LT. FROM ML
ML, LML, RML
P.V.I. 120+00.00
372.65
P.V.I. 120+00.00
372.65

410 400 390 380 370 360 350 340

105+00 106+00 107+00 108+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

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				6	ARK.			
				JOB NO.		100708	103	335

(2) PLAN AND PROFILE SHEETS

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

STA. 126+90 CONSTRUCT
DBL. 54" X 198' R.C. PIPE CULVERT
ON A 45° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 176 AC. Q50= 260 CFS
54" R.C. PIPE = 396 LIN. FT.
54" R.C. FES = 4 EACH

STA. 128+94 CONSTRUCT
24" X 113' R.C. PIPE CULVERT
ON AN 15° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 3 AC. Q50= 2.4 CFS
24" R.C. PIPE = 113 LIN. FT.
24" R.C. FES = 2 EACH

STA. 133+30 INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 51°40'50" E
P.C. 128+72.38
STA. 134+84.39 (HWY. 412)
STA. 8+33.37 (PINE KNOT RD.)
Δ = 90°21'48.96"

PI = 137+41.49
Δ = 29°44'00.10"RT.
D = 1°45'00.0"
T = 869.12'
L = 1699.05'
PC = 128+72.38
PT = 145+71.43
e = 0.049 '/'
Ls = 350'

STA. 133+30 INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

= OBLITERATE HWY. 412

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

TRIBUTARY TO EIGHT MILE CREEK
AT STA. 125+23 - STA. 127+75 IS
CLASSIFIED AS INTERMITTENT. THE TOP OF
CHANNEL ELEVATION IS 350.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

TRIBUTARY TO EIGHT MILE CREEK
AT STA. 128+59 - STA. 129+11 IS
CLASSIFIED AS EPHEMERAL. THE TOP OF
CHANNEL ELEVATION IS 350.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

STA. 122+59.88 BEGIN TRANSITION (N.C.)
STA. 126+09.88 BEGIN SUPERELEVATION
STA. 129+59.88 MAX. SUPERELEVATION (0.055 FT./FT.)
STA. 144+83.93 MAX. SUPERELEVATION (0.055 FT./FT.)
STA. 148+33.93 END SUPERELEVATION
STA. 151+83.93 END TRANSITION (N.C.)

STA. 126+90
F.L. INLET RT. 341.03
F.L. OUTLET LT. 340.18

STA. 128+94
F.L. INLET RT. 345.99
F.L. OUTLET LT. 341.81

ML. LML. RML
P.V.I. 120+00.00
372.65

-2.11%
-5.82% LT.DT.GR.
7.74% LT.DT.GR.
7.32% LT.DT.GR.
11.71% LT.DT.GR.
-0.16%

P.V.C. 130+30.07
350.95

K=153.85
VC=300'
e=0.73'

P.V.I. 131+80.07
347.79

P.V.T. 133+30.07
347.56

EXIST. PINE KNOT RD.

-77.55 LT.DT.GR.
LT. ELEV. 341.03

-00.00 LT.DT.GR.
LT. ELEV. 350.51

-00.00 LT.DT.GR.
LT. ELEV. 350.75

-65.00 LT.DT.GR.
LT. ELEV. 345.99

-00.00 LT.DT.GR.
LT. ELEV. 350.09

390 380 370 360 350 340 330 320

120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 140+00 INSTALL
18" x 30" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 70 CU. YDS.

STA. 144+43 CONSTRUCT
TRIPLE 10' X 8' X 108'
R.C. BOX CULVERT
ON A 15° LT. FWD. SKEW
WITH 3:1 WINGS LT & RT.
D.A. = 1136 AC. Q50= 1740 CFS
SPAN = 33' - 2"

P.I. 137+41.49
S 51°40'50" E
S 21°56'50" E
CONST. LIMITS
PROP. ROW, C/A, AND FENCE
15' GATE
8-24-81
P.T. 145+71.43
P.C. 128+72.38
T.C.E.
C OF A
140
145
150

PI = 137+41.49
Δ = 29°44'00.1" RT.
D = 1°45'00.0"
T = 869.12'
L = 1699.05'
PC = 128+72.38
PT = 145+71.43
e = 0.049 '/'
Ls = 350'

= OBLITERATE

STA. 134+84.39 (HWY. 412)
STA. 8+33.37 (PINE KNOT RD.)
Δ = 90°21'48.96"

STA. 146+00 CONSTRUCT
APPROACH ON RT. = 70 CU. YDS.

HWY. 412

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

STA. 122+59.88 BEGIN TRANSITION (N.C.)
STA. 126+09.88 BEGIN SUPERELEVATION
STA. 129+59.88 MAX. SUPERELEVATION (0.055 FT./FT.)
STA. 144+83.93 MAX. SUPERELEVATION (0.055 FT./FT.)
STA. 148+33.93 END SUPERELEVATION
STA. 151+83.93 END TRANSITION (N.C.)

TRIBUTARY TO EIGHT MILE CREEK AT STA. 144+12 - STA. 144+89 IS CLASSIFIED AS INTERMITTENT. THE TOP OF CHANNEL ELEVATION IS 342.0 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 144+43
F.L. INLET RT. 330.49
F.L. OUTLET LT. 330.09

-0.16%
1.45% LT OF GR.
10.78% RT OF GR.
1.47% LT OF GR.

-00.00 RT OF GR. RT. ELEV. 341.70
-00.00 LT OF GR. LT. ELEV. 341.52
-24.16 RT OF GR. RT. ELEV. 330.49
-50.73 LT OF GR. LT. ELEV. 330.09
-83.57 LT OF GR. LT. ELEV. 330.09

380 370 360 350 340 330 320 310

135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00 150+00

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				6	ARK.			
				JOB NO.		100708	105	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 152+59 INSTALL
30" X 51' PIPE CULVERT
LT. SIDE DRAIN

STA. 154+00 INSTALL
24" x 58' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 305 CU. YDS.

STA. 155+86 CONSTRUCT
DBL. 36" X 176' R.C. PIPE CULVERT
ON AN 45° LT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 45 AC. Q50= 80 CFS
36" R.C. PIPE = 352 LIN. FT.
36" R.C. FES = 4 EACH

STA. 161+00 INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YDS.

STA. 152+59 CONSTRUCT
30" X 49' PIPE CULVERT
RT. SIDE DRAIN

STA. 152+59.44 (HWY. 412)
STA. 6+72.07 (WALLCOTT RD.)
Δ = 90°3'7.92"

STA. 152+53 CONSTRUCT
DBL. 24" X 49' PIPE CULVERT
RT. SIDE DRAIN

STA. 160+00 INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.

= OBLITERATE

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

HWY. 412

TRIBUTARY TO EIGHT MILE CREEK AT STA. 155+31 - STA. 157+21 IS CLASSIFIED AS EPHEMERAL. THE TOP OF CHANNEL ELEVATION IS 340.0 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

P.V.C. 150+44.32
344.84
-0.16%
EXIST. WALLCOTT RD.
K=284.36
VC=600'
e=1.58'
P.V.I. 153+44.32
344.37
P.V.T. 156+44.32
350.23
1.96%
P.V.C. 159+00.00
355.23
K=250.62
VC=1000'
e=-5.00'
P.V.I. 164+00.00
365.00

STA. 156+86
F.L. INLET RT. 335.79
F.L. OUTLET LT. 334.21

1.47% LT.DT.GR.
-0.98% RT.DT.GR.
1.76% LT.DT.GR.
2.16% RT.DT.GR.
4.92% LT.DT.GR.

-00.00 RT.DT.GR. RT.ELEV. 340.38
-00.00 LT.DT.GR. LT.ELEV. 340.60
-00.00 LT.DT.GR. LT.ELEV. 341.16
-58.00 RT.DT.GR. RT.ELEV. 335.79
-96.00 LT.DT.GR. LT.ELEV. 334.21
-00.00 RT.DT.GR. RT.ELEV. 340.80
-00.00 LT.DT.GR. LT.ELEV. 349.17

390 380 370 360 350 340 330 320

150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00 161+00 162+00 163+00 164+00 165+00

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				6	ARK.			
				JOB NO.		100708	106	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 178+59.00 (HWY. 412)
STA. 0+00.00 (WESTBROOK RD.)
Δ = 90°0'34.20"

= OBLITERATE

STA. 178+60 INSTALL
24" x 43' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.

STA. 175+00 INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

STA. 169+00 INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.

STA. 175+00 INSTALL
24" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.

CULTIVATED FIELD

FLOODPLAIN LIMITS

HWY. 412

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

K=250.62
VC=1000'
e=-5.00'

P.V.T. 169+00.00
354.78

-2.05%

P.V.C. 175+74.57
340.98

K=318.63
VC=650'
e=1.65'

-00.00 LT.DT.GR.
LT. ELEV. 331.56

-00.00 RT.DT.GR.
RT.ELEV. 331.56

-1.80% RT.DT.GR.
-2.06% LT.DT.GR.

P.V.I. 178+99.57
334.34

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				6	ARK.			
				JOB NO.		100708	107	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 181+68 CONSTRUCT
TRIPLE 6' X 3' X 87'
R.C. BOX CULVERT
WITH 3:1 WINGS LT & RT.
ON A 10° LT. FWD. SKEW
D.A. = 189 AC. Q50= 280 CFS
SPAN = 20' - 4"

STA. 187+15 CONSTRUCT
TRIPLE 12' X 12' X 119'
R.C. BOX CULVERT
WITH 3:1 WINGS LT & RT.
D.A. = 2829 AC. Q50= 3480 CFS
SPAN = 40' - 8"

STA. 184+00 INSTALL LT.
CONSTRUCT APPROACH = 20 CU. YDS.

STA. 195+00 INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 180 CU. YDS.

STA. 195+00 INSTALL
18" x 48' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 260 CU. YDS.

STA. 184+00 CONSTRUCT
APPROACH ON RT. = 60 CU. YDS.

FLOODPLAIN LIMITS
EIGHT MILE CREEK
CULTIVATED FIELD
16' GATE
CONST. LIMITS
PROP. ROW, C/A, AND FENCE
S 21°56'50" E
+75.00 185.00 2' C OF A .75 END
+25.00 185.00 2' C OF A .25 BEGIN
+00.00 190.00
+60.93 189.93
+25.00 179.00
+63.73 152.73
+80.88 146.88 L.C.
+15.88 146.88 L.C.
+00.00 195.00
+71.56 105.40
+45.00 155.00
+75.00 155.00
+00.00 100.00
PROP. 2' C OF A .25 BEGIN

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

HWY. 412

TRIBUTARY TO EIGHT MILE CREEK
AT STA. 181+45 - STA. 181+82 IS
CLASSIFIED AS INTERMITTENT. THE TOP OF
CHANNEL ELEVATION IS 330.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

EIGHT MILE CREEK
AT STA. 186+60 - STA. 187+43 IS
CLASSIFIED AS PERENNIAL. THE TOP OF
CHANNEL ELEVATION IS 328.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

K=320.20
VC=650'
e=1.65'

K=161.73
VC=600'
e=2.78'

P.V.T. 182+24.57
334.29

P.V.C. 191+00.00
334.18

P.V.I. 194+00.00
334.15

STA. 181+68
F.L. INLET RT. 327.02
F.L. OUTLET LT. 326.14

STA. 187+15
F.L. INLET RT. 312.39
F.L. OUTLET LT. 310.25

-0.01%
1.80% RT.DT.GR.
+2.06% LT.DT.GR.
1.20% RT.DT.GR.
1.74% LT.DT.GR.
10.43% LT.DT.GR.
11.16% RT.DT.GR.
12.37% LT.DT.GR.
0.19% LT.DT.GR.

+79.93 RT.DT.GR. RT.ELEV. 327.03
+51.00 RT.DT.GR. RT.ELEV. 327.03
+67.80 LT.DT.GR. LT.ELEV. 326.05
+95.72 LT.DT.GR. LT.ELEV. 326.05
+00.00 RT.DT.GR. RT.ELEV. 329.68
+00.00 LT.DT.GR. LT.ELEV. 329.58
+00.00 LT.DT.GR. LT.ELEV. 329.29
+82.88 LT.DT.GR. LT.ELEV. 310.24
+46.20 LT.DT.GR. LT.ELEV. 310.24
+46.20 RT.DT.GR. RT.ELEV. 312.39
+00.00 RT.DT.GR. RT.ELEV. 329.55
+00.00 LT.DT.GR. LT.ELEV. 329.27
+00.00 LT.DT.GR. LT.ELEV. 328.93
+00.00 LT.DT.GR. LT.ELEV. 329.30

360 350 340 330 320 310 300 290

180+00 181+00 182+00 183+00 184+00 185+00 186+00 187+00 188+00 189+00 190+00 191+00 192+00 193+00 194+00 195+00

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				6	ARK.			
				JOB NO.		100708	108	335

(2) PLAN AND PROFILE SHEETS

STA. 205+47 CONSTRUCT
30" X 257' R.C. PIPE CULVERT
ON AN 45° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS IV) (TYPE 3 BEDDING)
D.A. = 4 AC. Q50= 2.8 CFS
30" R.C. PIPE = 257 LIN. FT.
30" FES = 2 EACH

STA. 209+70.18 (HWY. 412)
STA. 6+11.94 (SPRING GROVE RD.)
Δ = 90°3'33.48"

PI = 215+26.49
Δ = 15°54'00.5"LT.
D = 1°00'00.0"
T = 800.15'
L = 1590.01'
PC = 207+26.34
PT = 223+16.36
e = 0.030 '/'
Ls = 350'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 21°56'50" E
P.C. 207+26.34
P.T. 223+16.36
STA. 205+00 CONSTRUCT
APPROACH ON RT. = 1880 CU. YDS.
STA. 207+25 INSTALL
18" x 80' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 1285 CU. YDS.
CULTIVATED FIELD
= OBLITERATE
HWY. 412
EXIST. SPRING GROVE RD.

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

STA. 201+13.84 BEGIN TRANSITION (N.C.)
STA. 204+63.84 BEGIN SUPERELEVATION
STA. 208+13.84 MAX. SUPERELEVATION (0.030 FT./FT.)
STA. 222+28.86 MAX. SUPERELEVATION (0.030 FT./FT.)
STA. 225+78.86 END SUPERELEVATION
STA. 229+28.86 END TRANSITION (N.C.)

P.V.C. 205+00.00
374.82

K-161.73
VC-600'
e-2.78'

P.V.T. 197+00.00
345.24

K-162.16
VC-1200'
e--11.09'

STA. 205+47
F.L. INLET RT. 356.06
F.L. OUTLET LT. 347.70

3.70%
-1.29% LT.DT.GR.
-3.97% RT.DT.GR.
6.75% LT.DT.GR.
7.02% RT.DT.GR.

-00.00 LT.DT.GR. LT. ELEV. 329.30
-00.00 LT.DT.GR. LT. ELEV. 350.51
-18.00 LT.DT.GR. LT. ELEV. 347.70
-00.00 RT.DT.GR. RT. ELEV. 359.95
-00.00 RT.DT.GR. RT. ELEV. 355.91
-00.00 RT.DT.GR. RT. ELEV. 362.93
-00.00 LT.DT.GR. LT. ELEV. 380.29

380 370 360 350 340 330 320 310

195+00 196+00 197+00 198+00 199+00 200+00 201+00 202+00 203+00 204+00 205+00 206+00 207+00 208+00 209+00 210+00

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				6	ARK.			
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(2) PLAN AND PROFILE SHEETS

= OBLITERATE

PI = 215+26.49
Δ = 15°54'00.5"LT.
D = 1°00'00.0"
T = 800.15'
L = 1590.01'
PC = 207+26.34
PT = 223+16.36
e = 0.030 '/'
Ls = 350'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 214+00 INSTALL
18" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 115 CU. YDS.

STA. 221+00 INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 65 CU. YDS.

STA. 223+00 INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 70 CU. YDS.

STA. 213+00 INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.

STA. 218+50 INSTALL
24" x 62' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 1925 CU. YDS.

STA. 223+00 INSTALL
18" x 46' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 345 CU. YDS.

STA. 225+10 CONSTRUCT
24" x 112' R.C. PIPE CULVERT
ON AN 45° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS II) (TYPE 3 BEDDING)
D.A. = 7 AC. Q50= 5.3 CFS
24" R.C. PIPE = 112 LIN. FT.
24" FES = 2 EACH

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 21°56'50" E
S 37°50'51" E
POND

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

HWY. 412

STA. 201+13.84 BEGIN TRANSITION (N.C.)
STA. 204+63.84 BEGIN SUPERELEVATION
STA. 208+13.84 MAX. SUPERELEVATION (0.030 FT./FT.)
STA. 222+28.86 MAX. SUPERELEVATION (0.030 FT./FT.)
STA. 225+78.86 END SUPERELEVATION
STA. 229+28.86 END TRANSITION (N.C.)

P.V.I. 211+00.00
397.00

K=162.16
VC=1200'
e=-11.09'

P.V.T. 217+00.00
374.82

-3.70%

-00.00 RT.DT.GR.
RT.ELEV. 359.32

-00.00 LT.DT.GR.
LT.ELEV. 350.94

P.V.C. 221+00.00
360.03

K=268.46
VC=800'
e=2.98'

-2.76% RT.DT.GR.

-1.71% LT.DT.GR.

STA. 225+10
F.L. INLET LT. 343.55
F.L. OUTLET RT. 342.40

-32.00 LT.DT.GR.
LT.ELEV. 343.55

P.V.T. 225+00.00
345.24

390 380 370 360 350 340 330 320

210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00 220+00 221+00 222+00 223+00 224+00 225+00

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				6	ARK.			
				JOB NO.		100708	110	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 231+00 INSTALL
18" x 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YDS.

STA. 237+00 INSTALL
24" x 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 37°50'51" E

STA. 228+00 INSTALL
18" x 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

STA. 230+00 CONSTRUCT
APPROACH ON RT. = 55 CU. YDS.

STA. 232+00 INSTALL
24" x 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.

STA. 237+00 INSTALL
24" x 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.

STA. 228+00 INSTALL
24" x 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 130 CU. YDS.

FLOODPLAIN LIMITS

HWY. 412

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

STA. 201+13.84 BEGIN TRANSITION (N.C.)
STA. 204+63.84 BEGIN SUPERELEVATION
STA. 208+13.84 MAX. SUPERELEVATION (0.030 FT./FT.)
STA. 222+28.86 MAX. SUPERELEVATION (0.030 FT./FT.)
STA. 225+78.86 END SUPERELEVATION
STA. 229+28.86 END TRANSITION (N.C.)

STA. 237+18.05 BEGIN TRANSITION (N.C.)
STA. 240+68.05 BEGIN SUPERELEVATION
STA. 244+18.05 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 255+04.63 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 258+54.63 END SUPERELEVATION
STA. 262+04.63 END TRANSITION (N.C.)

TRIBUTARY TO EIGHT MILE CREEK AT STA. 224+15 - STA. 225+13 IS CLASSIFIED AS EPHEMERAL. THE TOP OF CHANNEL ELEVATION IS 345.0 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

P.V.I. 225+00.00
345.24

STA. 225+10
F.L. INLET RT. 343.50
F.L. OUTLET LT. 342.40

K=268.46
VC=800'
e=2.98'

P.V.T. 229+00.00
342.37

-2.76% RT.DT.GR.

-13.00 RT.DT.GR.
RT.ELEV. 342.40

-0.72%

380 370 360 350 340 330 320 310

225+00 226+00 227+00 228+00 229+00 230+00 231+00 232+00 233+00 234+00 235+00 236+00 237+00 238+00 239+00 240+00

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6	ARK.			
JOB NO.		100708	111	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 241+82 CONSTRUCT
TRIPLE 12' X 7' X 131'
R.C. BOX CULVERT
WITH 3:1 WINGS LT & RT.
ON A 45° LT. FWD. SKEW
D.A. = 962 AC. Q50= 1440 CFS
SPAN = 38' - 11"

FLOODPLAIN LIMITS

FLOODPLAIN LIMITS

CULTIVATED FIELD

PROP. ROW, C/A, AND FENCE

CONST. LIMITS

S 37°50'51" E

S 0°00'00" W

16' GATE

16' GATE

P.C. 243+30.55

P.I. 249+85.32

P.T. 255+92.13

PROP. ROW, C/A, AND FENCE

CULTIVATED FIELD

PROP. C/A, AND FENCE

PROP. ROW

PI = 249+85.32
Δ = 37°50'50.6"RT.
D = 3°00'00.0"
T = 654.77'
L = 1264.58'
PC = 243+30.55
PT = 255+92.13
e = 0.077 '/'
Ls = 350'

STA. 251+15 CONSTRUCT
QUAD. 48" X 122"
R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 2 BEDDING)
D.A. = 83 AC. Q50= 150 CFS
48" R.C. PIPE = 488 LIN. FT.
48" R.C. FES = 8 EACH

FLOODPLAIN LIMITS

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

HWY. 412

TRIBUTARY TO EIGHT MILE CREEK
AT STA. 241+50 - STA. 242+64 IS
CLASSIFIED AS INTERMITTENT. THE TOP OF
CHANNEL ELEVATION IS 332.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

STA. 237+18.05 BEGIN TRANSITION (N.C.)
STA. 240+68.05 BEGIN SUPERELEVATION
STA. 244+18.05 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 255+04.63 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 258+54.63 END SUPERELEVATION
STA. 362+04.63 END TRANSITION (N.C.)

TRIBUTARY TO EIGHT MILE CREEK
AT STA. 250+51 - STA. 251+48 IS
CLASSIFIED AS INTERMITTENT. THE TOP OF
CHANNEL ELEVATION IS 331.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

STA. 241+82
F.L. INLET RT. 321.44
F.L. OUTLET LT. 321.43

-0.72%

P.V.C. 243+15.77
332.22

K=190.59
VC=648'
e=2.75'

P.V.I. 246+39.77
329.90

P.V.T. 249+63.77
338.59

2.68%

STA. 251.15
F.L. INLET RT. 329.81
F.L. OUTLET LT. 327.94

-8.12% LT.DT.GR.
-7.02% RT.DT.GR.
0.00% LT.DT.GR.
0.00% RT.DT.GR.
0.19% RT.DT.GR.
0.43% LT.DT.GR.
-0.67% LT.DT.GR.
-7.61% LT.DT.GR.
-3.39% LT.DT.GR.

-00.00 LT.DT.GR. LT. ELEV. 329.75
-21.93 RT.DT.GR. RT.ELEV. 321.44
-02.11 RT.DT.GR. RT.ELEV. 321.44
-35.85 LT.DT.GR. LT.ELEV. 321.43
-90.00 LT.DT.GR. LT.ELEV. 321.43
-00.00 LT.DT.GR. LT. ELEV. 327.03
-00.00 RT.DT.GR. RT.ELEV. 328.31
-00.00 LT.DT.GR. LT. ELEV. 328.74
-00.00 RT.DT.GR. RT.ELEV. 329.06
-47.00 LT.DT.GR. LT.ELEV. 327.76
-00.00 LT.DT.GR. LT. ELEV. 329.51
-10.33 LT.DT.GR. LT.ELEV. 327.73
-30.00 LT.DT.GR. LT.ELEV. 327.73
-00.00 LT.DT.GR. LT. ELEV. 330.10

370 360 350 340 330 320 310 300

240+00 241+00 242+00 243+00 244+00 245+00 246+00 247+00 248+00 249+00 250+00 251+00 252+00 253+00 254+00 255+00

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6	ARK.			
JOB NO.		100708	112	335

2 PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

PROP. ROW, C/A, AND FENCE

CONST. LIMITS

OPEN STORAGE

255 260 265

8-24-8

S 0°00'00" W

PI = 249+85.32
Δ = 37°50'50.6"RT.
D = 3°00'00.0"
T = 654.77'
L = 1264.58'
PC = 243+30.55
PT = 255+92.13
e = 0.077 '/'
Ls = 350'

P.T. 255+92.13

C.L. COUNTY ROAD 750

P.I. 2+30.76

S 0°30'36" W

P.C. 1+11.97

= OBLITERATE

STA. 268+36.89 (HWY. 412)
STA. 13+42.69 (HWY. 358)
Δ = 108°6'24.12"

HWY. 412

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

STA. 237+18.05 BEGIN TRANSITION (N.C.)
STA. 240+68.05 BEGIN SUPERELEVATION
STA. 244+18.05 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 255+04.63 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 258+54.63 END SUPERELEVATION
STA. 258+54.63 END TRANSITION (N.C.)

P.V.C. 261+66.04
370.83

P.V.I. 266+99.04
385.12

EXIST. HWY. 358 ℄

K=223.94
VC=1066'
e=6.35'

2.68%

390 380 370 360 350 340 330 320

255+00 256+00 257+00 258+00 259+00 260+00 261+00 262+00 263+00 264+00 265+00 266+00 267+00 268+00 269+00 270+00

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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.		100708	113	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 279+54 CONSTRUCT
24" X 146' R.C. PIPE CULVERT
ON AN 15° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 3 AC. Q50= 2.2 CFS
24" R.C. PIPE = 146 LIN. FT.
24" FES = 2 EACH

PI = 290+56.51
Δ = 81°44'04.8"LT.
D = 3°00'00.0"
T = 1652.47'
L = 2724.49'
PC = 274+04.04
PT = 301+52.47
e = 0.077 '/'
Ls = 350'

N

P.I. 6+74.7

PROP. ROW, C/A, AND FENCE

180.00 | 36.62

180.00 | 132.28

PROP. ROW, C/A, AND FENCE

270

8-24-8

P.C. 274+04.04

215

CONST. LIMITS

280

S 0°00'00" W

8-24-8

S 0°00'00" W

CONST. LIMITS

PROP. ROW, C/A, AND FENCE

202.95

P.I. 113+13.85

32.00 | 225.00

PROP. ROW, C/A, AND FENCE

P.I. 290+56.51

HWY. 412

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

STA. 267+91.54 BEGIN TRANSITION (N.C.)
STA. 271+41.54 BEGIN SUPERELEVATION
STA. 274+91.54 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 300+41.03 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 304+14.97 END SUPERELEVATION
STA. 307+64.97 END TRANSITION (N.C.)

TRIBUTARY TO VILLAGE CREEK
AT STA. 272+50 - STA. 273+50 IS
CLASSIFIED AS EPHEMERAL. THE TOP OF
CHANNEL ELEVATION IS 370.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

TRIBUTARY TO VILLAGE CREEK
AT STA. 278+50 - STA. 279+50 IS
CLASSIFIED AS EPHEMERAL. THE TOP OF
CHANNEL ELEVATION IS 355.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

P.V.T. 272+32.04
374.03

K=223.95
VC=1066'
e=-6.35'

-2.08%

-1.18% RT.DT.GR.

+00.00 RT.DT.GR.
RT.ELEV. 358.15

-25.00 RT.DT.GR.
RT.ELEV. 353.50

-1.69% RT.DT.GR.

+00.00 LT.DT.GR.
LT. ELEV. 345.89

-2.42% LT.DT.GR.

+17.00 LT.DT.GR.
LT. ELEV. 343.06

+65.00 RT.DT.GR.
RT.ELEV. 346.07

5.08% RT.DT.GR.

+00.00 RT.DT.GR.
RT.ELEV. 352.93

0.19% LT.DT.GR.

STA. 279+54
F.L. INLET RT. 346.07
F.L. OUTLET LT. 343.06

+65.00 RT.DT.GR.
RT.ELEV. 346.07

+00.00 LT.DT.GR.
ELEV. 343.61

	270+00	271+00	272+00	273+00	274+00	275+00	276+00	277+00	278+00	279+00	280+00	281+00	282+00	283+00	284+00	285+00
400																
390																
380																
370																
360																
350																
340																
330																

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				6	ARK.			
				JOB NO.		100708	114	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
12-12-16

STA. 292+06 CONSTRUCT
DBL. 36" X 164'
R.C. PIPE CULVERT
ON AN 50° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 48 AC. Q50= 70 CFS
36" R.C. PIPE = 328 LIN. FT.
36" FES = 4 EACH

PI = 290+56.51
Δ = 81°44'04.8"LT.
D = 3°00'00.0"
T = 1652.47'
L = 2724.49'
PC = 274+04.04
PT = 301+52.47
e = 0.077 '/'
Ls = 350'

STA. 294+00 INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

STA. 294+00 INSTALL
DBL. 36" x 82' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 1270 CU. YDS.

285 CONST. LIMITS
290
295
300
PROP. ROW, C/A, AND FENCE
CONST. LIMITS
PROPOSED CONST. LIMITS
PROPOSED T.C.E.
PROP. ROW, C/A, AND FENCE
P.I. 290+56.51
P.C. 101+91.65
.75 END C OF A
.25 BEGIN C OF A
16'
18-24-18
S 81°44'05" E
STA. 294+04.15 (HWY. 412)
STA. 99+99.24 (JETTON DRIVE)
Δ = 88°31'8.04"
HWY. 412

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

TRIBUTARY TO VILLAGE CREEK
AT STA. 291+13 - STA. 292+92 IS
CLASSIFIED AS EPHEMERAL. THE TOP OF
CHANNEL ELEVATION IS 328.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

STA. 267+91.54 BEGIN TRANSITION (N.C.)
STA. 271+41.54 BEGIN SUPERELEVATION
STA. 274+91.54 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 300+41.03 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 304+14.97 END SUPERELEVATION
STA. 307+64.97 END TRANSITION (N.C.)

STA. 292+06
F.L. INLET LT. 324.26
F.L. OUTLET RT. 322.06

P.V.C. 290+28.51
336.66
P.V.I. 291+78.51
333.54
K=241.94
VC=300'
e=0.47'
P.V.T. 293+28.51
332.28

-2.08%
-2.66% LT.DT.GR.
-4.30% RT.DT.GR.
0.44% LT.DT.GR.
0.45% RT.DT.GR.
-0.84%
-2.13% RT.DT.GR.

-00.00 LT.DT.GR. LT. ELEV. 332.21
-00.00 RT.DT.GR. RT.ELEV. 328.00
-00.00 LT.DT.GR. LT. ELEV. 324.23
-38.00 RT.DT.GR. RT.ELEV. 322.06
-00.00 RT.DT.GR. RT.ELEV. 322.34
-00.00 LT.DT.GR. LT. ELEV. 325.55
-00.00 RT.DT.GR. RT.ELEV. 322.00

370 360 350 340 330 320 310 300

285+00 286+00 287+00 288+00 289+00 290+00 291+00 292+00 293+00 294+00 295+00 296+00 297+00 298+00 299+00 300+00

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				6	ARK.			
				JOB NO.	100708		115	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

STA. 305+00 CONSTRUCT
DBL. 8' X 4' X 117'
R.C. BOX CULVERT
WITH 3:1 WINGS LT & RT.
D.A. = 154 AC. Q50= 270 CFS

PI = 290+56.51
Δ = 81°44'04.8"LT.
D = 3°00'00.0"
T = 1652.47'
L = 2724.49'
PC = 274+04.04
PT = 301+52.47
e = 0.077 '/'
Ls = 350'

STA. 312+42 CONSTRUCT
DBL. 48" X 105'
R.C. PIPE CULVERT
ON AN 35° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 90 AC. Q50= 180 CFS
48" R.C. PIPE = 210 LIN. FT.
48" FES = 4 EACH

STA. 315+00 INSTALL
18" x 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 190 CU. YDS.

EQUATION
STA. 300+82.22 BACK = STA. 301+06.16 AHEAD

STA. 309+57.59 (HWY. 412)
STA. 6+56.36 (SOUTH ROCKINGCHAIR RD.)
Δ = 98°17'58.56"

HWY. 412

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

STA. 267+91.54 BEGIN TRANSITION (N.C.)
STA. 271+41.54 BEGIN SUPERELEVATION
STA. 274+91.54 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 300+41.03 MAX. SUPERELEVATION (0.077 FT./FT.)
STA. 304+14.97 END SUPERELEVATION
STA. 307+64.97 END TRANSITION (N.C.)

TRIBUTARY TO VILLAGE CREEK
AT STA. 303+62 - STA. 309+08 IS
CLASSIFIED AS INTERMITTENT. THE TOP OF
CHANNEL ELEVATION IS 319.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

TRIBUTARY TO VILLAGE CREEK
AT STA. 311+94 - STA. 313+21 IS
CLASSIFIED AS INTERMITTENT. THE TOP OF
CHANNEL ELEVATION IS 318.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

ELEV. = 325.96

STA. 305+00
F.L. INLET RT. 310.47
F.L. OUTLET LT. 310.03

STA. 312+42
F.L. INLET LT. 309.90
F.L. OUTLET RT. 308.14

P.V.C. 309+60.55
318.79

K=136.86
VC=127'
e=0.15'

EXIST.
SOUTH ROCKINGCHAIR RD.

P.V.T. 310+87.55
318.32

P.V.I. 310+24.05
318.26

-0.84%
-2.13% RT.DT.GR.
-3.41% LT.DT.GR.
2.30% LT.DT.GR.
0.92% RT.DT.GR.
-2.16% LT.DT.GR.
0.09%
-2.41% RT.DT.GR.

-00.00 LT.DT.GR. LT.ELEV. 326.71
-85.04 RT.DT.GR. RT.ELEV. 310.07
-00.00 LT.DT.GR. LT.ELEV. 310.47
-15.05 RT.DT.GR. RT.ELEV. 310.07
+23.94 LT.DT.GR. LT.ELEV. 317.93
+23.94 RT.DT.GR. RT.ELEV. 312.92
+23.94 RT.DT.GR. RT.ELEV. 314.09
-00.00 LT.DT.GR. LT.ELEV. 309.79
+71.00 RT.DT.GR. RT.ELEV. 308.14

360 350 340 330 320 310 300 290

300+00 302+00 303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+00 311+00 312+00 313+00 314+00 315+00

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				6	ARK.			
				JOB NO.		100708	116	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 315+00 INSTALL
18" x 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 190 CU. YDS.

STA. 319+28 CONSTRUCT
24" X 81' R.C. PIPE CULVERT
ON AN 8° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 6 AC. Q50= 4.4 CFS
24" R.C. PIPE = 81 LIN. FT.
24" FES = 2 EACH

STA. 321+45 CONSTRUCT
TRI. 59" X 36" X 79'
R.C. ARCH PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 73 AC. Q50= 150 CFS
59" X 36" R.C. ARCH PIPE = 237 LIN. FT.
59" X 36" FES = 6 EACH

N

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 81°44'05" E
315
320
325
330
16'-00"
·75 END C OF A
·25 BEGIN C OF A
100·00 120·00
150·00 165·00
100·00 140·00
100·00 165·00

STA. 20+00 INSTALL
18" x 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 250 CU. YDS.

STA. 327+58 CONSTRUCT
36" X 88' R.C. PIPE CULVERT
ON AN 22° LT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 4 AC. Q50= 2.1 CFS
24" R.C. PIPE = 88 LIN. FT.
24" FES = 2 EACH

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

HWY. 412

TRIBUTARY TO VILLAGE CREEK
AT STA. 321+10 - STA. 321+18 IS
CLASSIFIED AS EPHEMERAL. THE TOP OF
CHANNEL ELEVATION IS 315.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

TRIBUTARY TO VILLAGE CREEK
AT STA. 327+40 - STA. 327+73 IS
CLASSIFIED AS EPHEMERAL, THE TOP OF
CHANNEL ELEVATION IS 323.0 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

STA. 319+28
F.L. INLET LT. 312.64
F.L. OUTLET RT. 311.94

STA. 321+45
F.L. INLET LT. 311.95
F.L. OUTLET RT. 311.61

STA. 327+58
F.L. INLET LT. 315.64
F.L. OUTLET RT. 314.75

P.V.C. 320+64.59 319.19
P.V.I. 321+36.89 319.26
P.V.T. 322+09.20 319.60
P.V.C. 326+87.96 321.85
P.V.I. 327+87.11 322.32
P.V.T. 328+86.27 321.48
K=381.58 VC=145' e=0.07'
K=151.00 VC=198' e=-0.33'

0.09% -1.89% 3.41% RT.DT.GR. 1.36% RT.DT.GR. -0.28% LT.DT.GR. 1.67% RT.DT.GR. 0.47% 1.19% LT.DT.GR. -0.84%

·00 LT.DT.GR. LT.ELEV. 314.53
·23·94 RT.DT.GR. RT.ELEV. 314.53
·00 RT.DT.GR. RT.ELEV. 311.94
·00 LT.DT.GR. LT.ELEV. 312.64
·23·94 RT.DT.GR. RT.ELEV. 313.61
·44·00 RT.DT.GR. RT.ELEV. 311.61
·44·00 LT.DT.GR. LT.ELEV. 311.95
·14·94 LT.DT.GR. LT.ELEV. 315.64
·23·94 LT.DT.GR. LT.ELEV. 316.94

360 350 340 330 320 310 300 290

316+00 317+00 318+00 319+00 320+00 321+00 322+00 323+00 324+00 325+00 326+00 327+00 328+00 329+00 330+00

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				6	ARK.			
				JOB NO.		100708	117	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 336+22 CONSTRUCT
DBL. 24" X 80'
R.C. PIPE CULVERT
ON AN 8° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 6 AC. Q50= 12 CFS
24" R.C. PIPE = 160 LIN. FT.
24" FES = 4 EACH

STA. 336+78
CONSTRUCT 24" X 81'
R.C. PIPE CULVERT
ON AN 8° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 3.8 AC. Q50= 5.3 CFS
24" R.C. PIPE = 81 LIN. FT.
24" FES = 4 EACH

PROP. ROW, C/A, AND FENCE
CONST. LIMITS
S 81°44'05" E
40' R
-8-24-8-
C OF A
.75 END
.25 BEGIN
.25 END
.75 BEGIN
.08 END
.58 BEGIN
.35 END
.85 END
.72 END
.57 END
.07 BEGIN
-80.00 125.00
-113.00 110.00
-100.00 95.00
-100.00 100.00
-125.00 125.00
-115.08 105.08
-70.00 135.00
330
335
340
345
01

STA. 336+44.80 (HWY. 412)
STA. 11+94.68 (BROWN'S CHAPEL RD.)
Δ = 98°12'31.32"

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

HWY. 412

P.V.C. 333+71.97
317.39
P.V.I. 336+66.04
314.92
P.V.T. 339+60.11
324.40
P.V.C. 340+22.83
326.42
P.V.I. 343+47.83
336.90

STA. 336+22
F.L. INLET LT. 310.88
F.L. OUTLET RT. 310.32

STA. 336+78
F.L. INLET LT. 311.66
F.L. OUTLET RT. 311.10

EXIST.
BROWN'S CHAPEL RD.
℄

K-144.47
VC-588'
e=2.99'

K-180.56
VC-650'
e=-2.92'

-0.84%
-0.44% LT.DT.GR.
-2.13% RT.DT.GR.
2.31% LT.DT.GR.
3.77% RT.DT.GR.
3.23%

-00.00 LT.DT.GR. LT.ELEV. 312.76
-00.00 RT.DT.GR. RT.ELEV. 312.45
-00.00 RT.DT.GR. RT.ELEV. 310.32
-00.00 LT.DT.GR. LT.ELEV. 311.88
-78.00 LT.DT.GR. LT.ELEV. 311.66
-78.00 RT.DT.GR. RT.ELEV. 311.10
-00.00 LT.DT.GR. LT.ELEV. 315.76
-00.00 RT.DT.GR. RT.ELEV. 315.76

360 350 340 330 320 310 300 290

331+00 332+00 333+00 334+00 335+00 336+00 337+00 338+00 339+00 340+00 341+00 342+00 343+00 344+00 345+00

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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.		100708	118	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 345+42 CONSTRUCT
DBL. 30" X 89'
R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 32 AC. Q50= 45 CFS
30" R.C. PIPE = 176 LIN. FT.
30" FES = 4 EACH

STA. 350+65 CONSTRUCT
DBL. 24" X 86'
R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 6 AC. Q50= 12 CFS
24" R.C. PIPE = 172 LIN. FT.
24" FES = 2 EACH

STA. 354+74 INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.

STA. 353+36 INSTALL
18" x 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.

N

+25 END C OF A
+75 BEGIN C OF A
100.00 135.00
PROP. ROW, C/A. AND FENCE
CONST. LIMITS
+43.50 END C OF A
+93.50 BEGIN C OF A
+50 END C OF A
+00 BEGIN C OF A
20.15 105.27
345
350
355
360
24'
.75
8-24"-8"
S 81°44'05" E
.36
+49 END C OF A
+99 BEGIN C OF A
71.34 117.09
45.00 95.00
+11 END C OF A
+61 BEGIN C OF A
50.00 95.00
30.00 135.00
50.00 175.00
25/F
HWY. 412

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

TRIBUTARY TO VILLAGE CREEK
AT STA. 344+87 - STA. 345+75 IS
CLASSIFIED AS EPHEMERAL. THE TOP OF
CHANNEL ELEVATION IS 330 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL
OF THE 2014 STANDARD SPECIFICATIONS.

P.V.T. 346+72.83
335.69

STA. 345+42
F.L. INLET LT. 330.67
F.L. OUTLET RT. 328.04

STA. 350+65
F.L. INLET LT. 327.93
F.L. OUTLET RT. 325.58

P.V.C. 356+92.38
331.12

2.07% RT.DT.GR.
K=180.56
VC=650'
e=-2.92'

1.51% LT.DT.GR.
2.95% RT.DT.GR.
0.37%
2.26% LT.DT.GR.
2.73% RT.DT.GR.

K=165.29
VC=600'
e=-2.72'

+40.00 RT.DT.GR. RT.ELEV. 328.00
+00.00 RT.DT.GR. RT.ELEV. 331.31
+00.00 RT.DT.GR. RT.ELEV. 330.41
+00.00 LT.DT.GR. LT. ELEV. 330.41
+64.00 RT.DT.GR. RT.ELEV. 325.58
+64.00 LT.DT.GR. LT. ELEV. 327.93
+00.00 LT.DT.GR. LT. ELEV. 329.65
+00.00 RT.DT.GR. RT.ELEV. 329.29

370 360 350 340 330 320 310 300

346+00 347+00 348+00 349+00 350+00 351+00 352+00 353+00 354+00 355+00 356+00 357+00 358+00 359+00 360+00

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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.		100708	119	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

N

PROP. ROW, C/A, AND FENCE

CONST. LIMITS

S 81°44'05" E

360 365 370 375

+00 +85.00

+43.93 +81.00

+00 +78.00

125' R

100' R

-8- -24- -8- -36- -8- -36- -8-

+71 720' TAPER +91 137.40' LEFT TURN LANE +28.40

STA. 373+77.85
END JOB 100708

PROP. ROW, C/A, AND FENCE

+38.56 +63.61

+41.44 +71.39

PARAGOULD

HWY. 412

FIRST UNITED METHODIST CHURCH

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

P.V.I. 361+92.38
330.00

K=165.29
VC=600'
e=2.72'

-4.00%

P.V.T. 364+92.38
318.00

P.V.C. 366+23.94
312.74

K=160.86
VC=600'
e=2.80'

P.V.I. 369+23.94
300.74

P.V.T. 372+23.94
299.94

-0.27%

P.V.I. 373+51.58
299.60

340 330 320 310 300 290 280 270

361+00 362+00 363+00 364+00 365+00 366+00 367+00 368+00 369+00 370+00 371+00 372+00 373+00 374+24 375+00

10/19/2016

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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.		100708	120	335

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 100+00.00 (HWY. 412)
STA. 23+21.13 (HWY. 412 EXISTING)
Δ = 90°00'00.00"

N 89°41'50" E

200' TAPER

+67.10

CONST. LIMITS

PROP. ROW, C/A AND FENCE

PROP. CONST. LIMITS

PROP. ROW, C/A AND FENCE

CONST. LIMITS

S 01°18'10" E

STA. 16+67.10
BEGIN HWY. 412 EXISTING

STA. 100+29.50
BEGIN JOB 100708

STA. 24+72.45
END HWY. 412 EXISTING

HWY. 412 EXISTING

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

440 430 420 410 400 390 380 370

14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	121	335
				(2)	PLAN AND PROFILE SHEETS			

STA. 2+24.63 IN PLACE
84" X 77' PIPE CULVERT
ON A 40° RIGHT FORWARD SKEW
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
84" X 78' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
D.A. = 1.33 AC. Q50 = 2.05 CFS
84" R.C. PIPE = 78 LIN. FT.
84" R.C. FES = 2 EACH

= OBLITERATE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

STA. 134+84.39 (HWY. 412)
STA. 8+33.37 (PINE KNOT RD.)
Δ = 90°21'48.96"

PI = 1+82.57
Δ = 9°15'40.31"RT.
D = 11°00'0.0"
T = 42.19'
L = 84.19'
PC = 1+40.38
PT = 2+24.57
e = 0.061'/'
Ls = 248.58'

PI = 6+17.64
Δ = 38°20'07.51"RT.
D = 8°30'00.0"
T = 234.31'
L = 451.00'
PC = 3+83.33
PT = 8+34.33
e = 0.061'/'
Ls = 248.58'

PI = 11+08.09
Δ = 53°00'44.56"LT.
D = 13°15'00.0"
T = 215.66'
L = 400.09'
PC = 8+92.43
PT = 12+92.52
e = 0.071'/'
Ls = 217.17'

PI = 15+46.69
Δ = 27°44'52.27"RT.
D = 13°00'00.0"
T = 108.86'
L = 213.45'
PC = 14+37.83
PT = 16+51.28

= OBLITERATE

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

PINE KNOT RD.

STA. 3+60.25 BEGIN SUPERELEVATION
STA. 6+08.83 MAX. SUPERELEVATION (0.061 FT./FT.)
STA. 6+08.83 MAX. SUPERELEVATION (0.061 FT./FT.)
STA. 8+57.41 END SUPERELEVATION

STA. 8+75.31 BEGIN SUPERELEVATION
STA. 10+92.48 MAX. SUPERELEVATION (0.071 FT./FT.)
STA. 10+92.48 MAX. SUPERELEVATION (0.071 FT./FT.)
STA. 13+09.65 END SUPERELEVATION

STA. 14+28.73 BEGIN SUPERELEVATION
STA. 15+44.55 MAX. SUPERELEVATION (0.037 FT./FT.)
STA. 15+44.55 MAX. SUPERELEVATION (0.037 FT./FT.)
STA. 16+60.37 END SUPERELEVATION

TRIBUTARY TO EIGHT MILE CREEK AT STA. 6+29 - STA. 6+79 IS CLASSIFIED AS INTERMITTENT. THE TOP OF CHANNEL ELEVATION IS 345.0 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 1+38.94
BEGIN JOB 100708

P.V.I. 1+38.94 345.83
P.V.C. 2+00.10 346.00
P.V.I. 3+00.10 346.28
P.V.T. 4+00.10 345.76
P.V.C. 6+00.00 344.71
P.V.I. 7+00.00 344.19
P.V.T. 8+00.00 346.17
P.V.I. 8+57.41 347.31
P.V.I. 8+81.41 348.49
P.V.C. 13+50.00 371.54
P.V.I. 14+00.00 374.00
P.V.T. 14+50.00 376.55

STA. 2+25
F.L. INLET LT. 335.08
F.L. OUTLET RT. 330.56

STA. 6+50
F.L. INLET LT. 335.39
F.L. OUTLET RT. 335.30

K-249.60 VC-200' e=-0.20'
K-79.84 VC-200' e=0.63'
K-524.56 VC-100' e=0.02'

0.28% 8.11% LT.DT.GR. 8.44% RT.DT.GR. 5.40% RT.DT.GR. 5.58% LT.DT.GR. -0.52% -0.52% LT.DT.GR. -0.97% RT.DT.GR. 1.98% 1.09% LT.DT.GR. 1.45% RT.DT.GR. 4.92% 6.49% LT.DT.GR. 5.11% 6.54% RT.DT.GR.

-00.00 LT.DT.GR. LT. ELEV. 345.11
-00.00 RT.DT.GR. RT.ELEV. 342.97
-07.46 LT.DT.GR. LT. ELEV. 336.40
-59.75 RT.DT.GR. RT.ELEV. 343.23
-00.00 LT.DT.GR. LT.ELEV. 343.41
-00.00 RT.DT.GR. RT.ELEV. 343.79
-00.00 RT.DT.GR. RT.ELEV. 341.86
-00.00 LT.DT.GR. LT.ELEV. 341.86
-00.00 LT.DT.GR. LT. ELEV. 342.47
-00.00 RT.DT.GR. RT.ELEV. 341.92
-51.32 RT.DT.GR. RT.ELEV. 343.91
-51.32 LT.DT.GR. LT. ELEV. 344.11
-00.00 LT.DT.GR. LT. ELEV. 354.04
-00.00 RT.DT.GR. RT.ELEV. 360.51
-00.00 RT.DT.GR. RT.ELEV. 374.00
-00.00 LT.DT.GR. LT. ELEV. 387.02

390 380 370 360 350 340 330 320

1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	122	335
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

PI = 0+00.97
Δ = 36°37'32.19"RT.
D = 13°00'00.0"
T = 145.87'
L = 281.74'
PC = 102+12.39
PT = 1+36.84
e = 0.046 '/'
Ls = 141.54'

STA. 0+00 INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.

= OBLITERATE

STA. 101+00
BEGIN JOB 100708

STA. 0+75 INSTALL
21" x 15" x 34' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.

EQUATION
STA. 103+57.29 BACK = STA. 0+00.00 AHEAD

PI = 4+27.45
Δ = 65°04'39.19"LT.
D = 13°00'00.0"
T = 281.20'
L = 500.60'
PC = 1+46.25
PT = 6+46.85
e = 0.083 '/'
Ls = 258.03'

STA. 5+77 CONSTRUCT
DBL. 24" X 42' R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 2 BEDDING)
D.A. = 3 AC. Q50= 22 CFS
24" R.C. PIPE = 84 LIN. FT.
24" R.C. FES = 4 EACH

STA. 152+59.44 (HWY. 412)
STA. 6+72.07 (WALLCOTT RD.)
Δ = 90°3'7.92"

PI = 8+21.36
Δ = 9°46'11.05"RT.
D = 8°00'00.0"
T = 60.21'
L = 122.12'
PC = 7+60.15
PT = 8+82.28
e = 0.020 '/'
Ls = 100.07'

= OBLITERATE

STA. 8+88.28
END JOB 100708

STA. 8+75 INSTALL
APPROACH ON RT. = 10 CU. YDS.

WALLCOTT RD.

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

STA. 102+10.72 BEGIN SUPERELEVATION
STA. 103+53.26 MAX. SUPERELEVATION (0.046 FT./FT.)
STA. 103+53.26 MAX. SUPERELEVATION (0.046 FT./FT.)
STA. 1+38.51 END SUPERELEVATION

STA. 1+38.52 BEGIN SUPERELEVATION
STA. 3+96.55 MAX. SUPERELEVATION (0.083 FT./FT.)
STA. 3+96.55 MAX. SUPERELEVATION (0.083 FT./FT.)
STA. 6+54.59 END SUPERELEVATION

STA. 7+21.14 BEGIN SUPERELEVATION
STA. 8+21.21 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 8+21.21 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 9+21.28 END SUPERELEVATION

TRIBUTARY TO EIGHT MILE CREEK AT STA. 5+70 - STA. 5+89 IS CLASSIFIED AS EPHEMERAL. THE TOP OF CHANNEL ELEVATION IS 342.0 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 5+77
F.L. INLET LT. 340.61
F.L. OUTLET RT. 340.49

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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.		100708	123	335
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 0+78 INSTALL
24 x 43"ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.6

STA. 2+55.79 IN PLACE
24" x 24' PIPE CULVERT
RETAIN

STA. 2+86.77 IN PLACE
18" x 25' PIPE CULVERT
RETAIN

= OBLITERATE

N

S 21°55'50" E

CULTIVATED FIELD

FLOODPLAIN LIMITS

C OF A BEGIN

C OF A END

P.I. 1+94.60

107.00
114.36

40'R

N 68°02'38" E

N 88°50'11" E

313.96

230.00

P.C. 0+89.48

PROP. ROW, C/A, AND FENCE

P.T. 2+97.41

Pi = 1+94.60
Δ = 20°47'35.38"RT.
D = 10°00'00.0"
T = 105.12'
L = 207.93'
PC = 0+89.48
PT = 2+97.41
e = 0.068 '/'
Ls = 250.00'

STA. 178+59.00 (HWY. 412)
STA. 0+00.00 (WESTBROOKE RD.)
Δ = 90°0'34.20"

STA. 2+97.41
END WESTBROOK RD.

WESTBROOK RD.

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

STA. 0+89.48 BEGIN SUPERELEVATION
STA. 1+93.45 MAX. SUPERELEVATION (0.028 FT./FT.)
STA. 1+93.45 MAX. SUPERELEVATION (0.028 FT./FT.)
STA. 2+97.41 END SUPERELEVATION

P.V.I. 0+49.00
336.19
V.C. 0+65.65
336.19
P.V.I. 1+03.15
336.19
-0.91%
P.V.C. 2+03.79
335.28
K=62.96
VC=85'
e=0.14'
P.V.T. 2+88.91
335.08
0.44%
P.V.I. 3+47.00
335.34
K=82.66
VC=75'
e=-0.09'
P.V.T. 1+40.65
335.85
P.V.I. 2+46.35
334.89

STA 0+78
F.L. INLET LT. = 332.28
F.L. OUTLET RT. = 331.67

370 360 350 340 330 320 310 300

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

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1/12/17				6	ARK.			
				JOB NO.		100708	124	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

STA. 0+92.04
BEGIN JOB 100708

STA. 8+84.36
END JOB 100708

STA. 209+70.18 (HWY. 412)
STA. 6+11.94 (SPRING GROVE RD.)
Δ = 90°3'33.48"

STA. 1+70 INSTALL
21" x 15" x 34' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.

PI = 1+55.53
Δ = 36°52'32.45"RT.
D = 24°00'00.0"
T = 79.59'
L = 153.65'
PC = 0+75.94
PT = 2+29.59
e = 0.020 '/'
Ls = 60.72'

STA. 2+64 INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.

PI = 4+23.77
Δ = 56°04'28.42"LT.
D = 24°00'00.0"
T = 127.14'
L = 233.64'
PC = 2+96.64
PT = 5+30.28
e = 0.079 '/'
Ls = 198.55'

STA. 8+00 INSTALL
APPROACH ON LT. = 10 CU. YDS.

= OBLITERATE

STA. 2+64 INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.

= OBLITERATE

PI = 8+58.07
Δ = 12°40'16.08"RT.
D = 24°00'00.0"
T = 26.51'
L = 52.80'
PC = 8+31.57
PT = 8+84.36

N

SPRING GROVE RD.

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

STA. 0+92.04 BEGIN SUPERELEVATION
STA. 1+52.76 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 1+52.76 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 2+13.48 END SUPERELEVATION

STA. 2+14.91 BEGIN SUPERELEVATION
STA. 4+13.46 MAX. SUPERELEVATION (0.079 FT./FT.)
STA. 4+13.46 MAX. SUPERELEVATION (0.079 FT./FT.)
STA. 6+12.01 END SUPERELEVATION

P.V.I. 0+92.04 387.93
P.V.C. 1+72.26 385.83
P.V.I. 2+94.76 382.62
P.V.T. 4+17.26 386.28
P.V.C. 4+35.00 386.81
P.V.I. 5+00.00 388.75
P.V.T. 5+65.00 386.80
P.V.I. 6+12.01 384.39
P.V.I. 6+36.01 384.67
P.V.C. 6+39.68 384.67
P.V.I. 7+14.68 384.67
P.V.T. 7+89.68 387.40
P.V.C. 8+10.52 388.16
P.V.I. 8+48.02 389.52
P.V.I. 8+85.52 389.52
P.V.I. 8+85.73 389.52

-2.62%
2.16% LT.DT.GR.
2.96% LT.DT.GR.
1.34% LT.DT.GR.
0.14% LT.DT.GR.
2.99%
0.22% LT.DT.GR.
-3.00%
3.98% LT.DT.GR.
2.66% LT.DT.GR.
1.64% LT.DT.GR.

K-43.72
VC-245'
e-1.72'

K-21.72
VC-130'
e=-0.97'

K-41.21
VC-150'
e-0.68'

K-20.60
VC-75'
e=-0.34'

00.00 LT.DT.GR. LT. ELEV. 384.47
69.58 LT.DT.GR. LT. ELEV. 382.97
00.00 LT.DT.GR. LT. ELEV. 382.07
63.52 LT.DT.GR. LT. ELEV. 381.22
00.00 LT.DT.GR. LT. ELEV. 381.17
76.05 LT.DT.GR. LT. ELEV. 380.56
66.44 LT.DT.GR. LT. ELEV. 380.67
00.00 LT.DT.GR. LT. ELEV. 381.98
00.00 LT.DT.GR. LT. ELEV. 384.64
55.18 LT.DT.GR. LT. ELEV. 386.19

410 400 390 380 370 360 350 340

-0+50 0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 14+50

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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.		100708	125	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
TRINITY D. SMITH
No. 11425
12-19-16

℄ COUNTY RD. 750

STA. 13+96.38 (COUNTY RD. 750)
STA. 8+03.07 (HWY. 358)
Δ = 75°46'06.96"

= OBLITERATE

P.I. 8+04.46

P.T. 12+86.39

S 10°42'34" E

N 58°08'58" E

PROPOSED ROW

EXIST. ROW

CONST. LIMITS

STA. 12+00 CONSTRUCT
24" X 79' R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 2 BEDDING)
D.A. = 1.3 AC. Q50= 2.4 CFS
24" R.C.P. PIPE = 57 LIN. FT.
24" FES = 2 EACH

100' TRANSITION

P.C. 6+66.36

P.T. 9+41.24

PI = 8+04.46
Δ = 13°44'38.25"RT.
D = 5°00'00.0"
T = 138.10'
L = 274.88'
PC = 6+66.36
PT = 9+41.24
e = 0.091'/'
Ls = 350'

STA. 5+00
BEGIN HWY. 358

STA. 10+28 - IN PLACE
18" X 40' R.C. PIPE CULV
REMOVE

PROP. ROW CLR. NO FENCE

STA. 268+36.89 (HWY. 412)
STA. 13+42.69 (HWY. 358)
Δ = 108°6'24.12"

HWY. 358

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

STA. 5+00.00 BEGIN SUPERELEVATION
STA. 8+03.80 MAX. SUPERELEVATION (0.079 FT./FT.)
STA. 8+03.80 MAX. SUPERELEVATION (0.079 FT./FT.)
STA. 11+07.60 END SUPERELEVATION

P.V.I. 5+00.00 ELEV. 381.79
P.V.C. 6+25.00 ELEV. 380.97
-0.66%
K-1176.47 VC-350' e-0.13'
P.V.I. 8+00.00 ELEV. 379.81
P.V.T. 9+75.00 ELEV. 379.18
-0.36%
P.V.C. 10+50.00 ELEV. 378.90
K-827.59 VC-300' e-0.14'
P.V.I. 12+00.00 ELEV. 378.36
P.V.T. 13+50.00 ELEV. 378.36
P.V.I. 13+68.96 ELEV. 378.36
P.V.I. 13+81.61 ELEV. 378.56
P.V.T. 13+94.26 ELEV. 378.33
P.V.C. 14+25.00 ELEV. 378.33
1.58%
1.82%
0.00%
0.00%
K-458.52 VC-350' e-0.33'

STA. 13+00
F.L. INLET RT. 371.90
F.L. OUTLET LT. 366.94

400 390 380 370 360 350 340 330

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00

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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.		100708	126	335
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 15+45 CONSTRUCT
30" X 118' R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 2 BEDDING)
D.A. = 1.8 AC. Q50= 2.9 CFS
30" R.C.P. PIPE = 118 LIN. FT.
30" FES = 2 EACH

STA. 20+76 INSTALL
14" x 28' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.

STA. 22+75 INSTALL
APPROACH ON LT. = 4 CU. YDS.

STA. 26+00 INSTALL
APPROACH ON LT. = 4 CU. YDS.

STA. 18+66.54 (HWY. 358)
STA. 0+00.00 (DRIVEWAY HWY. 358)
Δ = 76°03'43.92"

STA. 26+20 - IN PLACE
18" X 24' R.C. PIPE CULV'T
RETAIN

STA. 22+87 - IN PLACE
18" X 24' R.C. PIPE CULV'T
RETAIN

PI = 24+17.72
Δ = 17°27'12.10"RT.
D = 5°00'00.0"
T = 175.90'
L = 349.07'
PC = 22+41.82
PT = 25+90.89
e = 0.091'/'
Ls = 350'

STA. 22+75 INSTALL
APPROACH ON RT. = 20 CU. YDS.

= OBLITERATE

STA. 26+50
END HWY. 358

1100' TRANSITION

STA. 15+39 - IN PLACE
24" X 62' R.C. PIPE CULV'T
REMOVE

℄ DRIVEWAY HWY. 358

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

HWY. 358

STA. 21+82.70 BEGIN SUPERELEVATION
STA. 24+16.35 MAX. SUPERELEVATION (0.061 FT./FT.)
STA. 24+16.35 MAX. SUPERELEVATION (0.061 FT./FT.)
STA. 26+50.00 END SUPERELEVATION

K=458.52
VC=350'
e=0.33'

P.V.I. 16+00.00
ELEV. 378.33

P.V.I. 17+75.00
ELEV. 379.67

0.76%

P.V.C. 20+25.00
ELEV. 381.57

K=369.72
VC=350'
e=0.41'

P.V.I. 22+00.00
ELEV. 382.91

P.V.T. 23+75.00
ELEV. 385.90

1.71%

P.V.C. 24+37.50
ELEV. 386.97

P.V.I. 25+00.00
ELEV. 388.04

K=137.05
VC=125'
e=-0.14'

P.V.T. 25+62.50
ELEV. 388.54

0.80%

P.V.I. 26+50.00
ELEV. 389.24

STA. 15+45
F.L. INLET RT. 366.48
F.L. OUTLET LT. 358.97

400 390 380 370 360 350 340 330

15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00

325

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1/12/17				6	ARK.			
				JOB NO.		100708	127	335
				(2) PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

STA. 309+57.59 (HWY. 412)
STA. 6+56.36 (SOUTH ROCKINGCHAIR RD.)
Δ = 98°17'58.56"

STA. 5+25 IN PLACE
DBL. 48" x 54' PIPE CULVERT ON
15° LT. FORWARD SKEW
WITH FES LT & RT.
REMOVE AND CONSTRUCT
DBL. 48" X 78' R.C. PIPE CULVERT
(CLASS III) (TYPE 2 BEDDING)
D.A. = 527 AC. Q50= 481 CFS
48" R.C. PIPE = 156 LIN. FT.
48" R.C. FES = 4 EACH

STA. 3+78.71
BEGIN JOB 100708

STA. 8+31 INSTALL
21" x 15" x 34' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.

STA. 9+30.81
END JOB 100708

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

SOUTH ROCKINGCHAIR RD.

STA. 5+25
F.L. INLET LT. 305.42
F.L. OUTLET RT. 303.50

P.V.C. 3+99.96 315.35
K=75.38
VC=125'
e=0.26'
P.V.C. 5+25.00 316.83
2.01%
P.V.I. 6+00.00 318.34
K=74.98
VC=150'
e=-0.38'
P.V.I. 6+78.53 318.35
P.V.I. 6+88.53 318.59
P.V.I. 6+98.53 318.35
P.V.C. 7+25.00 318.35
2.40%
2.40%
K=223.93
VC=150'
e=0.13'
P.V.T. 8+75.00 318.83
0.66%
0.35%

P.V.I. 3+78.71 315.27
P.V.I. 4+62.46 315.57
P.V.T. 6+75.00 318.35
P.V.I. 8+00.00 318.34
P.V.I. 9+30.81 319.20

340 330 320 310 300 290 280 270

2+50 3+50 4+50 5+50 6+50 7+50 8+50 9+50 10+50 11+50 12+50 13+50 14+50 15+50 16+50 17+50

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				6	ARK.			
				JOB NO.		100708	128	335

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 336+44.80 (HWY. 412)
STA. 11+97.37 (BROWNS CHAPEL RD.)
Δ = 98°12'31.32"

STA. 9+69 IN PLACE
24" x 40' R.C. PIPE CULVERT
RETAIN

100' TRANSITION

100' TRANSITION

N 0°03'24" E

S 81°44'05" E

STA. 10+24.29
BEGIN BROWN'S CHAPEL RD.

STA. 15+14.58
END BROWN'S CHAPEL RD.

CONST. LIMITS

FENCE

POE 20+56.70

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

BROWN'S CHAPEL RD.

P.V.C. 10+29.11
314.05

K=50.92
VC=115'
e=0.32'

P.V.I. 10+86.61
314.44

P.V.T. 11+44.11
316.13

P.V.C. 11+44.65
316.15

2.94%

P.V.I. 11+82.15
317.25

K=25.49
VC=75'
e=-0.28'

P.V.T. 12+19.65
317.25

P.V.I. 12+22.43
317.25

P.V.I. 12+32.43
317.45

P.V.I. 12+42.43
317.25

0.00%

0.00%

P.V.C. 13+06.00
317.25

K=87.47
VC=300'
e=1.29'

P.V.I. 14+56.00
317.25

STA. 15+14.58
320.13

350 340 330 320 310 300 290 280

8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

Δ = 79°59'43.44"

S 81°44'05" E

375

181.00

43.98

125' R

100' R

48'

8'

8'

STA. 373+77.85
END JOB 100708

24.18

181.98

363.79

102.85

21.44

211.98

PROP. ROW, C/L AND FENCE

CONST. LIMITS

S 81°44'05" E

CONST. LIMITS

PROP. ROW, C/L AND FENCE

370

176.88

346.53

74.91

139.39

EXIT RELIEF

HWY. 49

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 4+43 CONSTRUCT
18" X 134' R.C. PIPE CULVERT
ON AN 30° LT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
18" R.C. PIPE = 134 LIN. FT.
18" FES = 2 EACH

S 0°00'00" W

S 0°30'36" W

P.I. 2+30.76

PROP. ROW, C/A, AND FENCE

S 23°56'10" W

100' TRANSITION

+0.00

+0.00

P.C. 1+11.97

+00.00
280.00

P.T. 3+46.23

PI = 2+30.76
Δ = 23°25'34.17"RT.
D = 10°00'00.0"
T = 118.79'
L = 234.26'
PC = 1+11.97
PT = 3+46.23
e = 0.068 '/'
Ls = 250'

℄ HWY. 358

CONST. LIMITS

PI = 11+18.64
Δ = 34°38'44.37"LT.
D = 10°00'00.0"
T = 178.71'
L = 346.46'
PC = 9+39.94
PT = 12+86.39
e = 0.068 '/'
Ls = 250'

P.C. 9+39.94

P.T. 12+86.39

S 10°42'34"E

P.I. 8+04.48

STA. 13+96.38 (COUNTY RD. 750)
STA. 8+03.07 (HWY. 358)
Δ = 75°46'06.96"

P.I. 11+18.64

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

COUNTY ROAD 750

STA. 0+00.00 BEGIN SUPERELEVATION
STA. 2+29.10 MAX. SUPERELEVATION (0.062 FT./FT.)
STA. 2+29.10 MAX. SUPERELEVATION (0.062 FT./FT.)
STA. 4+58.20 END SUPERELEVATION

STA. 8+96.34 BEGIN SUPERELEVATION
STA. 11+13.17 MAX. SUPERELEVATION (0.059 FT./FT.)
STA. 11+13.17 MAX. SUPERELEVATION (0.059 FT./FT.)
STA. 13+30.00 END SUPERELEVATION

P.V.I. 0+00.00
ELEV. 343.64

P.V.C. 3+66.70
ELEV. 343.64

K=49.00
VC=283'
e=2.05'

P.V.T. 6+50.06
ELEV. 351.83

P.V.C. 8+60.03
ELEV. 363.98

P.V.I. 9+43.88
ELEV. 368.83

K=20.00
VC=168'
e=-1.21'

P.V.C. 10+43.50
ELEV. 368.83

P.V.T. 10+27.73
ELEV. 368.83

K=37.88
VC=242'
e=1.93'

P.V.I. 11+64.45
ELEV. 368.83

P.V.T. 12+85.41
ELEV. 376.55

P.V.I. 13+64.01
ELEV. 381.57

P.V.I. 13+84.01
ELEV. 381.57

-0.00%

5.78%

6.39%

0.00%

0.00%

STA. 4+43
F.L. INLET RT. 339.96
F.L. OUTLET LT. 338.84

P.V.I. 5+08.38
ELEV. 343.64

390
380
370
360
350
340
330
320

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

STA. 18+66.54 (HWY. 358)
STA. 0+00.00 (DRIVEWAY HWY. 358)
Δ = 76°03'43.92"

PI = 1+78.06
Δ = 26°21'57.47"RT.
D = 10°00'00.0"
T = 134.21'
L = 263.66'
PC = 0+43.85
PT = 3+07.51
NO SUPERELEVATION

PI = 6+74.77
Δ = 56°52'20.00"LT.
D = 15°00'00.0"
T = 206.84'
L = 379.15'
PC = 4+67.93
PT = 8+47.08
NO SUPERELEVATION

STA. 0+12.36
BEGIN DRIVEWAY HWY. 358

STA. 9+27.87
END DRIVEWAY HWY. 358

STA. 15+39 - IN PLACE
24" X 62' R.C. PIPE CULV'T
REMOVE

PROP. ROW, C/A, AND FENCE

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

DRIVEWAY HWY. 358

P.V.I. 0+12.36
ELEV. 380.10

-0.00%

P.V.C. 2+91.43
ELEV. 380.10

P.V.I. 3+55.06
ELEV. 380.10

K=48.19
VC=127'
e=-0.42'

P.V.T. 4+18.69
ELEV. 378.42

-2.64%

P.V.C. 4+75.94
ELEV. 376.91

K=55.03
VC=139'
e=0.44'

P.V.I. 5+45.65
ELEV. 375.07

P.V.C. 6+19.35
ELEV. 374.99

-0.01%

P.V.T. 6+15.36
ELEV. 374.99

P.V.I. 6+82.61
ELEV. 374.92

K=49.00
VC=127'
e=-0.41'

-2.69%

P.V.T. 7+45.87
ELEV. 373.22

P.V.I. 9+27.87
ELEV. 368.32

400 390 380 370 360 350 340

-1+00 0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

PI = 103+09.96
Δ = 105°28'45"RT.
D = 63°39'43.0"
T = 118.31'
L = 165.69'
PC = 101+91.65
PT = 103+57.34
NO SUPER

P.I. 103+09.96

S 81°44'05" E

P.I. 290+34.14

J05

P.T. 103+57.34

P.C. 101+91.65

PROP. ROW, C/A, AND FENCE

172.00

PROPOSED T.C.E.

N 43°00'01" W

PROPOSED T.C.E.

110 PROPOSED CONST. LIMITS

PROPOSED CONST. LIMITS

N 00°00'00" W

P.C. 112+44.26

P.T. 113+78.15

POE-M 114+29.24

N 21°21'18" W

.25 BEGIN C OF A

S 31°31'14" W

.25 END C OF A

STA. 294+00 INSTALL
DBL. 36" x 94' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 1500 CU. YDS.

POB 99+74.23

100

20'

25'

16'

CONST. LIMITS

172.00

175.00

152.00

225.00

PI = 113+13.83
Δ = 38°21'26"LT.
D = 28°38'52.0"
T = 69.56'
L = 133.89'
PC = 112+44.26
PT = 113+78.15
NO SUPER

STA. 114+29.24
END JETTON DRIVE

113+13.83

AND FENCE

STA. 99+74.23
BEGIN JETTON DRIVE

P.V.I. 99+74.26
ELEV. 331.68

P.V.C. 99+89.26
ELEV. 332.83

P.V.I. 100+39.26
ELEV. 336.68

P.V.C. 101+00.00
ELEV. 332.10

P.V.T. 100+89.26
ELEV. 332.91

P.V.I. 101+50.00
ELEV. 328.33

P.V.T. 102+00.00
ELEV. 328.49

P.V.I. 102+39.26
ELEV. 328.62

P.V.C. 103+67.02
ELEV. 329.04

P.V.I. 104+17.02
ELEV. 329.20

P.V.T. 104+67.02
ELEV. 330.91

P.V.C. 105+06.25
ELEV. 332.25

P.V.I. 105+46.25
ELEV. 333.61

P.V.T. 105+86.25
ELEV. 333.62

P.V.C. 105+98.45
ELEV. 333.62

P.V.I. 106+73.45
ELEV. 333.64

P.V.T. 107+48.45
ELEV. 339.88

P.V.C. 108+06.61
ELEV. 344.73

P.V.I. 108+56.61
ELEV. 348.89

P.V.T. 109+06.61
ELEV. 349.35

P.V.C. 110+95.60
ELEV. 351.08

P.V.I. 111+45.60
ELEV. 351.54

P.V.T. 111+95.60
ELEV. 355.94

P.V.C. 113+16.52
ELEV. 366.58

P.V.T. 113+66.52
ELEV. 368.78

P.V.I. 113+83.97
ELEV. 368.78

P.V.I. 113+41.52
ELEV. 368.78

K 6.56
VC=100'
e=-1.91'

K 12.70
VC=100'
e=0.98'

K 32.45
VC=100'
e=0.39'

K 23.64
VC=80'
e=-0.34'

K 18.07
VC=150'
e=1.56'

K 13.50
VC=100'
e=-0.93'

K 12.69
VC=100'
e=0.98'

K 5.68
VC=50'
e=-0.55'

-7.10%
-7.54%
0.33%
0.33%
0.03%
3.41%
8.32%
0.92%
8.80%
0.00%

370
360
350
340
330
320
310
300

99+50 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 114+50

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(2) SUMMARY OF SIGNALIZATION QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

SUMMARY OF SIGNALIZATION QUANTITIES

	ITEM NUMBER	ITEM	HWY. 412 (W. KINGS HWY.) AT HWY. 412 BYPASS	HWY. 49 AT HWY. 412 BYPASS	TOTAL JOB QUANTITY	UNIT
	SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	1		1	EACH
	SP	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)		1	1	EACH
	704	VEHICLE DETECTOR-RACK MOUNT		1	1	EACH
	SP	LOOP WIRING CLASS III (1C/16 A.W.G.)		424	424	LIN. FT.
	704	FEEDER WIRE		1912	1912	LIN. FT.
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	6	14	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	3	1	4	EACH
	708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	504	142	646	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	306		306	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	594		594	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	526		526	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	215		215	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20		20	LIN. FT.
	SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	809		809	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (1.25")	20		20	LIN. FT.
	710	NON-METALLIC CONDUIT (1")		767	767	LIN. FT.
	710	NON-METALLIC CONDUIT (1.25")	20	40	60	LIN. FT.
	710	NON-METALLIC CONDUIT (2")	60		60	LIN. FT.
	710	NON-METALLIC CONDUIT (3")	568		568	LIN. FT.
	711	CONCRETE PULL BOX (TYPE 1 HD)		6	6	EACH
	711	CONCRETE PULL BOX (TYPE 2 HD)	5		5	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (30')	1		1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60')	2		2	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (72')	1		1	EACH
	SP	LED LUMINAIRE ASSEMBLY	4		4	EACH
	SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1		1	EACH
	SP	18" STREET NAME SIGN	4	1	5	EACH
*	SP & 733	VIDEO DETECTOR (CLR)	7	1	8	EACH
	733	VIDEO CABLE	1314	270	1584	LIN. FT.
	733	VIDEO MONITOR (CLR)	1		1	EACH
*	SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	4		4	EACH
	SP & 733	VIDEO EDGE CARD EXTENDER	2		2	EACH
	SP & 733	VEHICLE DETECTOR RACK (24 CHANNEL)	1		1	EACH

* ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED FOR HWY. 412 (W. KINGS HWY.) AT HWY. 412 BYPASS.

DATE: 12-15-16 FILE NAME: t100708_job.dgn

LOCATION: HWY. 412 WEST-HWY. 49 (GR. & STRS.) (S)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: N/A DRAWN BY: GWE

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(2) TRAFFIC SIGNAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

TRAFFIC SIGNAL NOTES:

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 101 (2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.

3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.

4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE DETAILS MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON STANDARD DRAWING). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

12. ALL CONCRETE PULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.

16. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

17. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

18. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.

19. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714-TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.

20. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.

21. ONE VIDEO PROGRAMMNG MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

22. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.

23. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4th EDITION (2001) WITH 2003 AND 2006 INTERIMS.

24. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODFICATION.

25. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET POWER SURGE PROTECTION.

DATE: 12-15-16 FILE NAME: t100708_job.dgn

LOCATION: HWY. 412 WEST-HWY. 49 (GR. & STRS.) (S)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: N/A DRAWN BY: GWE

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.		100708	135	335

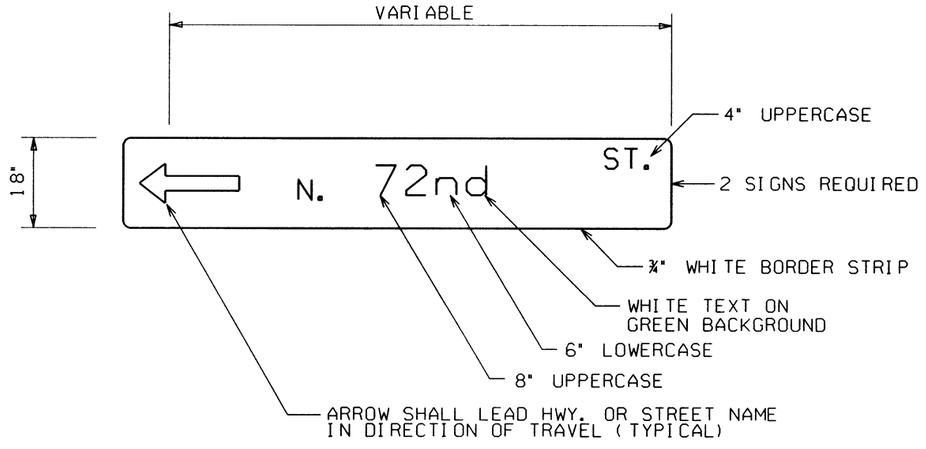
(2) TRAFFIC SIGNAL QUANTITIES - W. KINGS HWY.

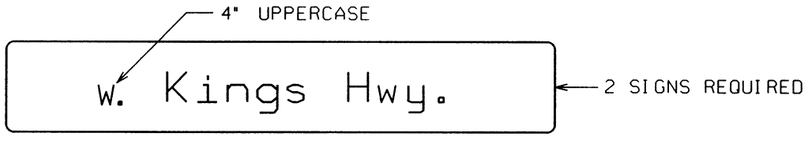
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

TRAFFIC SIGNAL QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	3	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	504	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	306	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	594	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	526	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	215	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	809	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	60	LIN. FT.
710	NON-METALLIC CONDUIT (3")	568	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (30')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (60')	2	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (72')	1	EACH
SP	LED LUMINAIRE ASSEMBLY	4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	18" STREET NAME SIGN	4	EACH
* SP & 733	VIDEO DETECTOR (CLR)	7	EACH
733	VIDEO CABLE	1314	LIN. FT.
733	VIDEO MONITOR (CLR)	1	EACH
* SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	4	EACH
SP & 733	VIDEO EDGE CARD EXTENDER	2	EACH
SP & 733	VEHICLE DETECTOR RACK (24 CHANNEL)	1	EACH

* ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED PERMANENT TRAFFIC SIGNAL.





NOTES:
1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE AND BUBBLE FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.

2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL ALSO BE ANODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY.

3. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM OF THE NEARSIDE LEFT POLE.
SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE C 2000 STANDARD ALPHABET SHALL BE USED FOR ALL LETTERS.

DATE: 12-15-16 FILE NAME: t100708_02.dgn

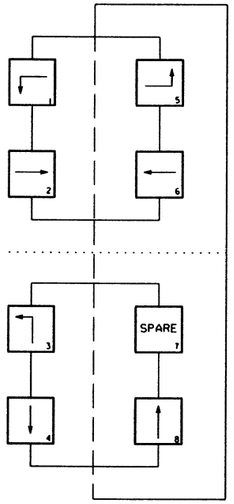
LOCATION: HWY. 412 (BYPASS)/HWY. 412 (W. KINGS HWY.)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: N/A DRAWN BY: GWE

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.		100708	136	335

(2) SIGNALIZATION PLAN SHEET

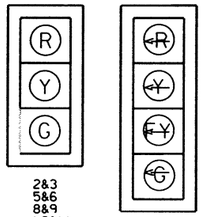
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

PHASING DIAGRAM



SIGNAL FACES

12" LENSES



2&3
5&6
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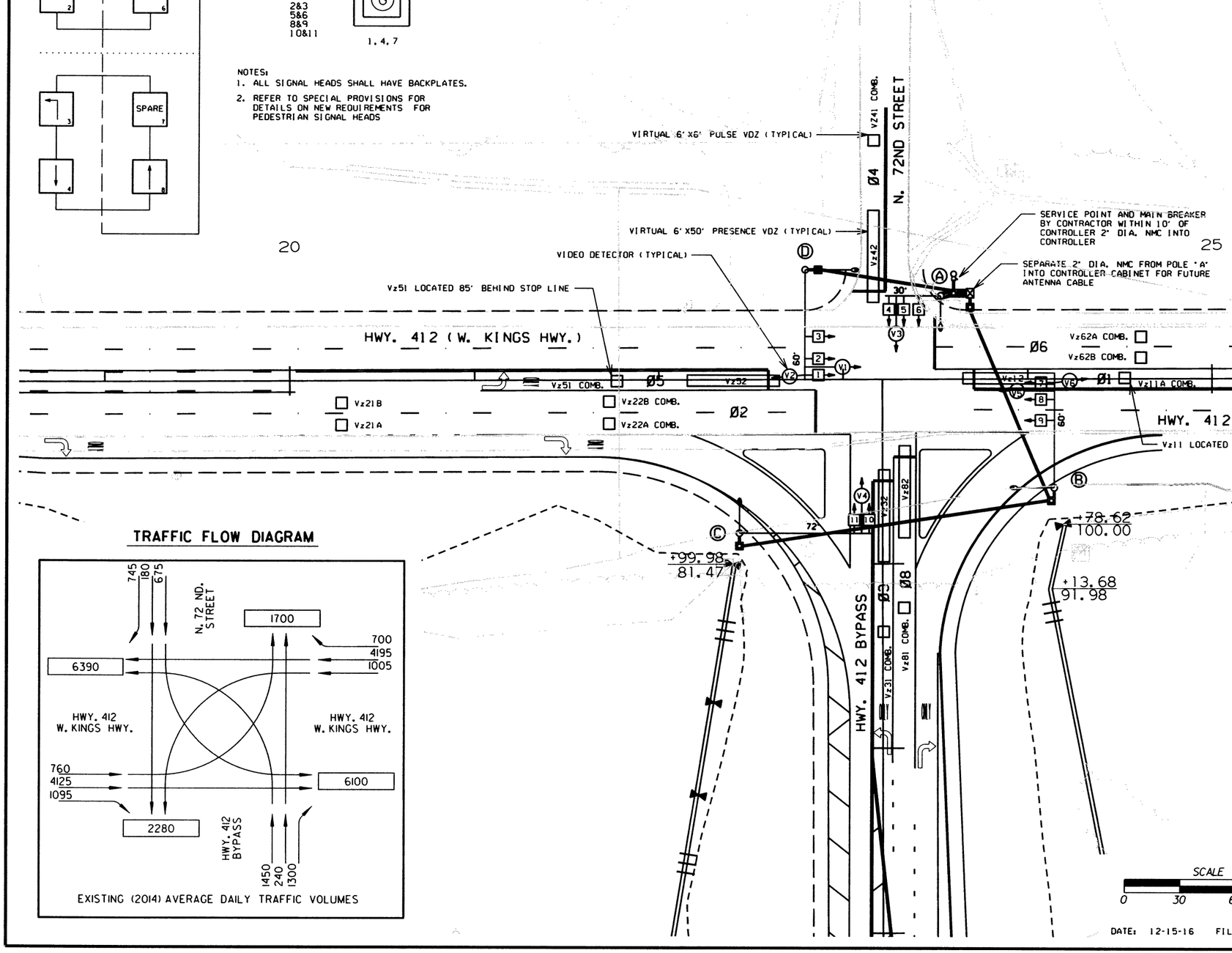
10&11

1, 4, 7

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS



TRAFFIC FLOW DIAGRAM

EXISTING (2014) AVERAGE DAILY TRAFFIC VOLUMES

DETECTOR SPACING CHART

HWY. 412 (BYPASS)/HWY. 412 (W. KINGS HWY.)			
NAME AND DIRECTION OF APPROACH	POSTED SPEED	DISTANCE FROM STOP BAR	
		LEAD VDZ*	LAG VDZ*
HWY. 412 (W. KINGS HWY.)	45 MPH	260'	115'
HWY. 412 (BYPASS)	30 MPH	210'	65'
72ND STREET	30 MPH	210'	65'

*VDZ=VIDEO DETECTION ZONE

SCALE IN FEET
0 30 60 120

DATE: 12-15-16 FILE NAME: t100708_02.dgn

LOCATION: HWY. 412 (BYPASS)/HWY. 412 (W. KINGS HWY.)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: 1"=60' DRAWN BY: GWE

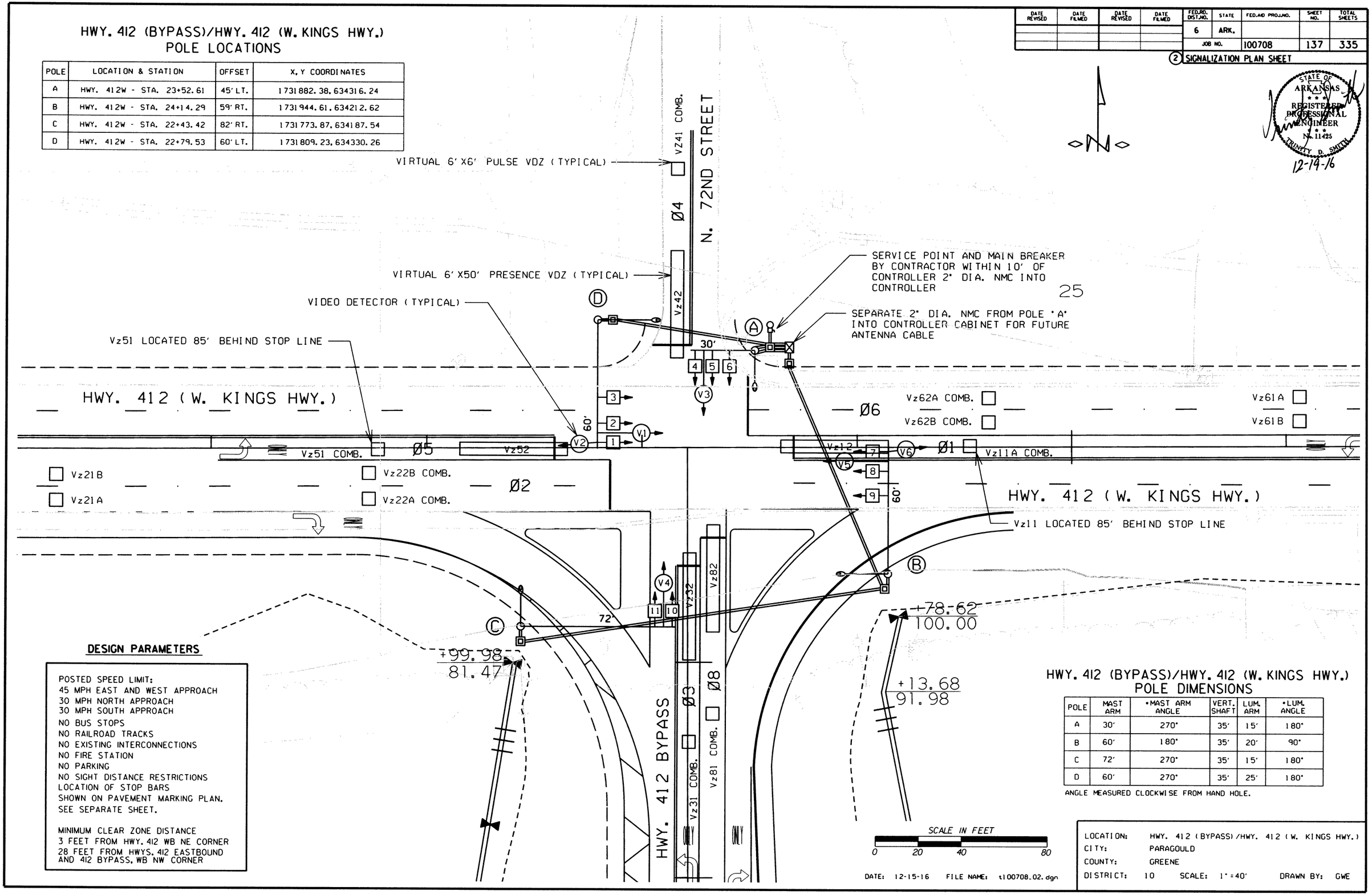
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	137	335

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-14-16

HWY. 412 (BYPASS)/HWY. 412 (W. KINGS HWY.) POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 412W - STA. 23+52.61	45' LT.	1731882.38, 634316.24
B	HWY. 412W - STA. 24+14.29	59' RT.	1731944.61, 634212.62
C	HWY. 412W - STA. 22+43.42	82' RT.	1731773.87, 634187.54
D	HWY. 412W - STA. 22+79.53	60' LT.	1731809.23, 634330.26



DESIGN PARAMETERS

POSTED SPEED LIMIT:
45 MPH EAST AND WEST APPROACH
30 MPH NORTH APPROACH
30 MPH SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS
LOCATION OF STOP BARS SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE
3 FEET FROM HWY. 412 WB NE CORNER
28 FEET FROM HWYS. 412 EASTBOUND AND 412 BYPASS, WB NW CORNER

HWY. 412 (BYPASS)/HWY. 412 (W. KINGS HWY.) POLE DIMENSIONS

POLE	MAST ARM	*MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	*LUM. ANGLE
A	30'	270°	35'	15'	180°
B	60'	180°	35'	20'	90°
C	72'	270°	35'	15'	180°
D	60'	270°	35'	25'	180°

ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

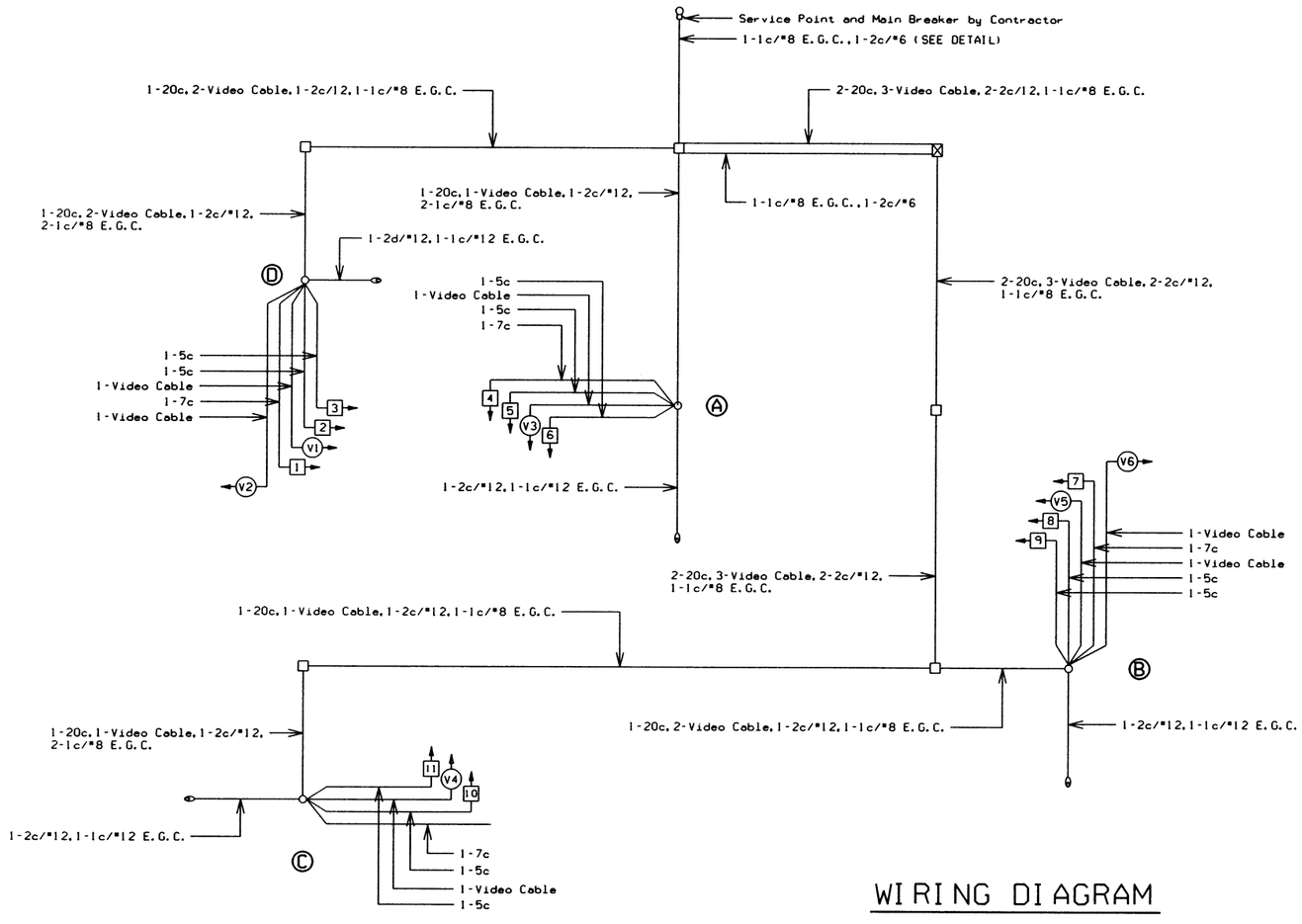
SCALE IN FEET
0 20 40 80

DATE: 12-15-16 FILE NAME: t100708_02.dgn

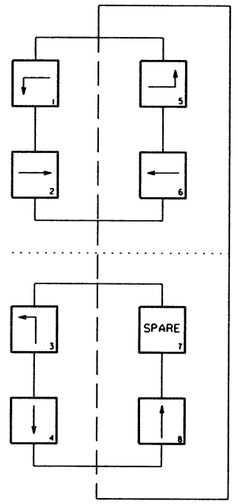
LOCATION: HWY. 412 (BYPASS)/HWY. 412 (W. KINGS HWY.)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: 1"=40' DRAWN BY: GWE

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.		100708	138	335

(2) SIGNALIZATION PLAN SHEET

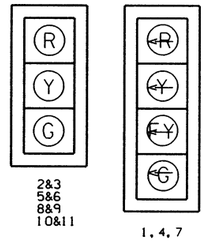


PHASING DIAGRAM



SIGNAL FACES

12" LENSES



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1, 4, 7

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS

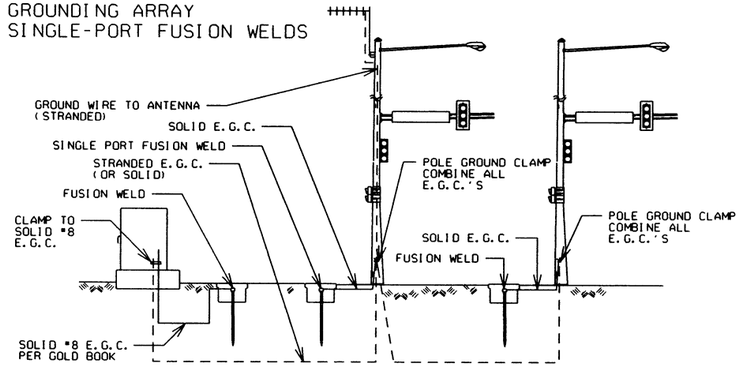
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

INTERVAL CHART

SIGNAL FACES	HWY. 412 (BYPASS)/HWY. 412W												FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3+8	CLR.	4+8	CLR.	
1	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
2&3	R	R	G	••	R	R	G	••	R	R	R	R	R
4	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~FY~~	•••	~~R~~
5&6	R	R	R	R	R	R	R	R	G	••	G	••	R
7	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
8&9	R	R	R	R	G	••	G	••	R	R	R	R	R
10&11	R	R	R	R	R	R	R	R	R	G	••		R

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

GROUNDING ARRAY
SINGLE-PORT FUSION WELDS



WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DETECTOR SYSTEM DESCRIPTION: JOB 100708

HWY. 412 (BYPASS)/HWY. 412 (W. KINGS HWY.) DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	COMMENTS	TUBE LENGTHS
DET. ID*	LOCATION DIRECTION	TYPE	DET. *	CAB. TRM *	AMP CHN. *	CON. INP.*	PHS	SYSTEM DET. *			
Vz11	WB LEFT TURN FAR	COMB.			1	D1	1	1		CAMERA V1	23'
Vz12	WB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23'
Vz21A&B	EB ADVANCE	LOCAL			5	V2	2			CAMERA V2	23'
Vz22A&B	EB NEAR	COMB.			6	V10	2	2		CAMERA V5	23'
Vz31	NB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	23'
Vz32	NB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	23'
Vz41	SB ADVANCE	COMB.			13	V12	4	4		CAMERA V4	23'
Vz42	SB NEAR	LOCAL			14	V4	4			CAMERA V4	23'
Vz51	EB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	23'
Vz52	EB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	23'
Vz61A&B	WB ADVANCE	LOCAL			3	V6	6			CAMERA V6	23'
Vz62A&B	WB NEAR	COMB.			4	V14	6	6		CAMERA V1	23'
Vz81	NB ADVANCE	COMB.			11	V16	8	8		CAMERA V3	23'
Vz82	NB NEAR	LOCAL			12	V8	8			CAMERA V3	23'
					SPARE 15 & 16						

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

DATE: 12-15-16 FILE NAME: t100708.02.dgn

LOCATION: HWY. 412 (BYPASS)/HWY. 412 (W. KINGS HWY.)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: N/A DRAWN BY: GWE

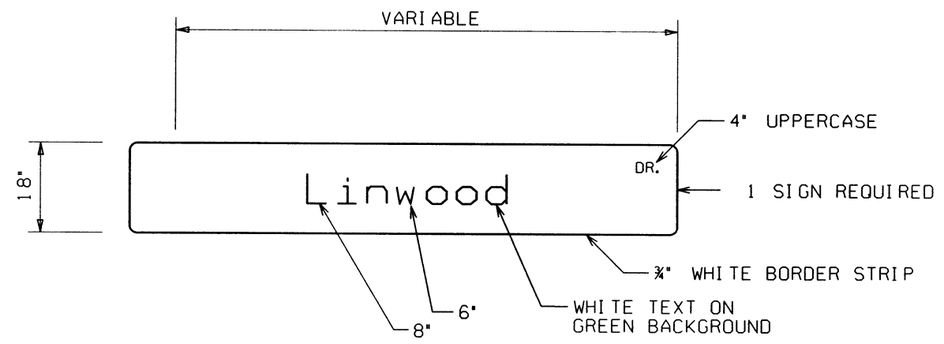
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	139	335

(2) TRAFFIC SIGNAL QUANTITIES - LINWOOD DR.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 11425
TRINITY D. SMITH
12-19-16

TRAFFIC SIGNAL QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)	1	EACH
704	VEHICLE DETECTOR-RACK MOUNT	1	EACH
SP	LOOP WIRING CLASS III (1C/16 A.W.G.)	424	LIN. FT.
704	FEEDER WIRE	1912	LIN. FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	6	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	1	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	142	LIN. FT.
710	NON-METALLIC CONDUIT (1")	767	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	40	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1 HD)	6	EACH
SP	18" STREET NAME SIGN	1	EACH
SP & 733	VIDEO DETECTOR (CLR)	1	EACH
733	VIDEO CABLE	270	LIN. FT.



NOTES:

1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE AND BUBBLE FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.

2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL ALSO BE ANODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY.

3. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM OF THE NEARSIDE LEFT POLE.
SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE C 2000 STANDARD ALPHABET SHALL BE USED FOR ALL LETTERS.

DATE: 12-15-16 FILE NAME: t100711_01.dgn

LOCATION: HWY. 412 (BYPASS)/HWY. 49 (LINWOOD DR.)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: N/A DRAWN BY: GWE

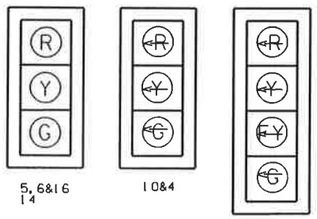
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	140	335

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

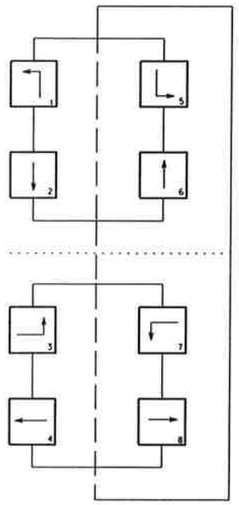
NEW SIGNAL FACES

12" LENSES



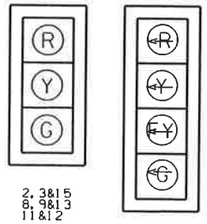
NOTES:
ALL SIGNAL HEADS SHALL HAVE BACKPLATES.

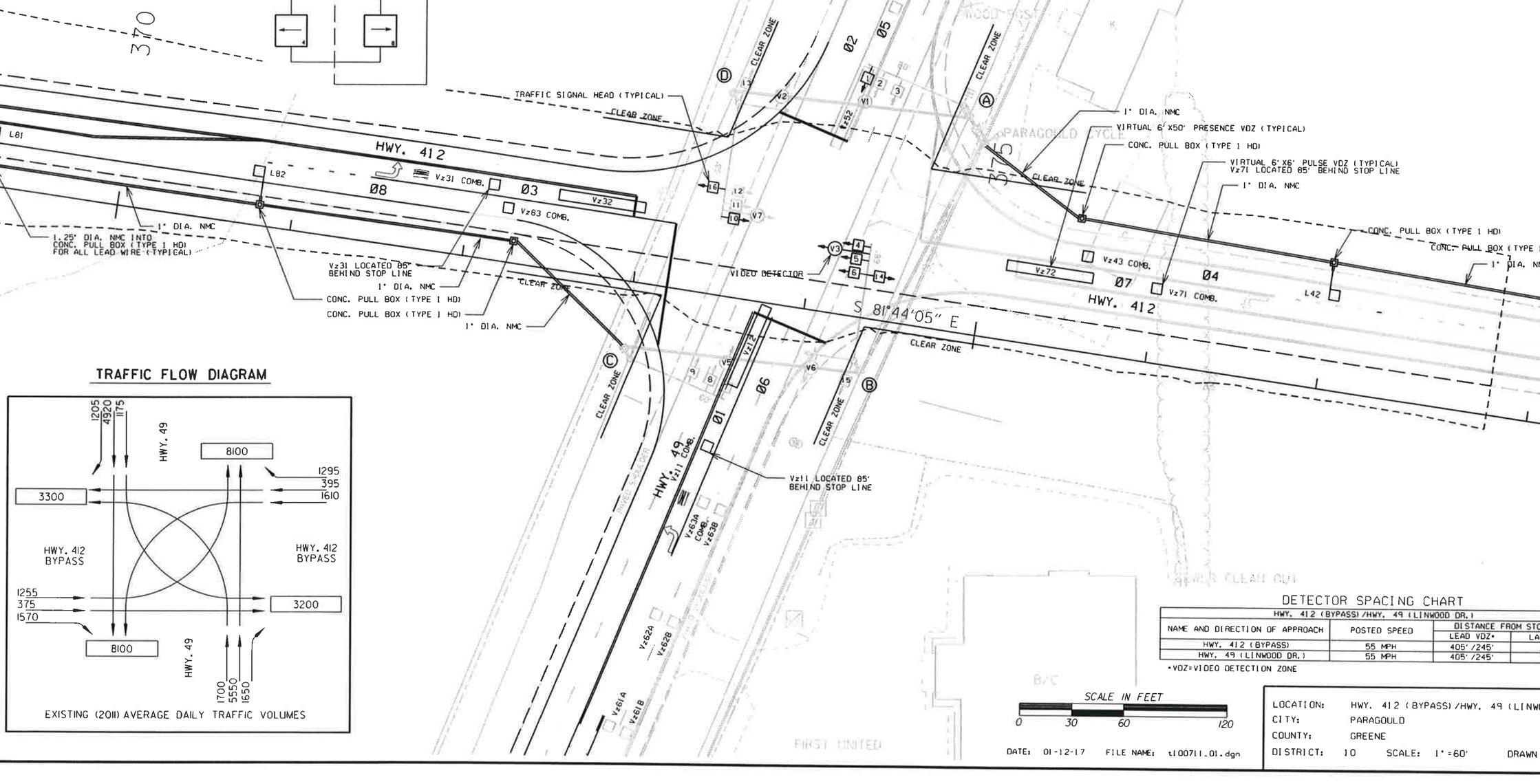
PHASING DIAGRAM



EXISTING SIGNAL FACES

12" LENSES





TRAFFIC FLOW DIAGRAM

EXISTING (2011) AVERAGE DAILY TRAFFIC VOLUMES

DETECTOR SPACING CHART

HWY. 412 (BYPASS)/HWY. 49 (LINWOOD DR.)			
NAME AND DIRECTION OF APPROACH	POSTED SPEED	DISTANCE FROM STOP BAR	
		LEAD VDZ*	LAG VDZ*
HWY. 412 (BYPASS)	55 MPH	405'/245'	100'
HWY. 49 (LINWOOD DR.)	55 MPH	405'/245'	100'

*VDZ=VIDEO DETECTION ZONE

SCALE IN FEET
0 30 60 120

DATE: 01-12-17 FILE NAME: t100711_01.dgn

LOCATION: HWY. 412 (BYPASS)/HWY. 49 (LINWOOD DR.)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: 1"=60' DRAWN BY: GWE

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.		100708	141	335

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-19-16

HWY. 49

Vz23B COMB.
Vz23A
Vz51 COMB.

CLEAR ZONE

Ø2
Ø5

(D)
13
V2
1
2
3
V1
Vz52

(A)

HWY. 412

L82

Ø8

Vz31 COMB.
Ø3
Vz32
Vz83 COMB.

16
12
11
10
V7

V3
4
5
6
14

Ø5

CLEAR ZONE

Vz43 COMB.
Vz72
Ø7
Ø4
Vz71 COMB.
HWY. 412
L42

S 81°44'05" E

CLEAR ZONE

CLEAR ZONE

(C)
9
8
V5
Vz12
V6
Ø6
15
(B)

HWY. 49
Vz11 COMB.
Ø1
Vz634 COMB.
Vz638

CLEAR ZONE

DESIGN PARAMETERS

POSTED SPEED LIMIT:
55 MPH EAST AND WEST APPROACH
55 MPH NORTH AND SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS
LOCATION OF STOP BARS
SHOWN ON PAVEMENT MARKING PLAN.
SEE SEPARATE SHEET.
MINIMUM CLEAR ZONE DISTANCE
30 FEET FROM HWYS. 412 AND 49

SCALE IN FEET
0 20 40 80

DATE: 12-15-16 FILE NAME: t100711_01.dgn

LOCATION: HWY. 412 (BYPASS)/HWY. 49 (LINWOOD DR.)
CITY: PARAGOULD
COUNTY: GREENE
DISTRICT: 10 SCALE: 1"=40' DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	142	335

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-12-17

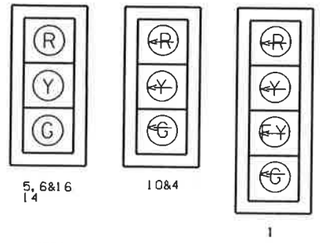
EXISTING SIGNAL FACES

12" LENSES

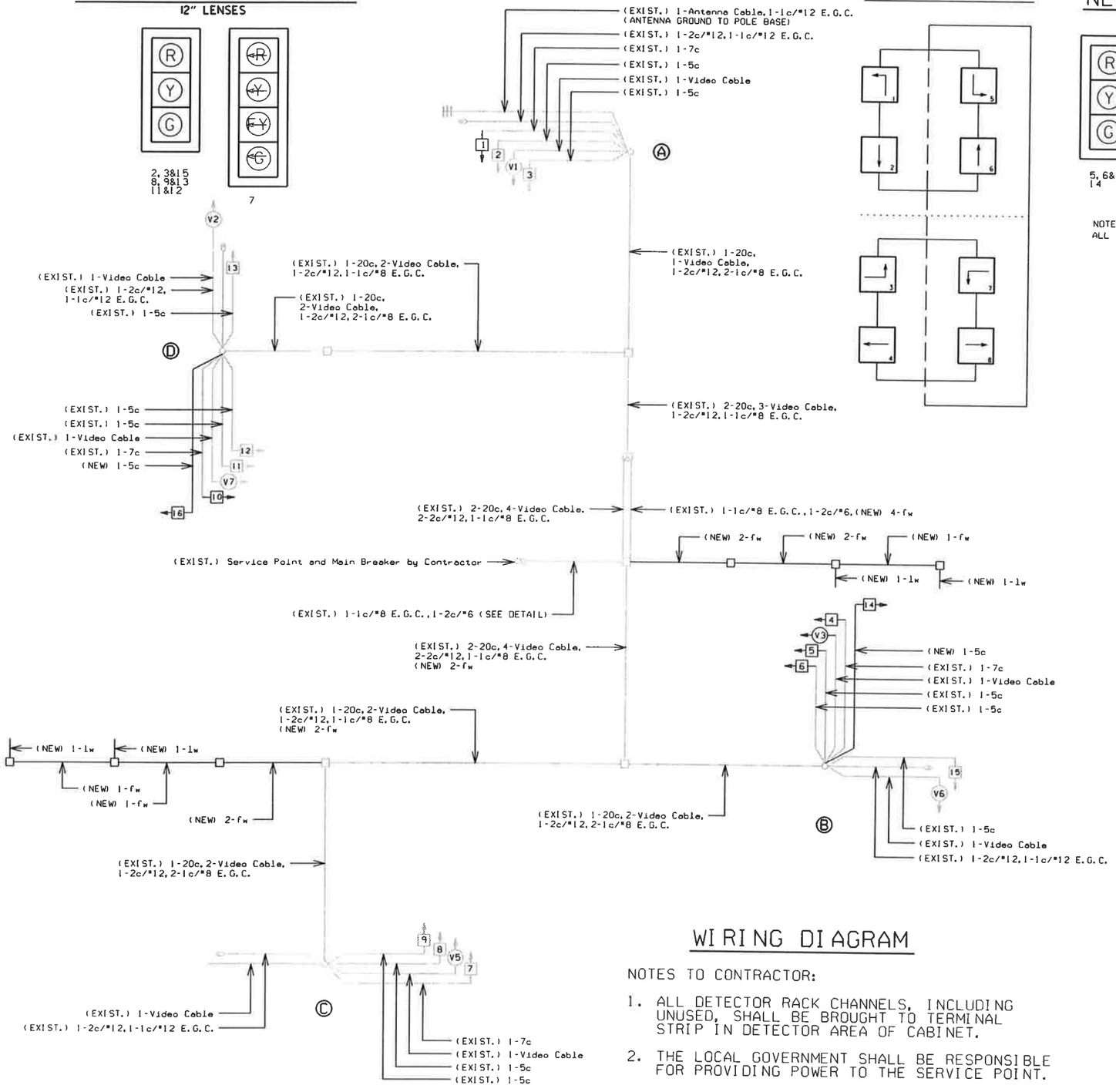
PHASING DIAGRAM

NEW SIGNAL FACES

12" LENSES



NOTES:
ALL SIGNAL HEADS SHALL HAVE BACKPLATES.



INTERVAL CHART

SIGNAL FACES	HWY. 412 (BYPASS)/HWY. 49															FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3+7	CLR.	3+8	CLR.	4+7	CLR.	4+8	CLR.	
1	~~G~~	•	~~G~~	•	~~R~~	~~R~~	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
2,3&15	R	R	G	••	R	R	G	••	R	R	R	R	R	R	R	R	R
4	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~G~~	•	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
5,6&16	R	R	R	R	R	R	R	R	R	R	G	••	R	R	G	••	R
7	~~G~~	•	~~R~~	~~R~~	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
8,9&13	R	R	R	R	G	••	G	••	R	R	R	R	R	R	R	R	R
10	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~R~~	~~R~~	~~G~~	•	~~R~~	~~R~~	~~R~~
11,12&14	R	R	R	R	R	R	R	R	R	R	R	R	G	••	G	••	R

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

DETECTOR SYSTEM DESCRIPTION: JOB 100708

PARAGOULD - HWY. 412 (BYPASS)/HWY. 49 DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	COMMENTS	TUBE LENGTH
DET. ID#	LOCATION DIRECTION	TYPE	DET. #	CAB. TRM #	AMP CHN. #	CON. INP.#	PHS	SYSTEM DET. #			
Vz11	NB LT. TURN ADVANCE	COMB.			1	V9	1	1		CAMERA V1	74'
Vz12	NB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	74'
Vz21A&B	SB ADVANCE	LOCAL			9	V2	2			CAMERA V2	74'
Vz22A&B	SB INTERMEDIATE	LOCAL			10	V2	2			CAMERA V2	74'
Vz23A	SB INSIDE NEAR	COMB.			11	V10	2	2		CAMERA V5	23'
Vz23B	SB OUTSIDE NEAR	COMB.			11	V10	2	2		CAMERA V5	23'
Vz31	EB LT. TURN ADVANCE	COMB.			25	V11	3	3		CAMERA V3	74'
Vz32	EB LEFT TURN	LOCAL			26	V3	3			CAMERA V3	74'
L41	WB ADVANCE	LOCAL	4			P1					
L42	WB INTERMEDIATE	LOCAL	4			V4					
Vz43	WB NEAR	COMB.	12		17	V12	4	4		CAMERA V7	74'
Vz51	SB LT. TURN ADVANCE	COMB.			13	V13	5	5		CAMERA V5	23'
Vz52	SB LEFT TURN	LOCAL			14	V5	5			CAMERA V5	23'
Vz61A&B	NB ADVANCE	LOCAL			3	V6	6			CAMERA V6	74'
Vz62A&B	NB INTERMEDIATE	LOCAL			4	V6	6			CAMERA V6	74'
Vz63A	NB INSIDE NEAR	COMB.			5	V14	6	6		CAMERA V1	23'
Vz63B	WB OUTSIDE NEAR	COMB.			5	V14	6	6		CAMERA V1	23'
Vz71	WB LT. TURN ADVANCE	COMB.			21	V15	4	7		CAMERA V7	74'
Vz72	WB LEFT TURN	LOCAL			22	V7	4			CAMERA V7	74'
L81	WB ADVANCE	LOCAL	8			P3					
L82	WB INTERMEDIATE	LOCAL	8			V8					
Vz83	WB NEAR	COMB.	16		27	V6	8	8		CAMERA V3	74'
				SPARE 6, 7, 8, 12, 15, 16, 18, 19, 20, 23, 24, 28-32							

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT
NOTE: "AMP CHN#" REFERS TO TOE DETECTOR RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.

WIRING DIAGRAM

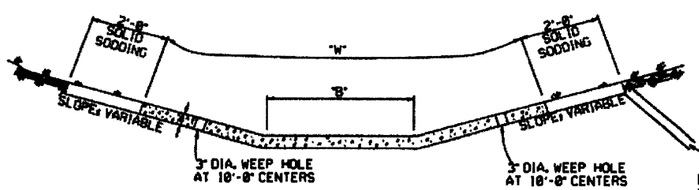
NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DATE: 01-12-17 FILE NAME: t100711_01.dgn

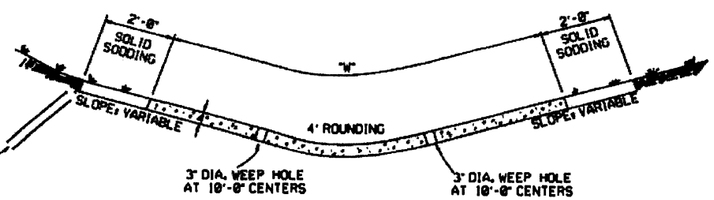
LOCATION:	HWY. 412 (BYPASS)/HWY. 49 (LINWOOD DR.)
CITY:	PARAGOULD
COUNTY:	GREENE
DISTRICT:	10 SCALE: N/A DRAWN BY: GWE

REFER TO TABULATION OF QUANTITIES FOR "W" & "B" DIMENSIONS



TYPE A

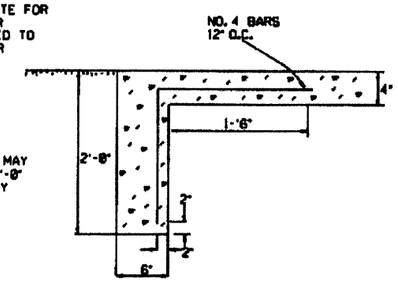
REFER TO TABULATION OF QUANTITIES FOR "W" DIMENSIONS



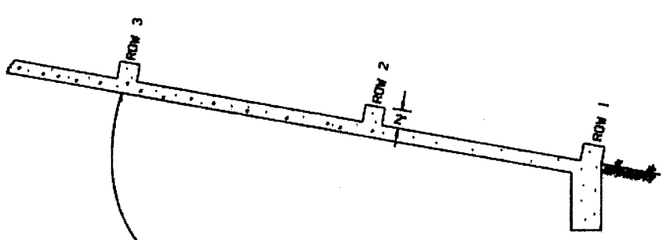
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."

TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

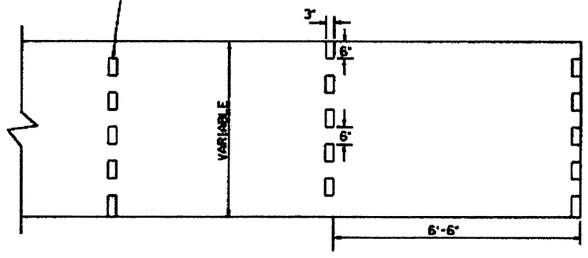


TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

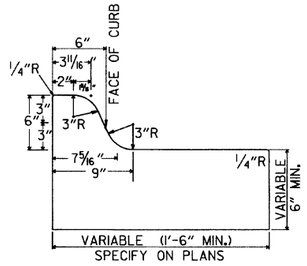
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-7-01	ADDED GENERAL NOTE	
8-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-88	ELIMINATED MIN. SIZE OF ELEMENTS	111-30-88
7-15-88	REVISED DISSIPATOR NOTE	851-7-15-88
4-2-87	REVISED ENERGY DISSIPATOR	871-4-2-87
1-6-87	MODIFIED NOTE ON ENERGY DISS.	871-1-6-87
11-1-86	ADDED NOTE TO ENERGY DISS.	858-11-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	808-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPES A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

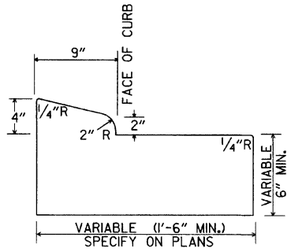
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

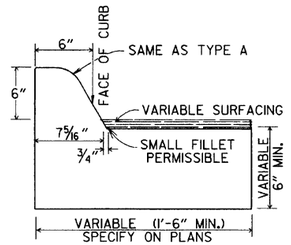
STANDARD DRAWING CDP-1



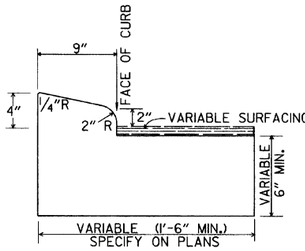
TYPE A



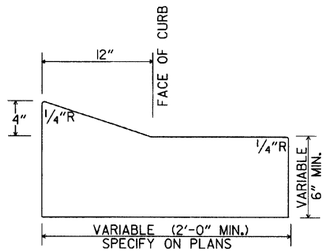
TYPE B-I



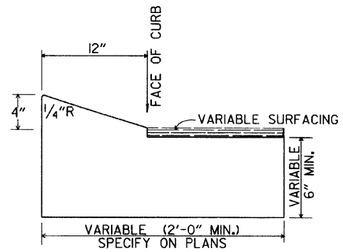
TYPE C



TYPE B-2

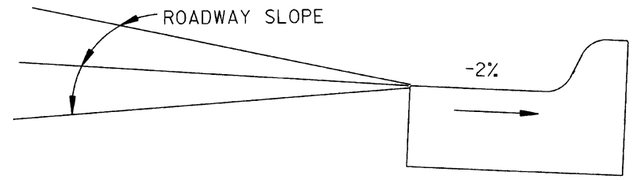


TYPE E-1



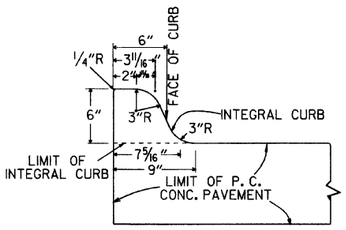
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

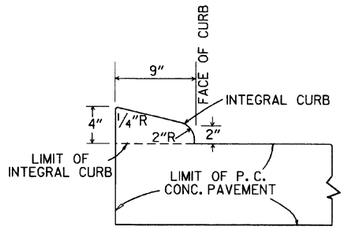


DETAIL OF GUTTER SLOPE

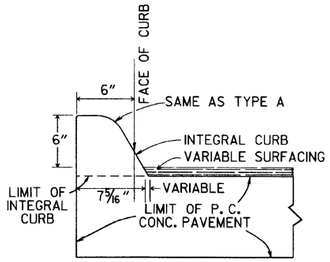
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

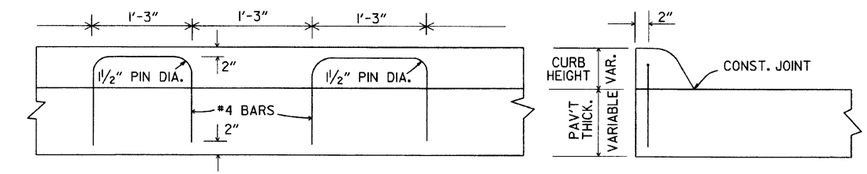


TYPE B

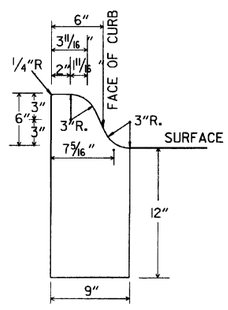


TYPE C

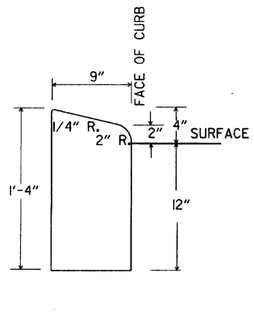
INTEGRAL CURB



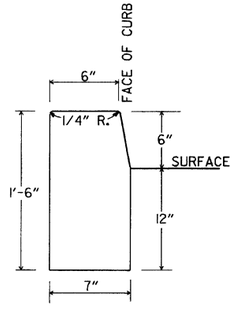
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



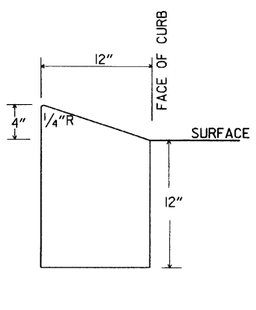
TYPE A



TYPE B

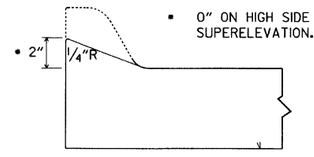


TYPE D



TYPE E

CONCRETE CURB



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

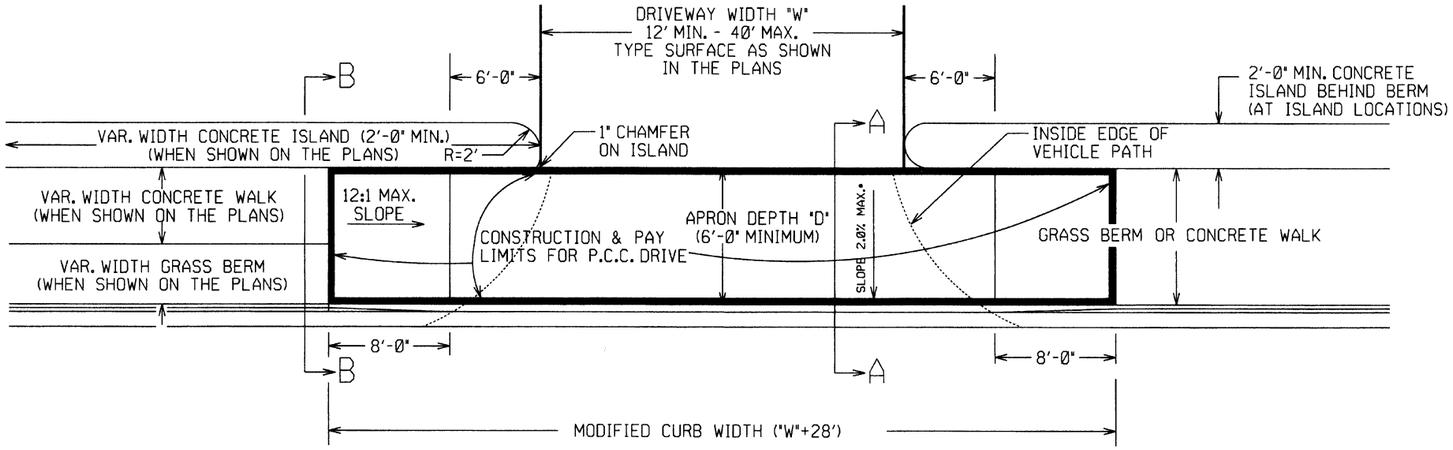
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	590-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

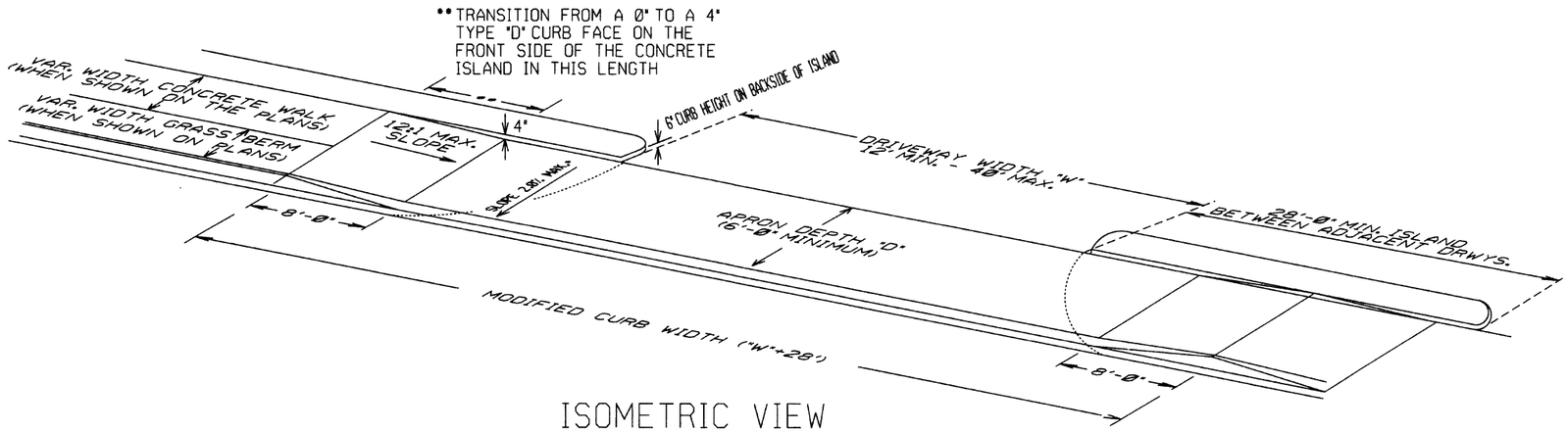
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

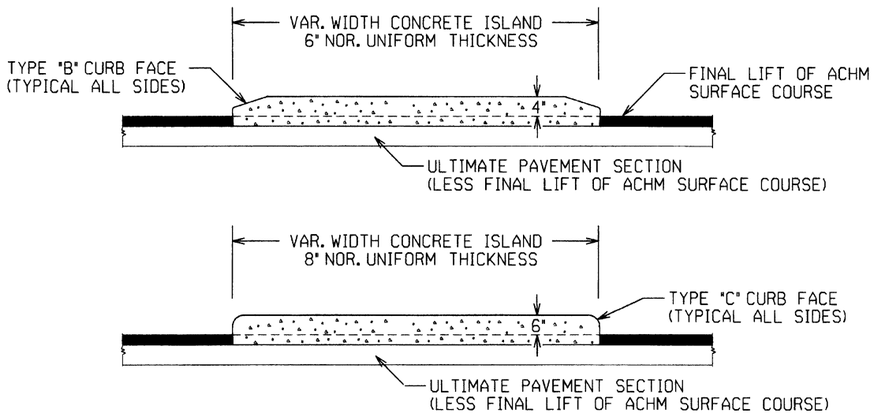
STANDARD DRAWING CG-1



PLAN VIEW

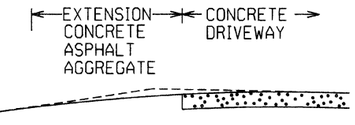


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

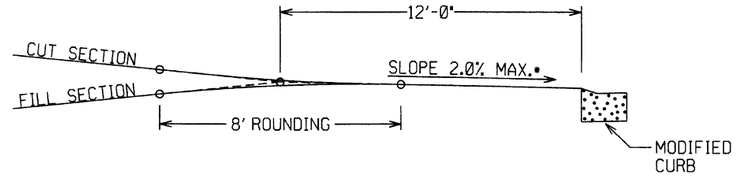
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

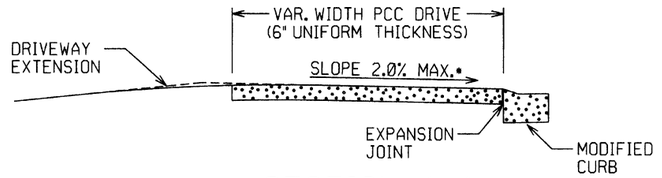
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

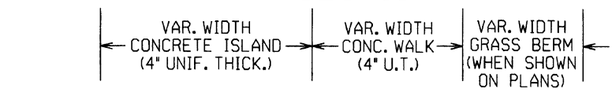


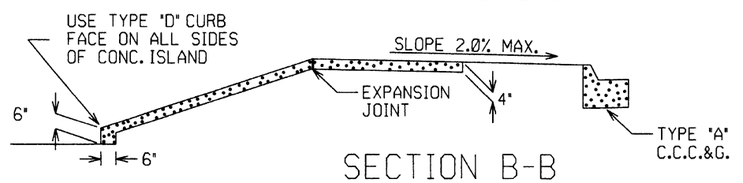
DRIVEWAY VERTICAL ALIGNMENT DETAILS

• NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A

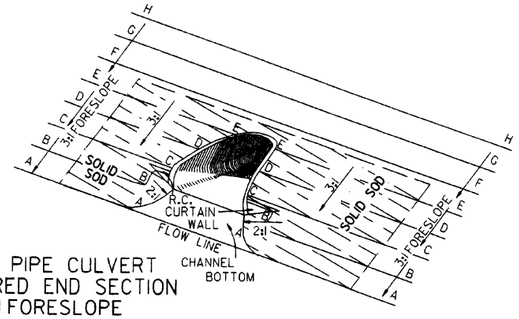




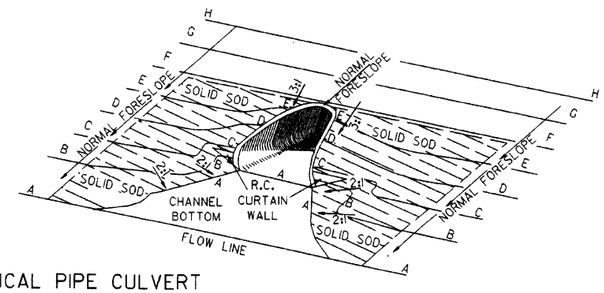
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

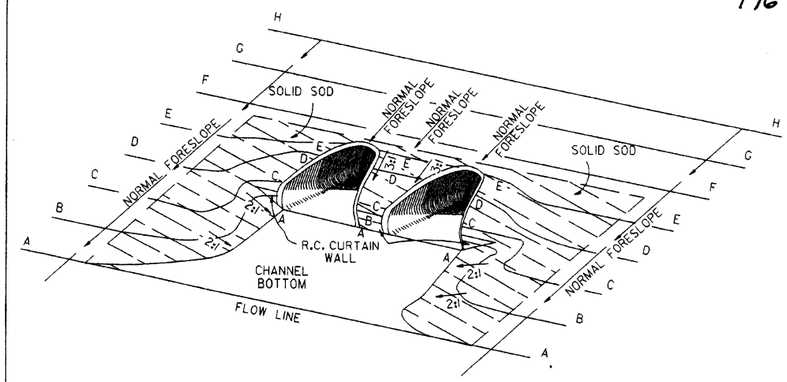
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



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



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

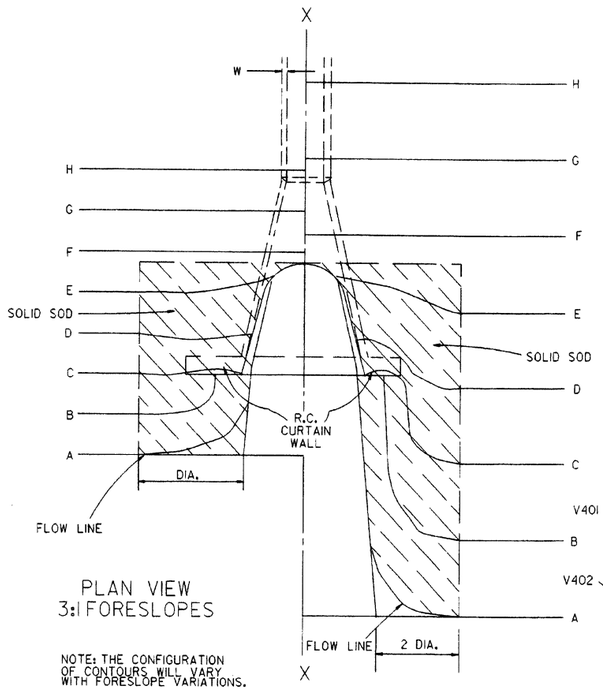
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

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

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

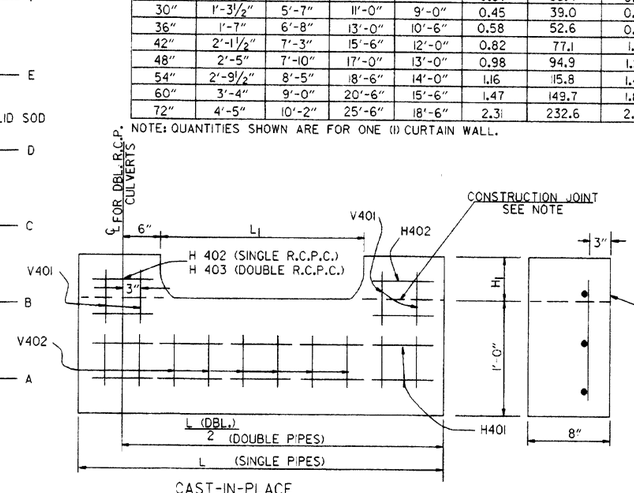
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

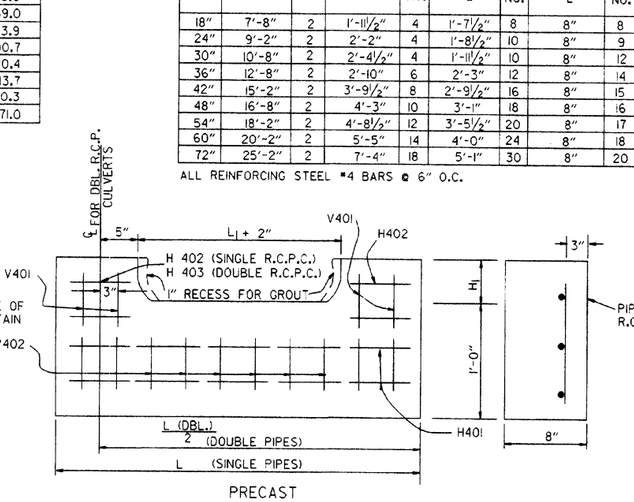
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

SOLID SODDING

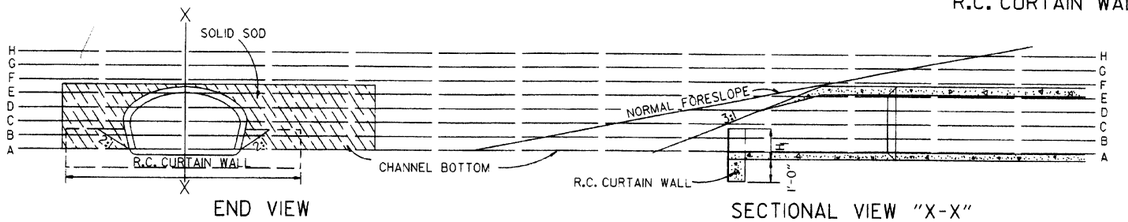
PIPE DIA.	SINGLE R.C.P.C. 3:1	SINGLE R.C.P.C. 4:1	SINGLE R.C.P.C. 6:1	DOUBLE R.C.P.C. 3:1	DOUBLE R.C.P.C. 4:1	DOUBLE R.C.P.C. 6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87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

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 × 3 W10 × W10 MAY BE USED IN LIEU OF REINFORCING BARS.

R.C. CURTAIN WALL DETAILS



END VIEW

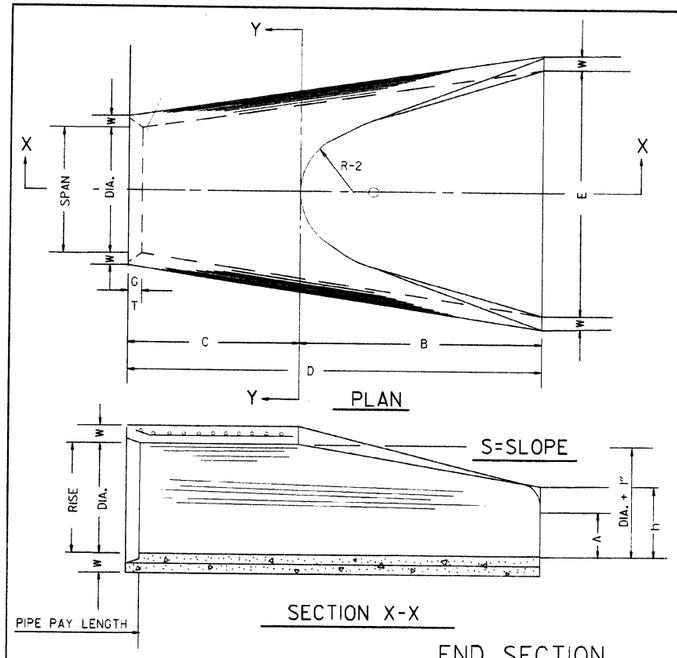
SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11-3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT., STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

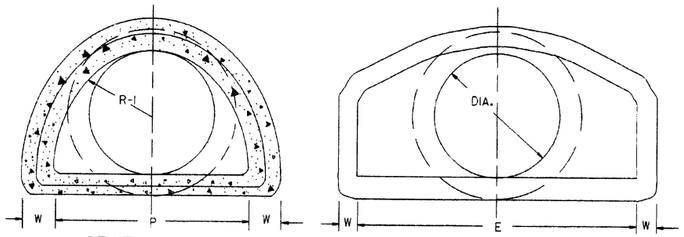
STANDARD DRAWING FES-1



END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¼"	6'-0"	3:1	37"	47 13/16"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅛"	27⅛"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28⅛"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-0"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"

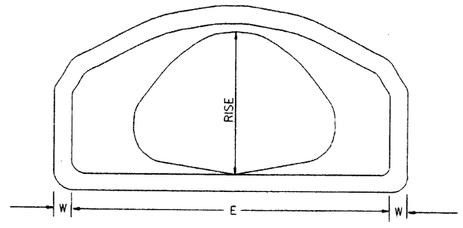


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

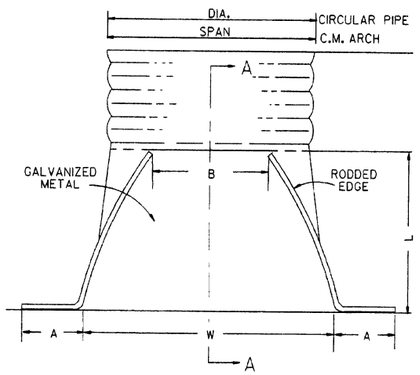
ARCH PIPE

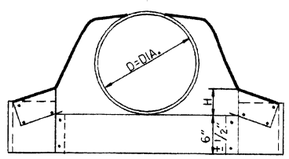
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 7/16"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

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



END VIEW
CONCRETE ARCH PIPE

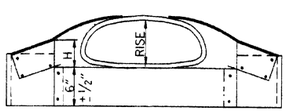




CIRCULAR PIPE

CIRCULAR PIPE

D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1



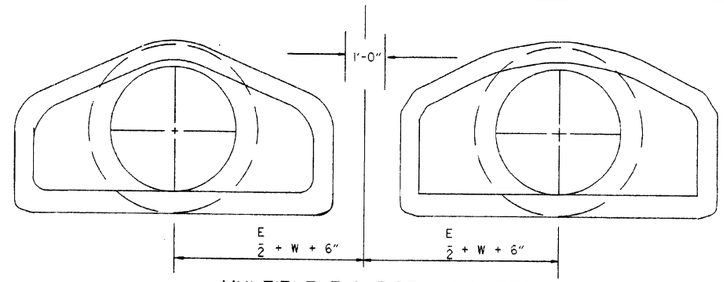
C.M. ARCH PIPE

C.M. ARCH PIPE

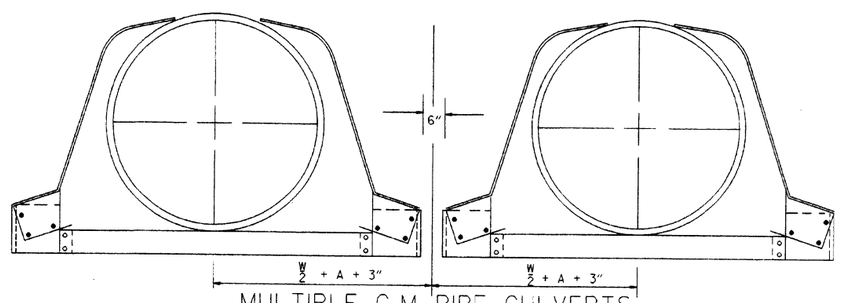
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

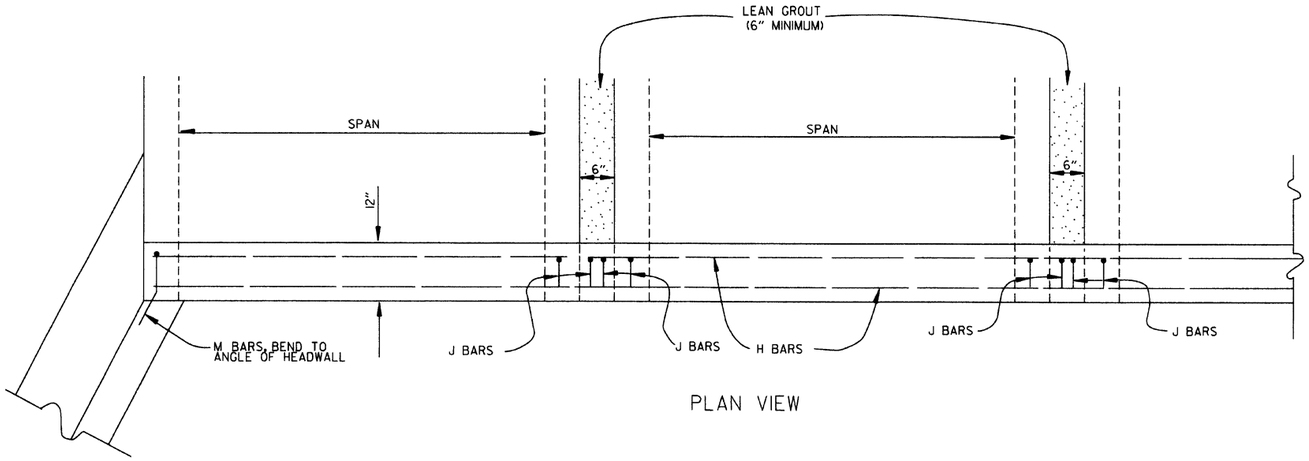
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

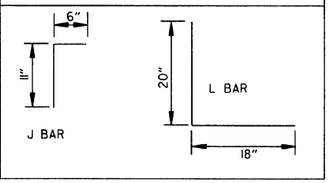
stdfes2.dgn



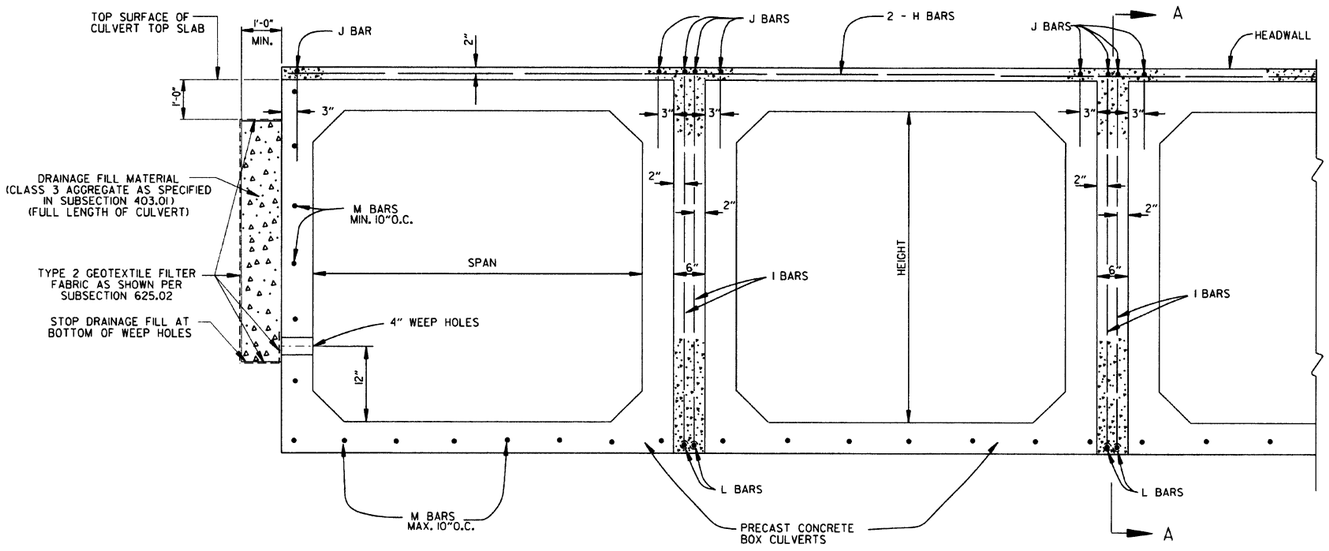
PLAN VIEW

BAR LIST

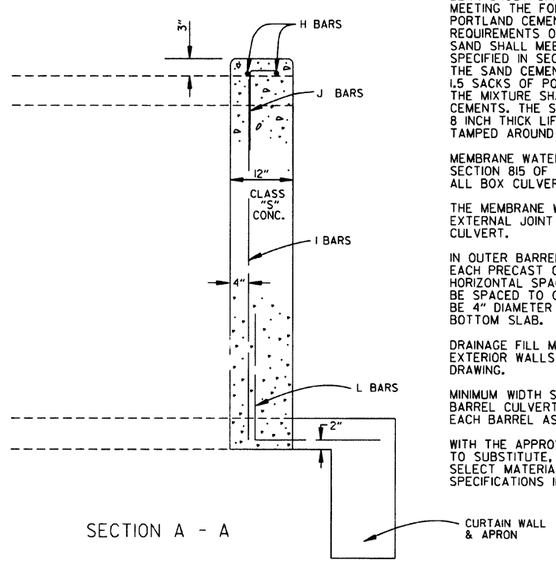
BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



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



END VIEW



SECTION A - A

GENERAL NOTES

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

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

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	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	31 7/16	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.

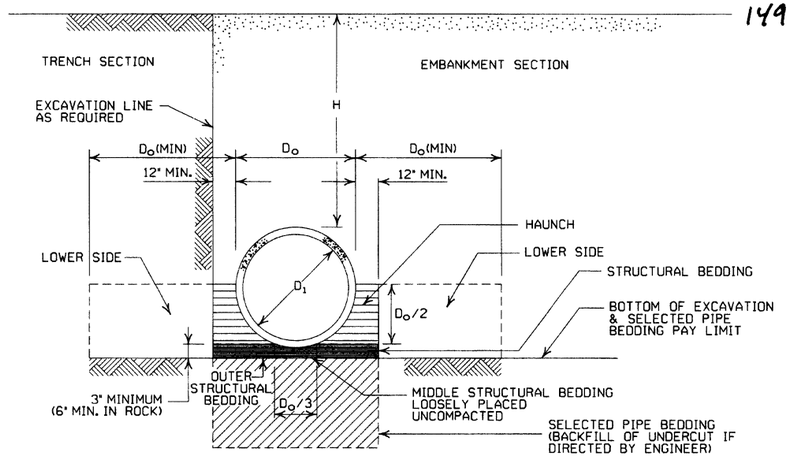
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS 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: MIN. THICKNESS REQUIRED INCHES	STEEL: ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	STEEL: MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	ALUMINUM: MIN. THICKNESS REQUIRED INCHES	ALUMINUM: ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	ALUMINUM: MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION 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			

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL: MIN. THICKNESS REQUIRED INCHES	② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM: INSTALLATION TYPE 2	INSTALLATION TYPE 1	INSTALLATION TYPE 2	INSTALLATION 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

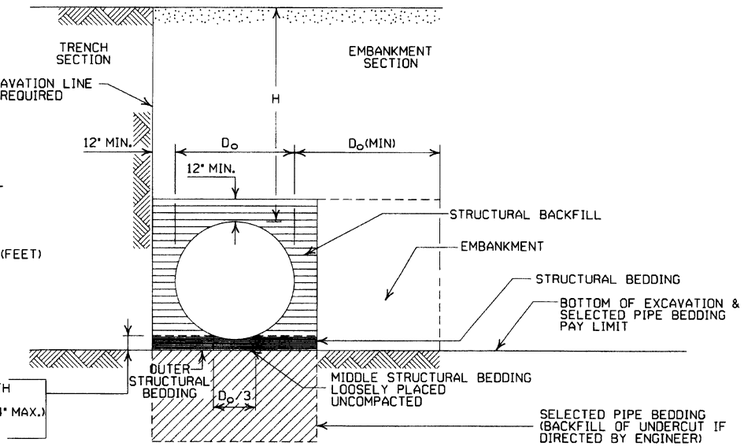
③ SM-3 WILL NOT BE ALLOWED.

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 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

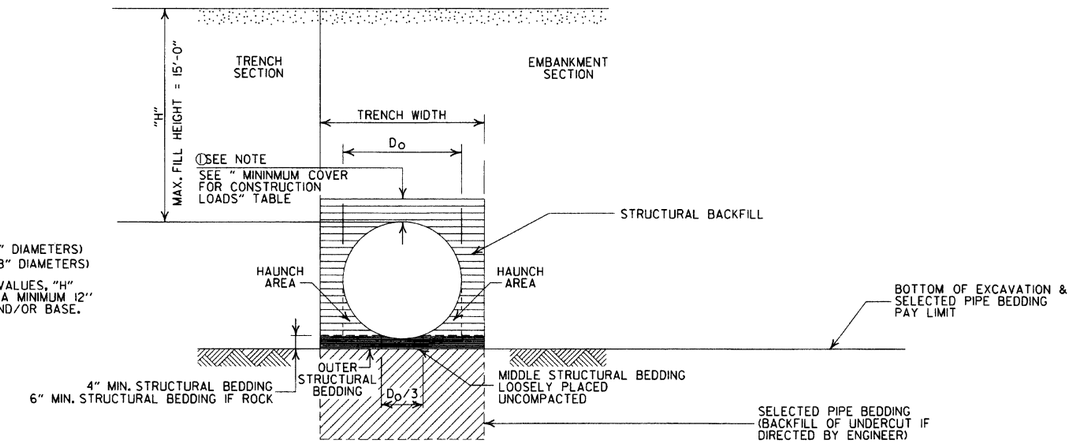
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

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

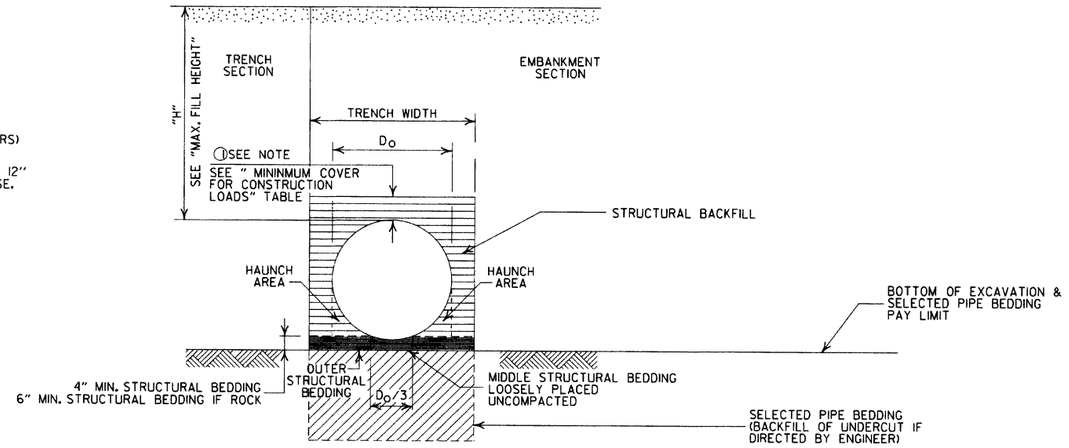
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

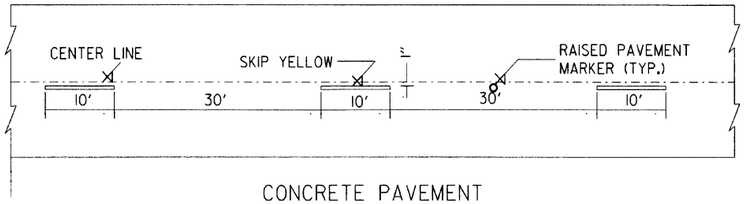
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

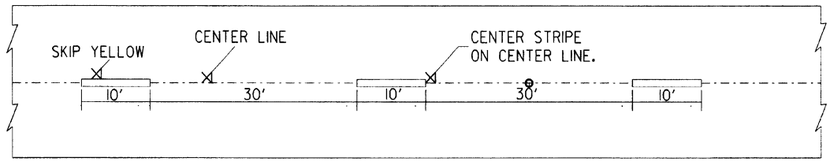
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

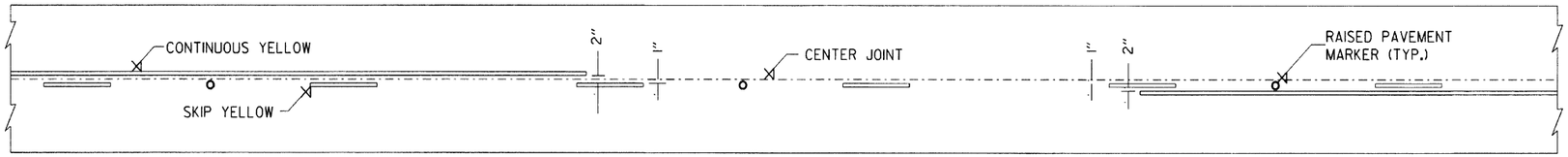


CONCRETE PAVEMENT

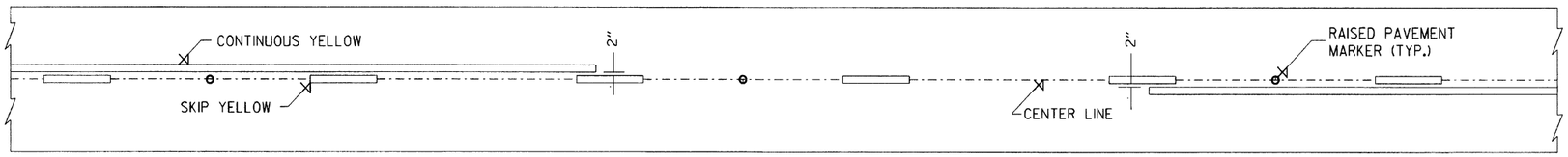


ASPHALT PAVEMENT

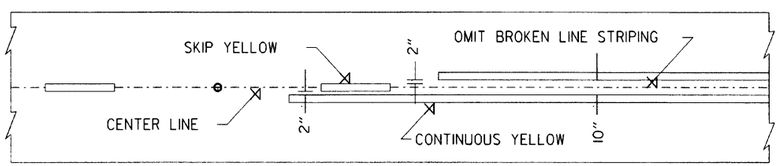
BROKEN LINE STRIPING



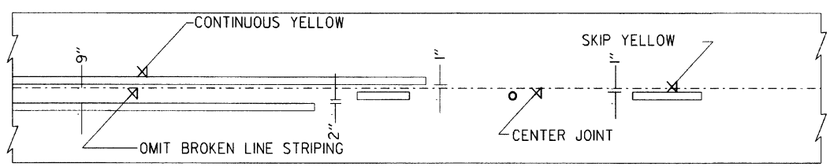
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

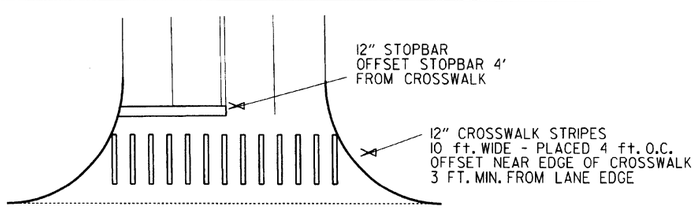


ASPHALT PAVEMENT



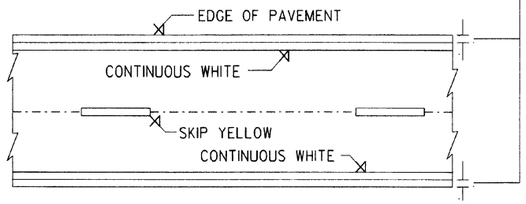
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

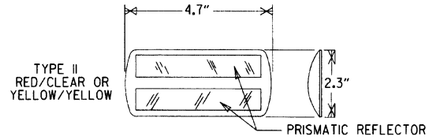


CROSSWALK AND STOPBAR DETAILS

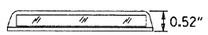
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

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

ARKANSAS STATE HIGHWAY COMMISSION

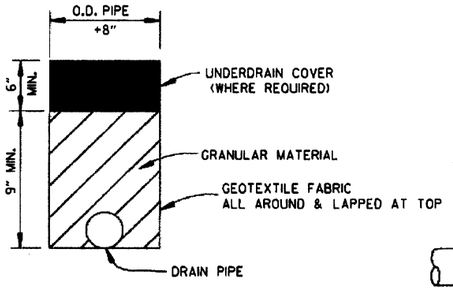
PAVEMENT MARKING DETAILS

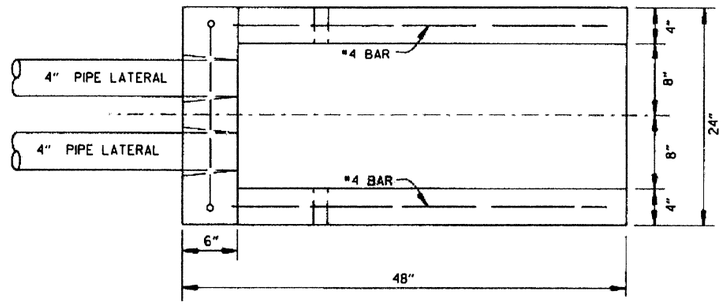
STANDARD DRAWING PM-1

NOTE:

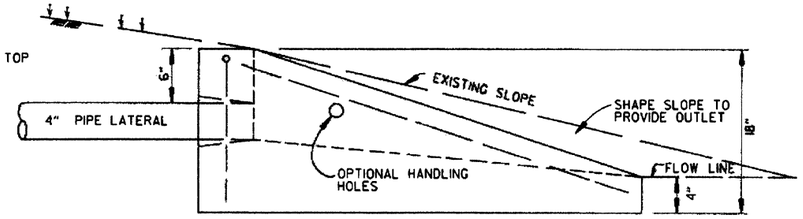
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

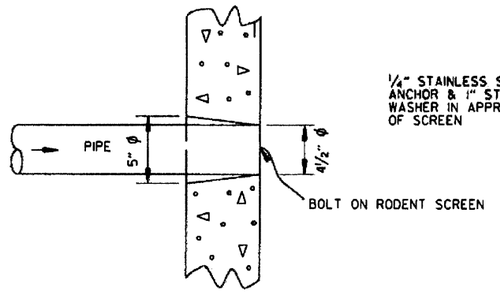




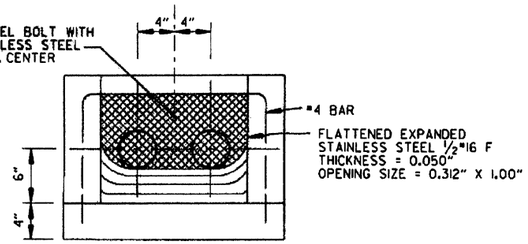
PLAN VIEW



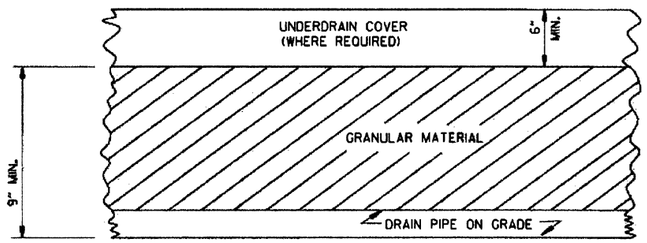
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

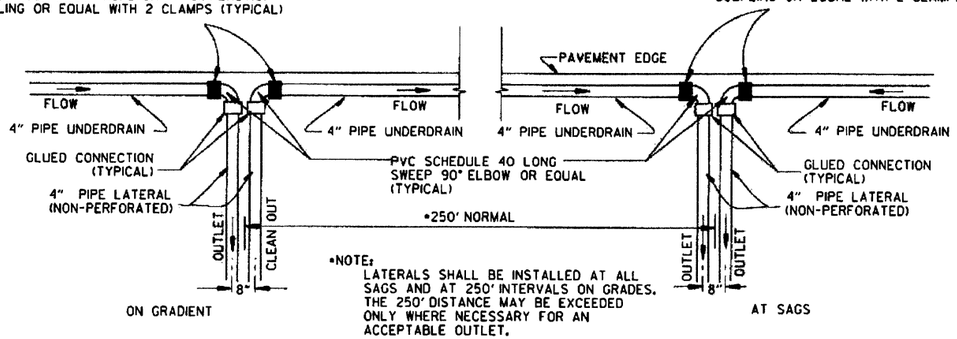
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

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

UNDERDRAIN OUTLET PROTECTORS

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



ON GRADIENT

AT SAGS

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

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

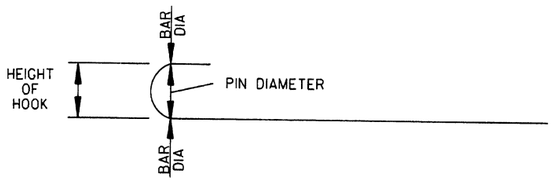
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

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

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

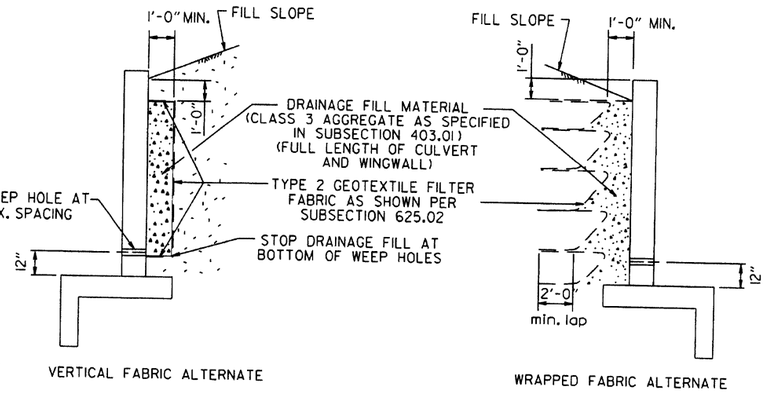
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

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

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

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

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

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

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

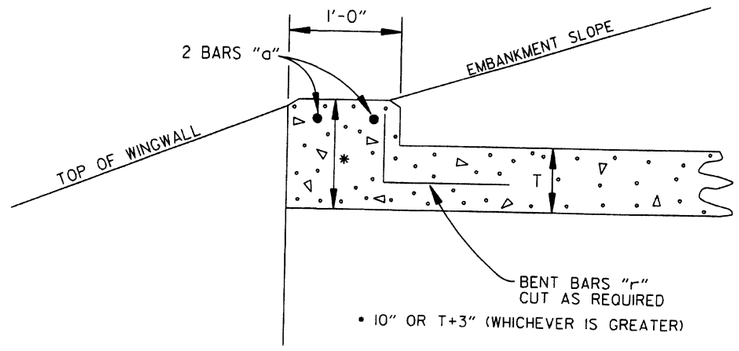
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

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

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

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



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

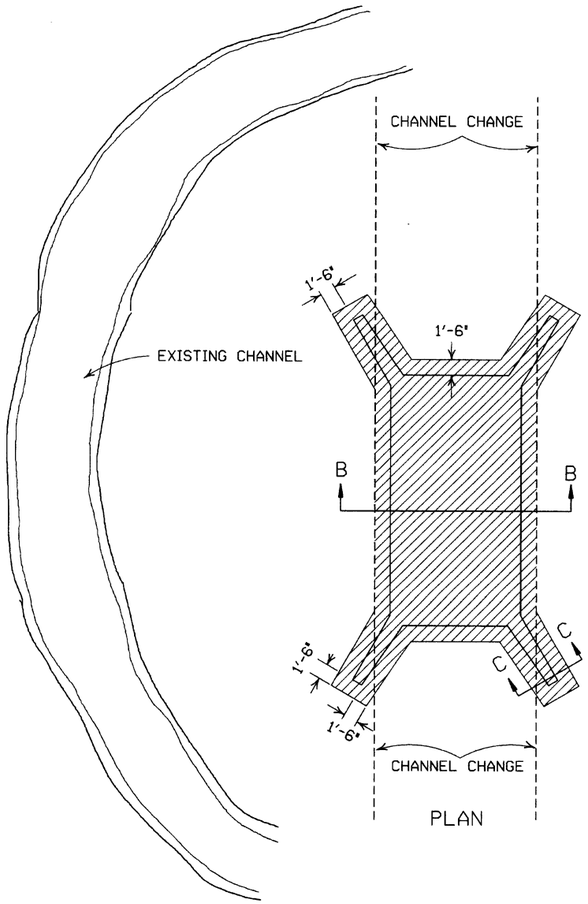
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

ARKANSAS STATE HIGHWAY COMMISSION

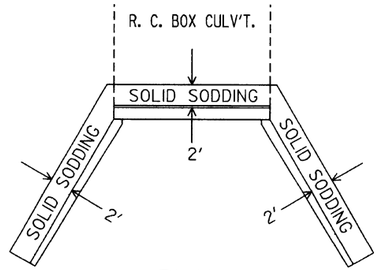
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

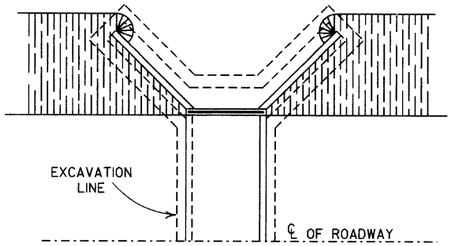
SOLID SODDING



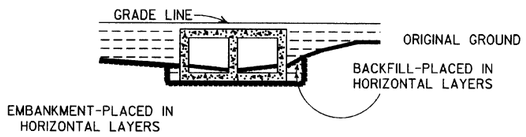
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

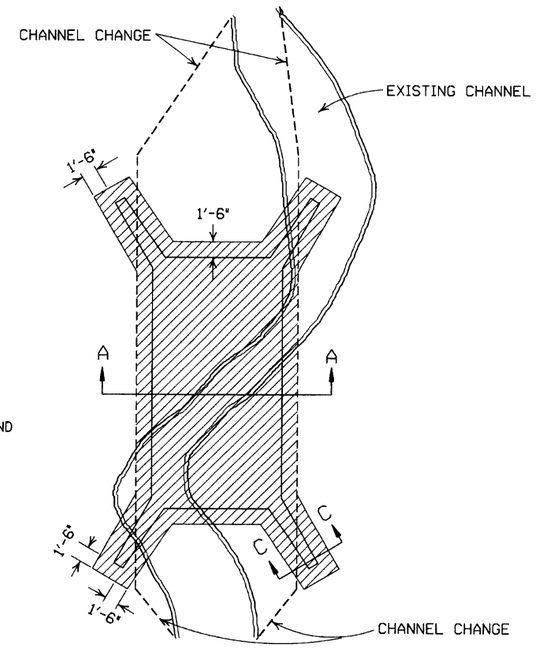


PLAN

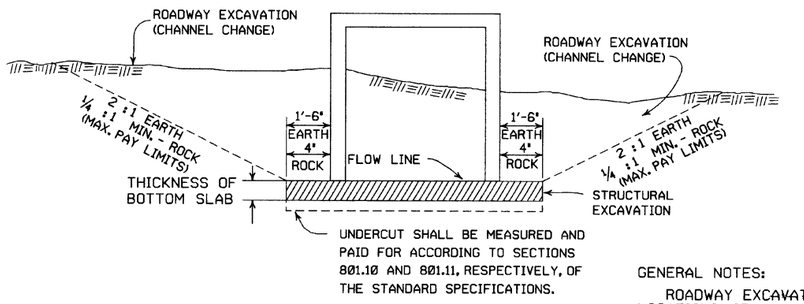


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

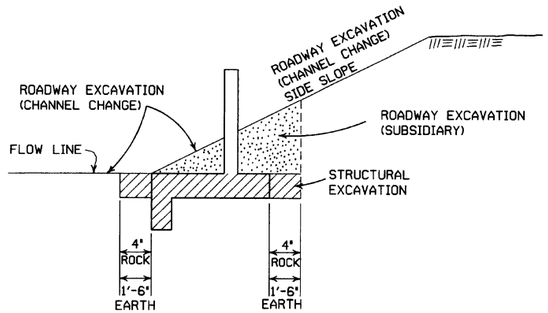


PLAN

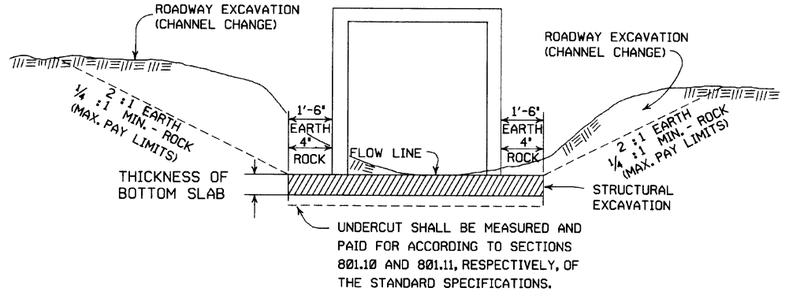


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

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

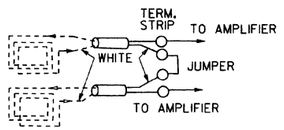
STANDARD DRAWING RCB-2

LOOP DETECTOR INSTALLATION AND TESTING

NOTES:

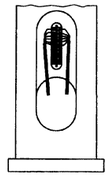
1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICE SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPLICE.
3. THE LOOP TO FEEDER SPLICE, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1"Ø) CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

SERIES CONNECTED LOOPS

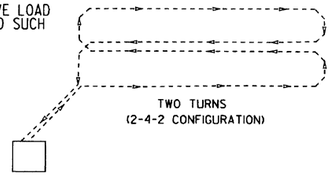


WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.

HANDHOLE TERMINAL

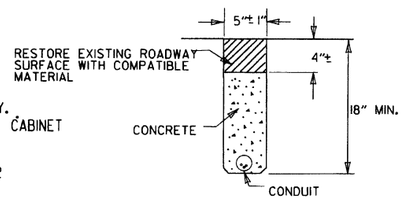


QUADRUPOLE LOOP



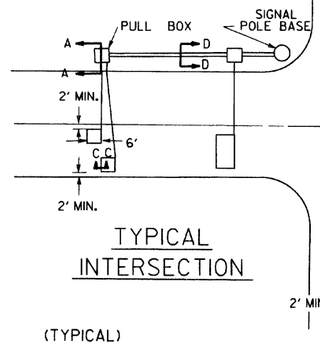
TRENCHING DETAIL

(FOR SAW CUT TRENCH IN ROADWAY)

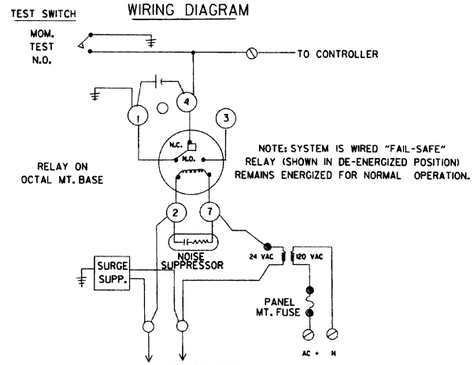


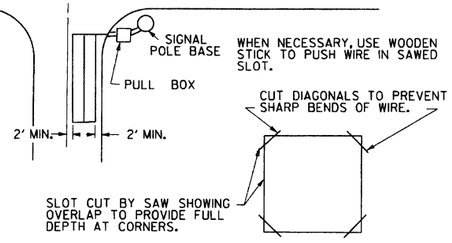
NOTE: CONDUIT SHALL BE INSTALLED IN CURB AS SHOWN OR AS DIRECTED BY THE ENGINEER. END OF CONDUIT SHALL BE WATER-TIGHT.

TYPICAL INTERSECTION



TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM



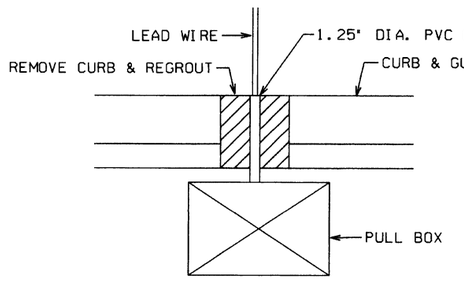


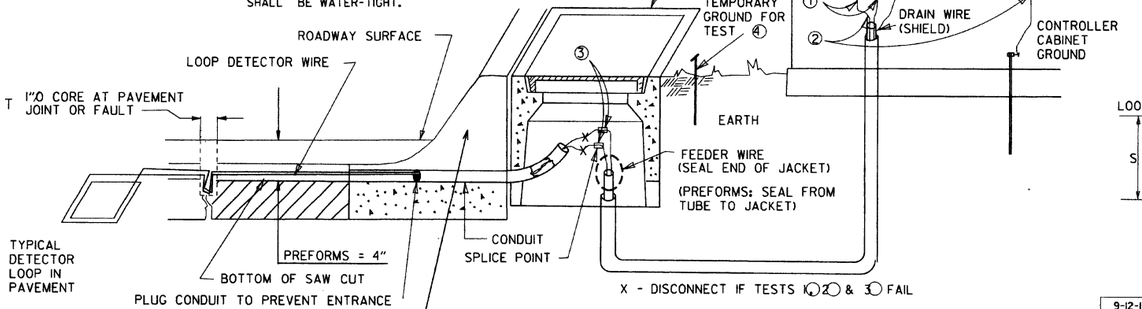
TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING

1. DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3
2. TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM)

   IF TESTS 1& 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1& 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
3. OPEN SPLICE (DO NOT BREAK CONNECTION) REPEAT TEST 1& 2 IF TEST 3 IS BAD, GO TO TEST 4
4. BREAK SPLICE, INSTALL JUMPER IN CABINET, REPEAT TESTS 1& 2 SEPARATELY FOR FEEDER AND FOR LOOP

FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPLICE CONNECTION.





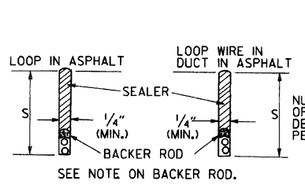
SECTION A-A

1'-6" CONCRETE COMBINATION CURB AND GUTTER

SPECIAL NOTE

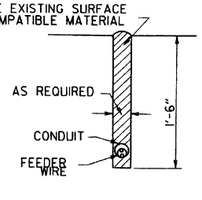
IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS



SECTION C-C

S=2 ½" IN ASPHALT
S=1½" IN CONCRETE



SECTION D-D

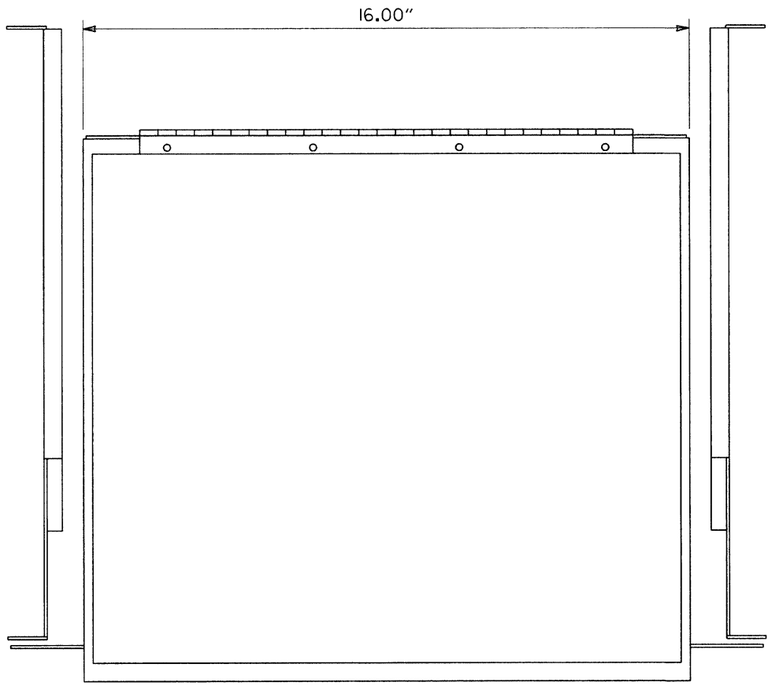
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-17-01	REVISED	
4-11-01	REVISED	
2-4-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

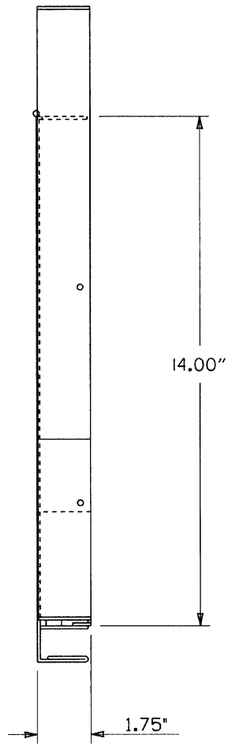
ARKANSAS STATE HIGHWAY COMMISSION

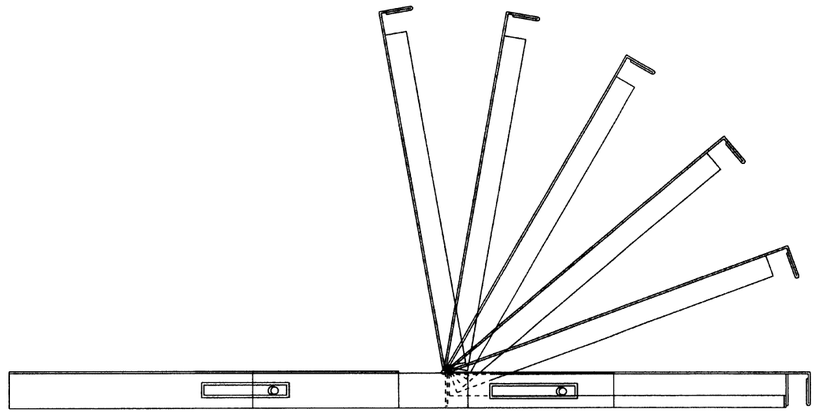
LOOP DETECTOR INSTALLATION

STANDARD DRAWING SD-4

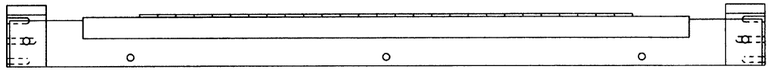
DRAWER PLAN VIEW



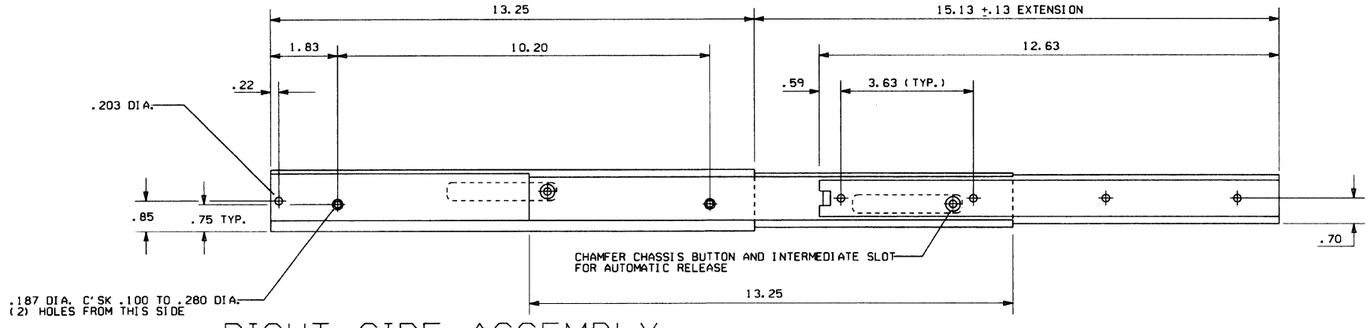




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

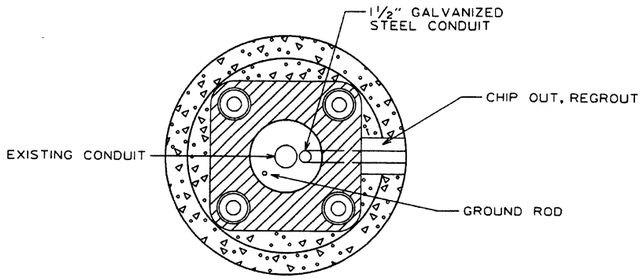
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

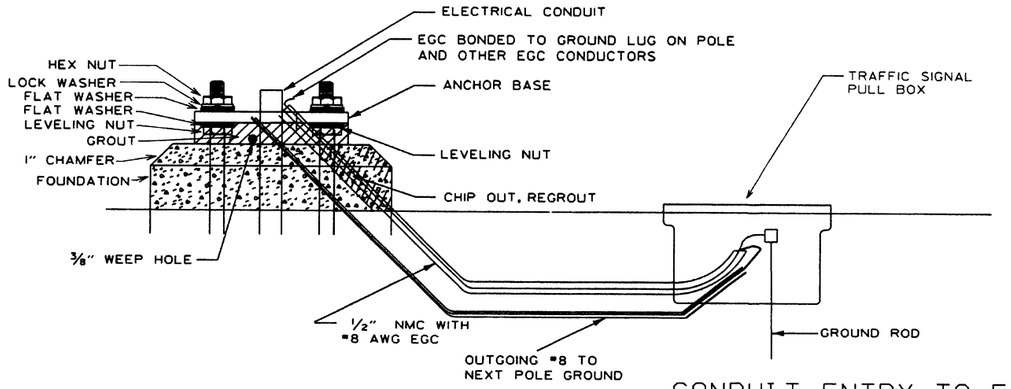
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

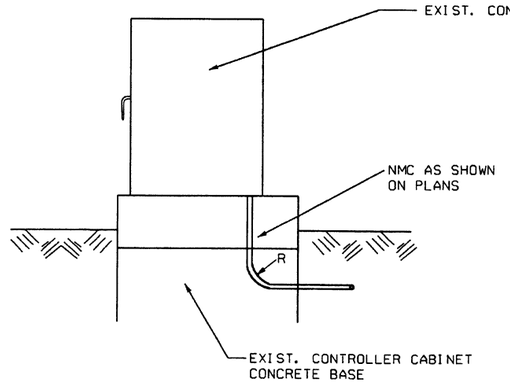
CONDUIT ENTRY TO EXISTING POLE BASE



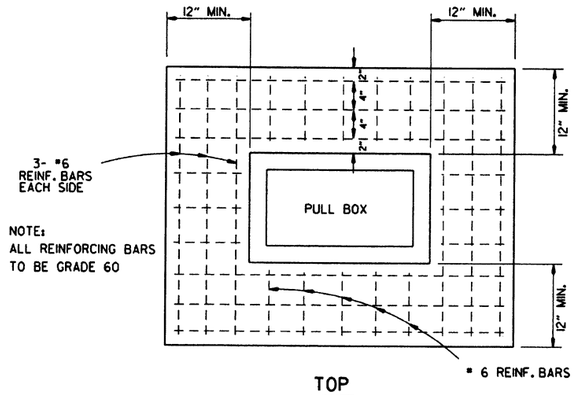
ANCHOR BASE



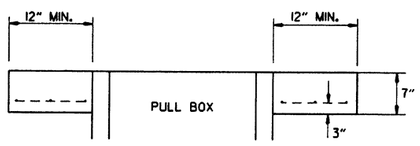
CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



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

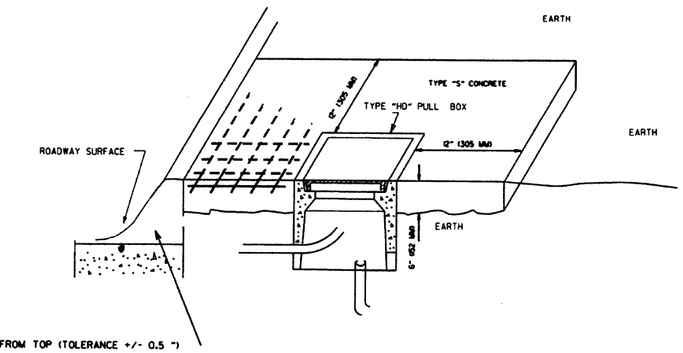


TOP



ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



NOTE: ALL TYPE I AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 7" (178 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S." THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.

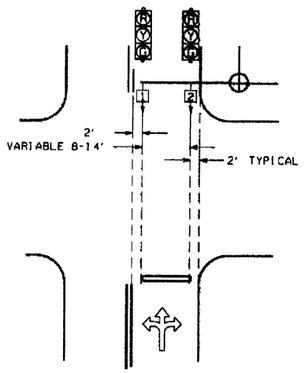
DATE	REVISION	DATE FILM
9-2-15	REVISED PULL BOX DEPTH	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

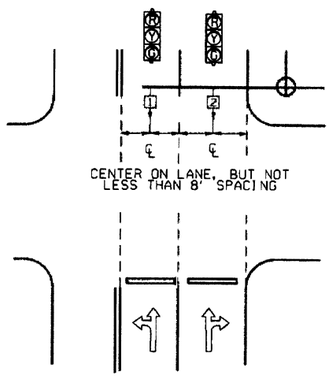
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

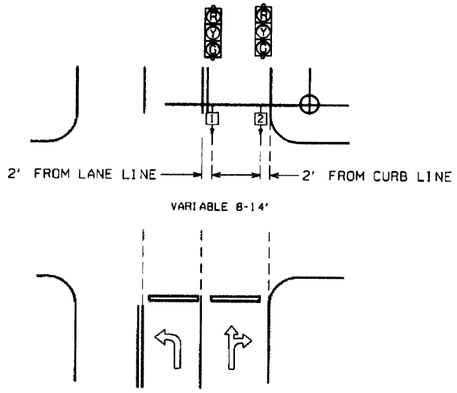
(A)



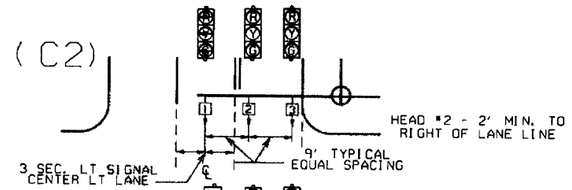
(B)



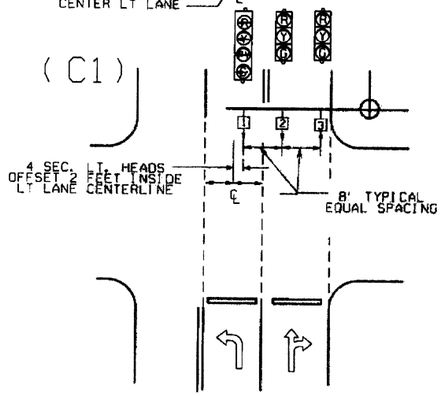
(C)



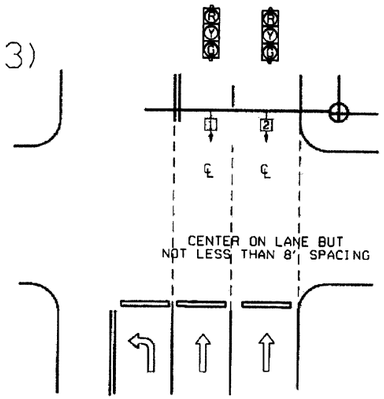
(C2)



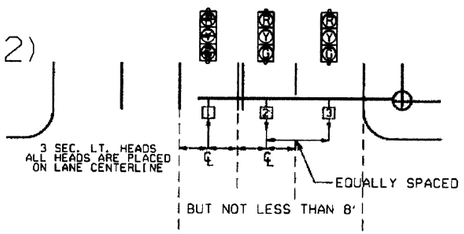
(C1)



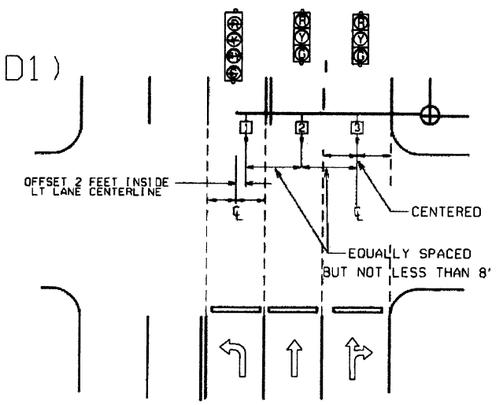
(C3)



(D2)

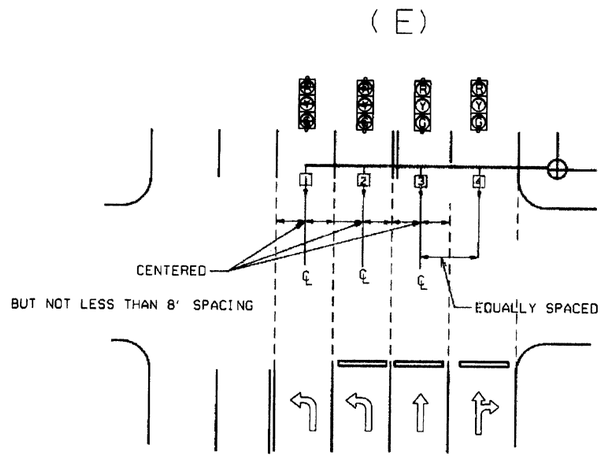


(D1)



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

(E)



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-5 OF 2009 MUTCD.

DATE	REVISION	DATE FILM
12-8-16	REVISED NOTE 6	
9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	

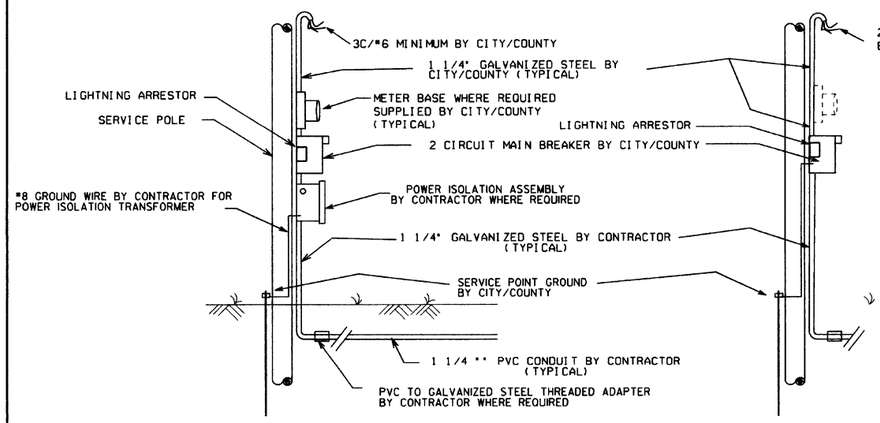
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

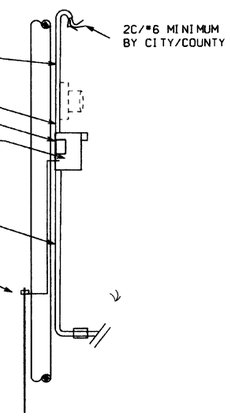
STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY



WITHOUT POWER ISOLATION ASSEMBLY



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

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES: MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

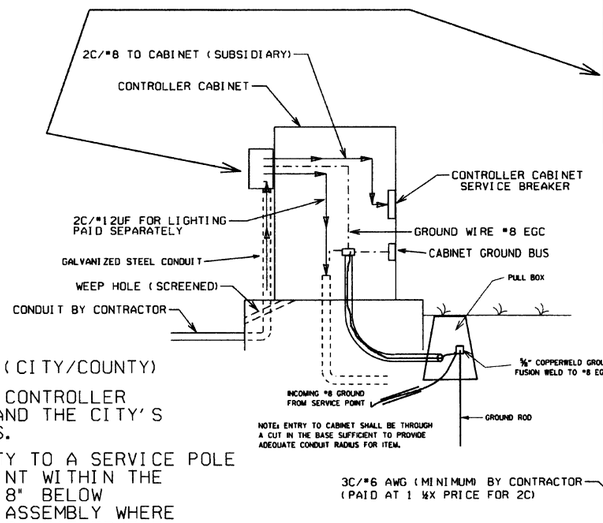
1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

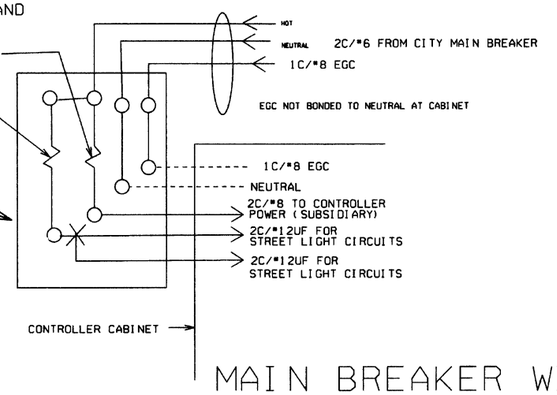
2. MAIN BREAKER NOT NEAR CONTROLLER CABINET: THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

GROUND ROD-A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



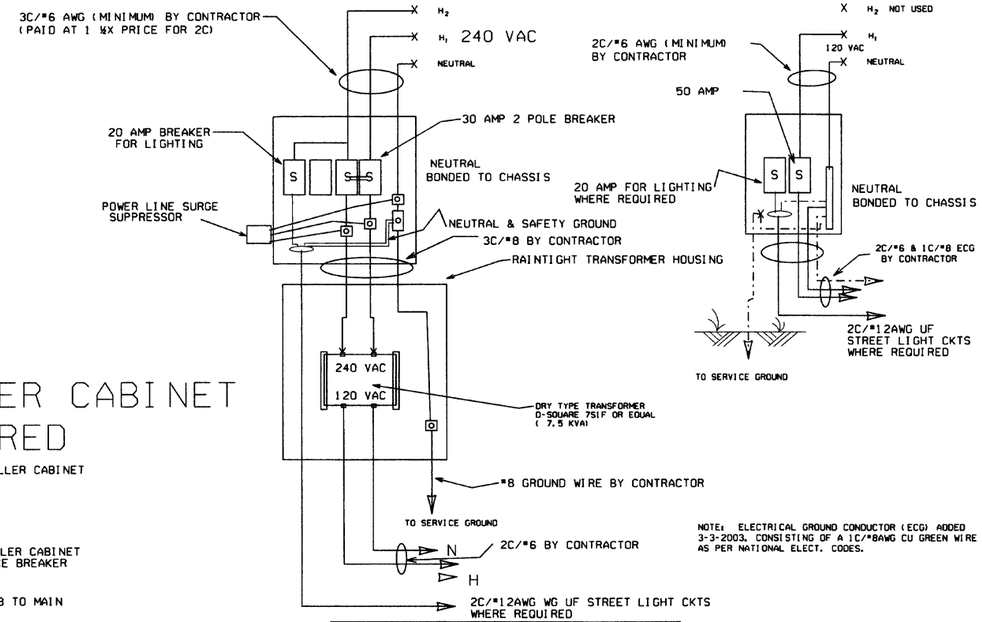


MAIN BREAKER WIRING (TYPICAL)

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

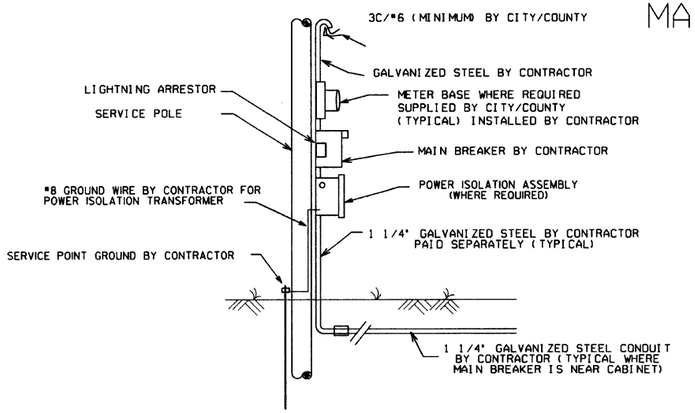
WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

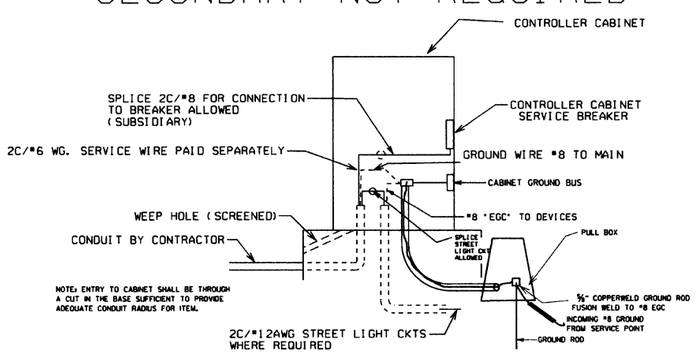
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (EGC) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

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

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

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 723 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

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

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

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

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

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

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

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

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

BASE WIND SPEED: 90 MPH.

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

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

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

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

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

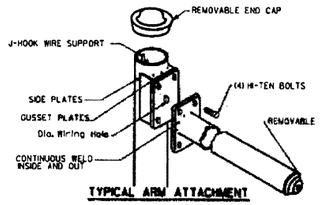
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

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

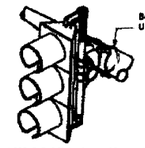
MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

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

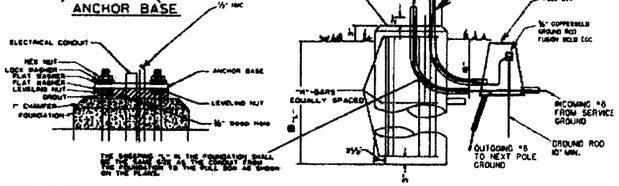


TYPICAL ARM ATTACHMENT

ANCHOR BASE



NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.

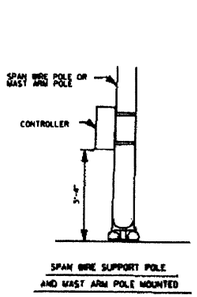


THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

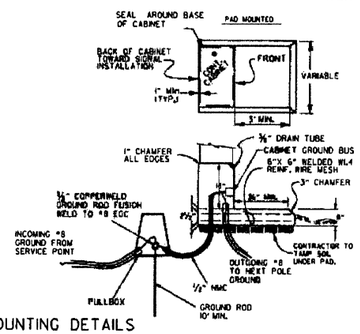
TYPICAL FOUNDATION DETAILS

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

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



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED



CONTROLLER CABINET MOUNTING DETAILS

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

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

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

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS 'S' OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 4 WORK DAYS, OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

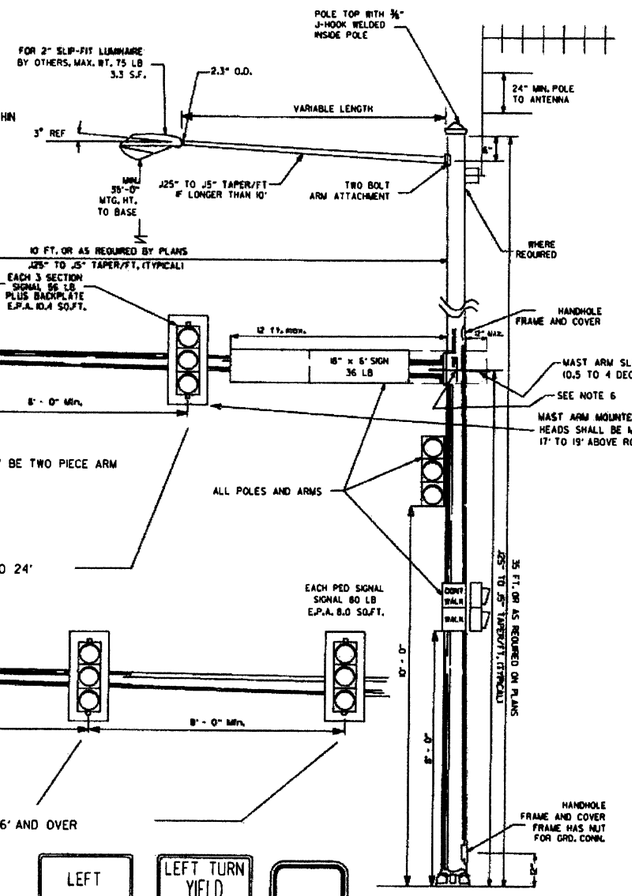
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD, AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

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

● WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 OF THE STANDARD SPECIFICATIONS.

●● IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"X0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

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



DATE	REVISION	DATE FILM
12-5-16	REVISED NOTES	
2-27-14	REVISED NOTES	
5-12-11	REVISED AS STANDARD DRAWING	
1-26-11	REVISED VMS, SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
2-26-09	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
1-18-08	REVISED AASHTO NOTES	
4-19-01	REVISED TO 2001 AASHTO STANDARDS	
10-22-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-8-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-1-01	REV. NOTES 6 POLE MAST ARM SLOPE	
4-8-0	REVISED POLE TAPERS	
4-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
8-22-99	REVISED FOUNDATION DETAILS	
6-21-98	REVISED DETAILS AND NOTES	
10-25-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11

SUPERELEVATION TABLE FOR ONE - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	65 MPH e	65 MPH Ls (FT) MINIMUM	65 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 30′	N. C.			N. C.			N. C.			N. C.			0.023			0.025			0.028		
0° 45′	N. C.			N. C.			R. C.			0.022			0.030			0.033	250		0.037	275	
1° 00′	N. C.			R. C.			0.021			0.026			0.037	250		0.041			0.046		
1° 15′	N. C.			0.021			0.026			0.032			0.043			0.048			0.054		
1° 30′	N. C.			0.025	175		0.031	200		0.037	225		0.049			0.055			0.062		
1° 45′	N. C.			0.028			0.036			0.043			0.055			0.062			0.070		
2° 00′	R. C.			0.031			0.040			0.048			0.061			0.069	265		0.078	300	
2° 15′	R. C.			0.034			0.045			0.053			0.067			0.075	280		0.085	315	400
2° 30′	0.021			0.037		250	0.049		300	0.058			0.072			0.081	300		0.091	335	
2° 45′	0.023			0.040			0.053			0.063			0.077	260		0.087	315		0.096	350	
3° 00′	0.025			0.043			0.057			0.067	230		0.082	275		0.090	325	400	0.098	350	450
3° 15′	0.027	150		0.046			0.061			0.072	245		0.086	285		0.093	340		0.100	360	
3° 30′	0.029			0.049			0.065	205		0.076	255		0.090	295		0.097	345				
3° 45′	0.031			0.051			0.069	215		0.080	265		0.093	305	400	0.099	350				
4° 00′	0.033			0.054			0.072	225		0.083	270		0.096	315							
4° 30′	0.037			0.056			0.078	240		0.087	280		0.098	320							
5° 00′	0.040			0.061			0.083	250		0.091	295										
5° 30′	0.043			0.066	185		0.088	260		0.094	300	400									
6° 00′	0.046			0.070	190		0.092	270		0.095	305										
6° 30′	0.050			0.074	200		0.095	280	350	0.100	315										
7° 00′	0.053			0.078	210		0.098	285													
7° 30′	0.056			0.081	215		0.099	290													
8° 00′	0.058			0.084	220		0.100	290													
8° 30′	0.061			0.087	225	300															
9° 00′	0.063			0.089	230																
10° 00′	0.068	160		0.094	235																
11° 00′	0.072	170		0.097	250																
12° 00′	0.076	175		0.099	250																
13° 00′	0.080	180		0.100	250																
14° 00′	0.083	190																			
15° 00′	0.086	195																			
16° 00′	0.089	200																			
17° 00′	0.091	200																			
18° 00′	0.093	205																			
19° 00′	0.095	210																			
20° 00′	0.097	215	300																		
21° 00′	0.098	215																			
22° 00′	0.099	215																			
23° 00′	0.099	215																			
24° 00′	0.100	220																			

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 4° 15′ | D MAX = 3° 30′

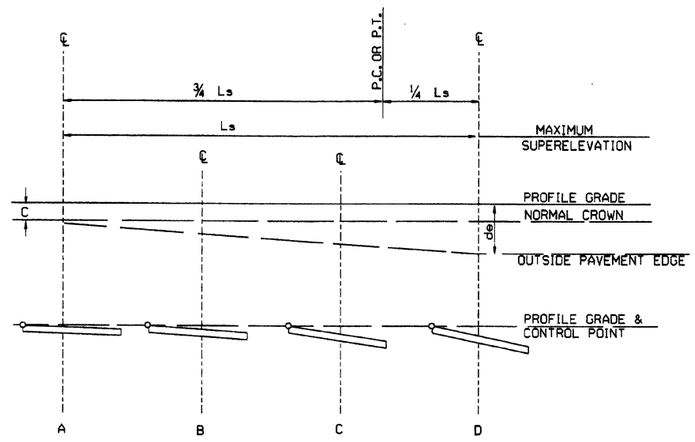
GENERAL NOTES

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

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

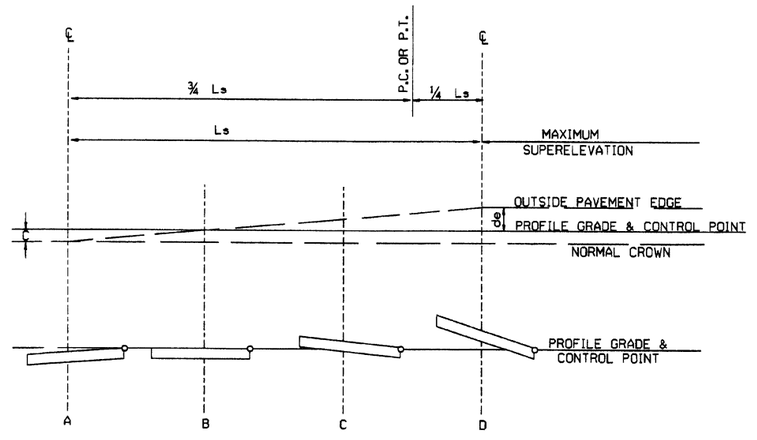
ABBREVIATIONS

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



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de-C)}{L_s} - C$



ONE-WAY TRAFFIC
OUTSIDE LANE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30'	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45'	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00'	N.C.			N.C.			0.021			0.029			0.030			0.037	275	300
1° 15'	N.C.			R.C.			0.026			0.033			0.037			0.046		
1° 30'	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45'	N.C.			0.025	175		0.036			0.043		300	0.049		300	0.062		
2° 00'	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15'	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	
2° 30'	0.021			0.034			0.049			0.058			0.067			0.085	315	350
2° 45'	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00'	0.025	150		0.040			0.057			0.067	230		0.077	260		0.096	350	
3° 15'	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	400
3° 30'	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	380	
3° 45'	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350	D MAX = 3° 30'		
4° 00'	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30'	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00'	0.040			0.061			0.083	250		0.091	295	350	0.098	320				
5° 30'	0.043			0.066	185		0.088	260		0.094	300		D MAX = 5° 15'					
6° 00'	0.046			0.070	190		0.092	270		0.096	305							
6° 30'	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00'	0.053			0.078	210		0.098	285		D MAX = 6° 30'								
7° 30'	0.056			0.081	215		0.099	290										
8° 00'	0.058			0.084	220		0.100	290										
8° 30'	0.061			0.087	225	250	D MAX = 8° 15'											
9° 00'	0.063			0.089	230													
10° 00'	0.068	160		0.094	235													
11° 00'	0.072	170		0.097	250													
12° 00'	0.076	175		0.099	250													
13° 00'	0.080	180		0.100	250													
14° 00'	0.083	190		D MAX = 13° 15'														
15° 00'	0.086	195																
16° 00'	0.089	200																
17° 00'	0.091	200																
18° 00'	0.093	205																
19° 00'	0.095	210																
20° 00'	0.097	215	250															
21° 00'	0.098	215																
22° 00'	0.099	215																
23° 00'	0.099	215																
24° 00'	0.100	220																

D MAX = 24° 45'

ABBREVIATIONS

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

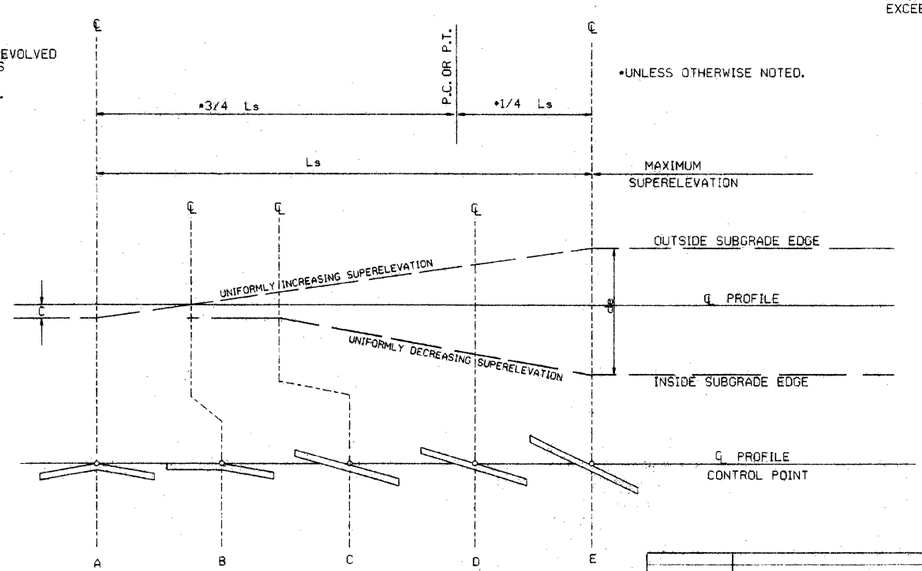
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

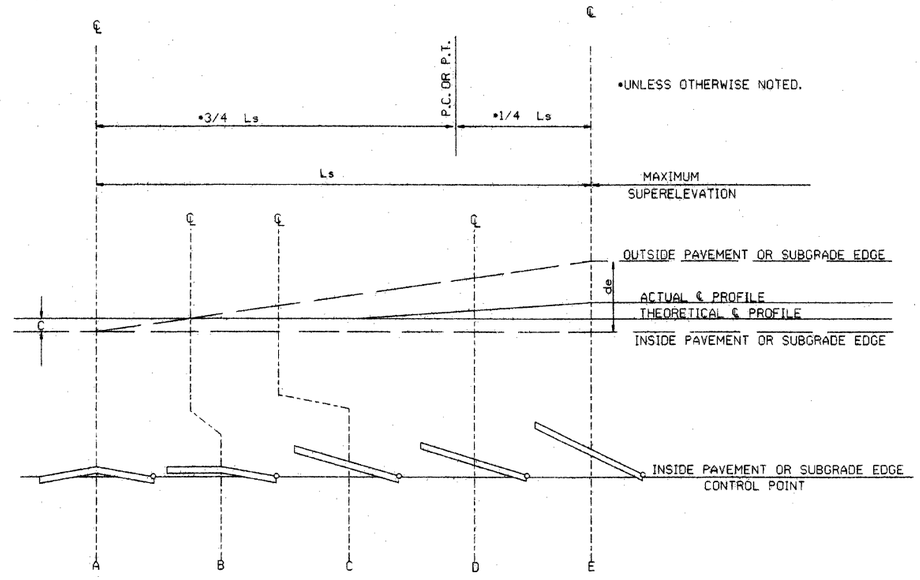
3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

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

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

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

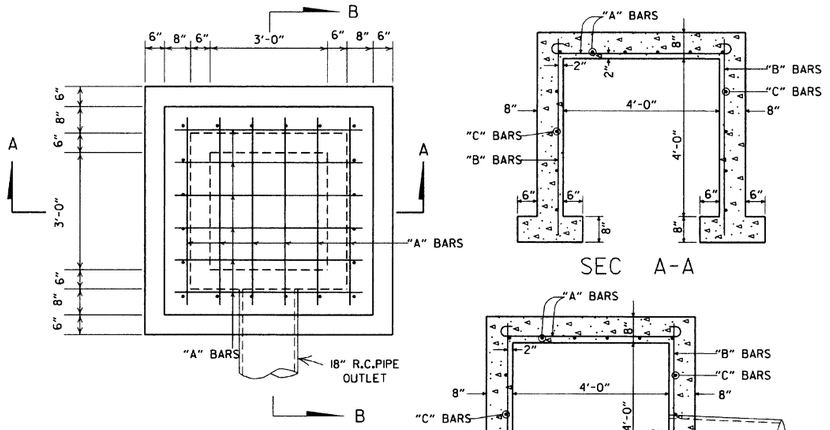
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

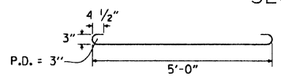


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS

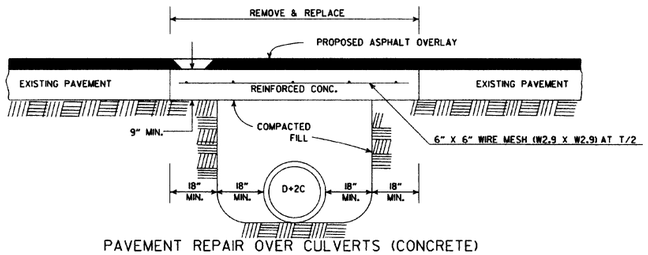


QUANTITIES

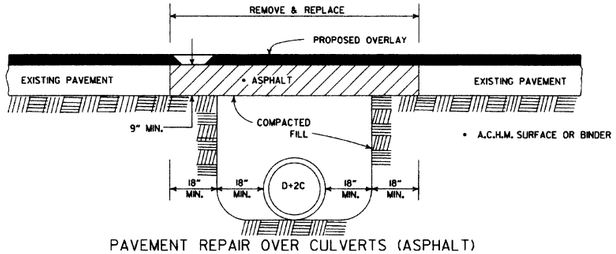
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

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

REINFORCED CONCRETE SPRING BOX



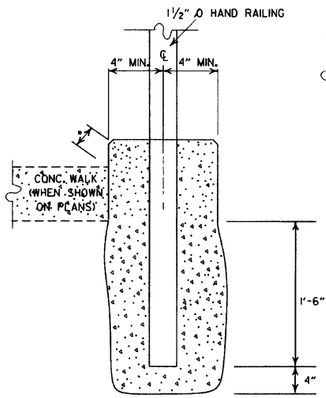
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



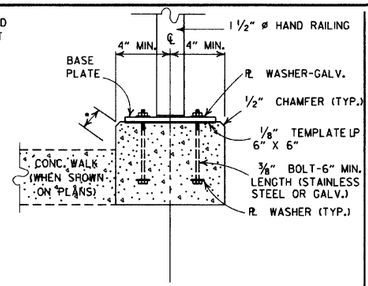
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

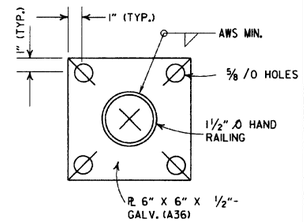
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

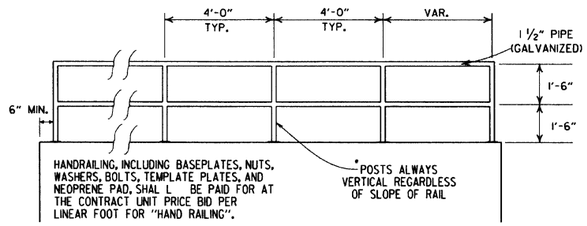


POST CONNECTION TO WALL

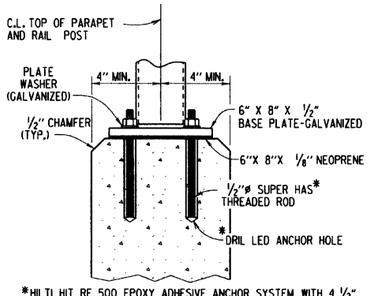


BASE PLATE

POST CONNECTION DETAILS



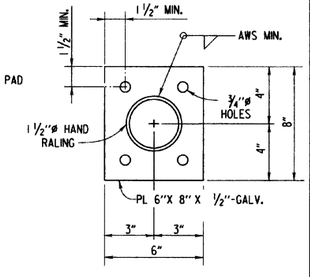
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

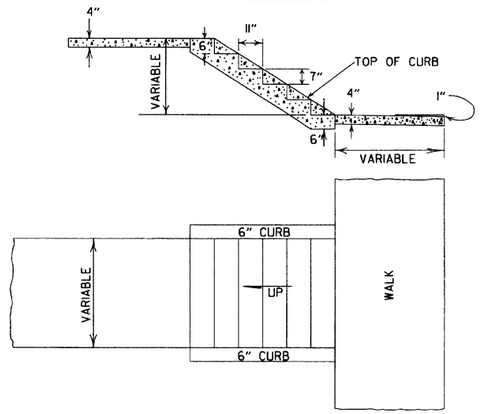
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

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

ARKANSAS STATE HIGHWAY COMMISSION

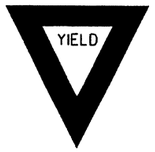
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

R1-1

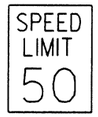
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

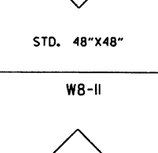
R4-1

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

R4-2

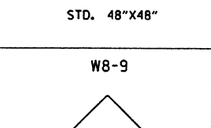
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



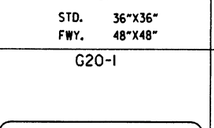
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



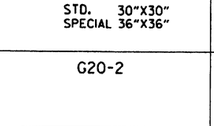
48"X30"

RII-3A



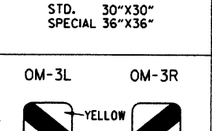
60"X30"

RII-4



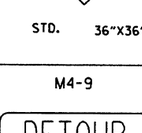
60"X30"

RSP-1



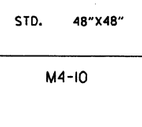
48"X30"

WI-1



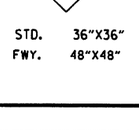
STD. 36"X36"
FWY. 48"X48"

WI-2



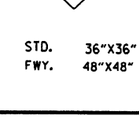
STD. 36"X36"
FWY. 48"X48"

WI-3



STD. 48"X48"

WI-4

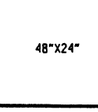


STD. 48"X48"

WI-6

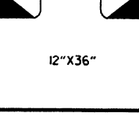
STD. 48"X24"
SPECIAL 60"X30"

WI-8



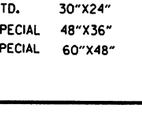
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



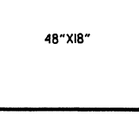
STD. 36"X36"
SPECIAL 48"X48"

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.

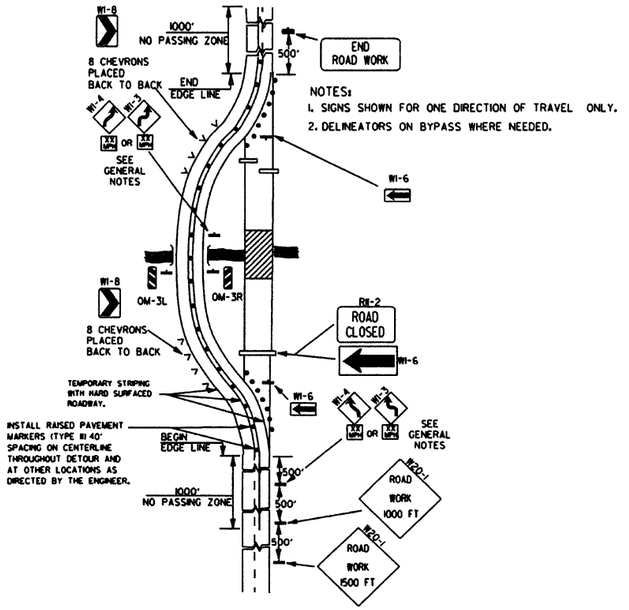
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY 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	
6-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

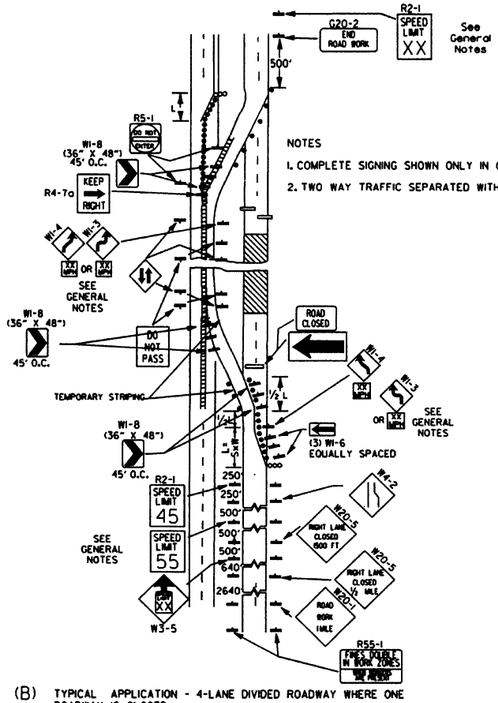
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



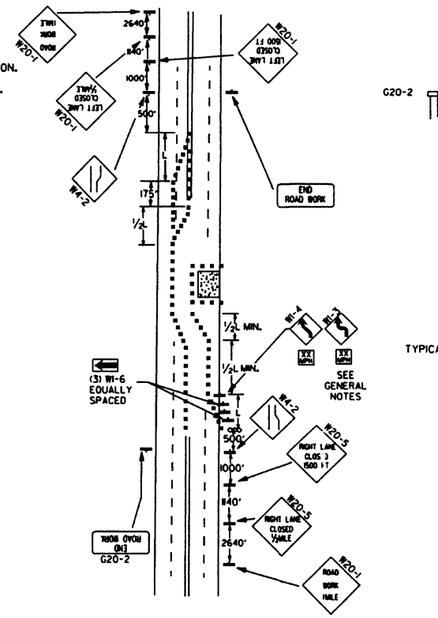
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

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

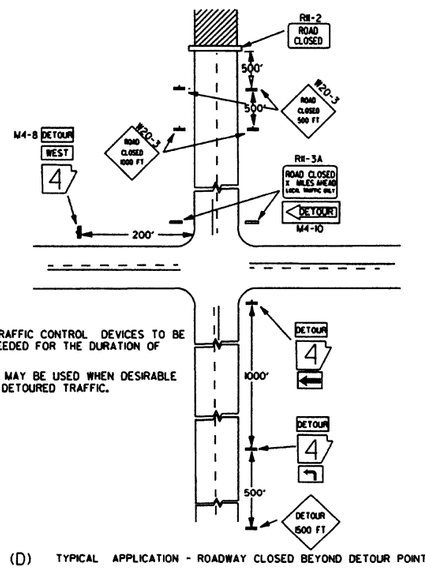


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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

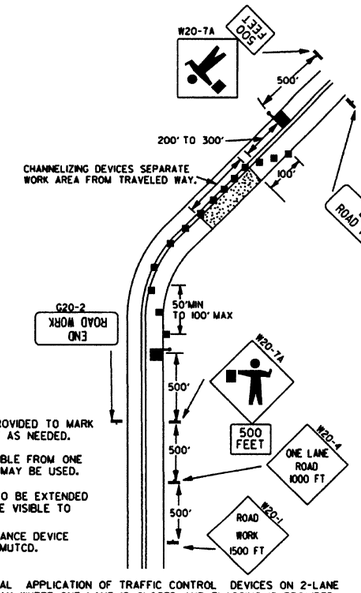


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



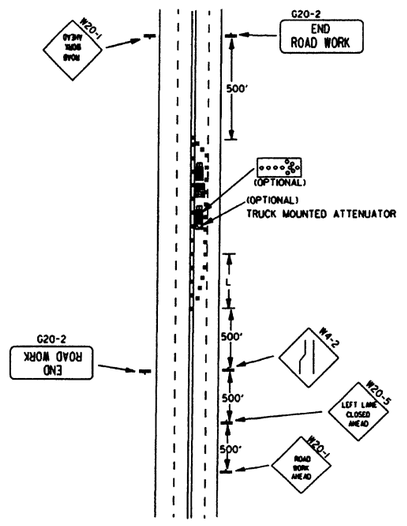
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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

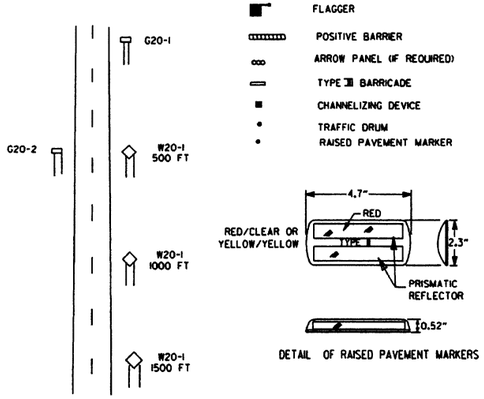


NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

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:

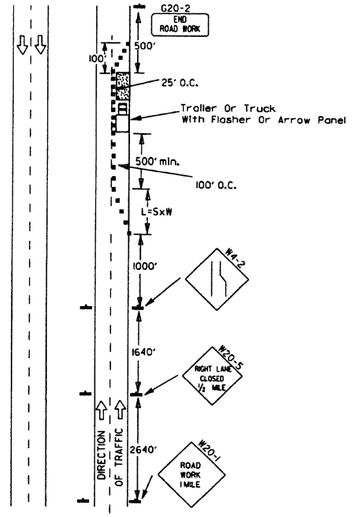
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED 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	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

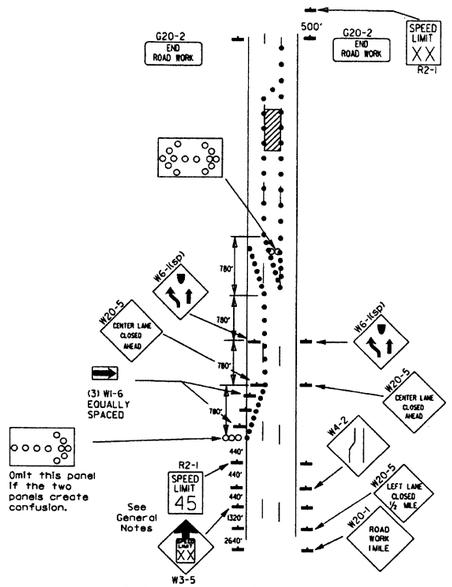
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

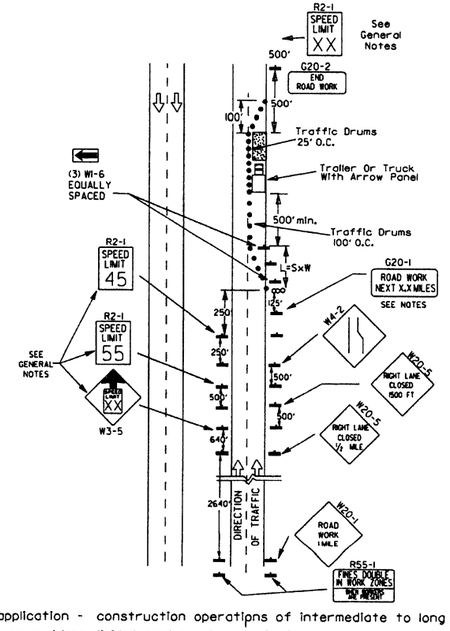
STANDARD DRAWING TC-2



(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.

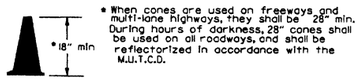
KEY:

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

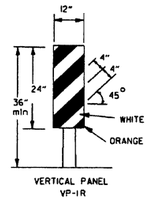
GENERAL NOTES:

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 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 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.

Channelizing devices



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



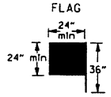
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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.

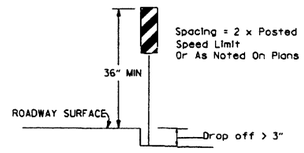
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

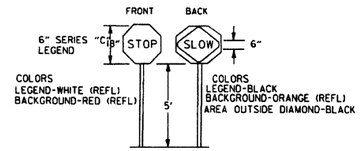


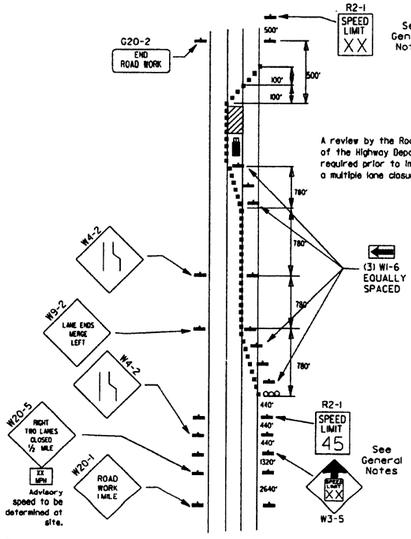
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



STOP SLOW PADDLE





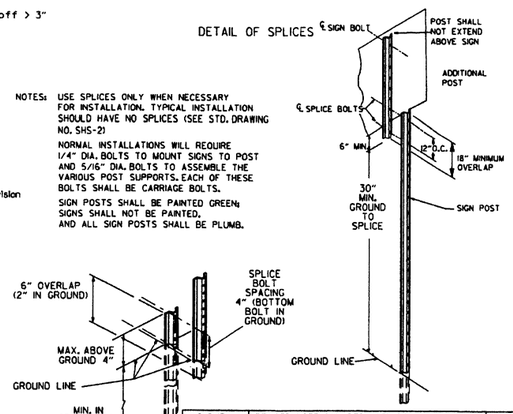
(D) Typical application - closing multiple lanes of a multilane highway.

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.

DETAIL OF SPLICES



DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO WASH	
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	

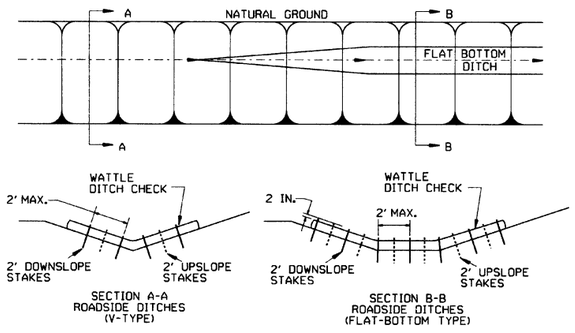
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

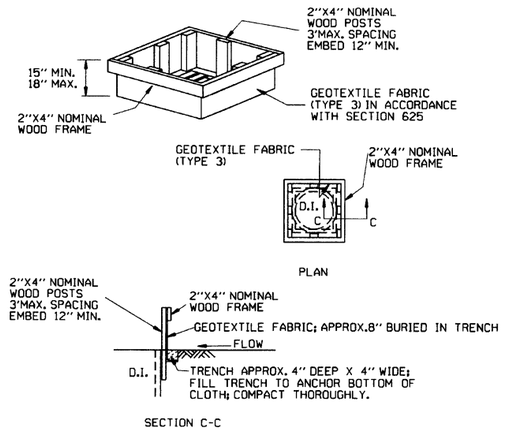
STANDARD DRAWING TC-3

GENERAL NOTES

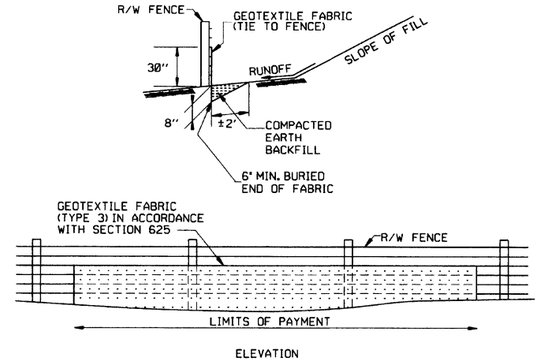
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

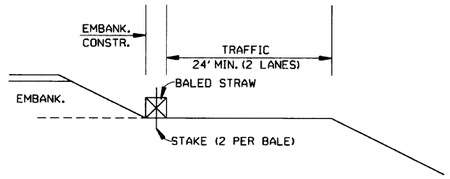
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

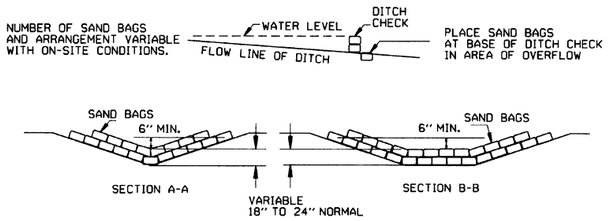
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

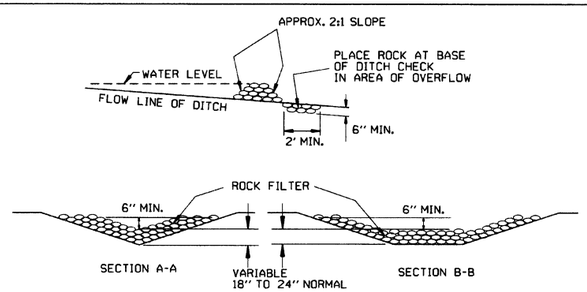
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



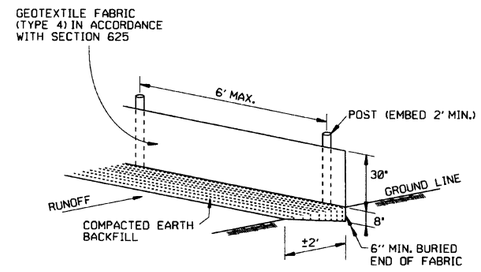
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

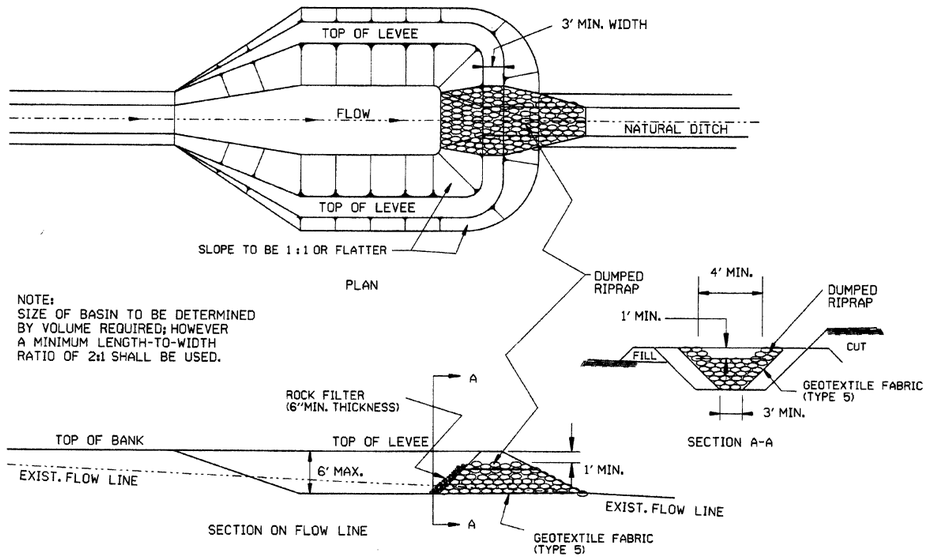
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

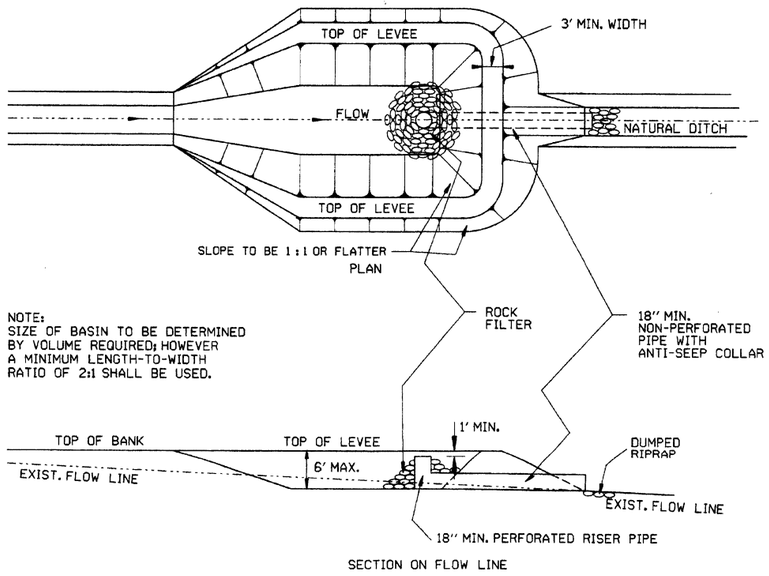
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

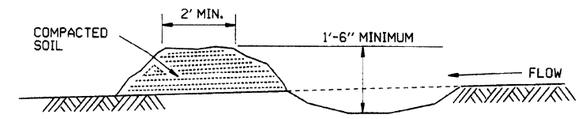
STANDARD DRAWING TEC-1



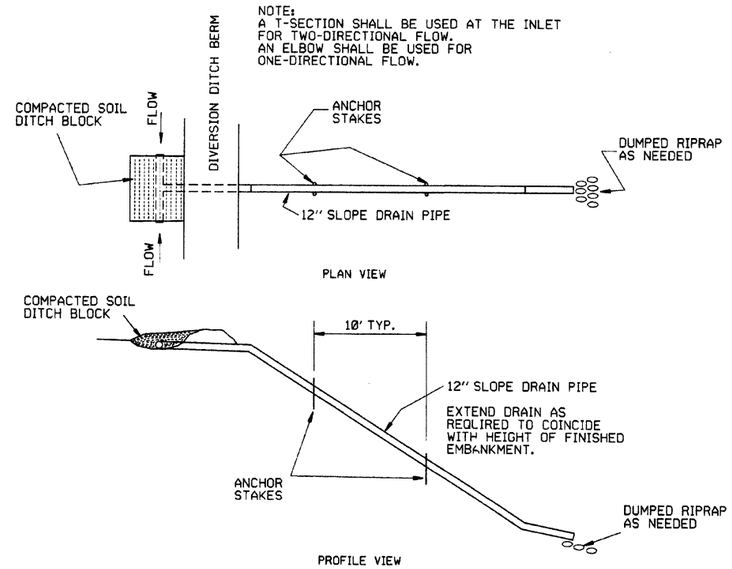
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



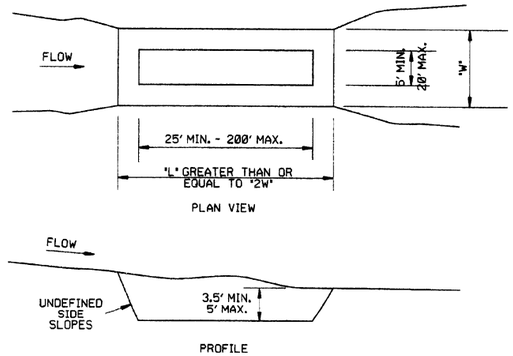
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

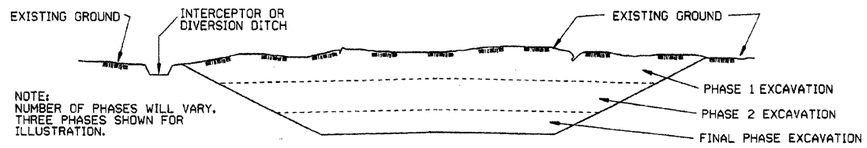
STANDARD DRAWING TEC-2

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



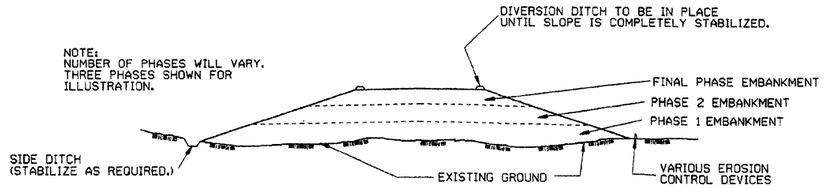
GENERAL NOTE

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.

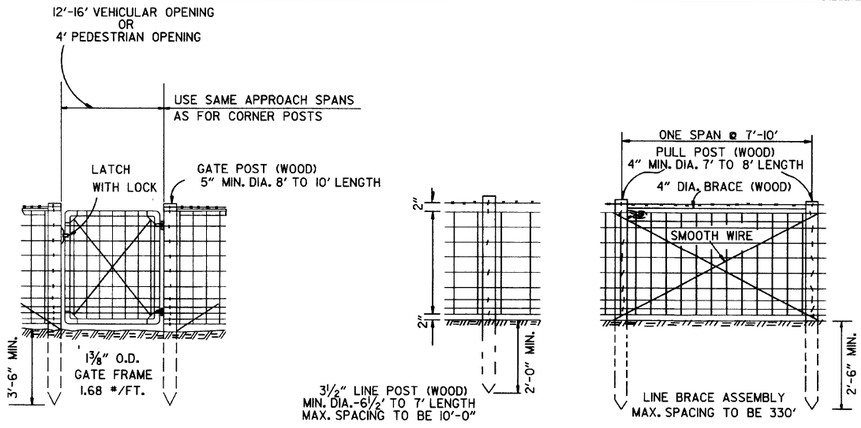
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

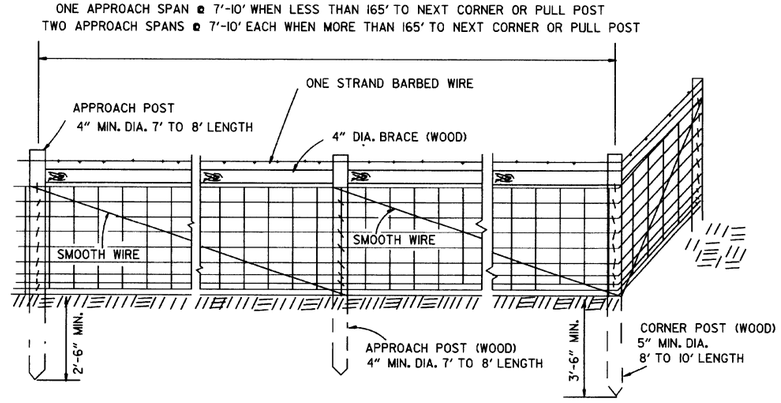
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

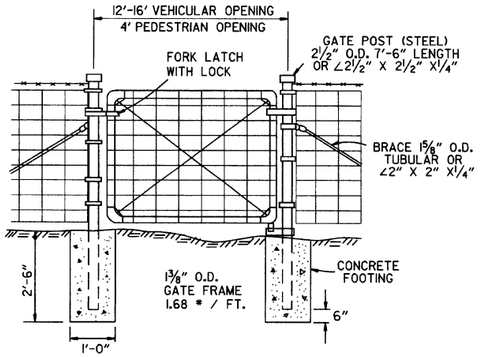
stdtec3.dgn

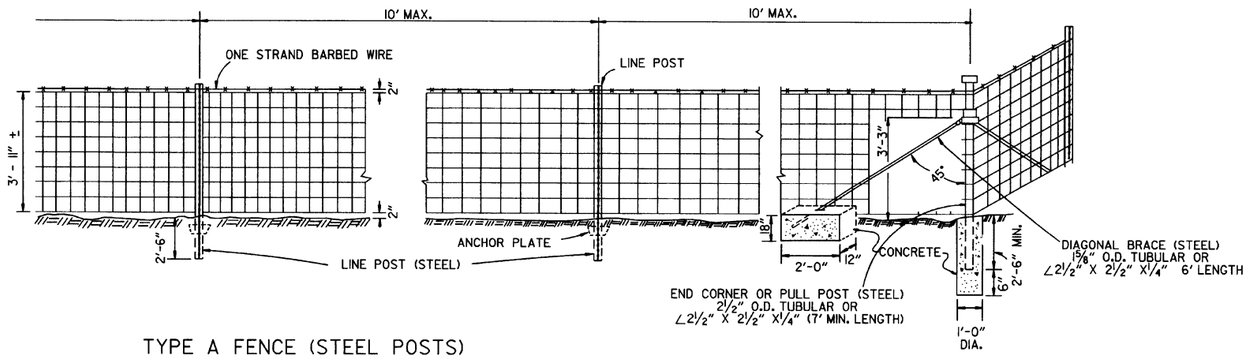




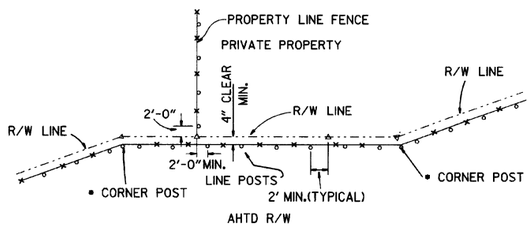
NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)





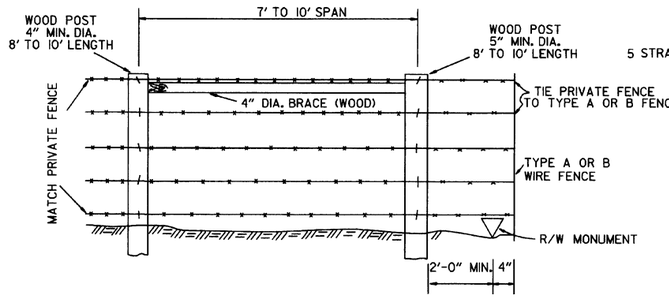
TYPE A FENCE (STEEL POSTS)



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

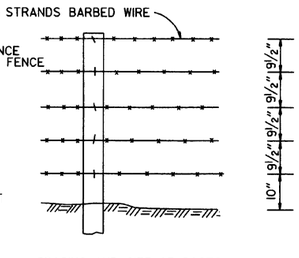
△ - R/W MONUMENTS
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



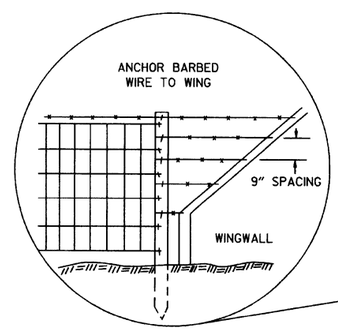
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

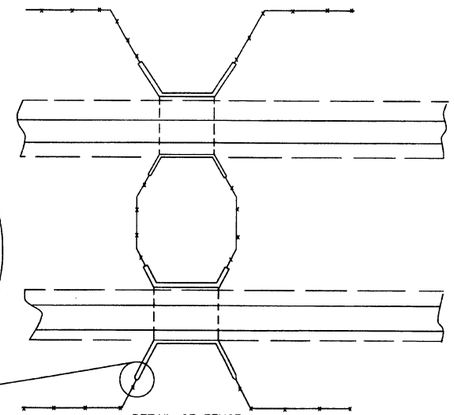
PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE





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

GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.

TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).

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

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

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

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

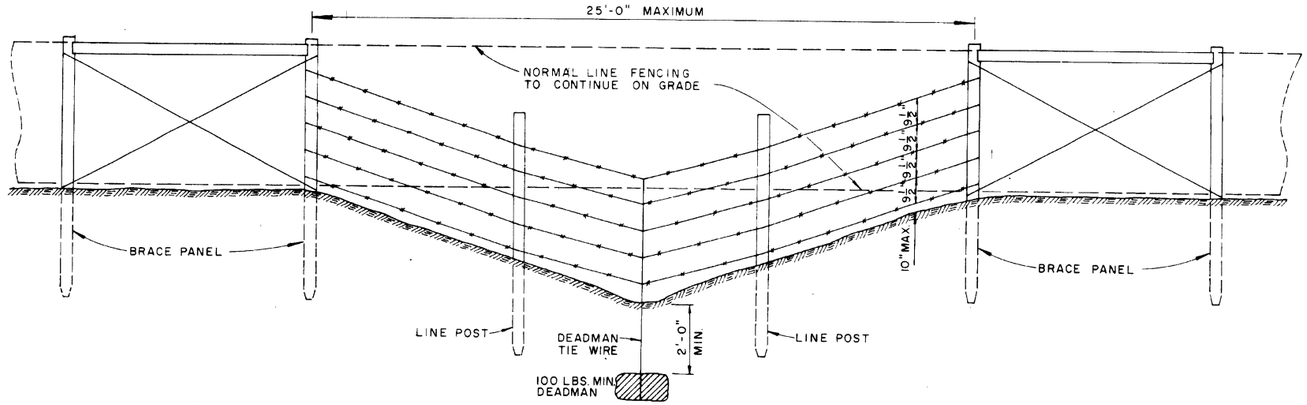
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD": AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF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

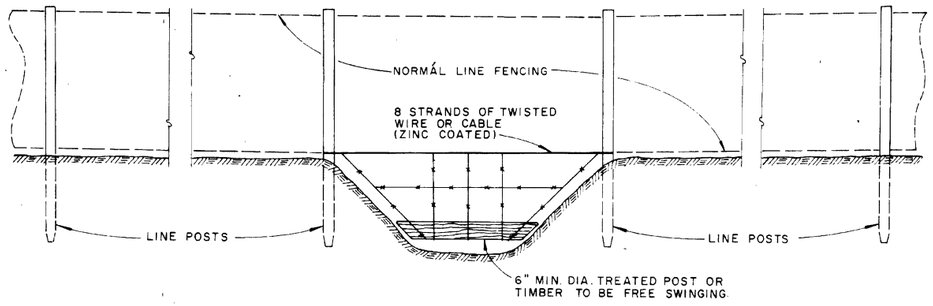
DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES	
	AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

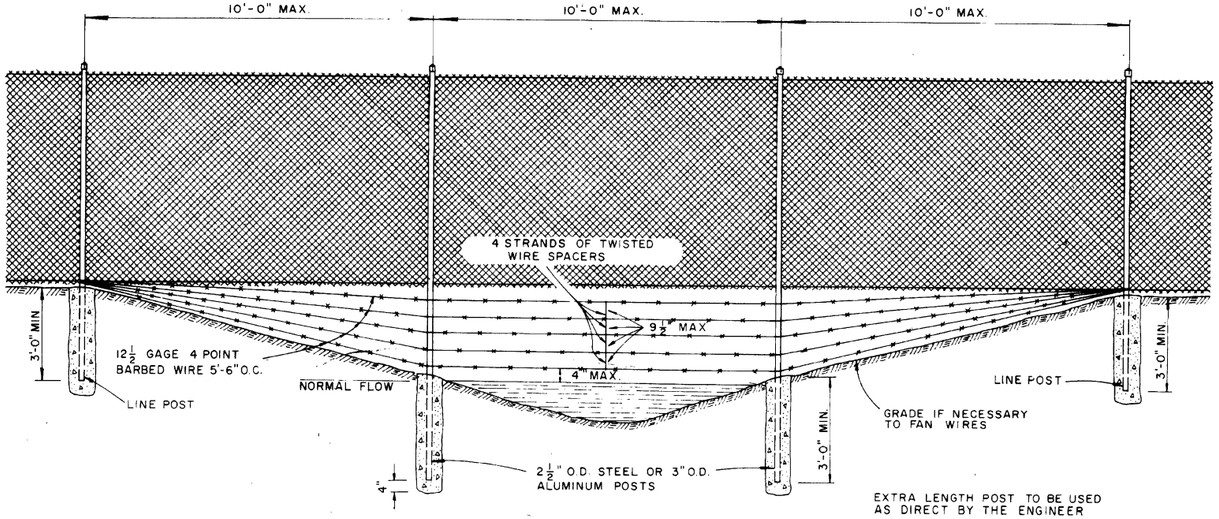
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE A AND B

STANDARD DRAWING WF-1







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	DATE FILM'D.
4-20-79	REVISED TOP RAIL & TENSION WIRE	696 4-20-79
10-2-72	REVISED & REDRAWN	529 10-2-72

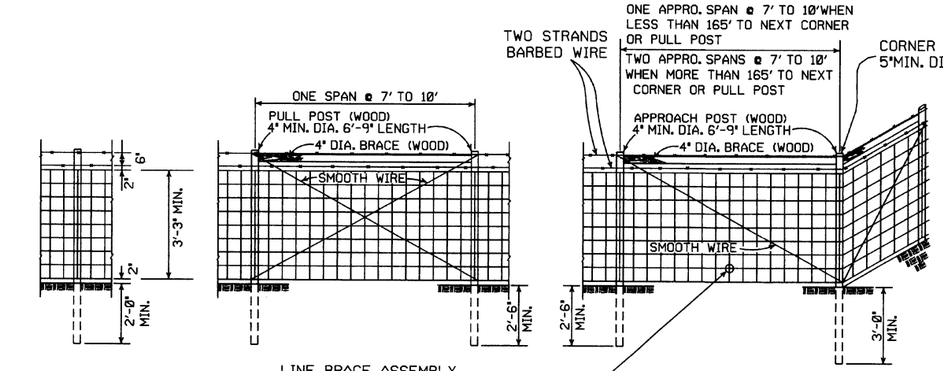
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

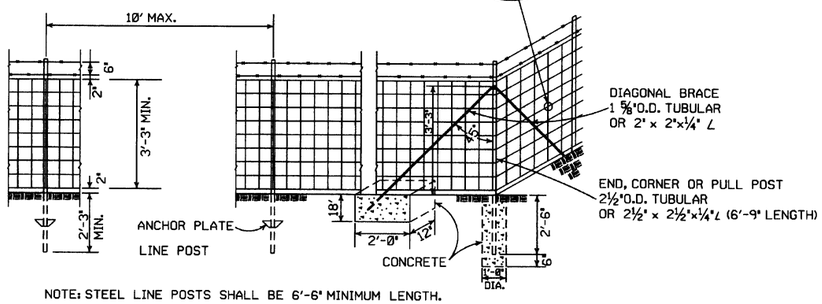
STANDARD DRAWING

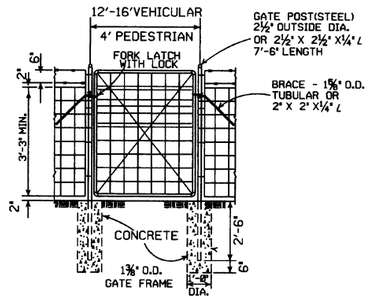
WF-2

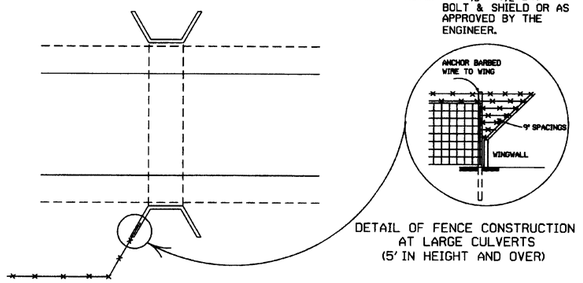
TYPE C FENCE (WOOD POSTS)



OTHER APPROVED TIES WILL BE PERMITTED







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

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

GENERAL NOTES:

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

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

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

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

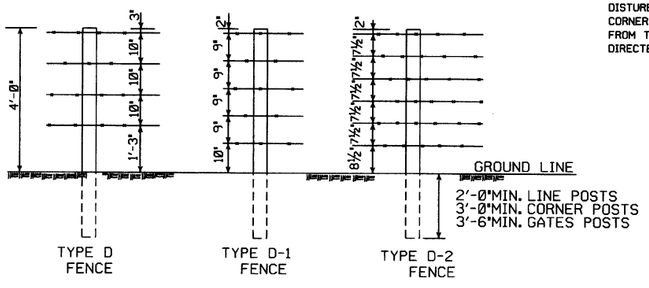
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

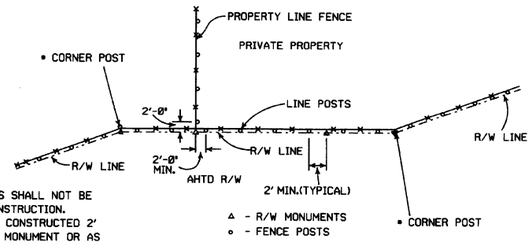
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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

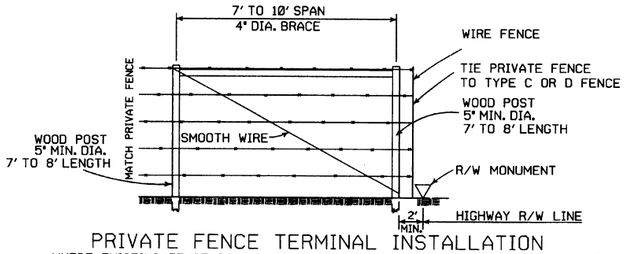


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

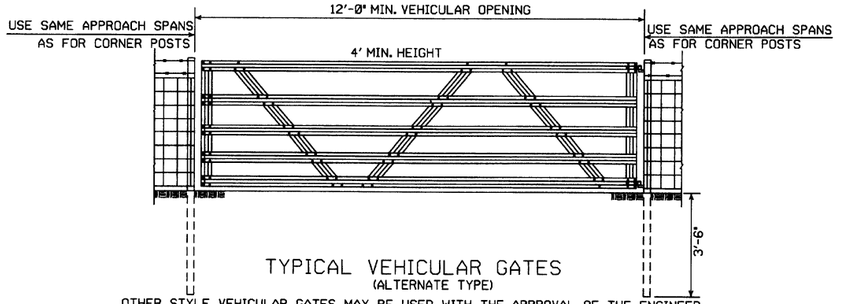


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



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



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

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

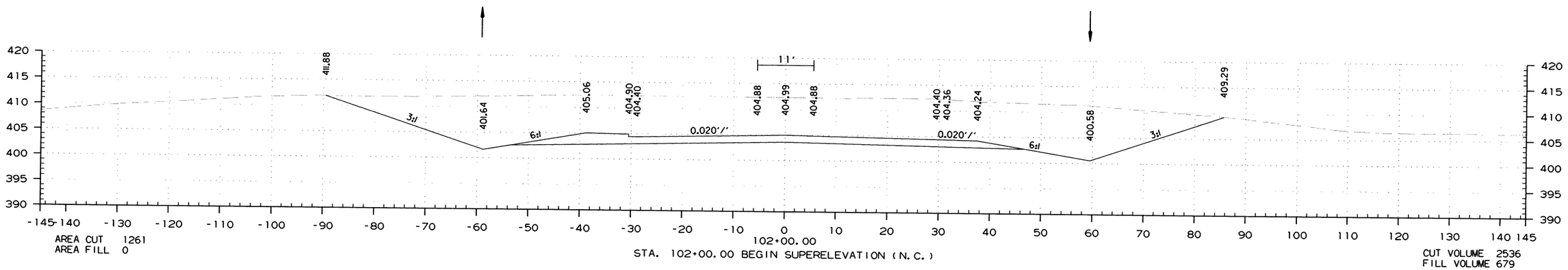
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

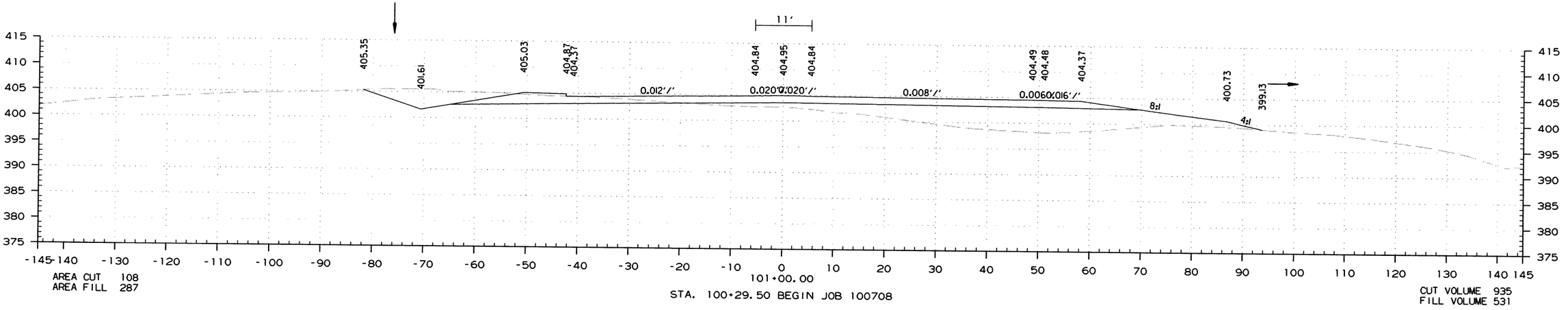
STANDARD DRAWING WF-4

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	175	335

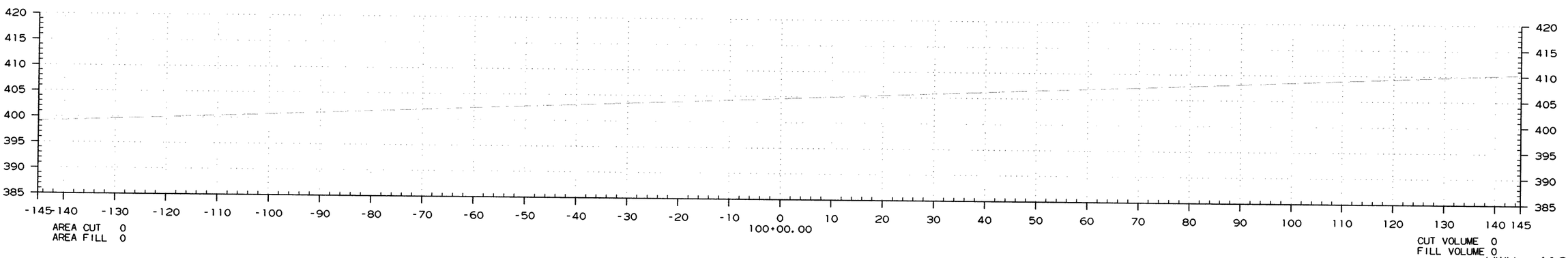
(2) CROSS SECTIONS



STA. 102+00.00 BEGIN SUPERELEVATION (N.C.)



STA. 100+29.50 BEGIN JOB 100708



HWY. 412

STA. 100+00.00 TO STA. 102+00.00

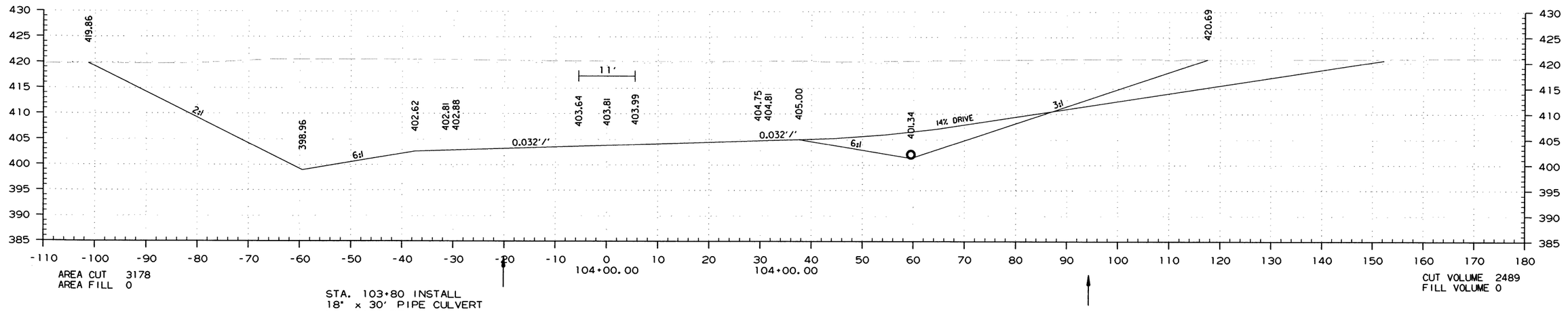
12/19/2016

R100708.DGN

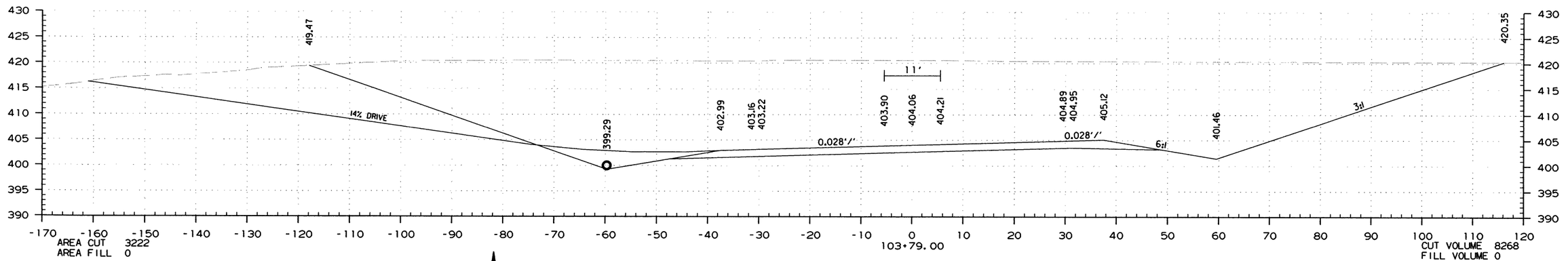
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	176	335

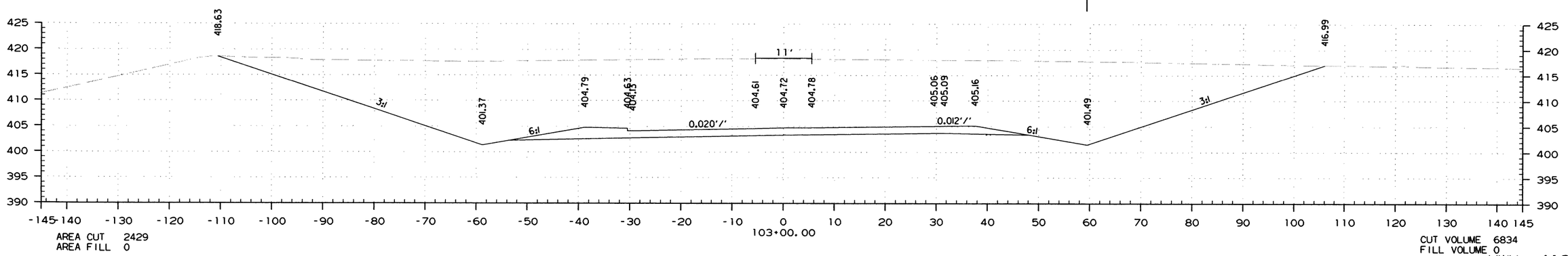
(2) CROSS SECTIONS

STA. 104+50 INSTALL
18" x 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.



STA. 103+80 INSTALL
18" x 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.





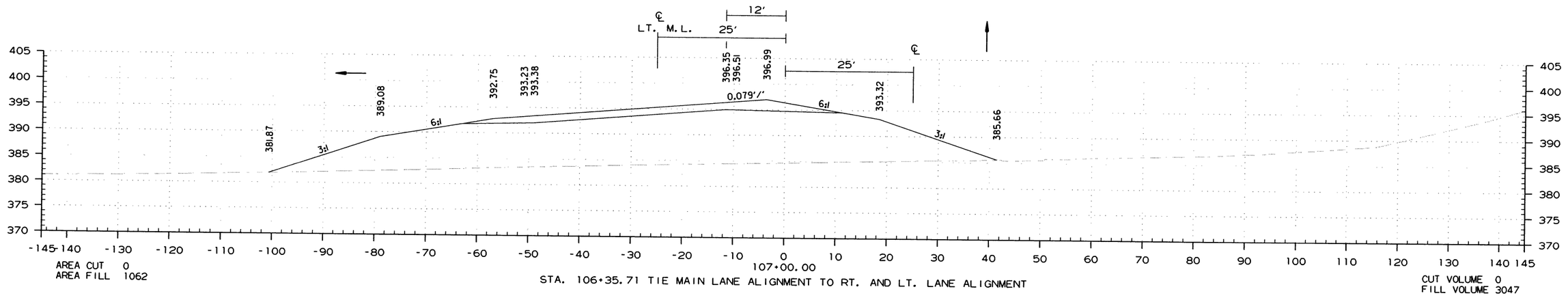
HWY. 412
STA. 103+00.00 TO STA. 104+00.00

12/19/2016

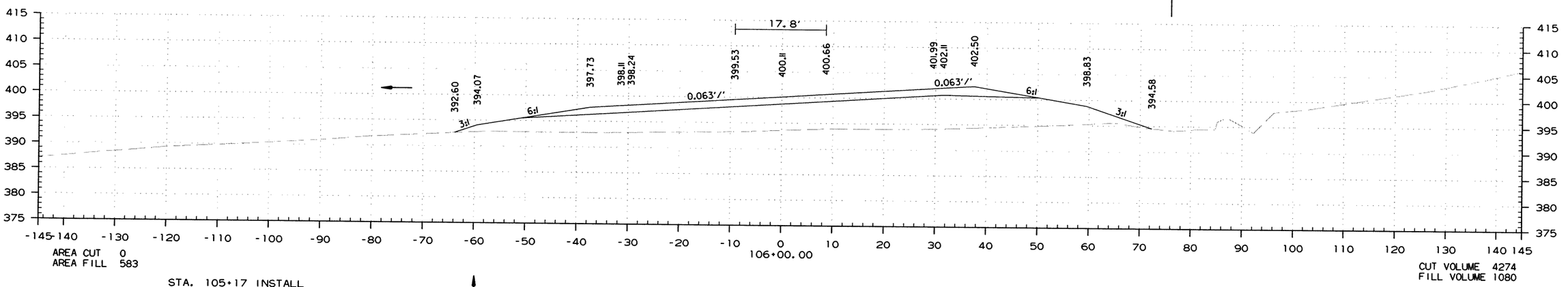
R100708.DGN

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.		100708	177	335

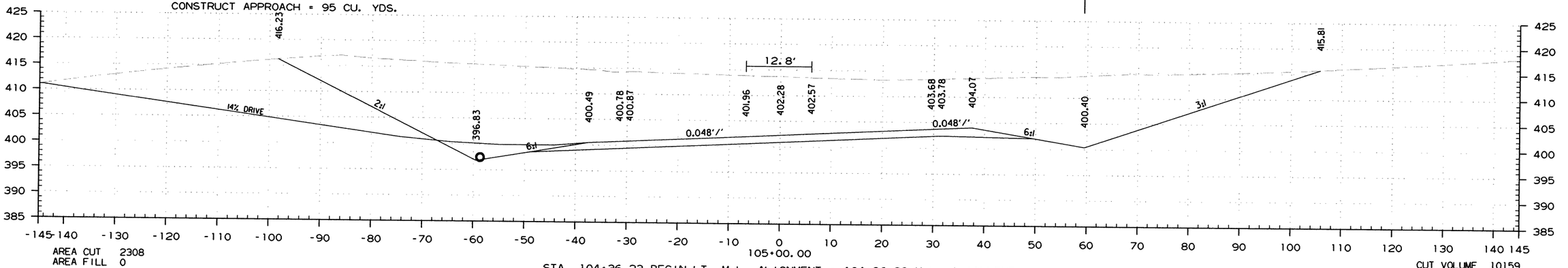
(2) CROSS SECTIONS



STA. 106+35.71 TIE MAIN LANE ALIGNMENT TO RT. AND LT. LANE ALIGNMENT



STA. 105+17 INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 95 CU. YDS.



STA. 104+36.23 BEGIN LT. M. L. ALIGNMENT = 104+36.23 M. L. ALIGNMENT
STA. 104+91.44 BEGIN RT. M. L. ALIGNMENT = 104+91.30 M. L. ALIGNMENT

HWY. 412
STA. 105+00.00 TO STA. 107+00.00

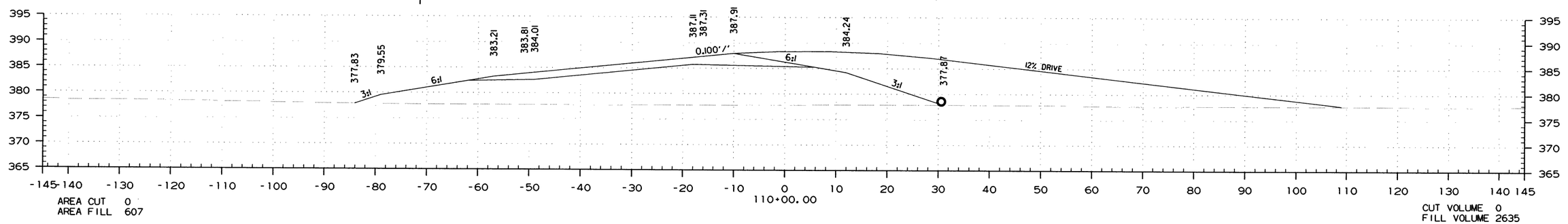
12/19/2016

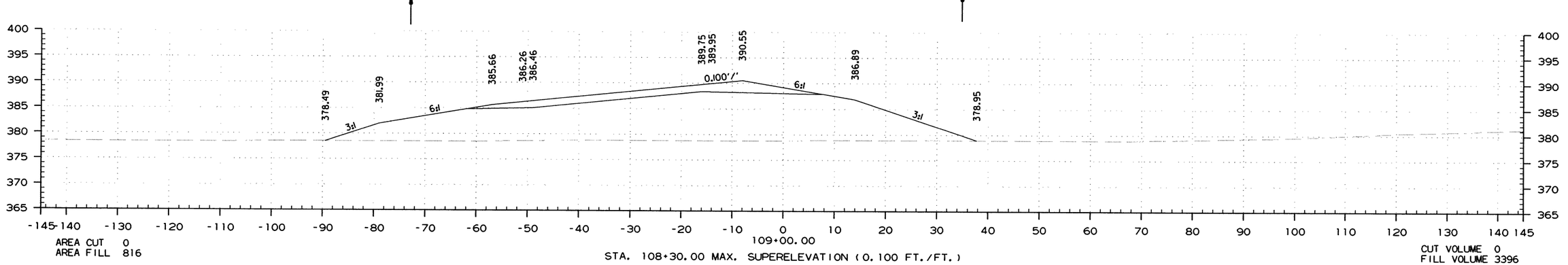
R100708.DGN

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.		100708	178	335

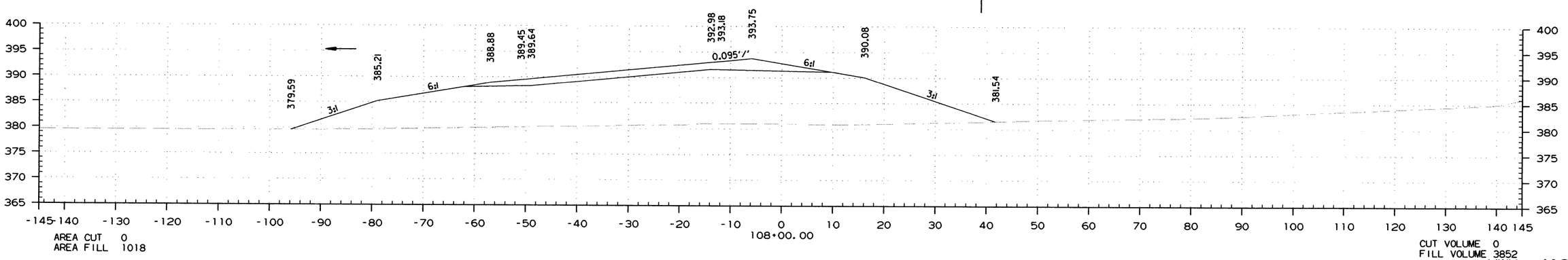
(2) CROSS SECTIONS

STA. 110+00 INSTALL
18" x 66' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 925 CU. YDS.





STA. 108+30.00 MAX. SUPERELEVATION (0.100 FT./FT.)



HWY. 412
STA. 108+00.00 TO STA. 110+00.00

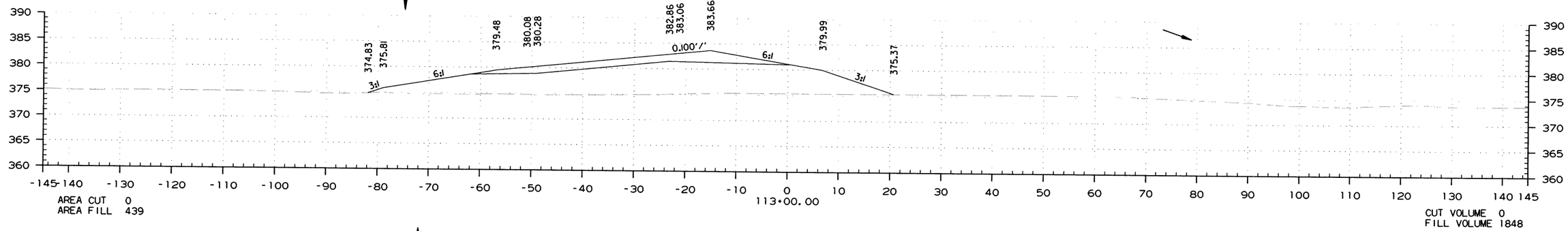
12/19/2016

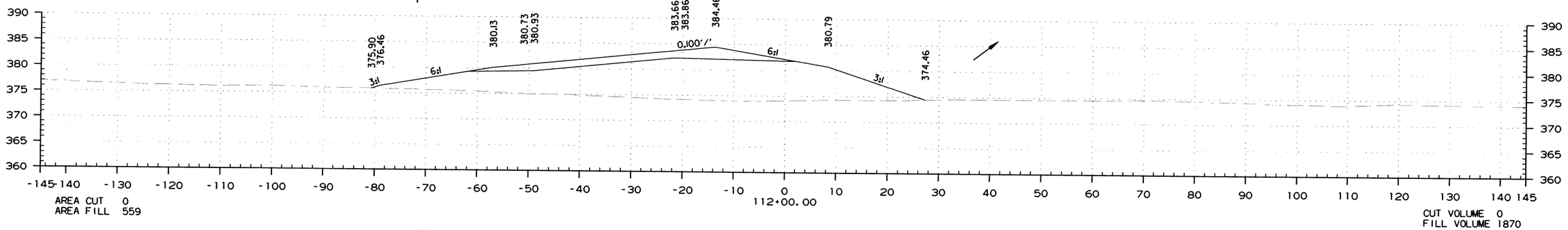
R100708.DGN

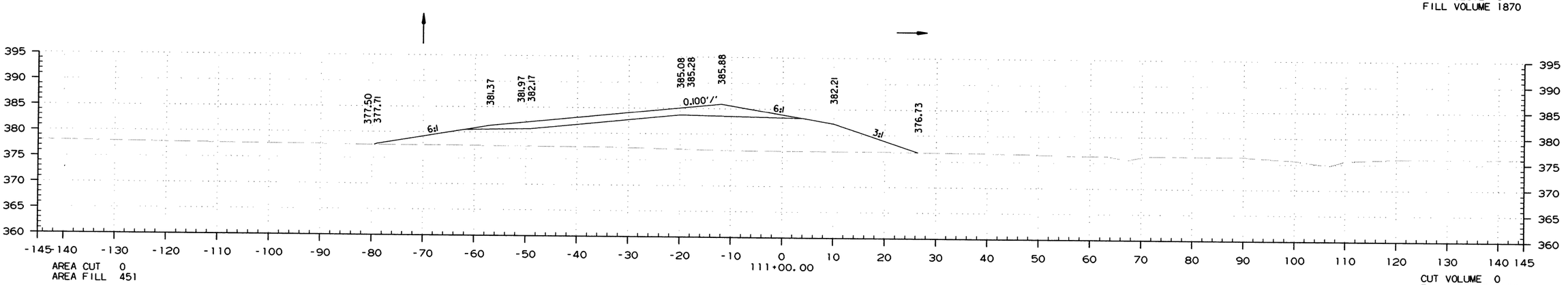
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	179	335

(2) CROSS SECTIONS

STA. 113+54.96 MAX. SUPERELEVATION (0.100 FT./FT.)







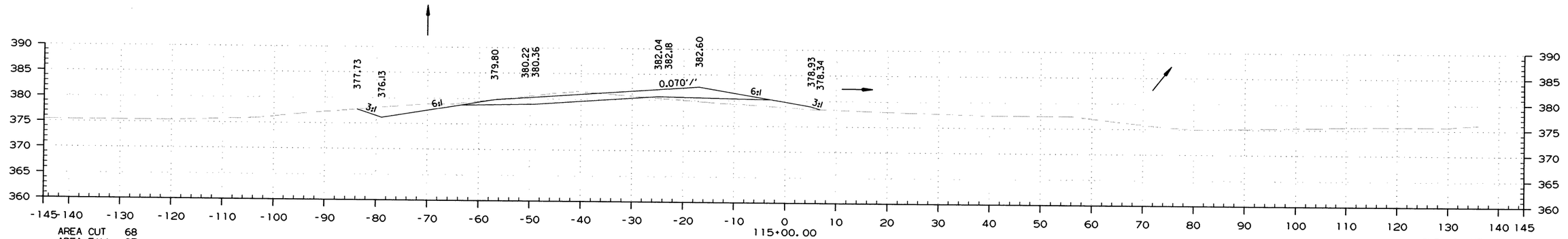
HWY. 412
STA. 111+00.00 TO STA. 113+00.00

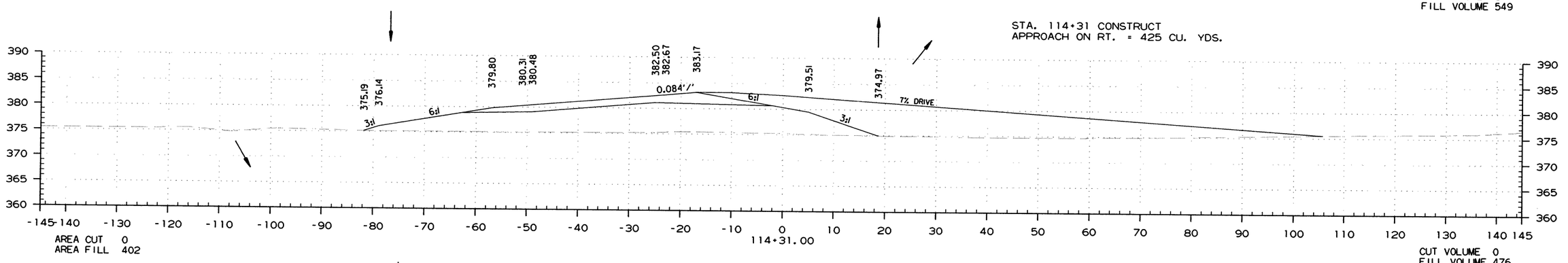
12/19/2016

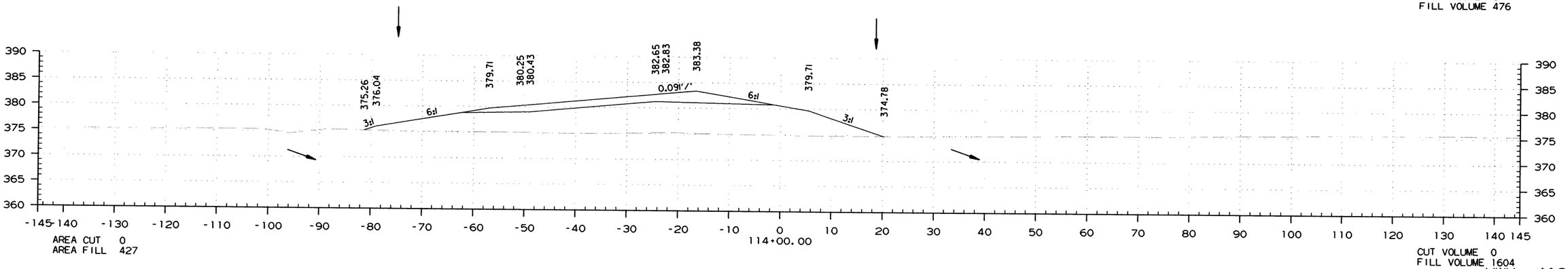
R100708.DGN

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.		100708	180	335

(2) CROSS SECTIONS







HWY. 412
STA. 114+00.00 TO STA. 115+00.00

12/19/2016

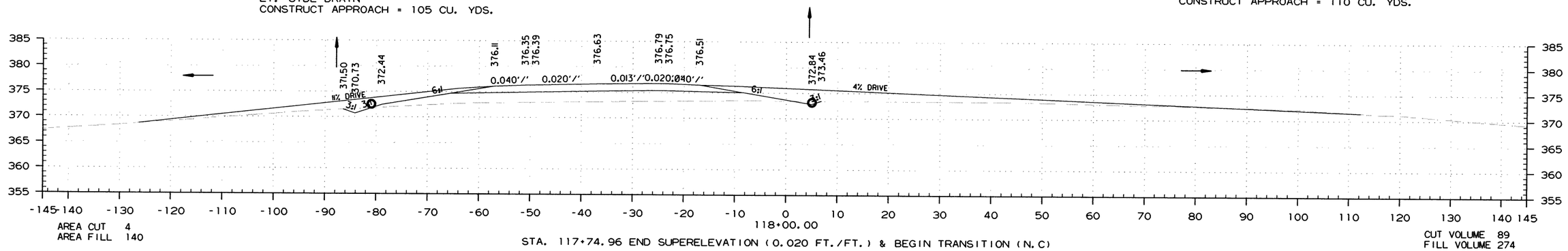
R100708.DGN

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.		100708	181	335

(2) CROSS SECTIONS

STA. 118+00 INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

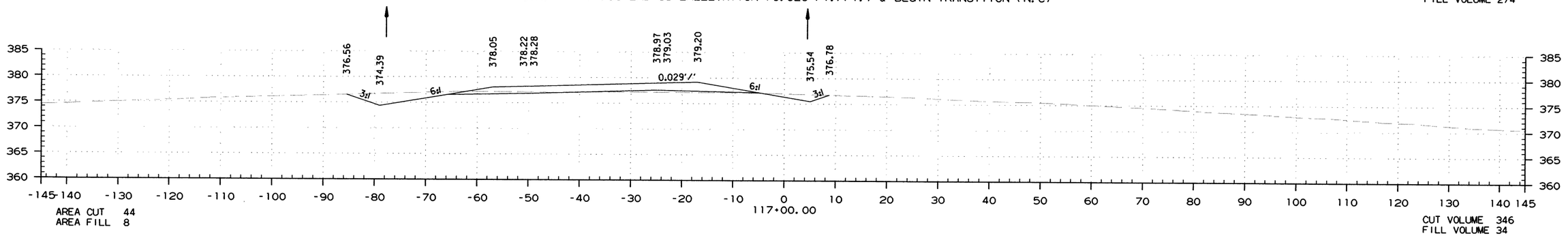
STA. 118+00 INSTALL
18" x 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 110 CU. YDS.



AREA CUT 4
AREA FILL 140

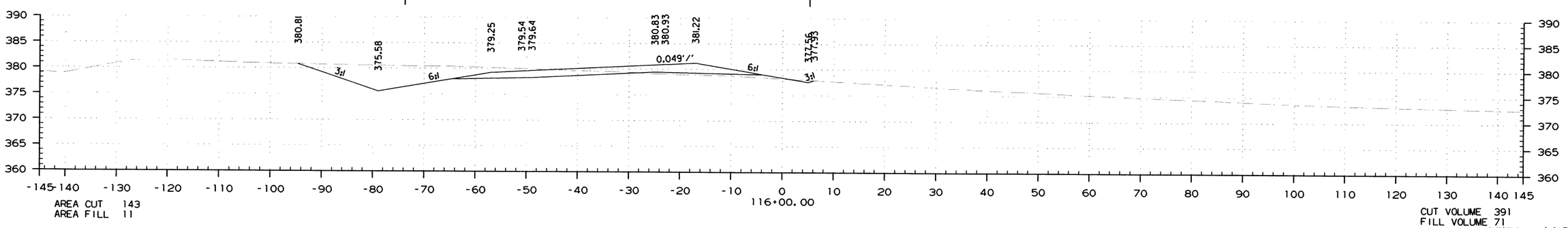
CUT VOLUME 89
FILL VOLUME 274

STA. 117+74.96 END SUPERELEVATION (0.020 FT./FT.) & BEGIN TRANSITION (N.C)



AREA CUT 44
AREA FILL 8

CUT VOLUME 346
FILL VOLUME 34



AREA CUT 143
AREA FILL 11

CUT VOLUME 391
FILL VOLUME 71

HWY. 412
STA. 116+00.00 TO STA. 118+00.00

12/19/2016

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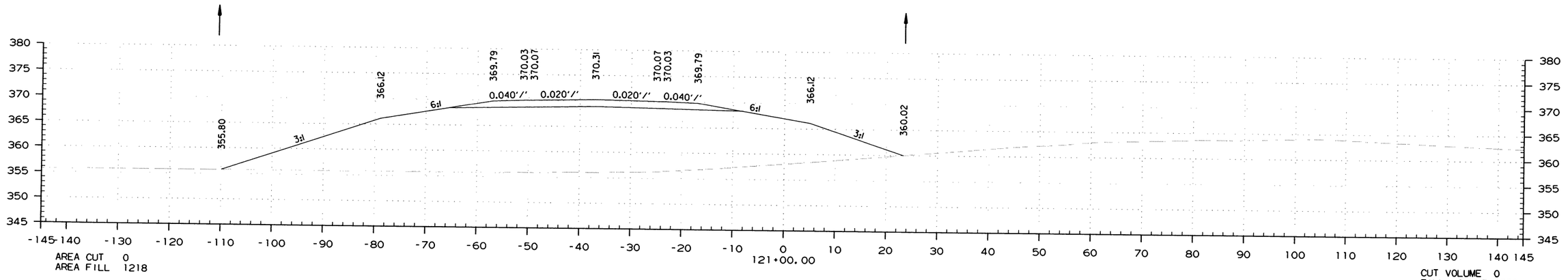
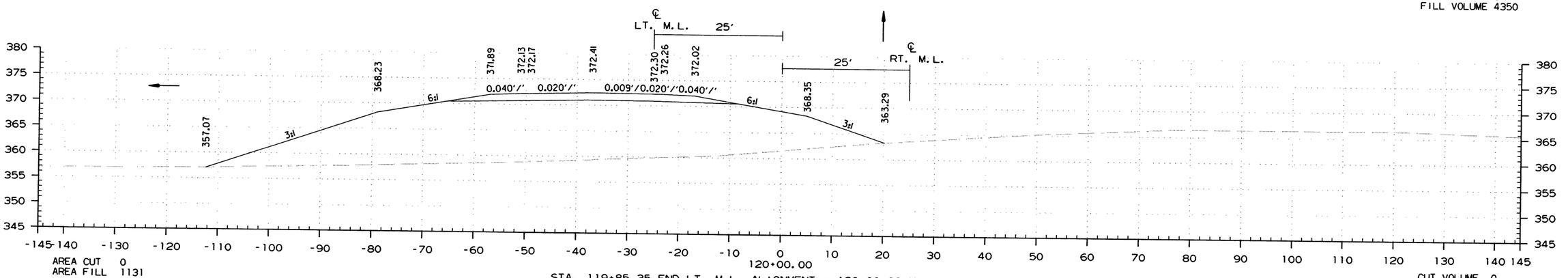
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	182	335

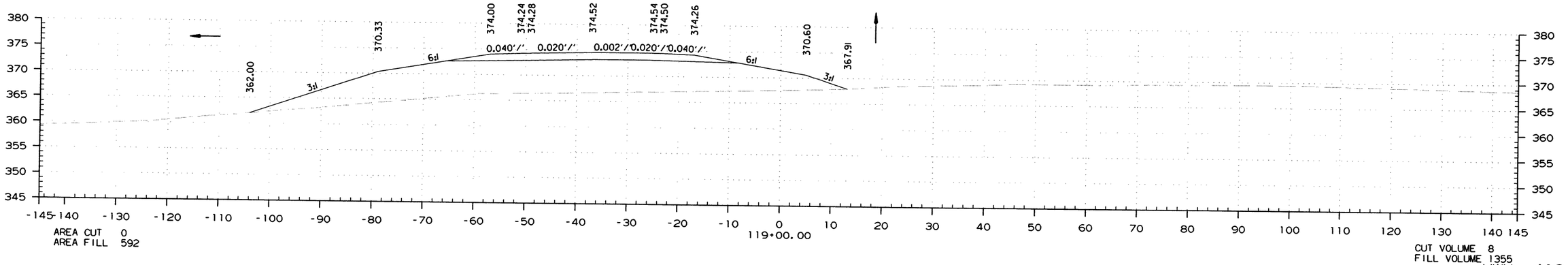
(2) CROSS SECTIONS

STA. 121+24.96 END TRANSITION (N.C.)





STA. 119+85.35 END LT. M.L. ALIGNMENT = 120+00.00 M.L. ALIGNMENT
STA. 120+14.67 END RT. M.L. ALIGNMENT = 120+00.00 M.L. ALIGNMENT



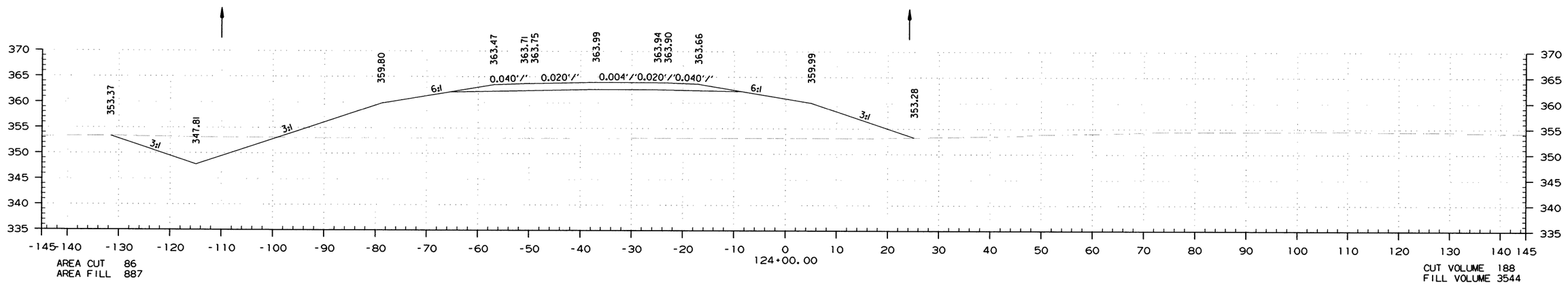
12/19/2016

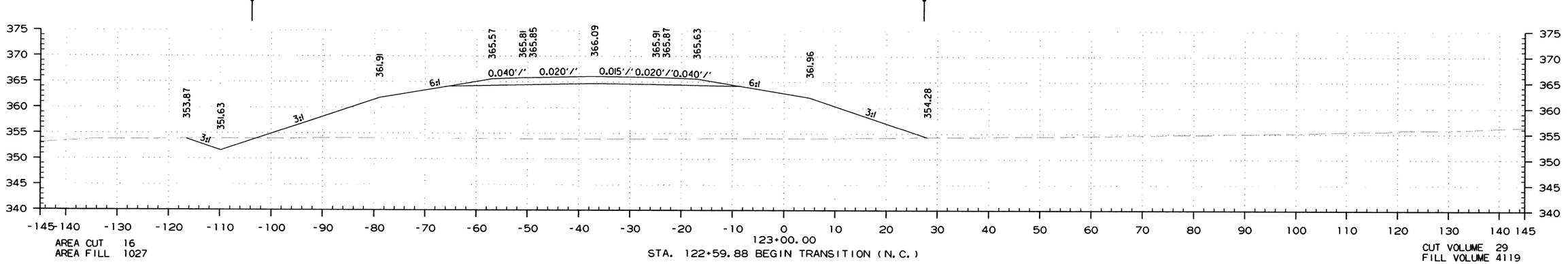
R100708.DGN

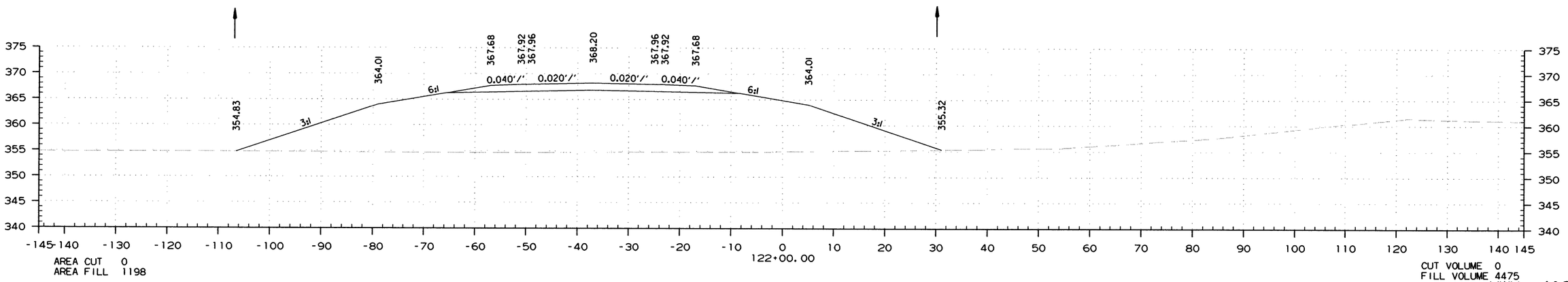
HWY. 412
STA. 119+00.00 TO STA. 121+00.00

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.		100708	183	335

(2) CROSS SECTIONS







12/19/2016

R100708.DGN

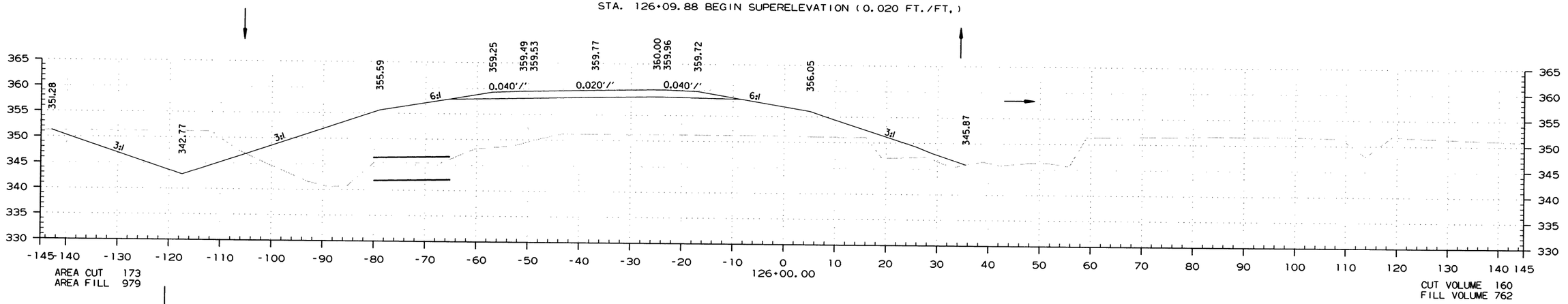
HWY. 412

STA. 122+00.00 TO STA. 124+00.00

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.		100708	184	335

(2) CROSS SECTIONS

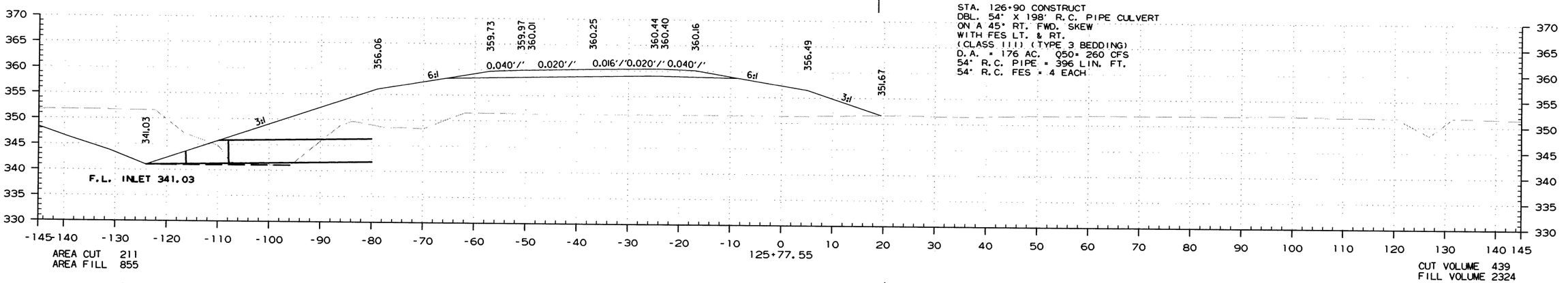
STA. 126+09.88 BEGIN SUPERELEVATION (0.020 FT./FT.)



AREA CUT 173
AREA FILL 979

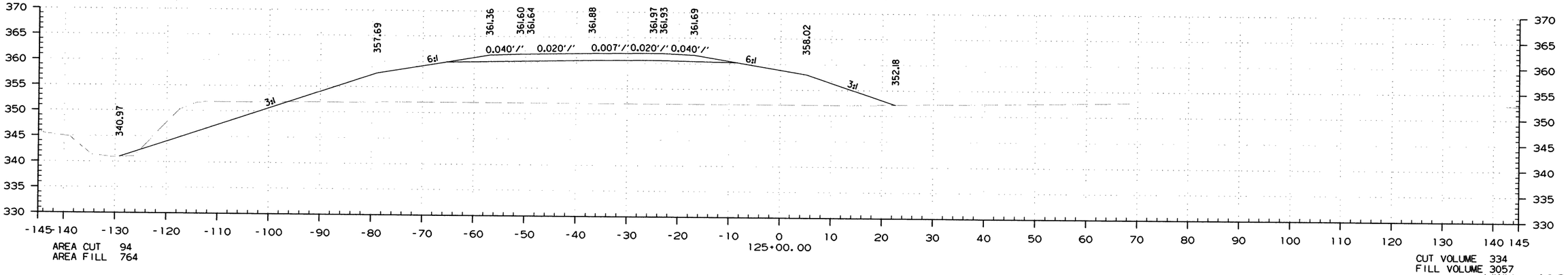
CUT VOLUME 160
FILL VOLUME 762

STA. 126+90 CONSTRUCT
DBL. 54" X 198' R.C. PIPE CULVERT
ON A 45° RT. FWD. SKEW
WITH FES LT. & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 176 AC. Q50= 260 CFS
54" R.C. PIPE = 396 LIN. FT.
54" R.C. FES = 4 EACH



AREA CUT 211
AREA FILL 855

CUT VOLUME 439
FILL VOLUME 2324



AREA CUT 94
AREA FILL 764

CUT VOLUME 334
FILL VOLUME 3057

HWY. 412
STA. 125+00.00 TO STA. 126+00.00

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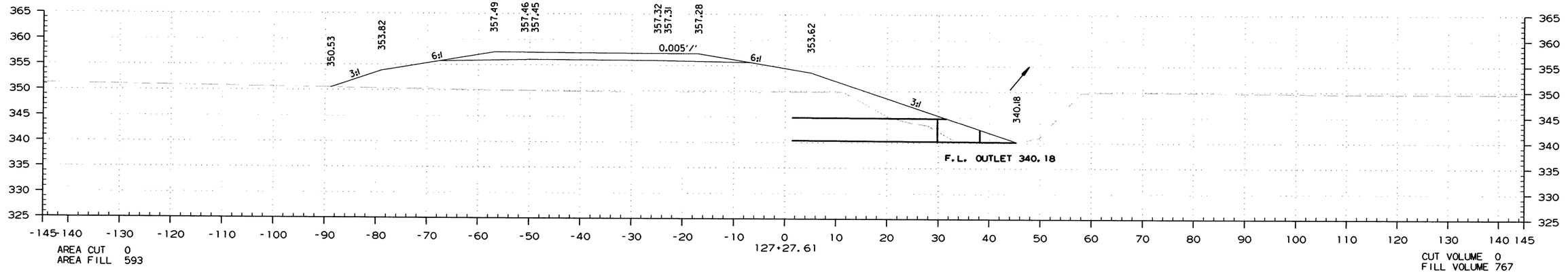
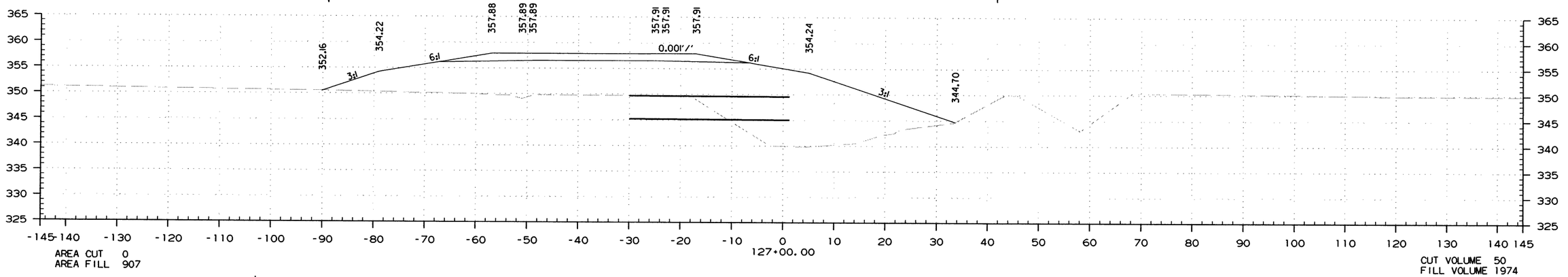
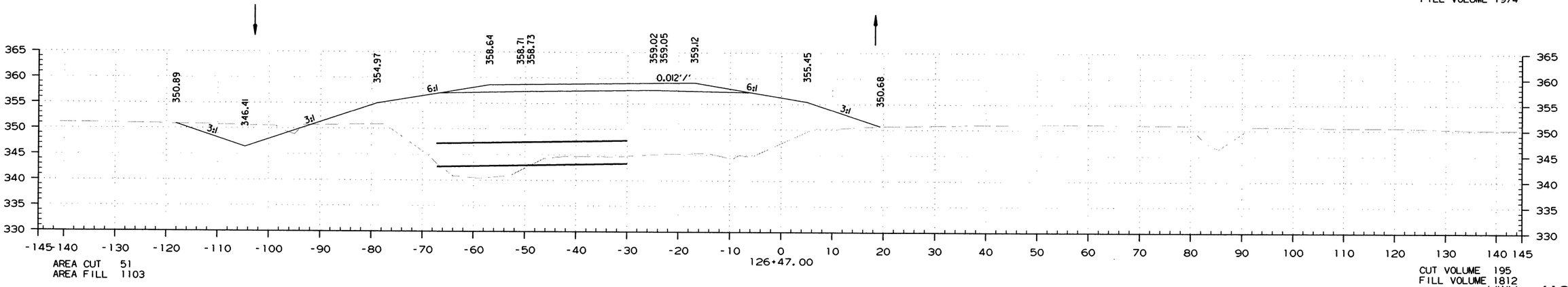
R100708.DGN

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.		100708	185	335

(2) CROSS SECTIONS







HWY. 412
STA. 126+47.00 TO STA. 127+27.61

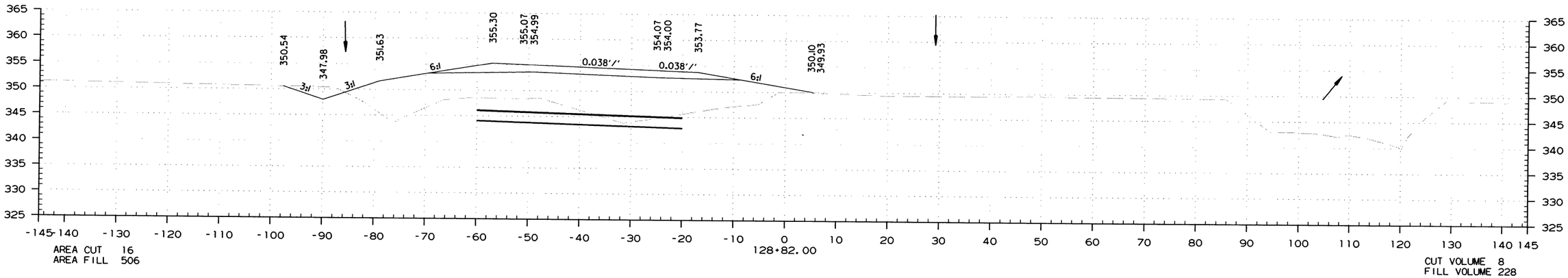
12/19/2016

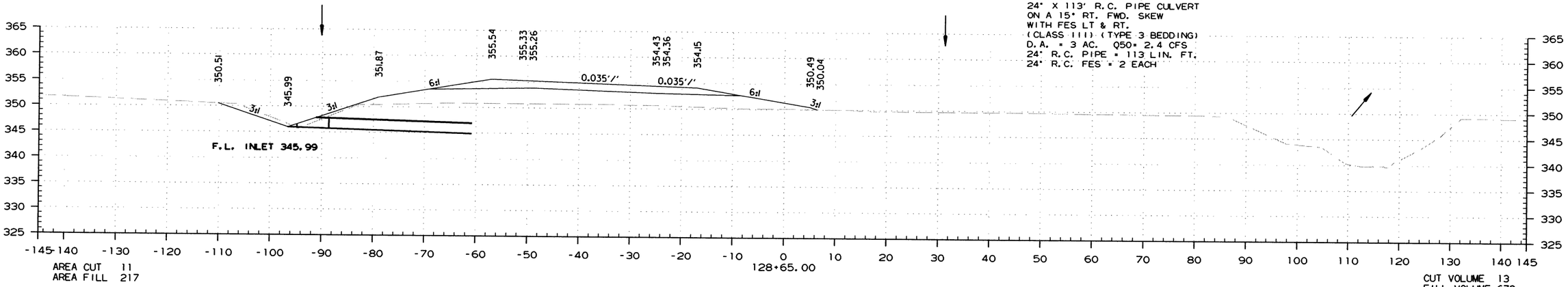
R100708.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

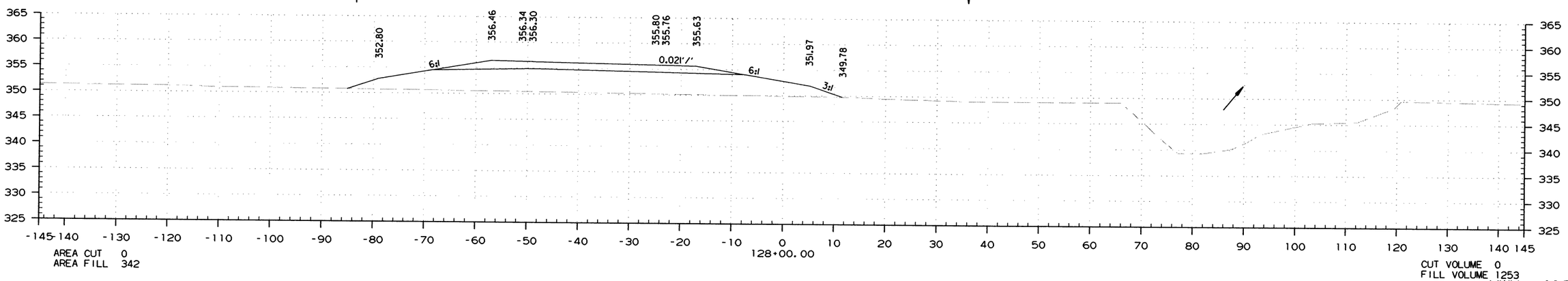
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	186	335

(2) CROSS SECTIONS





STA. 128+94 CONSTRUCT
24" X 113' R.C. PIPE CULVERT
ON A 15° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 3 AC. Q50= 2.4 CFS
24" R.C. PIPE = 113 LIN. FT.
24" R.C. FES = 2 EACH



HWY. 412
STA. 128+00.00 TO STA. 128+82.00

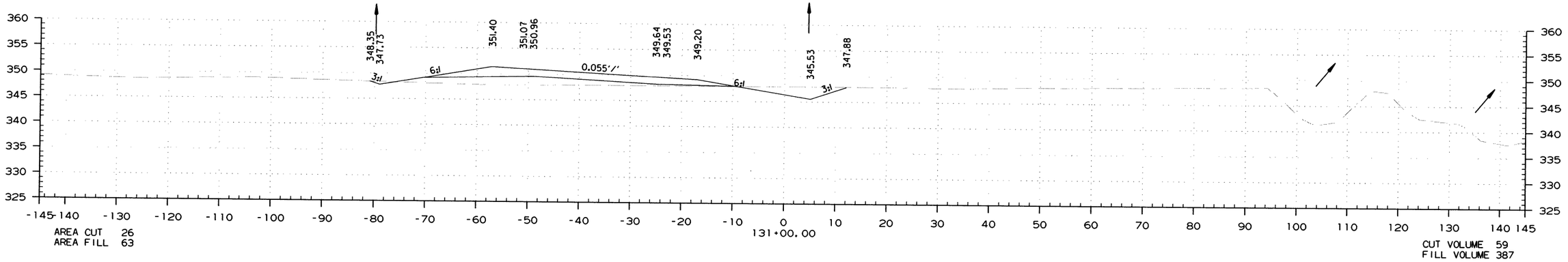
12/19/2016

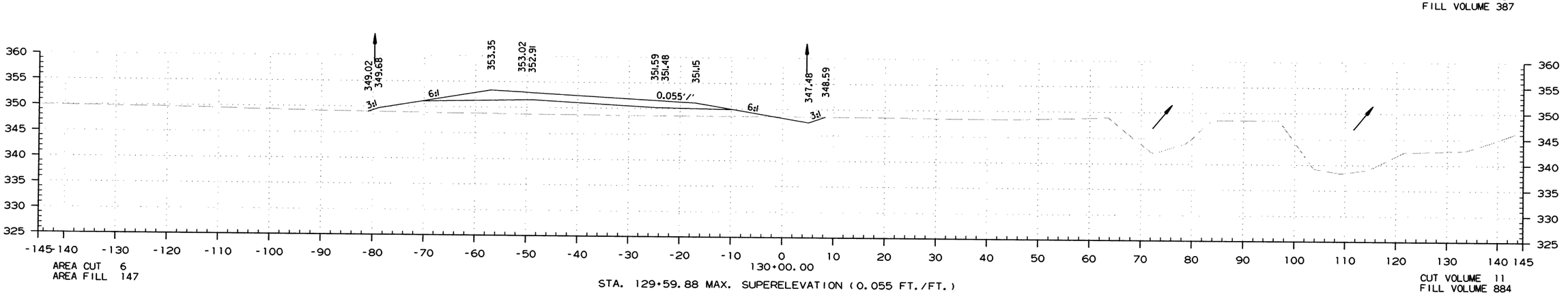
R100708.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

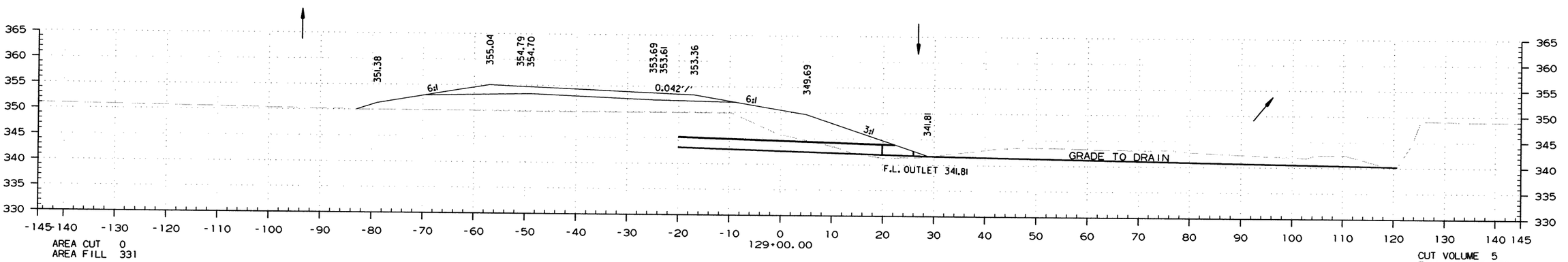
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	187	335

(2) CROSS SECTIONS





STA. 129+59.88 MAX. SUPERELEVATION (0.055 FT./FT.)



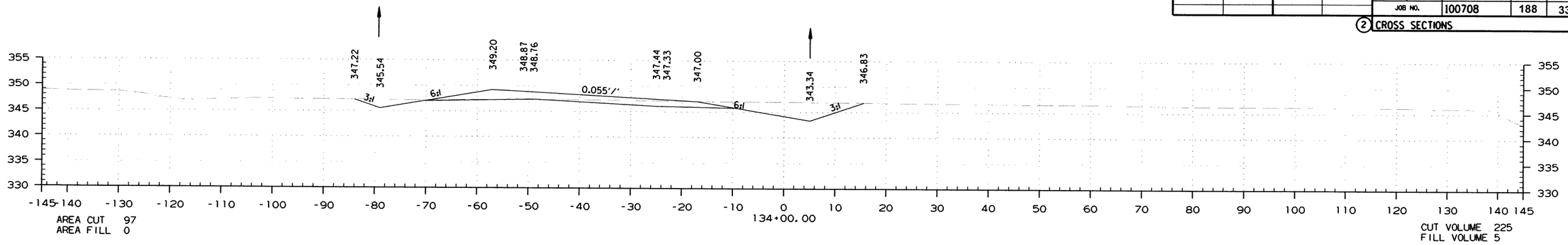
HWY. 412
STA. 129+00.00 TO STA. 131+00.00

12/19/2016

R100708.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.		100708	188	335

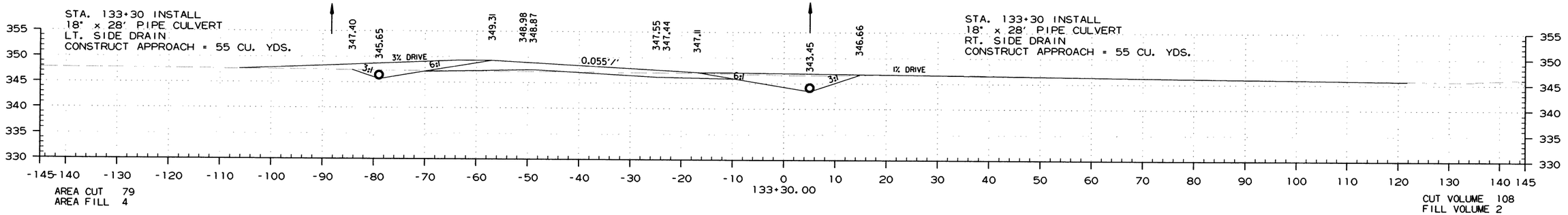
(2) CROSS SECTIONS



AREA CUT 97
AREA FILL 0

CUT VOLUME 225
FILL VOLUME 5

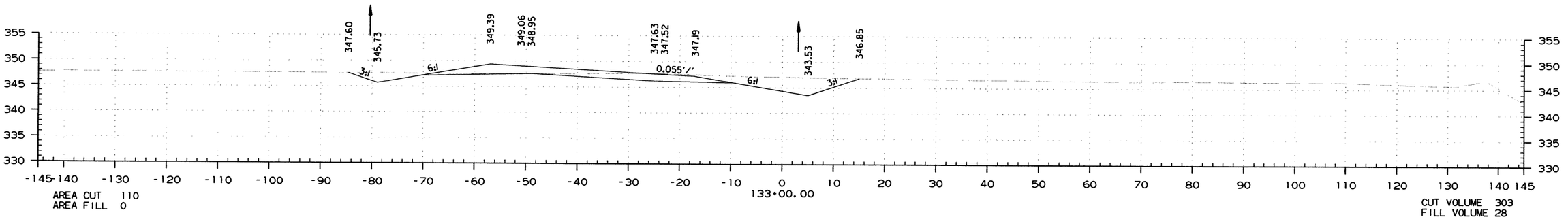
STA. 133+30 INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.



STA. 133+30 INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

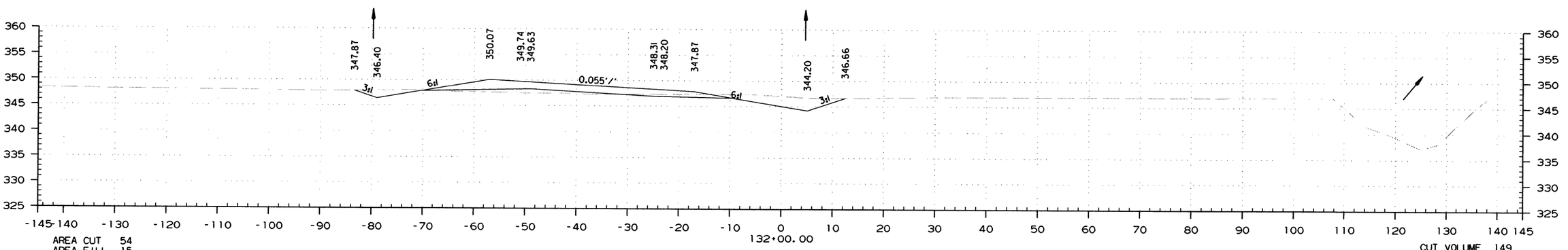
AREA CUT 79
AREA FILL 4

CUT VOLUME 108
FILL VOLUME 2



AREA CUT 110
AREA FILL 0

CUT VOLUME 303
FILL VOLUME 28



AREA CUT 54
AREA FILL 15

CUT VOLUME 149
FILL VOLUME 143

HWY. 412
STA. 132+00.00 TO STA. 134+00.00

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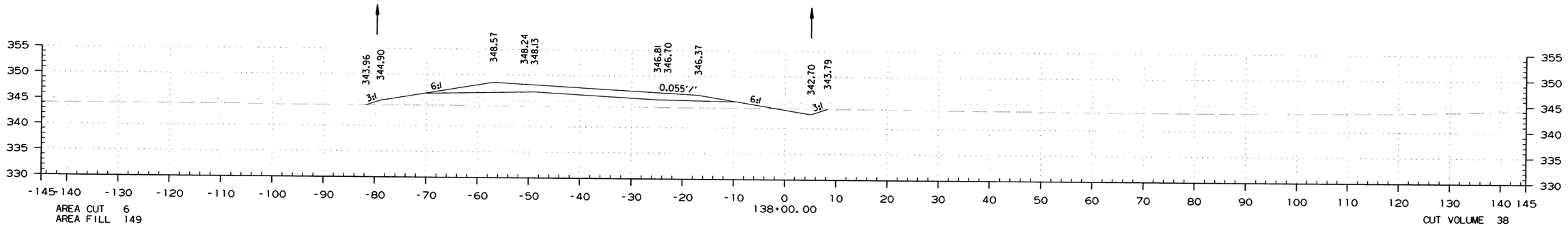
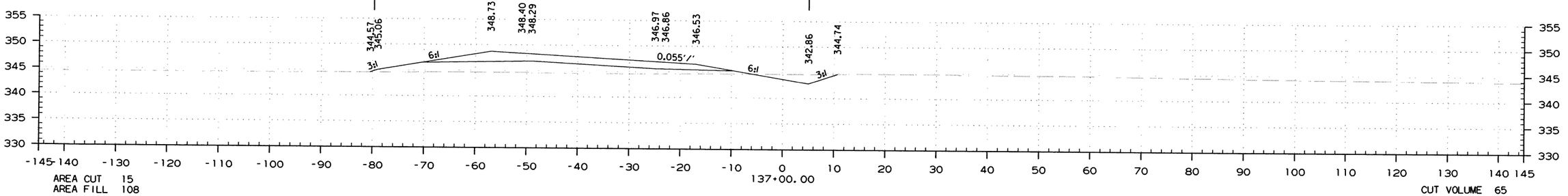
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	189	335

(2) CROSS SECTIONS



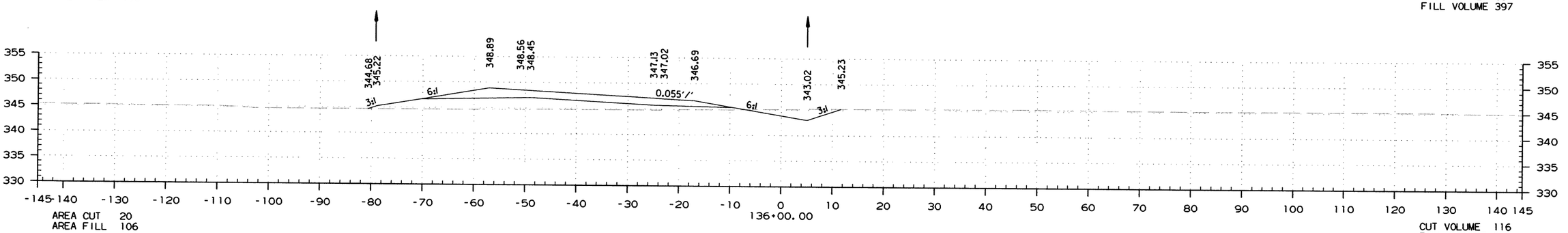
AREA CUT 6
AREA FILL 149

CUT VOLUME 38
FILL VOLUME 476



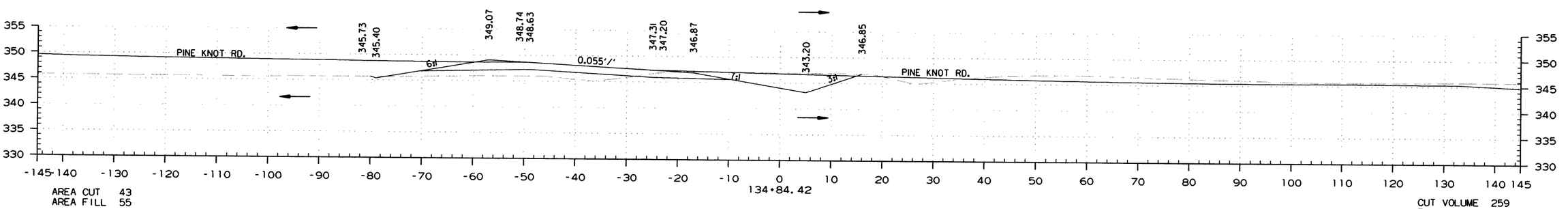
AREA CUT 15
AREA FILL 108

CUT VOLUME 65
FILL VOLUME 397



AREA CUT 20
AREA FILL 106

CUT VOLUME 116
FILL VOLUME 298



AREA CUT 43
AREA FILL 55

CUT VOLUME 259
FILL VOLUME 102

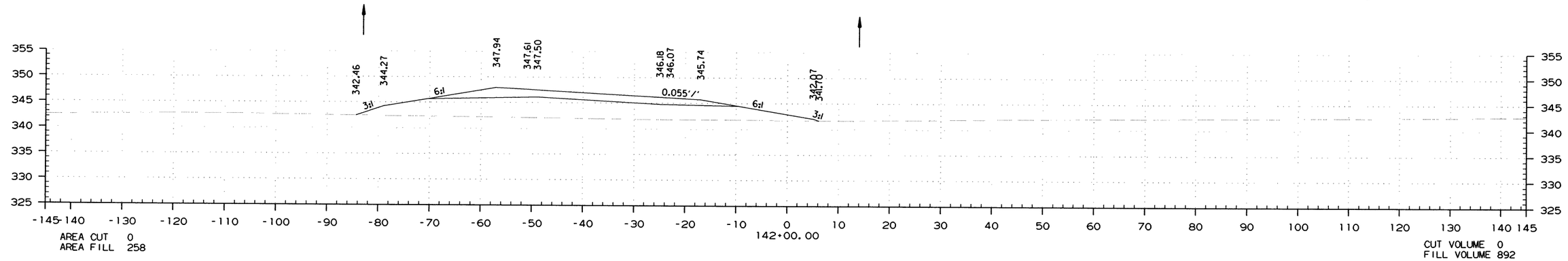
HWY. 412
STA. 135+00.00 TO STA. 138+00.00

12/19/2016

R100708.DGN

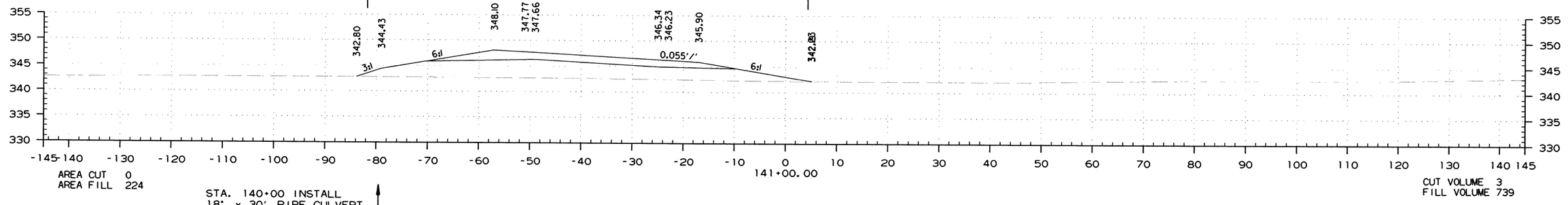
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	190	335

(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 258

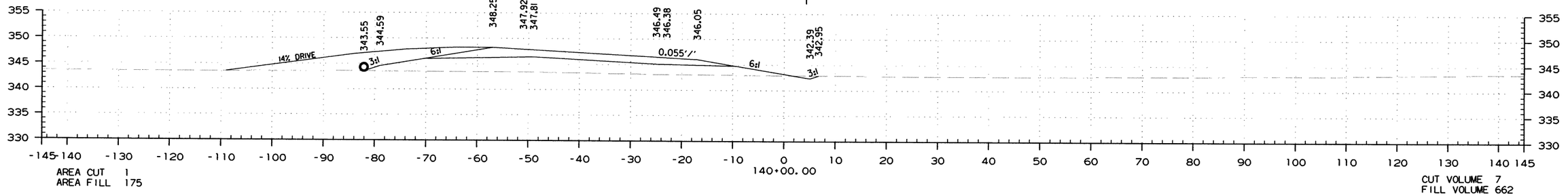
CUT VOLUME 0
FILL VOLUME 892



AREA CUT 0
AREA FILL 224

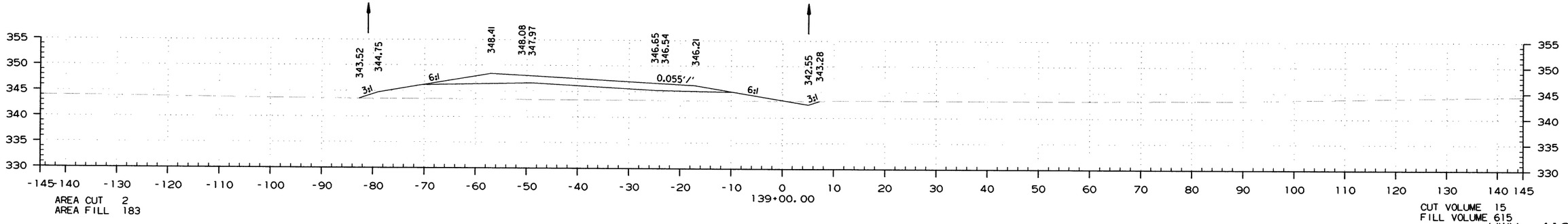
CUT VOLUME 3
FILL VOLUME 739

STA. 140+00 INSTALL
18" x 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 70 CU. YDS.



AREA CUT 1
AREA FILL 175

CUT VOLUME 7
FILL VOLUME 662



AREA CUT 2
AREA FILL 183

CUT VOLUME 15
FILL VOLUME 615

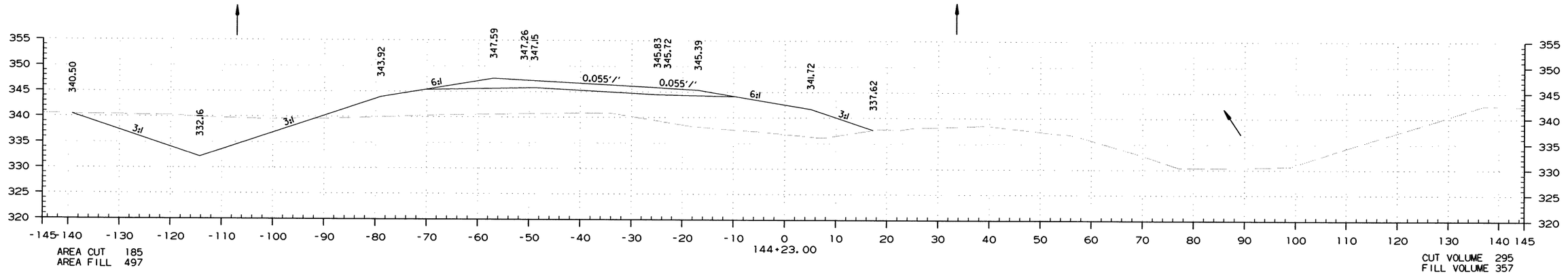
HWY. 412
STA. 139+00.00 TO STA. 142+00.00

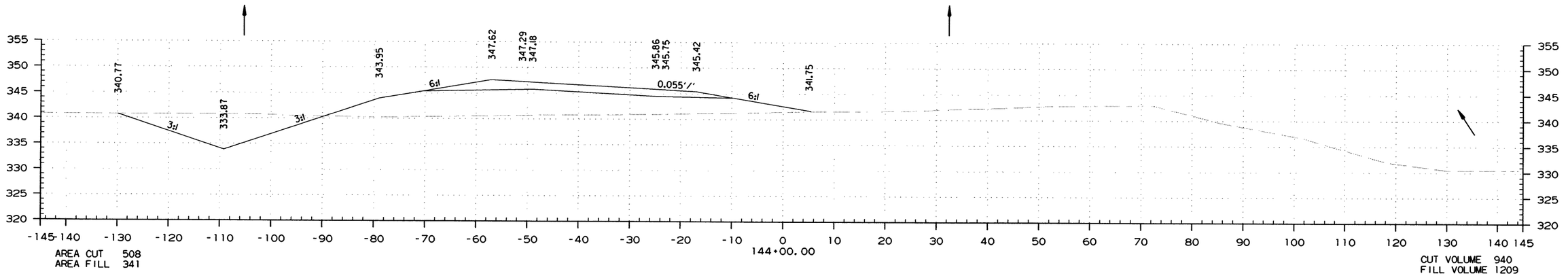
12/19/2016

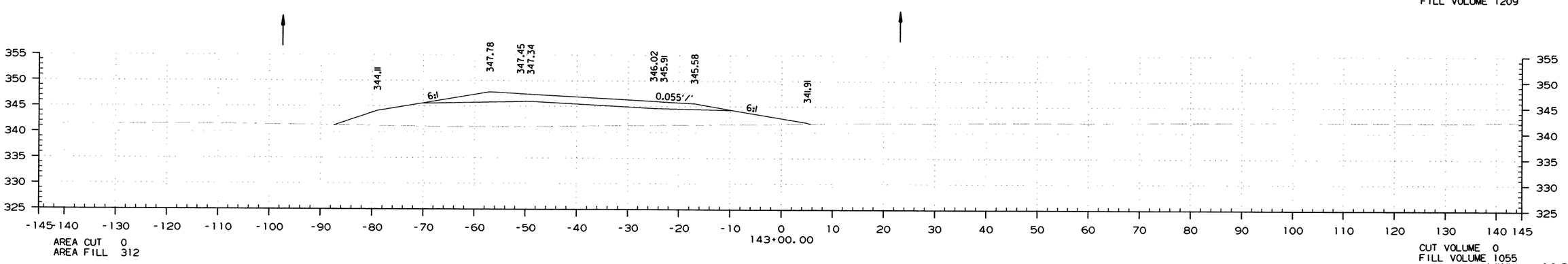
R100708.DGN

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.		100708	191	335

(2) CROSS SECTIONS







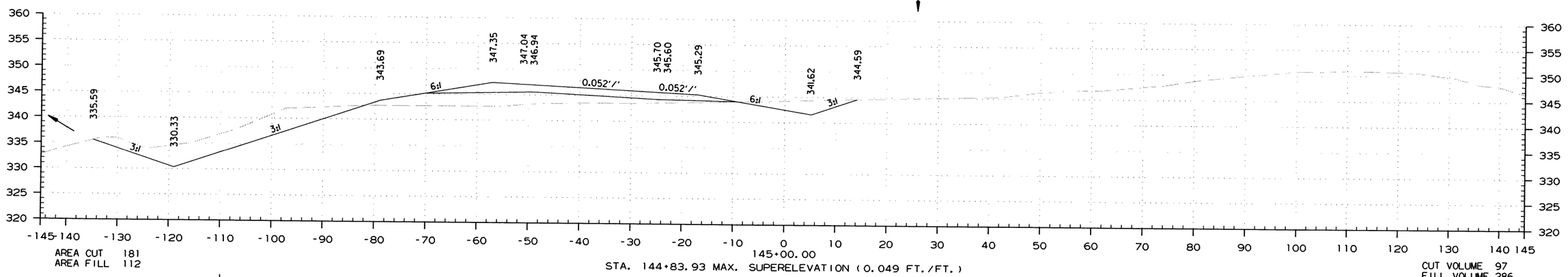
HWY. 412
STA. 143+00.00 TO STA. 144+23.00

12/19/2016

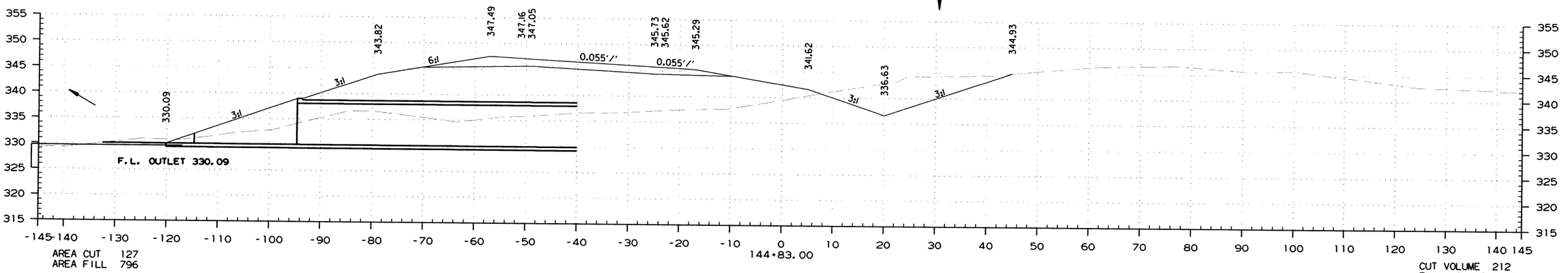
R100708.DGN

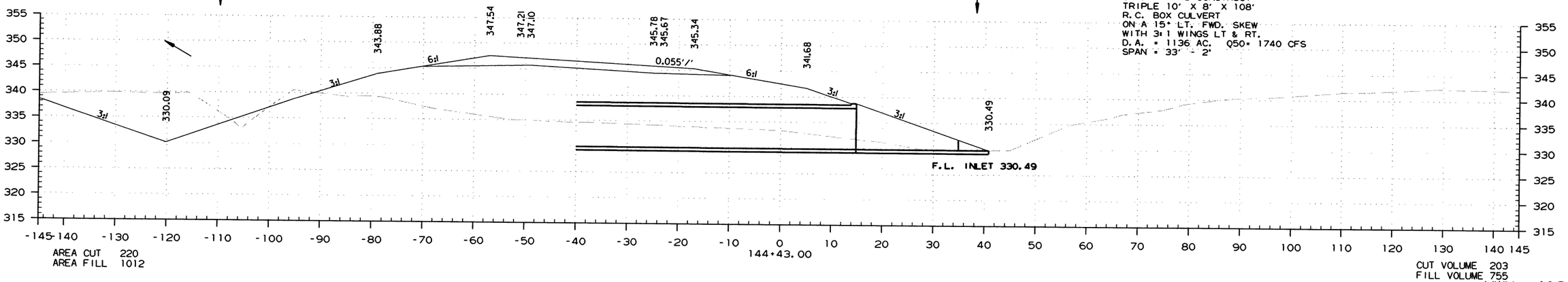
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	192	335

(2) CROSS SECTIONS



STA. 144+83.93 MAX. SUPERELEVATION (0.049 FT./FT.)





STA. 144+43 CONSTRUCT
TRIPLE 10' X 8' X 108'
R.C. BOX CULVERT
ON A 15° LT. FWD. SKEW
WITH 3:1 WINGS LT & RT.
D.A. = 1136 AC. Q50= 1740 CFS
SPAN = 33' - 2"

12/19/2016

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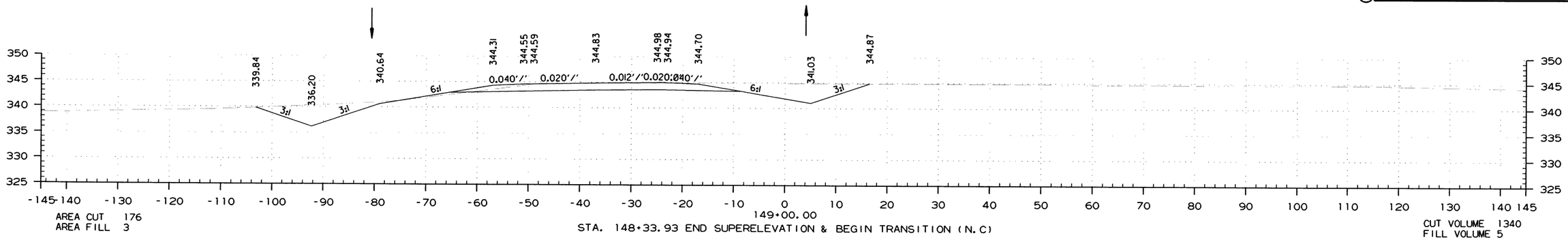
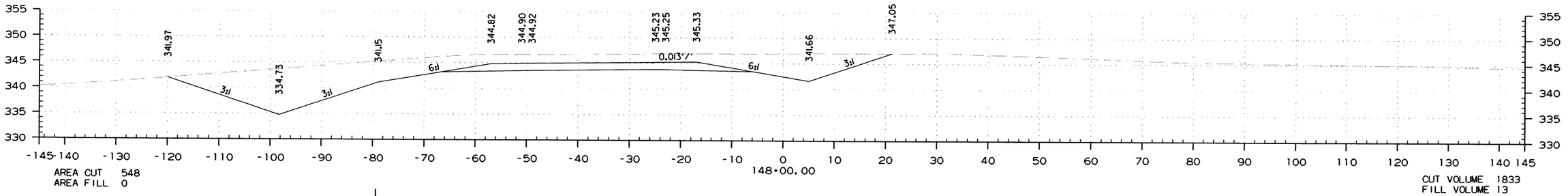
HWY. 412
STA. 144+50.00 TO STA. 145+00.00

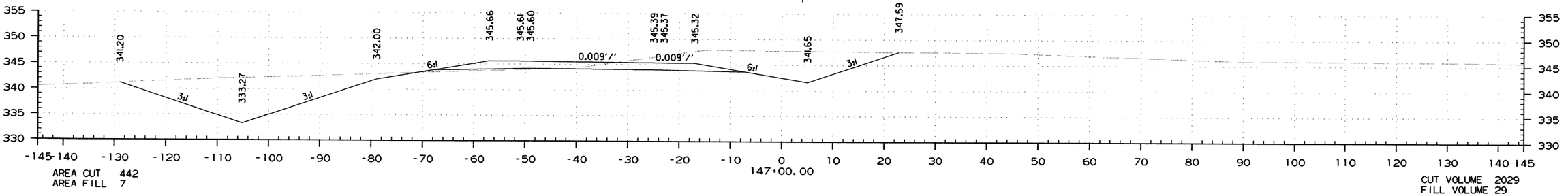
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	193	335

(2) CROSS SECTIONS

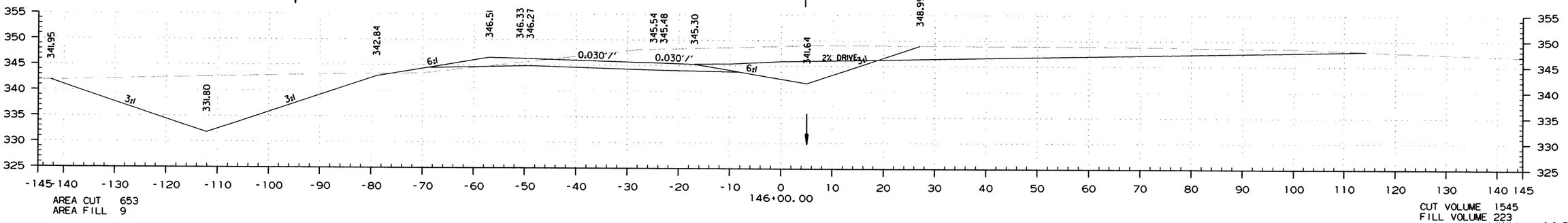


STA. 148+33.93 END SUPERELEVATION & BEGIN TRANSITION (N.C)





STA. 146+00 CONSTRUCT
APPROACH ON RT. = 70 CU. YDS.



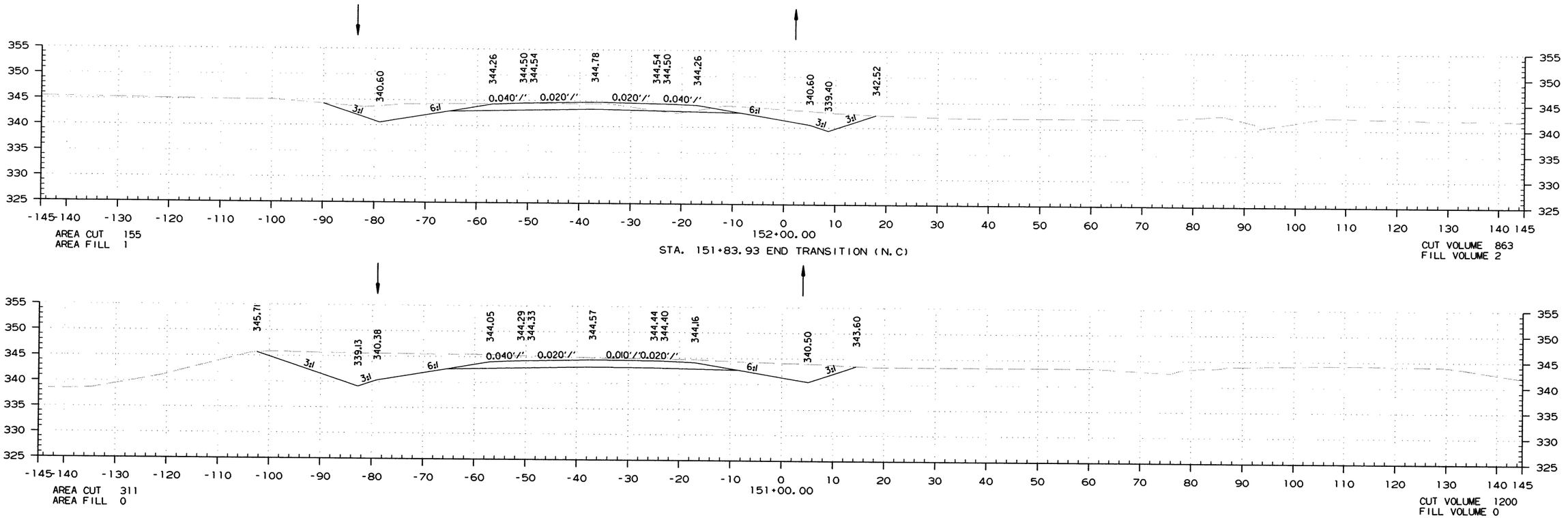
HWY. 412
STA. 146+00.00 TO STA. 149+00.00

12/19/2016

R100708.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.		100708	194	335

(2) CROSS SECTIONS



12/19/2016

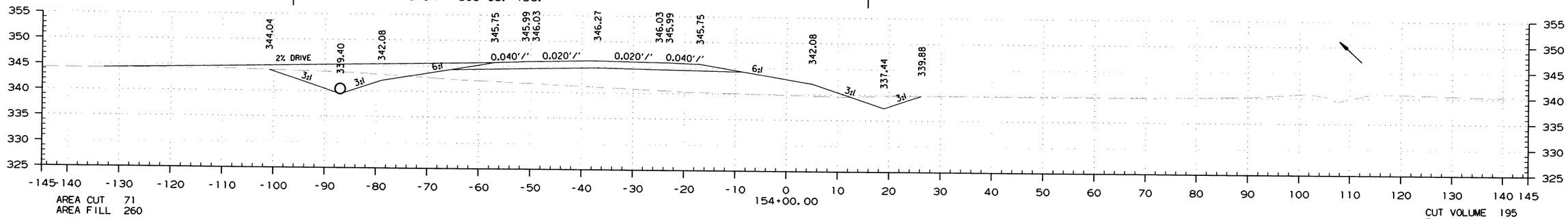
R100708.DGN

HWY. 412
STA. 150+00.00 TO STA. 152+00.00

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.		100708	195	335

(2) CROSS SECTIONS

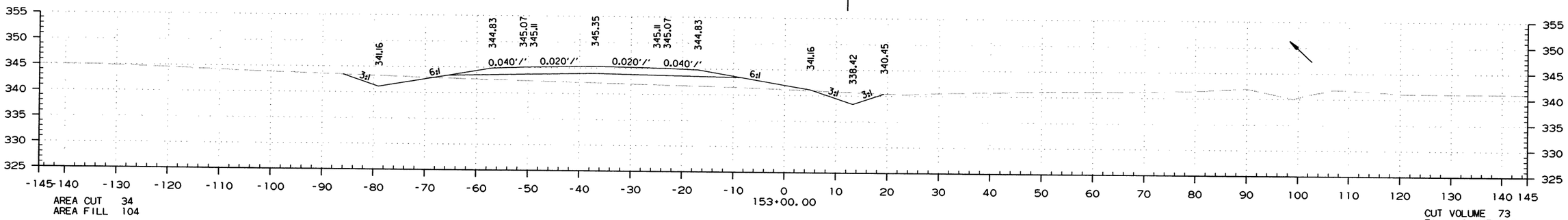
STA. 154+00 INSTALL
24" x 58' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 305 CU. YDS.



154+00.00

AREA CUT 71
AREA FILL 260

CUT VOLUME 195
FILL VOLUME 674

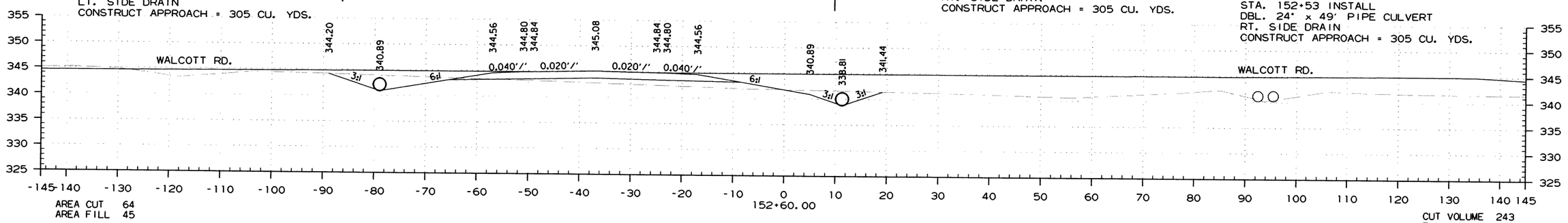


153+00.00

AREA CUT 34
AREA FILL 104

CUT VOLUME 73
FILL VOLUME 110

STA. 152+59 INSTALL
30" x 51' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 305 CU. YDS.



152+60.00

AREA CUT 64
AREA FILL 45

STA. 152+59 INSTALL
30" x 49' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 305 CU. YDS.

STA. 152+53 INSTALL
DBL. 24" x 49' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 305 CU. YDS.

CUT VOLUME 243
FILL VOLUME 51

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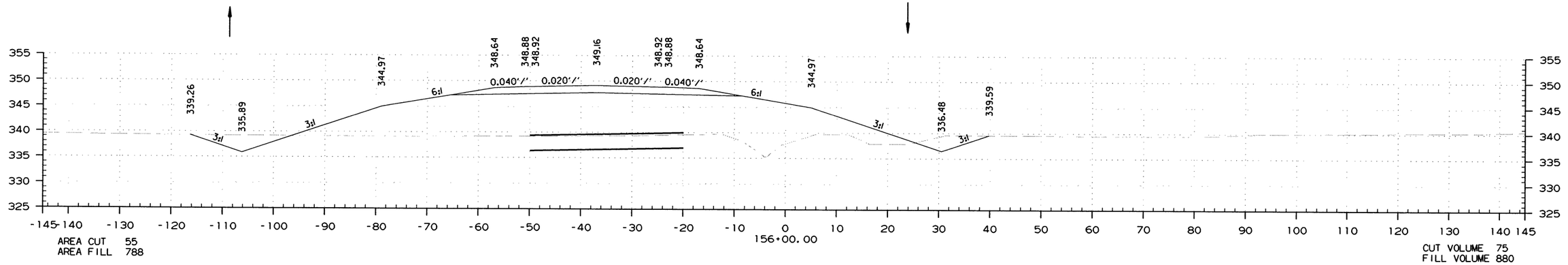
HWY. 412
STA. 152+60.00 TO STA. 154+00.00

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.		100708	196	335

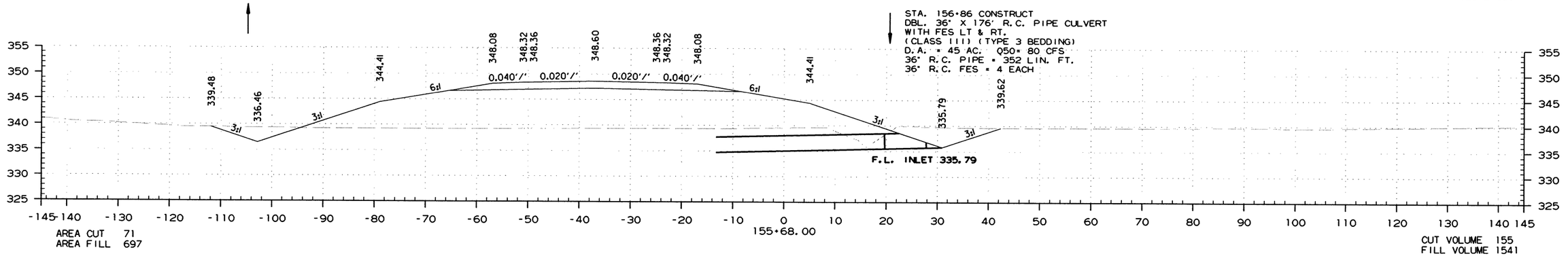
(2) CROSS SECTIONS



AREA CUT 55
AREA FILL 788

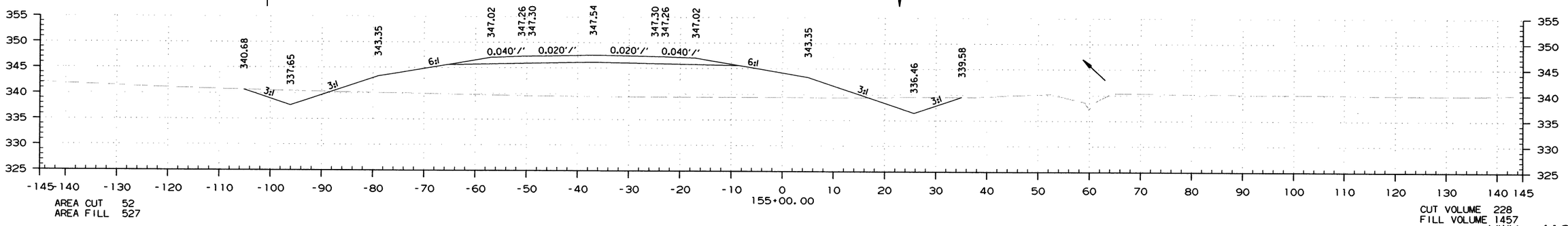
CUT VOLUME 75
FILL VOLUME 880

STA. 156+86 CONSTRUCT
DBL. 36" X 176' R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 45 AC. Q50= 80 CFS
36" R.C. PIPE = 352 LIN. FT.
36" R.C. FES = 4 EACH



AREA CUT 71
AREA FILL 697

CUT VOLUME 155
FILL VOLUME 1541



AREA CUT 52
AREA FILL 527

CUT VOLUME 228
FILL VOLUME 1457

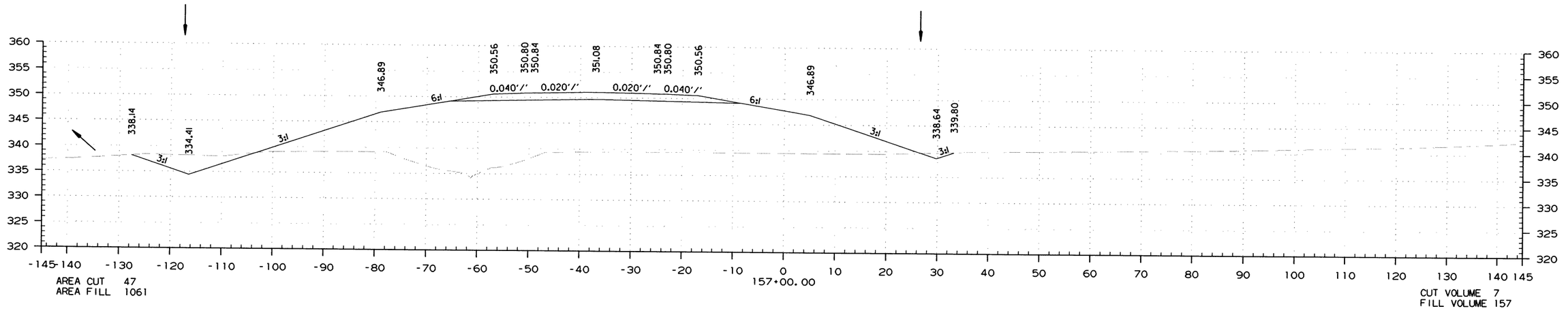
HWY. 412
STA. 155+00.00 TO STA. 156+00.00

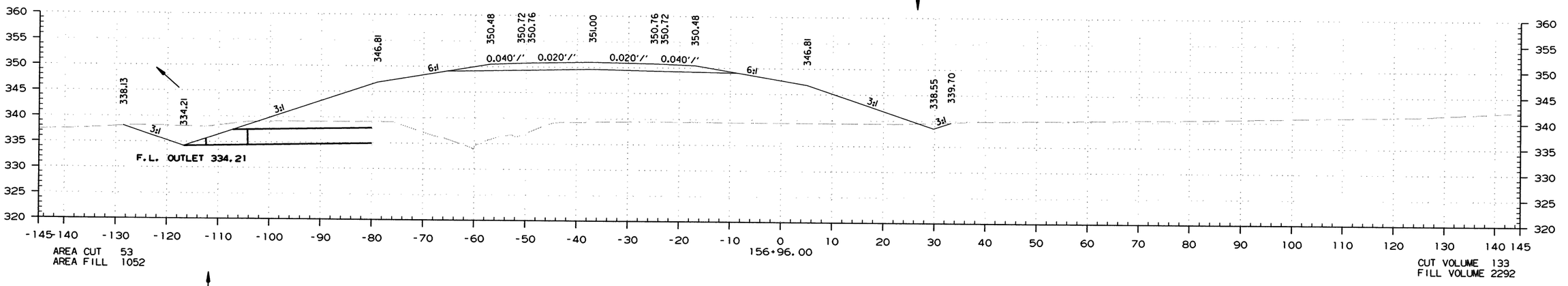
12/19/2016

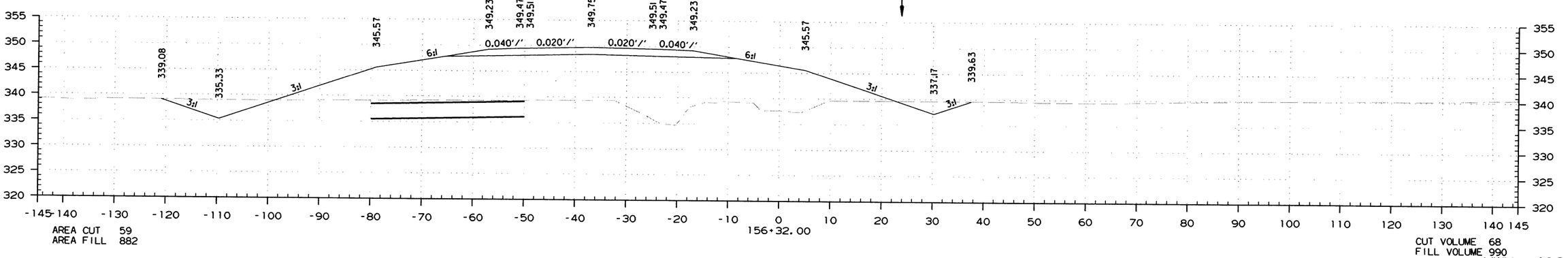
R100708.DGN

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.		100708	197	335

(2) CROSS SECTIONS







12/19/2016

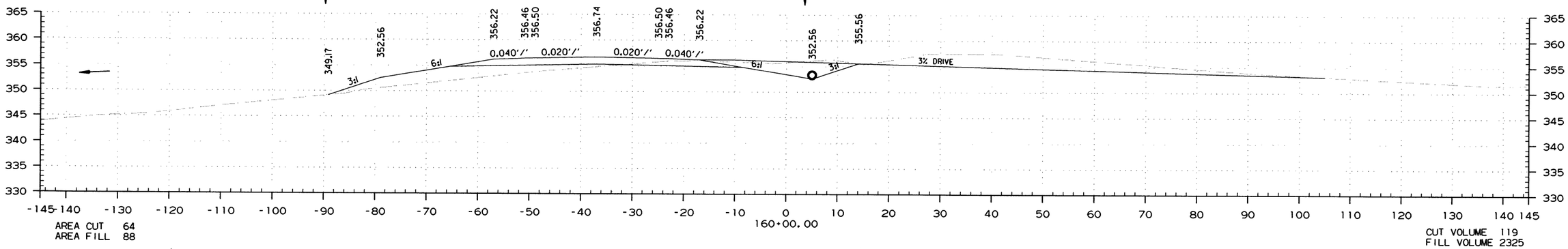
R100708.DGN

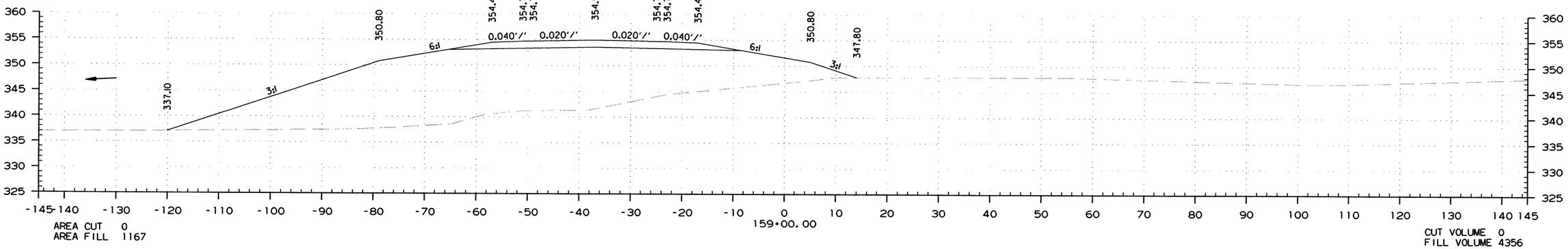
HWY. 412
STA. 156+32.00 TO STA. 157+00.00

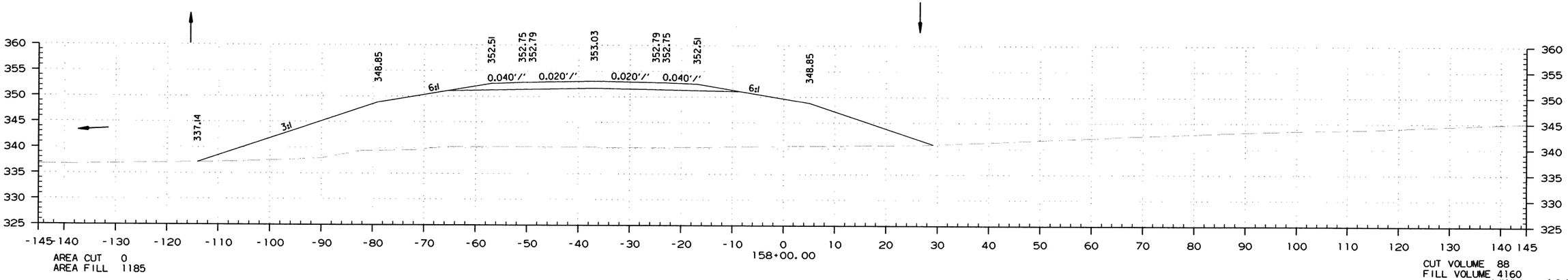
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	198	335

(2) CROSS SECTIONS

STA. 160+00 INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.







HWY. 412
STA. 158+00.00 TO STA. 160+00.00

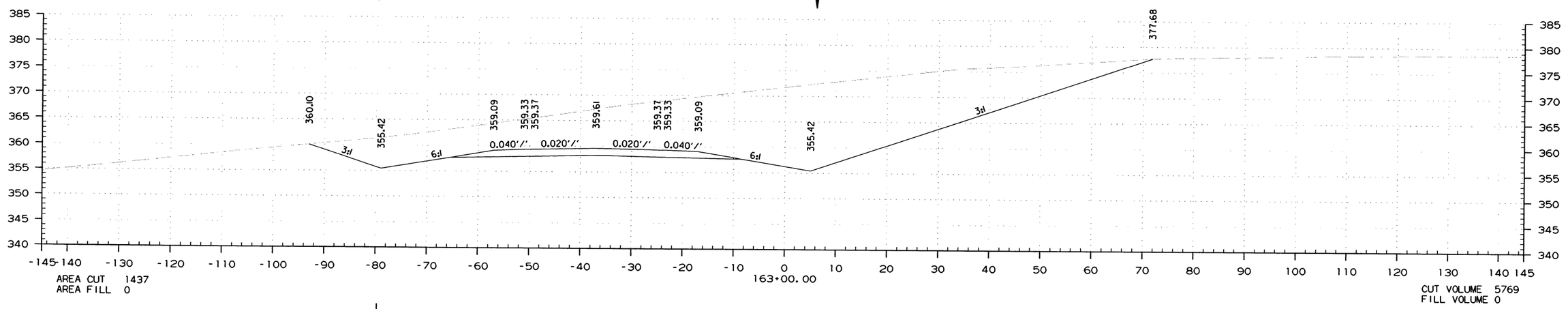
12/19/2016

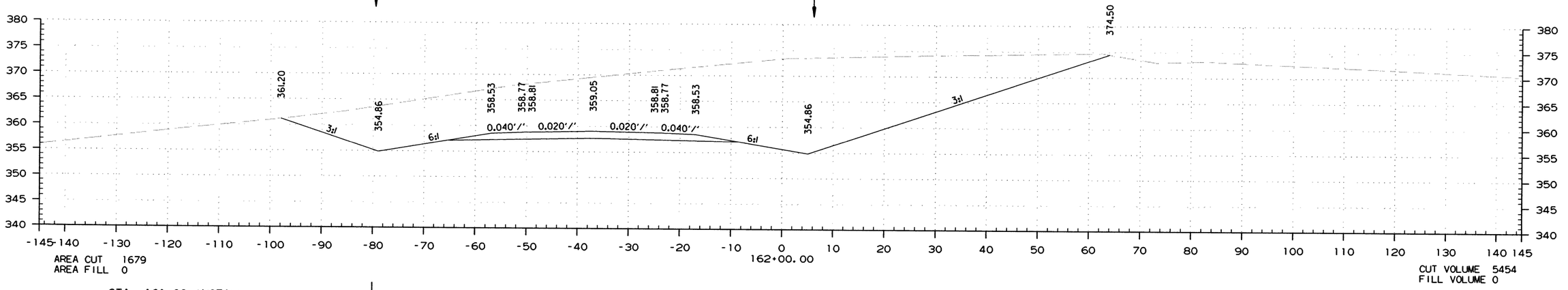
R100708.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

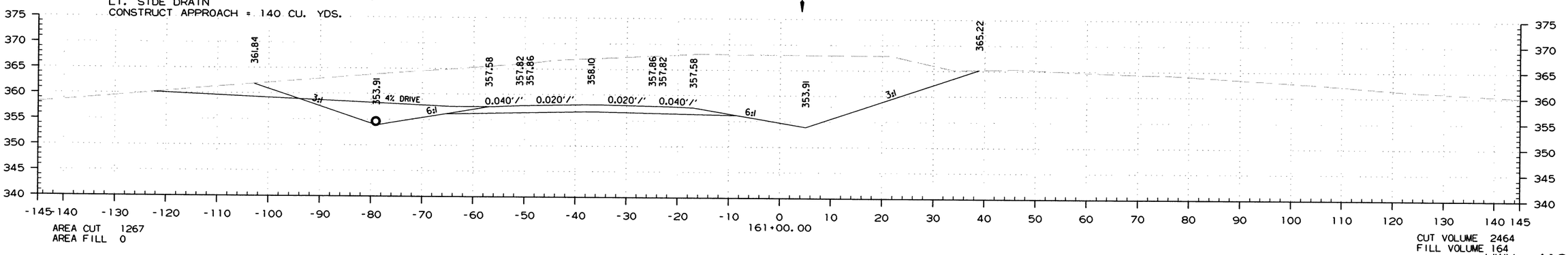
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	199	335

(2) CROSS SECTIONS





STA. 161+00 INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YDS.



HWY. 412
STA. 161+00.00 TO STA. 163+00.00

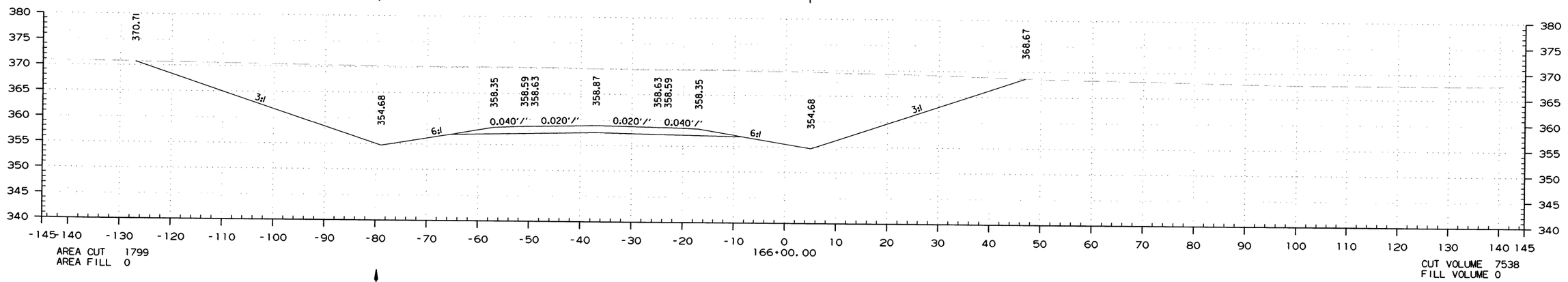
12/19/2016

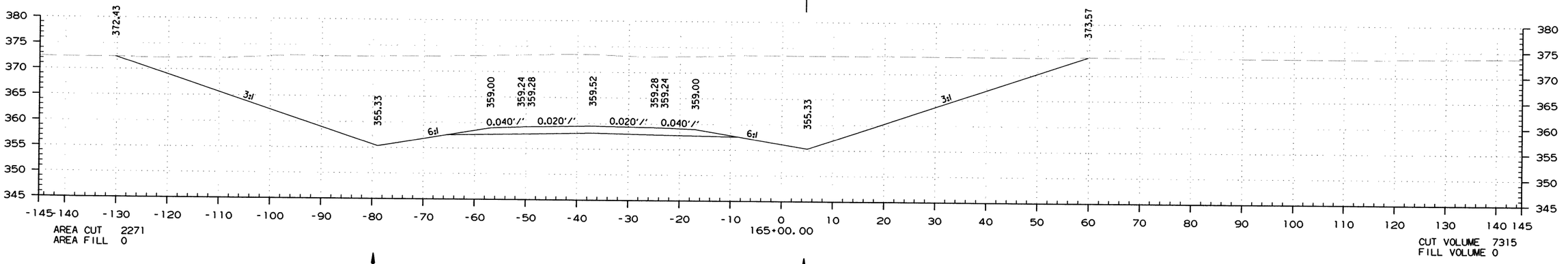
R100708.DGN

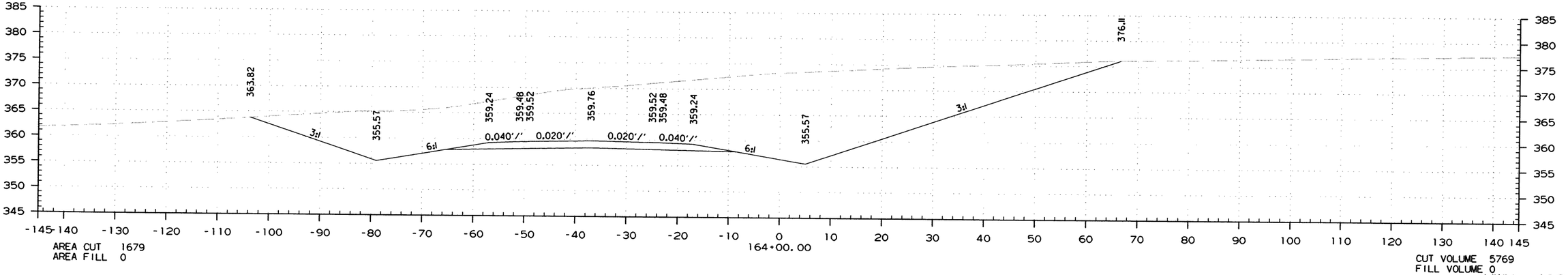
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	200	335

(2) CROSS SECTIONS







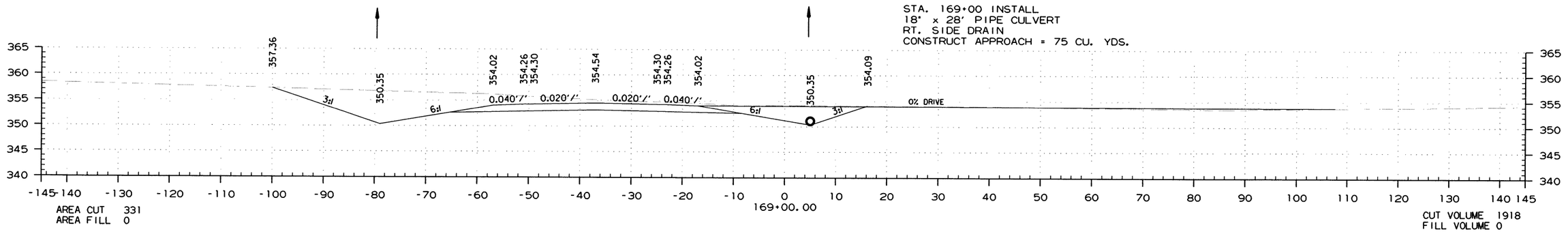
12/19/2016

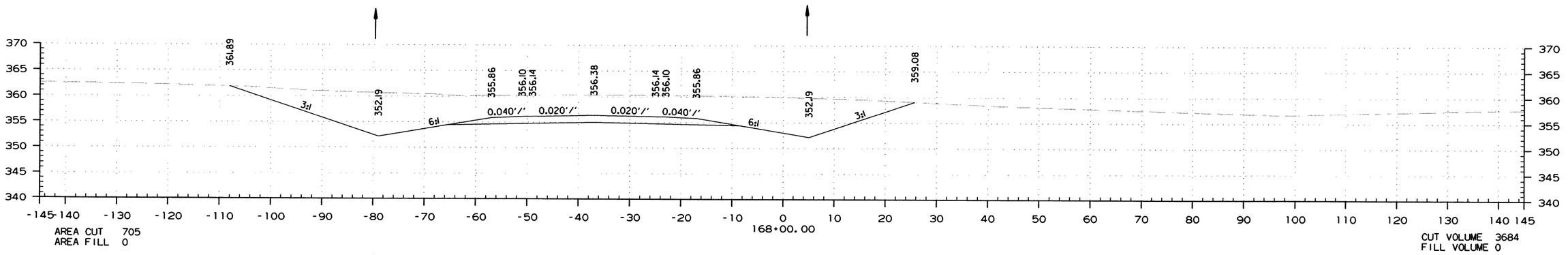
R100708.DGN

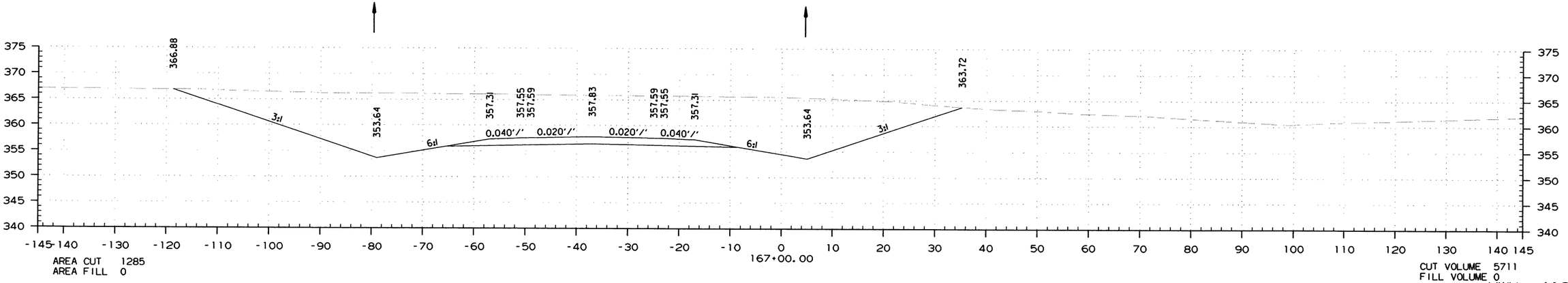
HWY. 412
STA. 164+00.00 TO STA. 166+00.00

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.		100708	201	335

(2) CROSS SECTIONS







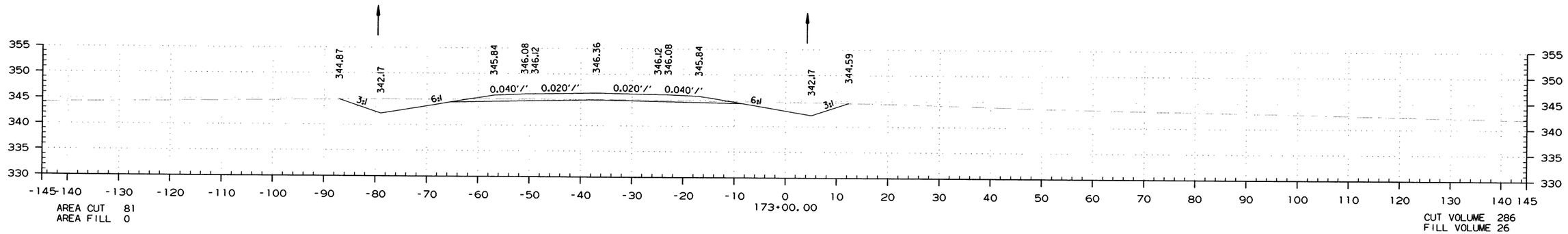
HWY. 412
STA. 167+00.00 TO STA. 169+00.00

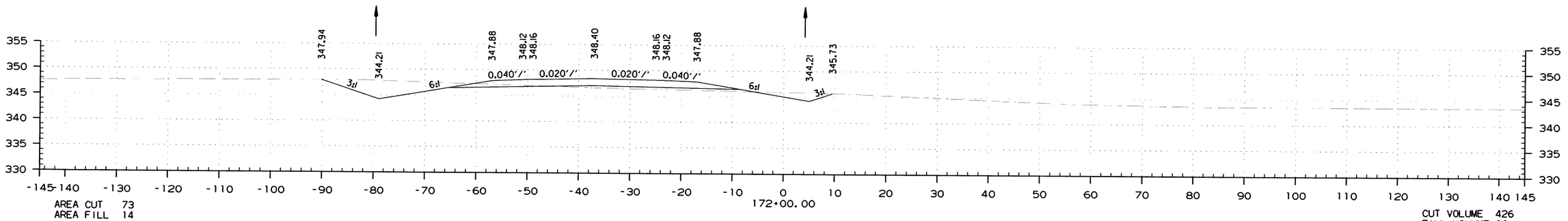
12/19/2016

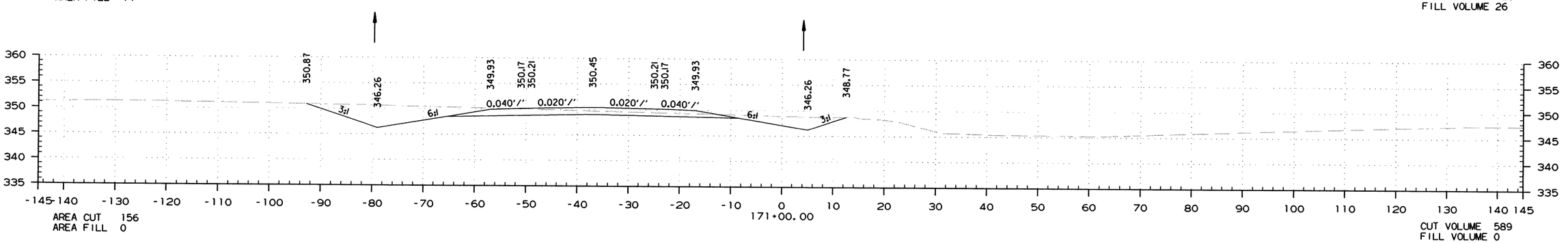
R100708.DGN

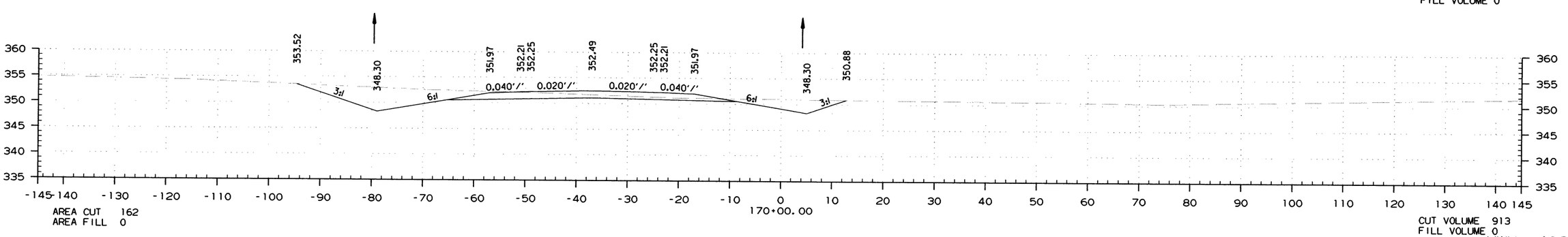
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	202	335

(2) CROSS SECTIONS









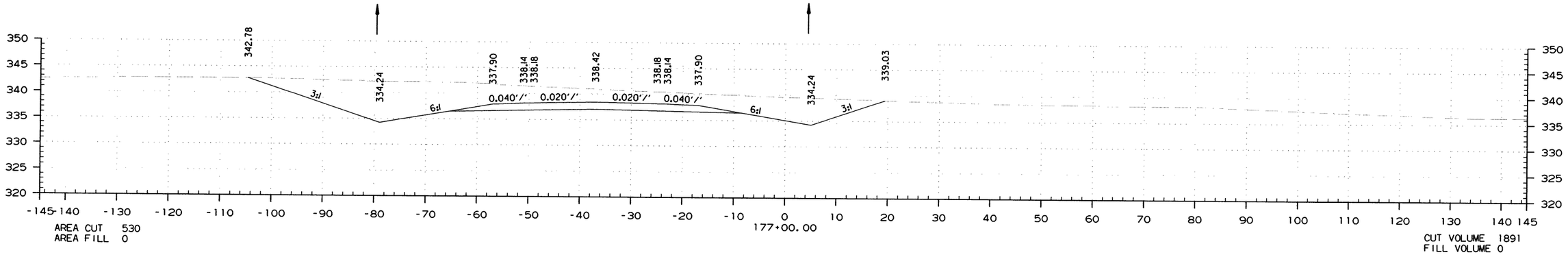
HWY. 412
STA. 170+00.00 TO STA. 173+00.00

12/19/2016

R100708.DGN

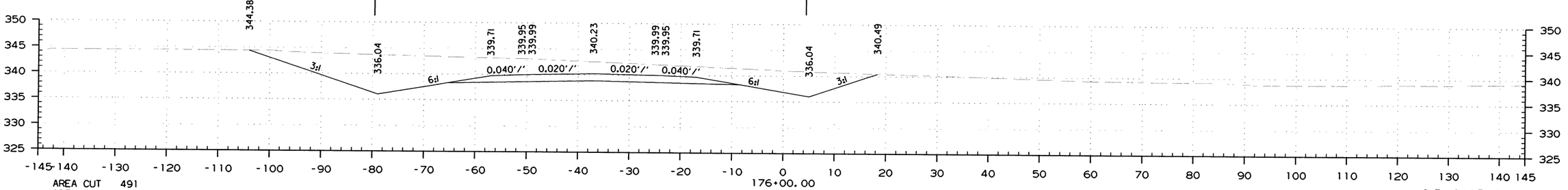
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	203	335

(2) CROSS SECTIONS



AREA CUT 530
AREA FILL 0

CUT VOLUME 1891
FILL VOLUME 0

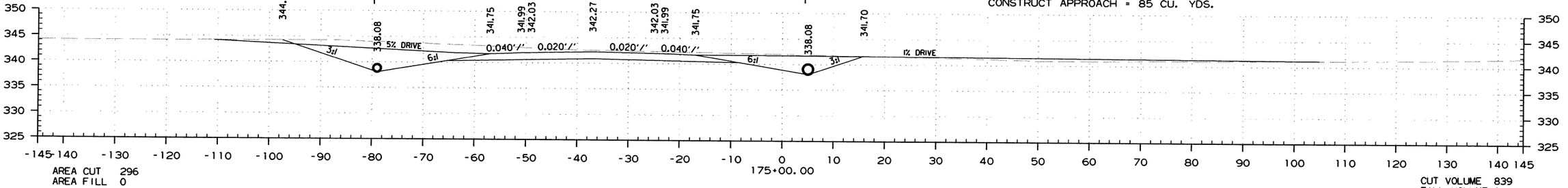


AREA CUT 491
AREA FILL 0

STA. 175+00 INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

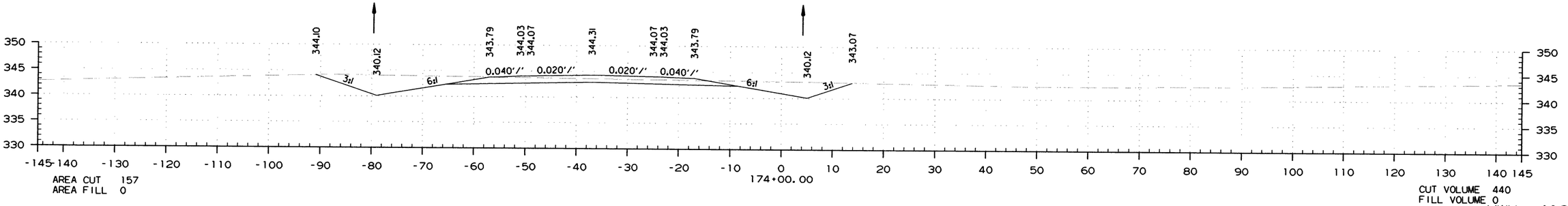
CUT VOLUME 1458
FILL VOLUME 0

STA. 174+98 INSTALL
24" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.



AREA CUT 296
AREA FILL 0

CUT VOLUME 839
FILL VOLUME 0



AREA CUT 157
AREA FILL 0

CUT VOLUME 440
FILL VOLUME 0

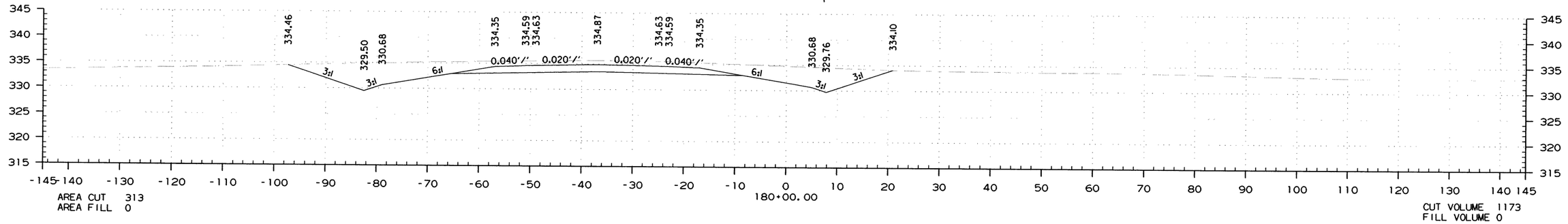
12/19/2016

R100708.DGN

HWY. 412
STA. 174+00.00 TO STA. 177+00.00

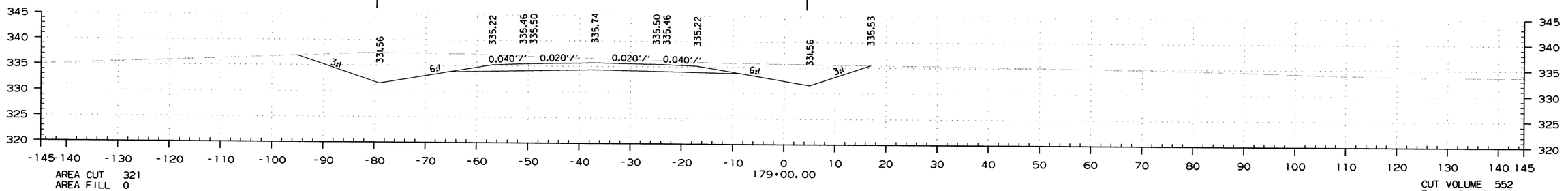
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	204	335

(2) CROSS SECTIONS



AREA CUT 313
AREA FILL 0

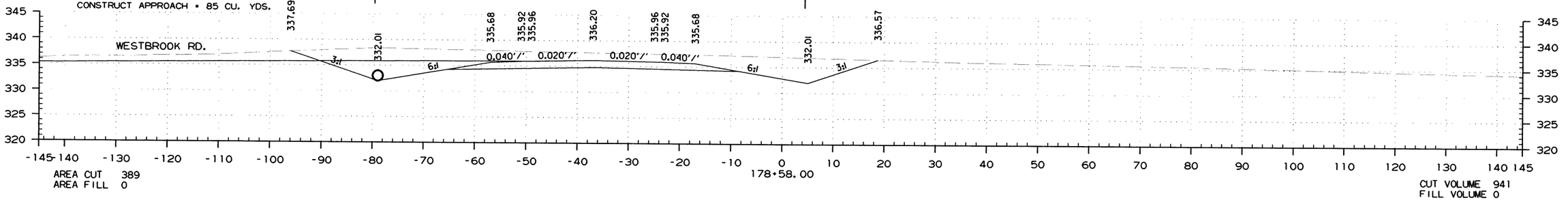
CUT VOLUME 1173
FILL VOLUME 0



AREA CUT 321
AREA FILL 0

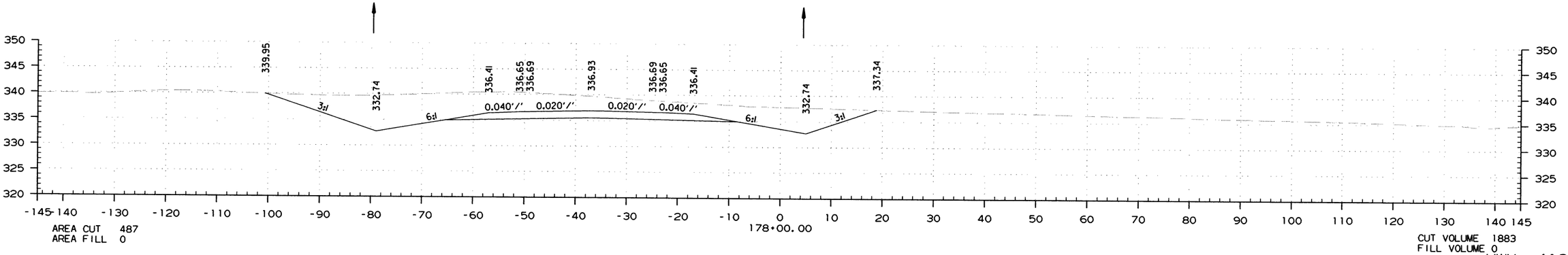
CUT VOLUME 552
FILL VOLUME 0

STA. 178+60 INSTALL
24" X 43' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.



AREA CUT 389
AREA FILL 0

CUT VOLUME 941
FILL VOLUME 0



AREA CUT 487
AREA FILL 0

CUT VOLUME 1883
FILL VOLUME 0

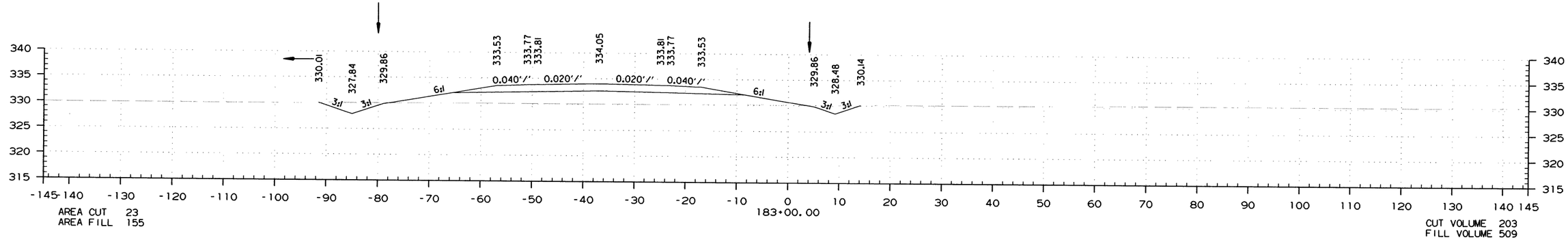
12/19/2016

R100708.DGN

HWY. 412
STA. 178+00.00 TO STA. 180+00.00

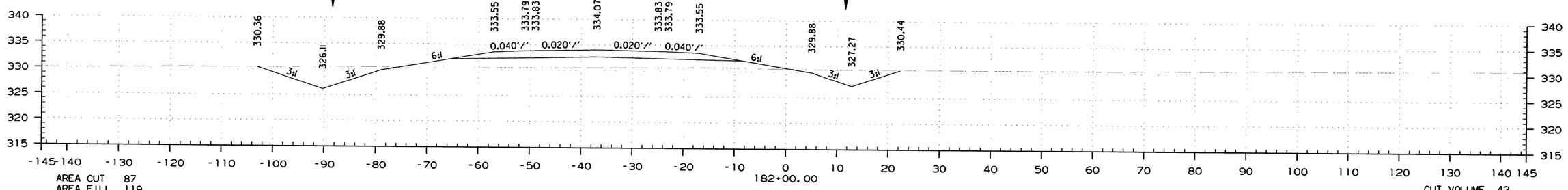
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	205	335

(2) CROSS SECTIONS



AREA CUT 23
AREA FILL 155

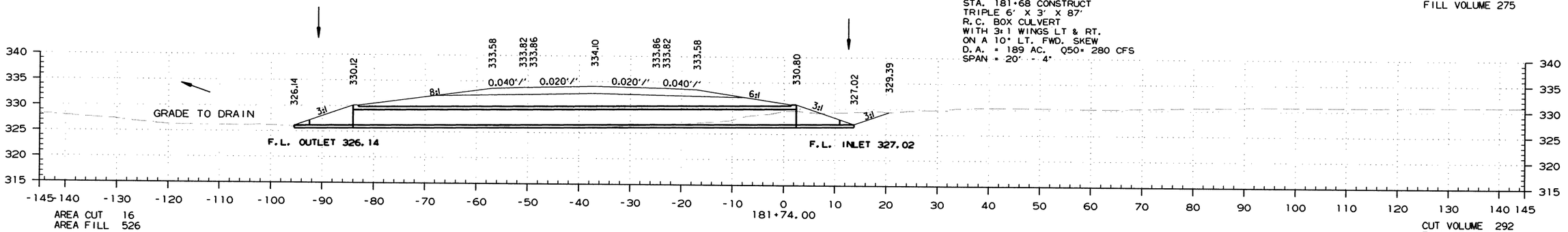
CUT VOLUME 203
FILL VOLUME 509



AREA CUT 87
AREA FILL 119

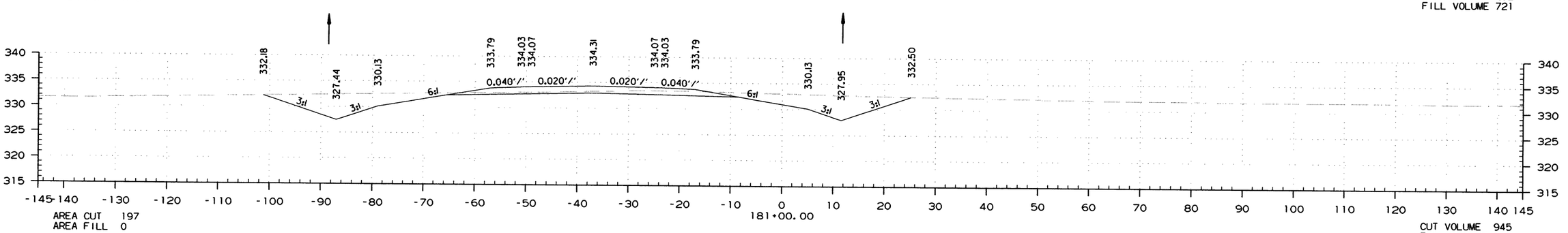
CUT VOLUME 42
FILL VOLUME 275

STA. 181+68 CONSTRUCT
TRIPLE 6' X 3' X 87'
R.C. BOX CULVERT
WITH 3:1 WINGS LT & RT.
ON A 10° LT. FWD. SKEW
D.A. = 189 AC. Q50= 280 CFS
SPAN = 20' - 4"



AREA CUT 16
AREA FILL 526

CUT VOLUME 292
FILL VOLUME 721



AREA CUT 197
AREA FILL 0

CUT VOLUME 945
FILL VOLUME 0

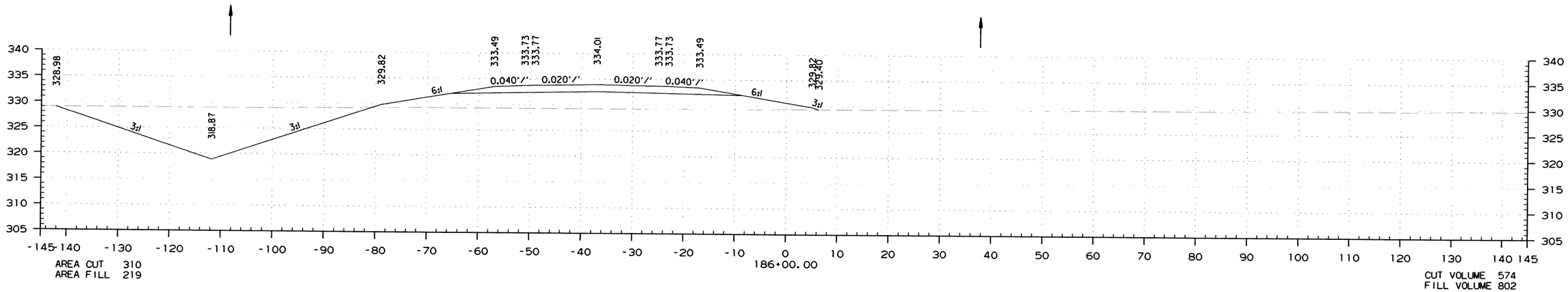
HWY. 412
STA. 181+00.00 TO STA. 183+00.00

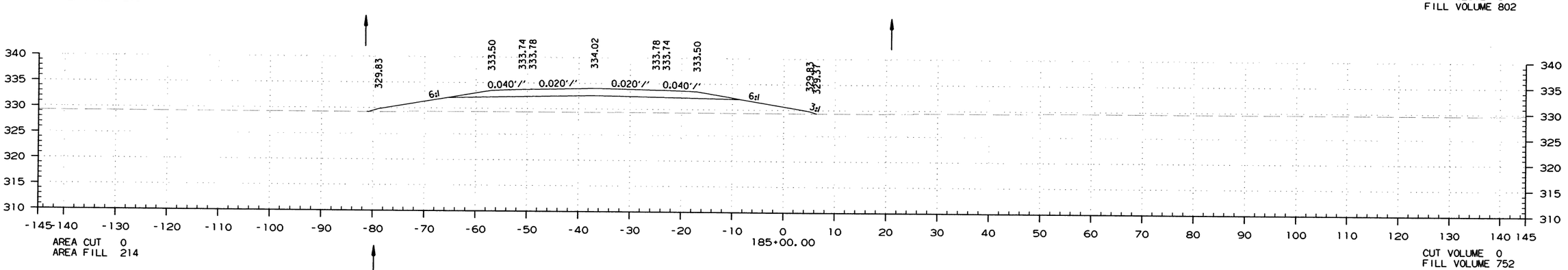
12/19/2016

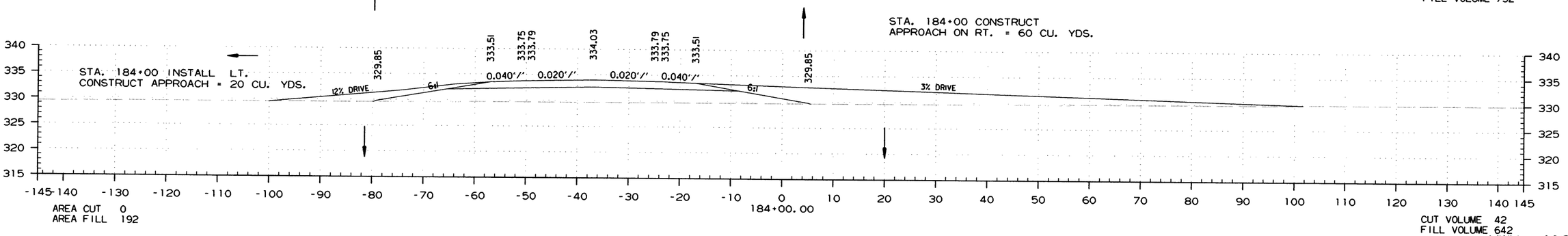
R100708.DGN

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.		100708	206	335

(2) CROSS SECTIONS







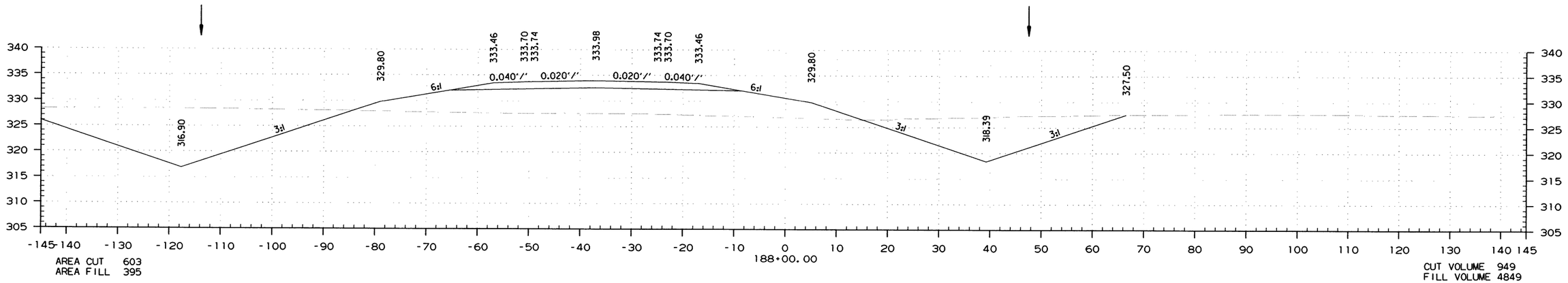
12/19/2016

R100708.DGN

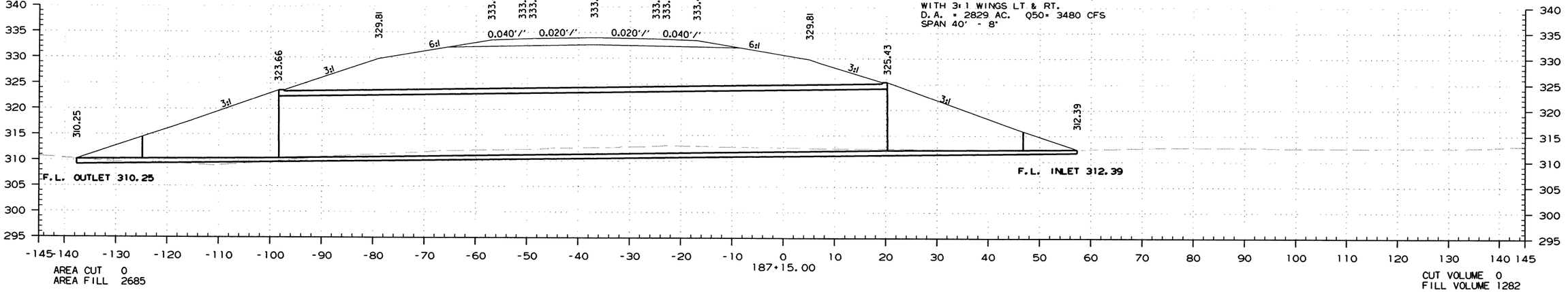
HWY. 412
STA. 184+00.00 TO STA. 186+00.00

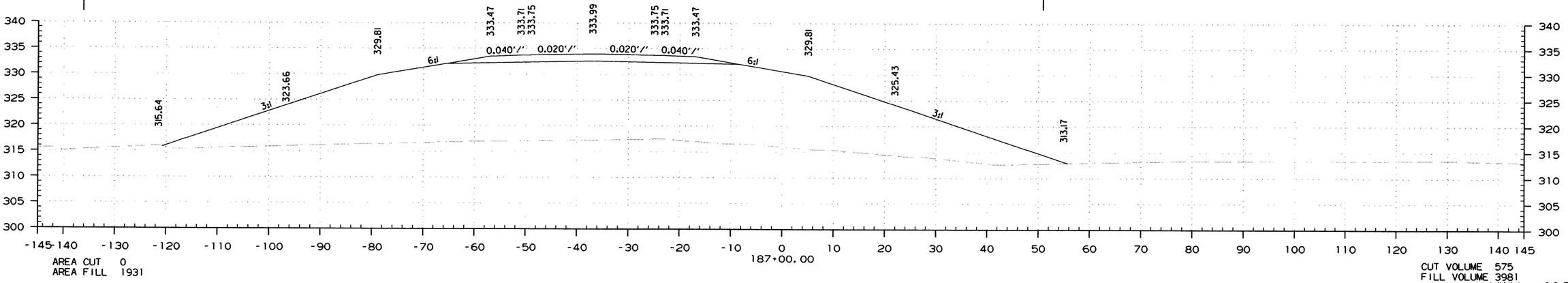
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	207	335

(2) CROSS SECTIONS



STA. 187+15 CONSTRUCT
TRIPLE 12' X 12' X 119'
R.C. BOX CULVERT
WITH 3:1 WINGS LT & RT.
D.A. = 2829 AC. Q50= 3480 CFS
SPAN 40' - 8"





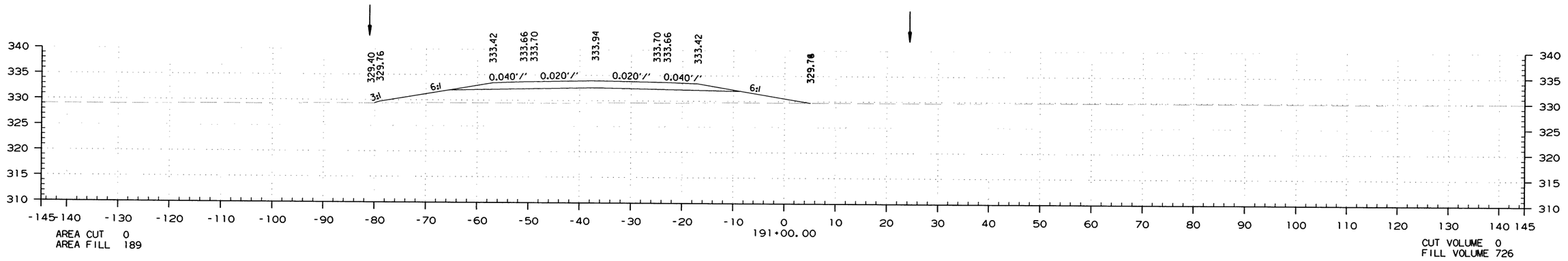
HWY. 412
STA. 187+00.00 TO STA. 188+00.00

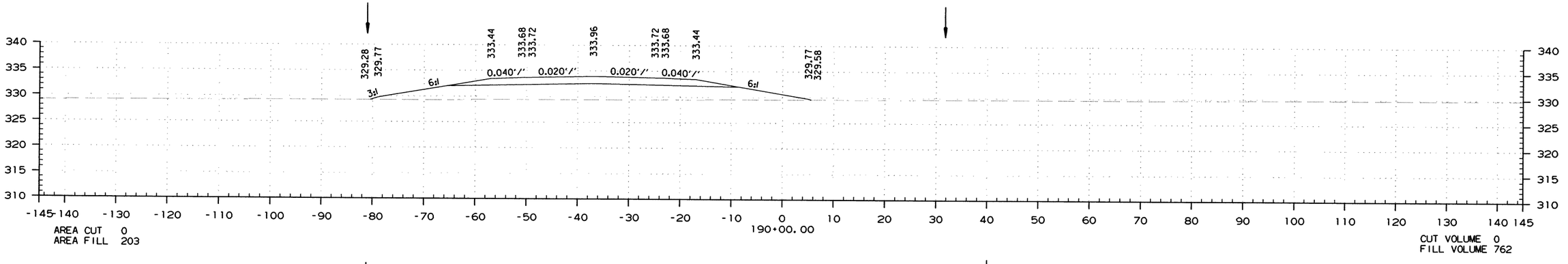
12/19/2016

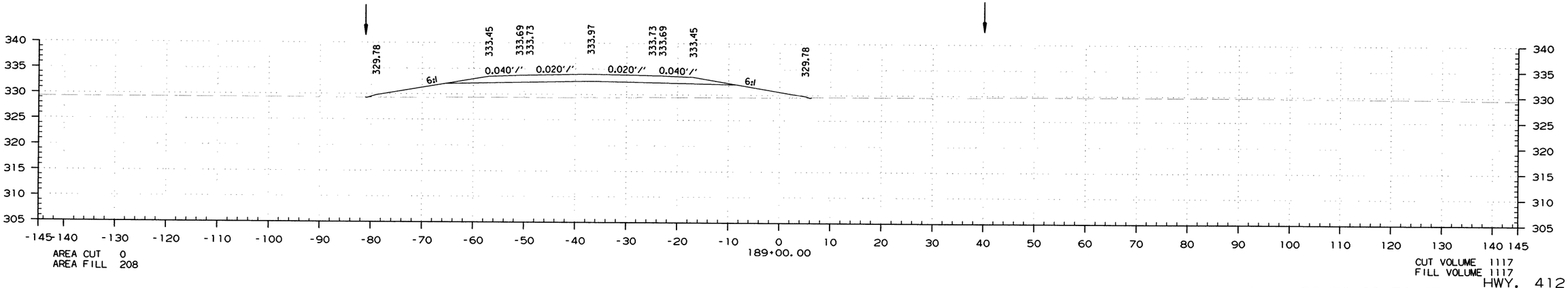
R100708.DGN

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.		100708	208	335

(2) CROSS SECTIONS







HWY. 412
STA. 189+00.00 TO STA. 191+00.00

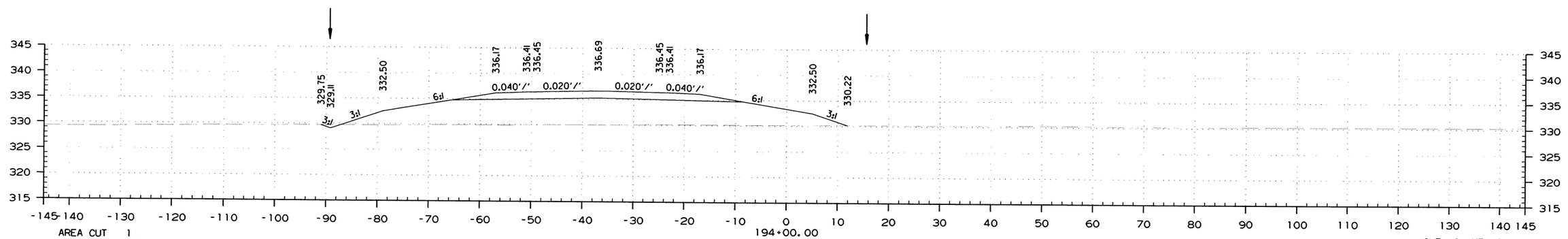
12/19/2016

R100708.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

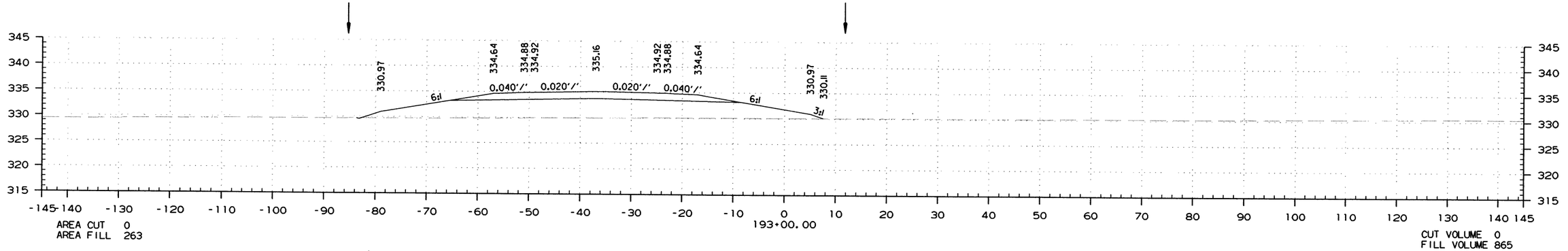
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	209	335

(2) CROSS SECTIONS



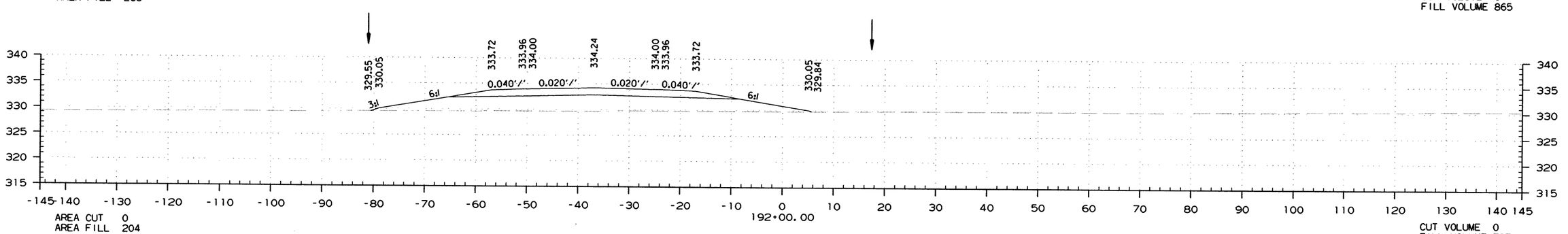
AREA CUT 1
AREA FILL 400

CUT VOLUME 2
FILL VOLUME 1229



AREA CUT 0
AREA FILL 263

CUT VOLUME 0
FILL VOLUME 865



AREA CUT 0
AREA FILL 204

CUT VOLUME 0
FILL VOLUME 727

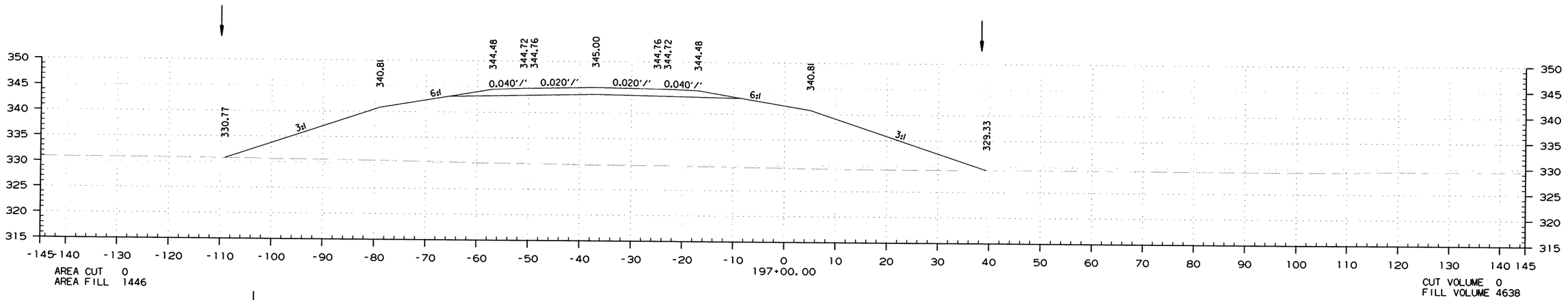
HWY. 412
STA. 192+00.00 TO STA. 194+00.00

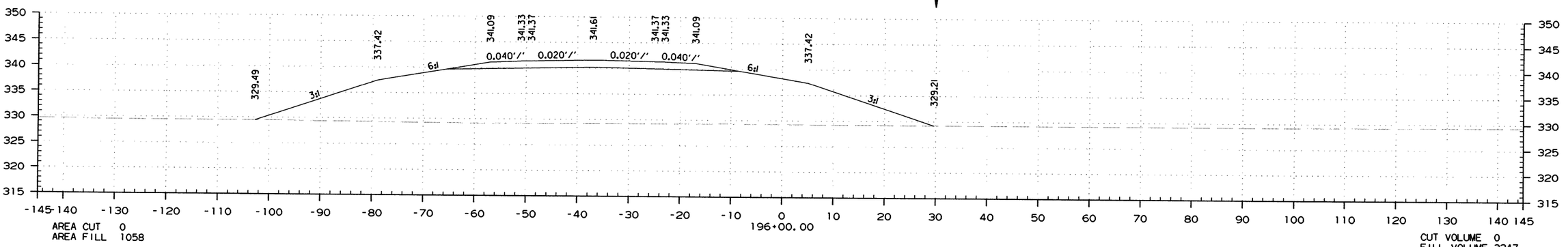
12/19/2016

R100708.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.		100708	210	335

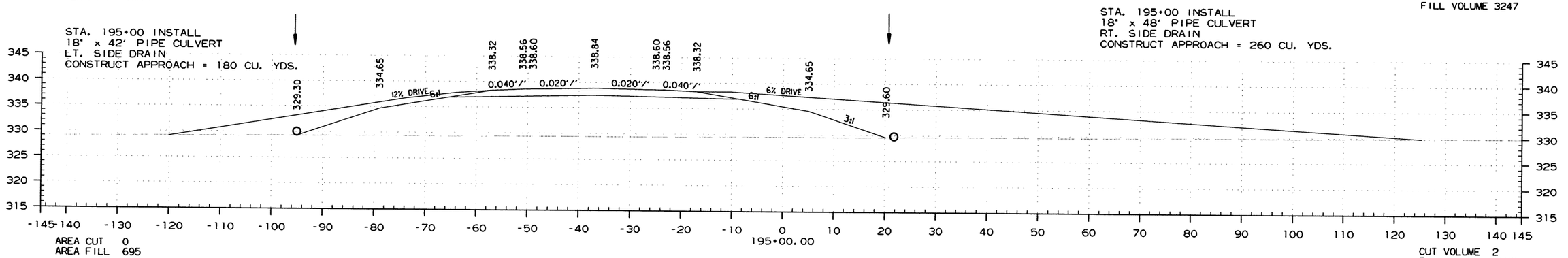
(2) CROSS SECTIONS





STA. 195+00 INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 180 CU. YDS.

STA. 195+00 INSTALL
18" x 48' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 260 CU. YDS.



HWY. 412
STA. 195+00.00 TO STA. 197+00.00

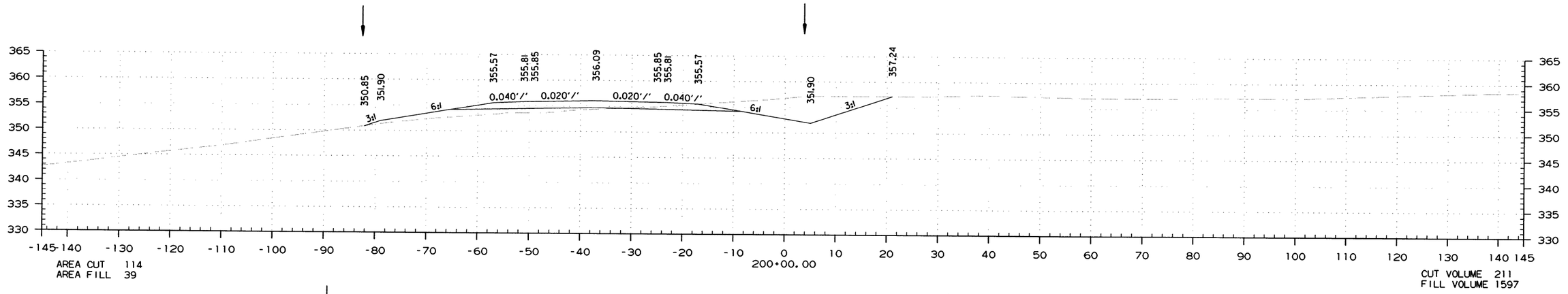
12/19/2016

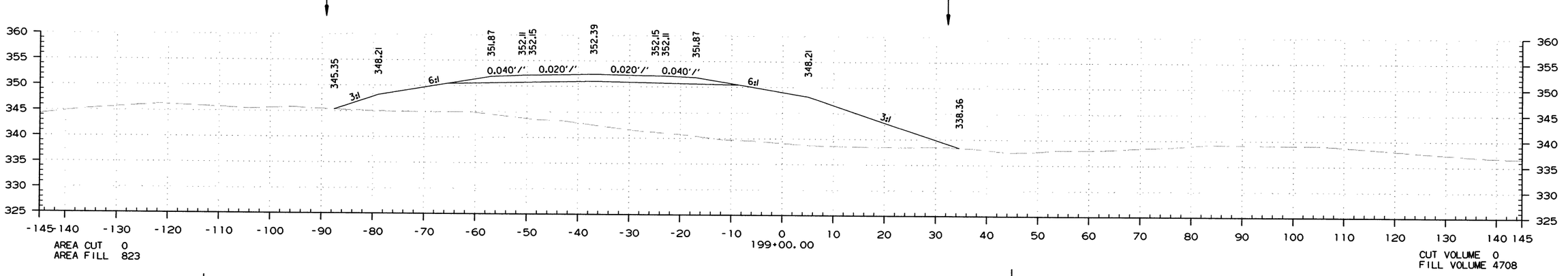
R100708.DGN

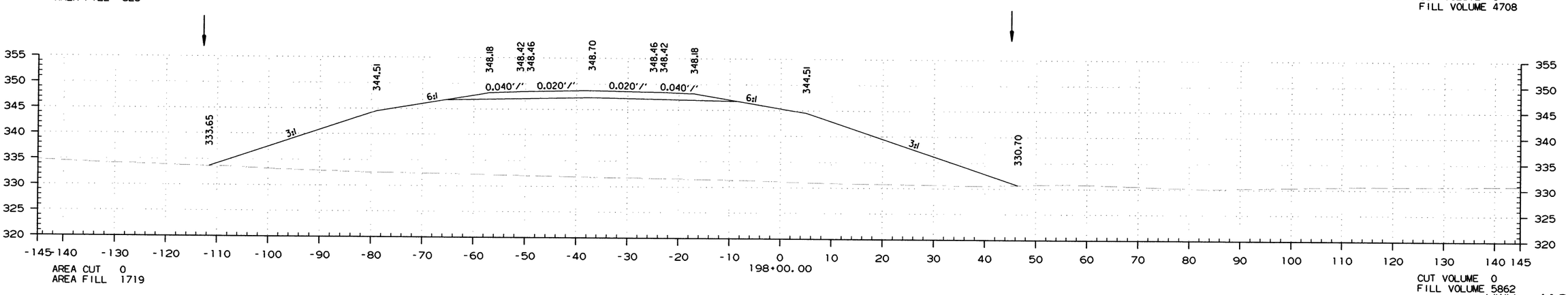
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	211	335

(2) CROSS SECTIONS







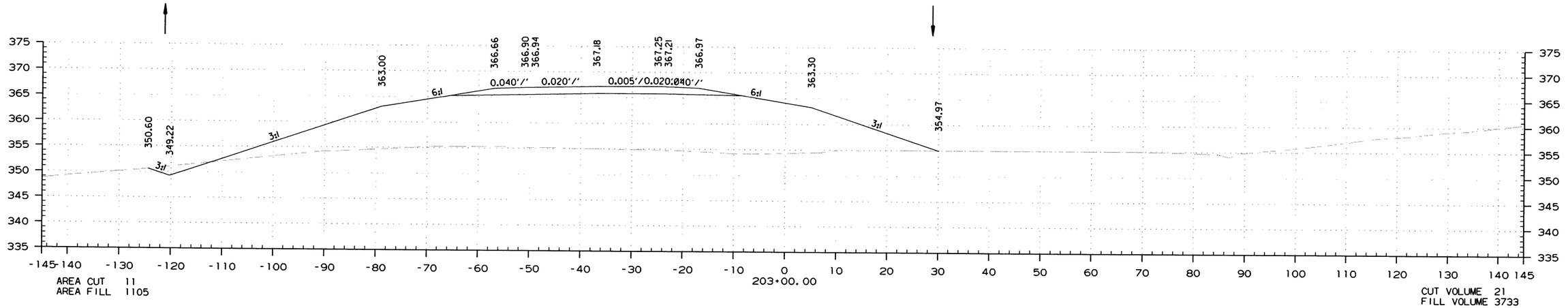
HWY. 412
STA. 198+00.00 TO STA. 200+00.00

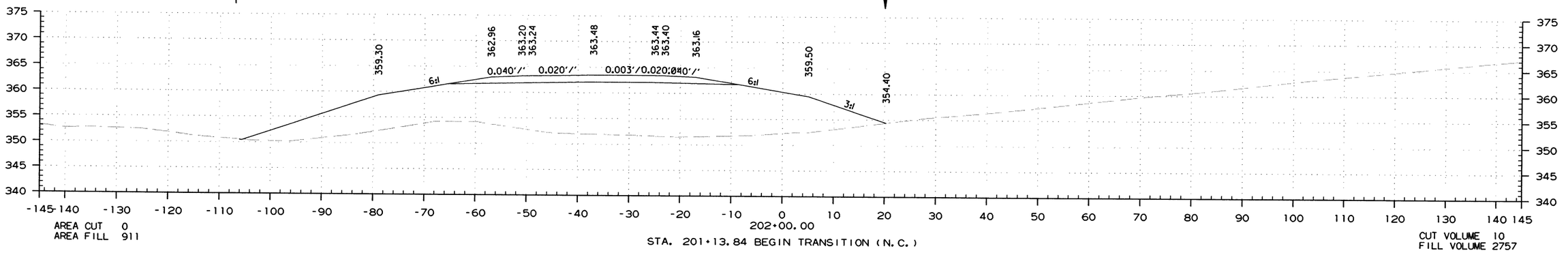
12/19/2016

R100708.DGN

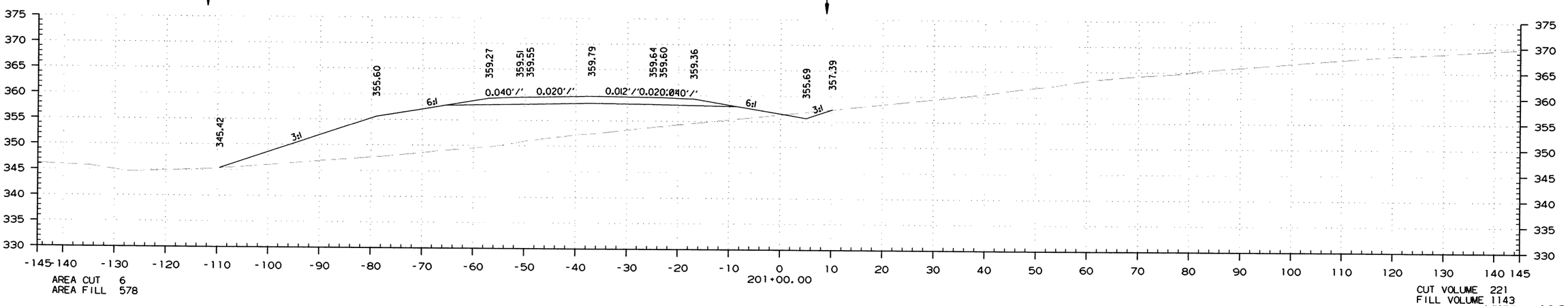
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	212	335

(2) CROSS SECTIONS





STA. 201+13.84 BEGIN TRANSITION (N.C.)



HWY. 412
STA. 201+00.00 TO STA. 203+00.00

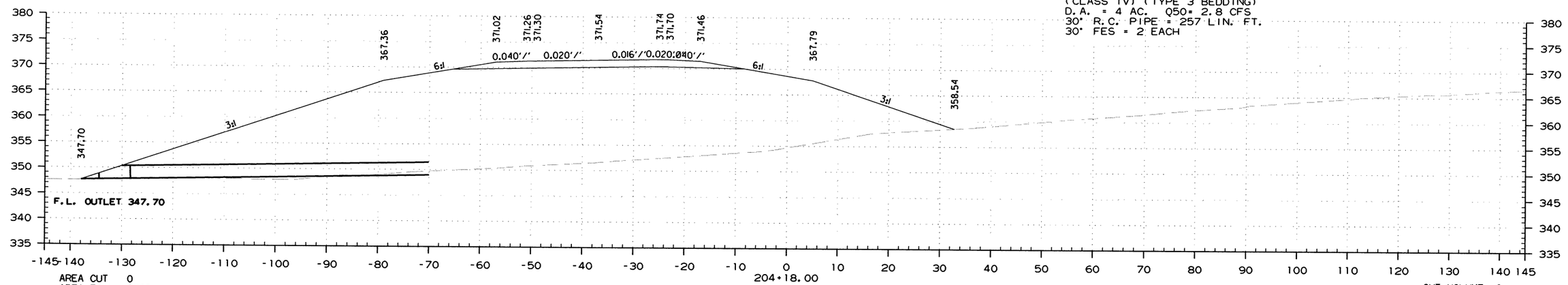
12/19/2016

R100708.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.		100708	213	335

(2) CROSS SECTIONS

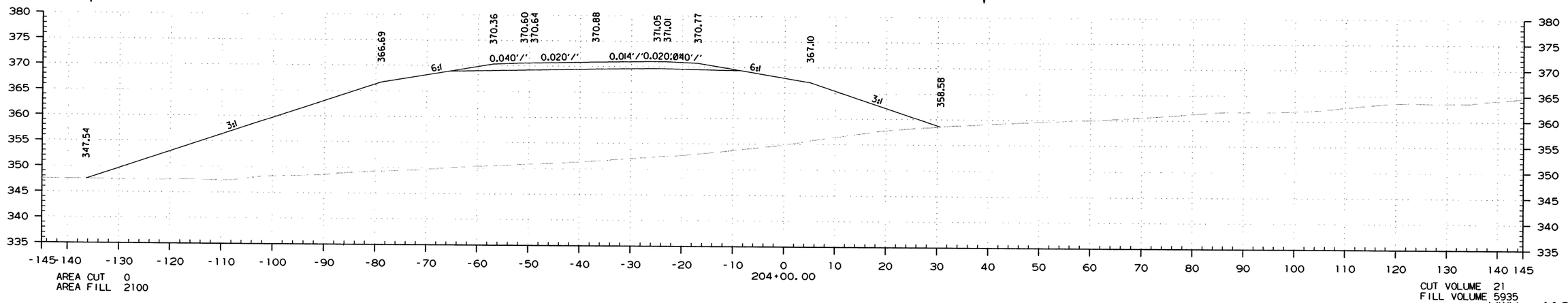
STA. 205+47 CONSTRUCT
30" X 257' R.C. PIPE CULVERT
ON AN 45° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS IV) (TYPE 3 BEDDING)
D.A. = 4 AC. Q50= 2.8 CFS
30" R.C. PIPE = 257 LIN. FT.
30" FES = 2 EACH



AREA CUT 0
AREA FILL 2209

CUT VOLUME 0
FILL VOLUME 1436

STA. 204+63.84 BEGIN SUPERELEVATION



AREA CUT 0
AREA FILL 2100

CUT VOLUME 21
FILL VOLUME 5935

HWY. 412
STA. 204+00.00 TO STA. 204+18.00

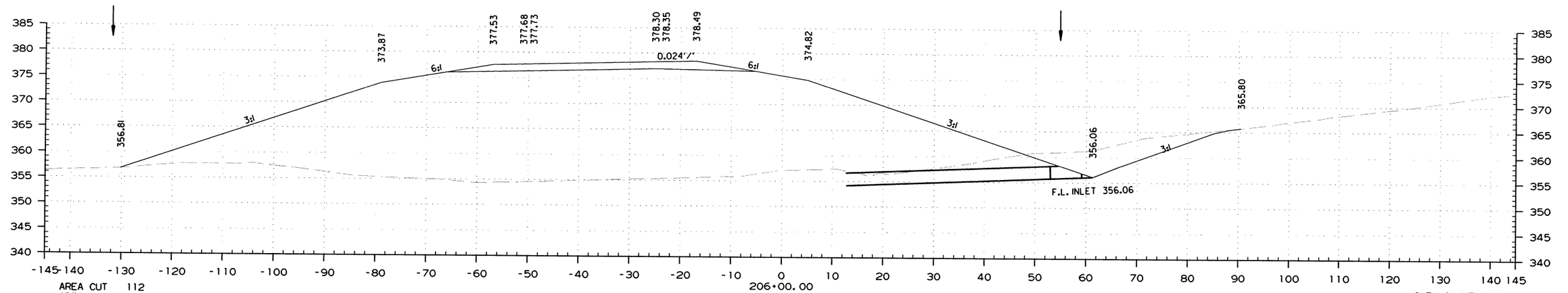
12/19/2016

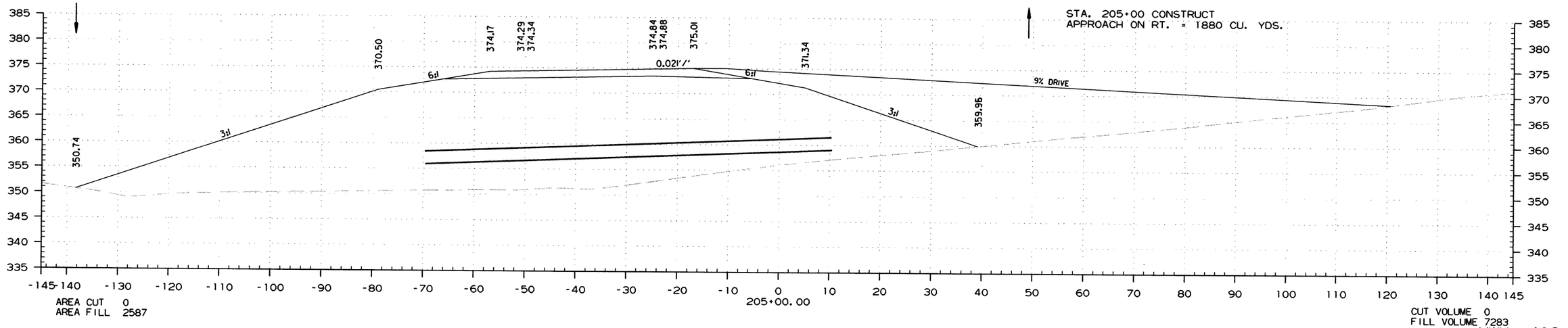
R100708.DGN

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.		100708	214	335

(2) CROSS SECTIONS

STA. 205+47 CONSTRUCT
30" X 257' R.C. PIPE CULVERT
WITH FES LT. & RT.
(CLASS III) (TYPE 1 BEDDING)
D.A. = 4 AC. Q50= 2.8 CFS
30" R.C. PIPE = 257 LIN. FT.
30" FES = 2 EACH





HWY. 412
STA. 205+00.00 TO STA. 206+00.00

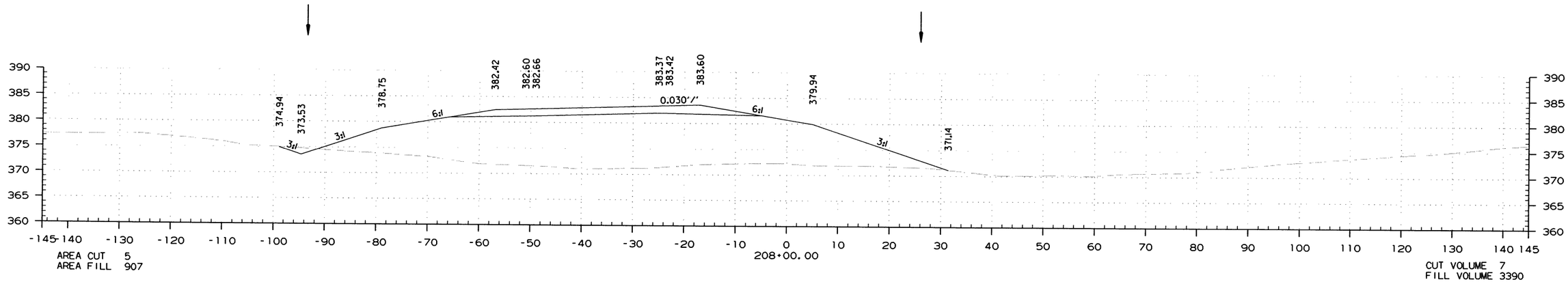
12/19/2016

R100708.DGN

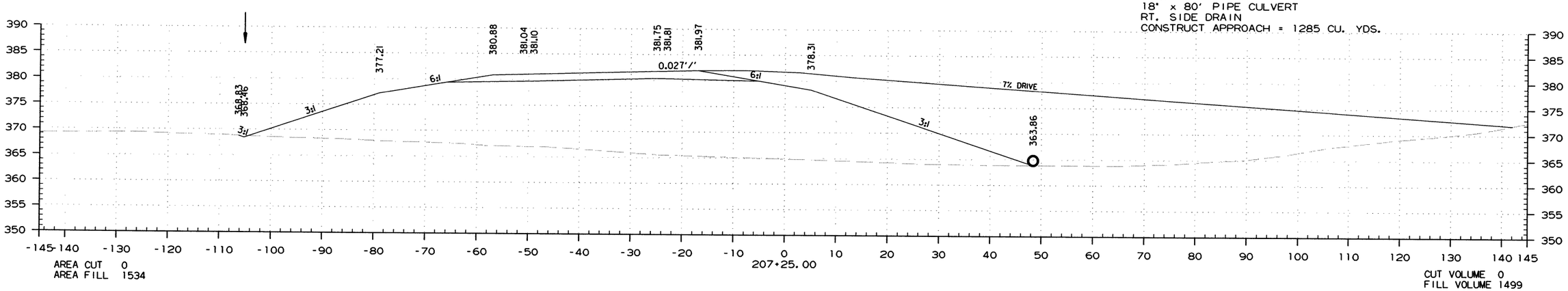
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	215	335

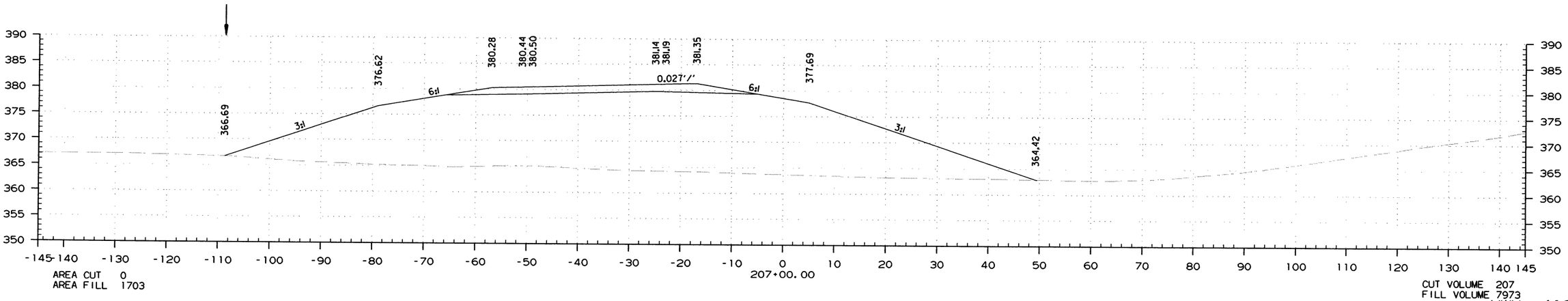
(2) CROSS SECTIONS

STA. 208+13.84 MAX. SUPERELEVATON (0.030 FT./FT.)



STA. 207+25 INSTALL
18" x 80' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 1285 CU. YDS.





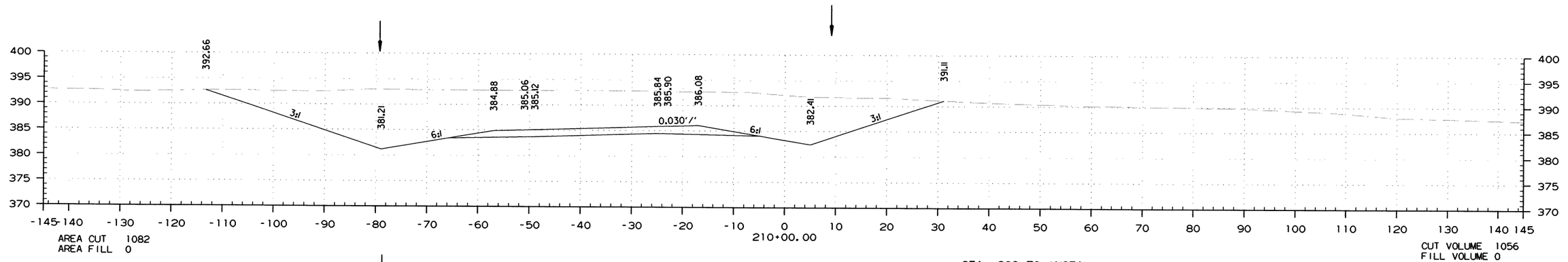
HWY. 412
STA. 207+00.00 TO STA. 208+00.00

12/19/2016

R100708.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.		100708	216	335

(2) CROSS SECTIONS

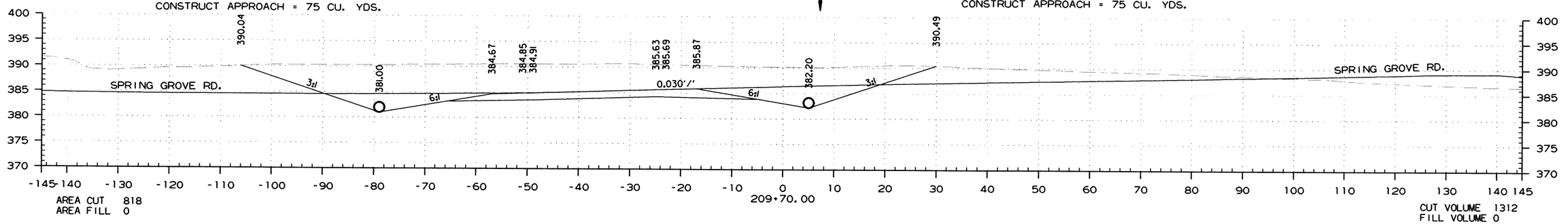


AREA CUT 1082
AREA FILL 0

CUT VOLUME 1056
FILL VOLUME 0

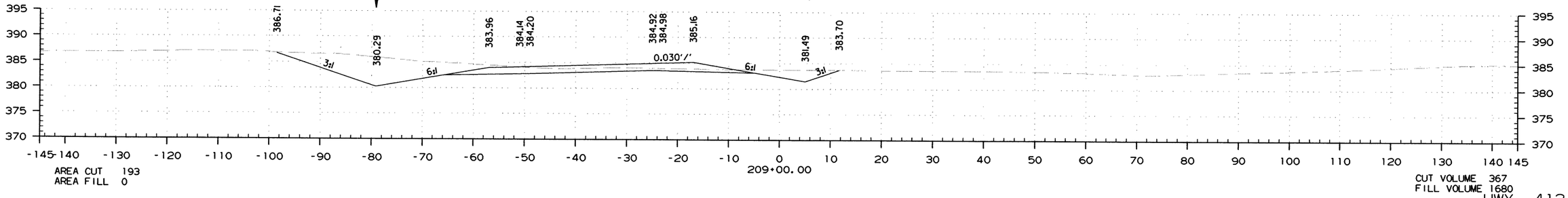
STA. 209+70 INSTALL
24" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.

STA. 209+70 INSTALL
24" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.



AREA CUT 818
AREA FILL 0

CUT VOLUME 1312
FILL VOLUME 0



AREA CUT 193
AREA FILL 0

CUT VOLUME 367
FILL VOLUME 1680

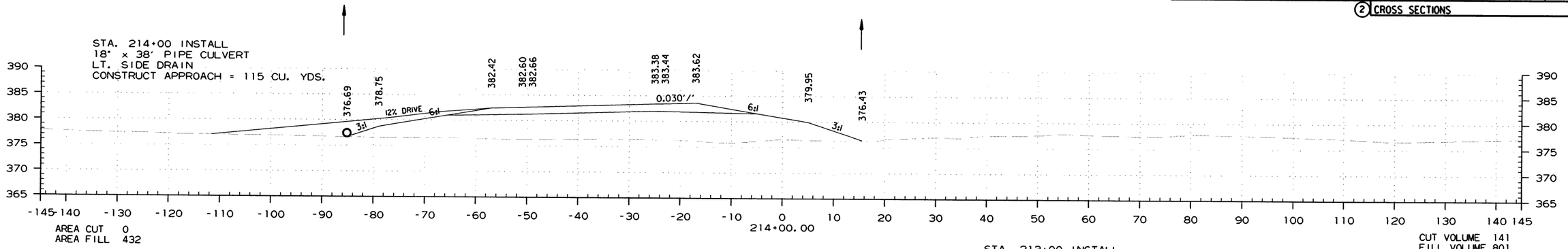
HWY. 412
STA. 209+00.00 TO STA. 210+00.00

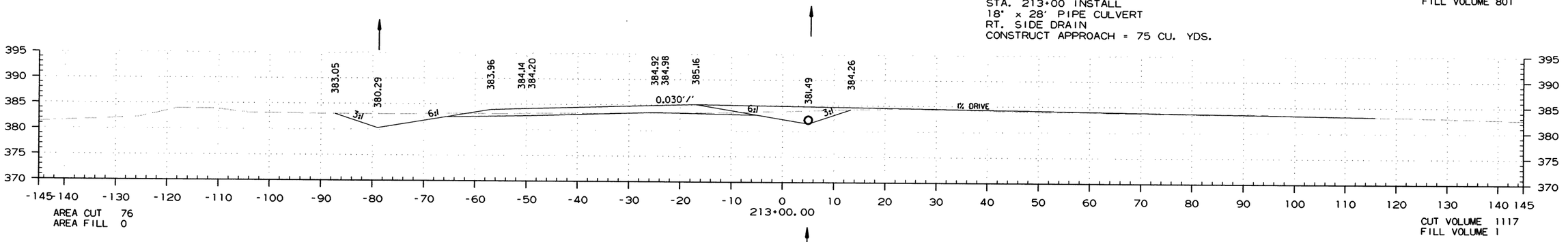
12/19/2016

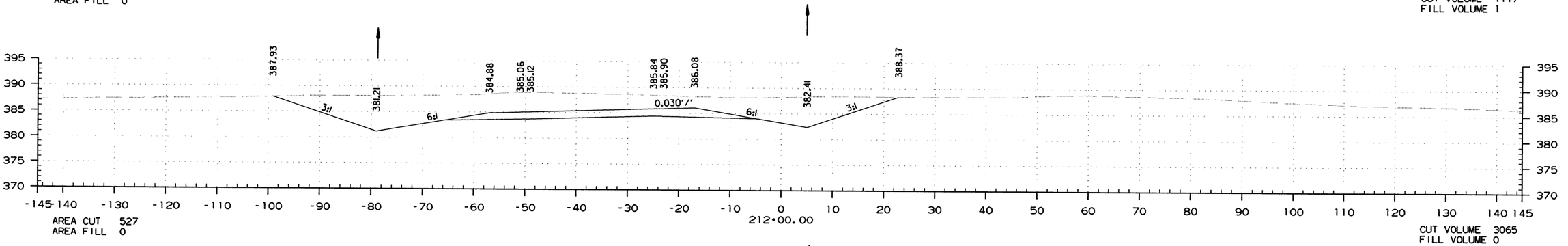
R100708.DGN

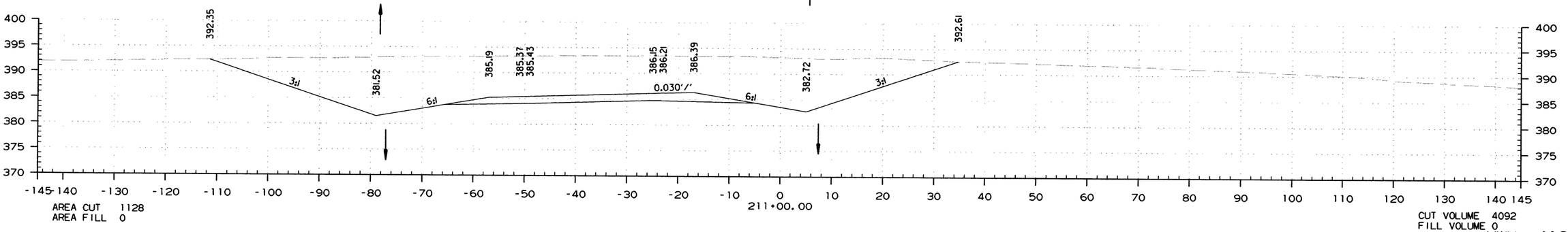
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	217	335

(2) CROSS SECTIONS









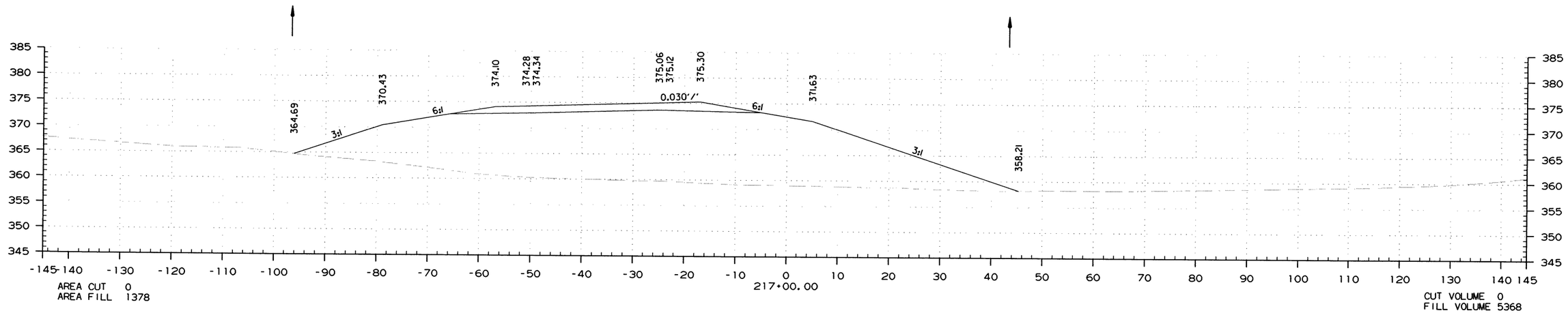
HWY. 412
STA. 211+00.00 TO STA. 214+00.00

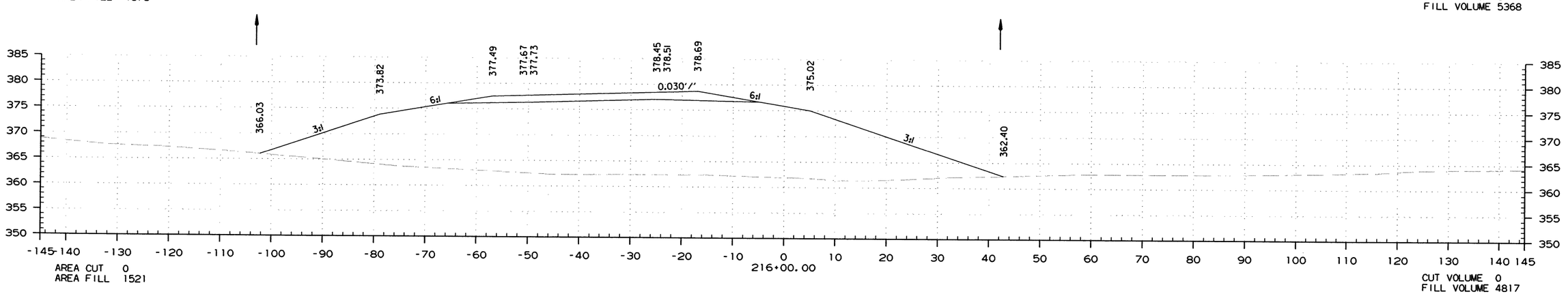
12/19/2016

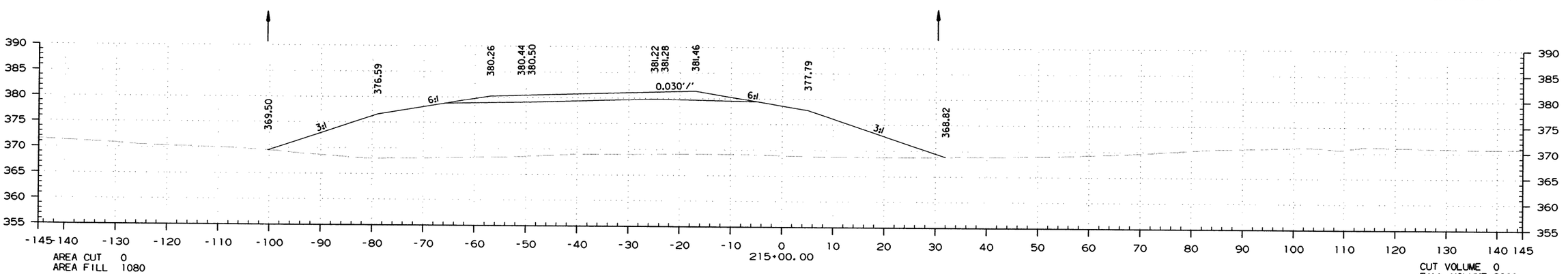
R100708.DGN

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.		100708	218	335

(2) CROSS SECTIONS







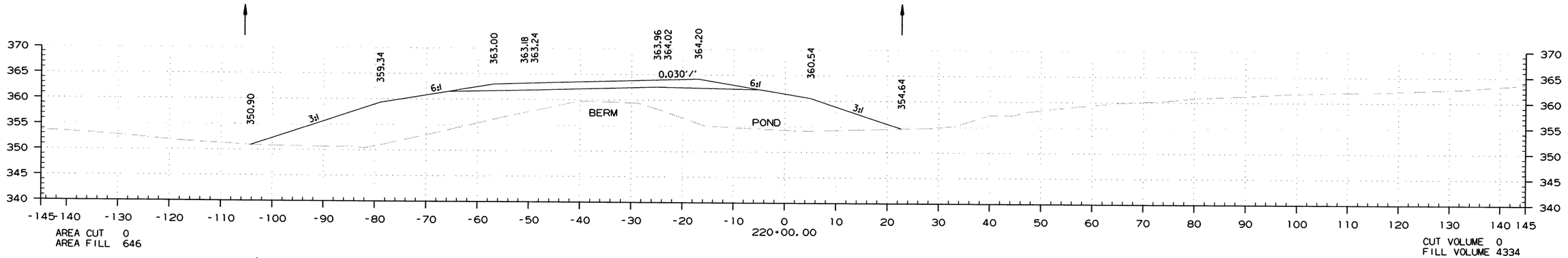
HWY. 412
STA. 215+00.00 TO STA. 217+00.00

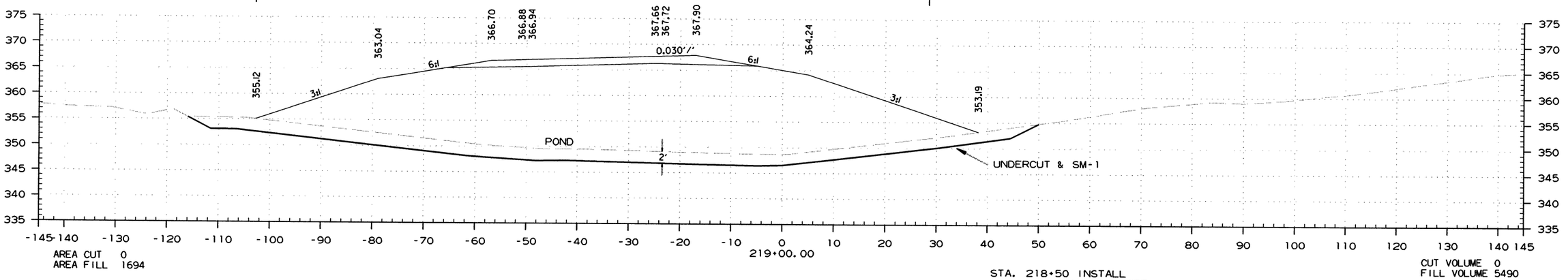
12/19/2016

R100708.DGN

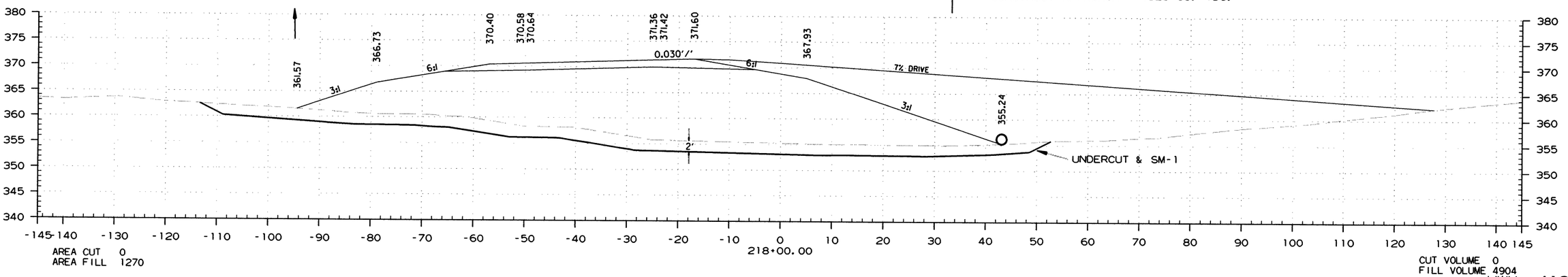
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	219	335

(2) CROSS SECTIONS





STA. 218+50 INSTALL
24" x 62' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 1925 CU. YDS.



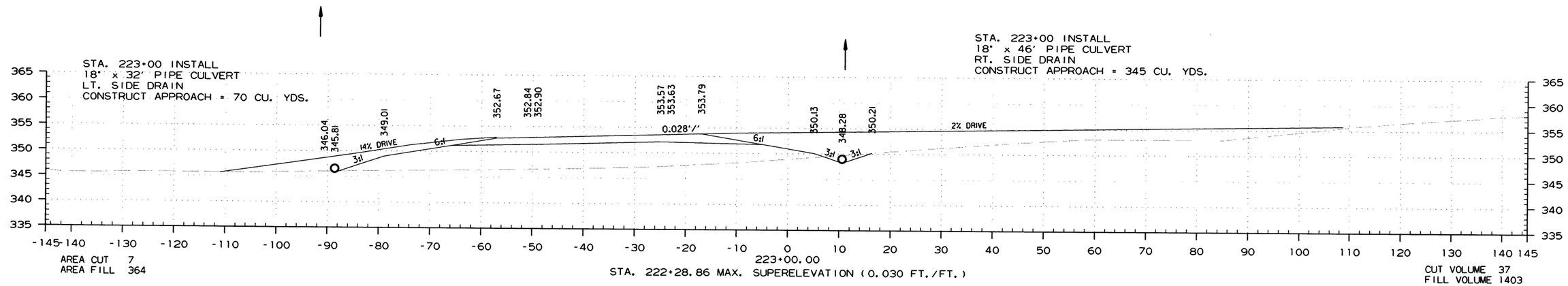
HWY. 412
STA. 218+00.00 TO STA. 220+00.00

12/19/2016

R100708.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.		100708	220	335

(2) CROSS SECTIONS



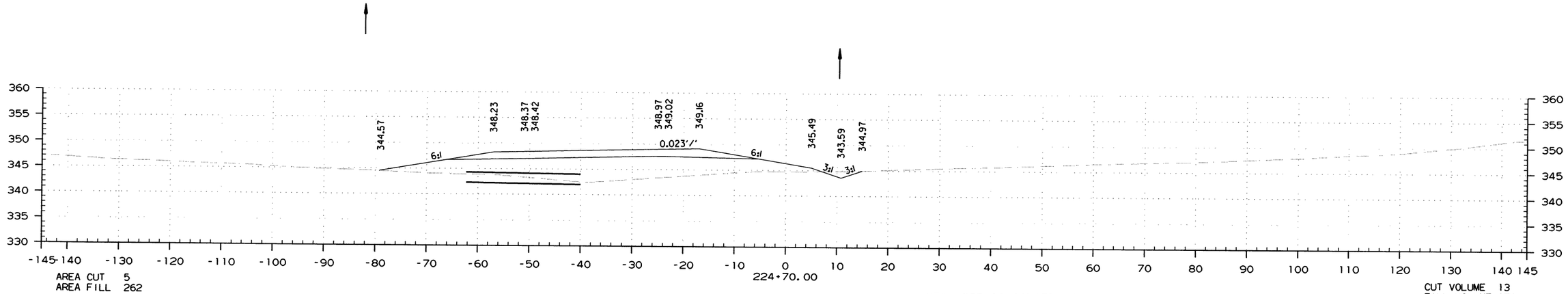
HWY. 412
STA. 221+00.00 TO STA. 223+00.00

12/19/2016

R100708.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.		100708	221	335

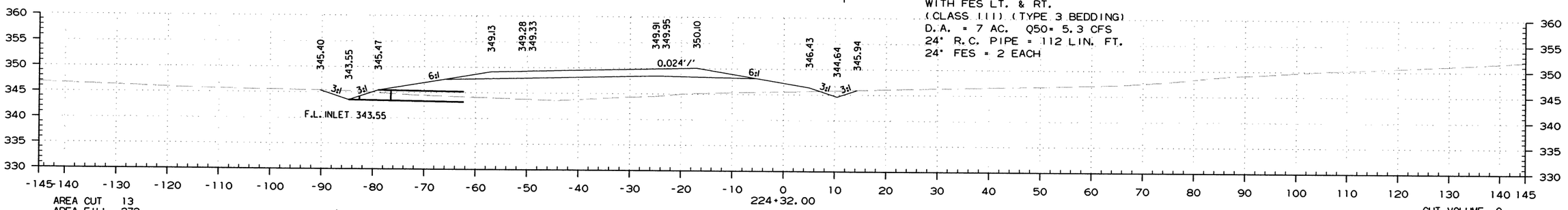
(2) CROSS SECTIONS



AREA CUT 5
AREA FILL 262

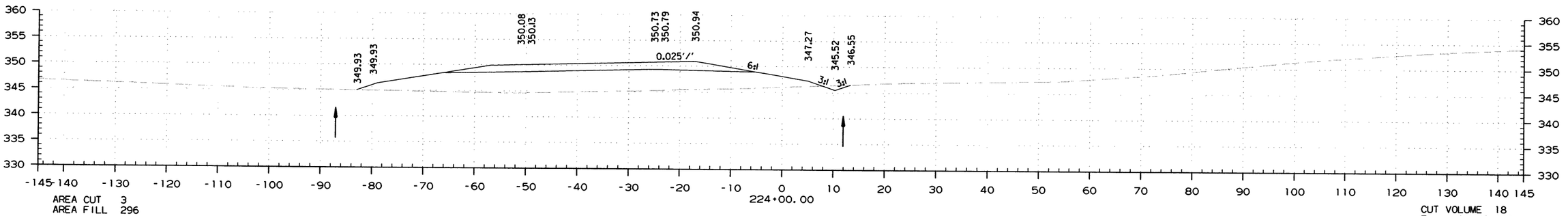
CUT VOLUME 13
FILL VOLUME 376

STA. 225+10 CONSTRUCT
24" X 112' R.C. PIPE CULVERT
ON AN 45° RT. FWD. SKEW
WITH FES LT. & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 7 AC. Q50= 5.3 CFS
24" R.C. PIPE = 112 LIN. FT.
24" FES = 2 EACH



AREA CUT 13
AREA FILL 272

CUT VOLUME 9
FILL VOLUME 337



AREA CUT 3
AREA FILL 296

CUT VOLUME 18
FILL VOLUME 602

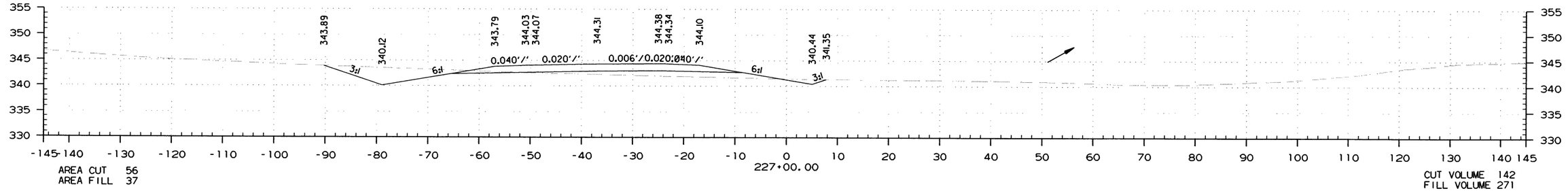
12/19/2016

R100708.DGN

HWY. 412
STA. 224+00.00 TO STA. 224+70.00

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.		100708	222	335

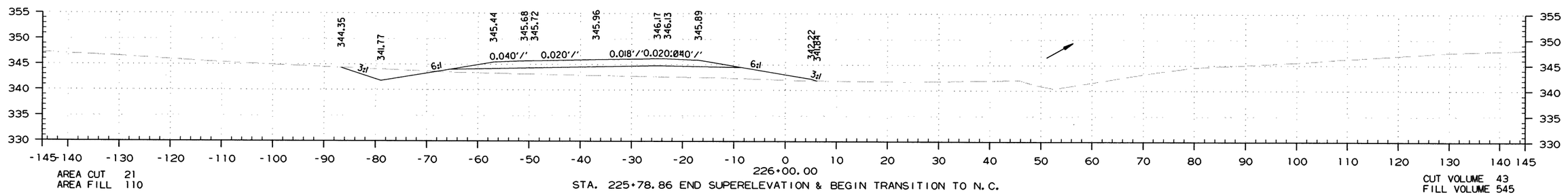
(2) CROSS SECTIONS



227+00.00

AREA CUT 56
AREA FILL 37

CUT VOLUME 142
FILL VOLUME 271

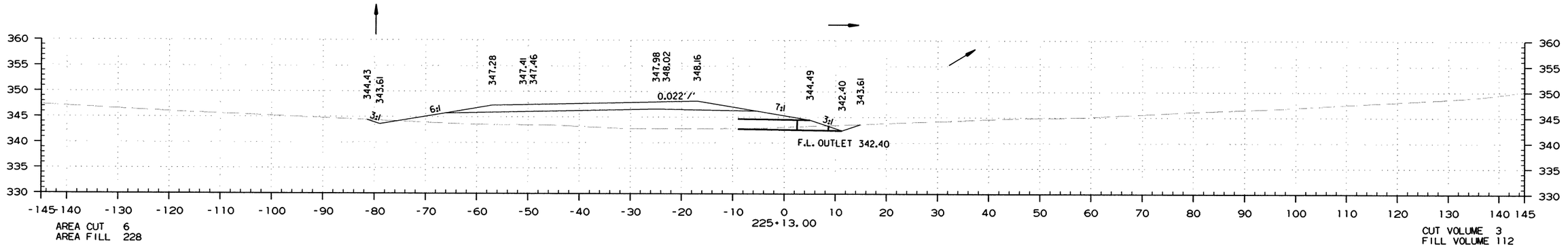


226+00.00

AREA CUT 21
AREA FILL 110

CUT VOLUME 43
FILL VOLUME 545

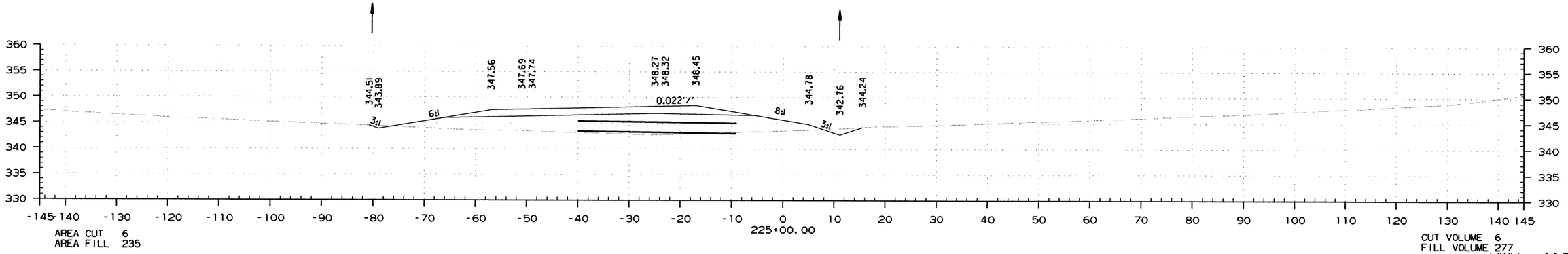
STA. 225+78.86 END SUPERELEVATION & BEGIN TRANSITION TO N.C.



225+13.00

AREA CUT 6
AREA FILL 228

CUT VOLUME 3
FILL VOLUME 112



225+00.00

AREA CUT 6
AREA FILL 235

CUT VOLUME 6
FILL VOLUME 277

HWY. 412
STA. 225+00.00 TO STA. 227+00.00

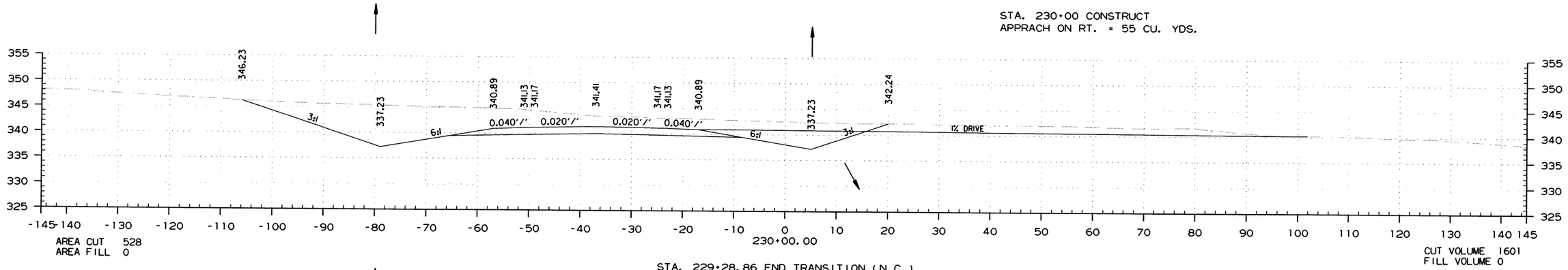
12/19/2016

R100708.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.		100708	223	335

(2) CROSS SECTIONS

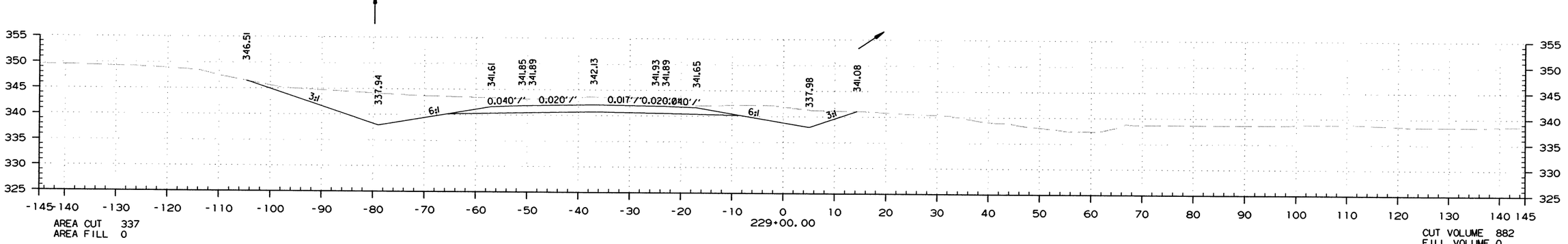
STA. 230+00 CONSTRUCT
APPRACH ON RT. = 55 CU. YDS.



AREA CUT 528
AREA FILL 0

CUT VOLUME 1601
FILL VOLUME 0

STA. 229+28.86 END TRANSITION (N.C.)

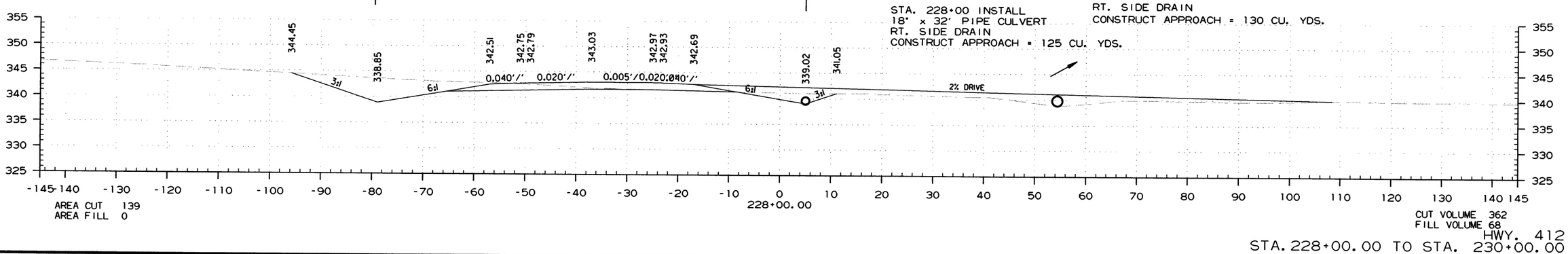


AREA CUT 337
AREA FILL 0

CUT VOLUME 882
FILL VOLUME 0

STA. 228+00 INSTALL
18" x 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

STA. 228+00 INSTALL
24" X 32" PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 130 CU. YDS.



AREA CUT 139
AREA FILL 0

CUT VOLUME 362
FILL VOLUME 68

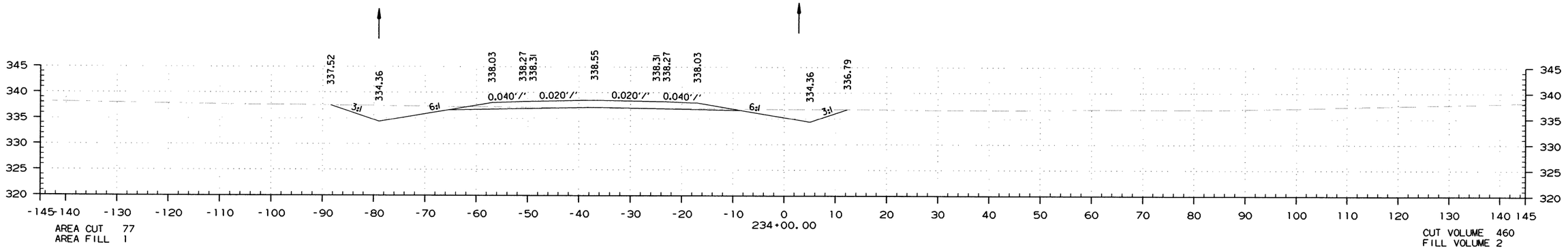
HWY. 412
STA. 228+00.00 TO STA. 230+00.00

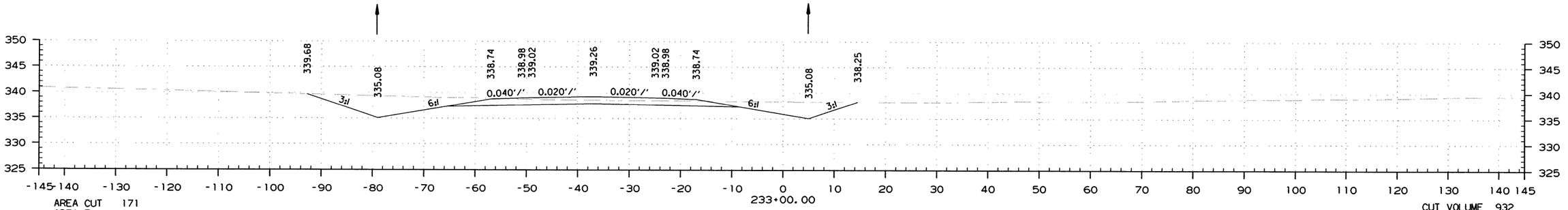
12/19/2016

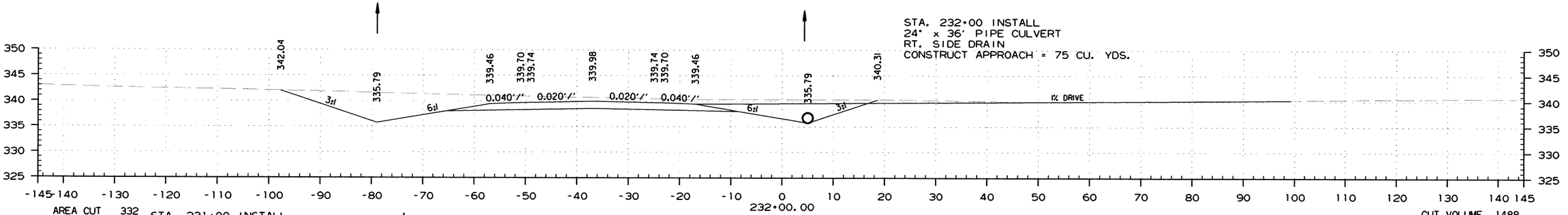
R100708.DGN

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.		100708	224	335

(2) CROSS SECTIONS

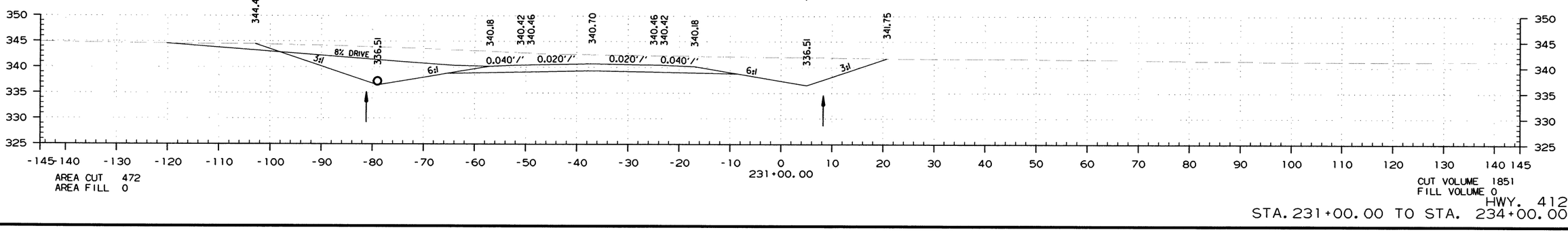






STA. 232+00 INSTALL
24" x 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.

STA. 231+00 INSTALL
18" x 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 140 CU. YDS.



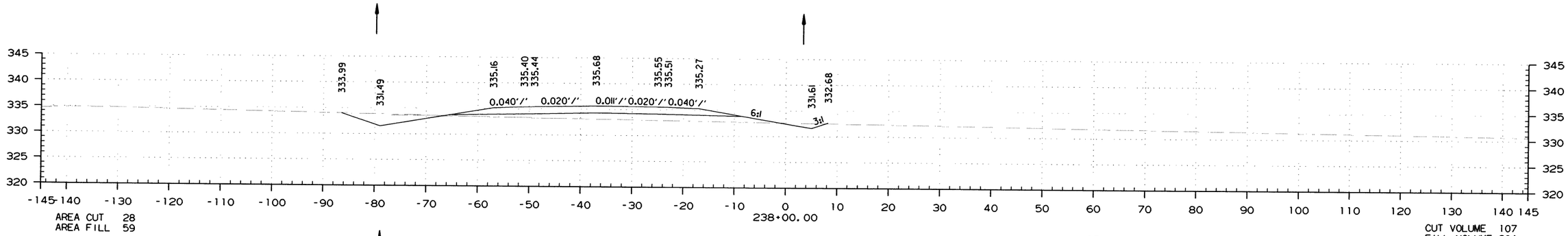
12/19/2016

R100708.DGN

HWY. 412
STA. 231+00.00 TO STA. 234+00.00

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.		100708	225	335

(2) CROSS SECTIONS



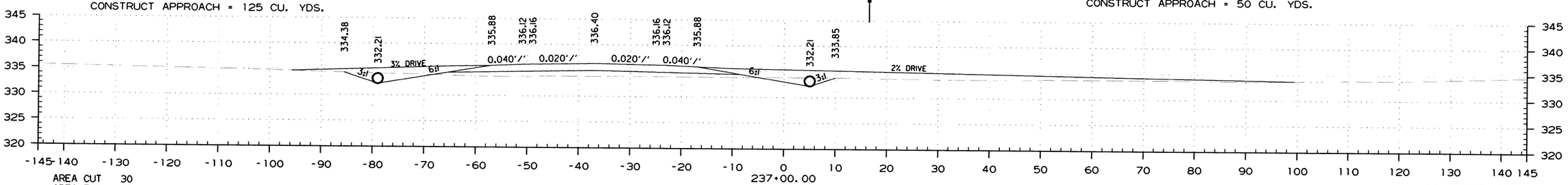
AREA CUT 28
AREA FILL 59

STA. 237+00 INSTALL
24" x 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

CUT VOLUME 107
FILL VOLUME 204

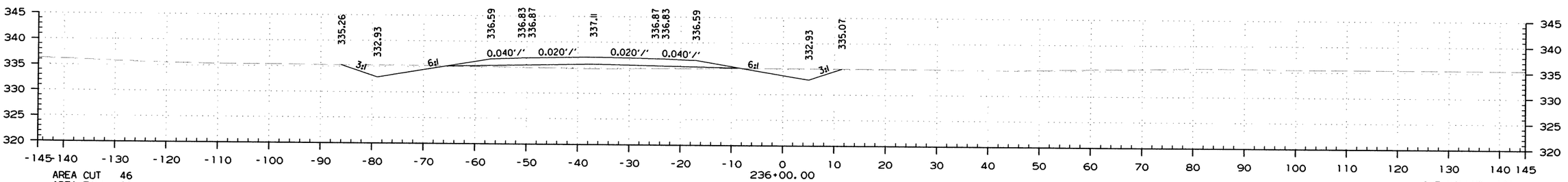
STA. 237+18.05 BEGIN TRANSITION (N.C.)

STA. 237+00 INSTALL
24" x 32' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.



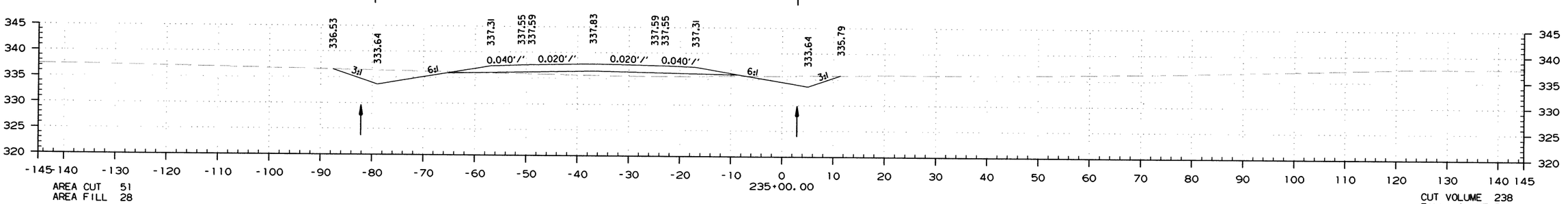
AREA CUT 30
AREA FILL 51

CUT VOLUME 140
FILL VOLUME 145



AREA CUT 46
AREA FILL 28

CUT VOLUME 180
FILL VOLUME 104



AREA CUT 51
AREA FILL 28

CUT VOLUME 238
FILL VOLUME 54

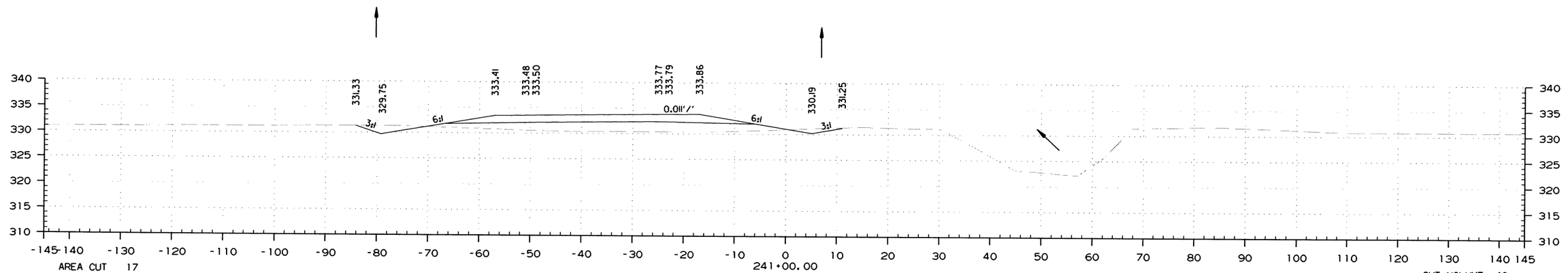
HWY. 412
STA. 235+00.00 TO STA. 238+00.00

12/19/2016

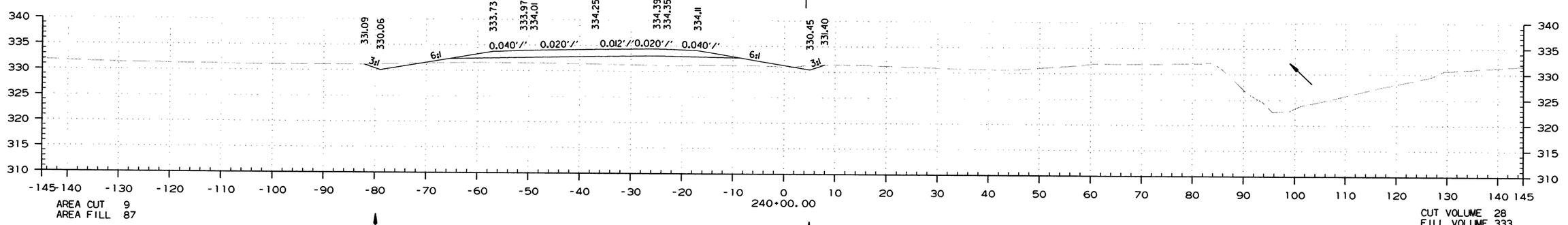
R100708.DGN

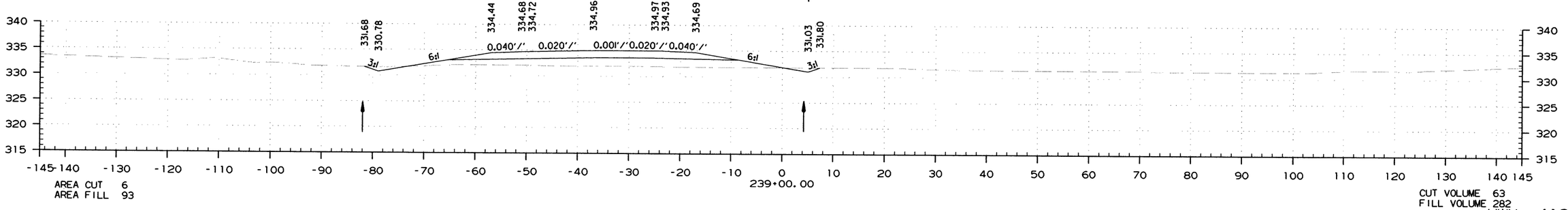
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	226	335

(2) CROSS SECTIONS



STA. 240+68.05 BEGIN SUPERELEVATION (N.C.)





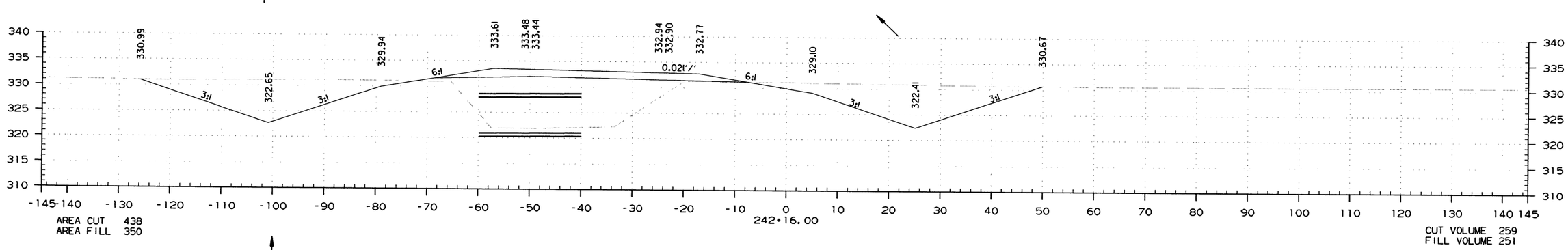
HWY. 412
STA. 239+00.00 TO STA. 241+00.00

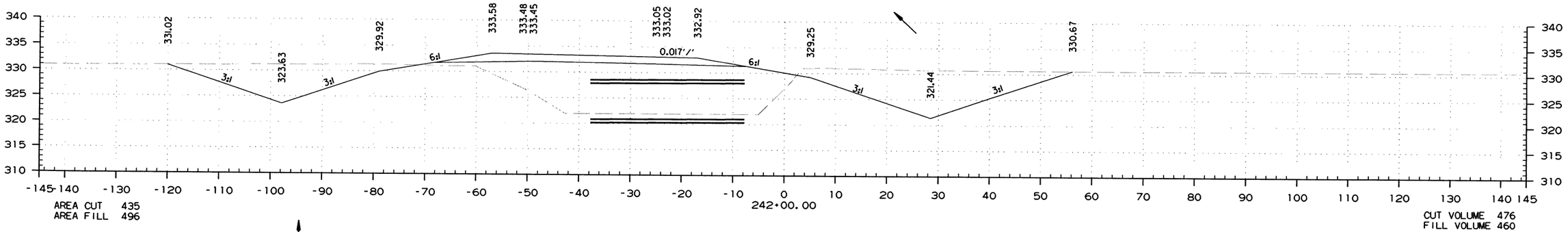
12/19/2016

R100708.DGN

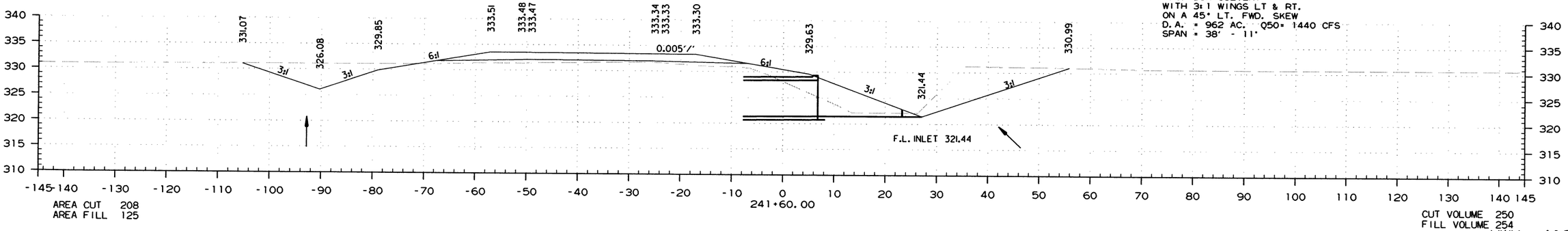
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	227	335

(2) CROSS SECTIONS





STA. 241+82 CONSTRUCT
TRIPLE 12' X 7' X 131'
R.C. BOX CULVERT
WITH 3:1 WINGS LT & RT.
ON A 45° LT. FWD. SKEW
D.A. = 962 AC. Q50= 1440 CFS
SPAN = 38' - 11"



HWY. 412
STA. 241+60.00 TO STA. 242+16.00

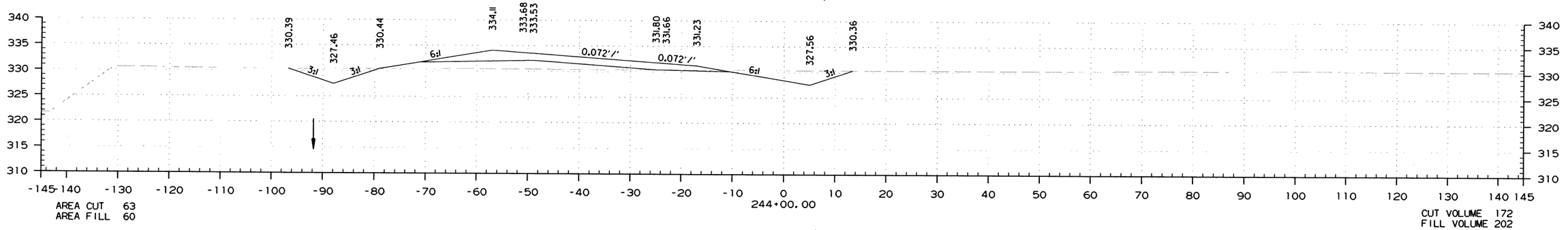
12/19/2016

R100708.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.		100708	228	335

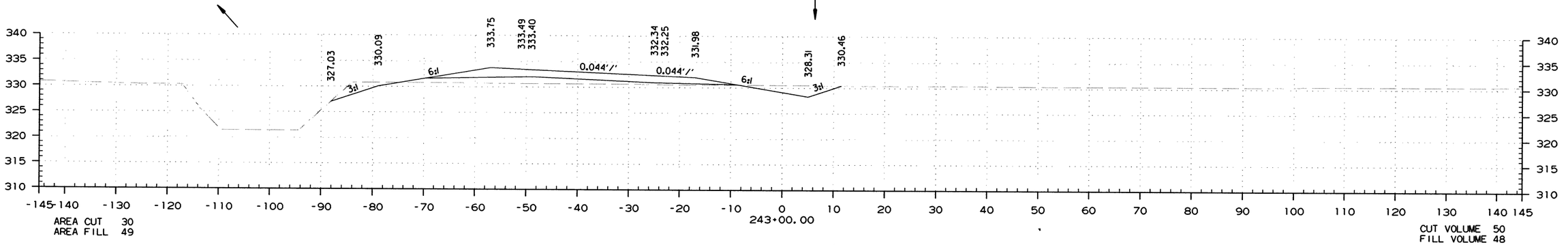
(2) CROSS SECTIONS

STA. 244+18.05 MAX. SUPERELEVATION (0.077 FT./FT.)



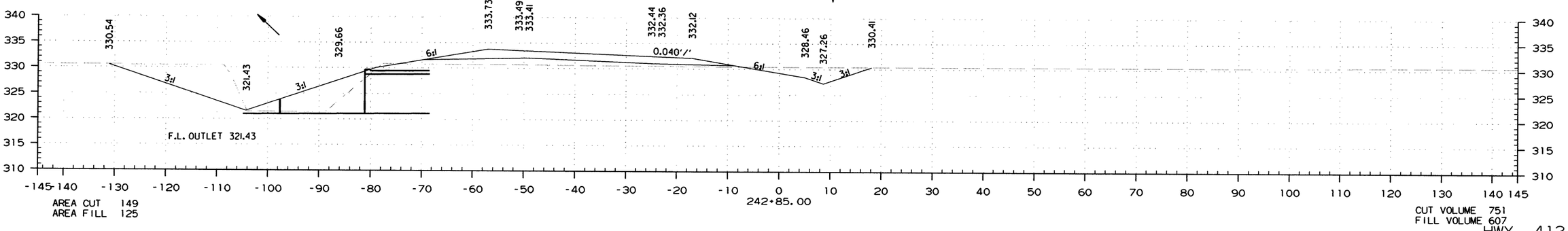
AREA CUT 63
AREA FILL 60

CUT VOLUME 172
FILL VOLUME 202



AREA CUT 30
AREA FILL 49

CUT VOLUME 50
FILL VOLUME 48



AREA CUT 149
AREA FILL 125

CUT VOLUME 751
FILL VOLUME 607

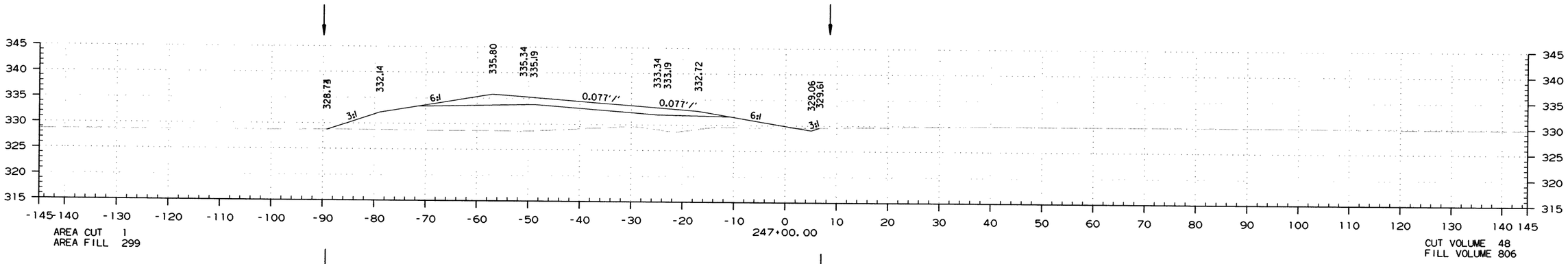
HWY. 412
STA. 242+85.00 TO STA. 244+00.00

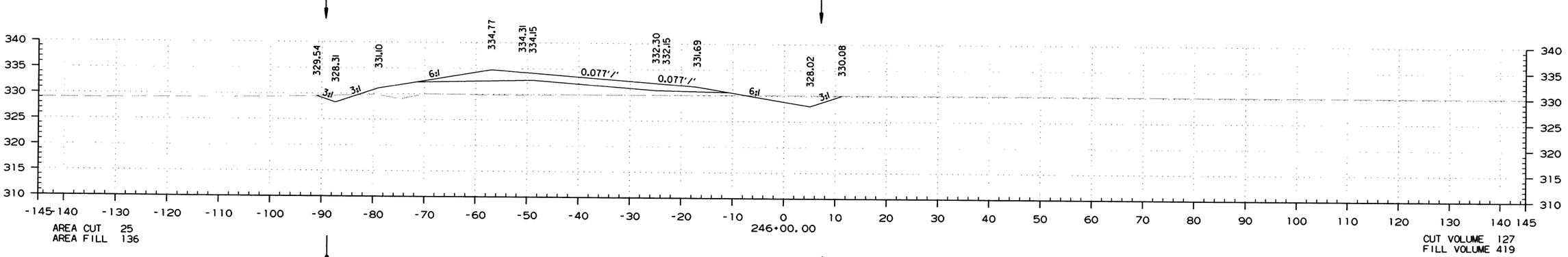
12/19/2016

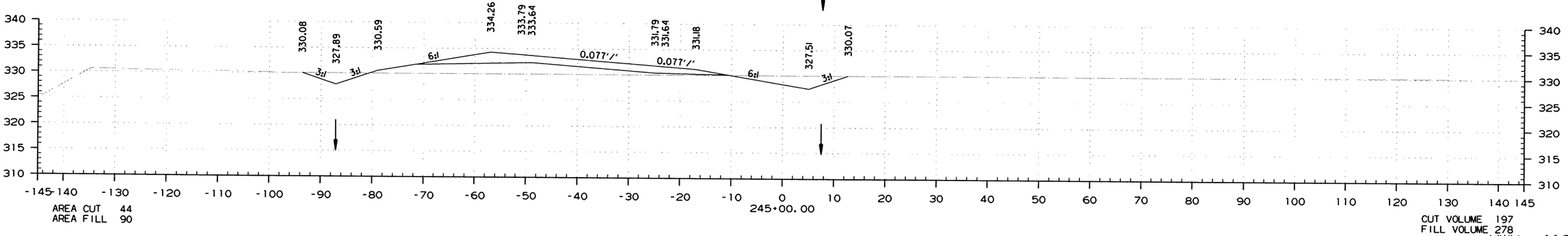
R100708.DGN

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.		100708	229	335

(2) CROSS SECTIONS







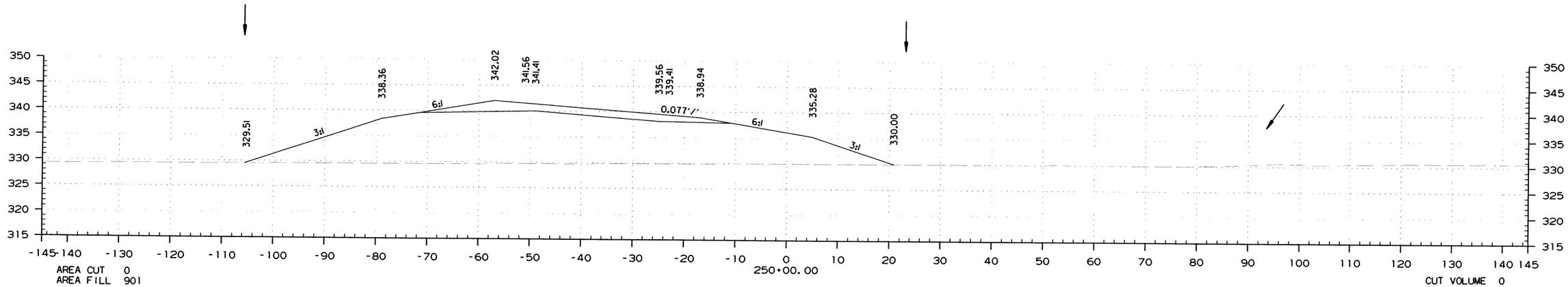
HWY. 412
STA. 245+00.00 TO STA. 247+00.00

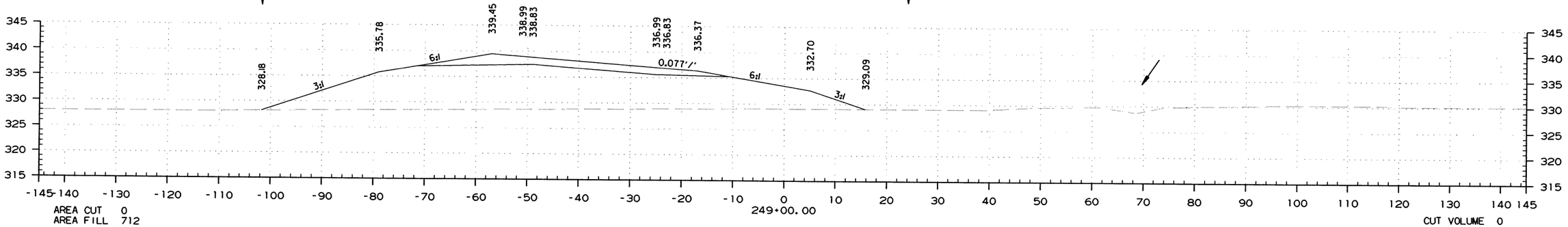
12/19/2016

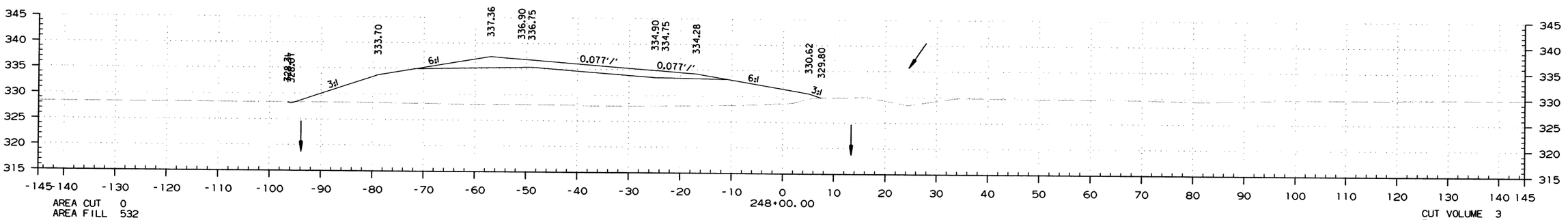
R100708.DGN

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.		100708	230	335

(2) CROSS SECTIONS







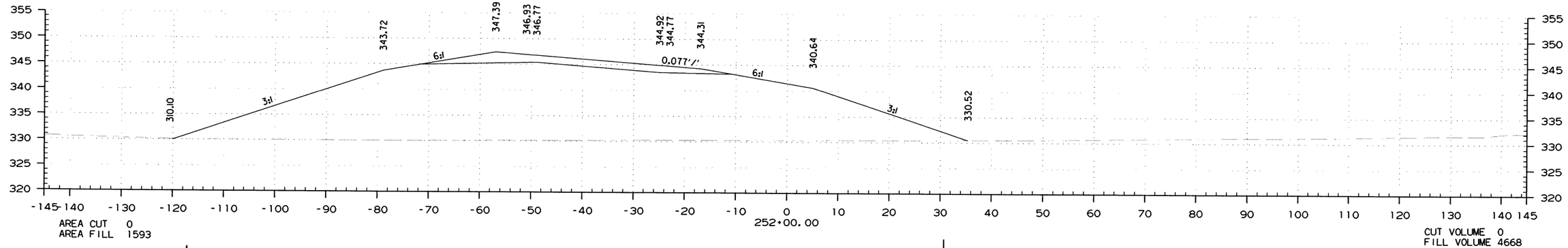
HWY. 412
STA. 248+00.00 TO STA. 250+00.00

12/19/2016

R100708.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.		100708	231	335

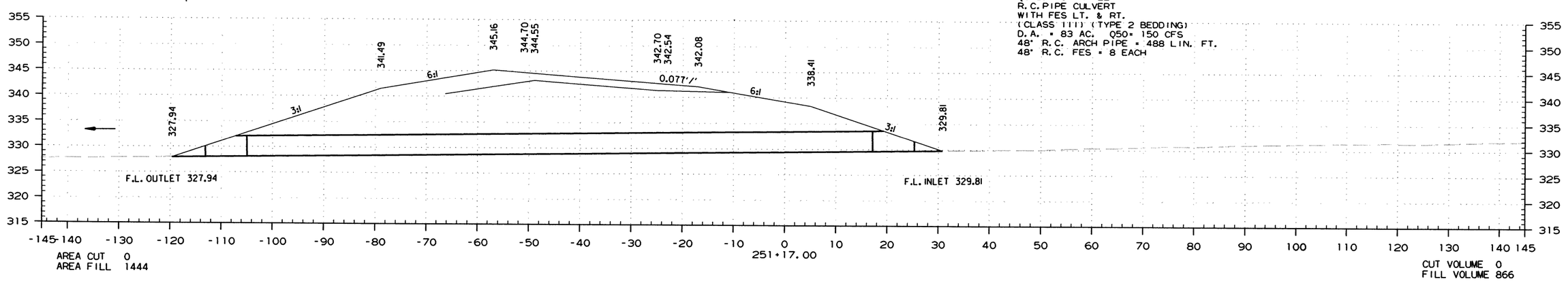
(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 1593

CUT VOLUME 0
FILL VOLUME 4668

STA. 251+15 CONSTRUCT
QUAD. 48" X 122'
R.C. PIPE CULVERT
WITH FES LT. & RT.
(CLASS III) (TYPE 2 BEDDING)
D.A. = 83 AC. Q50= 150 CFS
48" R.C. ARCH PIPE = 488 LIN. FT.
48" R.C. FES = 8 EACH

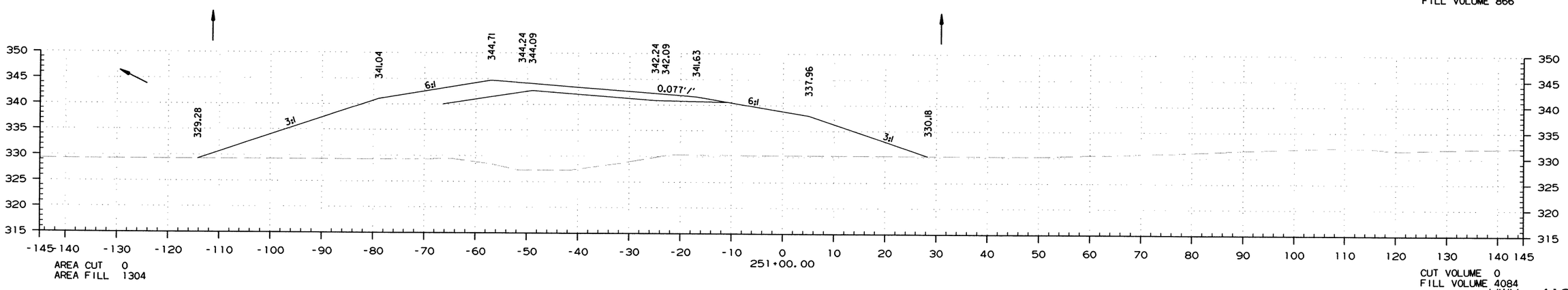


F.L. OUTLET 327.94

F.L. INLET 329.81

AREA CUT 0
AREA FILL 1444

CUT VOLUME 0
FILL VOLUME 866



AREA CUT 0
AREA FILL 1304

CUT VOLUME 0
FILL VOLUME 4084

HWY. 412
STA. 251+00.00 TO STA. 252+00.00

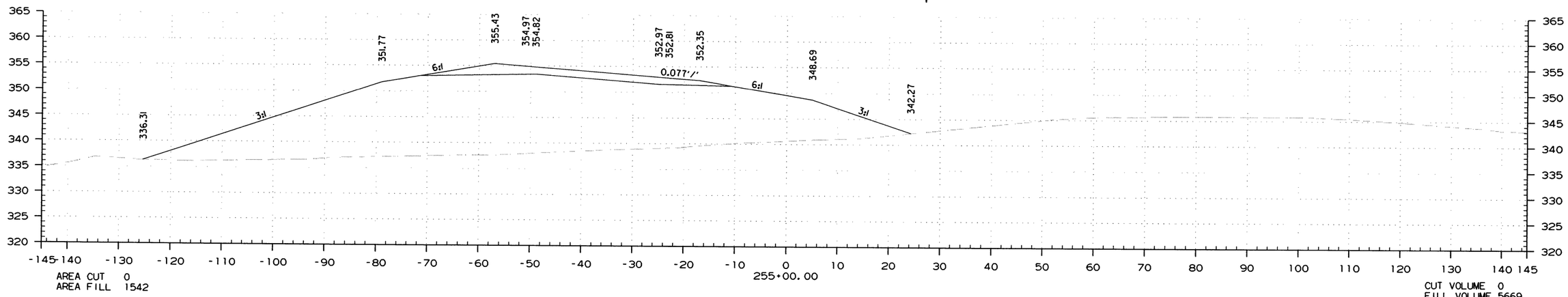
12/19/2016

R100708.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

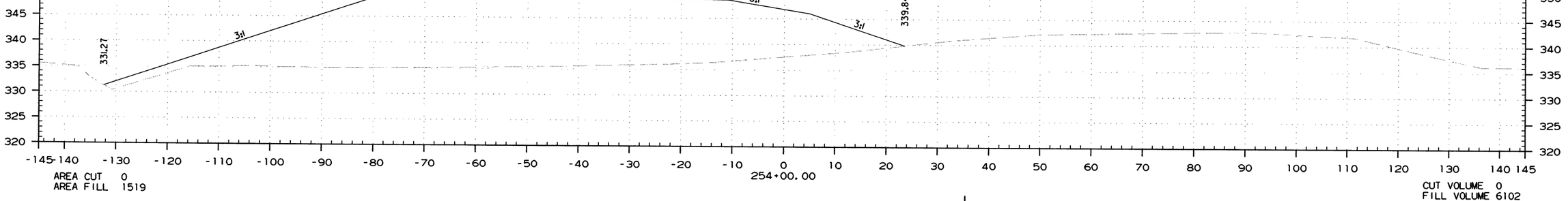
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	232	335

(2) CROSS SECTIONS



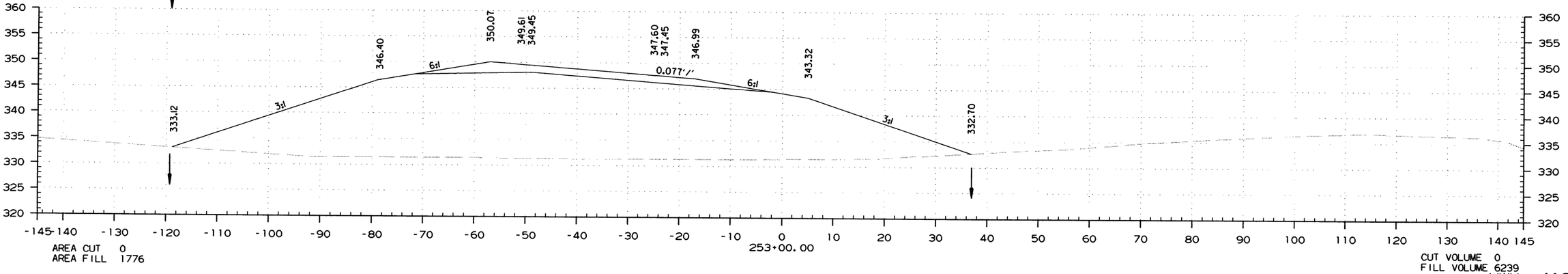
AREA CUT 0
AREA FILL 1542

CUT VOLUME 0
FILL VOLUME 5669



AREA CUT 0
AREA FILL 1519

CUT VOLUME 0
FILL VOLUME 6102



AREA CUT 0
AREA FILL 1776

CUT VOLUME 0
FILL VOLUME 6239

HWY. 412
STA. 253+00.00 TO STA. 255+00.00

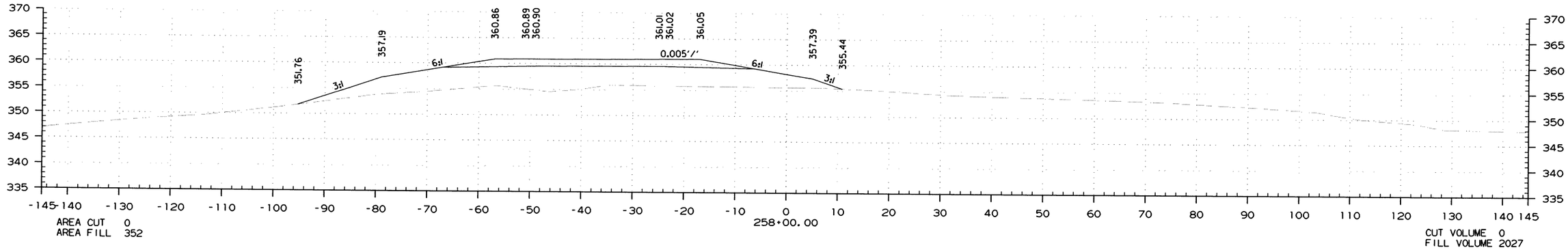
12/19/2016

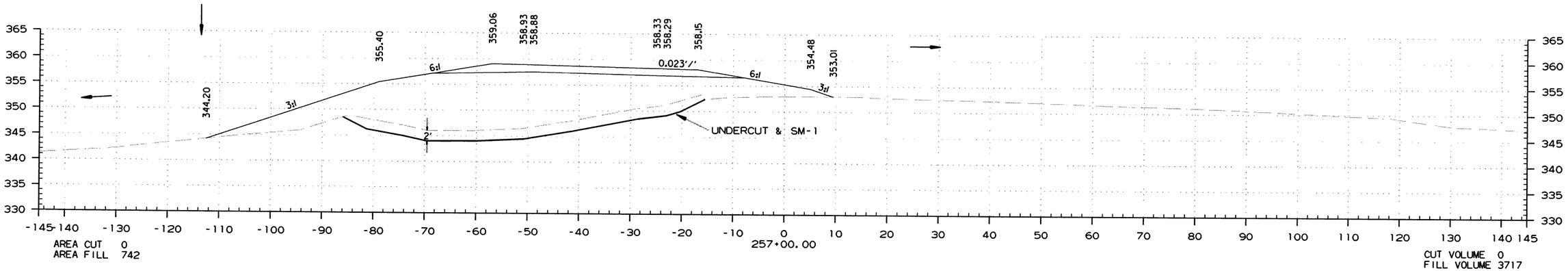
R100708.DGN

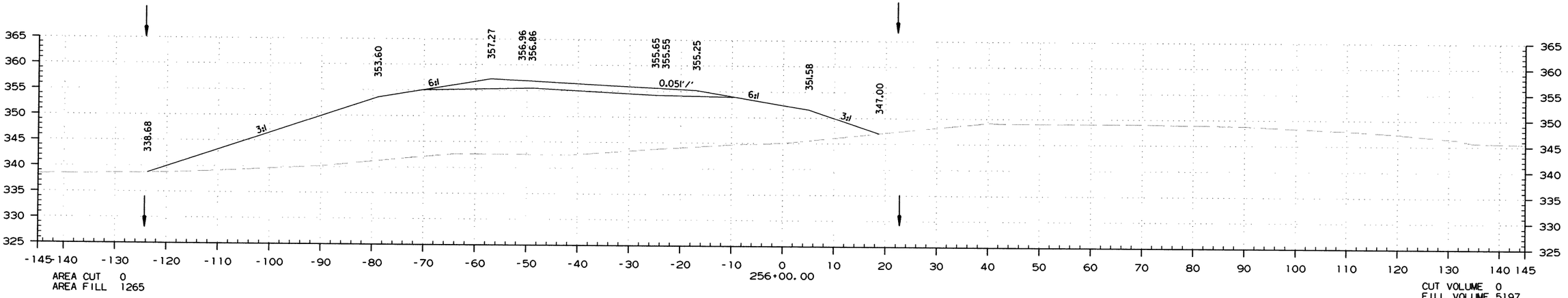
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	233	335

(2) CROSS SECTIONS







STA. 255+04.63 MAX. SUPERELEVATION (0.077 FT./FT.)

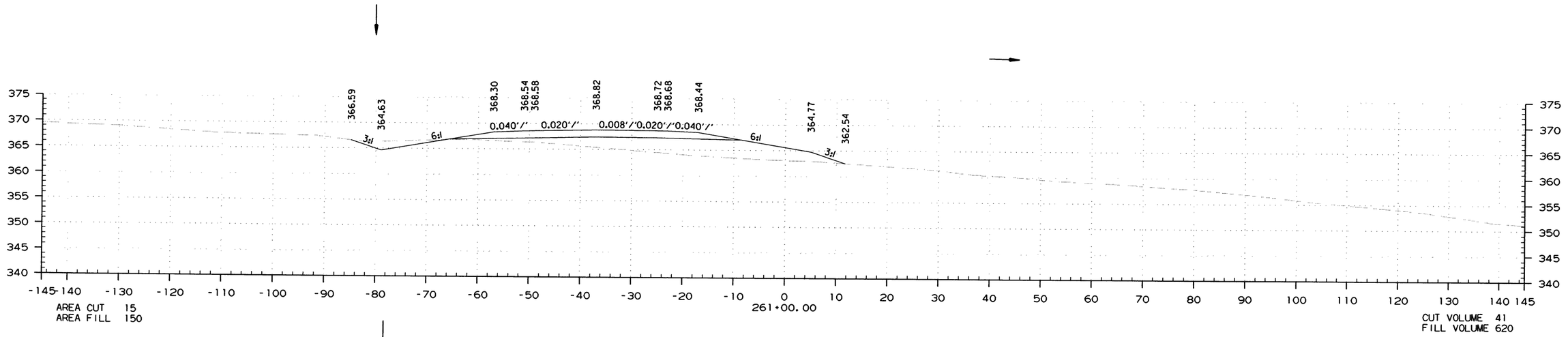
HWY. 412
STA. 256+00.00 TO STA. 258+00.00

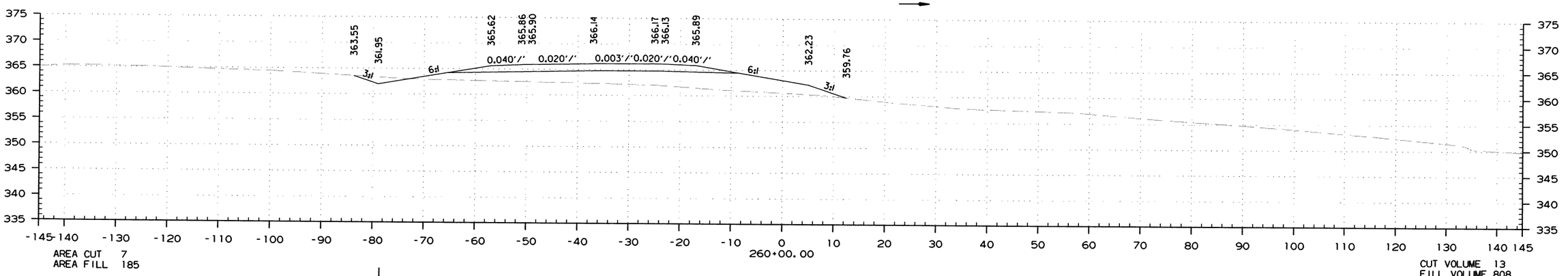
12/19/2016

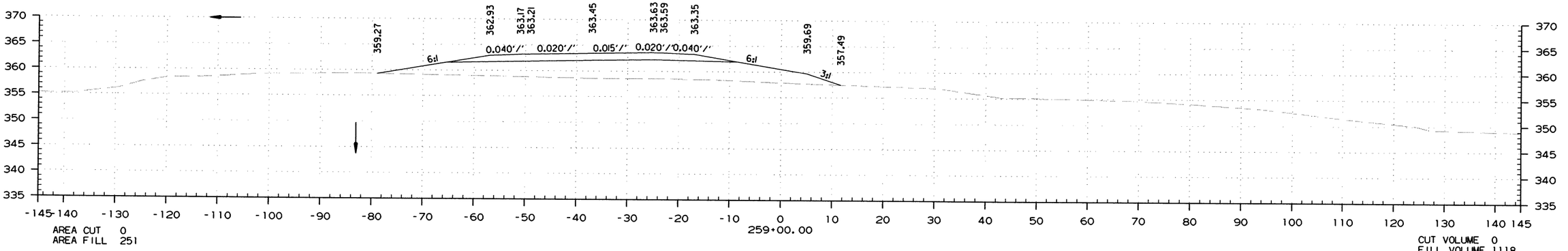
R100708.DGN

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.		100708	234	335

(2) CROSS SECTIONS







STA. 258+54.63 END SUPERELEVATION (N.C.)

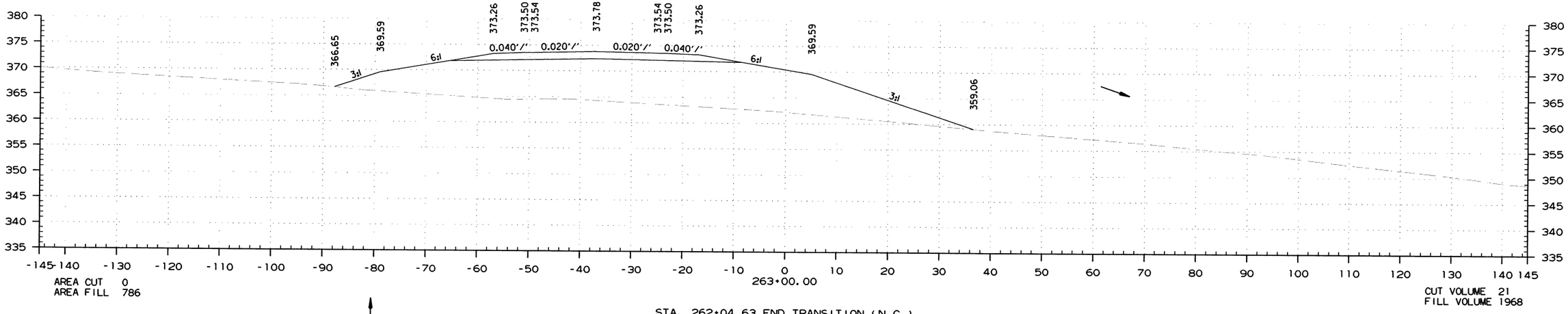
HWY. 412
STA. 259+00.00 TO STA. 261+00.00

12/19/2016

R100708.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.		100708	235	335

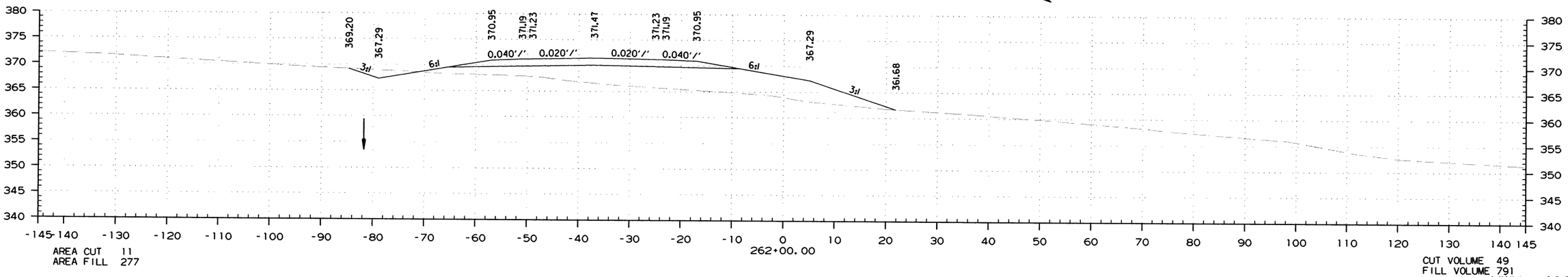
(2) CROSS SECTIONS



AREA CUT 0
AREA FILL 786

CUT VOLUME 21
FILL VOLUME 1968

STA. 262+04.63 END TRANSITION (N.C.)



AREA CUT 11
AREA FILL 277

CUT VOLUME 49
FILL VOLUME 791

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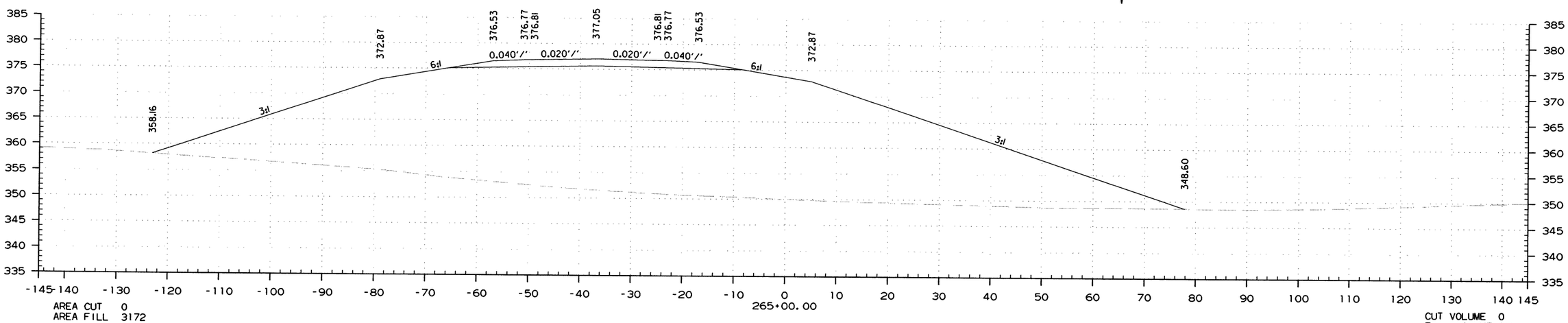
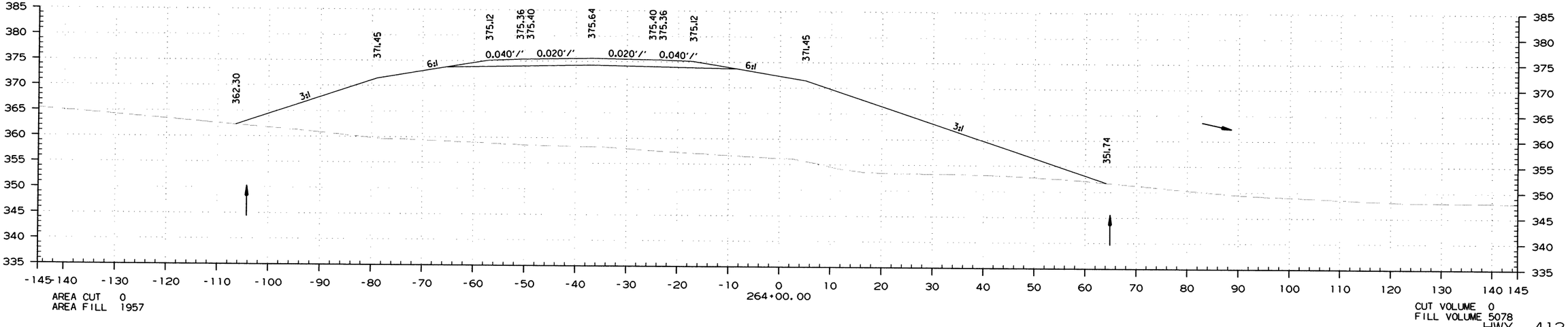
R100708.DGN

HWY. 412
STA. 262+00.00 TO STA. 263+00.00

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.		100708	236	335

(2) CROSS SECTIONS





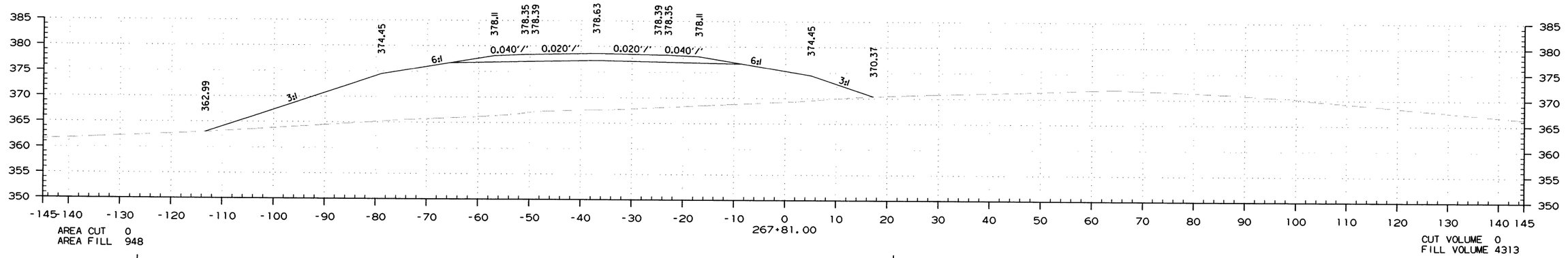
12/19/2016

R100708.DGN

HWY. 412
STA. 264+00.00 TO STA. 265+00.00

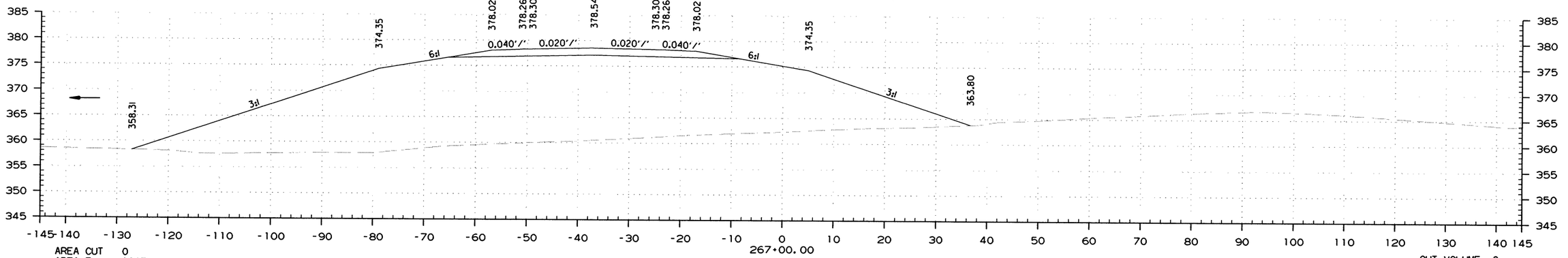
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	237	335

(2) CROSS SECTIONS



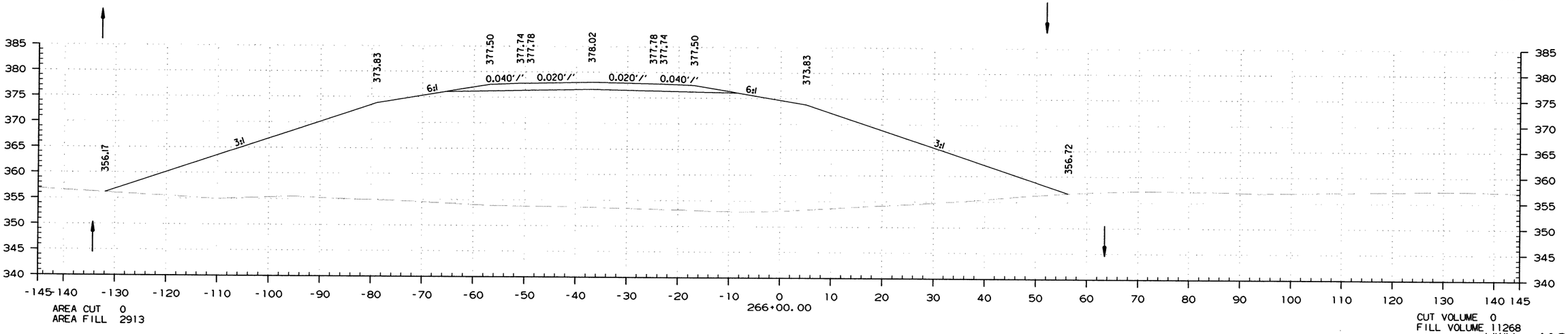
AREA CUT 0
AREA FILL 948

CUT VOLUME 0
FILL VOLUME 4313



AREA CUT 0
AREA FILL 1927

CUT VOLUME 0
FILL VOLUME 8963



AREA CUT 0
AREA FILL 2913

CUT VOLUME 0
FILL VOLUME 11268

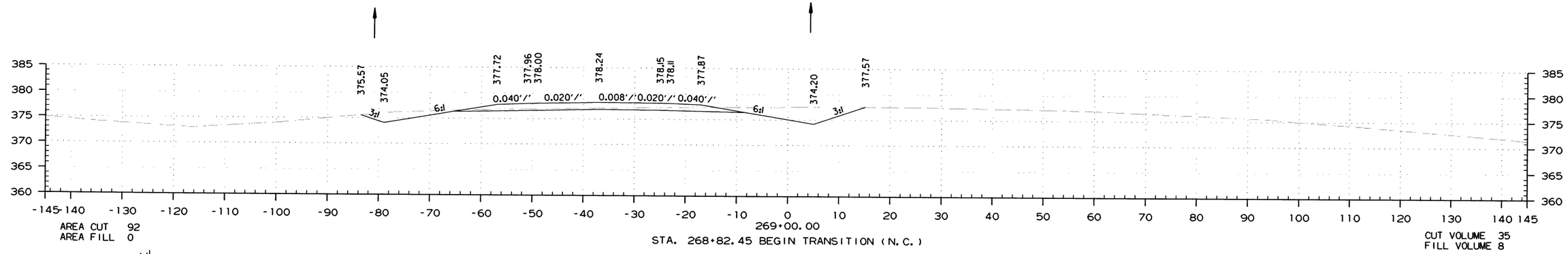
HWY. 412
STA. 266+00.00 TO STA. 267+81.00

12/19/2016

R100708.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.		100708	238	335

(2) CROSS SECTIONS



HWY. 412
STA. 268+00.00 TO STA. 269+00.00

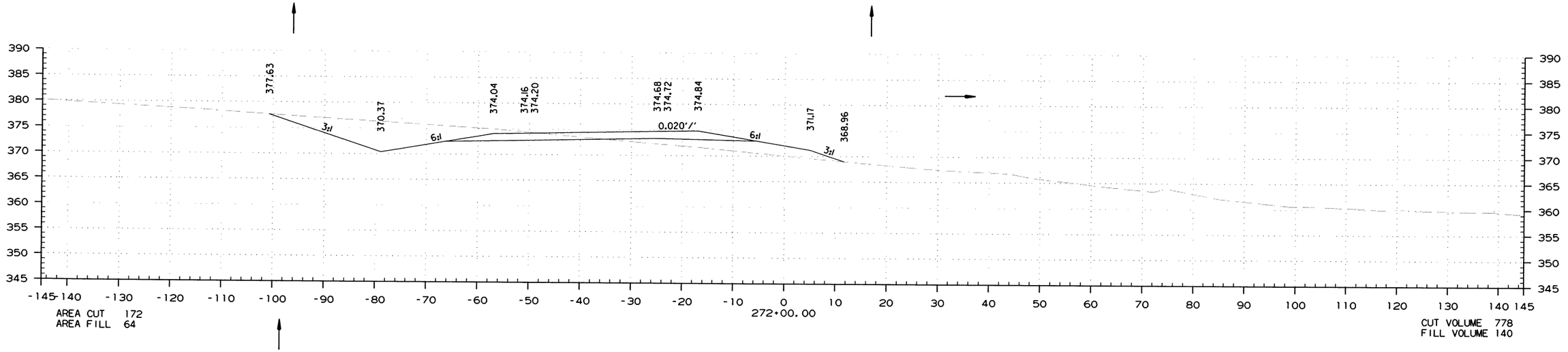
12/19/2016

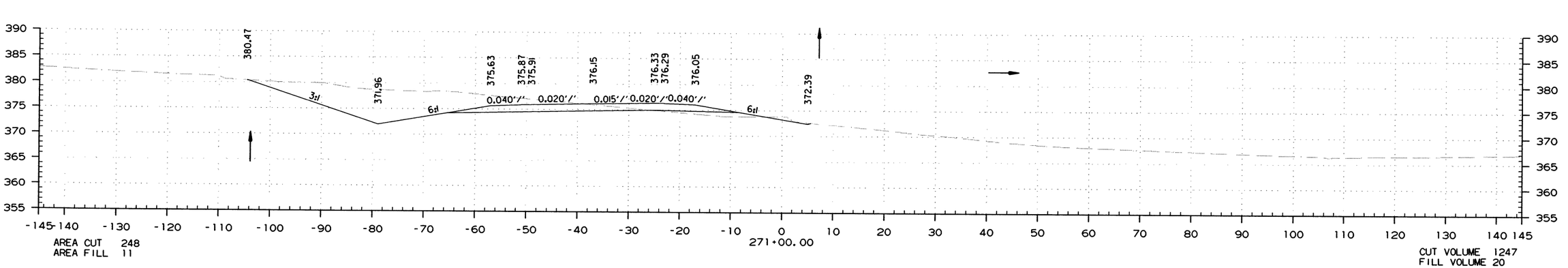
R100708.DGN

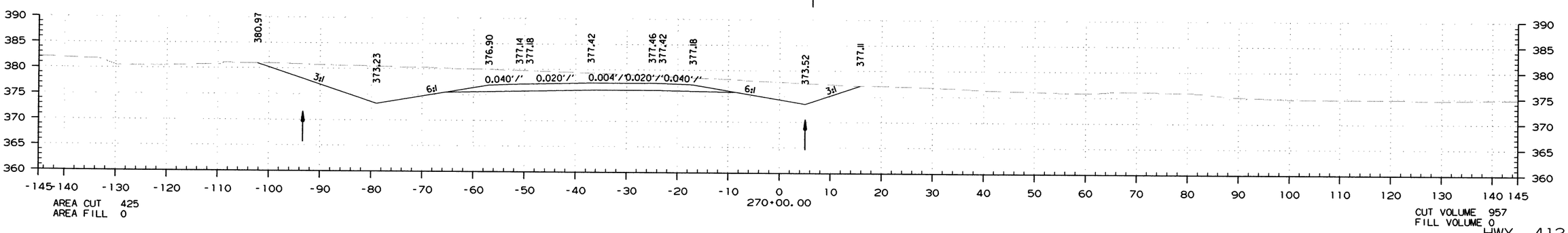
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	239	335

(2) CROSS SECTIONS







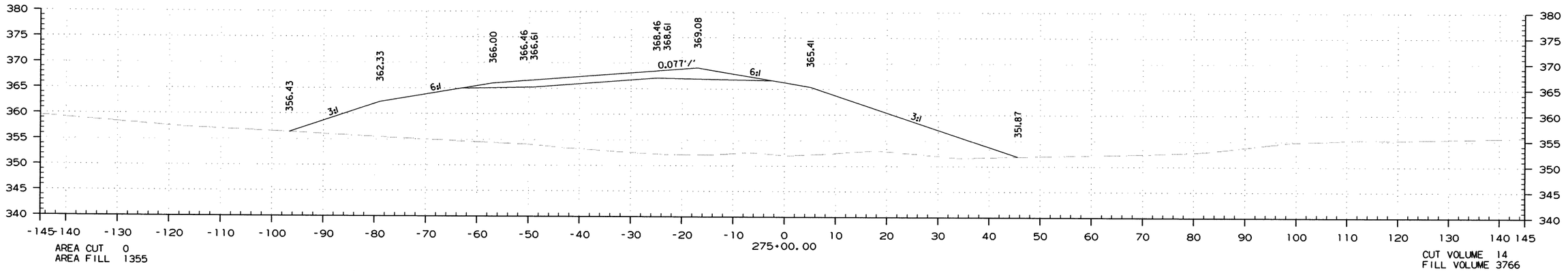
HWY. 412
STA. 270+00.00 TO STA. 272+00.00

12/19/2016

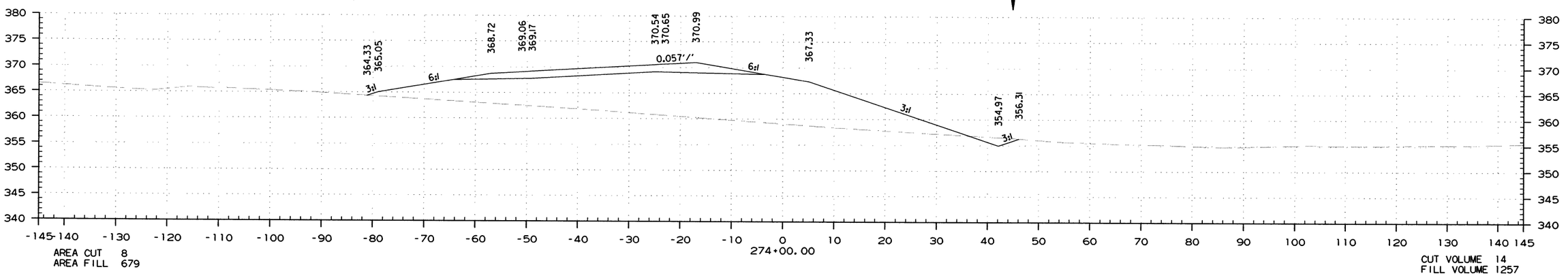
R100708.DGN

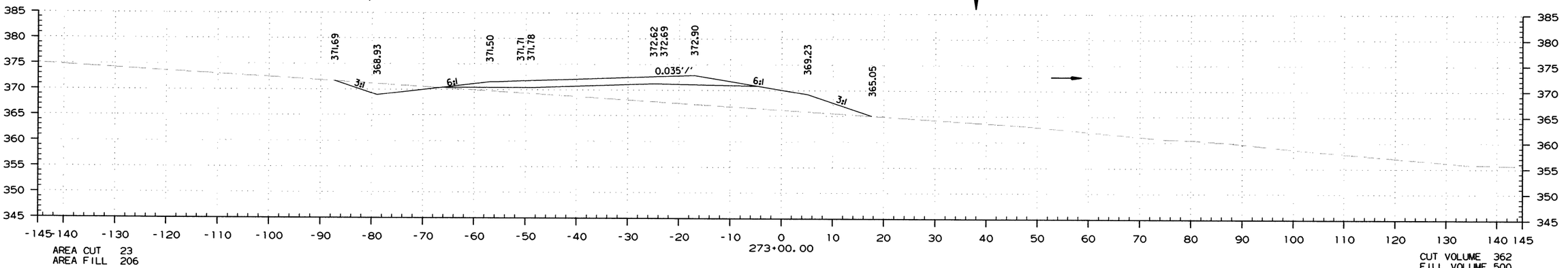
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	240	335

(2) CROSS SECTIONS



STA. 274+91.54 MAX. SUPERELEVATION (0.077 FT.FT.)





STA. 272+35 BEGIN SUPERELEVATION (N.C.)

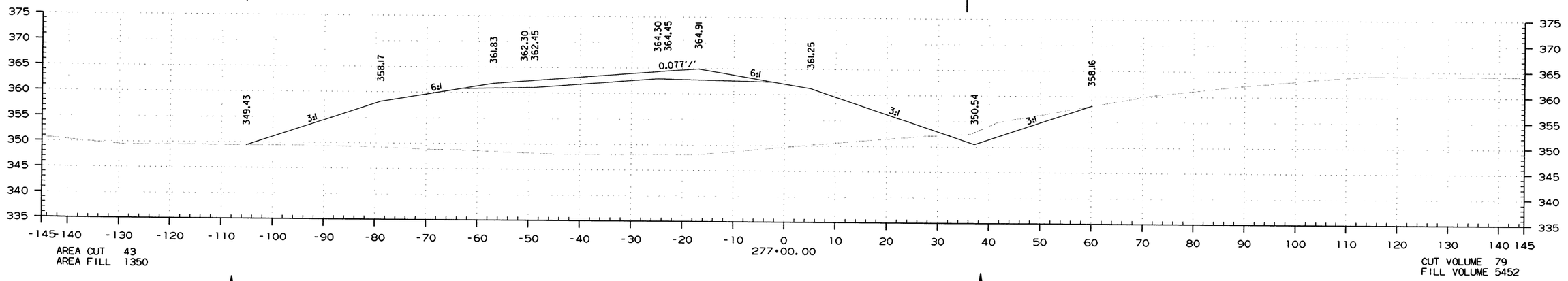
HWY. 412
STA. 273+00.00 TO STA. 275+00.00

12/19/2016

R100708.DGN

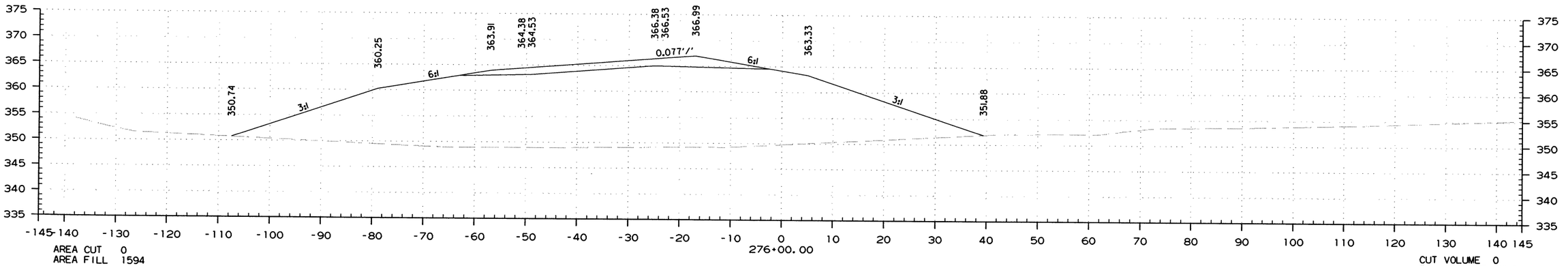
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	241	335

(2) CROSS SECTIONS



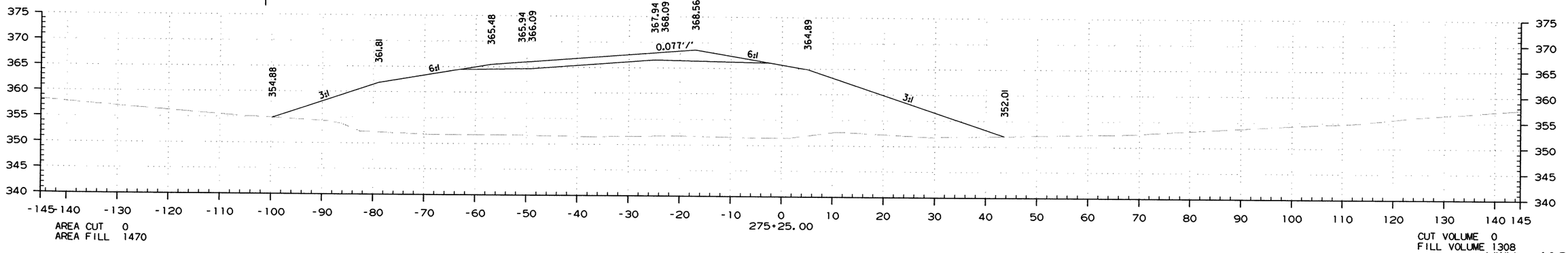
AREA CUT 43
AREA FILL 1350

CUT VOLUME 79
FILL VOLUME 5452



AREA CUT 0
AREA FILL 1594

CUT VOLUME 0
FILL VOLUME 4256



AREA CUT 0
AREA FILL 1470

CUT VOLUME 0
FILL VOLUME 1308

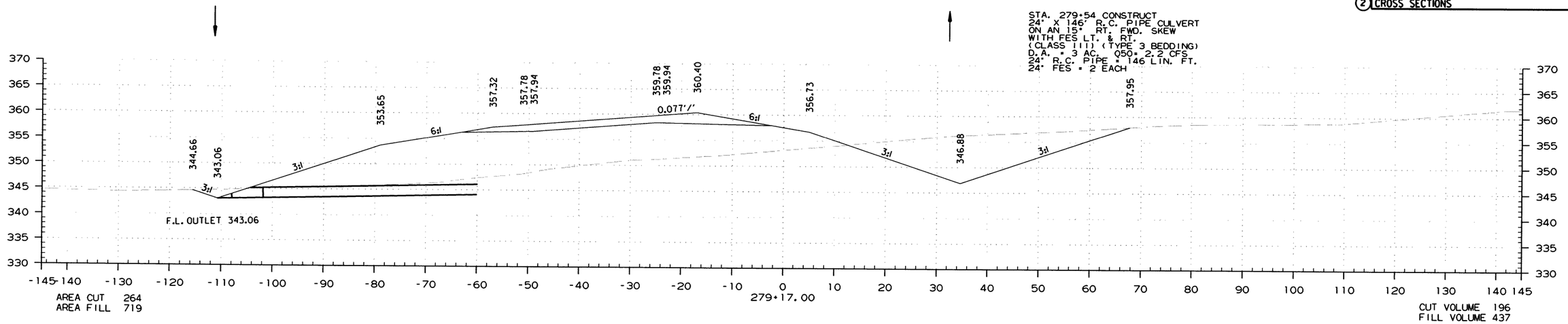
HWY. 412
STA. 275+25.00 TO STA. 277+00.00

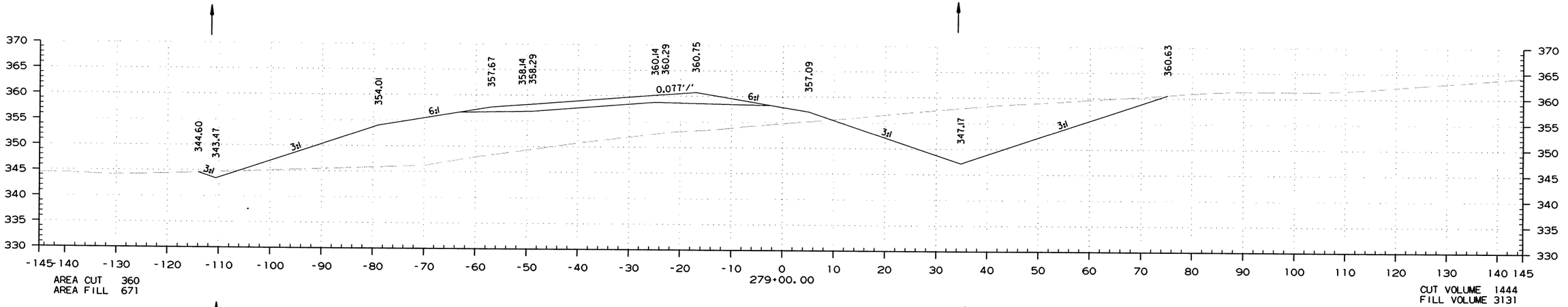
12/19/2016

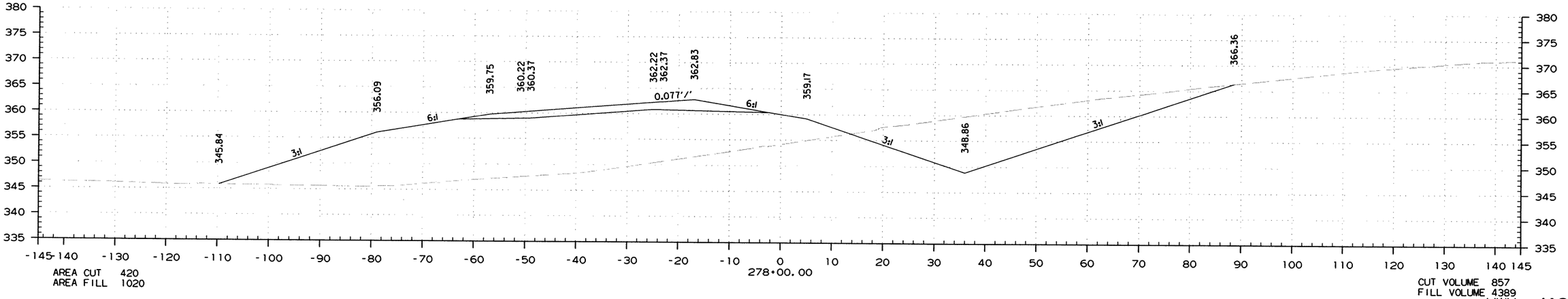
R100708.DGN

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.		100708	242	335

(2) CROSS SECTIONS







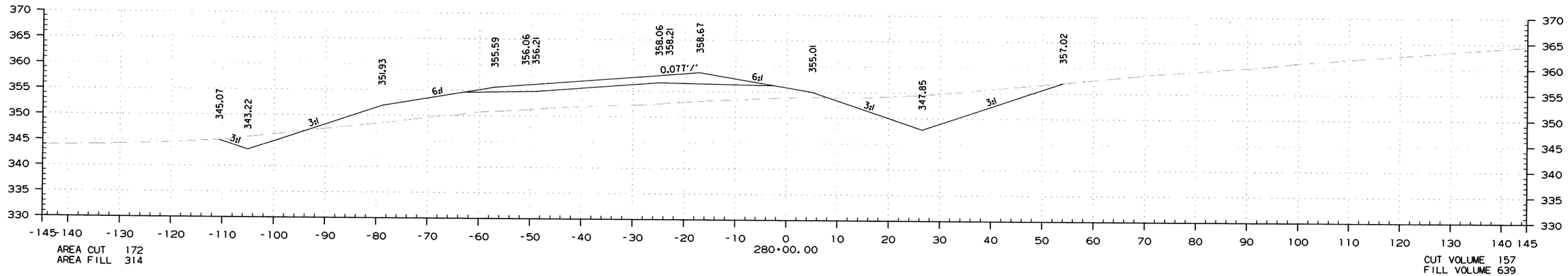
12/19/2016

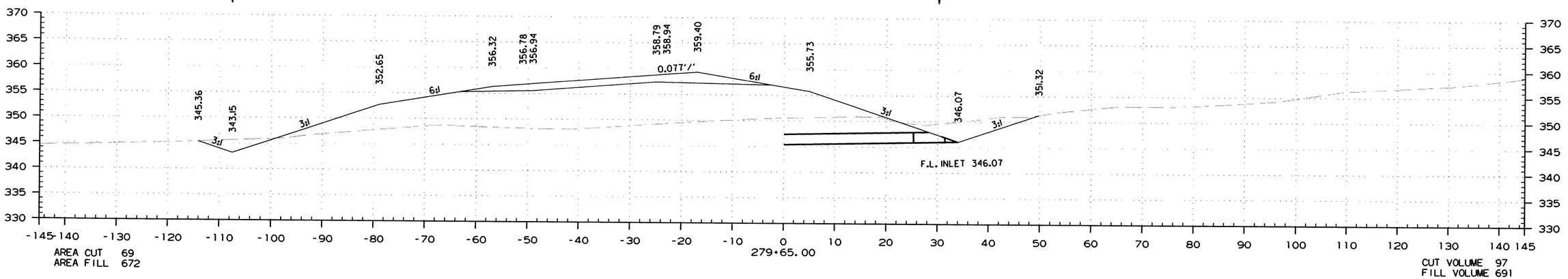
R100708.DGN

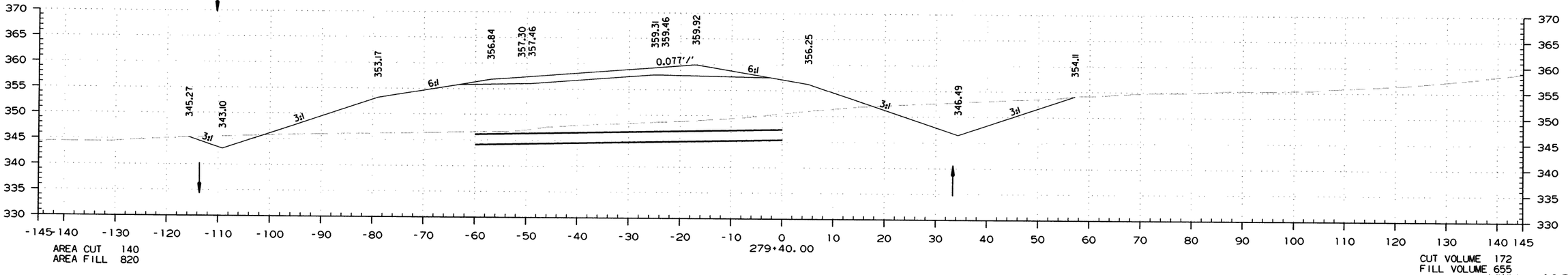
HWY. 412
STA. 278+00.00 TO STA. 279+17.00

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.		100708	243	335

(2) CROSS SECTIONS







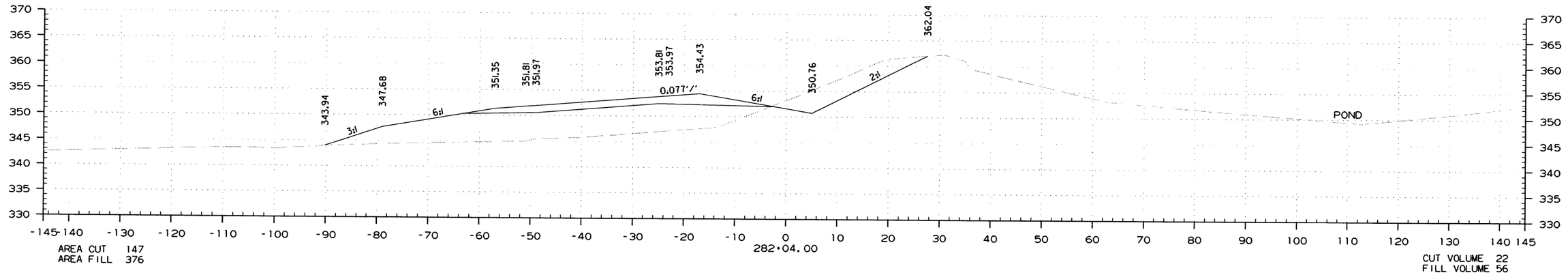
HWY. 412
STA. 279+40.00 TO STA. 280+00.00

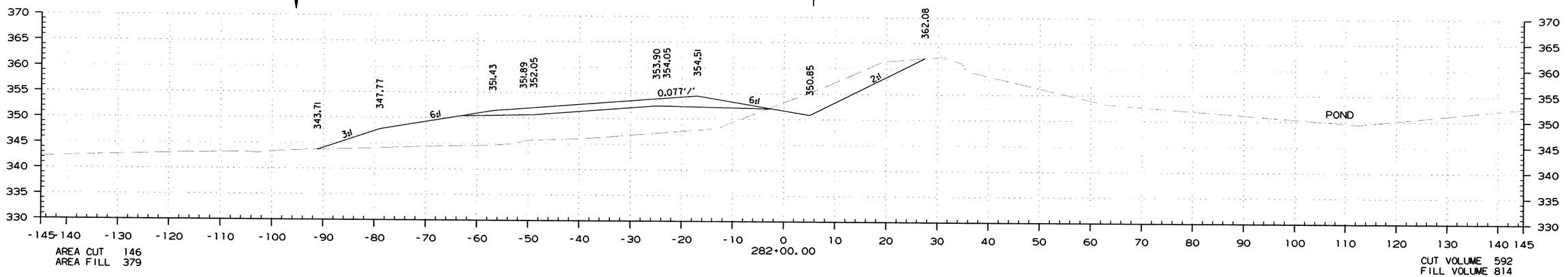
12/19/2016

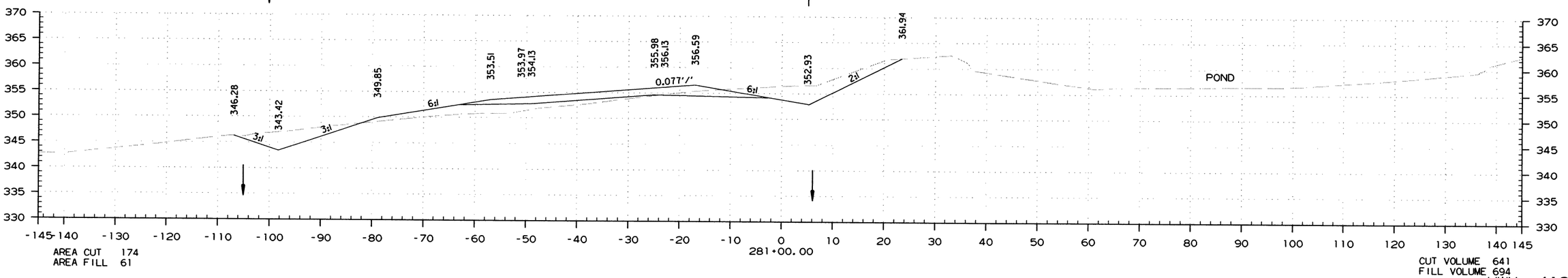
R100708.DGN

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.		100708	244	335

(2) CROSS SECTIONS







12/19/2016

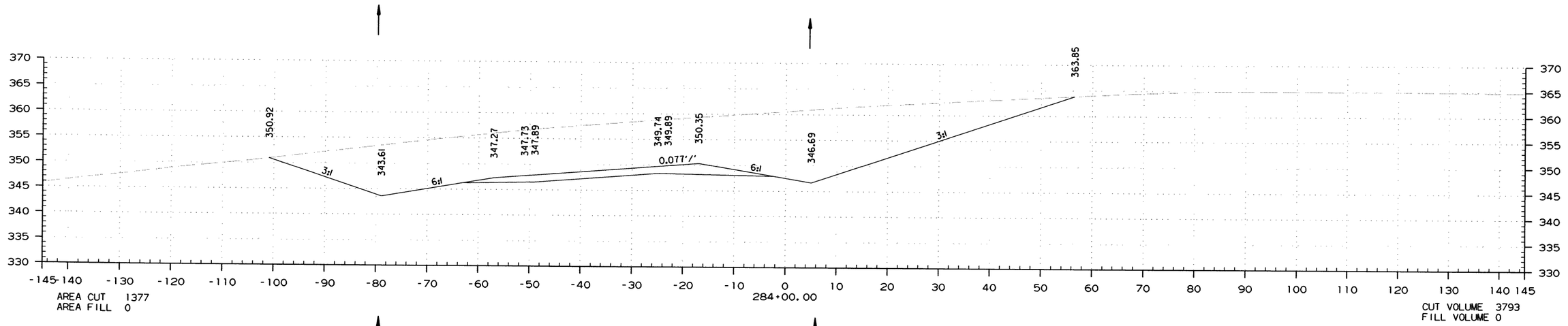
R100708.DGN

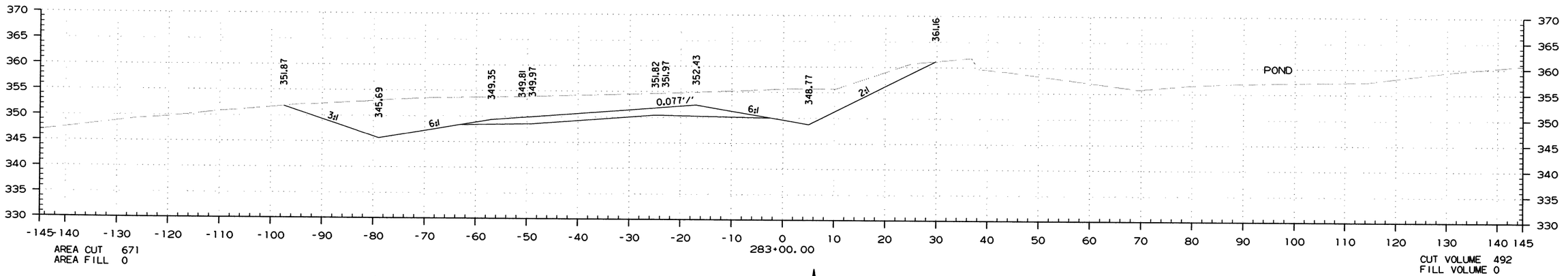
HWY. 412
STA. 281+00.00 TO STA. 282+04.00

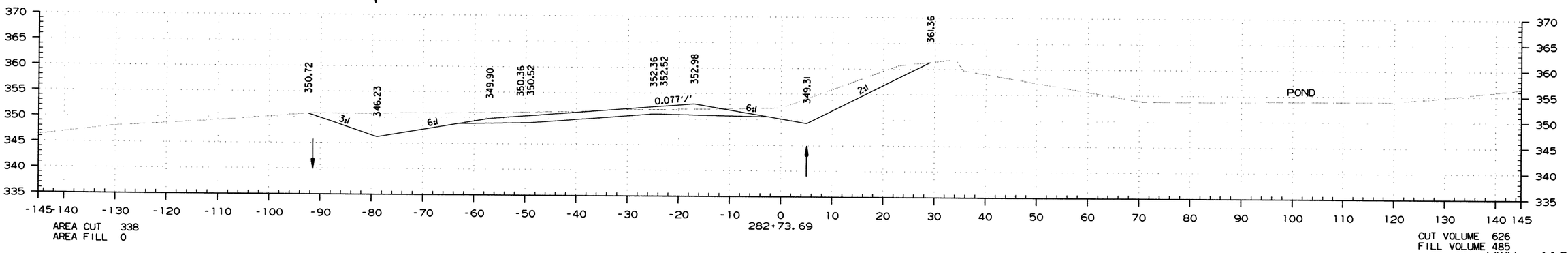
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	245	335

(2) CROSS SECTIONS







12/19/2016

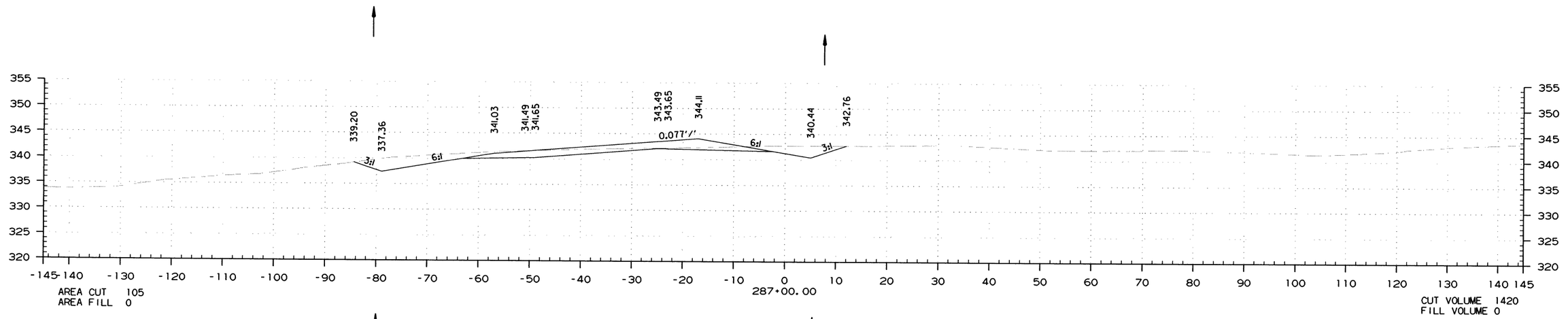
R100708.DGN

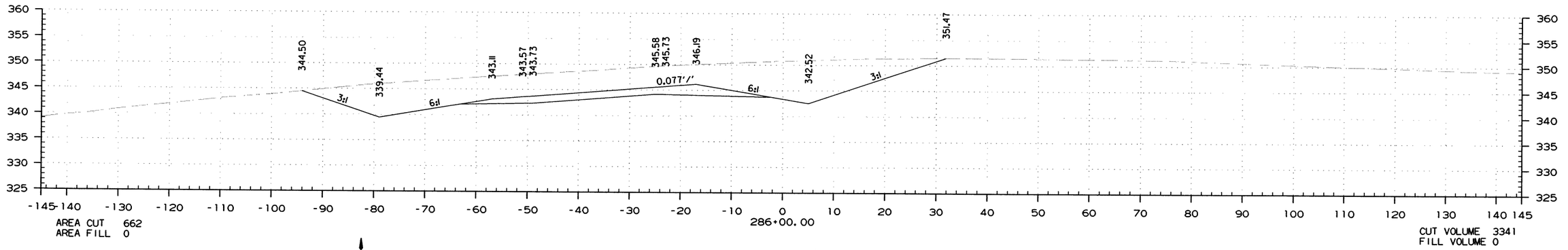
HWY. 412
STA. 282+73.69 TO STA. 284+00.00

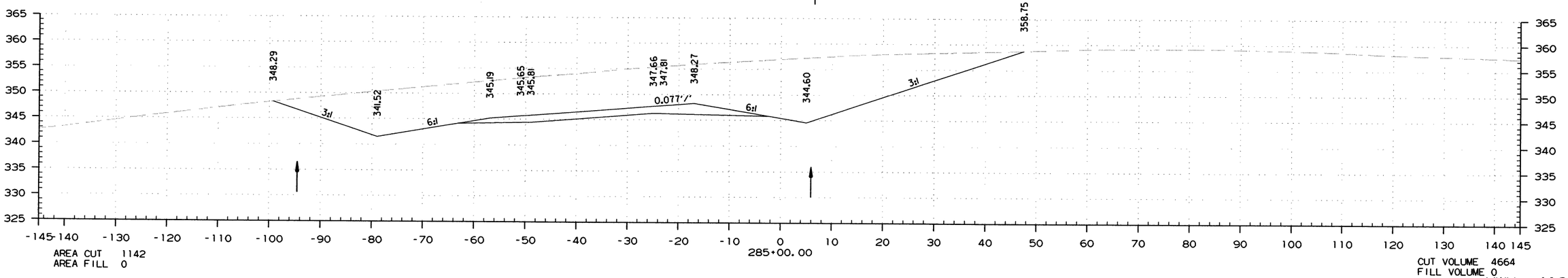
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	246	335

(2) CROSS SECTIONS







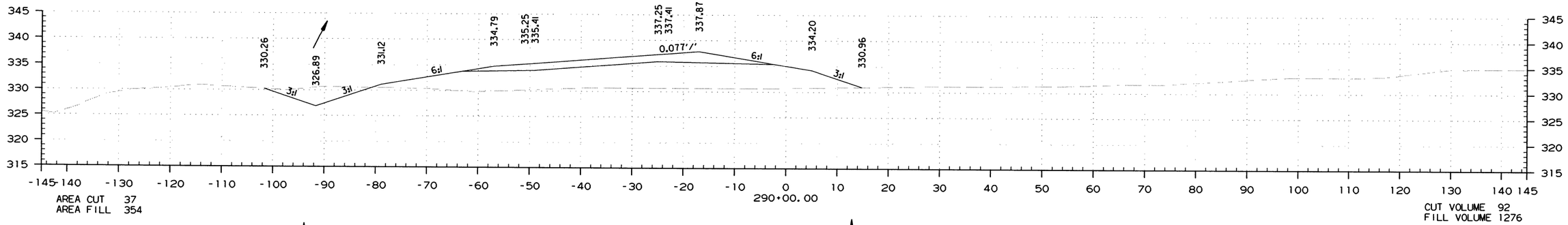
HWY. 412
STA. 285+00.00 TO STA. 287+00.00

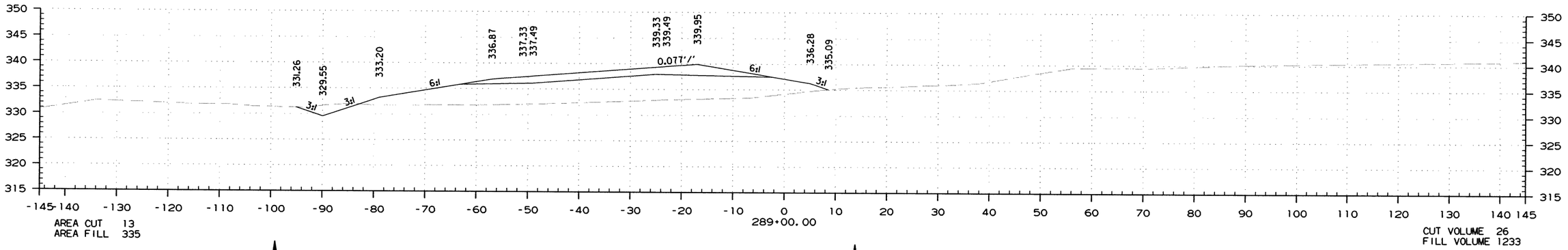
12/19/2016

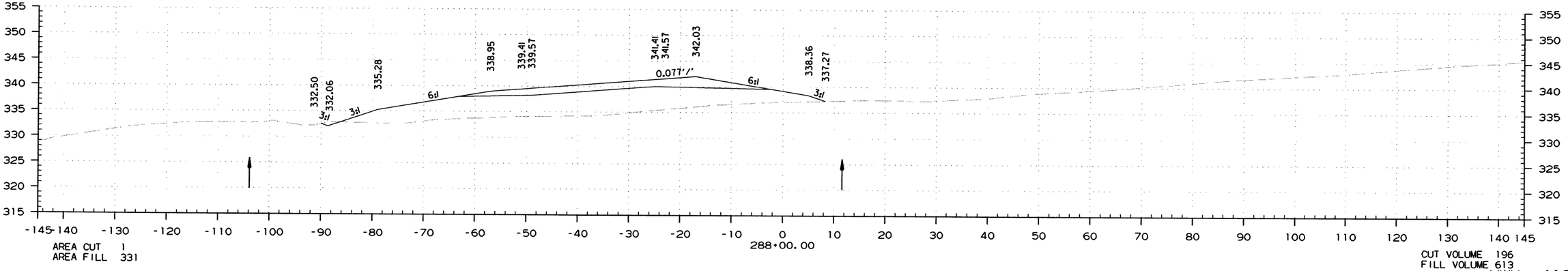
R100708.DGN

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.		100708	247	335

(2) CROSS SECTIONS







HWY. 412
STA. 288+00.00 TO STA. 290+00.00

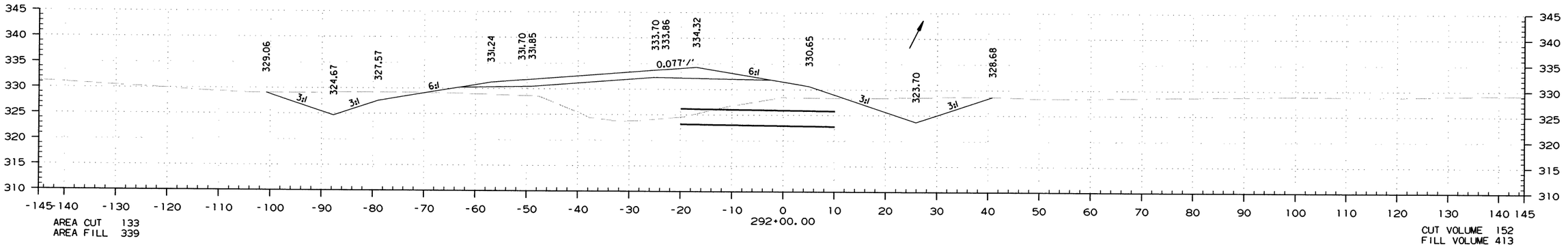
12/19/2016

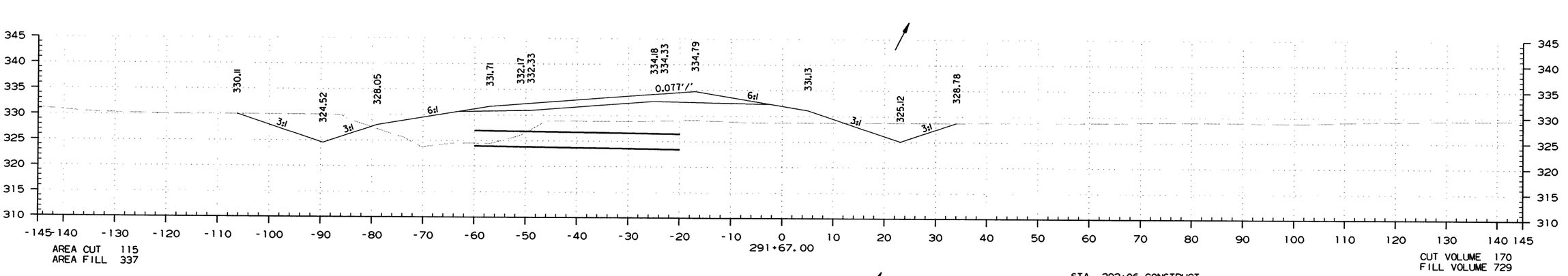
R100708.DGN

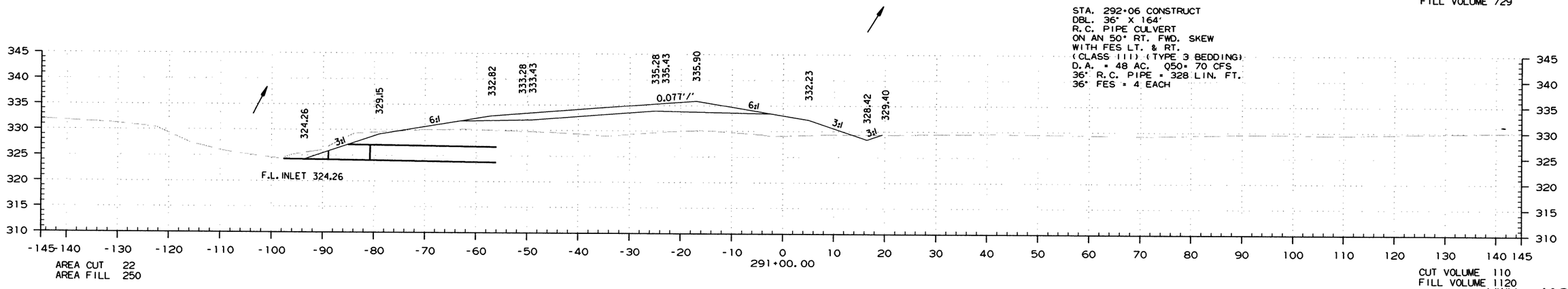
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		100708	248	335

(2) CROSS SECTIONS







STA. 292+06 CONSTRUCT
DBL. 36" X 164'
R.C. PIPE CULVERT
ON AN 50° RT. FWD. SKEW
WITH FES LT. & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 48 AC. Q50= 70 CFS
36" R.C. PIPE = 328 LIN. FT.
36" FES = 4 EACH

12/19/2016

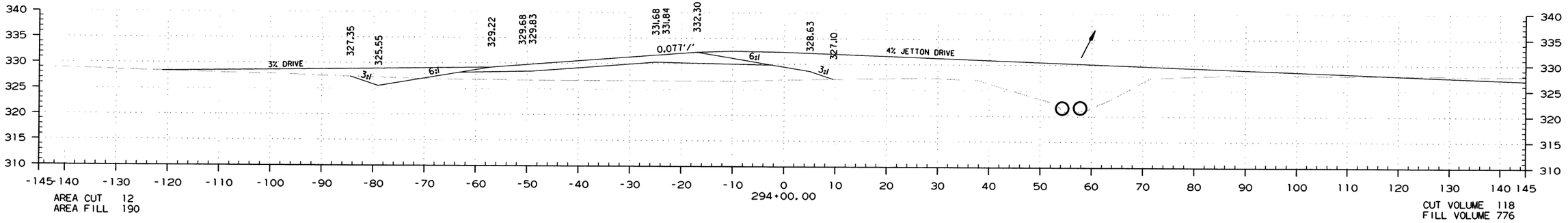
R100708.DGN

HWY. 412
STA. 291+00.00 TO STA. 292+00.00

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.		100708	249	335

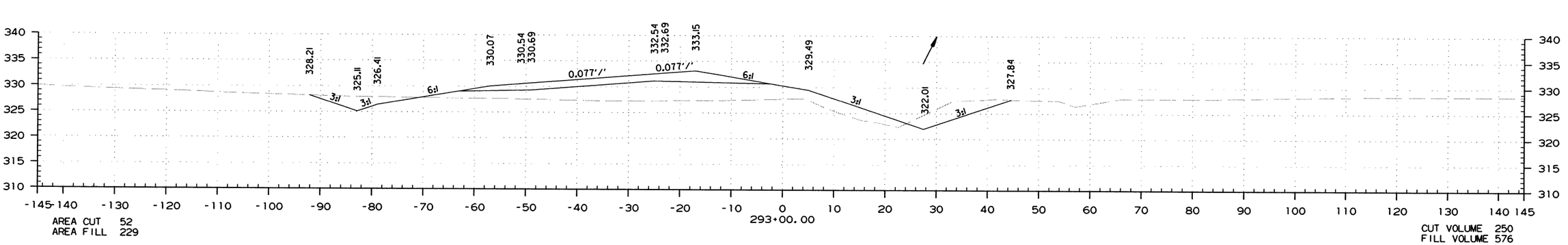
(2) CROSS SECTIONS

STA. 294+00 INSTALL
DBL. 36" x 82" PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 1270 CU. YDS.



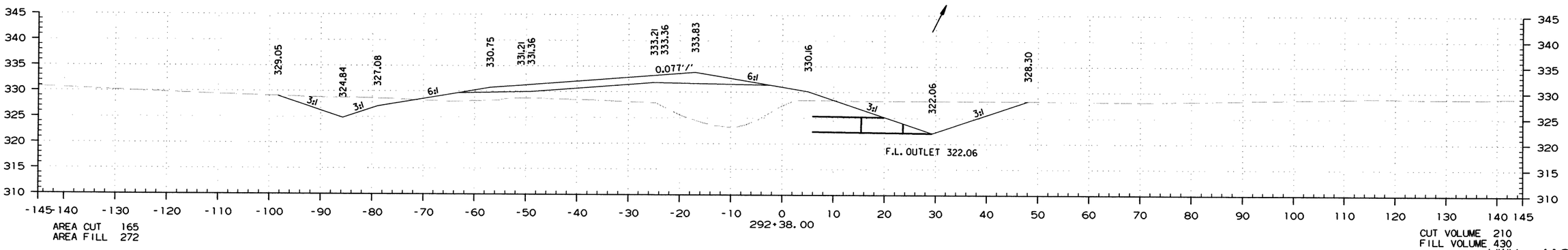
AREA CUT 12
AREA FILL 190

CUT VOLUME 118
FILL VOLUME 776



AREA CUT 52
AREA FILL 229

CUT VOLUME 250
FILL VOLUME 576



AREA CUT 165
AREA FILL 272

CUT VOLUME 210
FILL VOLUME 430

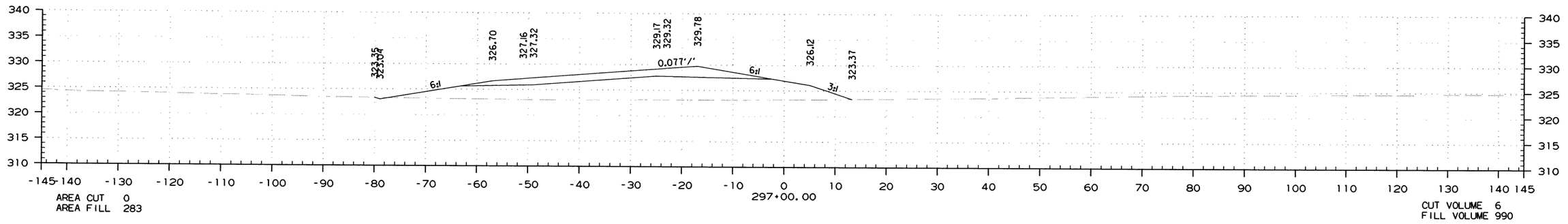
HWY. 412
STA. 292+38.00 TO STA. 294+00.00

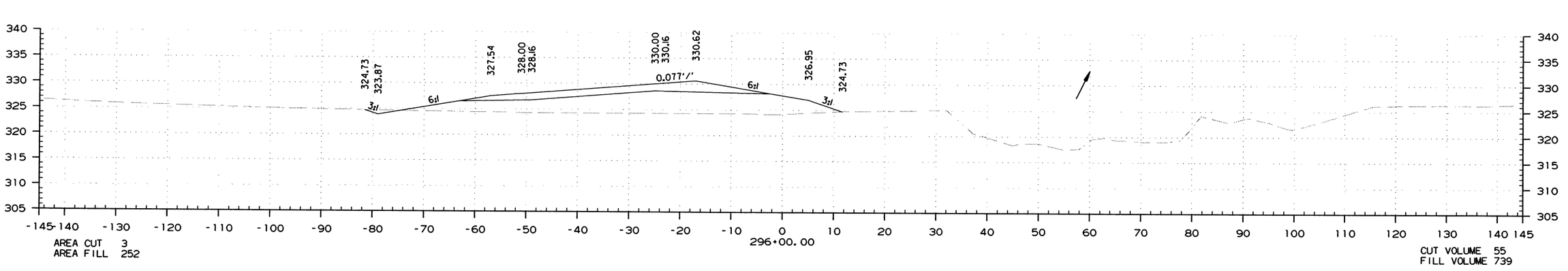
12/19/2016

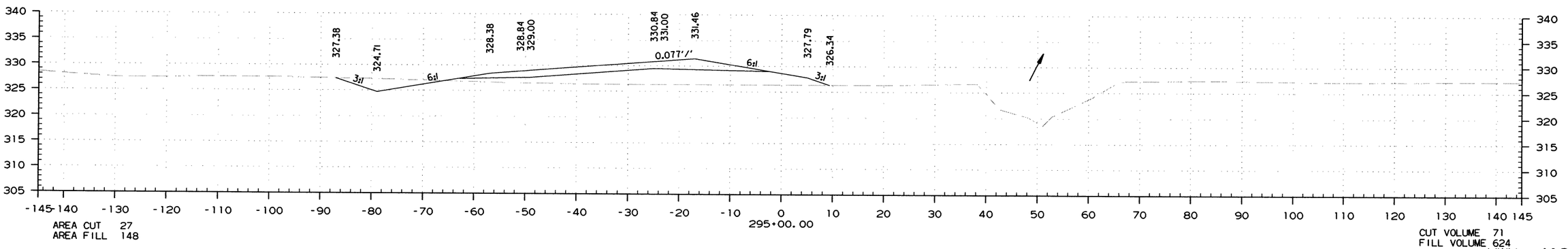
R100708.DGN

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.		100708	250	335

(2) CROSS SECTIONS







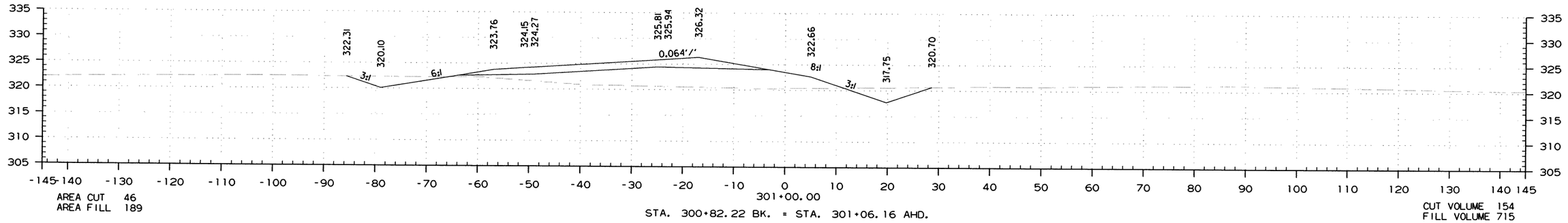
12/19/2016

R100708.DGN

HWY. 412
STA. 295+00.00 TO STA. 297+00.00

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.		100708	251	335

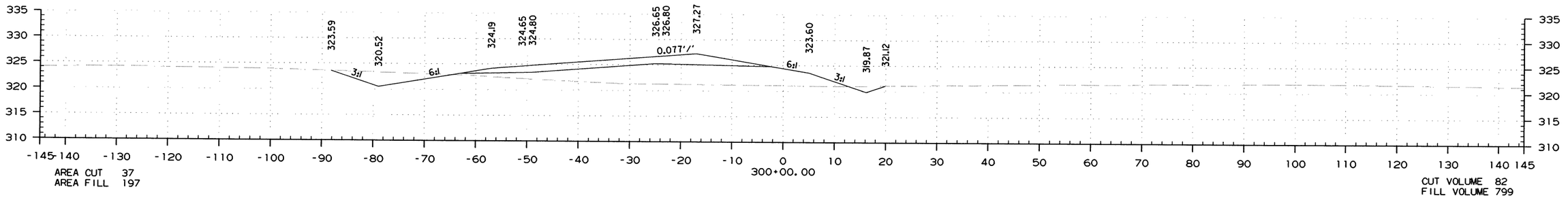
(2) CROSS SECTIONS



AREA CUT 46
AREA FILL 189

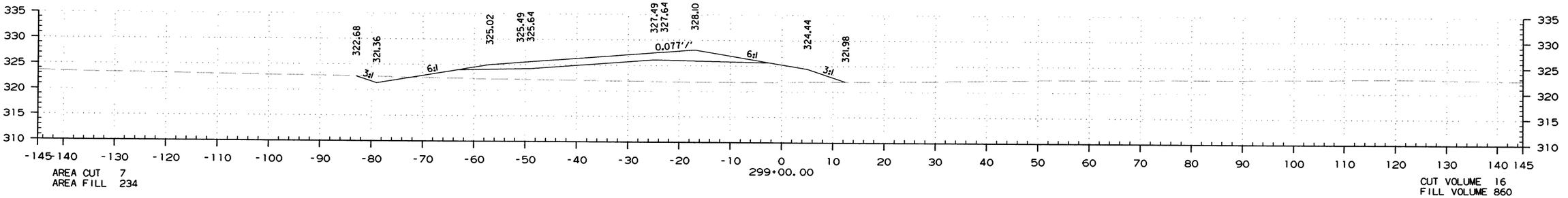
CUT VOLUME 154
FILL VOLUME 715

STA. 300+82.22 BK. = STA. 301+06.16 AHD.



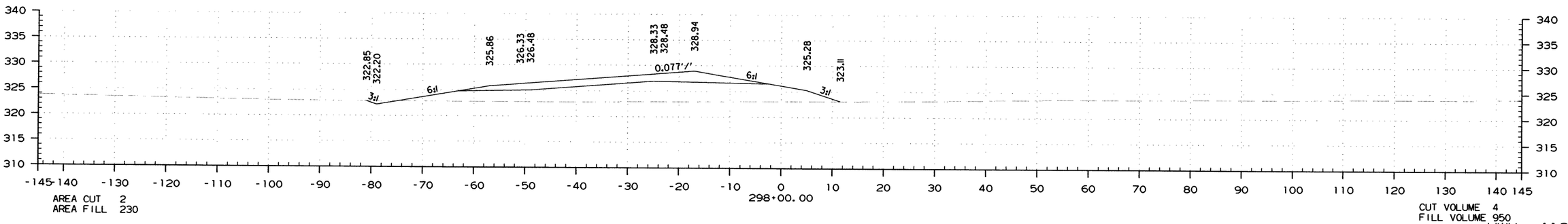
AREA CUT 37
AREA FILL 197

CUT VOLUME 82
FILL VOLUME 799



AREA CUT 7
AREA FILL 234

CUT VOLUME 16
FILL VOLUME 860



AREA CUT 2
AREA FILL 230

CUT VOLUME 4
FILL VOLUME 950

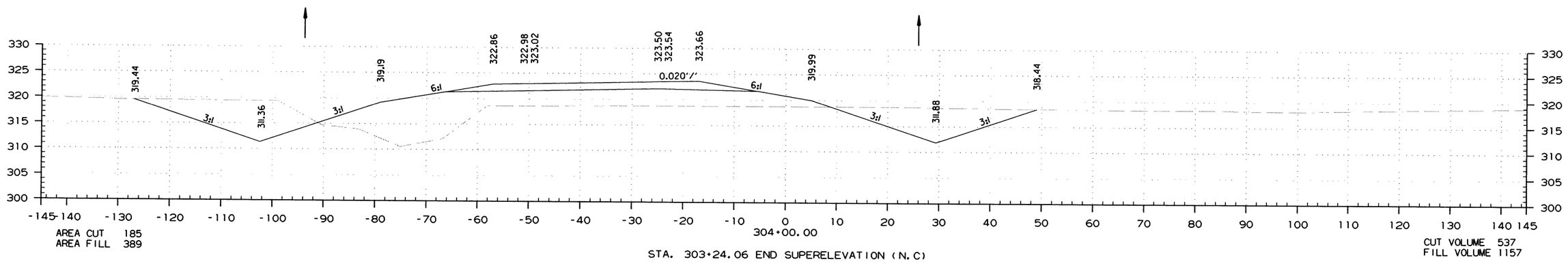
HWY. 412
STA. 298+00.00 TO STA. 301+23.94

12/19/2016

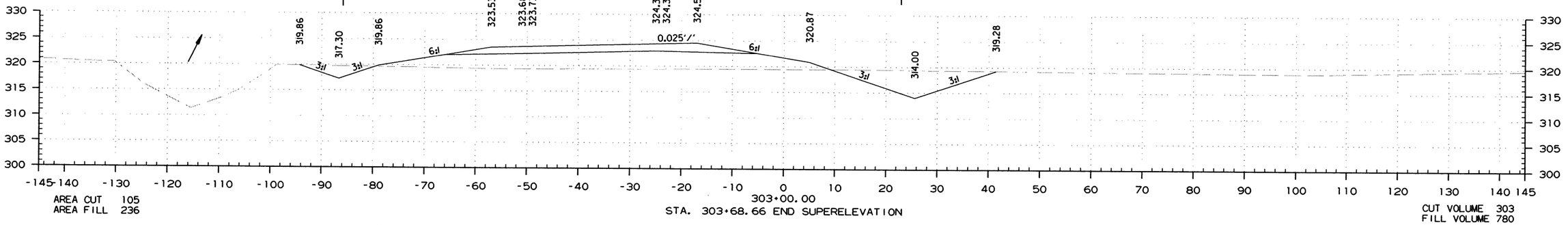
R100708.DGN

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.		100708	252	335

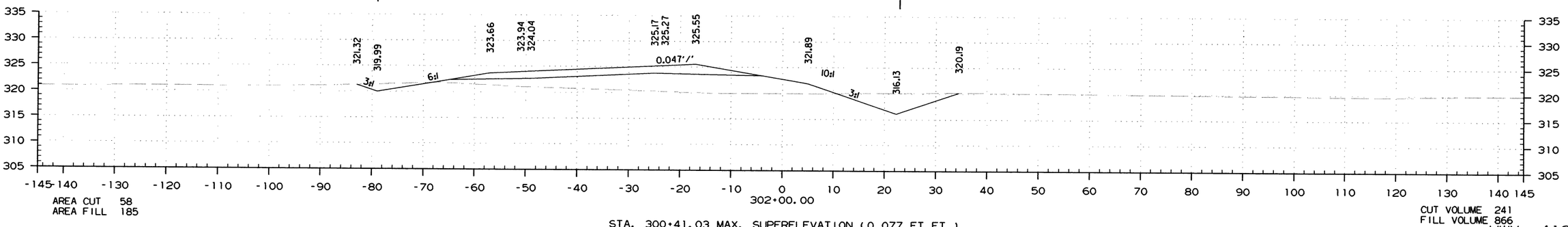
(2) CROSS SECTIONS



STA. 303+24.06 END SUPERELEVATION (N.C)



STA. 303+68.66 END SUPERELEVATION



STA. 300+41.03 MAX. SUPERELEVATION (0.077 FT.FT.)

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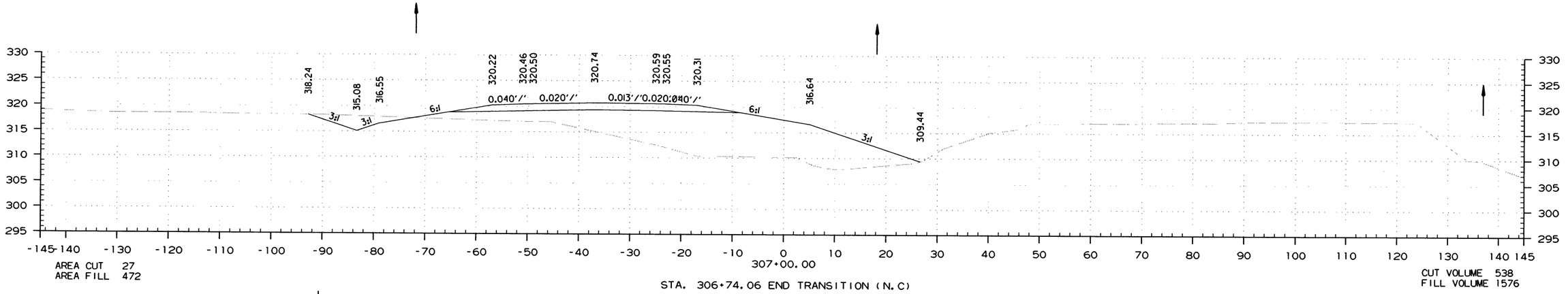
R100708.DGN

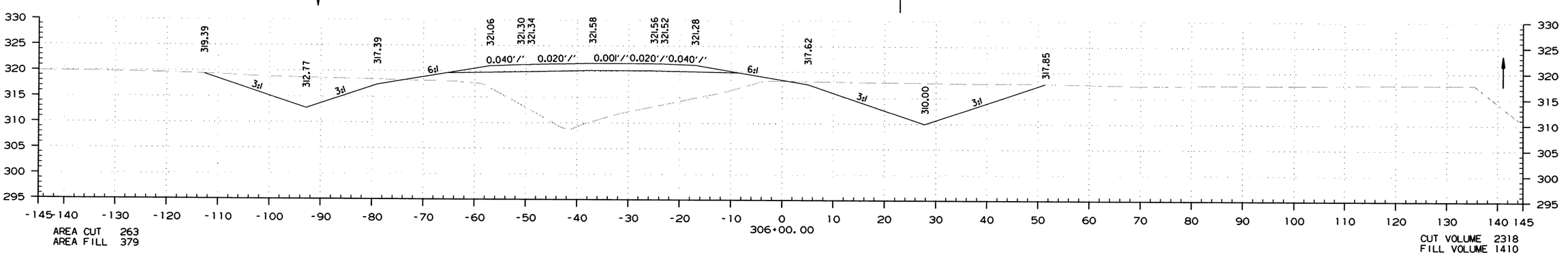
HWY. 412
STA. 302+00.00 TO STA. 304+00.00

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.		100708	253	335

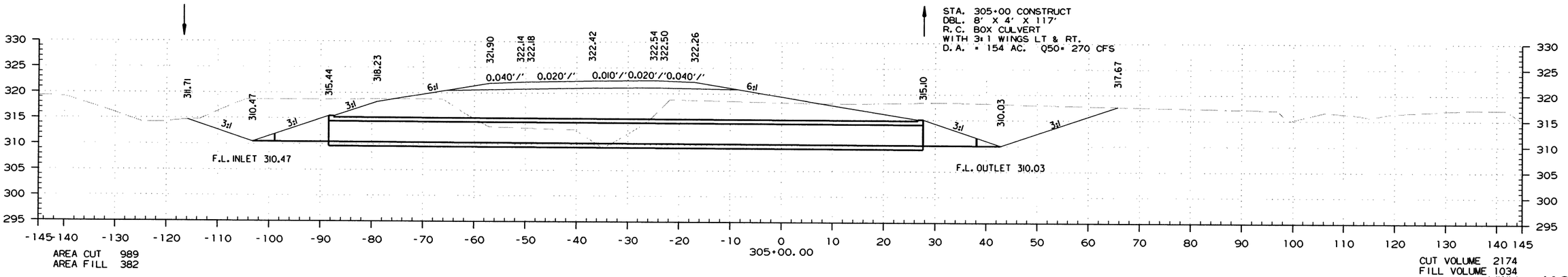
(2) CROSS SECTIONS



STA. 306+74.06 END TRANSITION (N.C)



STA. 305+00 CONSTRUCT
DBL. 8' X 4' X 117'
R.C. BOX CULVERT
WITH 3:1 WINGS LT & RT.
D.A. = 154 AC. Q50= 270 CFS



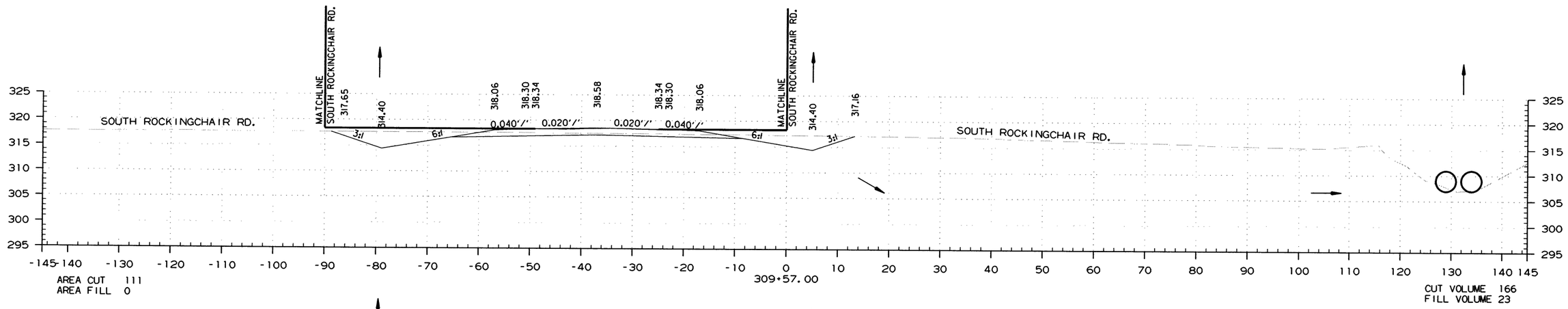
12/19/2016

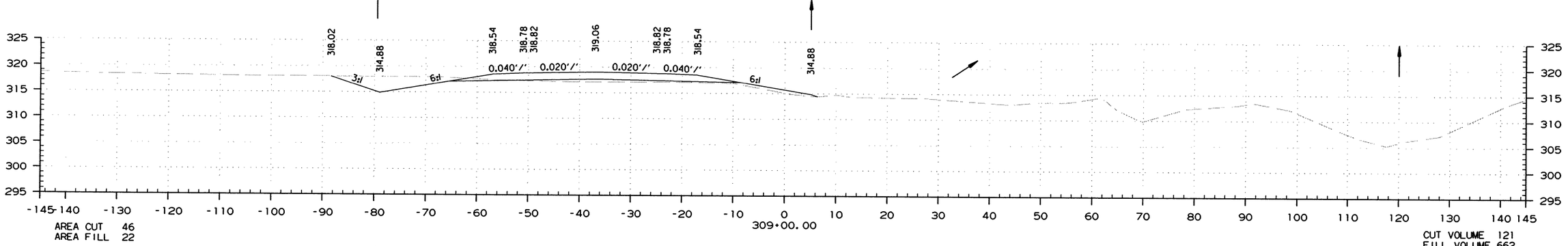
R100708.DGN

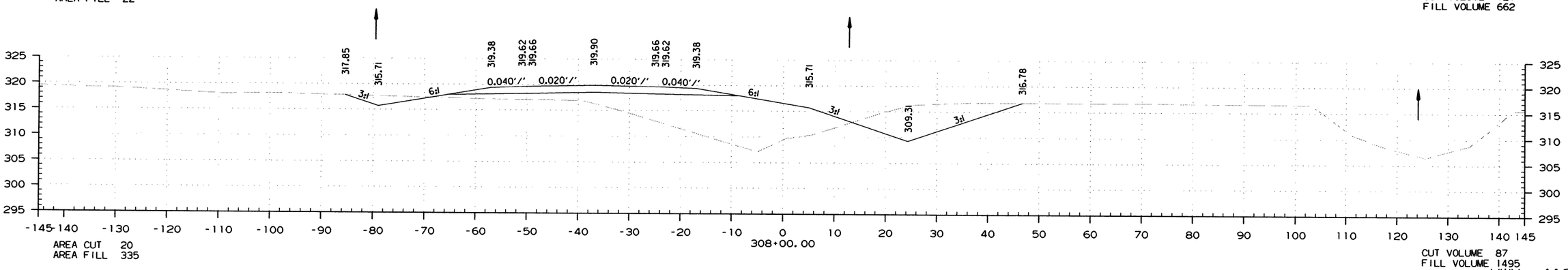
HWY. 412
STA. 305+00.00 TO STA. 307+00.00

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.		100708	254	335

(2) CROSS SECTIONS







HWY. 412
STA. 308+00.00 TO STA. 309+57.00

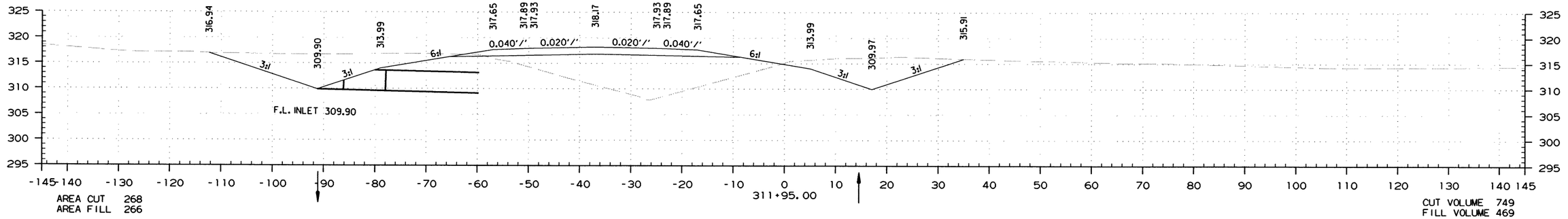
12/19/2016

R100708.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.		100708	255	335

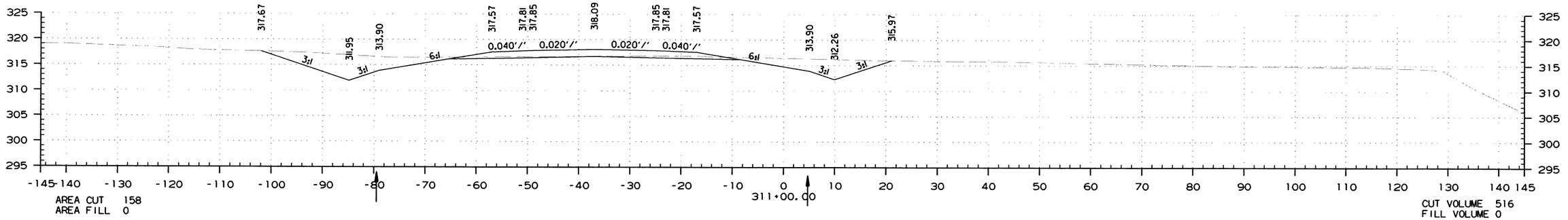
(2) CROSS SECTIONS

STA. 312+42 CONSTRUCT
DBL. 48" X 105'
R.C. PIPE CULVERT
ON AN 35° RT. FWD. SKEW
WITH FES LT. & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 90 AC. Q50= 180 CFS
48" R.C. PIPE = 210 LIN. FT.
48" FES = 4 EACH



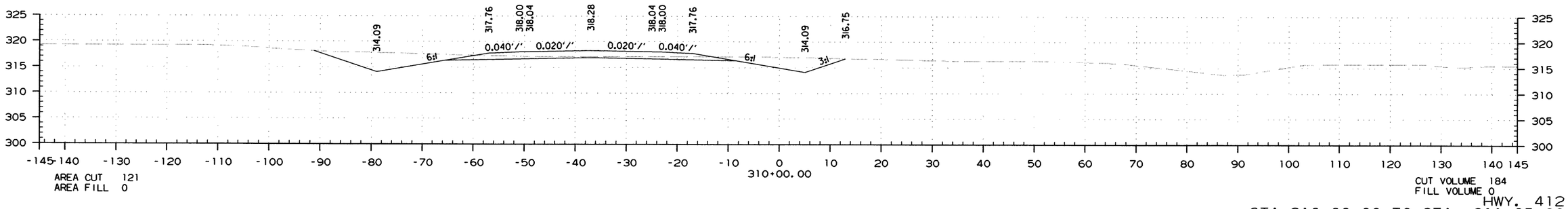
AREA CUT 268
AREA FILL 266

CUT VOLUME 749
FILL VOLUME 469



AREA CUT 158
AREA FILL 0

CUT VOLUME 516
FILL VOLUME 0



AREA CUT 121
AREA FILL 0

CUT VOLUME 184
FILL VOLUME 0

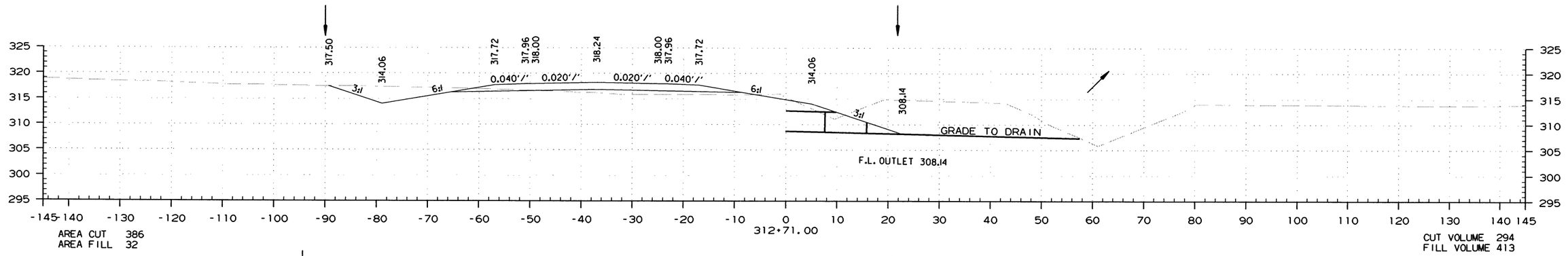
12/19/2016

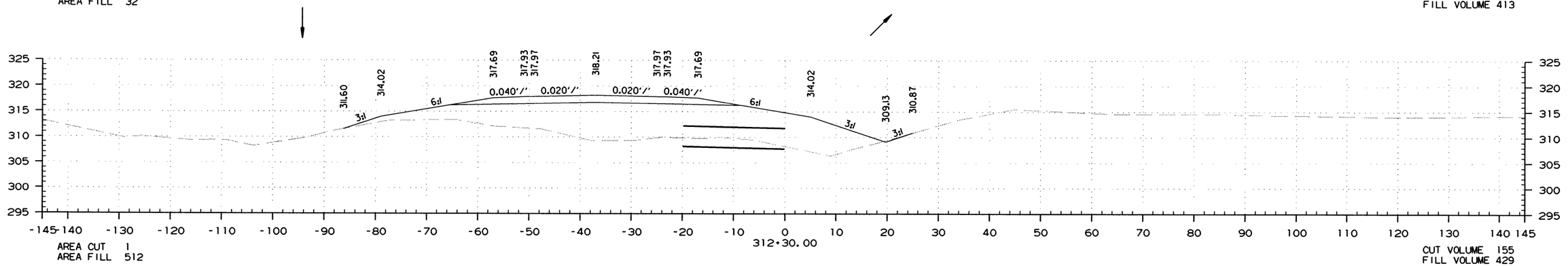
R100708.DGN

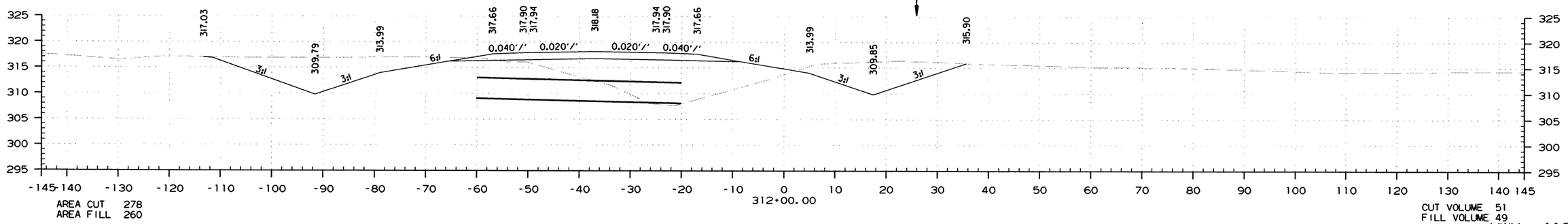
HWY. 412
STA. 310+00.00 TO STA. 311+95.00

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.		100708	256	335

(2) CROSS SECTIONS







12/19/2016

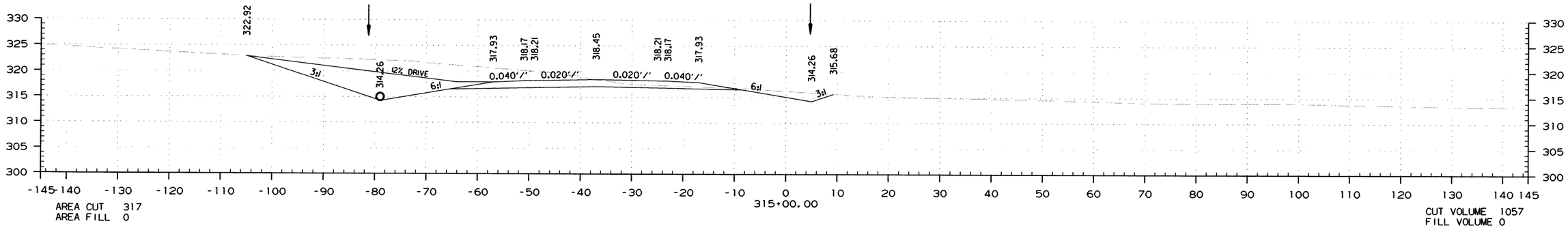
R100708.DGN

HWY. 412
STA. 312+00.00 TO STA. 312+71.00

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.		100708	257	335

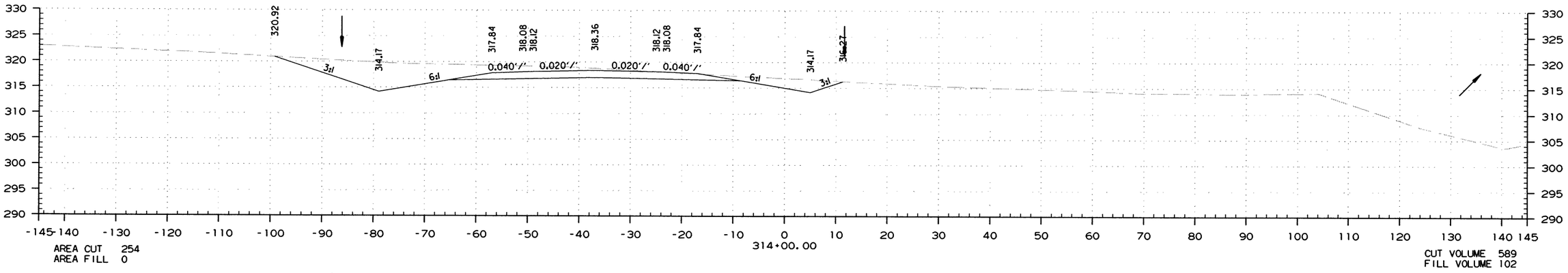
(2) CROSS SECTIONS

STA. 315+00 INSTALL
18" x 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 190 CU. YDS.



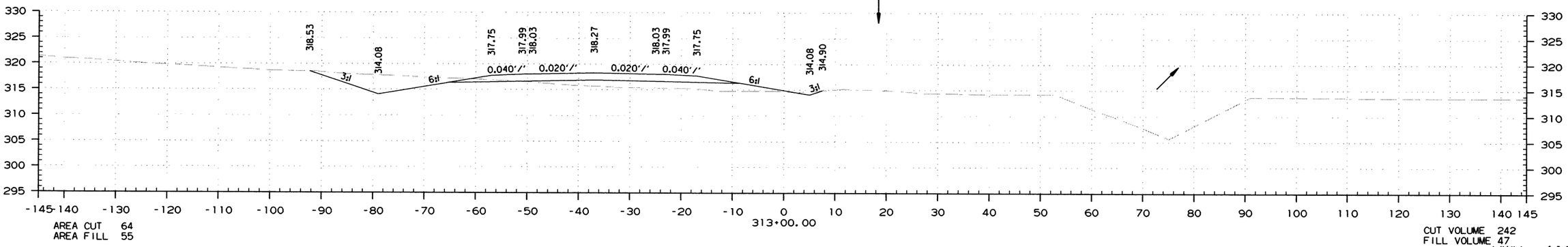
AREA CUT 317
AREA FILL 0

CUT VOLUME 1057
FILL VOLUME 0



AREA CUT 254
AREA FILL 0

CUT VOLUME 589
FILL VOLUME 102



AREA CUT 64
AREA FILL 55

CUT VOLUME 242
FILL VOLUME 47

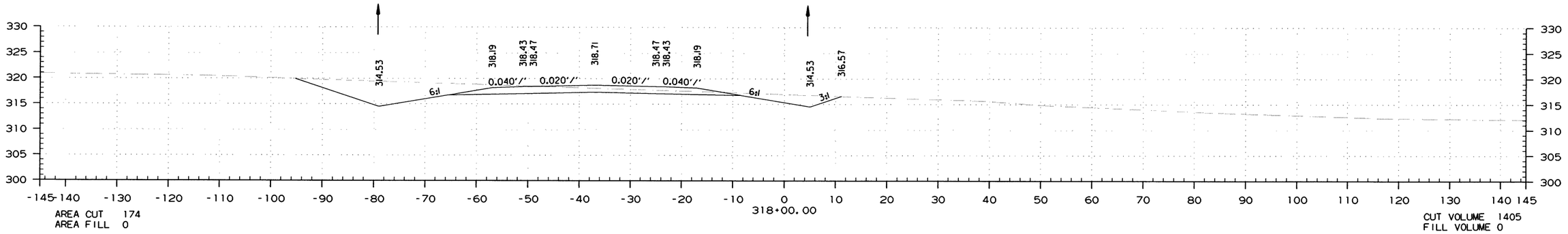
HWY. 412
STA. 313+00.00 TO STA. 315+00.00

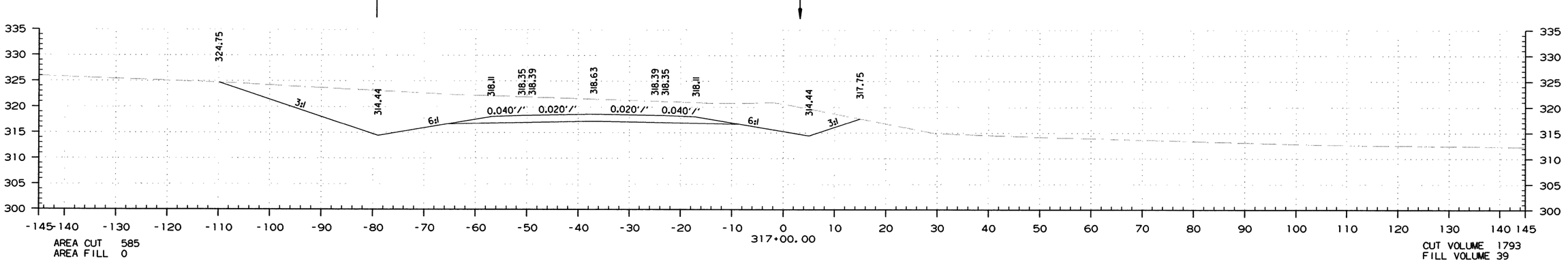
12/19/2016

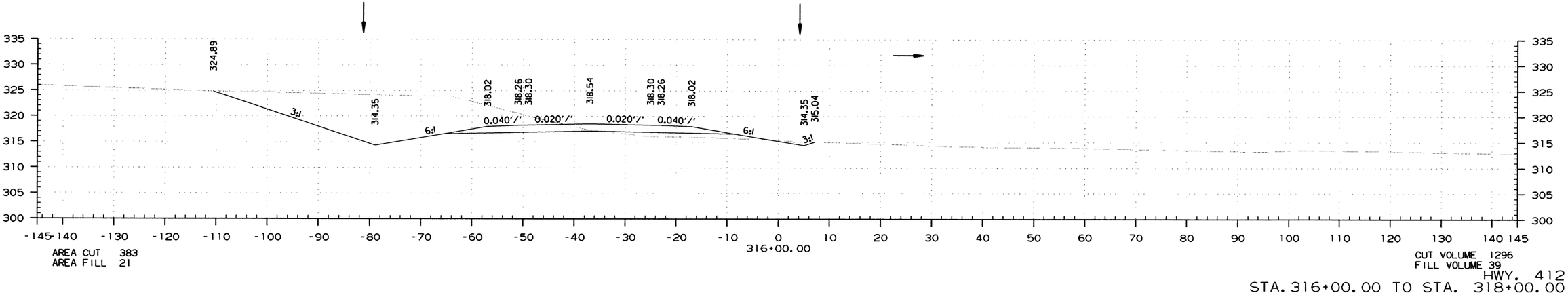
R100708.DGN

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.		100708	258	335

(2) CROSS SECTIONS







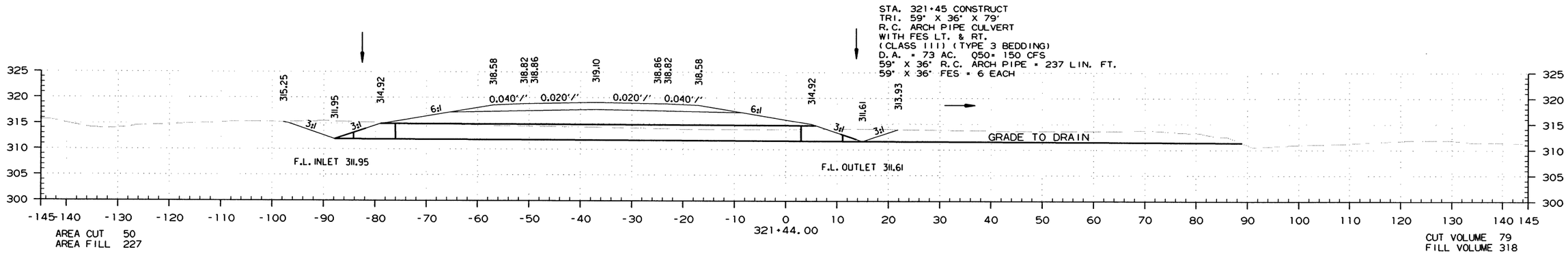
HWY. 412
STA. 316+00.00 TO STA. 318+00.00

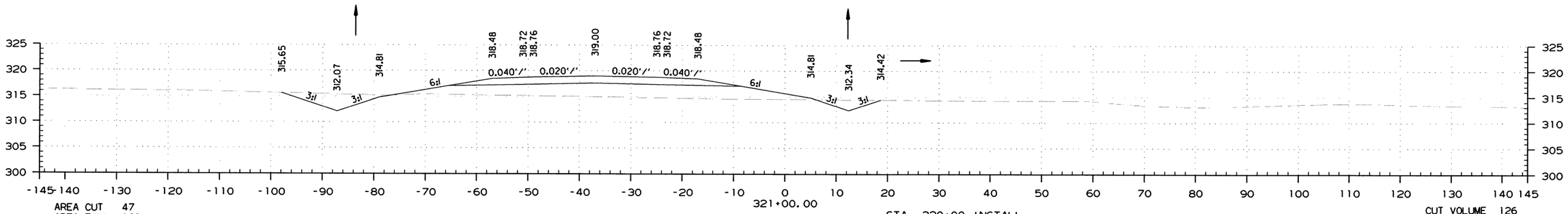
12/19/2016

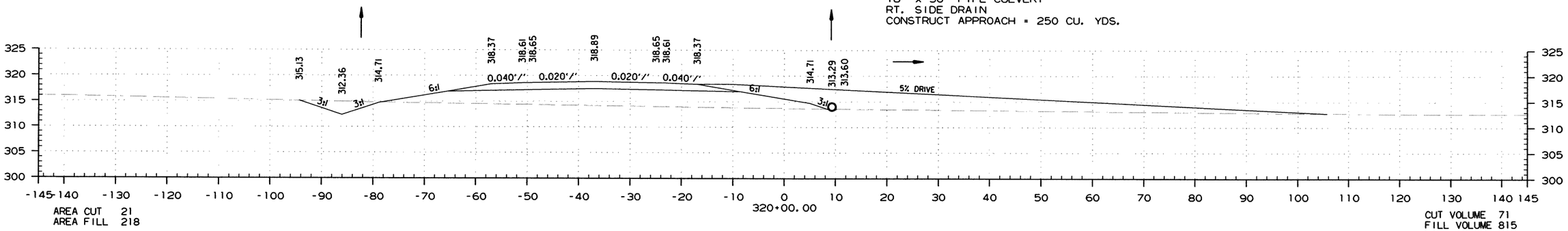
R100708.DGN

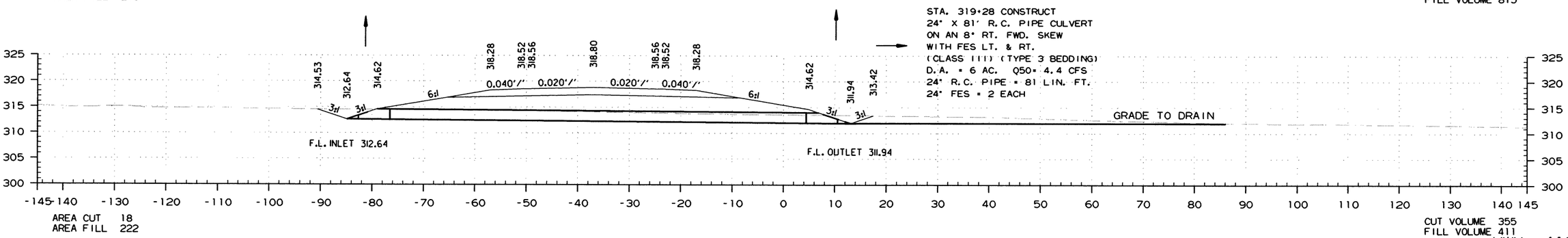
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	259	335

(2) CROSS SECTIONS









12/19/2016

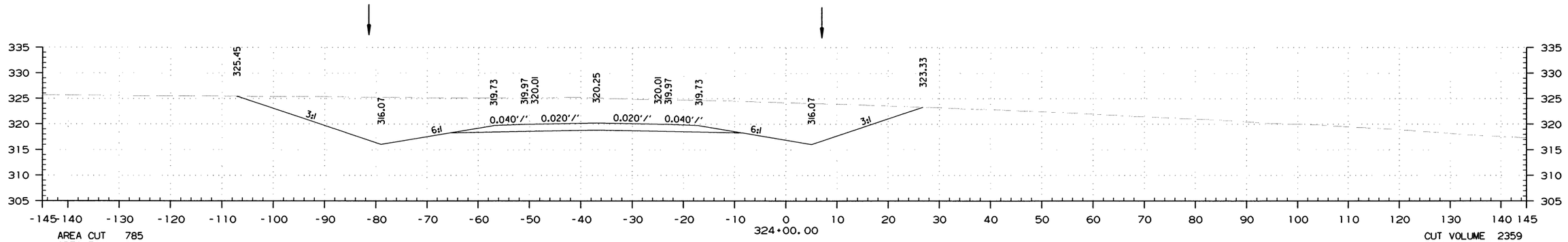
R100708.DGN

HWY. 412

STA. 319+00.00 TO STA. 321+44.00

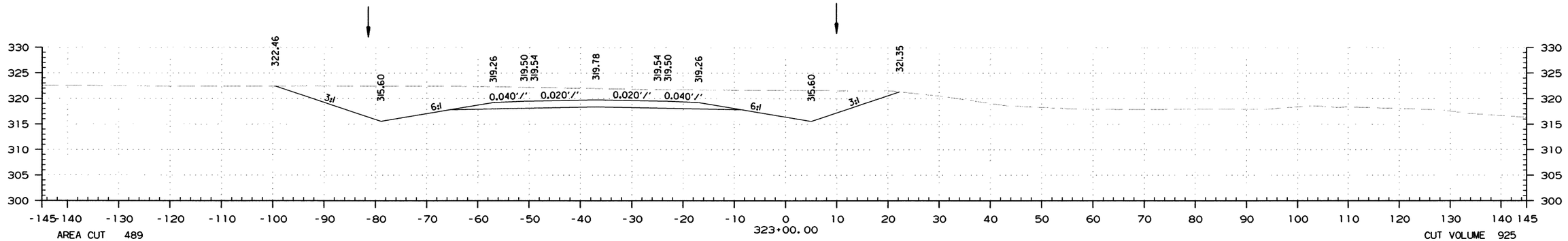
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	260	335

(2) CROSS SECTIONS



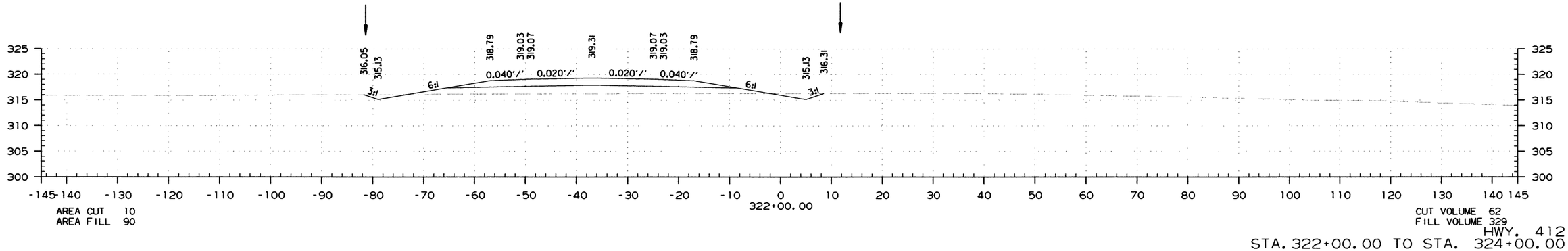
AREA CUT 785
AREA FILL 0

CUT VOLUME 2359
FILL VOLUME 0



AREA CUT 489
AREA FILL 0

CUT VOLUME 925
FILL VOLUME 167



AREA CUT 10
AREA FILL 90

CUT VOLUME 62
FILL VOLUME 329

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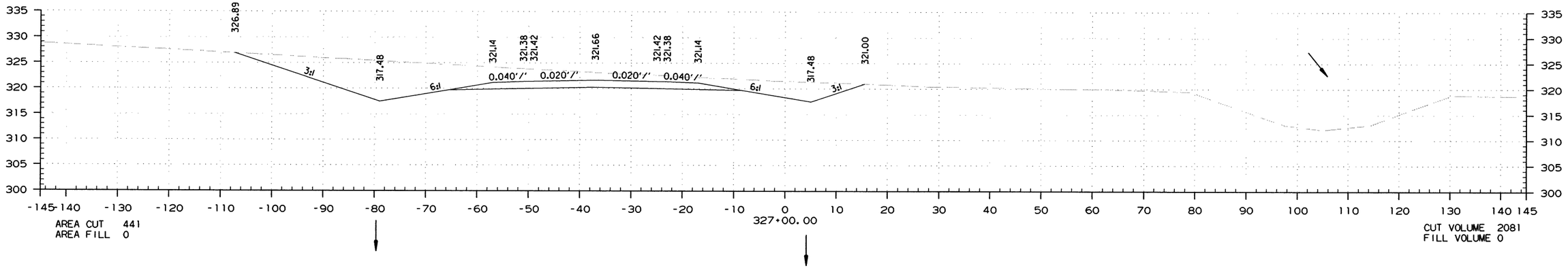
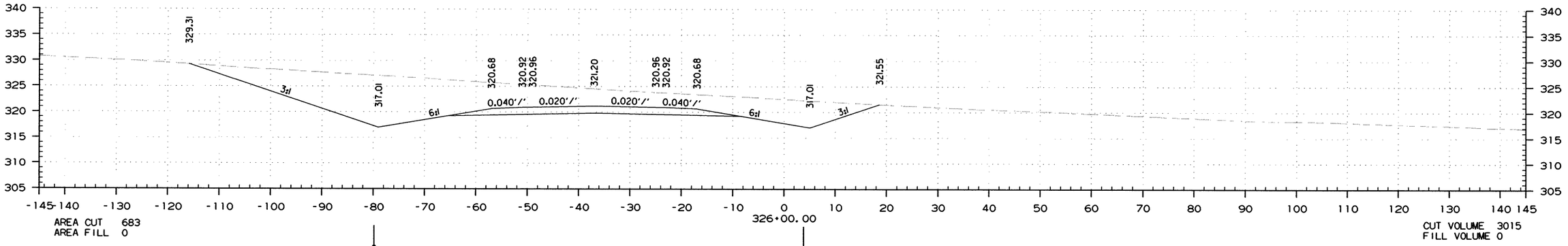
R100708.DGN

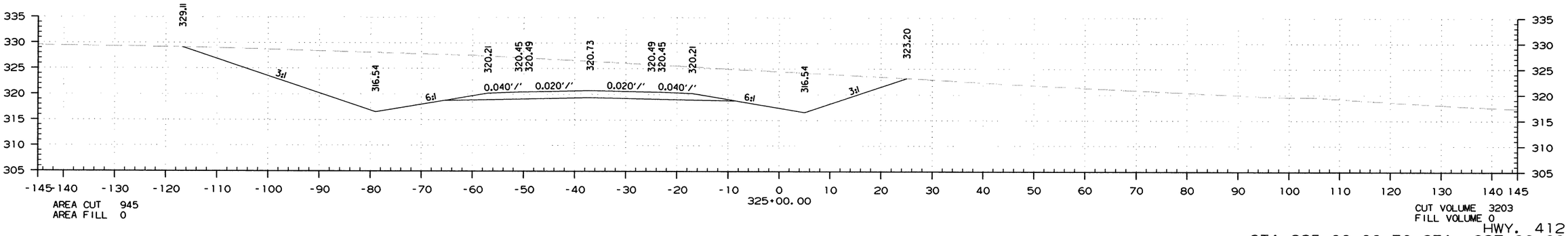
HWY. 412
STA. 322+00.00 TO STA. 324+00.00

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.		100708	261	335

(2) CROSS SECTIONS







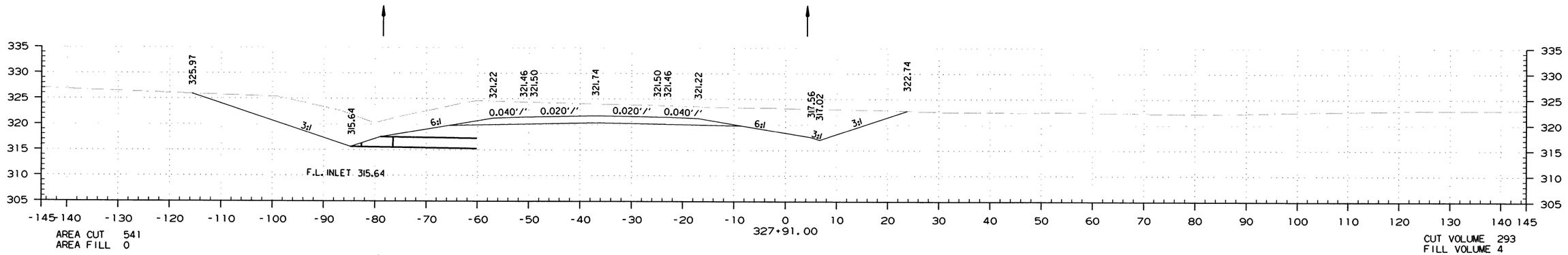
12/19/2016

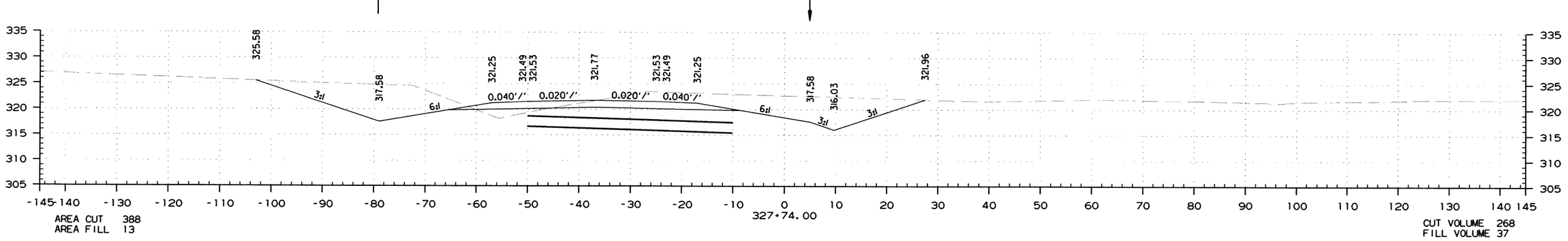
R100708.DGN

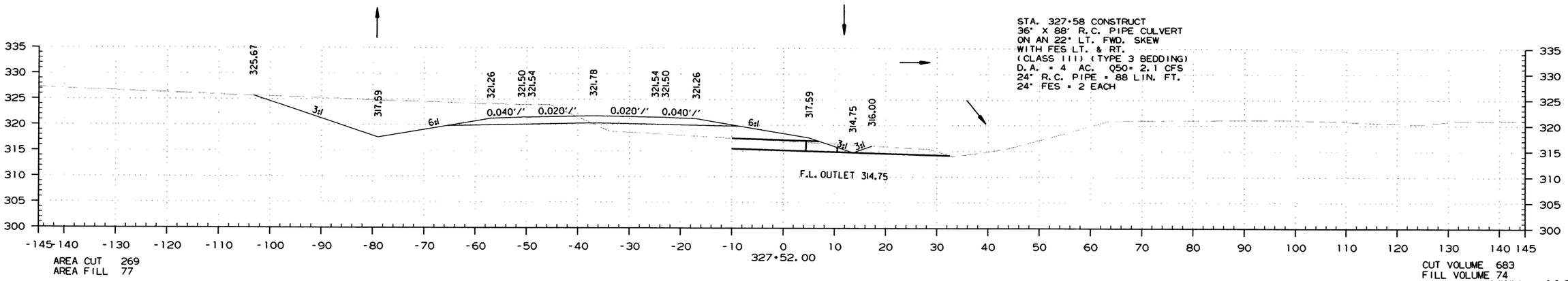
HWY. 412
STA. 325+00.00 TO STA. 327+00.00

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.		100708	262	335

(2) CROSS SECTIONS







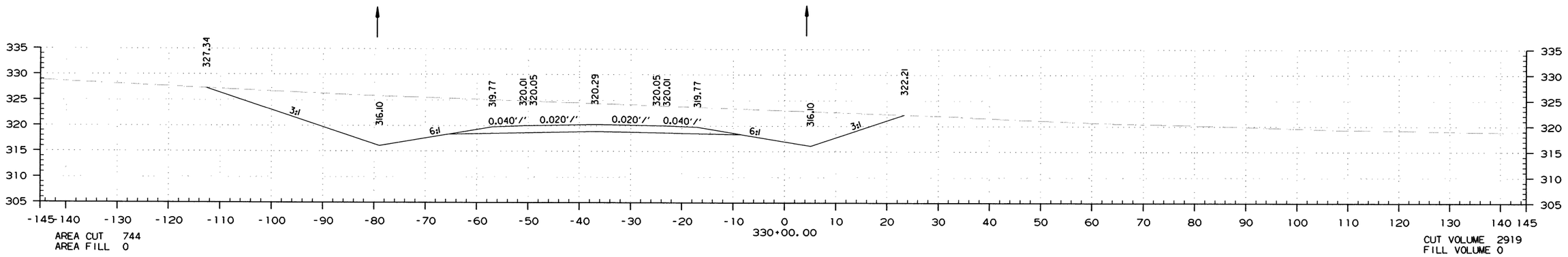
HWY. 412
STA. 327+52.00 TO STA. 327+91.00

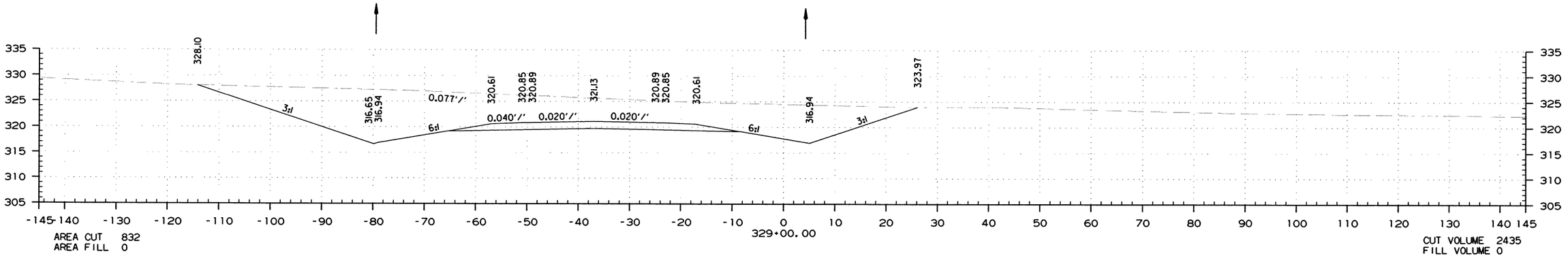
12/19/2016

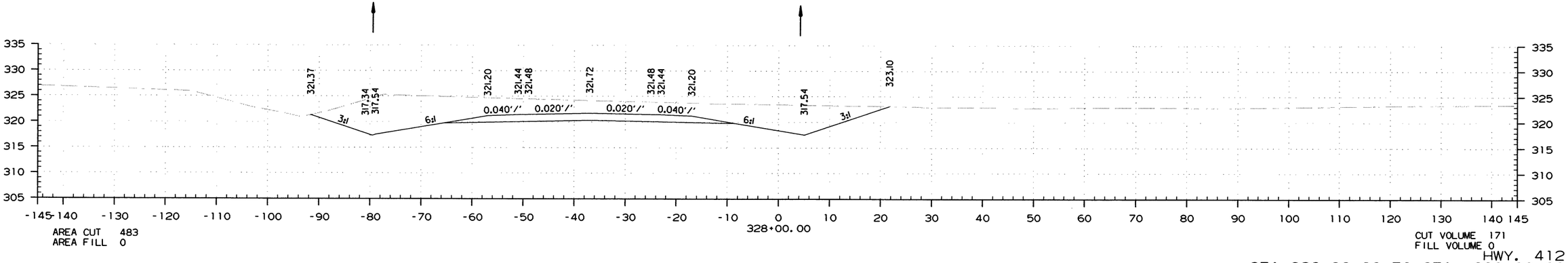
R100708.DGN

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.		100708	263	335

(2) CROSS SECTIONS







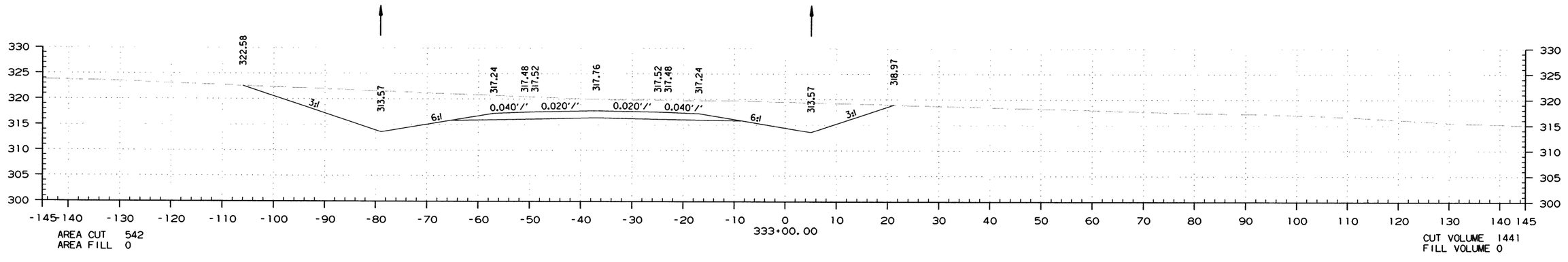
HWY. 412
STA. 328+00.00 TO STA. 330+00.00

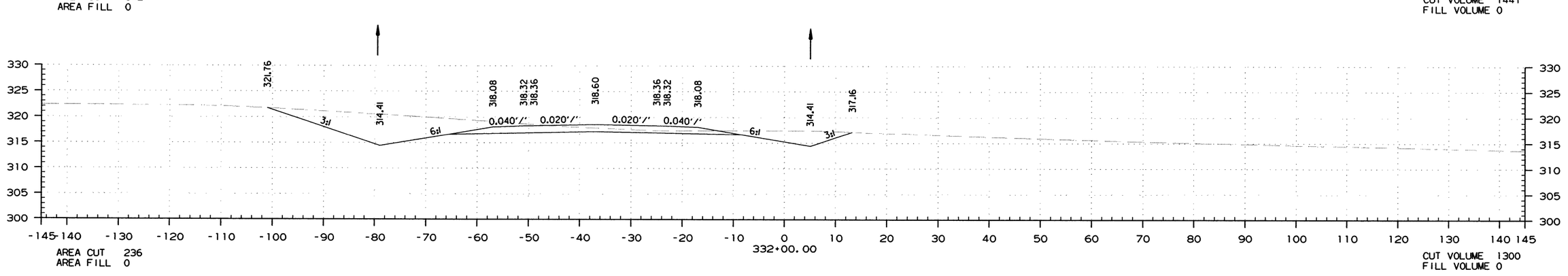
12/19/2016

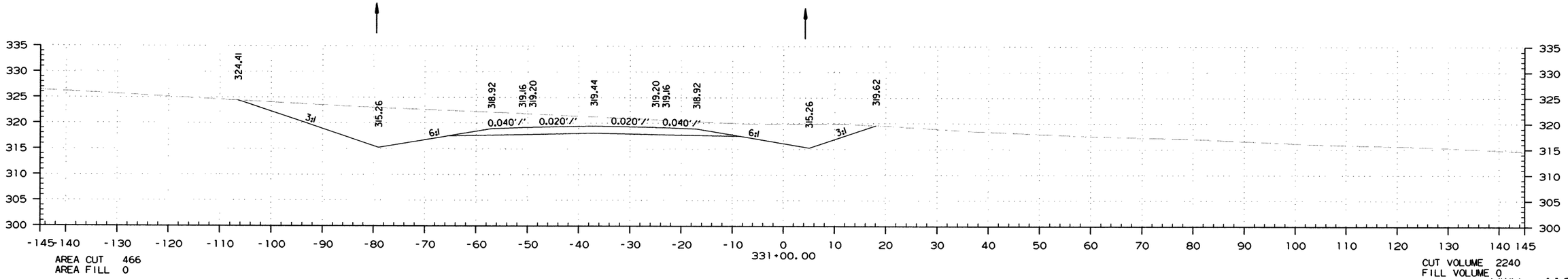
R100708.DGN

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.		100708	264	335

(2) CROSS SECTIONS







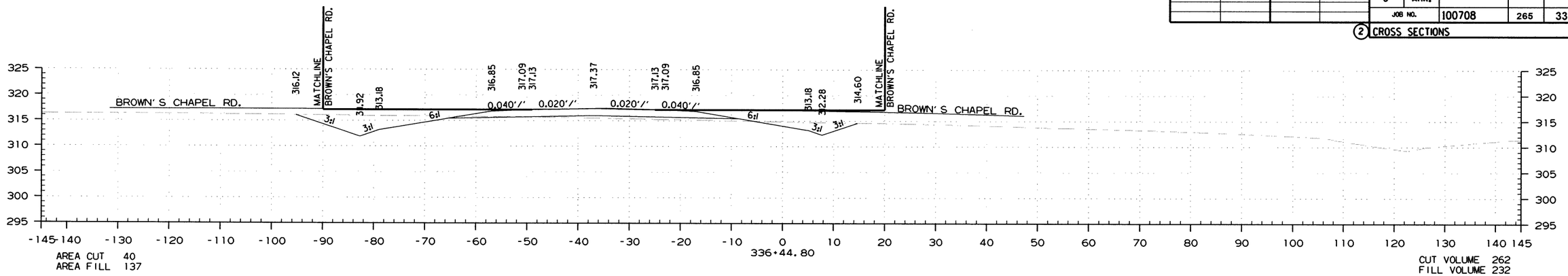
HWY. 412
STA. 331+00.00 TO STA. 333+00.00

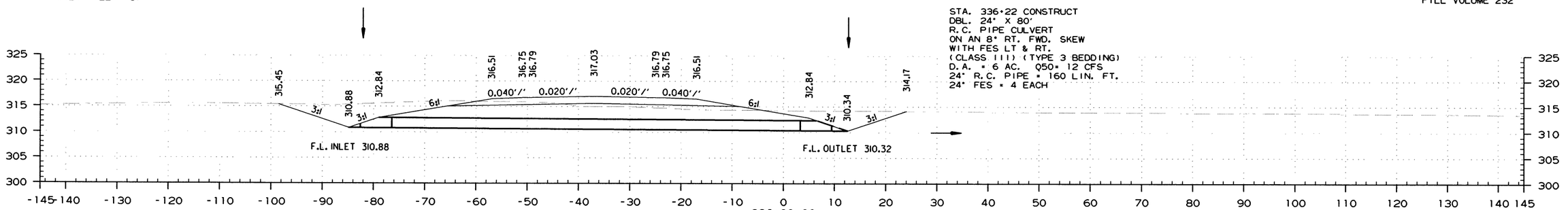
12/19/2016

R100708.DGN

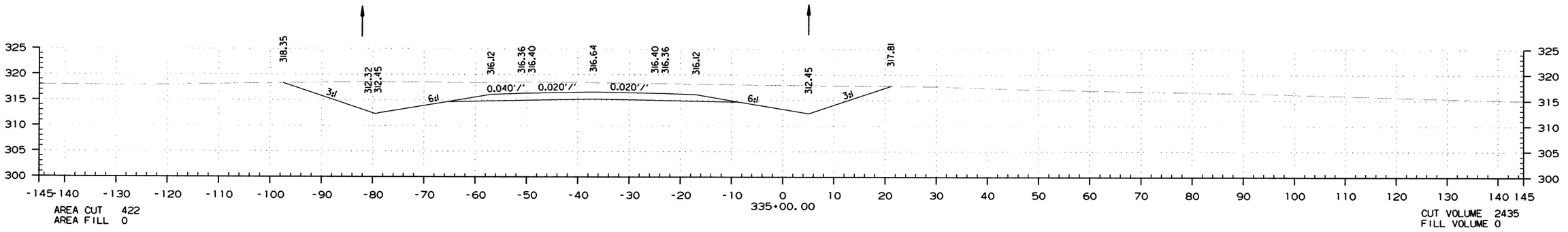
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	265	335

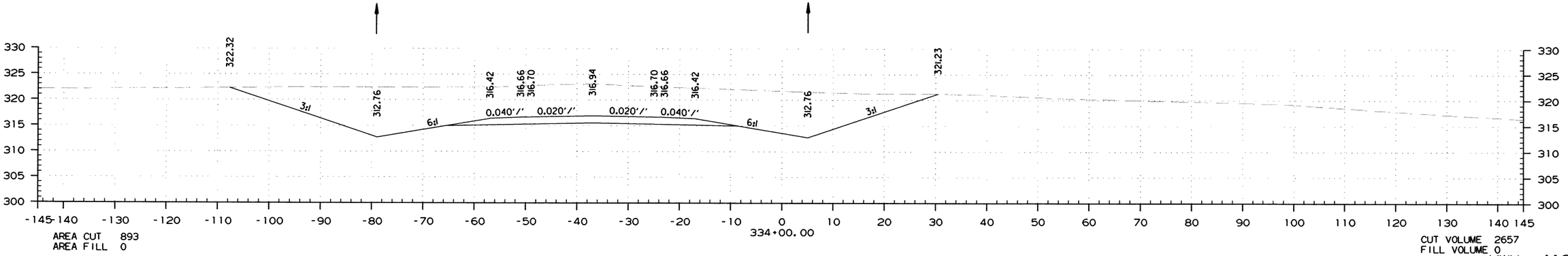
(2) CROSS SECTIONS





STA. 336+22 CONSTRUCT
DBL. 24" X 80'
R.C. PIPE CULVERT
ON AN 8° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 6 AC. Q50= 12 CFS
24" R.C. PIPE = 160 LIN. FT.
24" FES = 4 EACH





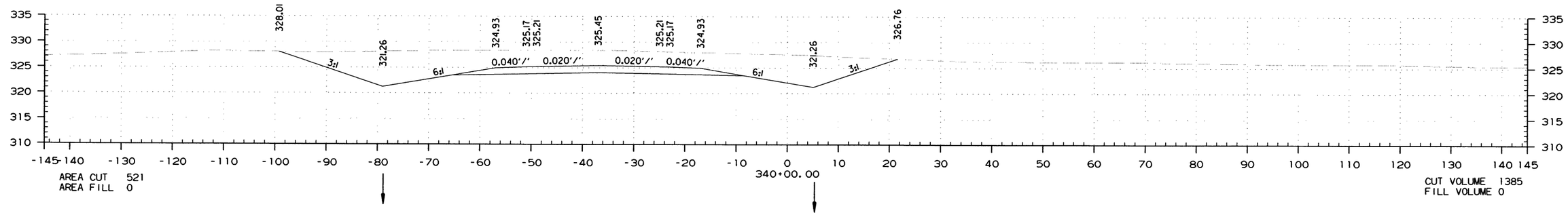
HWY. 412
STA. 334+00.00 TO STA. 336+36.23

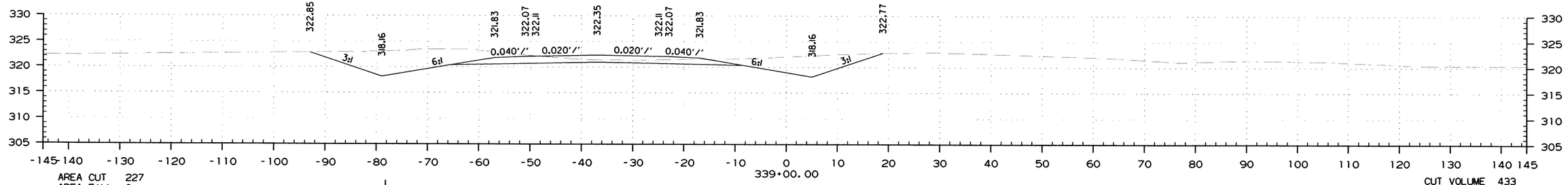
12/19/2016

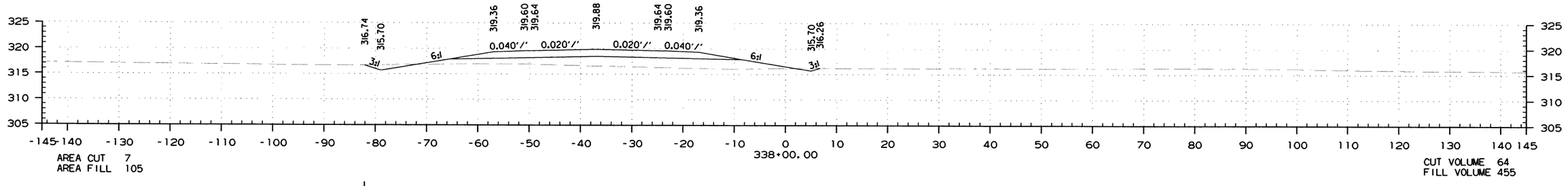
R100708.DGN

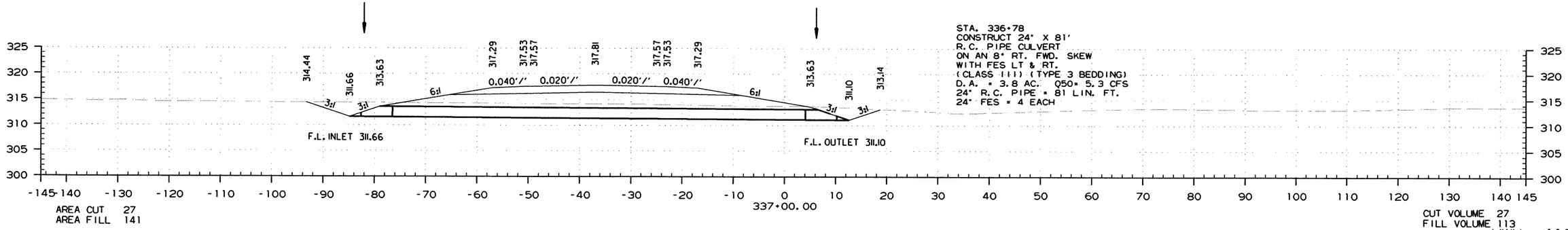
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	266	335

(2) CROSS SECTIONS









STA. 336+78
CONSTRUCT 24" X 81'
R.C. PIPE CULVERT
ON AN 8° RT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 3.8 AC. Q50= 5.3 CFS
24" R.C. PIPE = 81 LIN. FT.
24" FES = 4 EACH

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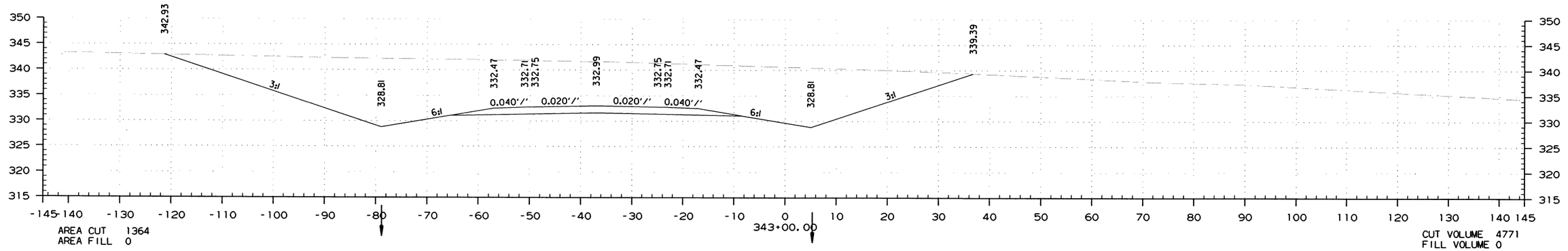
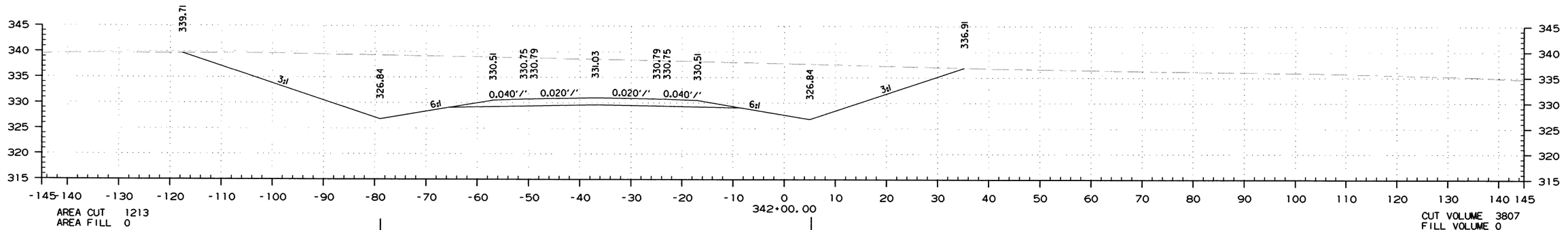
R100708.DGN

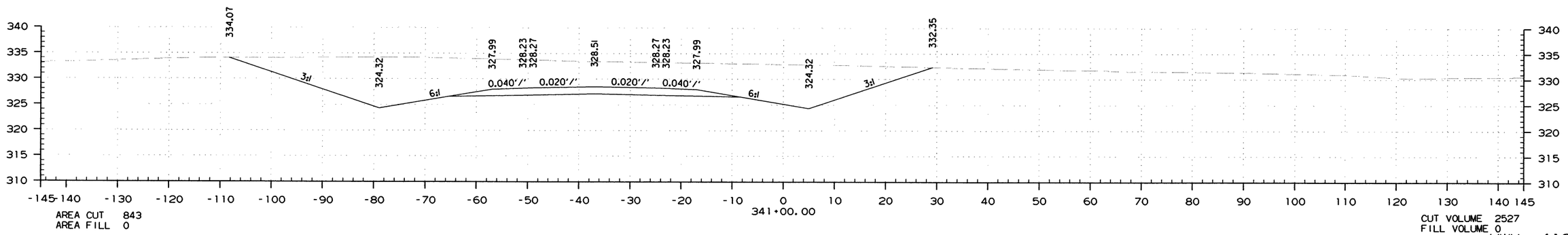
HWY. 412
STA. 337+00.00 TO STA. 340+00.00

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.		100708	267	335

(2) CROSS SECTIONS







HWY. 412
STA. 341+00.00 TO STA. 343+00.00

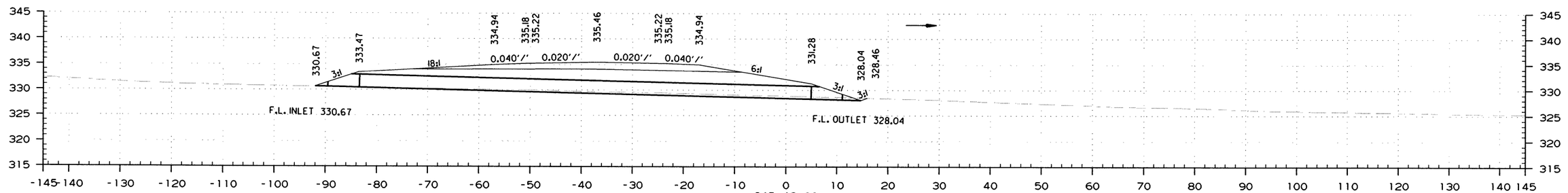
12/19/2016

R100708.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.		100708	268	335

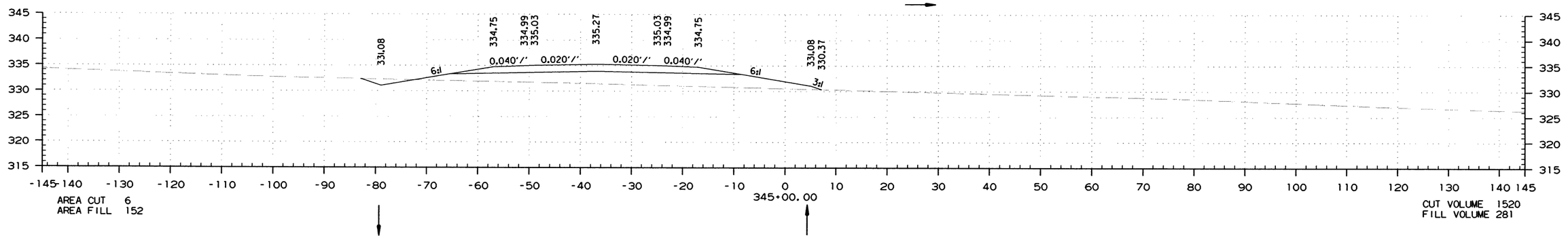
(2) CROSS SECTIONS

STA. 345+42 CONSTRUCT
DBL. 30" X 89'
R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 32 AC. Q50= 45 CFS
30" R.C. PIPE = 176 LIN. FT.
30" FES = 4 EACH



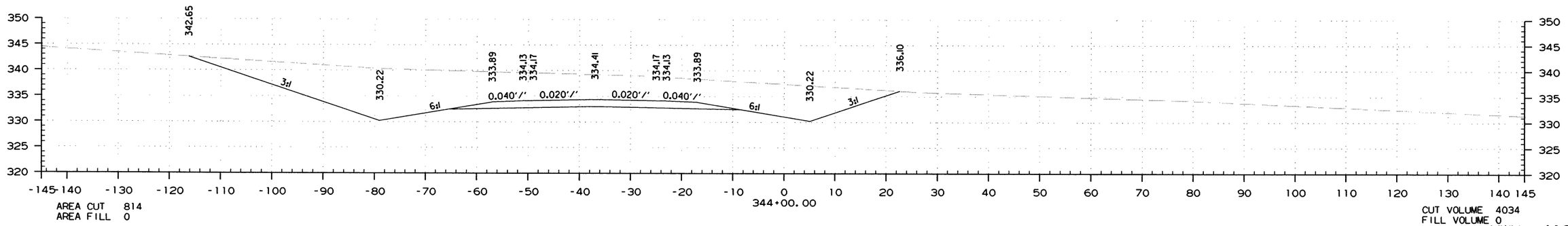
AREA CUT 1
AREA FILL 377

CUT VOLUME 5
FILL VOLUME 412



AREA CUT 6
AREA FILL 152

CUT VOLUME 1520
FILL VOLUME 281



AREA CUT 814
AREA FILL 0

CUT VOLUME 4034
FILL VOLUME 0

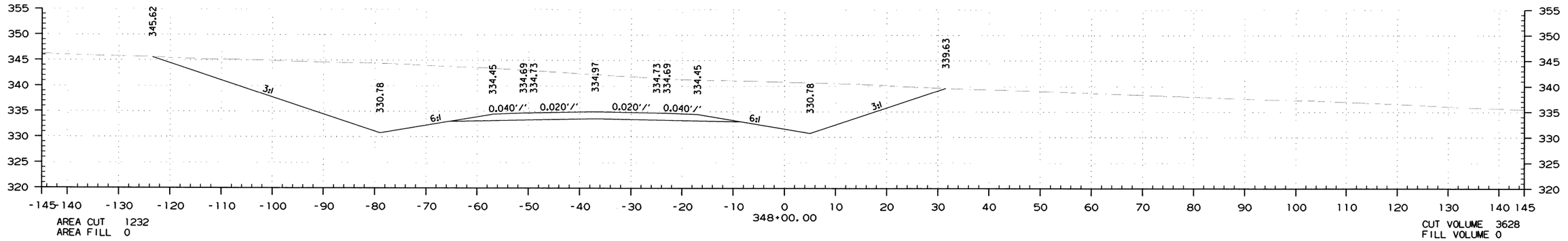
HWY. 412
STA. 344+00.00 TO STA. 345+42.00

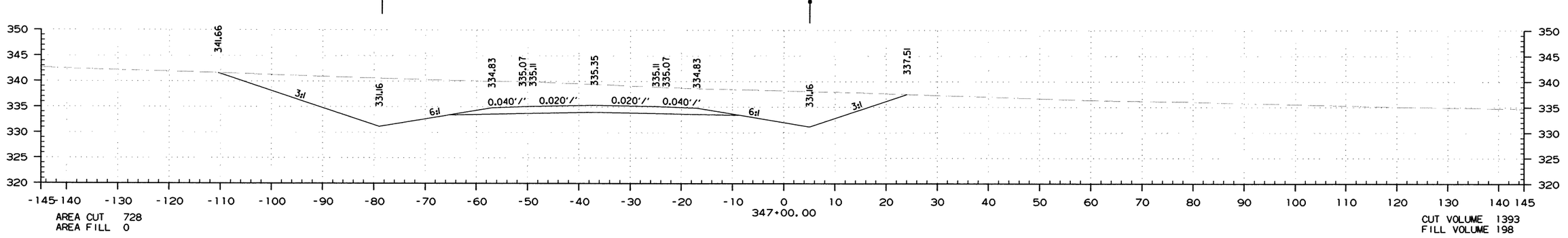
12/19/2016

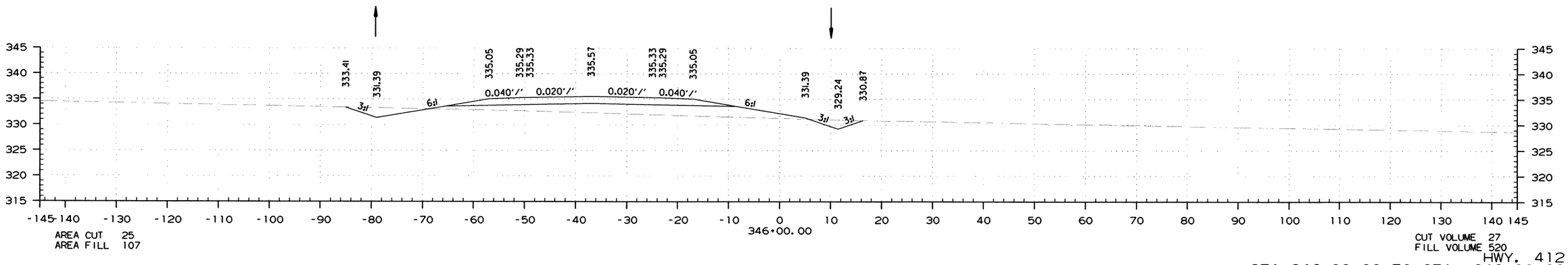
R100708.DGN

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.		100708	269	335

(2) CROSS SECTIONS







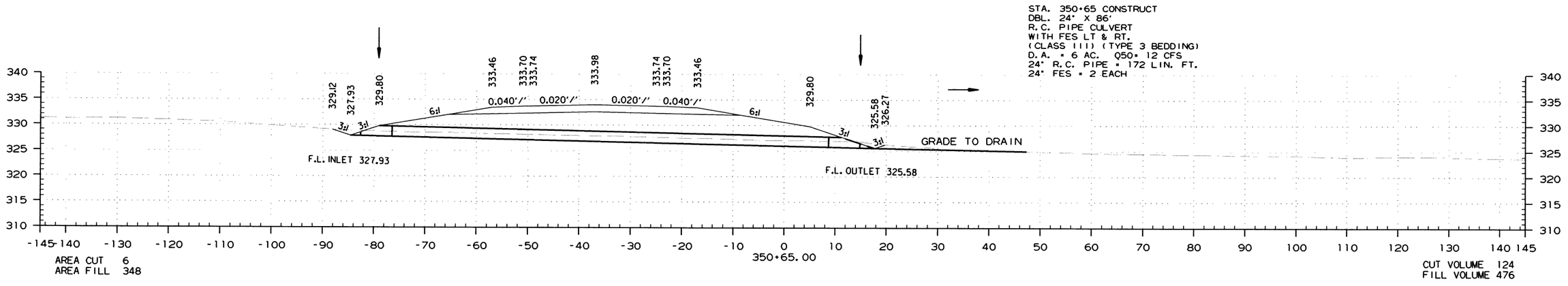
HWY. 412
STA. 346+00.00 TO STA. 348+00.00

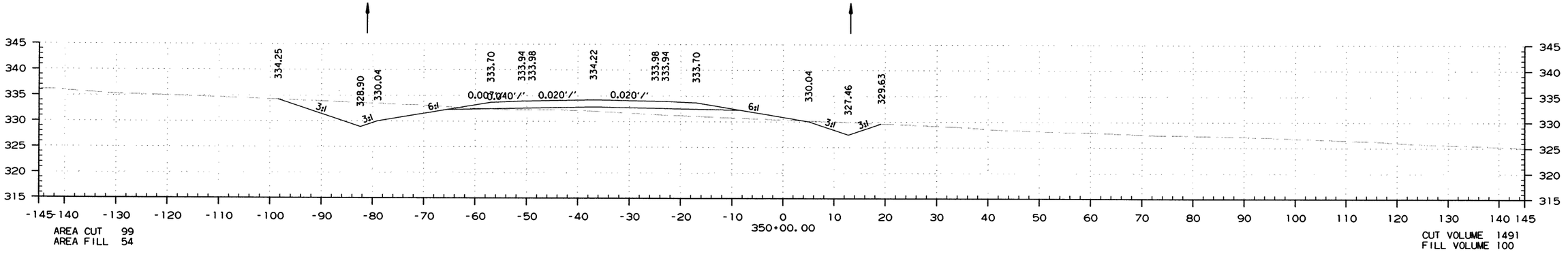
12/19/2016

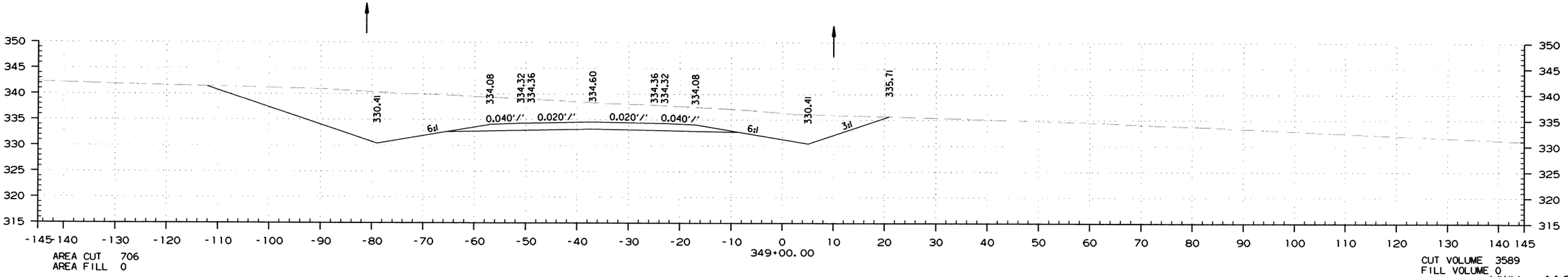
R100708.DGN

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.		100708	270	335

(2) CROSS SECTIONS







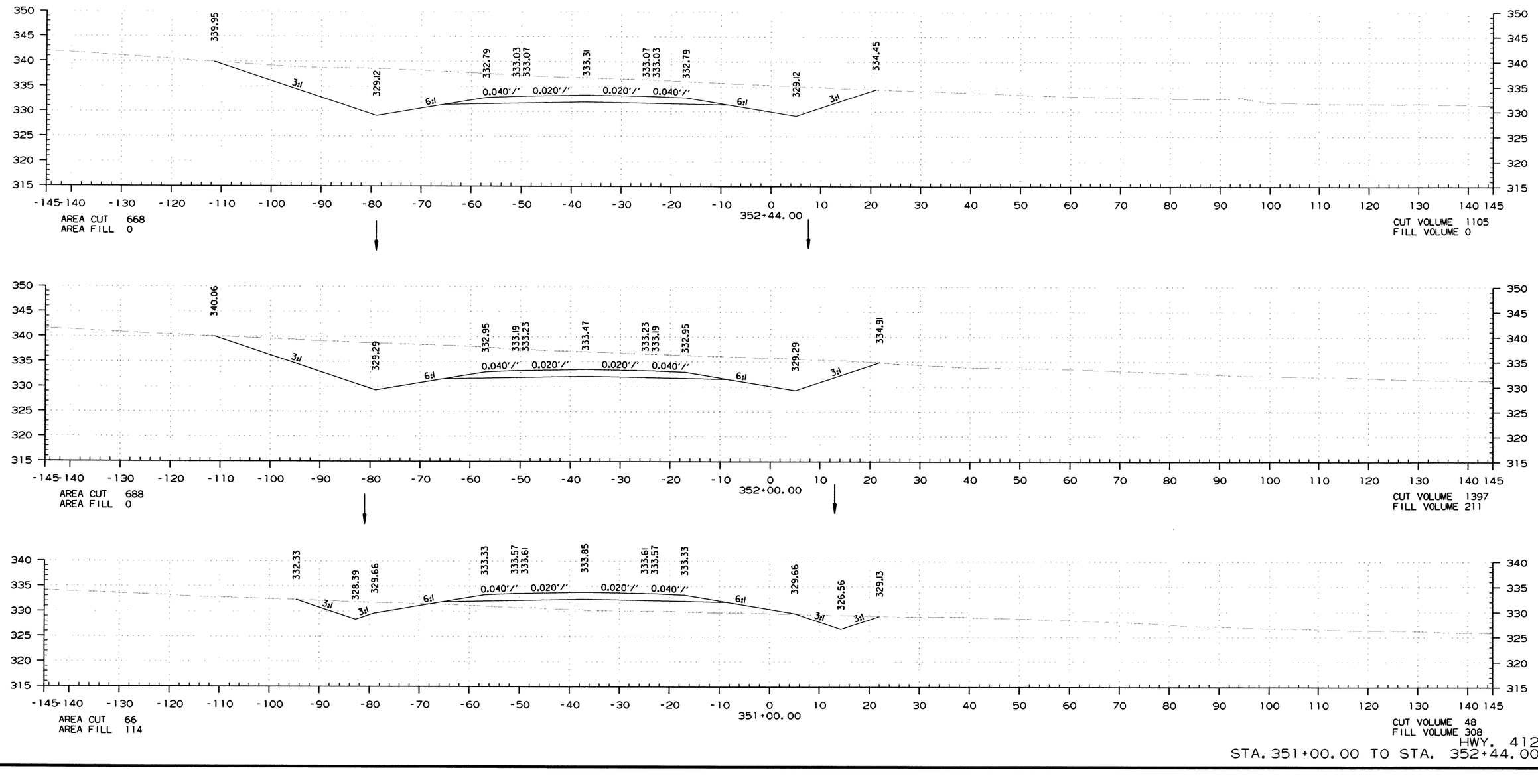
HWY. 412
STA. 349+00.00 TO STA. 350+64.00

12/19/2016

R100708.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.		100708	271	335

(2) CROSS SECTIONS



12/19/2016

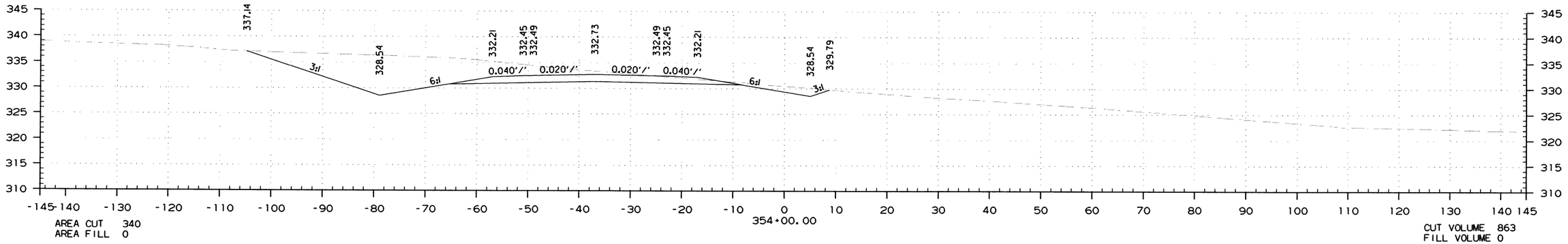
R100708.DGN

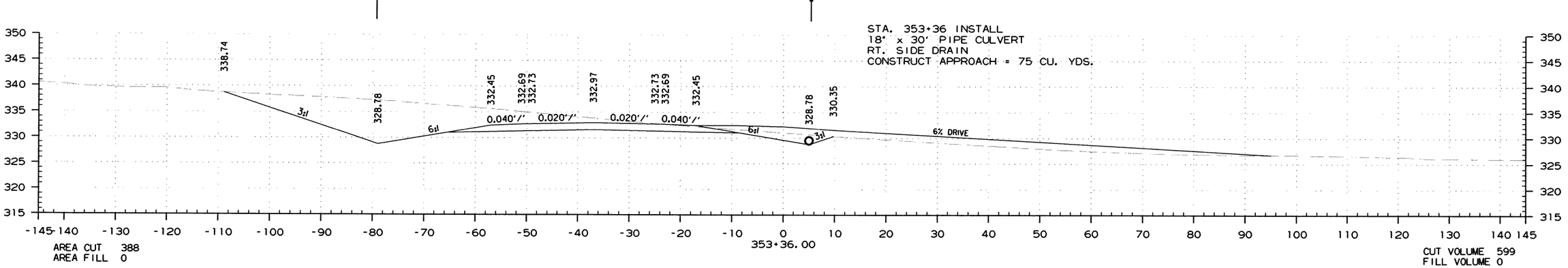
HWY. 412

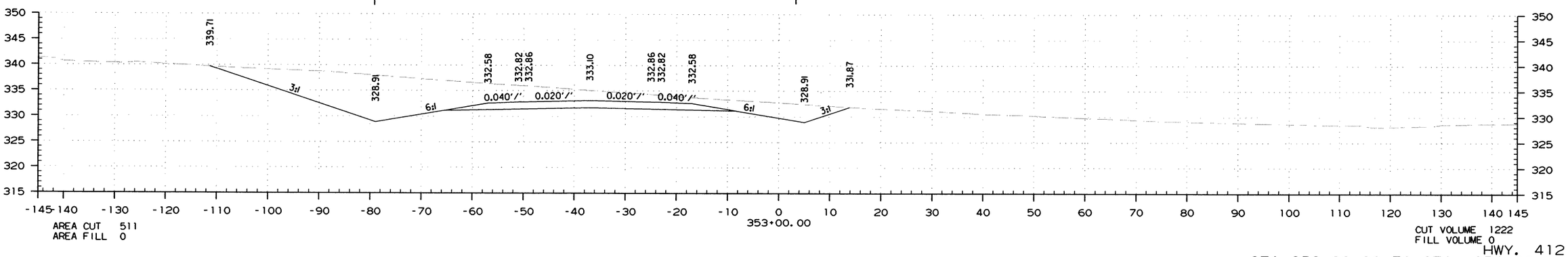
STA. 351+00.00 TO STA. 352+44.00

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.		100708	272	335

(2) CROSS SECTIONS







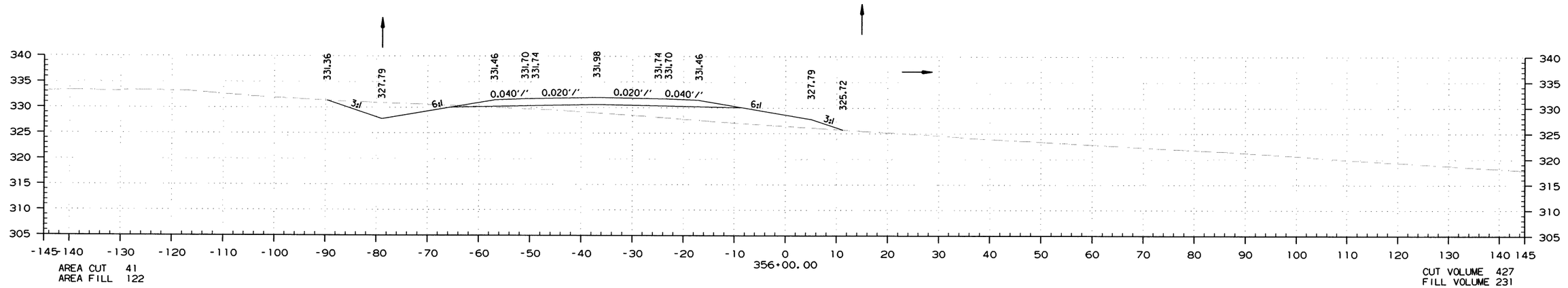
12/19/2016

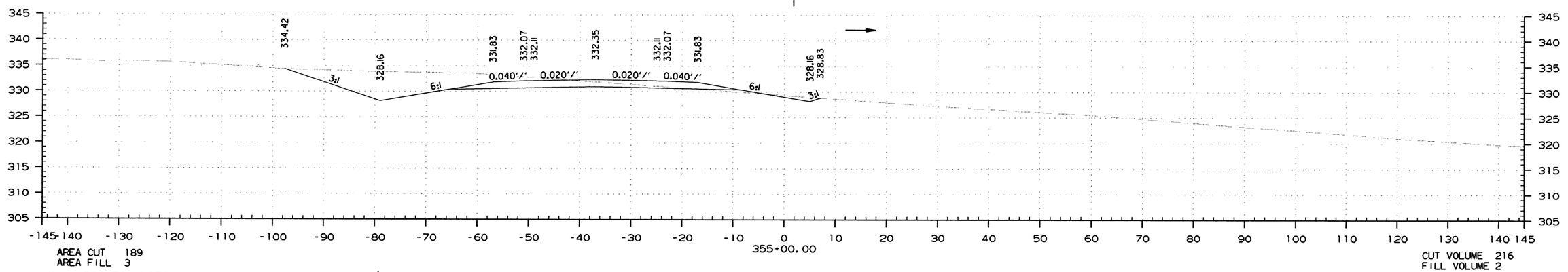
R100708.DGN

HWY. 412
STA. 353+00.00 TO STA. 354+00.00

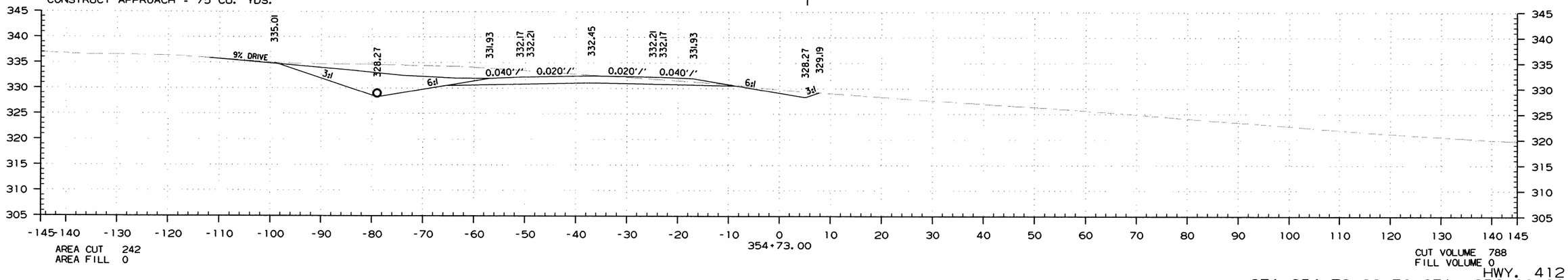
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	273	335

(2) CROSS SECTIONS





STA. 354+74 INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 75 CU. YDS.



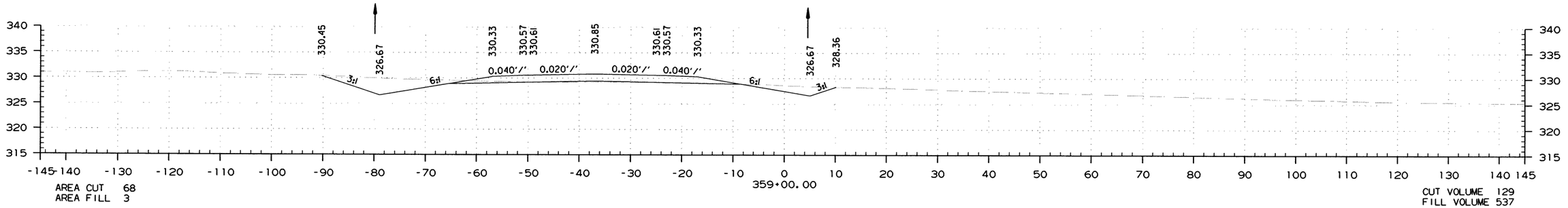
HWY. 412
STA. 354+73.00 TO STA. 356+00.00

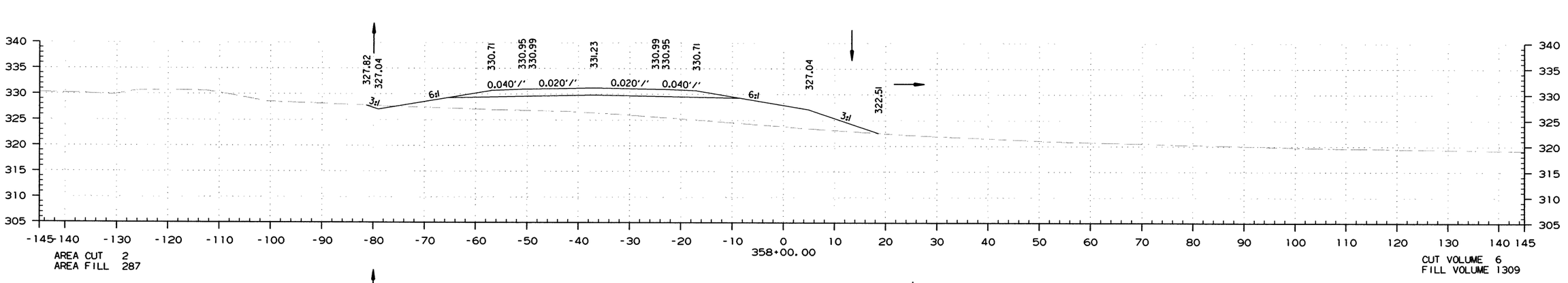
12/19/2016

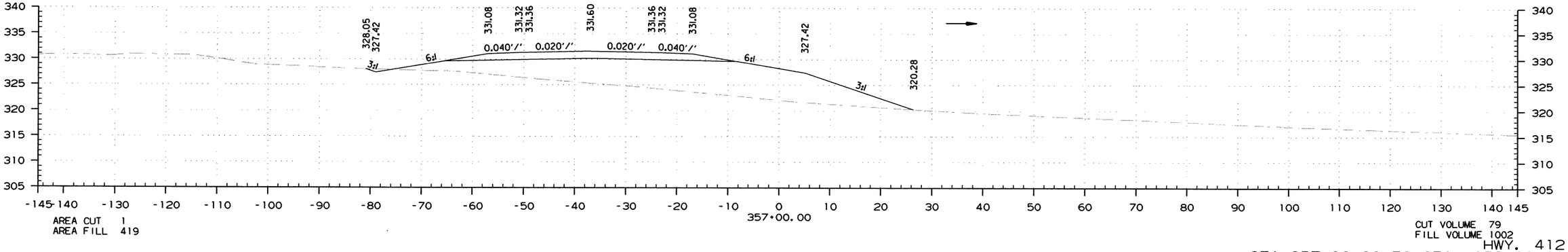
R100708.DGN

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.		100708	274	335

(2) CROSS SECTIONS







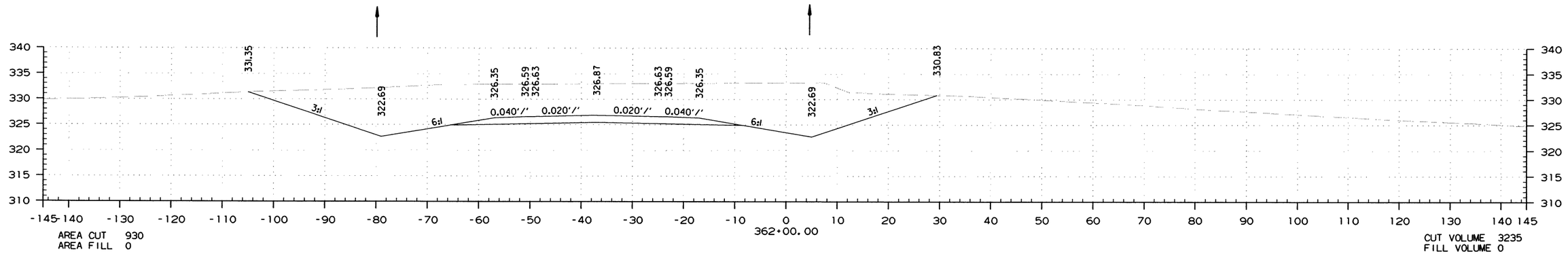
HWY. 412
STA. 357+00.00 TO STA. 359+00.00

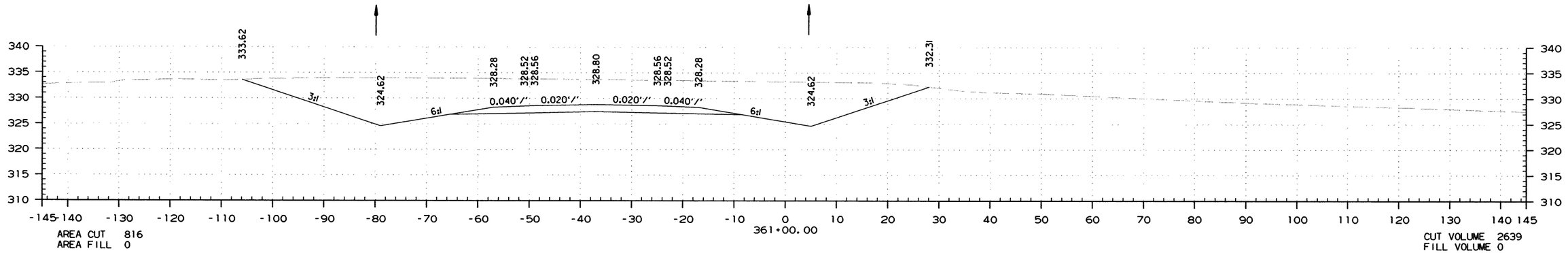
12/19/2016

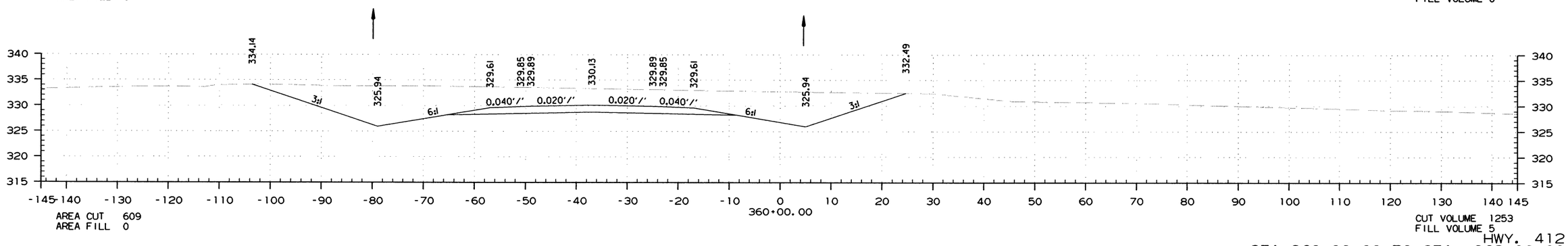
R100708.DGN

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.		100708	275	335

(2) CROSS SECTIONS







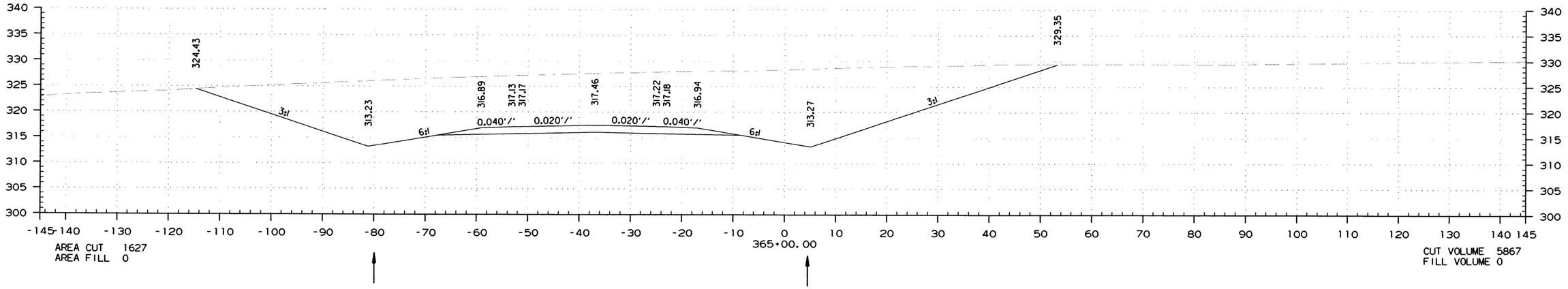
HWY. 412
STA. 360+00.00 TO STA. 362+00.00

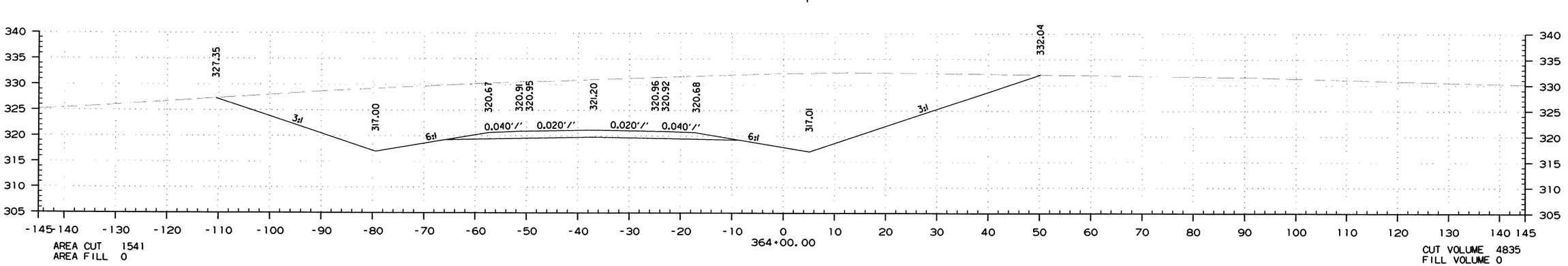
12/19/2016

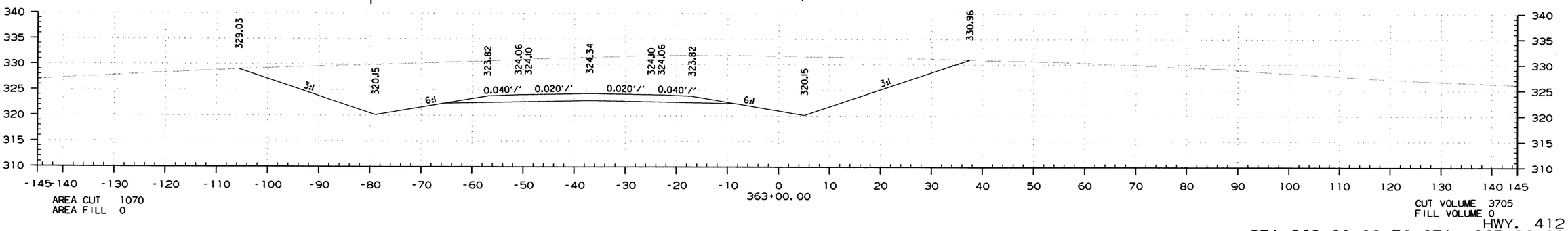
R100708.DGN

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.		100708	276	335

(2) CROSS SECTIONS







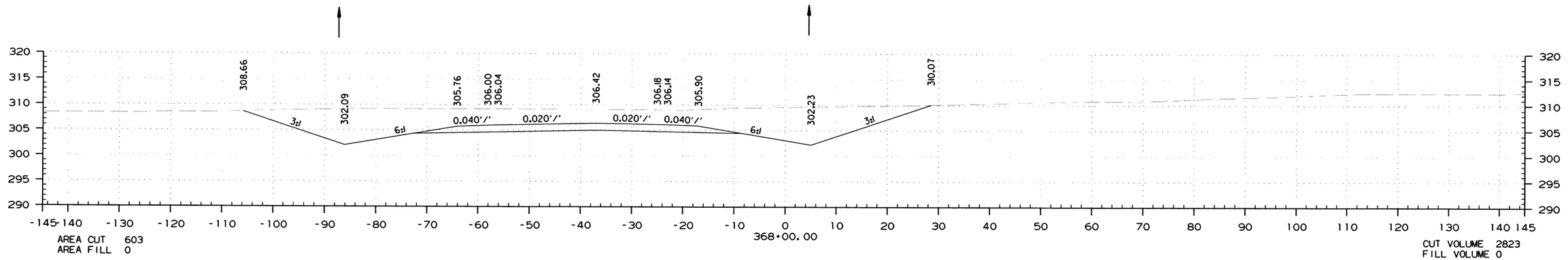
HWY. 412
STA. 363+00.00 TO STA. 365+00.00

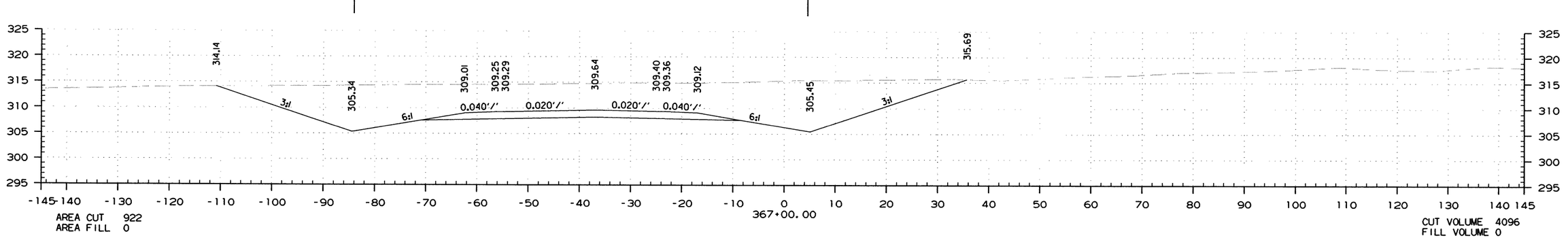
12/19/2016

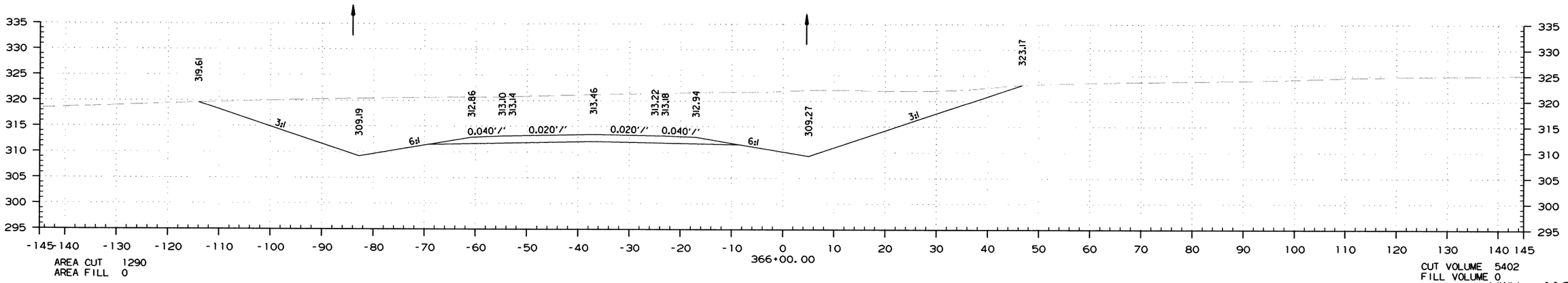
R100708.DGN

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.		100708	277	335

(2) CROSS SECTIONS







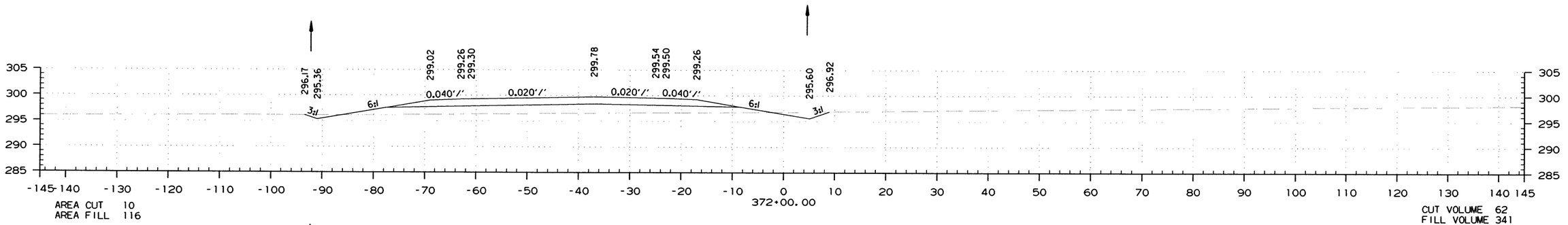
12/19/2016

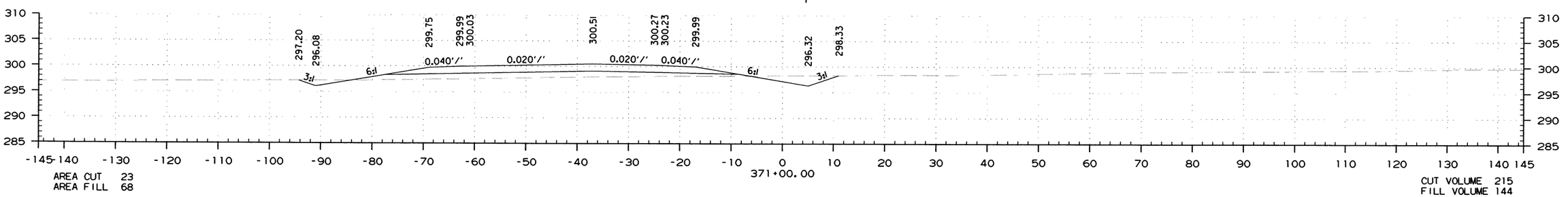
R100708.DGN

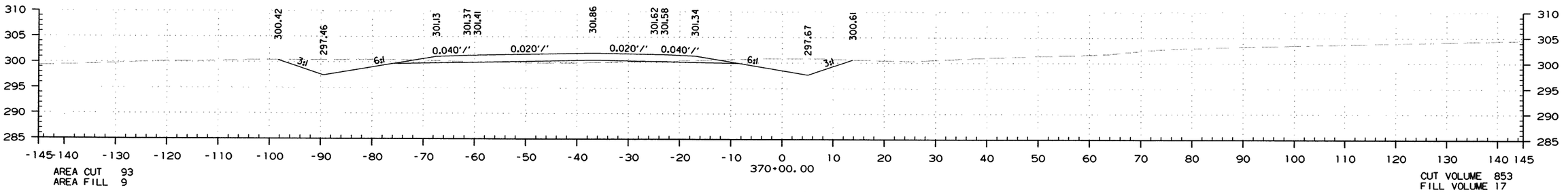
HWY. 412
STA. 366+00.00 TO STA. 368+00.00

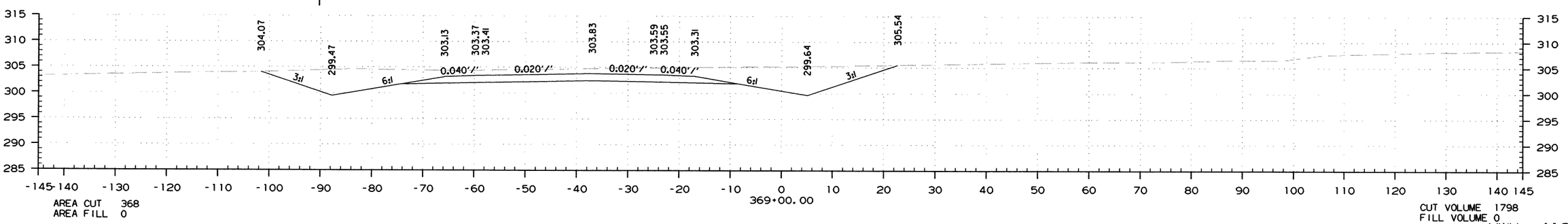
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	278	335

(2) CROSS SECTIONS









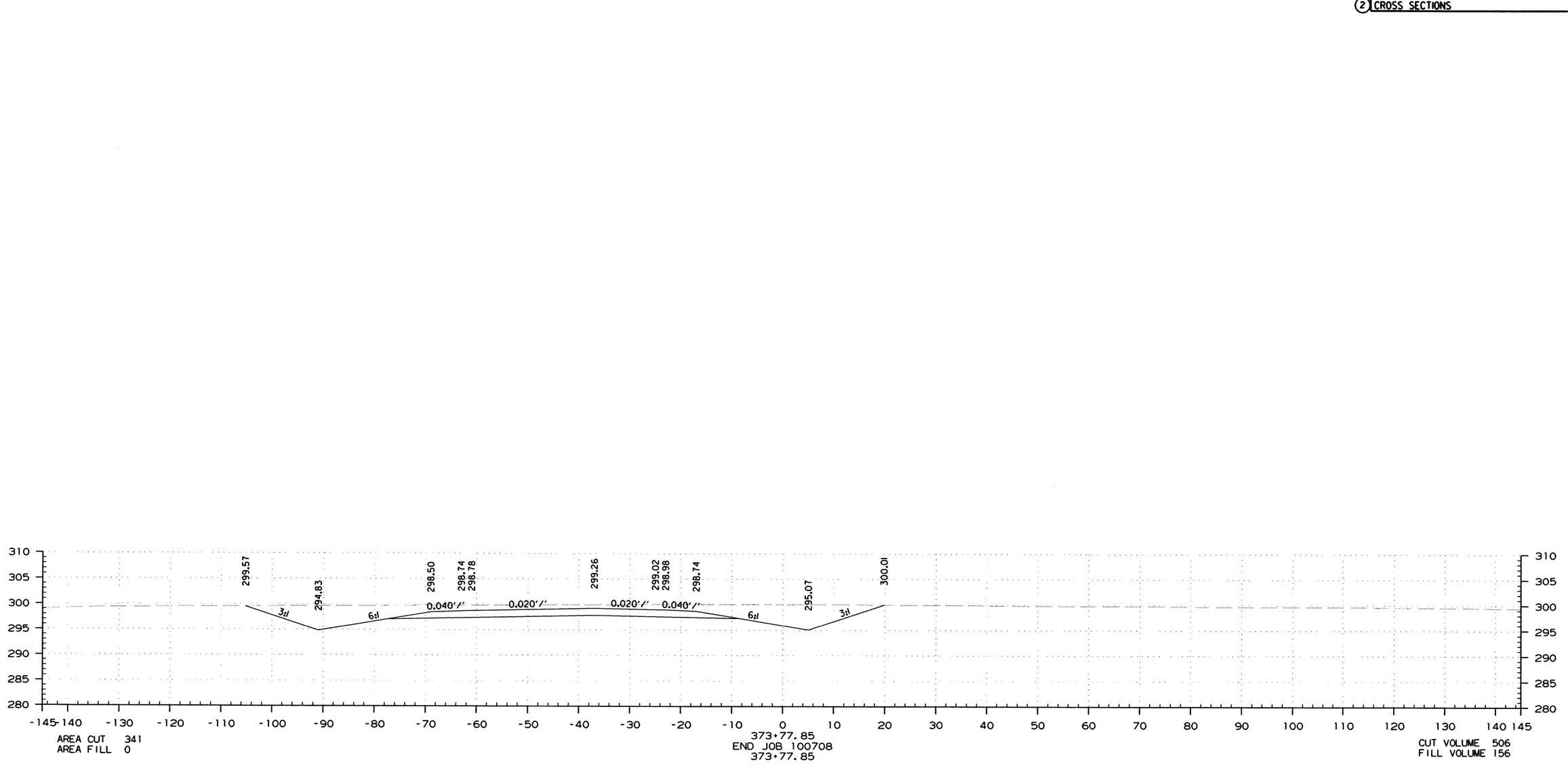
HWY. 412
STA. 369+00.00 TO STA. 372+00.00

12/19/2016

R100708.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.		100708	279	335

(2) CROSS SECTIONS



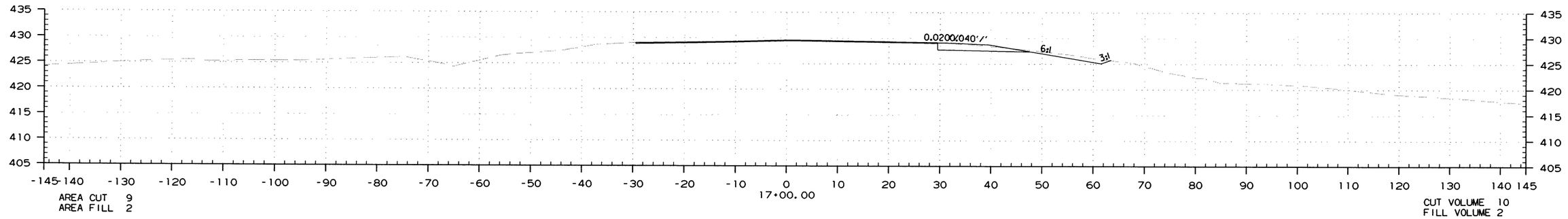
HWY. 412
STA. 373+00.00 TO STA. 373+77.85

12/19/2016

R100708.DGN

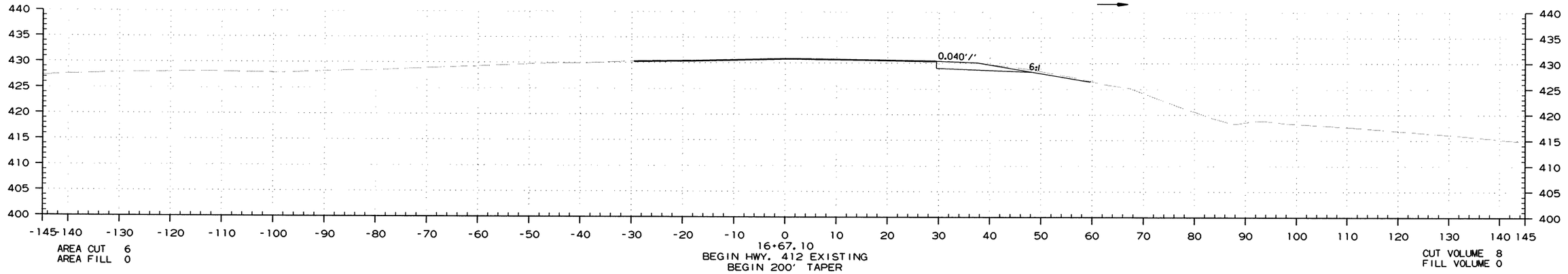
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	280	335

(2) CROSS SECTIONS



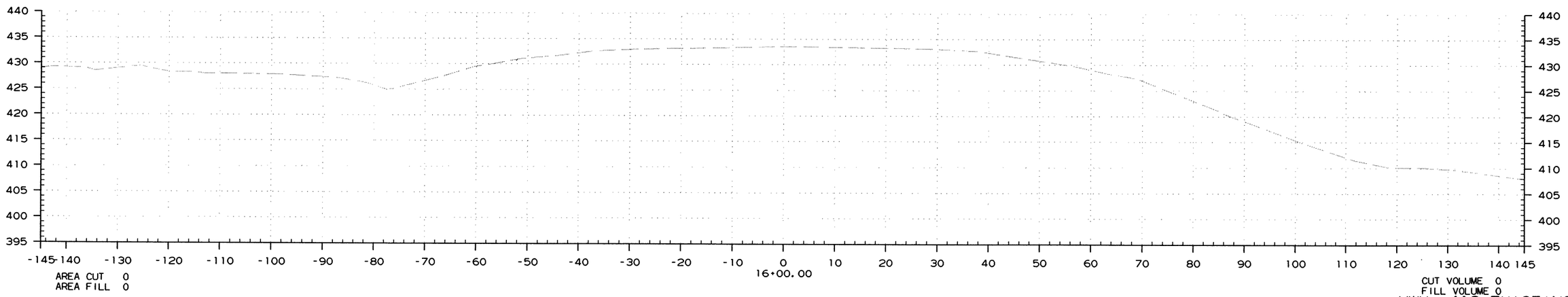
AREA CUT 9
AREA FILL 2

CUT VOLUME 10
FILL VOLUME 2



AREA CUT 6
AREA FILL 0

CUT VOLUME 8
FILL VOLUME 0



AREA CUT 0
AREA FILL 0

CUT VOLUME 0
FILL VOLUME 0

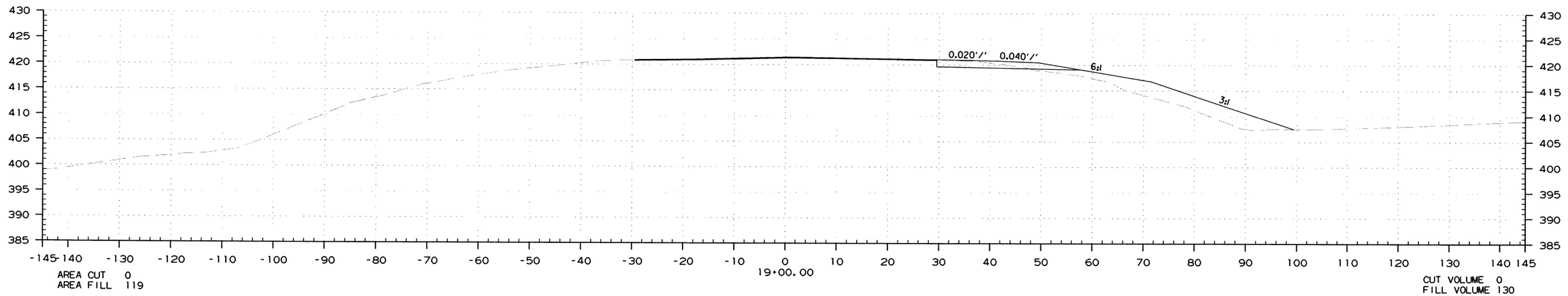
HWY. 412 EXISTING
STA. 16+00.00 TO STA. 17+00.00

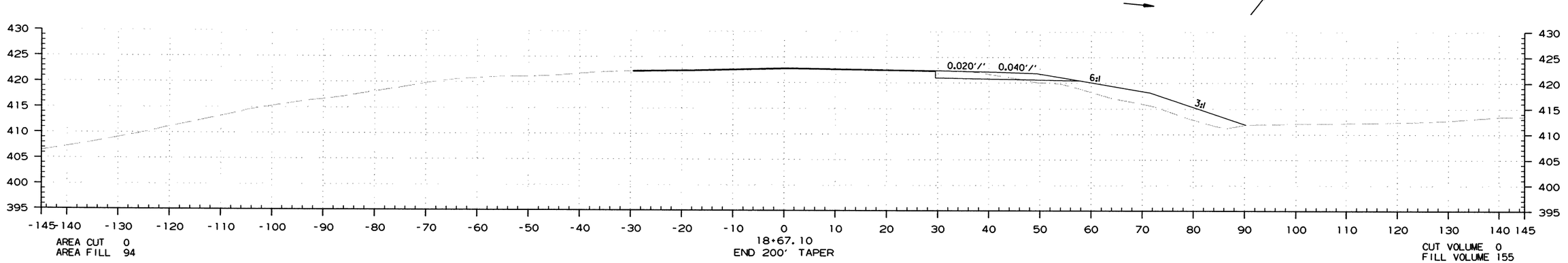
12/19/2016

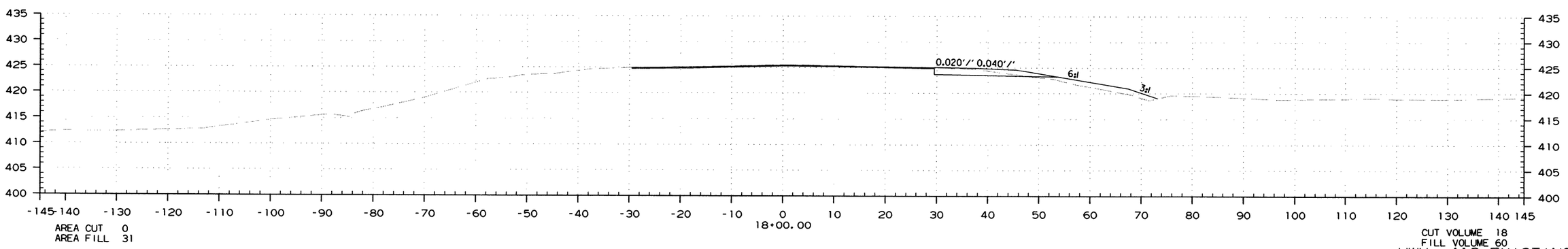
R100708.DGN

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.		100708	281	335

(2) CROSS SECTIONS







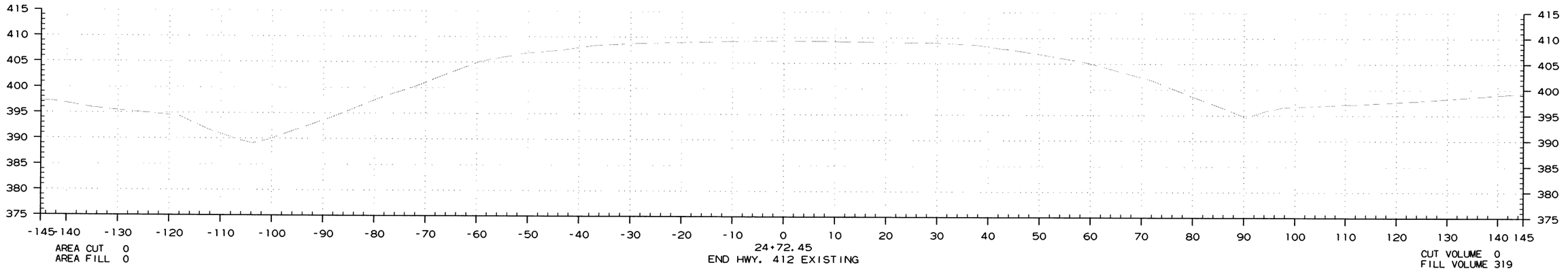
HWY. 412 EXISTING
STA. 18+00.00 TO STA. 19+00.00

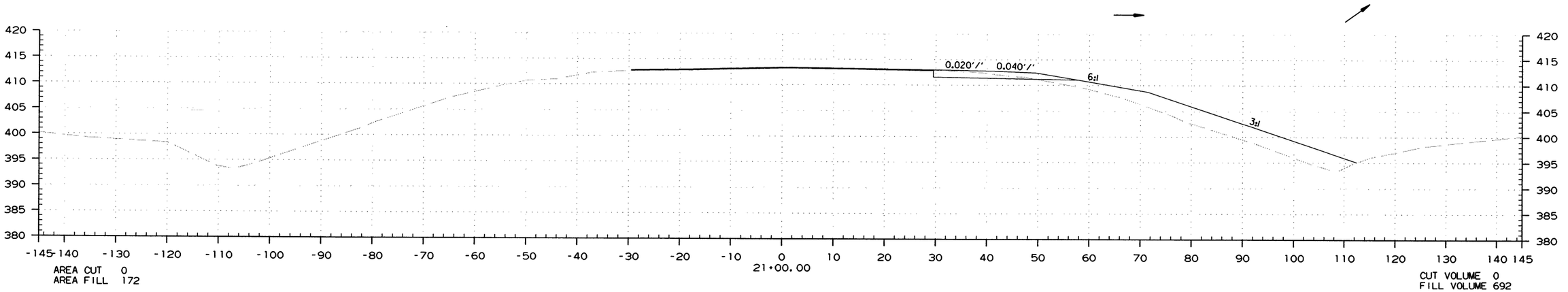
12/19/2016

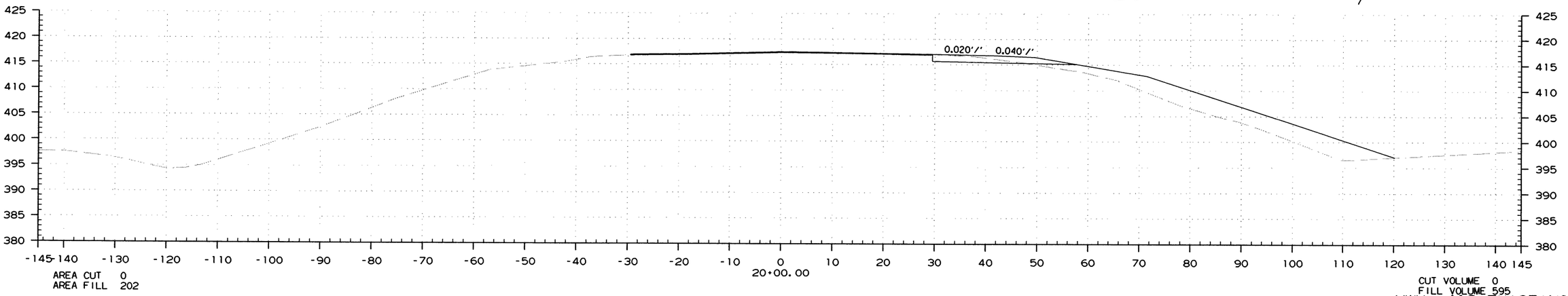
R100708.DGN

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.		100708	282	335

(2) CROSS SECTIONS







HWY. 412 EXISTING
STA. 20+00.00 TO STA. 22+00.00

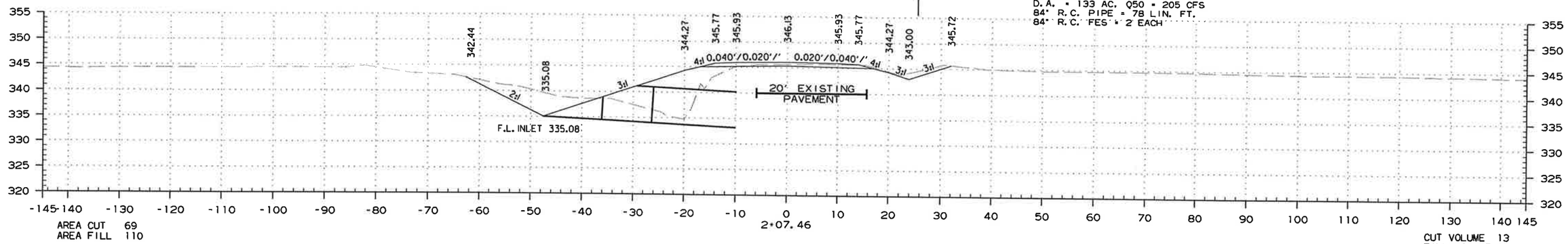
12/19/2016

R100708.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	283	335

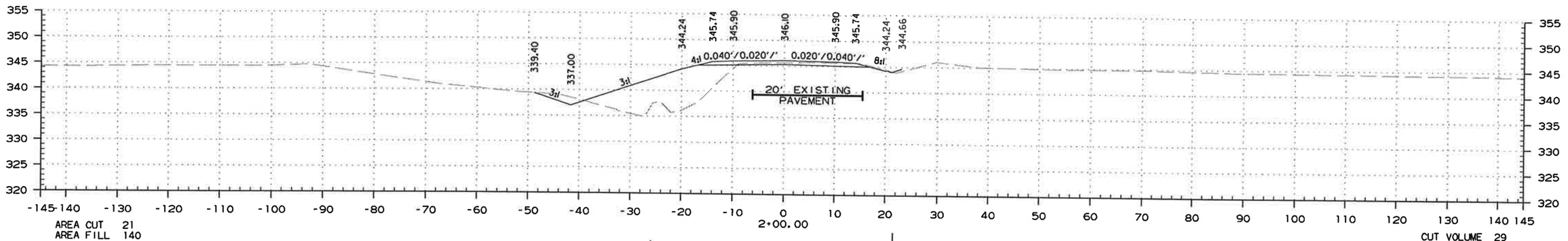
(2) CROSS SECTIONS

STA. 2+24.63 IN PLACE
84" X 77' PIPE CULVERT
ON A 40° RIGHT FORWARD SKEW
WITH HDWLS. LT. & RT.
REMOVE AND CONSTRUCT
84" X 78' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
WITH FES LT. & RT.
D.A. = 133 AC. Q50 = 205 CFS
84" R.C. PIPE = 78 LIN. FT.
84" R.C. FES = 2 EACH



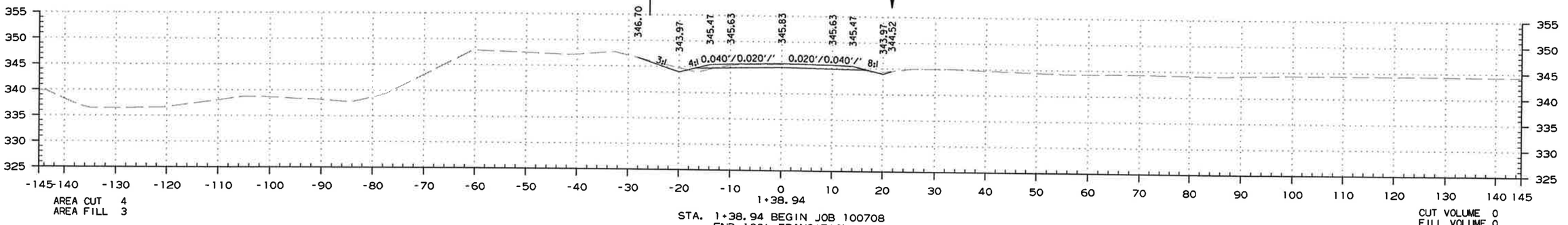
AREA CUT 69
AREA FILL 110

CUT VOLUME 13
FILL VOLUME 35



AREA CUT 21
AREA FILL 140

CUT VOLUME 29
FILL VOLUME 162



AREA CUT 4
AREA FILL 3

STA. 1+38.94 BEGIN JOB 100708
END 100' TRANSITION

CUT VOLUME 0
FILL VOLUME 0

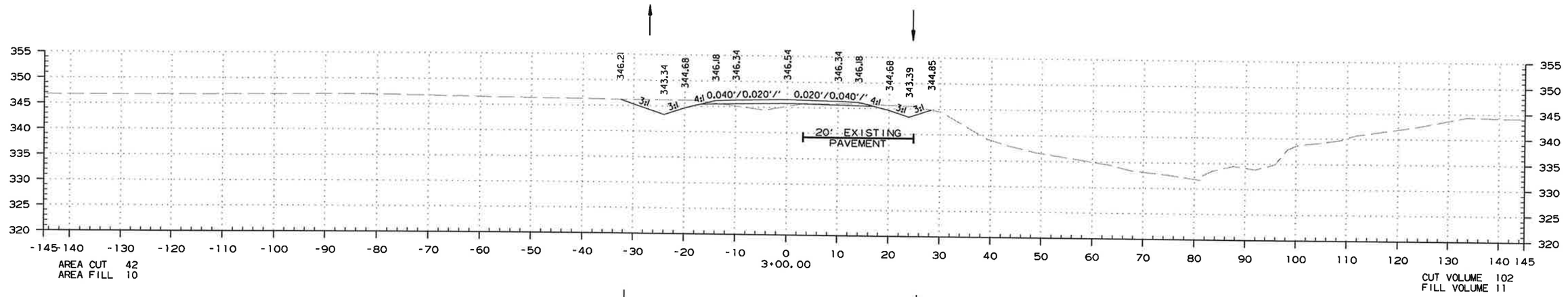
PINE KNOT RD.
STA. 1+38.94 TO STA. 2+07.46

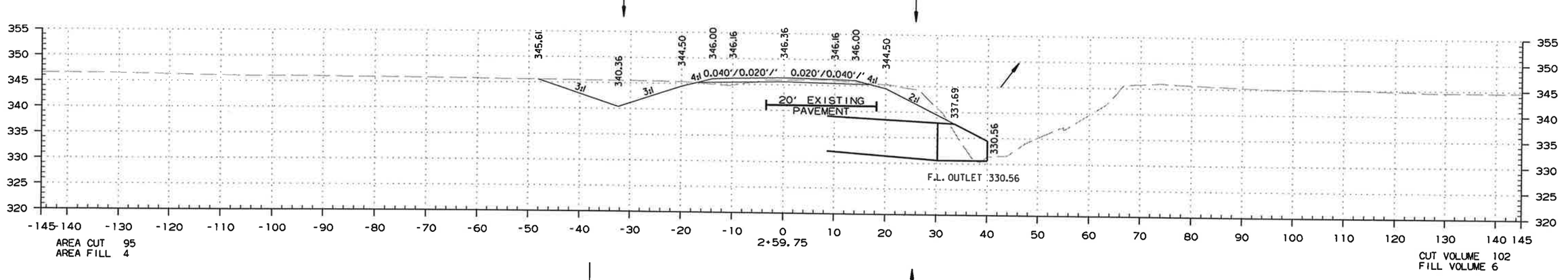
R100708 STS 2016-12-20.DGN/12/2017

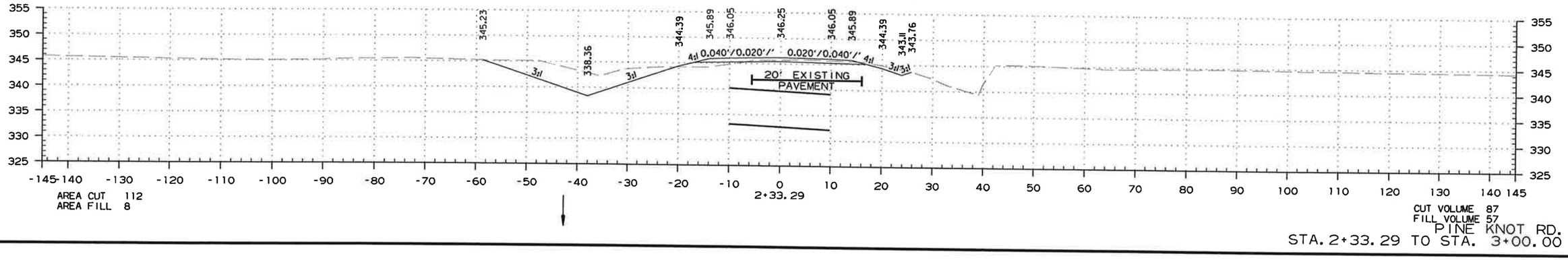
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	284	335

(2) CROSS SECTIONS

STA. 3+60.25 BEGIN SUPERELEVATION (N.C.)







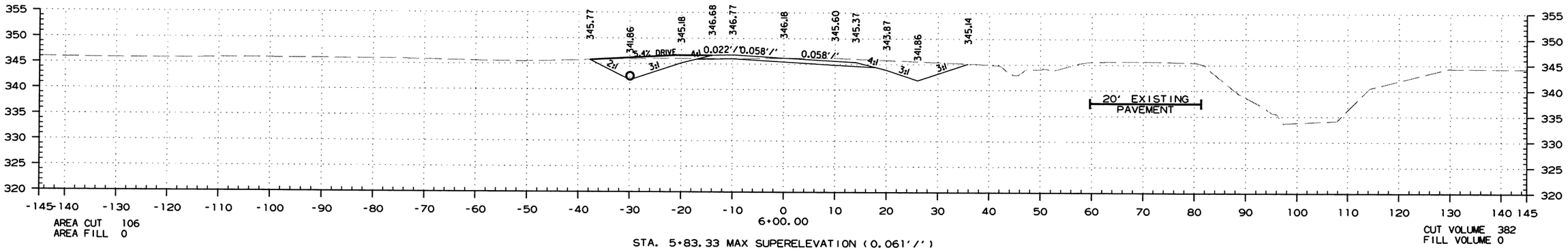
PINE KNOT RD.
STA. 2+33.29 TO STA. 3+00.00

R100708 STS 2016-12-20.DGN/12/2017

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.		100708	285	335

(2) CROSS SECTIONS

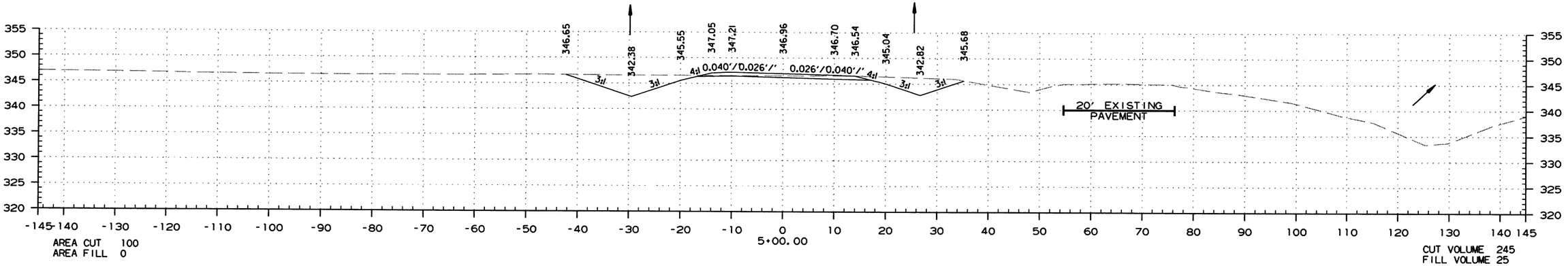
STA. 6+00 INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 20 CU. YDS.



AREA CUT 106
AREA FILL 0

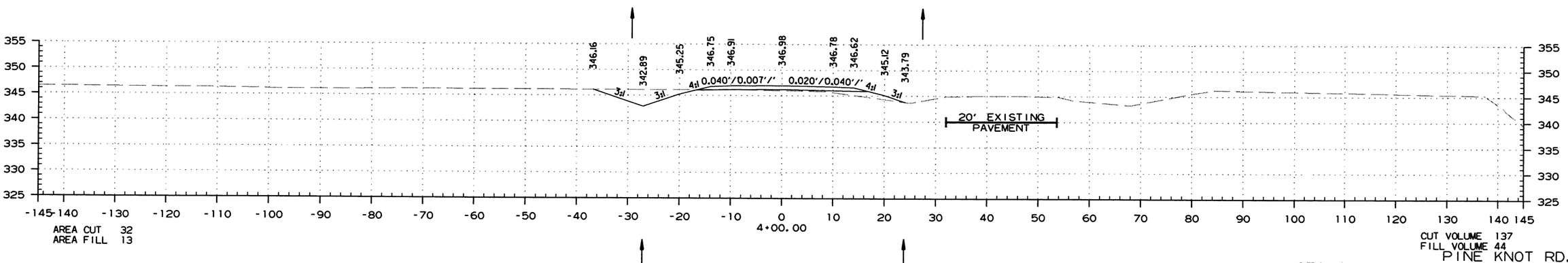
CUT VOLUME 382
FILL VOLUME 0

STA. 5+83.33 MAX SUPERELEVATION (0.061'/')



AREA CUT 100
AREA FILL 0

CUT VOLUME 245
FILL VOLUME 25



AREA CUT 32
AREA FILL 13

CUT VOLUME 137
FILL VOLUME 44

PINE KNOT RD.
STA. 4+00.00 TO STA. 6+00.00

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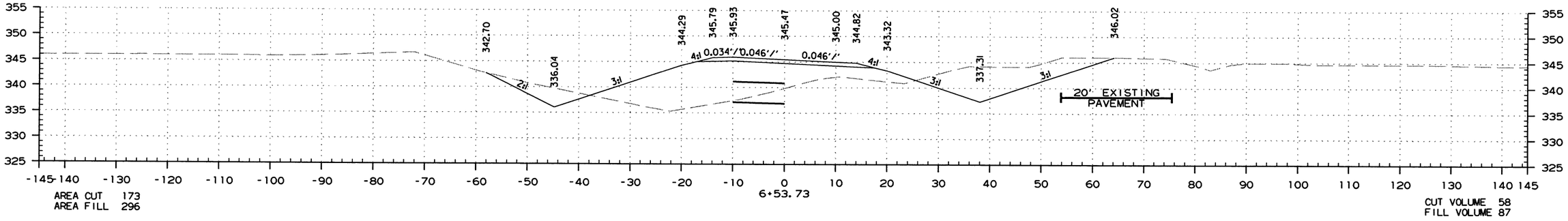
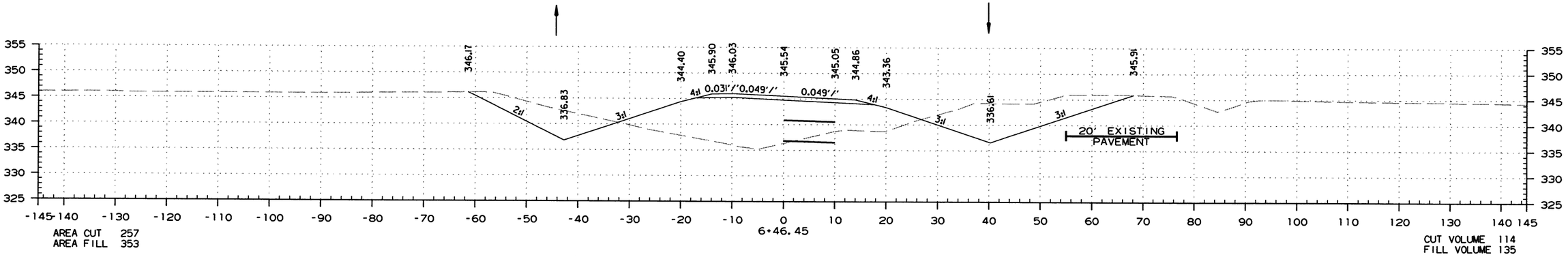
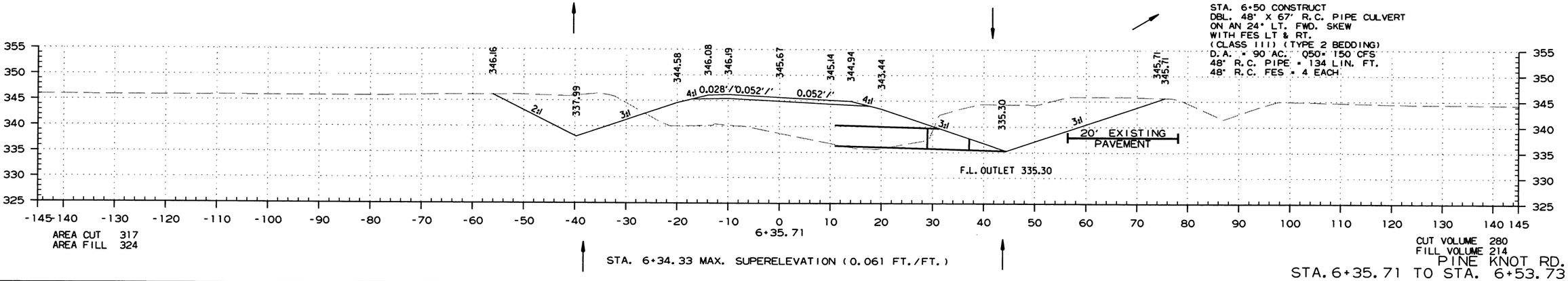
				6	ARK.			
				JOB NO.		100708	286	335

(2) CROSS SECTIONS







STA. 6+50 CONSTRUCT
DBL. 48" X 67" R.C. PIPE CULVERT
ON AN 24° LT. FWD. SKEW
WITH FES LT & RT.
(CLASS III) (TYPE 2 BEDDING)
D.A. = 90 AC. Q50= 150 CFS
48" R.C. PIPE = 134 LIN. FT.
48" R.C. FES = 4 EACH

STA. 6+34.33 MAX. SUPERELEVATION (0.061 FT./FT.)

PINE KNOT RD.
STA. 6+35.71 TO STA. 6+53.73

12/19/2016

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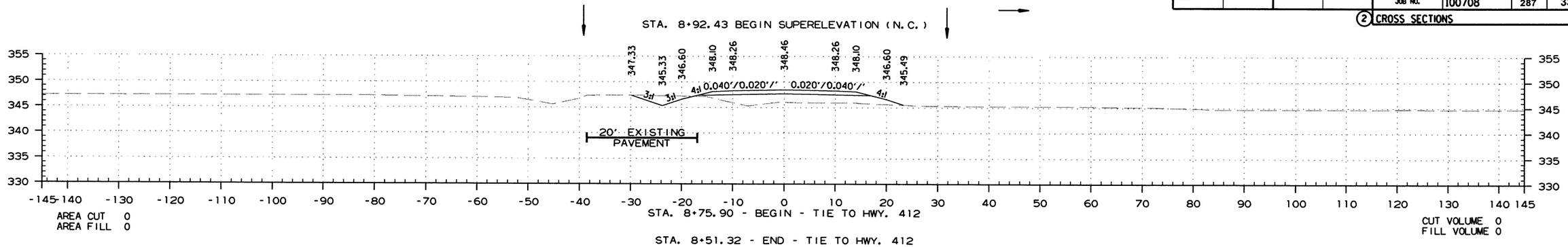
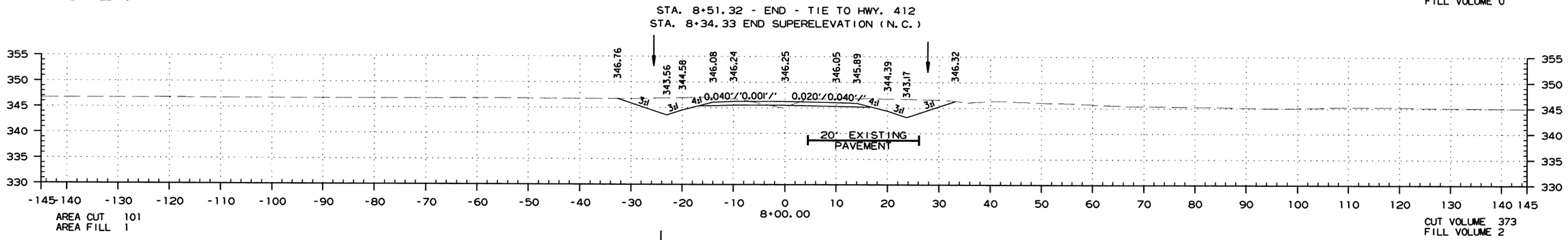
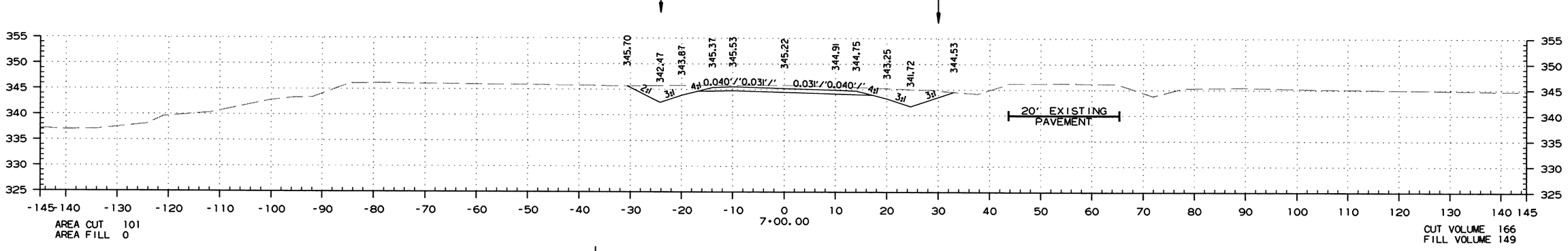
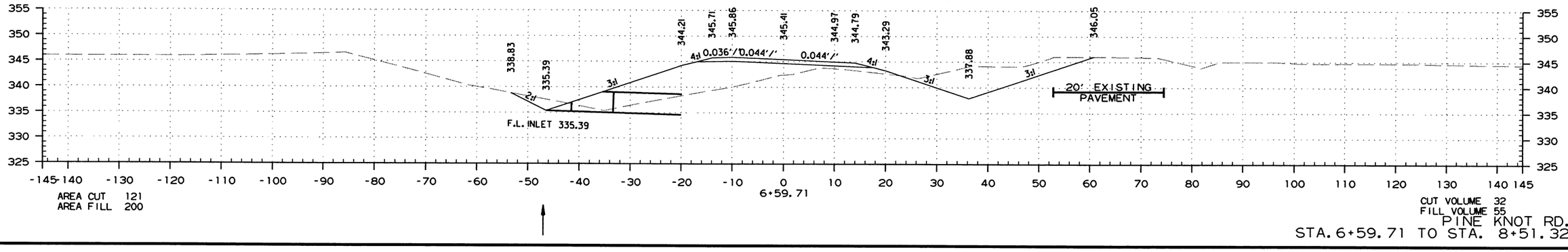
				6	ARK.			
				JOB NO.		100708	287	335

(2) CROSS SECTIONS









PINE KNOT RD.
STA. 6+59.71 TO STA. 8+51.32

12/19/2016

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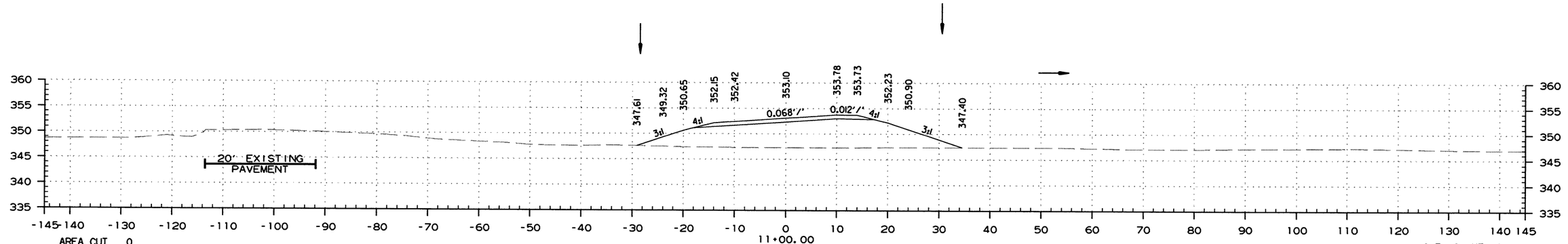
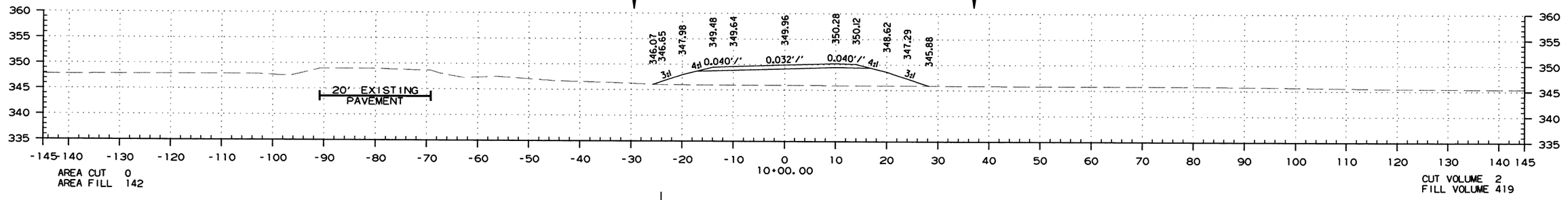
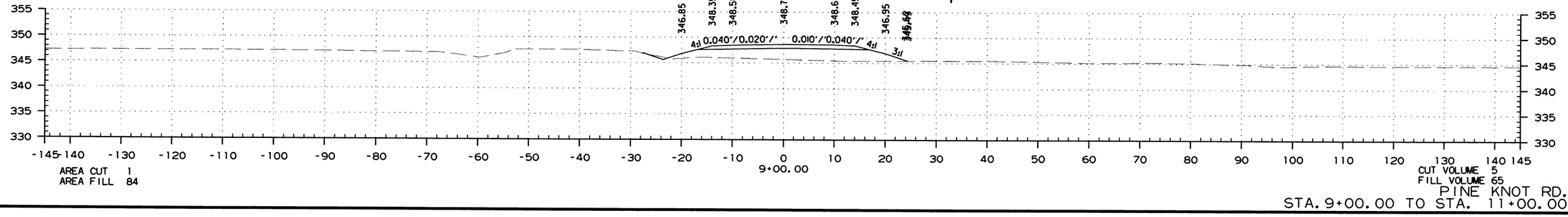
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	288	335

(2) CROSS SECTIONS



STA. 10+92.48 MAX. SUPERELEVATION (0.071 FT./FT.)





PINE KNOT RD.
STA. 9+00.00 TO STA. 11+00.00

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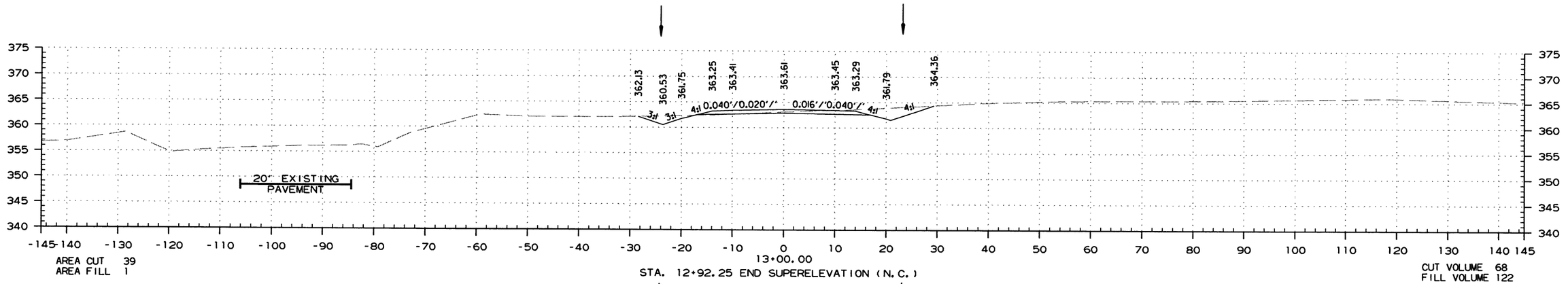
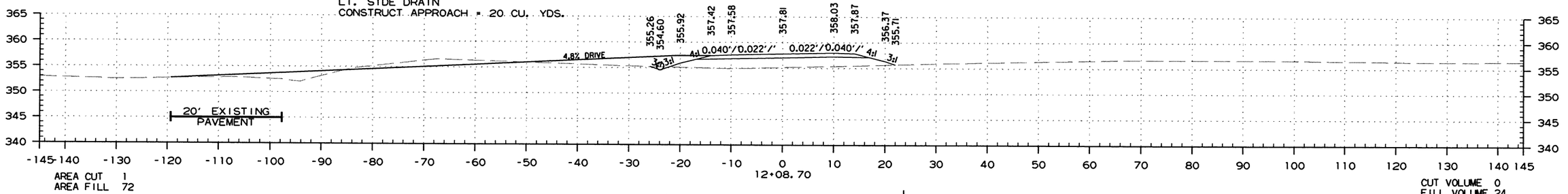
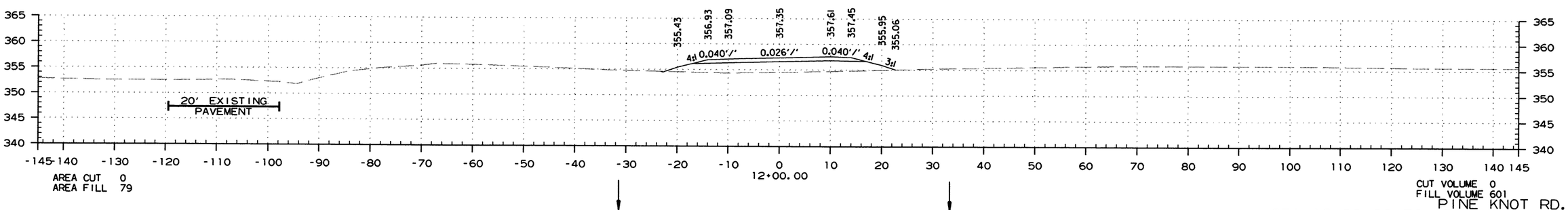
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	289	335

(2) CROSS SECTIONS







PINE KNOT RD.
STA. 12+00.00 TO STA. 13+00.00

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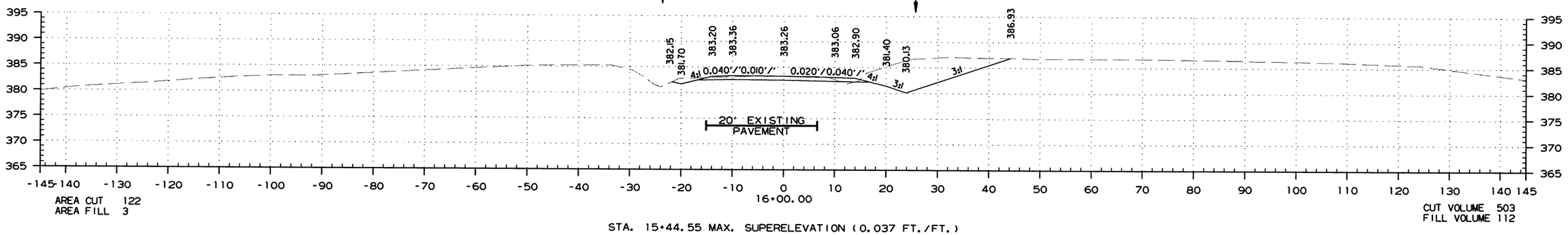
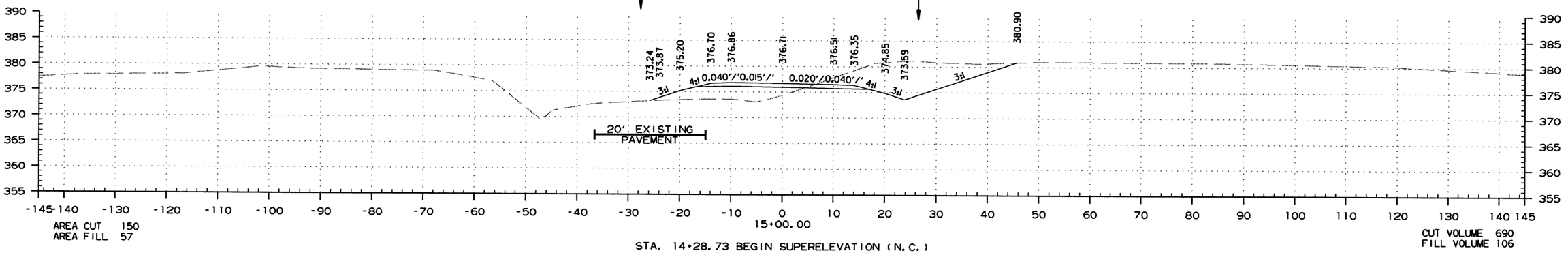
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	290	335

(2) CROSS SECTIONS

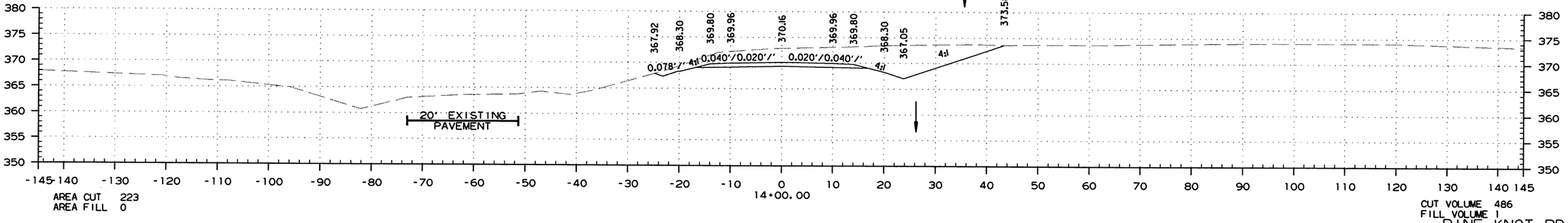
STA. 16+60.37 END SUPERELEVATION (N.C.)



STA. 15+44.55 MAX. SUPERELEVATION (0.037 FT./FT.)



STA. 14+28.73 BEGIN SUPERELEVATION (N.C.)



PINE KNOT RD.
STA. 14+00.00 TO STA. 16+00.00

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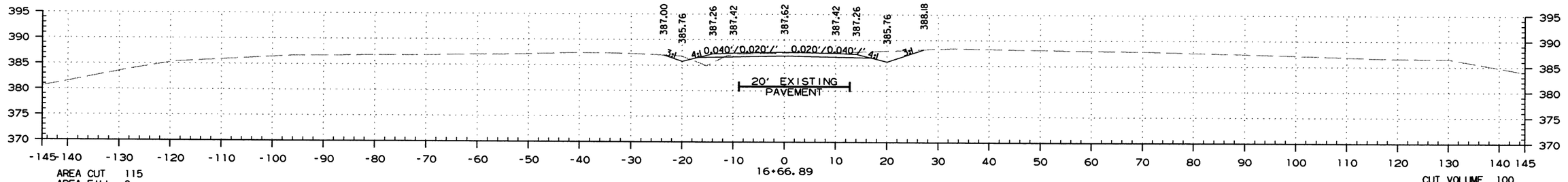
R100708.DGN

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.		100708	291	335

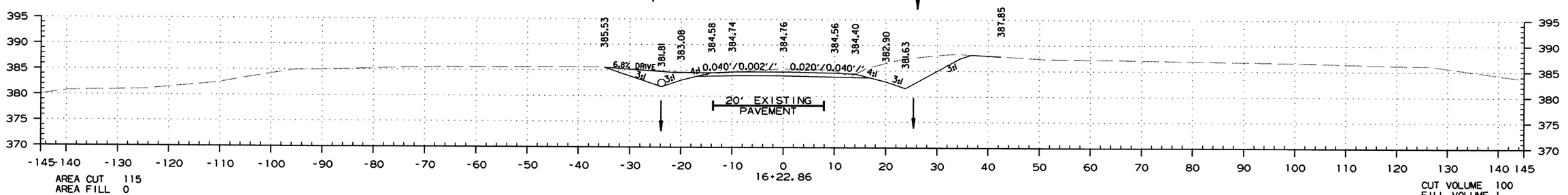
(2) CROSS SECTIONS

STA. 17+66.89 END 100' TRANSITION



STA. 16+22.86 INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 18 CU. YDS.

STA. 16+66+89 BEGIN JOB 100708
BEGIN 100' TRANSITION



PINE KNOT RD.
STA. 16+22.86 TO STA. 16+60.37

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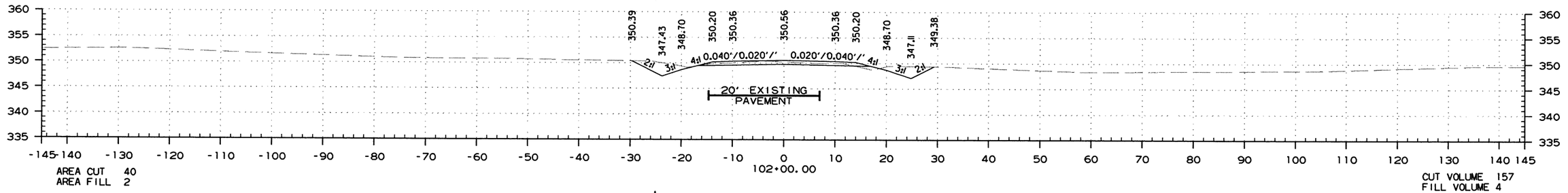
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	292	335

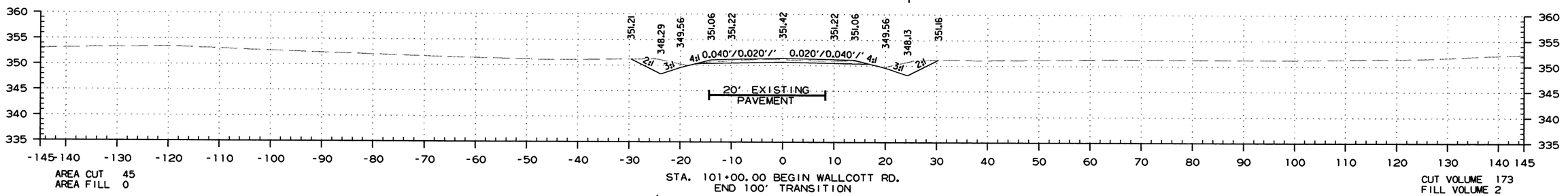
(2) CROSS SECTIONS

STA. 102+10.72 BEGIN SUPERELEVATION (N.C.)



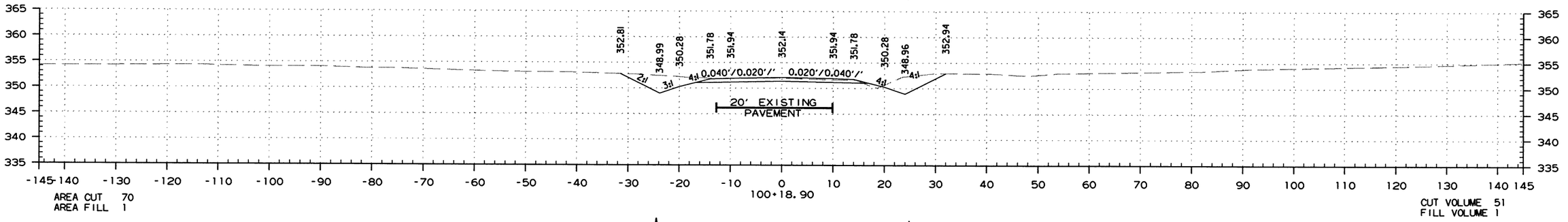
AREA CUT 40
AREA FILL 2

CUT VOLUME 157
FILL VOLUME 4



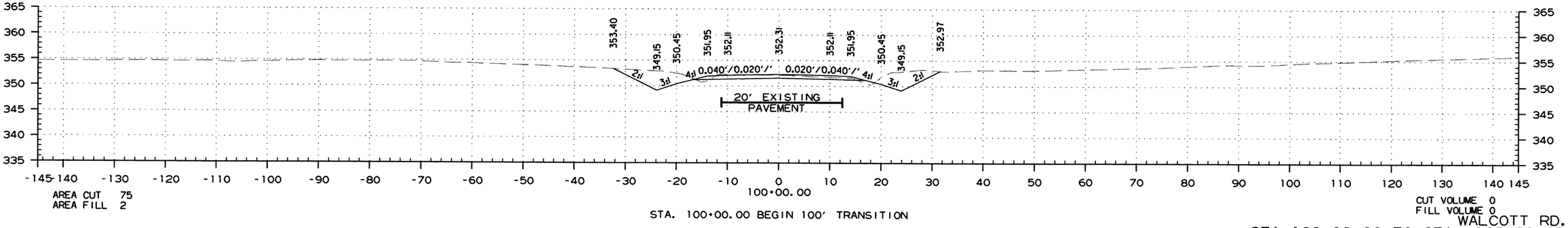
AREA CUT 45
AREA FILL 0

CUT VOLUME 173
FILL VOLUME 2



AREA CUT 70
AREA FILL 1

CUT VOLUME 51
FILL VOLUME 1



AREA CUT 75
AREA FILL 2

CUT VOLUME 0
FILL VOLUME 0

STA. 100+00.00 BEGIN 100' TRANSITION

WALCOTT RD.
STA. 100+00.00 TO STA. 102+00.00

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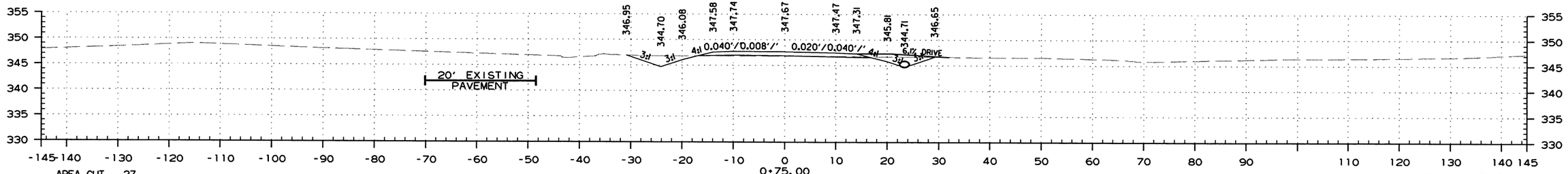
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	293	335

(2) CROSS SECTIONS

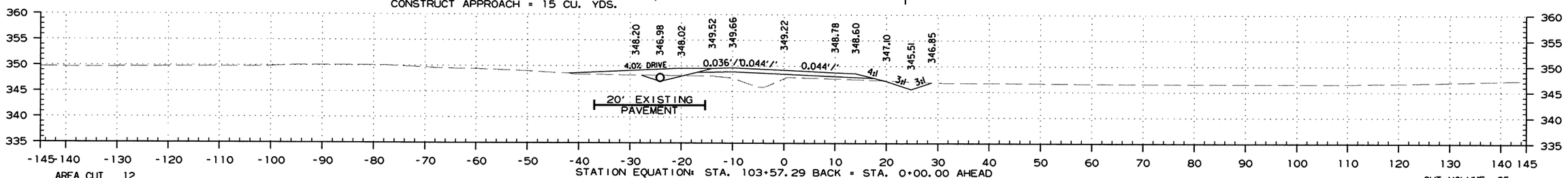
STA. 0+75 INSTALL
22" x 14" x 34' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.



AREA CUT 27
AREA FILL 3

CUT VOLUME 50
FILL VOLUME 52

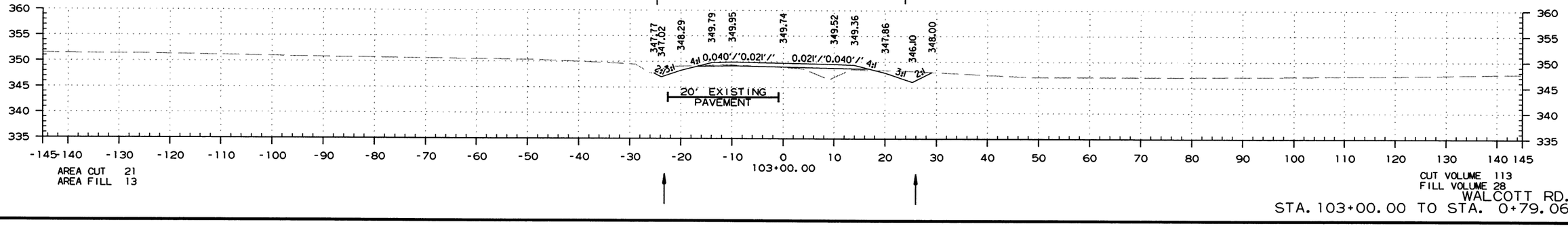
STA. 0+00 INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.



AREA CUT 12
AREA FILL 33

STATION EQUATION: STA. 103+57.29 BACK = STA. 0+00.00 AHEAD
STA. 103+53.26 MAX. SUPERELEVATION (0.046 FT./FT.)

CUT VOLUME 35
FILL VOLUME 49



AREA CUT 21
AREA FILL 13

CUT VOLUME 113
FILL VOLUME 28

WALCOTT RD.
STA. 103+00.00 TO STA. 0+79.06

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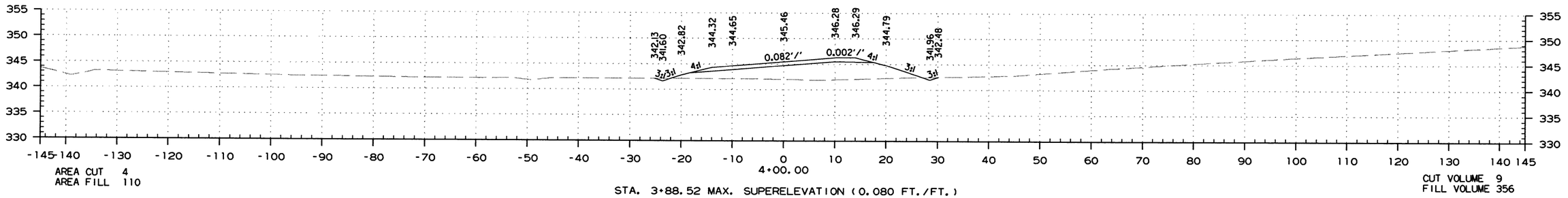
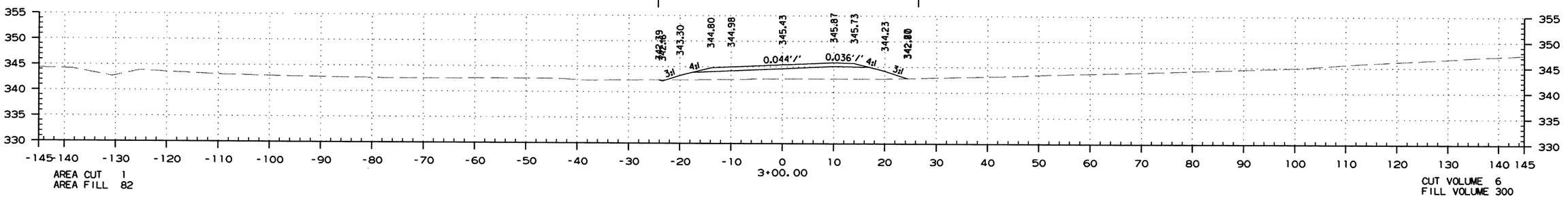
				6	ARK.			
				JOB NO.		100708	294	335

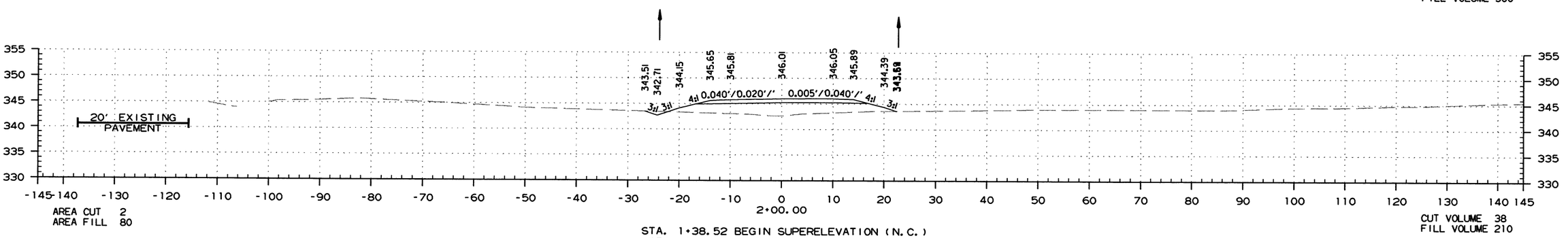
(2) CROSS SECTIONS

STA. 4+04.58 MAX. SUPERELEVATION (0.080 FT./FT.)

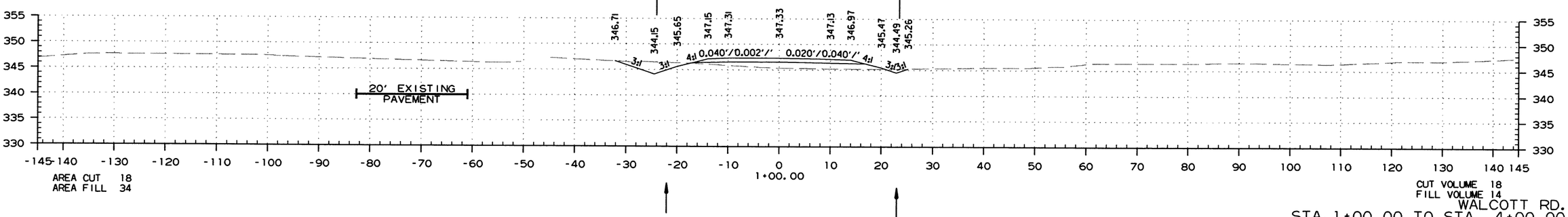


STA. 3+88.52 MAX. SUPERELEVATION (0.080 FT./FT.)





STA. 1+38.52 BEGIN SUPERELEVATION (N.C.)
STA. 1+38.51 END SUPERELEVATION (N.C.)



WALCOTT RD.
STA. 1+00.00 TO STA. 4+00.00

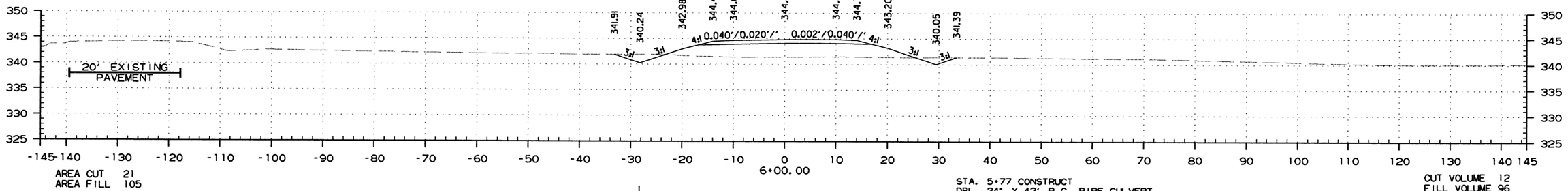
12/19/2016

R100708.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.		100708	295	335

(2) CROSS SECTIONS

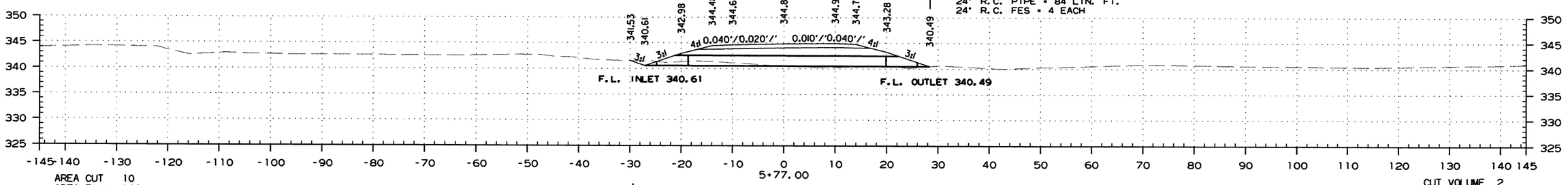
STA. 6+54.59 END SUPERELEVATION (N.C.)



AREA CUT 21
AREA FILL 105

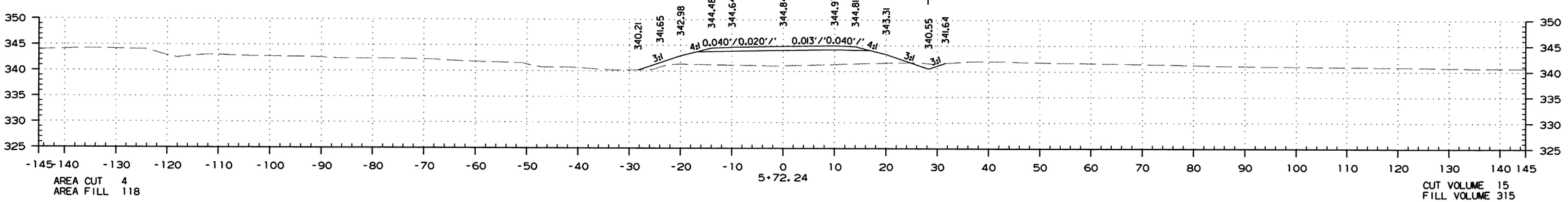
CUT VOLUME 12
FILL VOLUME 96

STA. 5+77 CONSTRUCT
DBL. 24" X 42" R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 2 BEDDING)
D.A. = 3 AC. Q50= 22 CFS
24" R.C. PIPE = 84 LIN. FT.
24" R.C. FES = 4 EACH



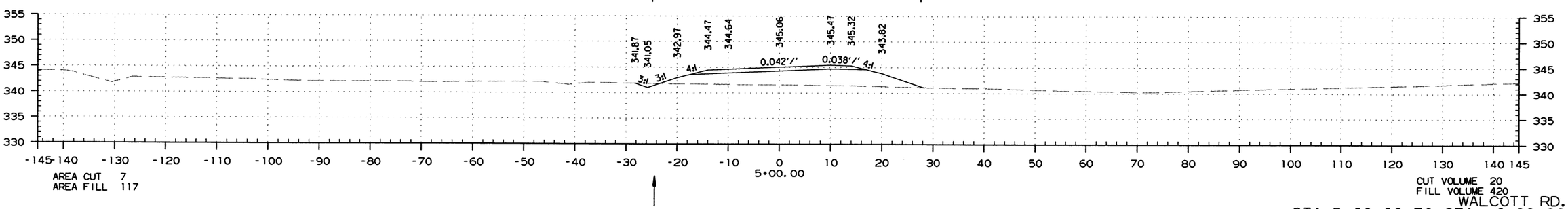
AREA CUT 10
AREA FILL 146

CUT VOLUME 2
FILL VOLUME 35



AREA CUT 4
AREA FILL 118

CUT VOLUME 15
FILL VOLUME 315



AREA CUT 7
AREA FILL 117

CUT VOLUME 20
FILL VOLUME 420

WALCOTT RD.
STA. 5+00.00 TO STA. 6+00.00

12/19/2016

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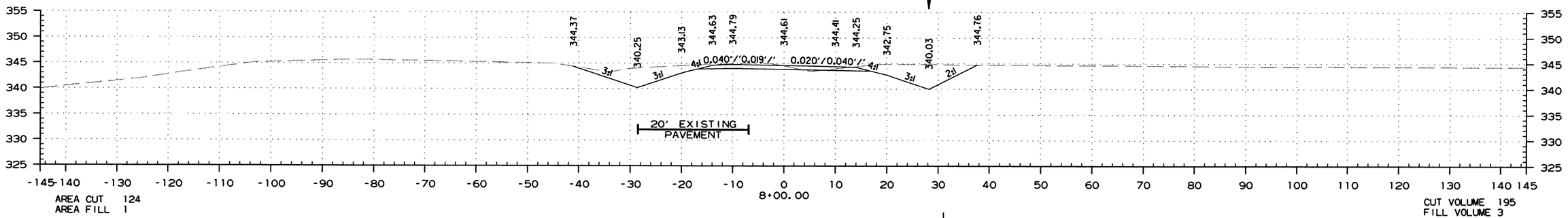
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	296	335

(2) CROSS SECTIONS

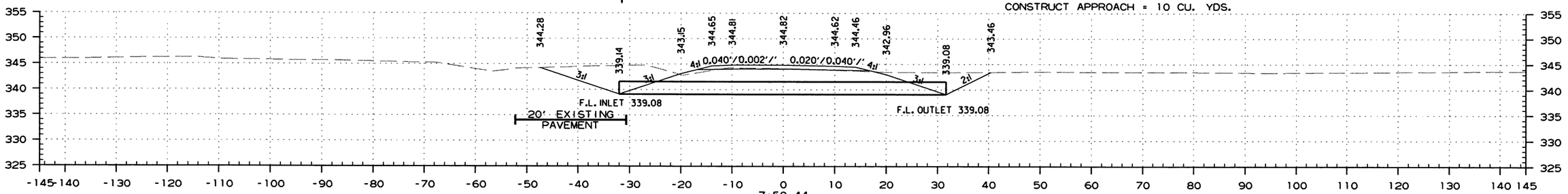
STA. 8+21.21 MAX SUPERELEVATION (0.029FT./FT.)



AREA CUT 124
AREA FILL 1

CUT VOLUME 195
FILL VOLUME 3

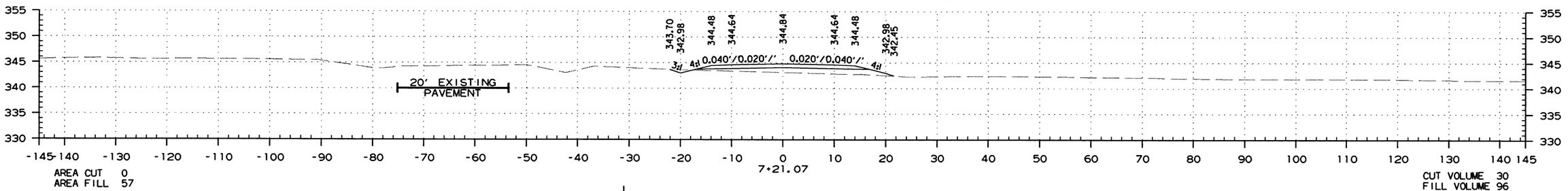
STA. 152+59 INSTALL
30" x 66' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.



AREA CUT 130
AREA FILL 4

CUT VOLUME 91
FILL VOLUME 23

STA. 7+21.14 - BEGIN - TIE TO HWY. 412
BEGIN SUPERELEVATION (N.C.)

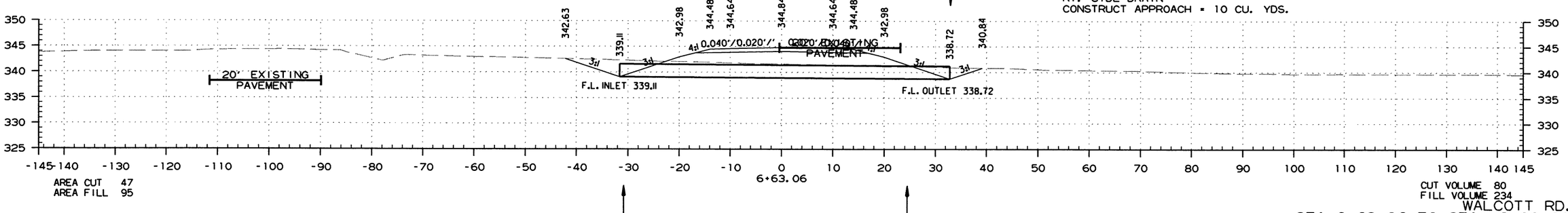


AREA CUT 0
AREA FILL 57

CUT VOLUME 30
FILL VOLUME 96

STA. 6+97.14 - END - TIE TO HWY. 412

STA. 152+59 INSTALL
30" x 66' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.



AREA CUT 47
AREA FILL 95

CUT VOLUME 80
FILL VOLUME 234

WALCOTT RD.
STA. 6+63.06 TO STA. 8+00.00

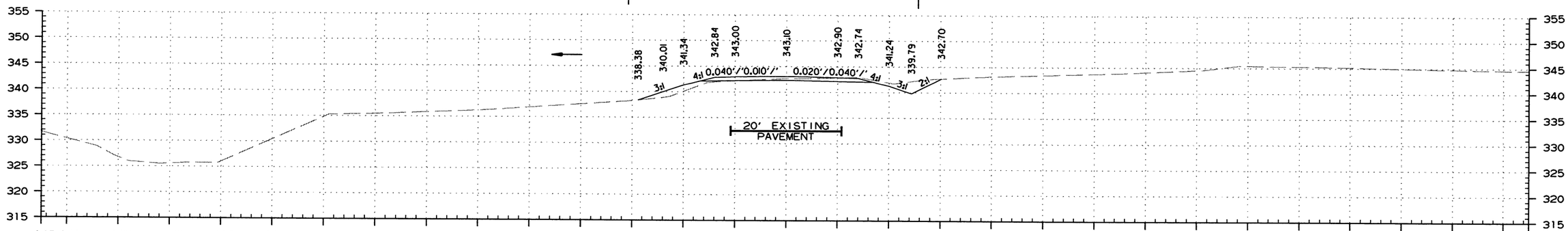
12/19/2016

R100708.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.		100708	297	335

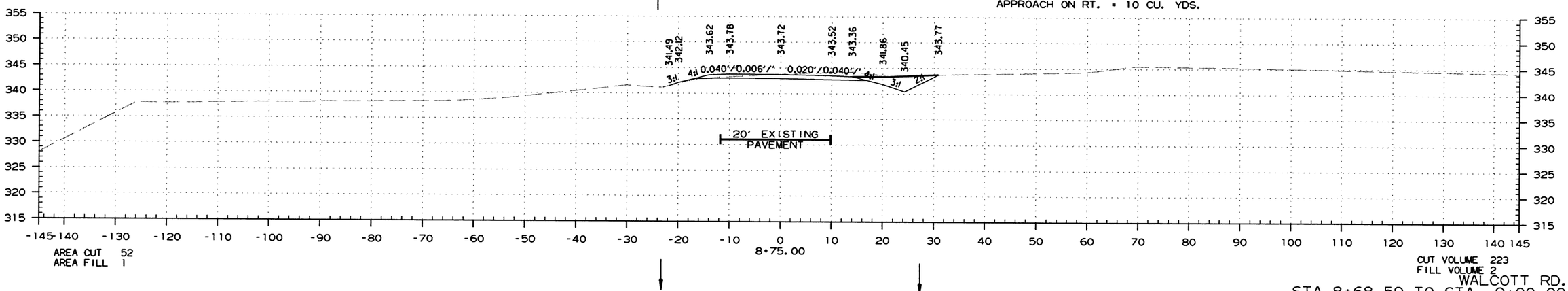
(2) CROSS SECTIONS

STA. 9+21.28 END WALLCOTT RD.
END SUPERELEVATION (N.C.)



STA. 9+00.00 END JOB 100708
BEGIN 100' TRANSITION

STA. 8+75 CONSTRUCT
APPROACH ON RT. = 10 CU. YDS.



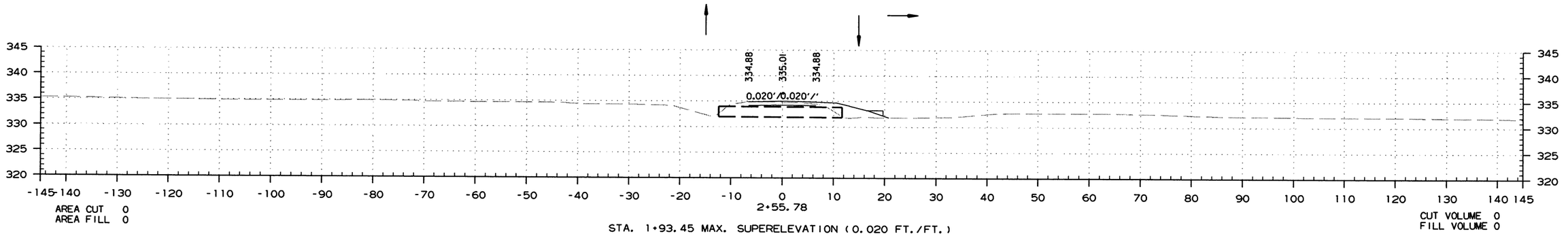
WALCOTT RD.
STA. 8+68.59 TO STA. 9+00.00

12/19/2016

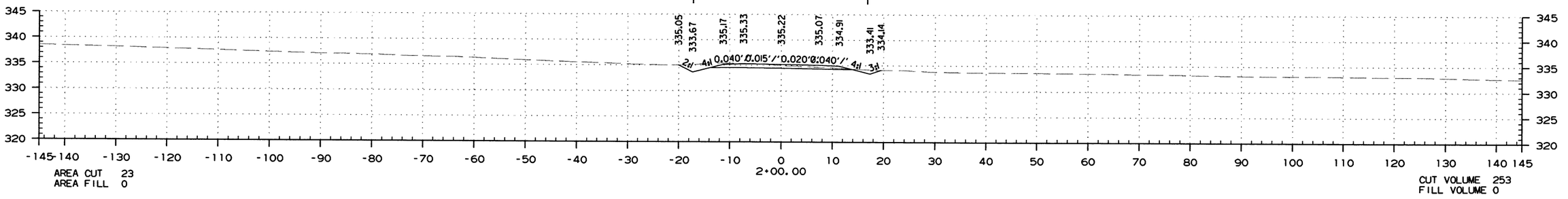
R100708.DGN

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.		100708	298	335

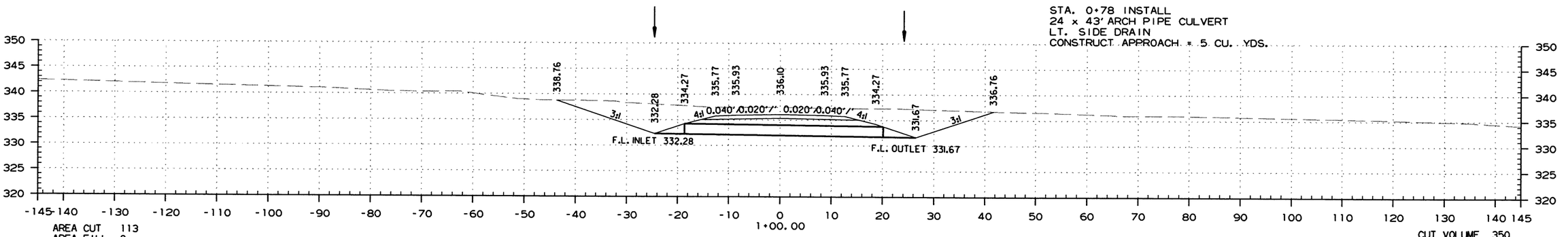
(2) CROSS SECTIONS



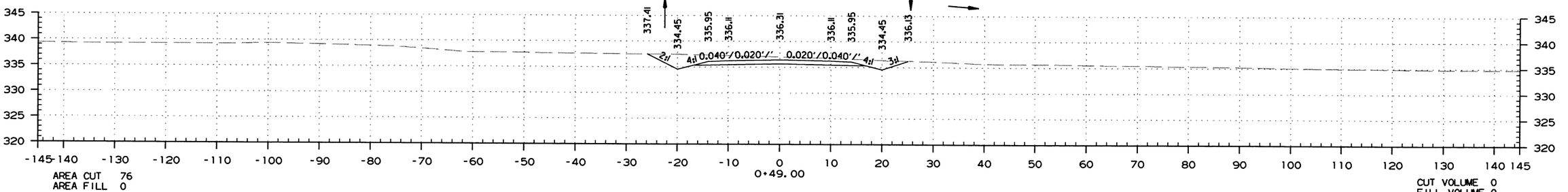
STA. 1+93.45 MAX. SUPERELEVATION (0.020 FT./FT.)



STA. 0+78 INSTALL
24 x 43' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.



STA. 0+89.48 BEGIN SUPERELEVATION (N.C.)



STA. 0+49.00 BEGIN WESTBROOK RD.

WESTBROOK RD.
STA. 0+00.00 TO STA. 2+55.78

12/19/2016

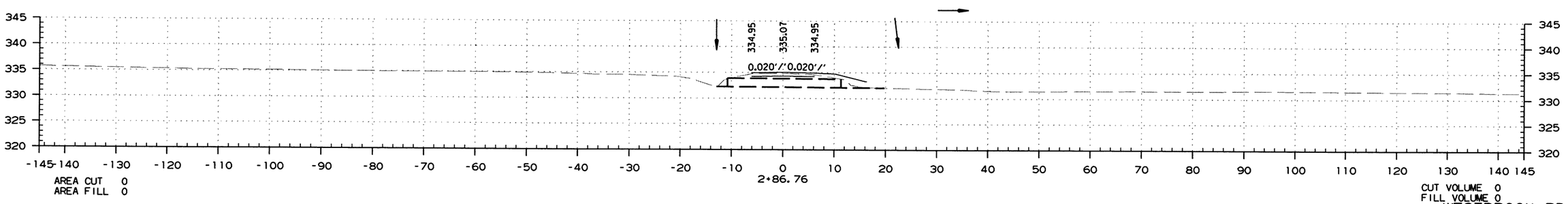
R100708.DGN

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.		100708	299	335

(2) CROSS SECTIONS

STA. 3+97.41 END WESTBROOK RD.
BEGIN 100' TRANSITION

STA. 2+97.41 END WESTBROOK RD.
BEGIN 100' TRANSITION



WESTBROOK RD.
STA. 2+86.76 TO STA. 2+97.41

12/19/2016

R100708.DGN

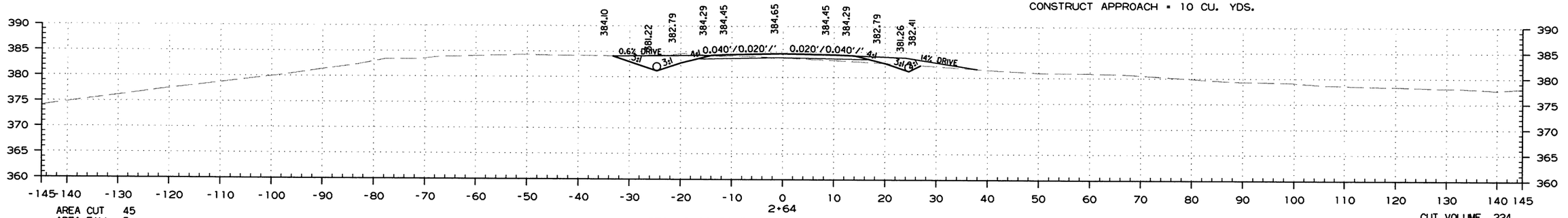
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	300	335

(2) CROSS SECTIONS

STA. 2+96.64 BEGIN SUPERELEVATION (N.C.)

STA. 2+64 INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.

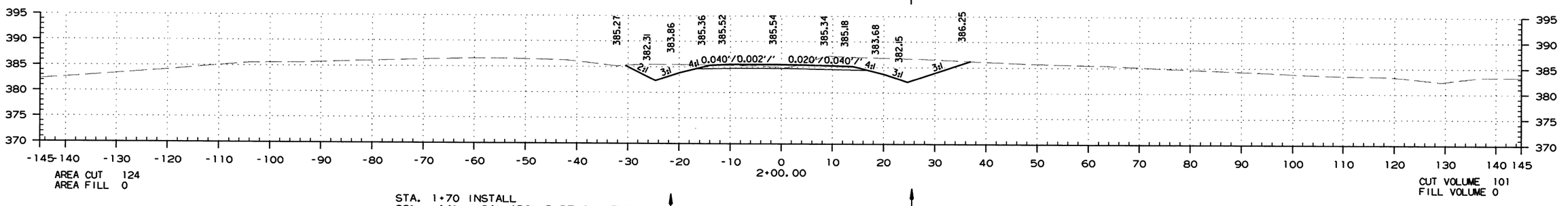
STA. 2+64 INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.



AREA CUT 45
AREA FILL 5

CUT VOLUME 224
FILL VOLUME 7

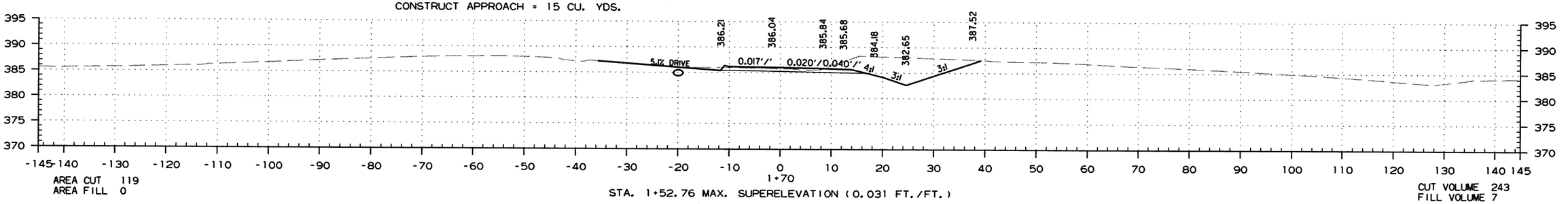
STA. 2+29.59 END SUPERELEVATION (N.C.)



AREA CUT 124
AREA FILL 0

CUT VOLUME 101
FILL VOLUME 0

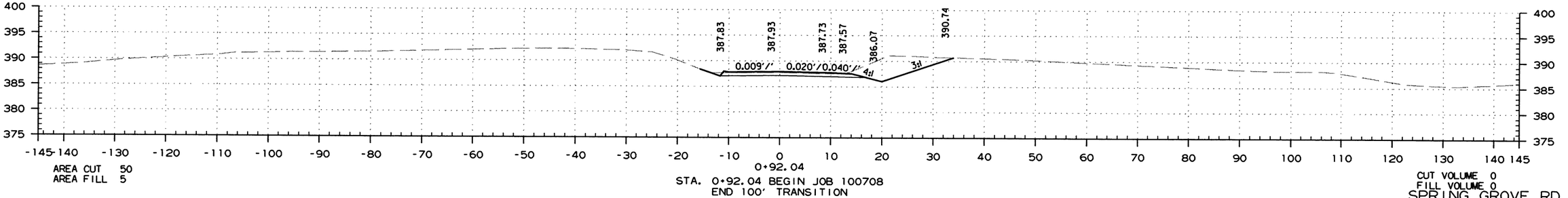
STA. 1+70 INSTALL
22" x 14" x 34' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS.



AREA CUT 119
AREA FILL 0

CUT VOLUME 243
FILL VOLUME 7

STA. 1+52.76 MAX. SUPERELEVATION (0.031 FT./FT.)



AREA CUT 50
AREA FILL 5

CUT VOLUME 0
FILL VOLUME 0

STA. 0+92.04 BEGIN JOB 100708
END 100' TRANSITION

STA. 0+75.94 BEGIN SUPERELEVATION (N.C.)

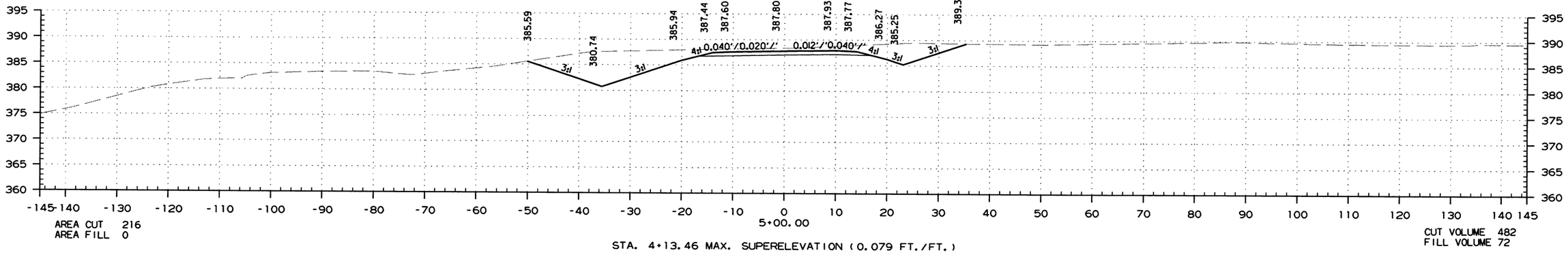
SPRING GROVE RD.
STA. 0+92.04 TO STA. 2+63.52

12/19/2016

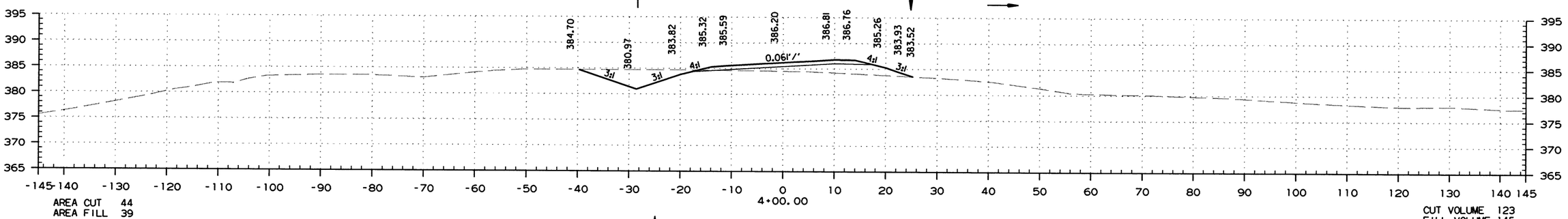
R100708.DGN

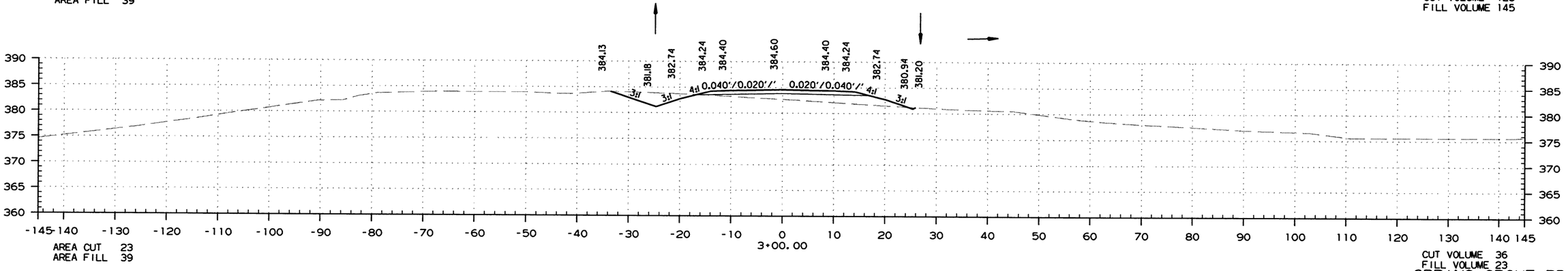
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	301	335

(2) CROSS SECTIONS



STA. 4+13.46 MAX. SUPERELEVATION (0.079 FT./FT.)





SPRING GROVE RD.
STA. 2+92.04 TO STA. 5+00.00

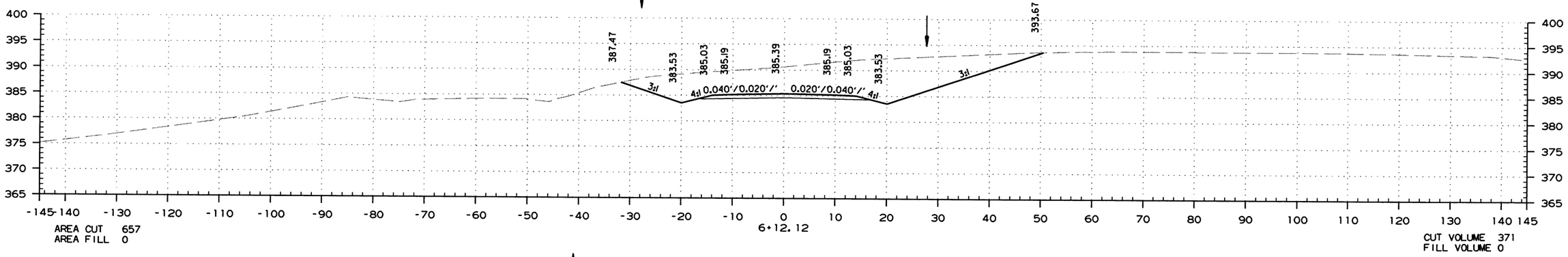
12/19/2016

R100708.DGN

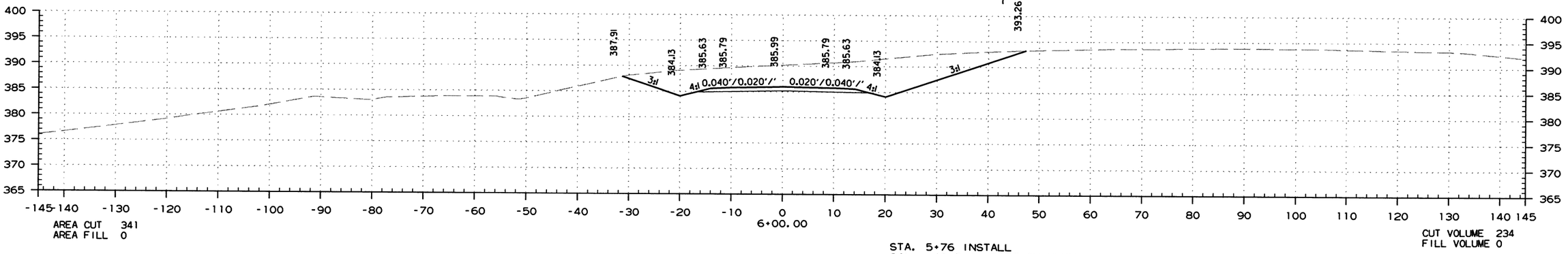
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	302	335

(2) CROSS SECTIONS

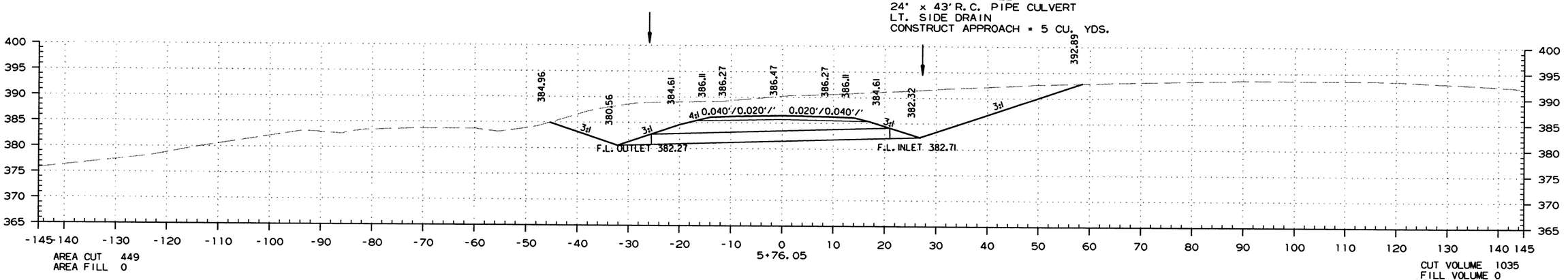
STA. 0+78 INSTALL
29" x 43' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.



STA. 5+30.28 END SUPERELEVATION (N.C.)



STA. 5+76 INSTALL
24" x 43' R.C. PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.



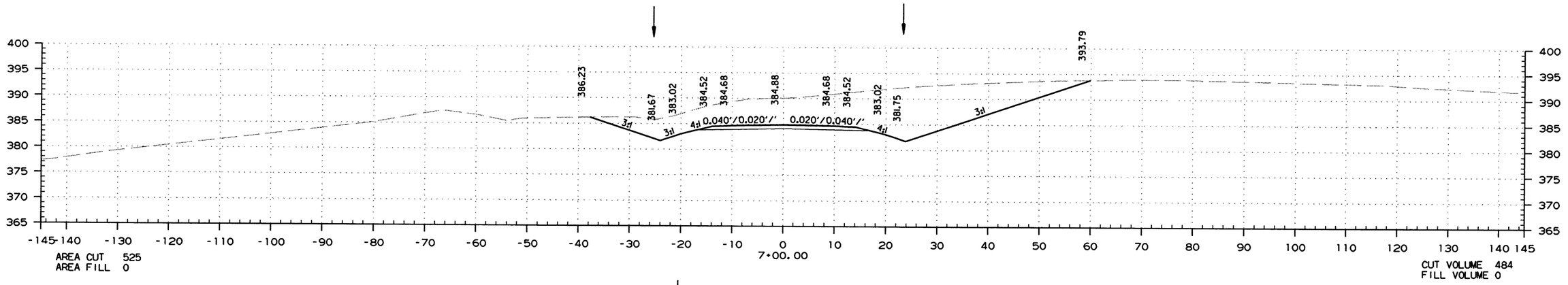
SPRING GROVE RD.
STA. 5+76.05 TO STA. 6+12.12

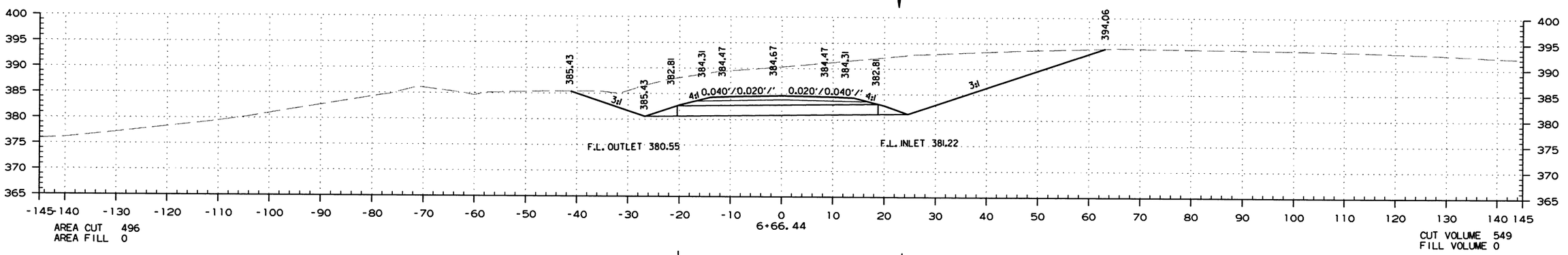
12/19/2016

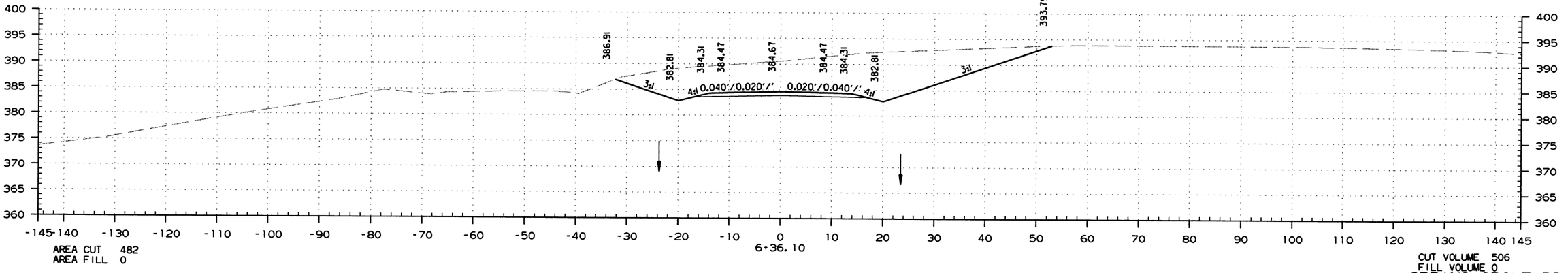
R100708.DGN

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.		100708	303	335

(2) CROSS SECTIONS







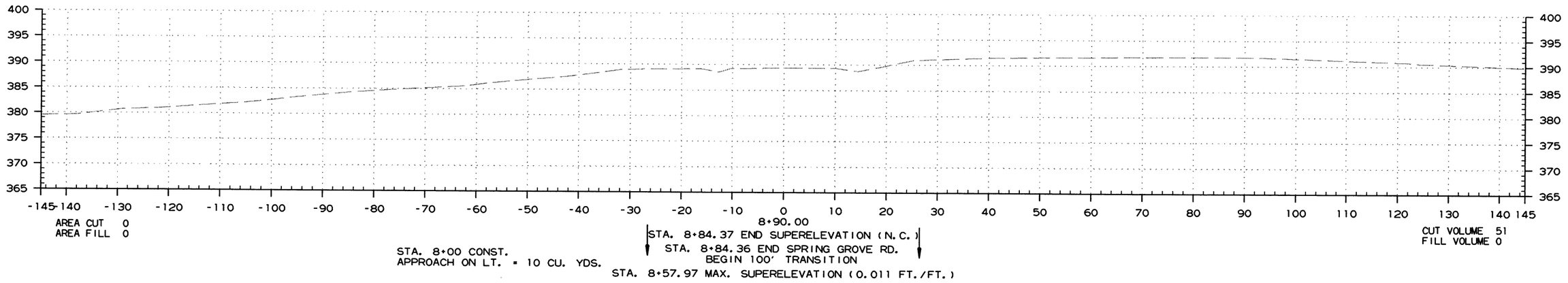
SPRING GROVE RD.
STA. 6+36.10 TO STA. 7+00.00

12/19/2016

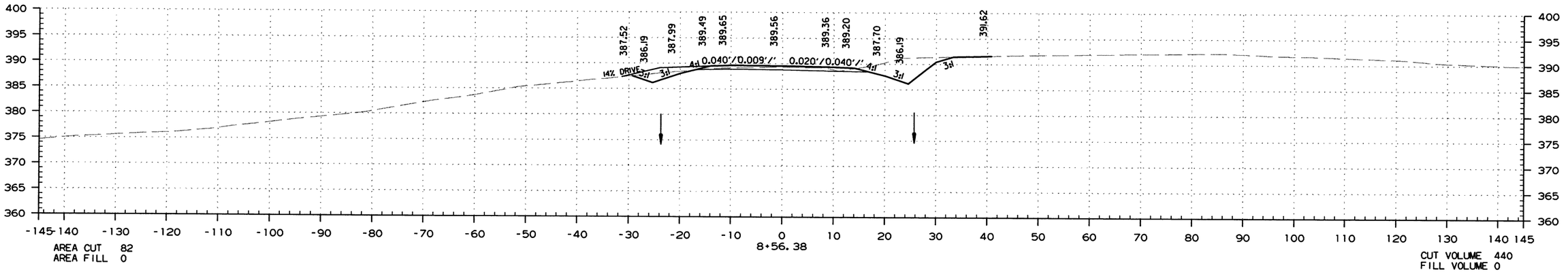
R100708.DGN

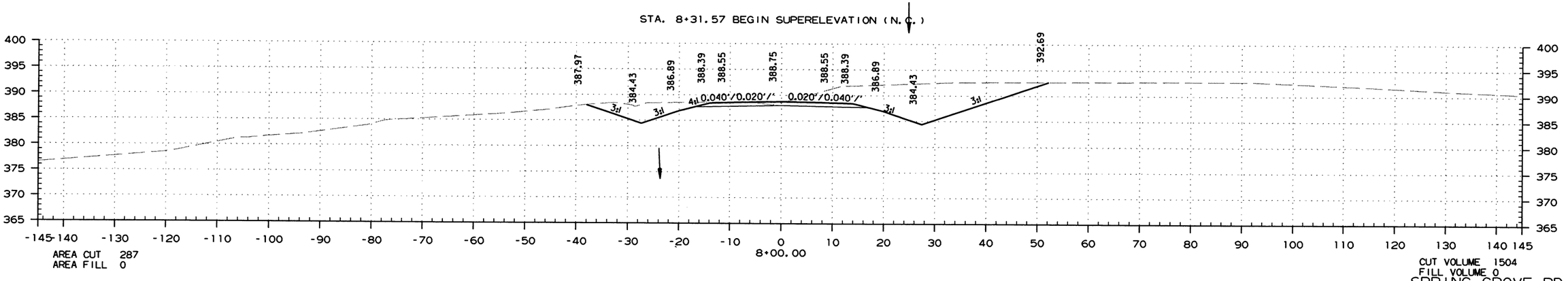
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	304	335

(2) CROSS SECTIONS



STA. 8+00 CONST.
APPROACH ON LT. = 10 CU. YDS.





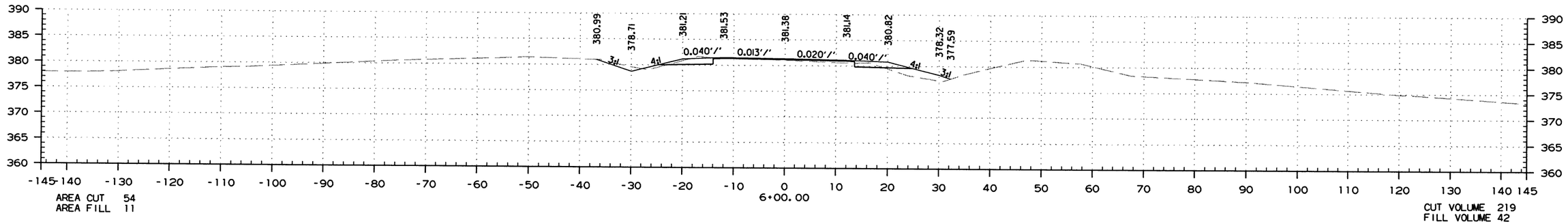
SPRING GROVE RD.
STA. 8+00.00 TO STA. 8+90.00

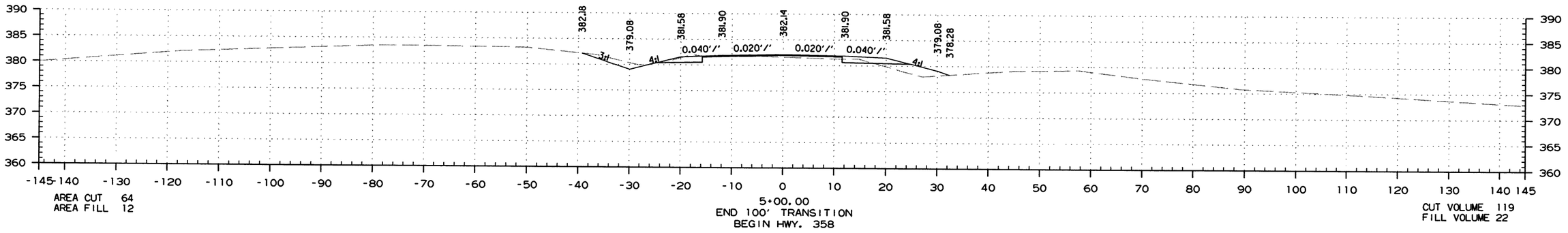
12/19/2016

R100708.DGN

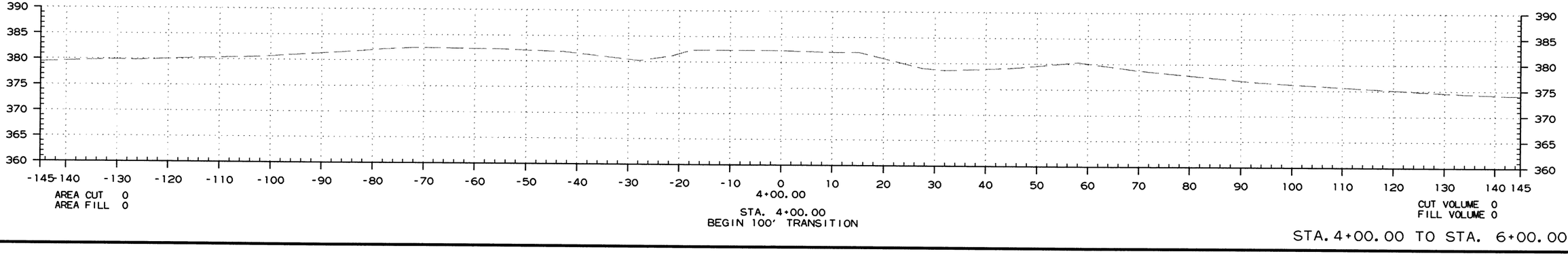
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	305	335

(2) CROSS SECTIONS





STA. 5+00.00 BEGIN SUPERELEVATION (N.C.)



STA. 4+00.00 TO STA. 6+00.00

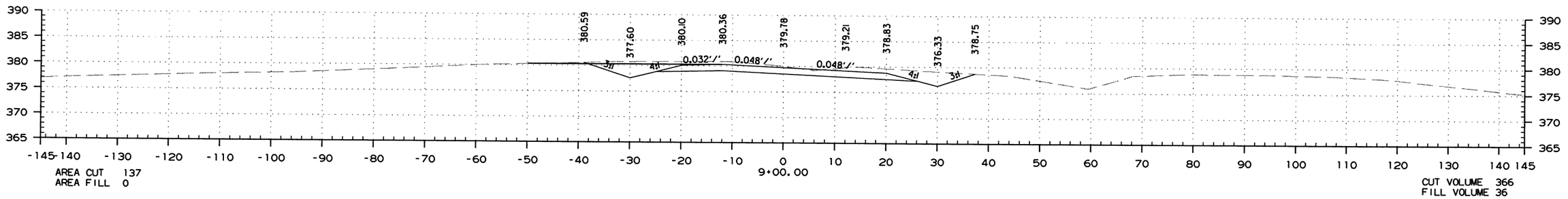
12/19/2016

R100708.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.		100708	336	335

(2) CROSS SECTIONS

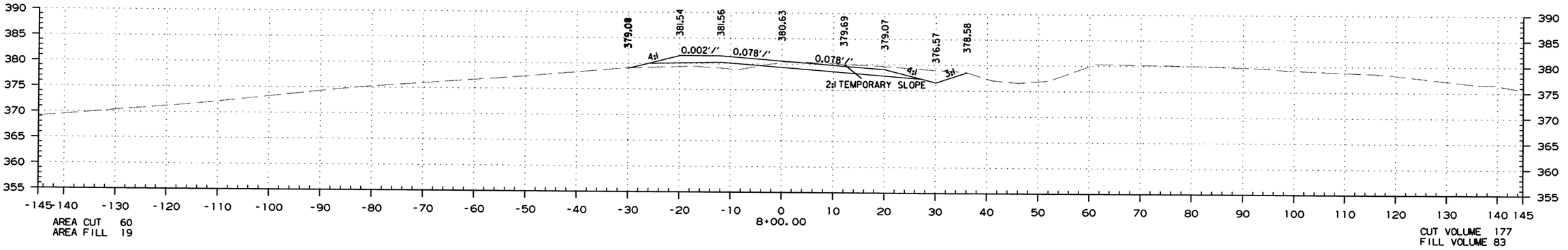
CO. RD. 750 ON LT.
STA. 8+03.07 HWY. 358



AREA CUT 137
AREA FILL 0

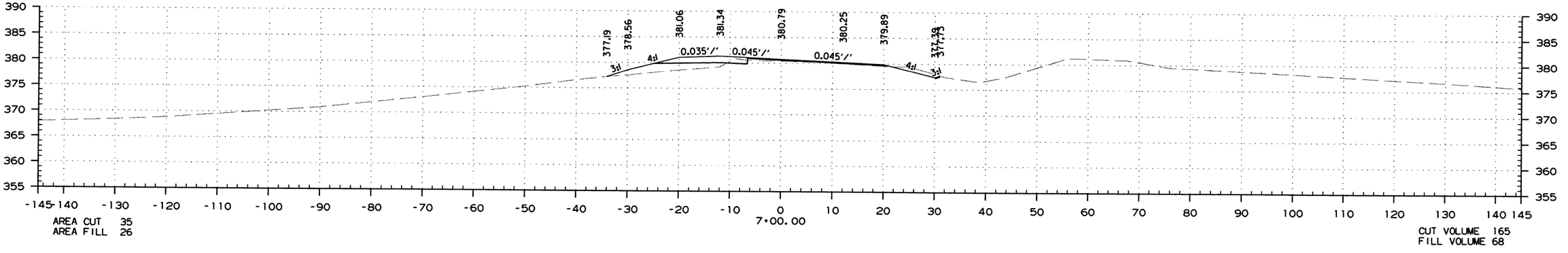
CUT VOLUME 366
FILL VOLUME 36

STA. 8+03.80 MAX. SUPERELEVATION (0.079 FT./FT.)



AREA CUT 60
AREA FILL 19

CUT VOLUME 177
FILL VOLUME 83



AREA CUT 35
AREA FILL 26

CUT VOLUME 165
FILL VOLUME 68

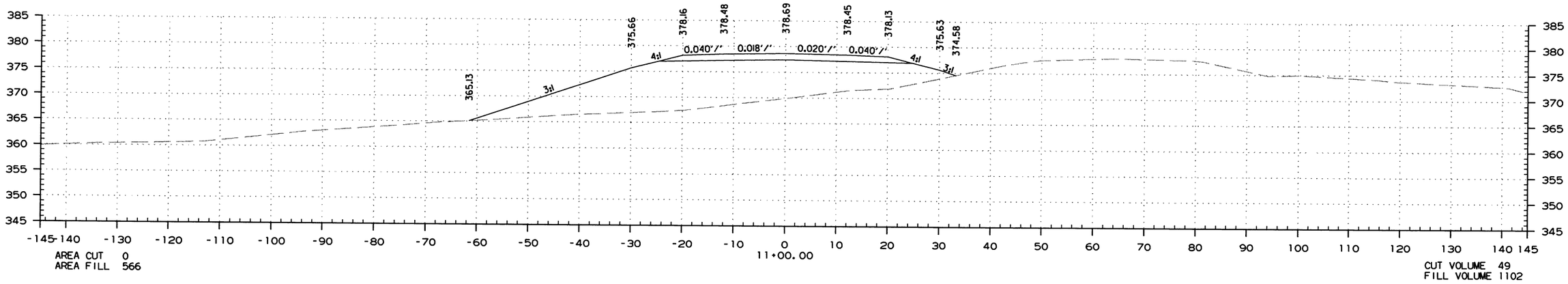
STA. 7+00.00 TO STA. 9+00.00

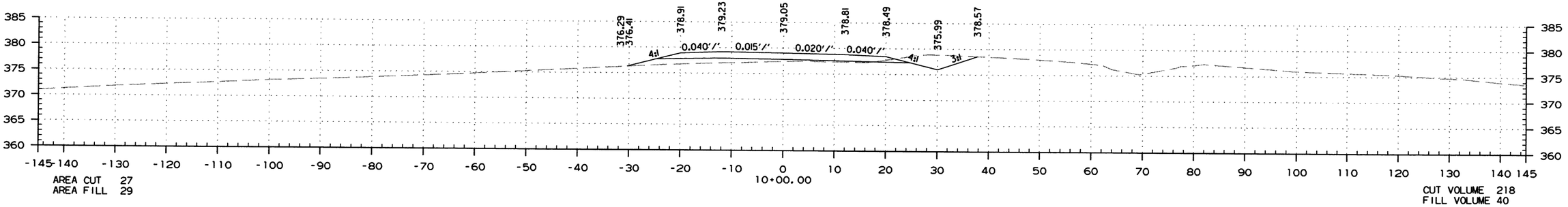
12/19/2016

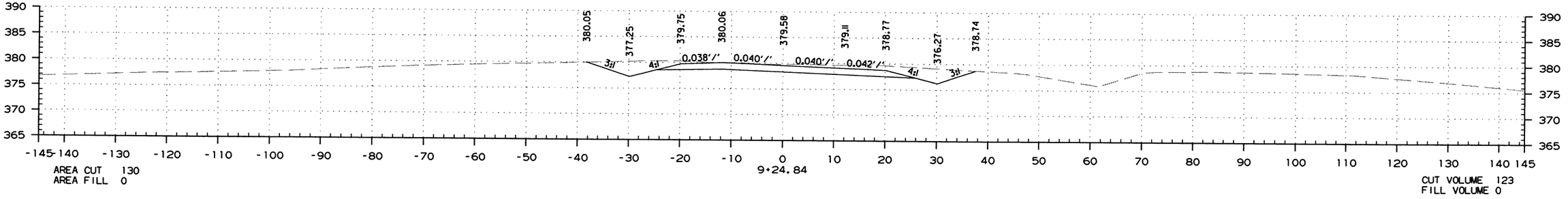
R100708.DGN

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.		100708	307	375

(2) CROSS SECTIONS







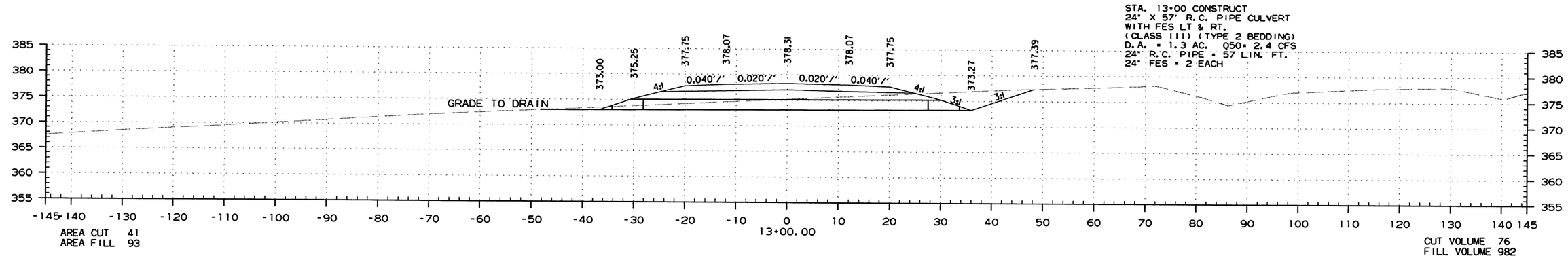
STA. 9+24.84 TO STA. 11+00.00

12/19/2016

R100708.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.		100708	305	335

(2) CROSS SECTIONS



STA. 11+07.60 END SUPERELEVATION (N.C.)

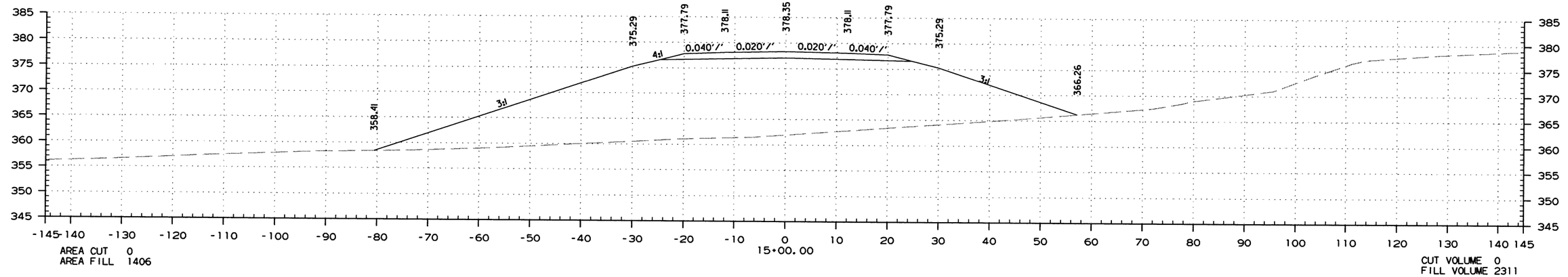
STA. 12+00.00 TO STA. 13+81.21

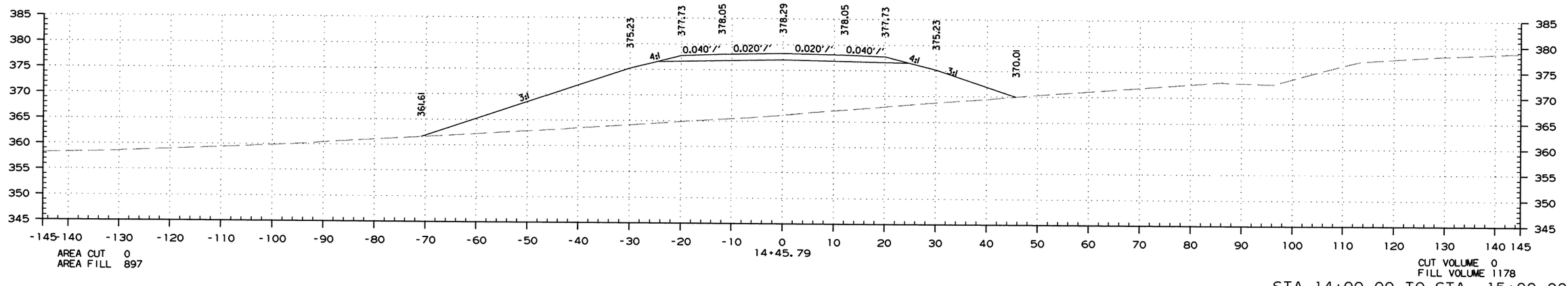
12/19/2016

R100708.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.		100708	304	335

(2) CROSS SECTIONS





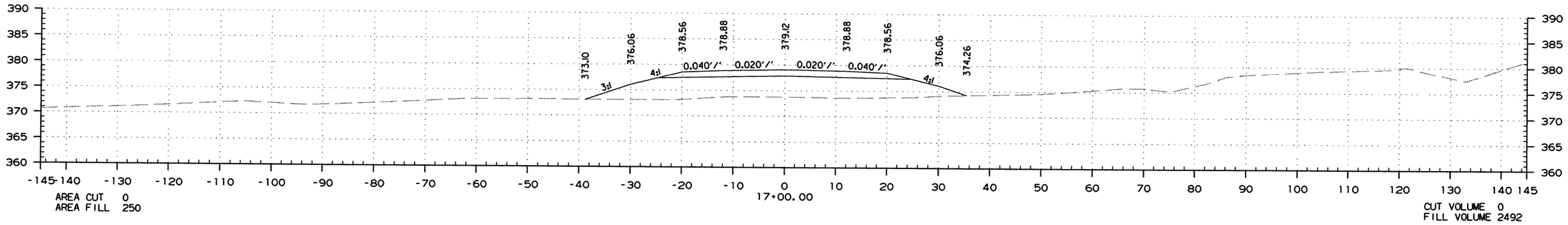
STA. 14+00.00 TO STA. 15+00.00

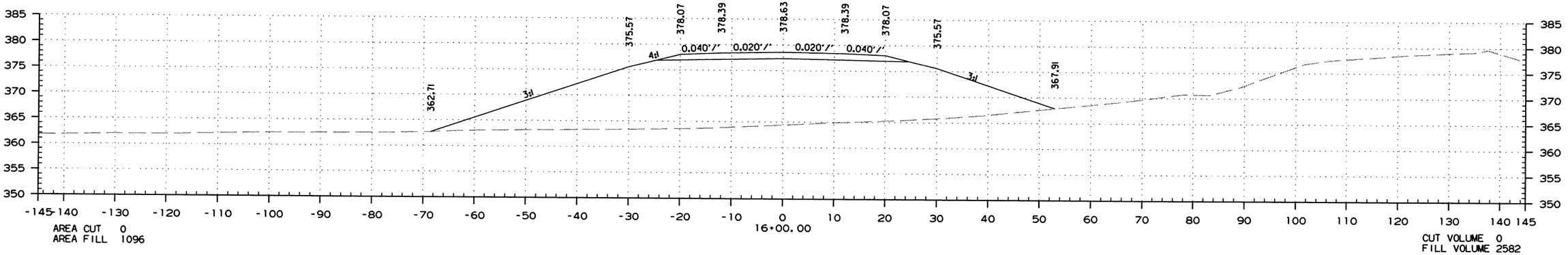
12/19/2016

R100708.DGN

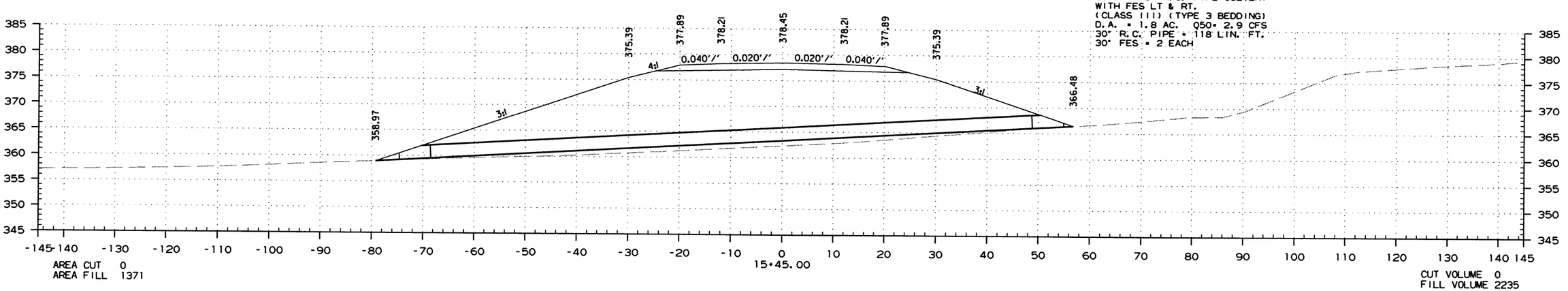
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	310	335

(2) CROSS SECTIONS





STA. 15+45 CONSTRUCT
30" X 118' R.C. PIPE CULVERT
WITH FES LT & RT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 1.8 AC. Q50= 2.9 CFS
30" R.C. PIPE = 118 LIN. FT.
30" FES = 2 EACH



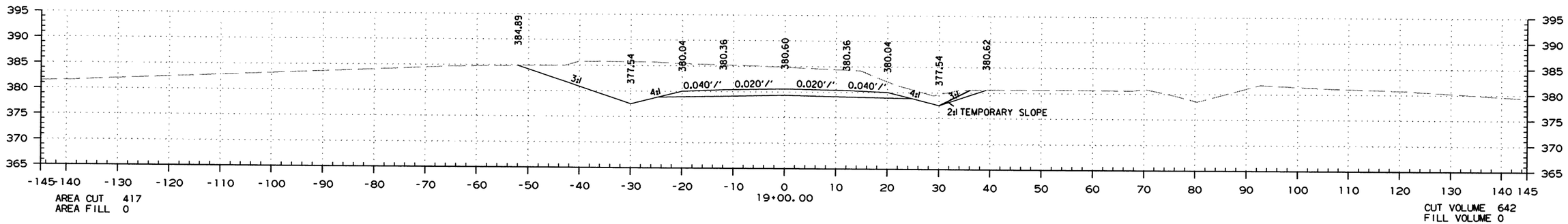
STA. 15+43.47 TO STA. 17+00.00

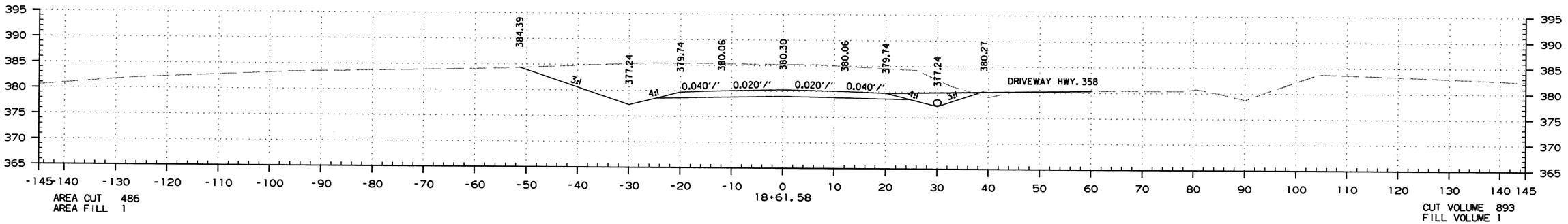
12/19/2016

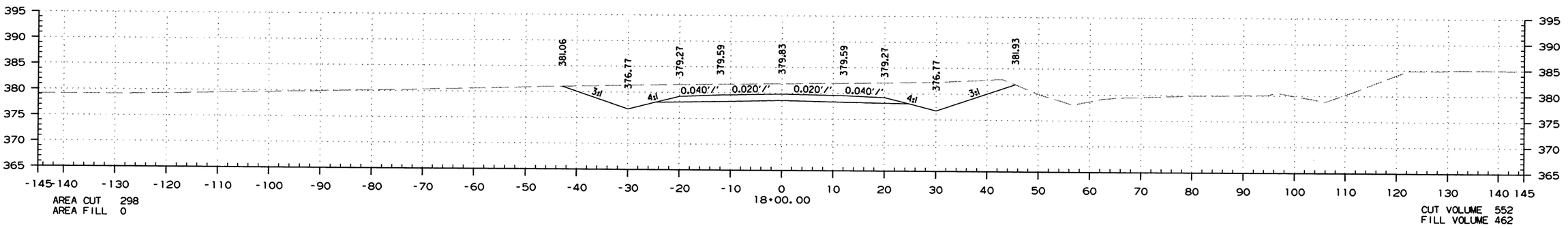
R100708.DGN

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.		100708	3/1	335

(2) CROSS SECTIONS







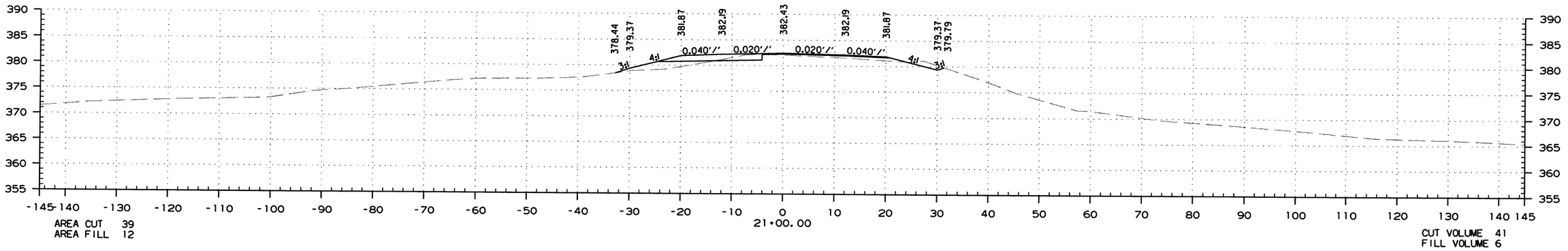
STA. 18+00.00 TO STA. 19+00.00

12/19/2016

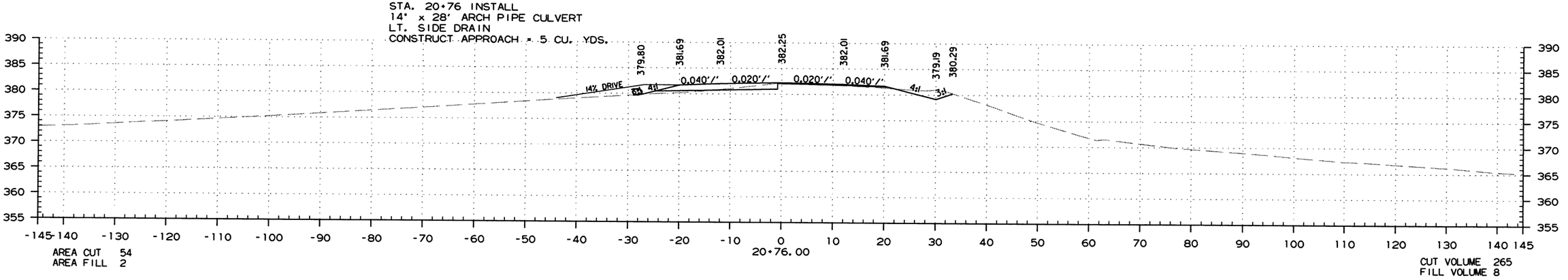
R100708.DGN

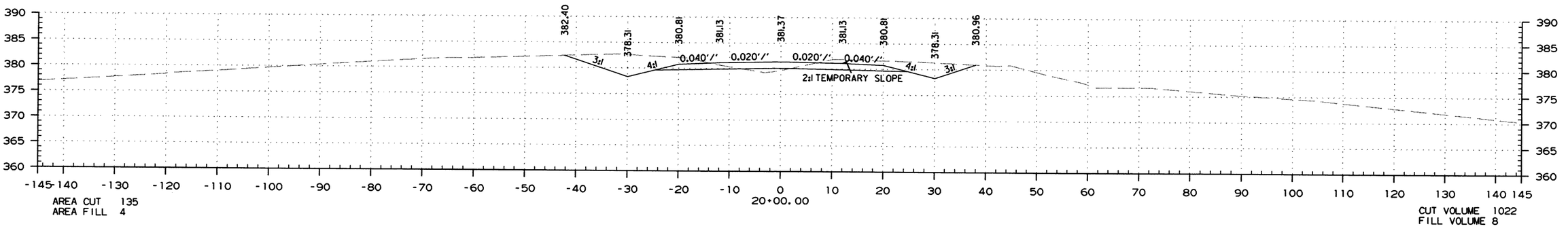
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	312	335

(2) CROSS SECTIONS



STA. 20+76 INSTALL
14' x 28' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.





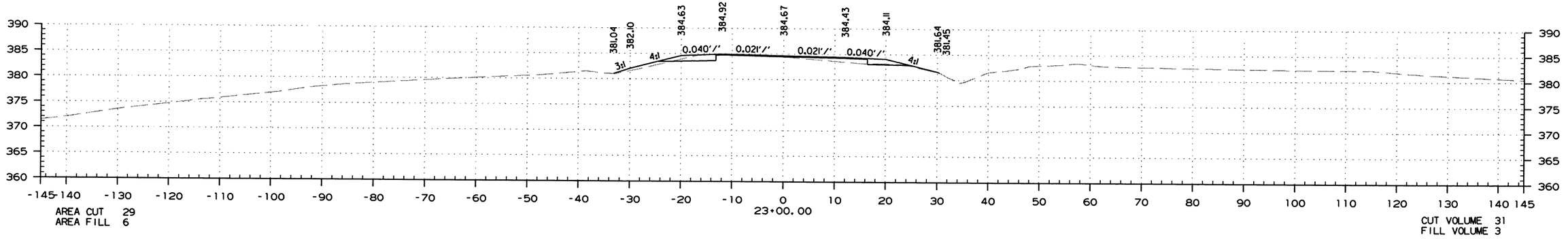
STA. 20+00.00 TO STA. 21+00.00

12/19/2016

R100708.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.		100708	313	335

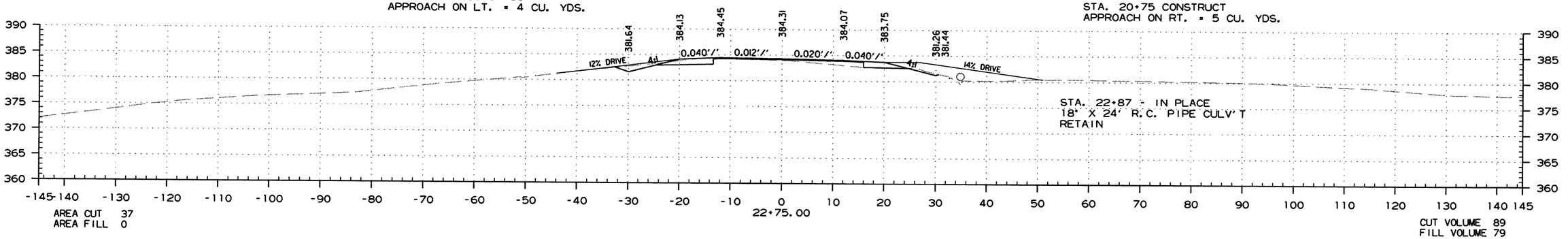
(2) CROSS SECTIONS



AREA CUT 29
AREA FILL 6

CUT VOLUME 31
FILL VOLUME 3

STA. 20+75 CONSTRUCT
APPROACH ON LT. = 4 CU. YDS.

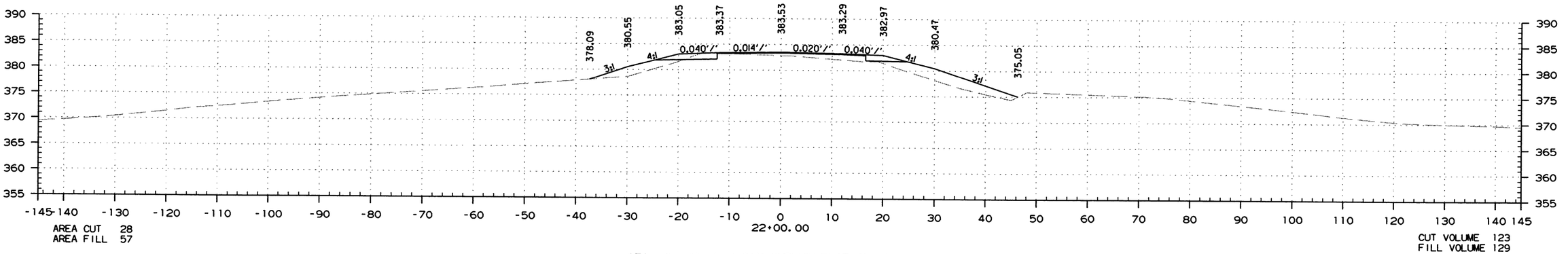


AREA CUT 37
AREA FILL 0

STA. 20+75 CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.

STA. 22+87 - IN PLACE
18' X 24' R.C. PIPE CULV'T
RETAIN

CUT VOLUME 89
FILL VOLUME 79



AREA CUT 28
AREA FILL 57

CUT VOLUME 123
FILL VOLUME 129

STA. 21+82.70 BEGIN SUPERELEVATION (N.C.)

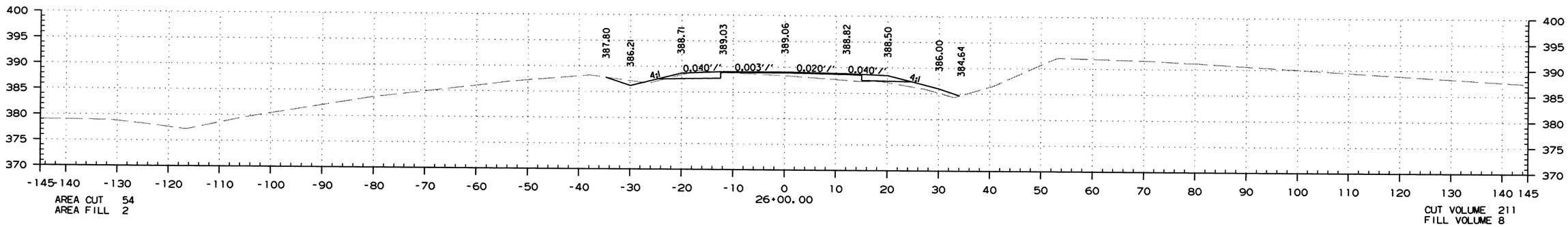
STA. 22+00.00 TO STA. 23+00.00

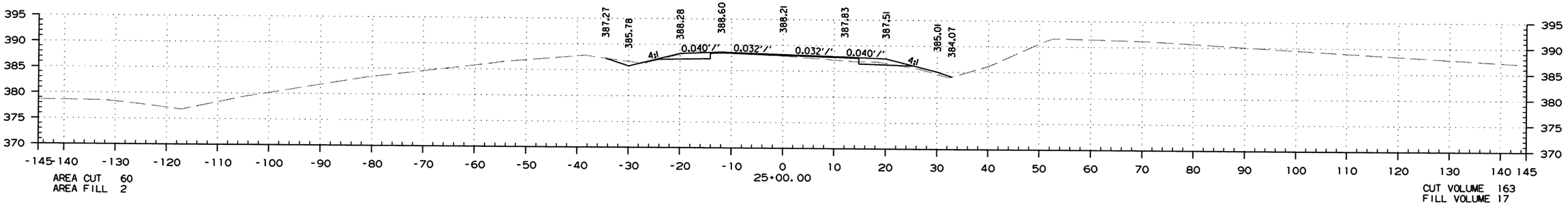
12/19/2016

R100708.DGN

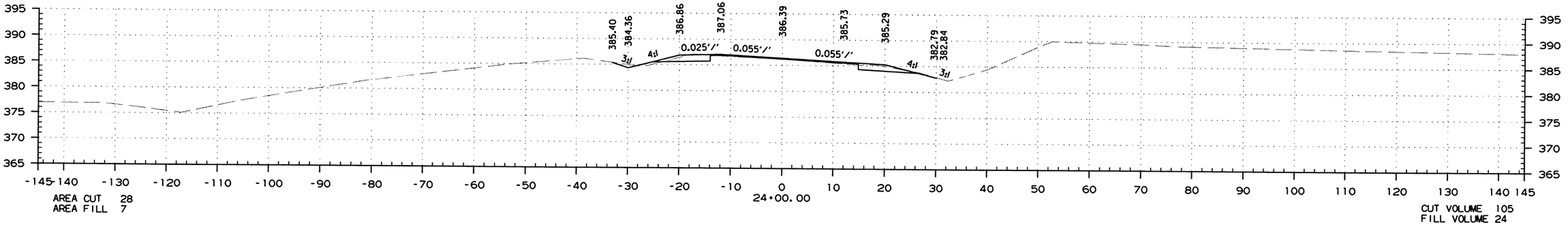
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	314	335

(2) CROSS SECTIONS





STA. 24+16.35 MAX. SUPERELEVATION (0.061 FT./FT.)



STA. 24+00.00 TO STA. 26+00.00

12/19/2016

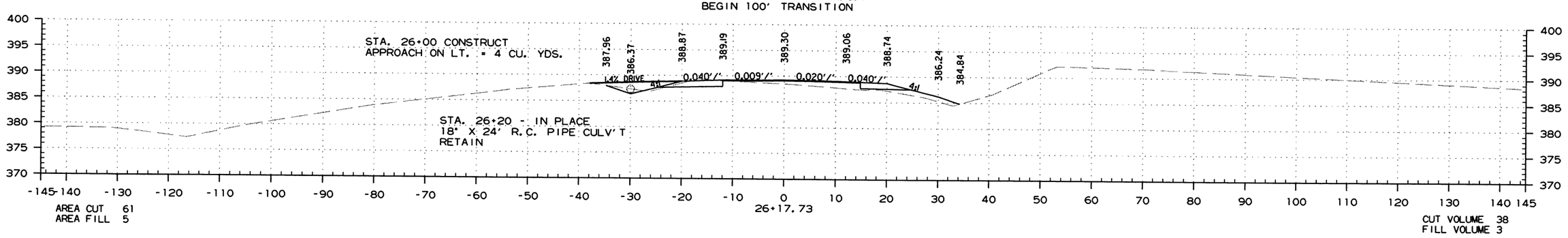
R100708.DGN

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.		100708	315	335

(2) CROSS SECTIONS

STA. 27+50.00
END 100' TRANSITION

STA. 26+50.00 END HWY. 358
END SUPERELEVATION (N.C.)
BEGIN 100' TRANSITION



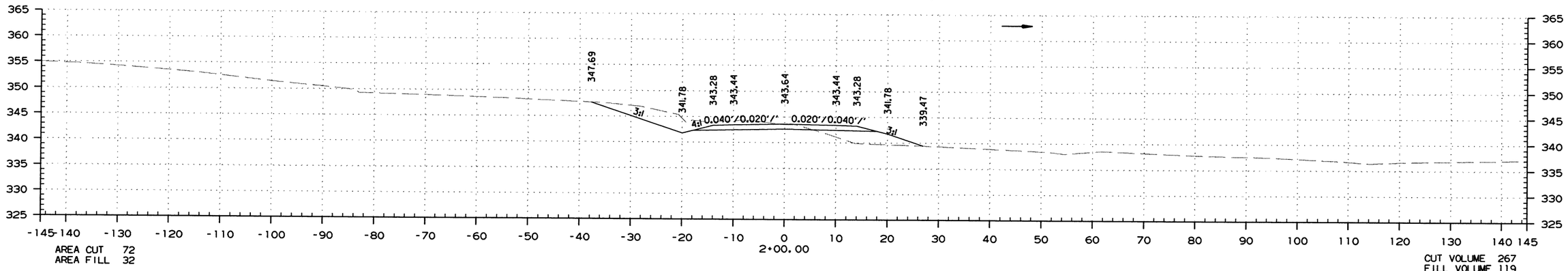
STA. 26+17.73 TO STA. 26+72.76

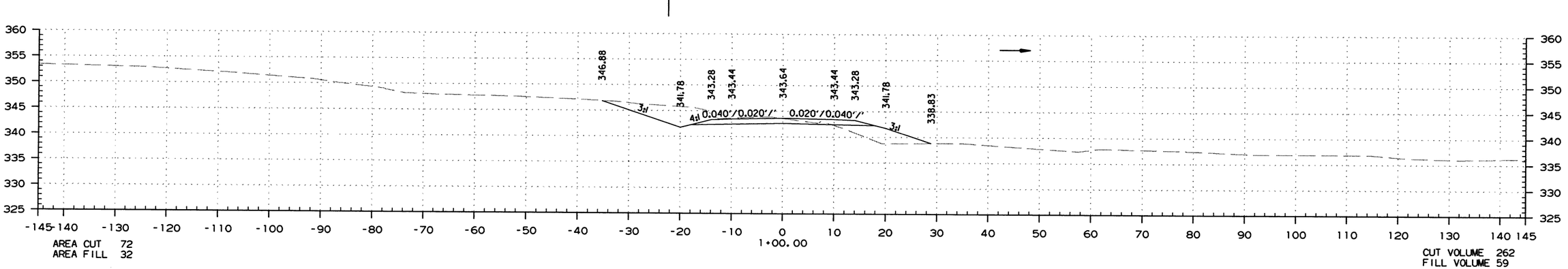
12/19/2016

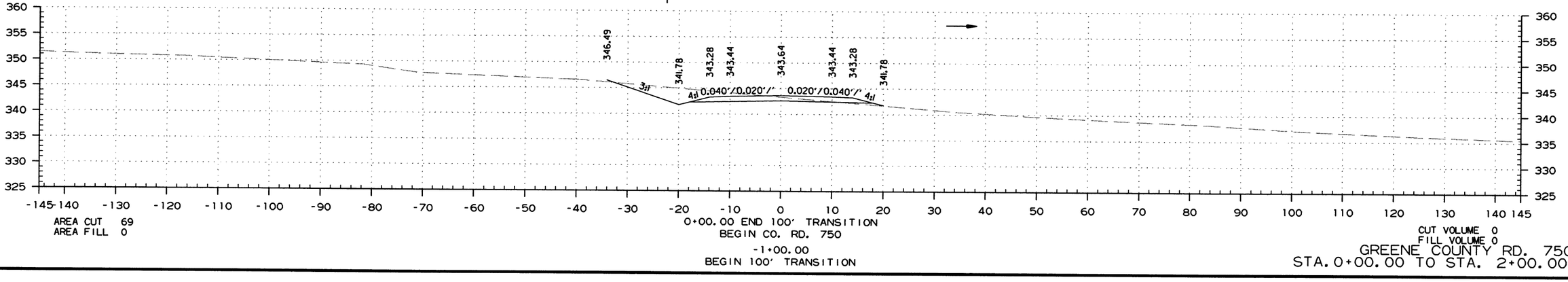
R100708.DGN

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.		100708	316	335

(2) CROSS SECTIONS







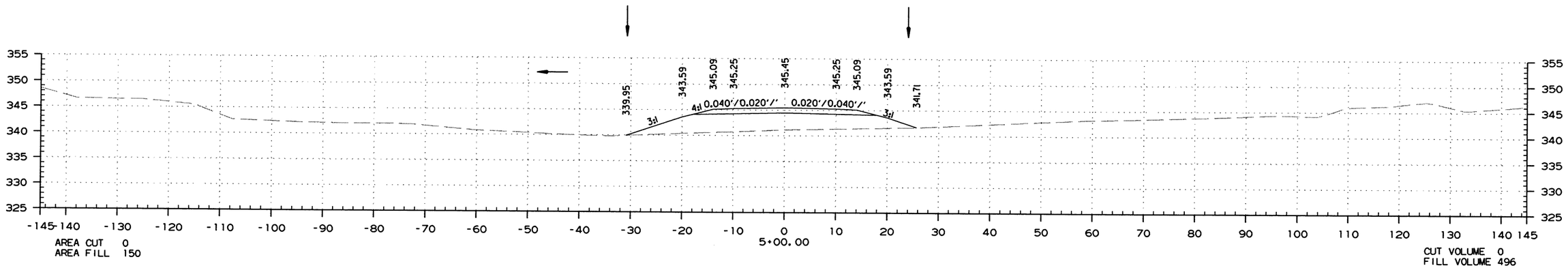
GREENE COUNTY RD. 750
STA. 0+00.00 TO STA. 2+00.00

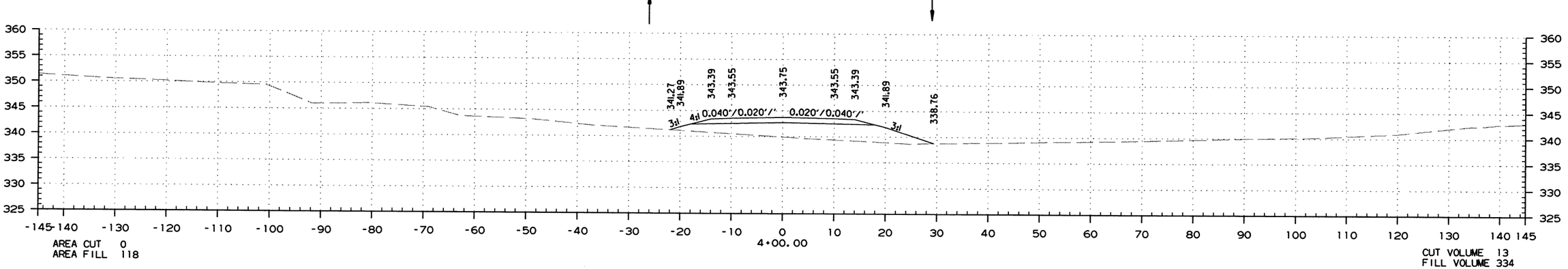
12/19/2016

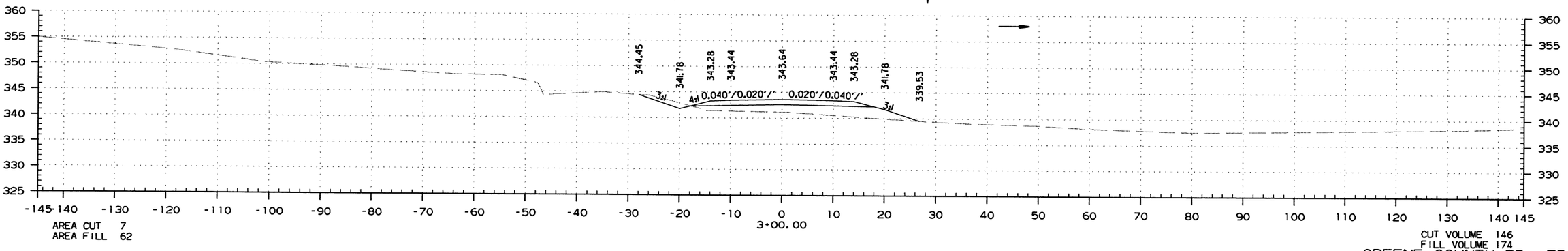
R100708.DGN

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.		100708	317	335

(2) CROSS SECTIONS







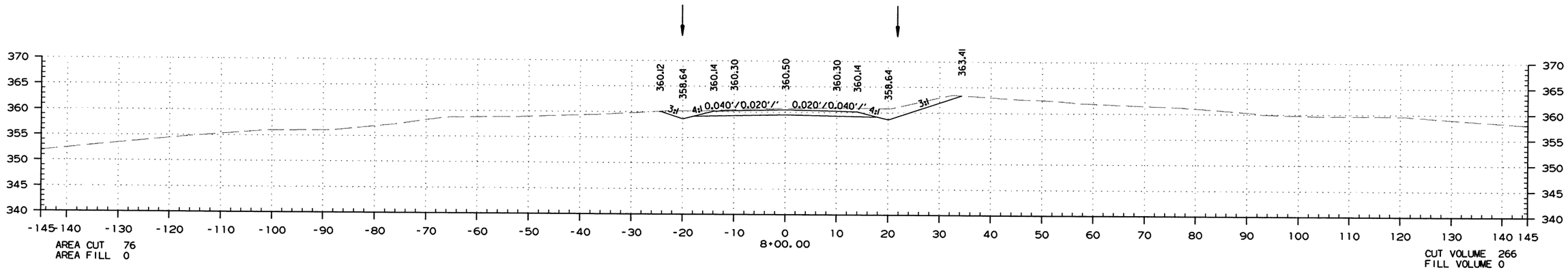
GREENE COUNTY RD. 750
STA. 3+00.00 TO STA. 5+00.00

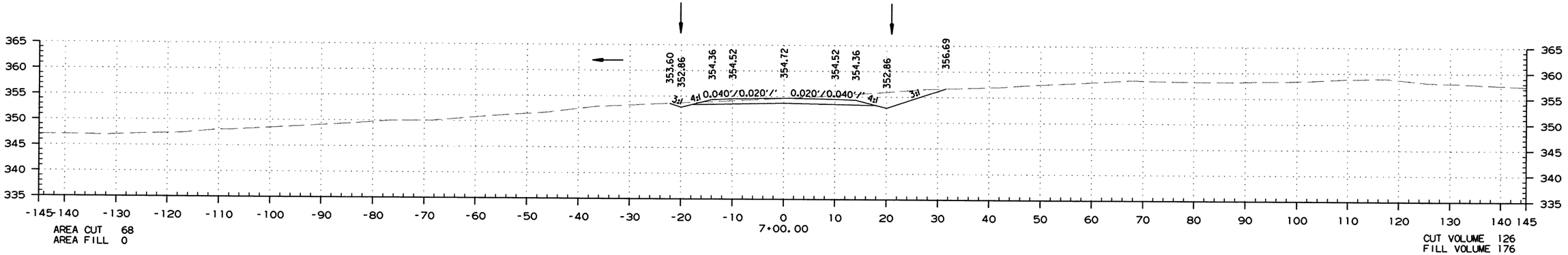
12/19/2016

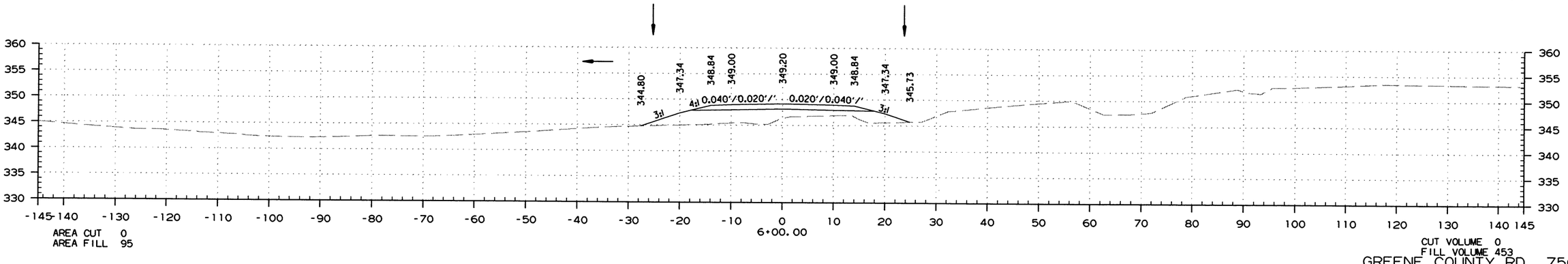
R100708.DGN

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.		100708	318	335

(2) CROSS SECTIONS







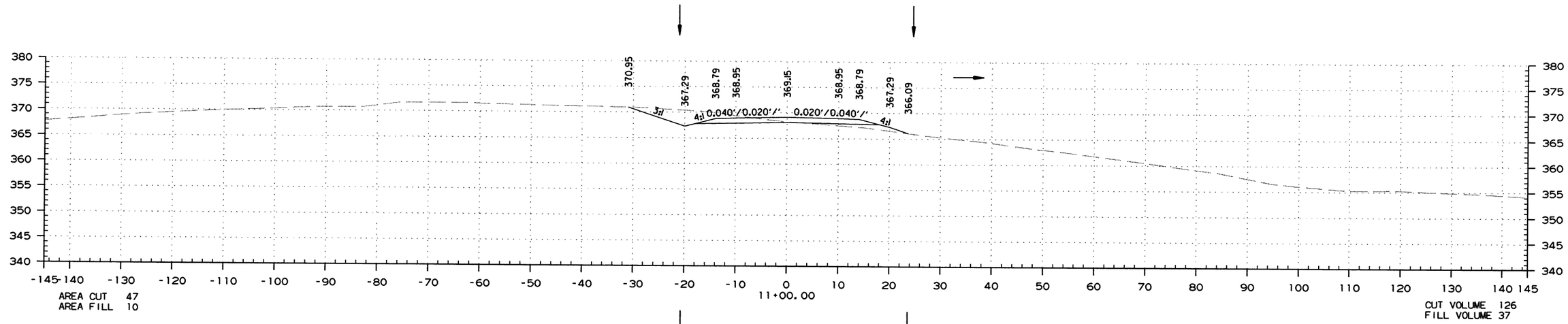
GREENE COUNTY RD. 750
STA. 6+00.00 TO STA. 8+00.00

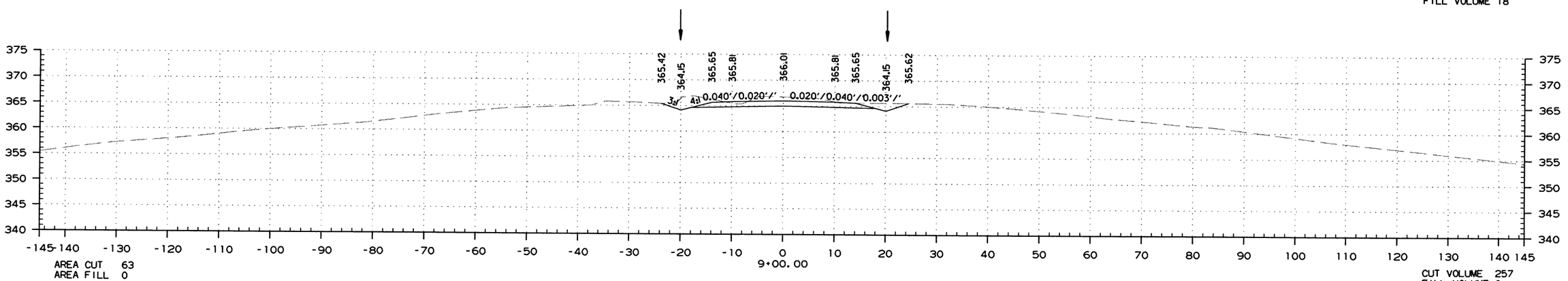
12/19/2016

R100708.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.		100708	319	335

(2) CROSS SECTIONS





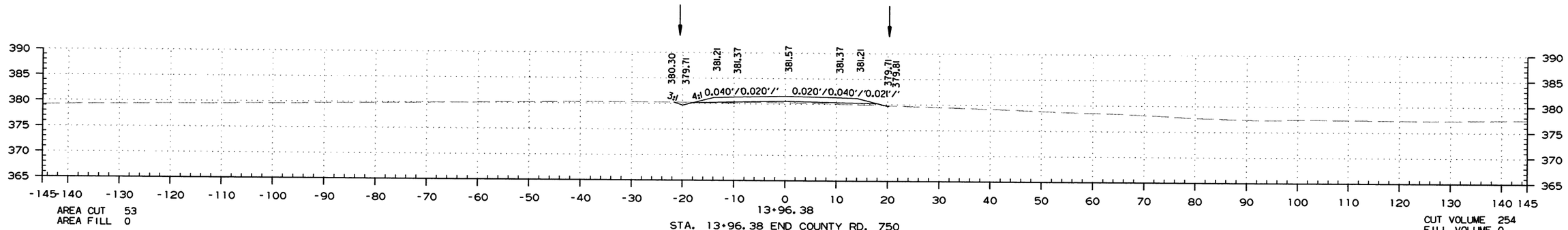
GREENE COUNTY RD. 750
STA. 9+00.00 TO STA. 11+00.00

12/19/2016

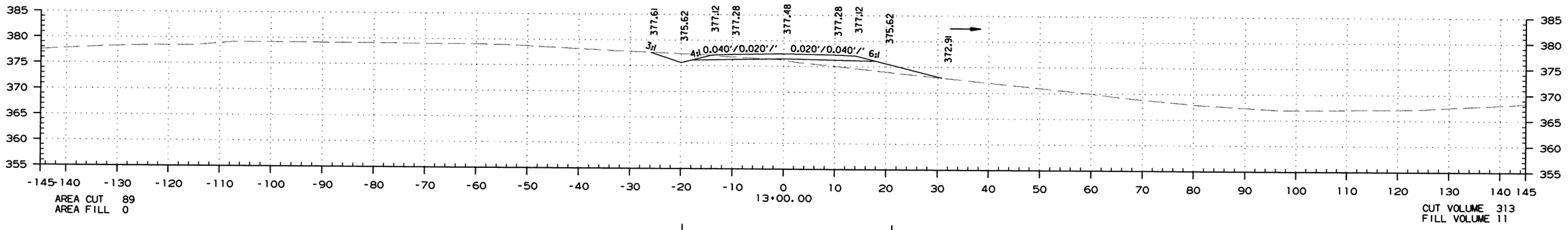
R100708.DGN

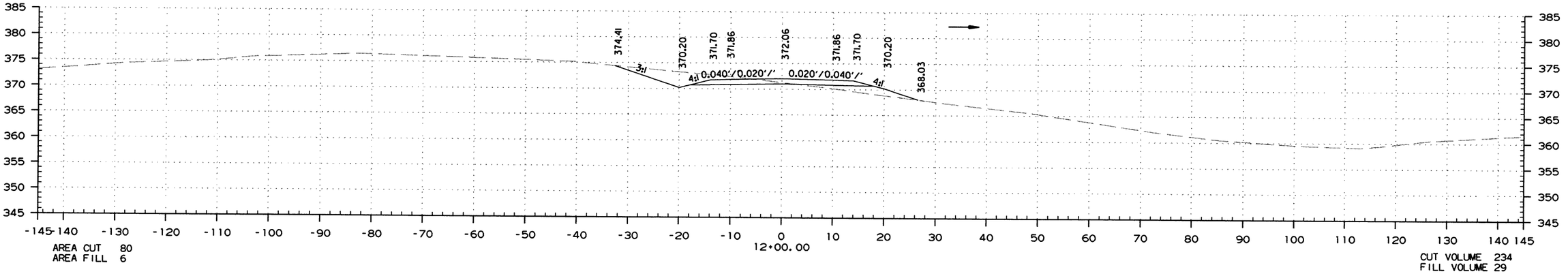
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	320	335

(2) CROSS SECTIONS



STA. 13+96.38 END COUNTY RD. 750
TIE TO HWY. 358





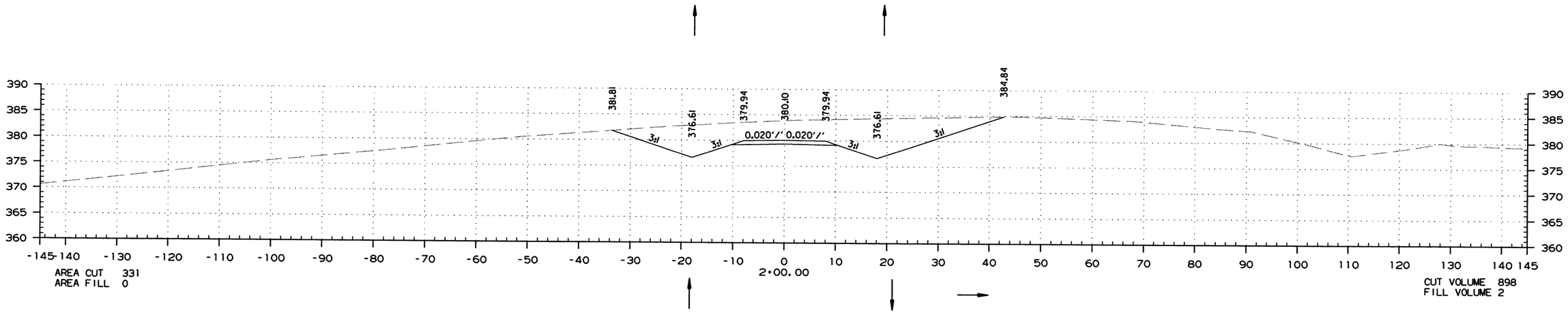
STA. 12+00.00 TO STA. 13+96.38

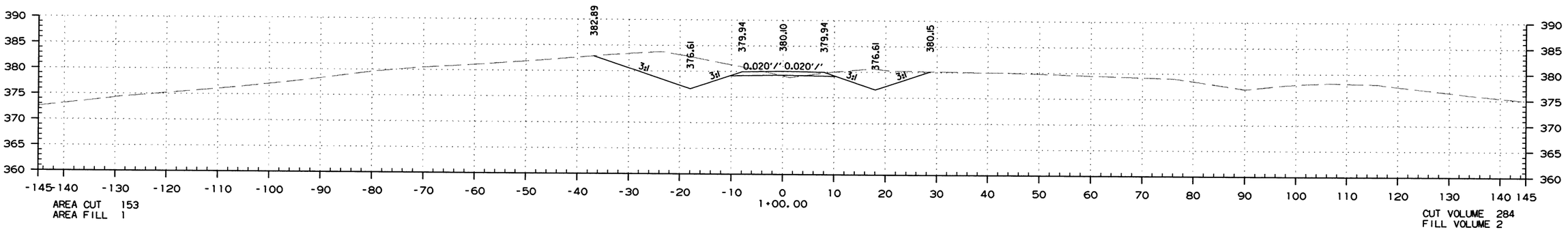
12/19/2016

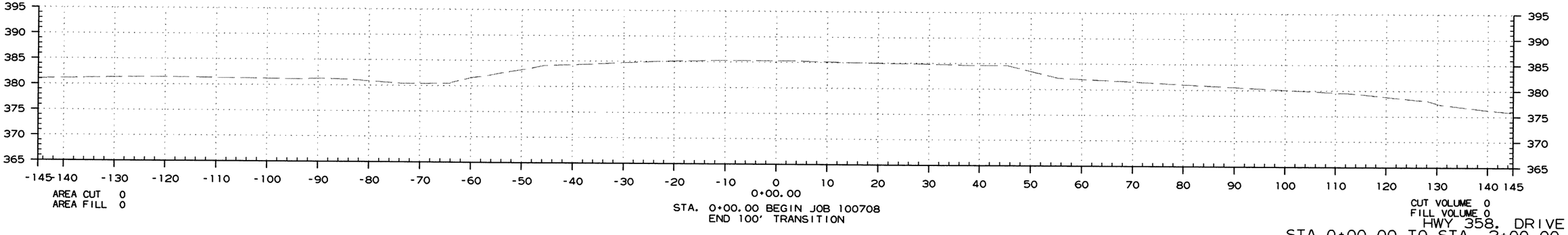
R100708.DGN

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.		100708	321	335

(2) CROSS SECTIONS







STA. 0+00.00 BEGIN JOB 100708
END 100' TRANSITION

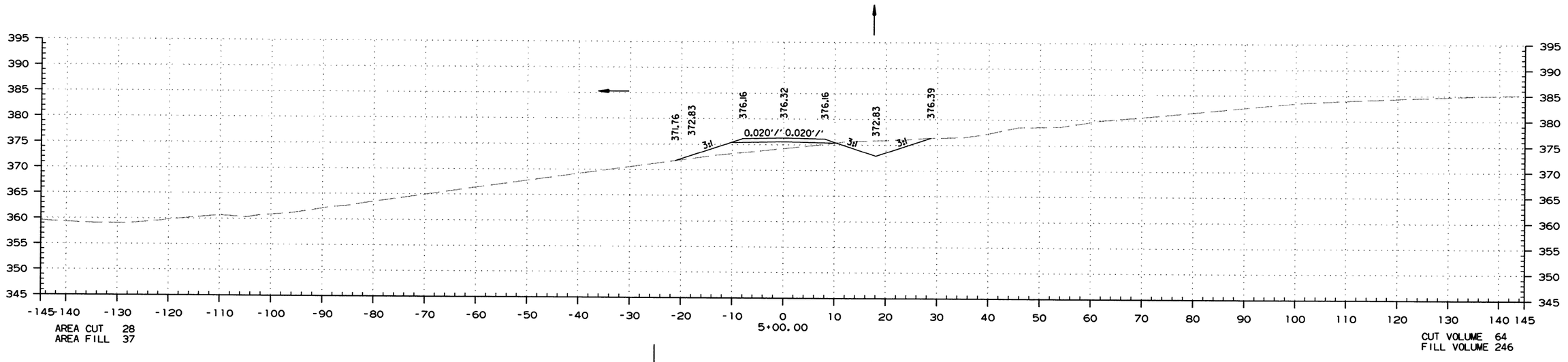
HWY 358. DRIVE
STA. 0+00.00 TO STA. 2+00.00

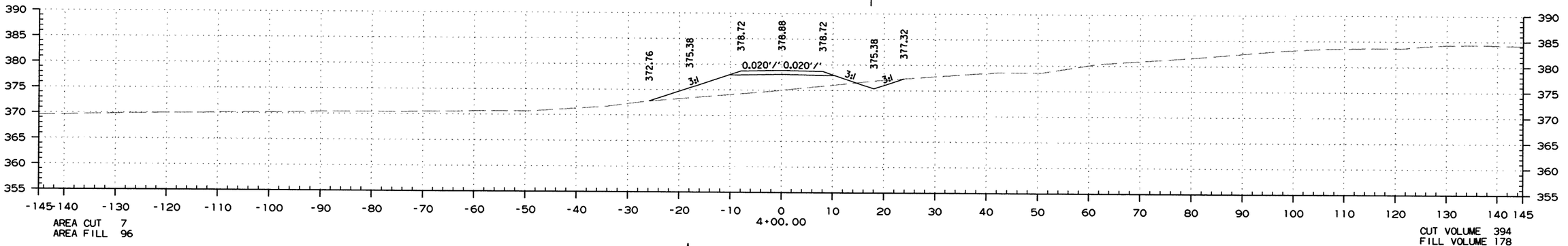
12/19/2016

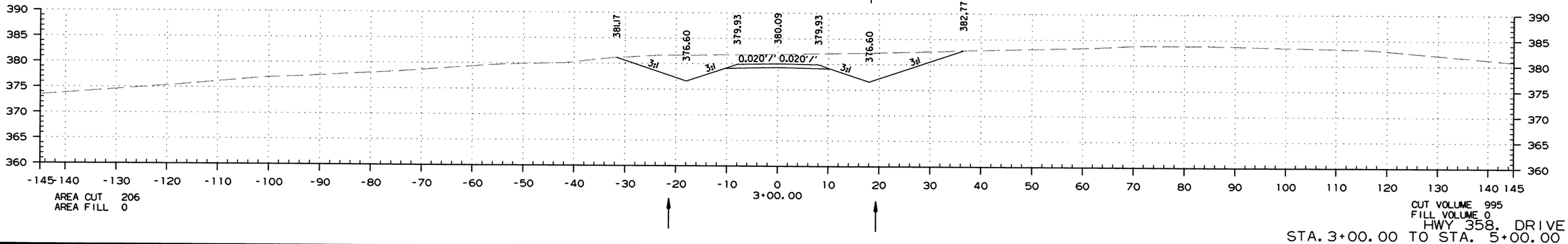
R100708.DGN

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.		100708	322	335

(2) CROSS SECTIONS







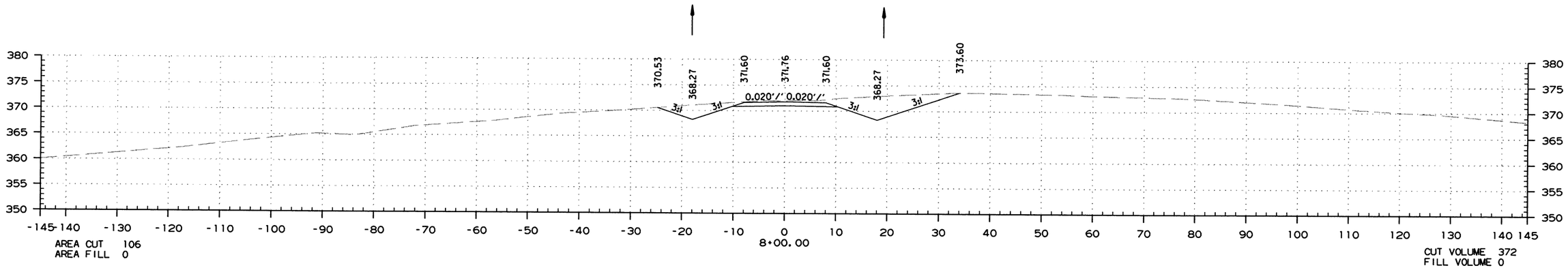
HWY 358. DRIVE
STA. 3+00.00 TO STA. 5+00.00

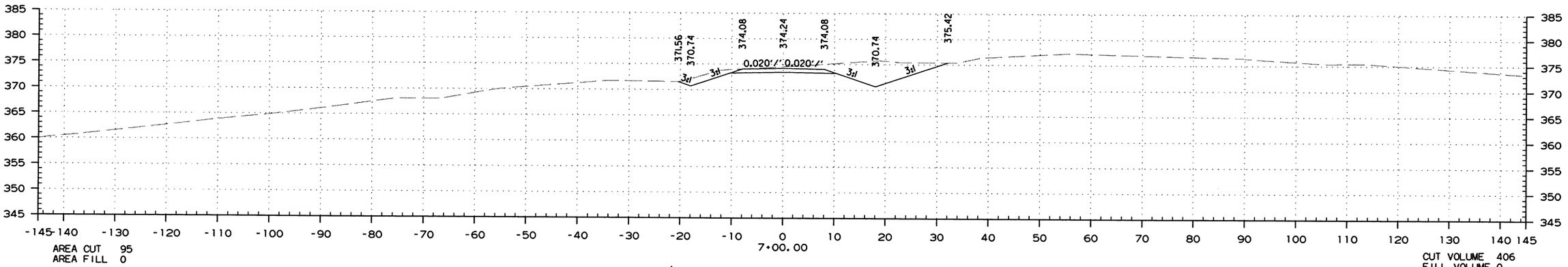
12/19/2016

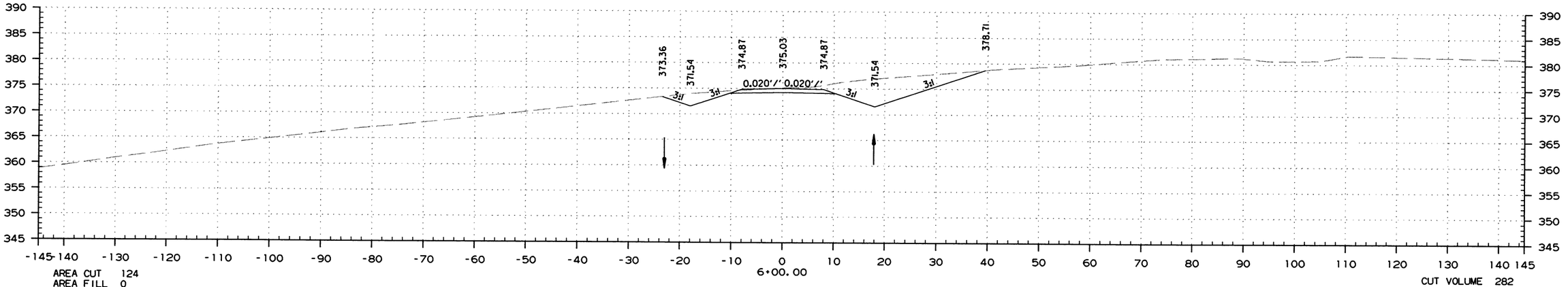
R100708.DGN

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.		100708	323	335

(2) CROSS SECTIONS







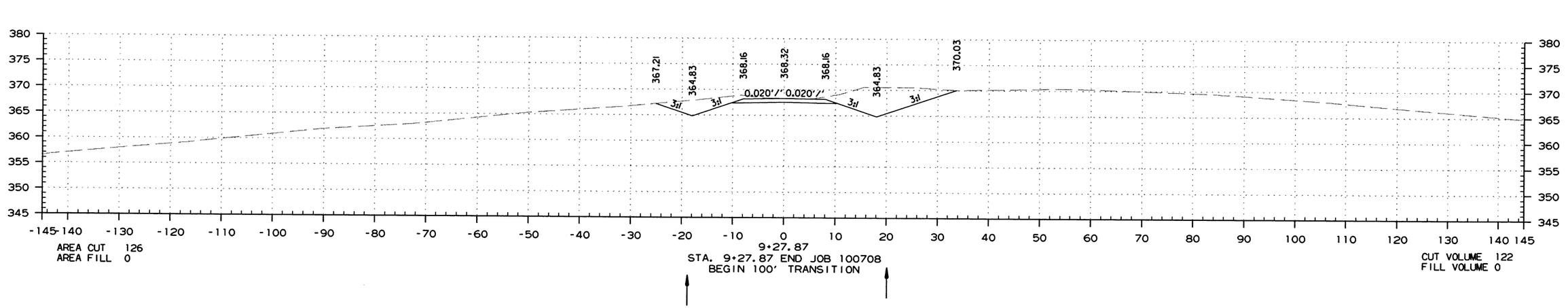
HWY 358. DRIVE
STA. 6+00.00 TO STA. 8+00.00

12/19/2016

R100708.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.		100708	324	335

(2) CROSS SECTIONS



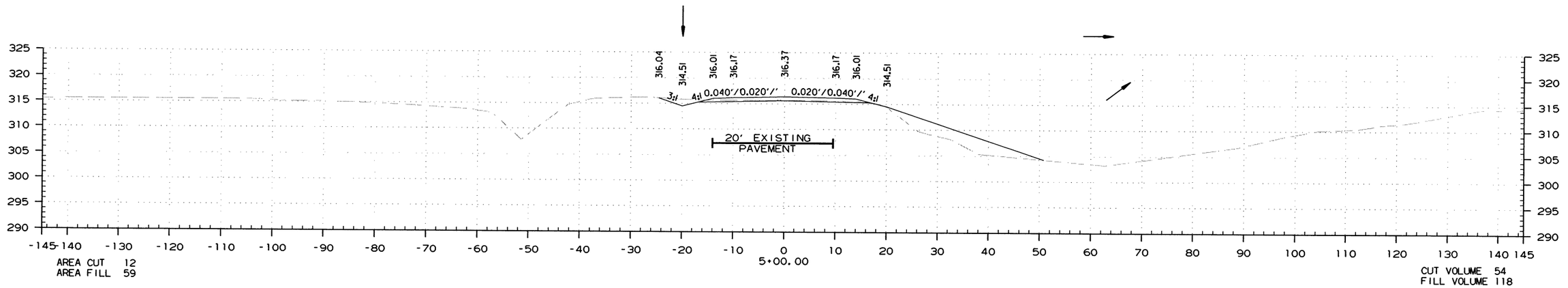
HWY 358. DRIVE
STA. 9+00.00 TO STA. 9+27.87

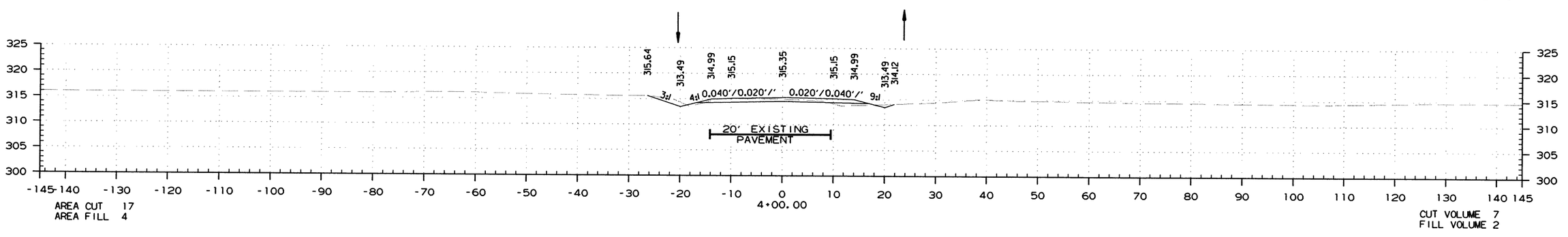
12/19/2016

R100708.DGN

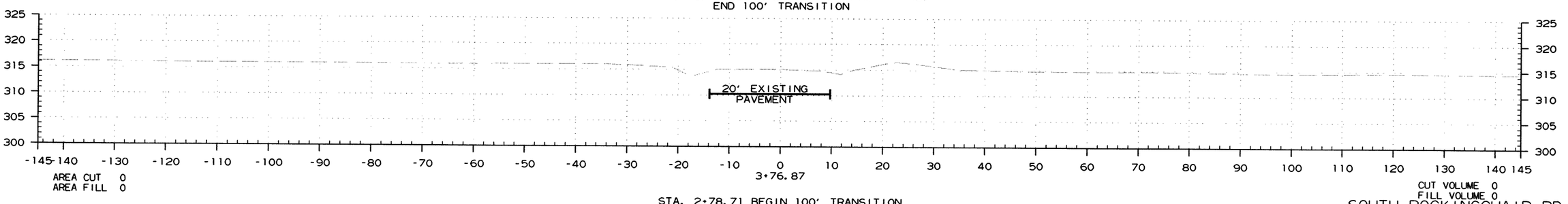
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	325	335

(2) CROSS SECTIONS





STA. 3+78.71 BEGIN SOUTH ROCKINGCHAIR RD.
END 100' TRANSITION



STA. 2+78.71 BEGIN 100' TRANSITION

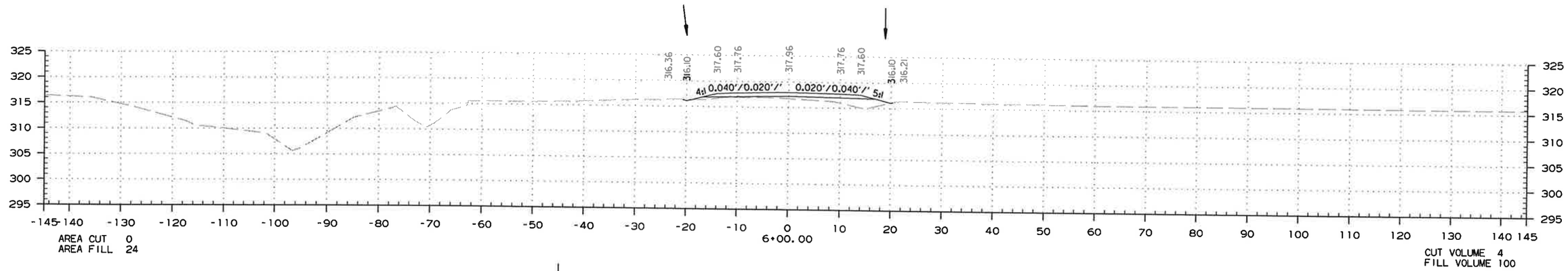
SOUTH ROCKINGCHAIR RD.
STA. 3+76.87 TO STA. 5+00.00

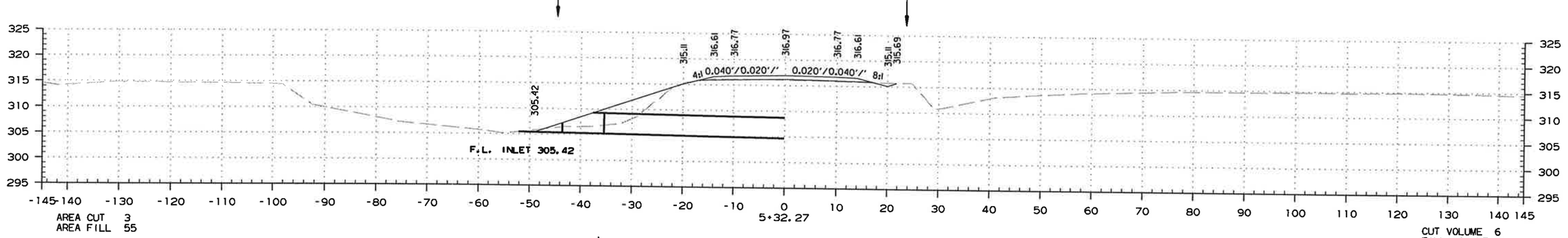
12/19/2016

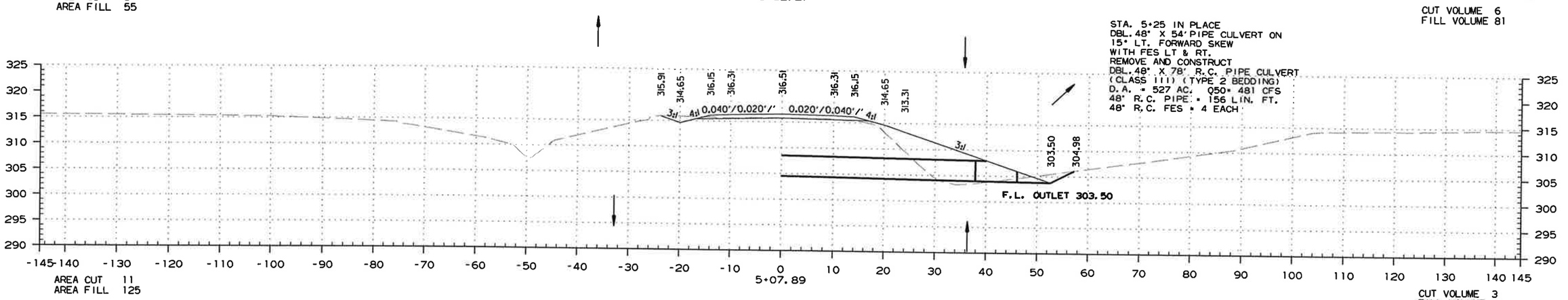
R100708.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1/12/17				6	ARK.			
				JOB NO.		100708	326	335

(2) CROSS SECTIONS







STA. 5+25 IN PLACE
DBL. 48" X 54' PIPE CULVERT ON
15° LT. FORWARD SKEW
WITH FES LT & RT.
REMOVE AND CONSTRUCT
DBL. 48" X 78' R.C. PIPE CULVERT
(CLASS III) (TYPE 2 BEDDING)
D.A. = 527 AC. Q50= 481 CFS
48" R.C. PIPE = 156 LIN. FT.
48" R.C. FES = 4 EACH

SOUTH ROCKINGCHAIR RD.
STA. 5+07.89 TO STA. 6+00.00

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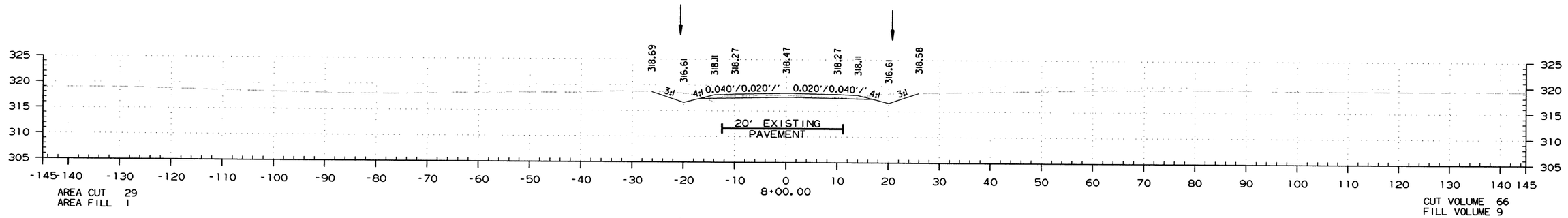
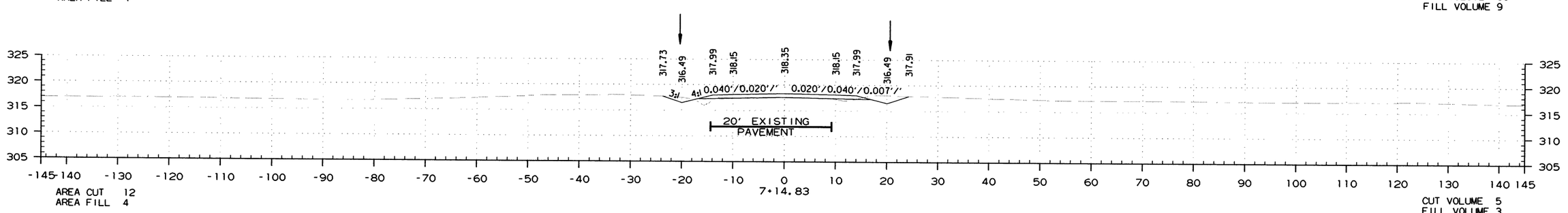
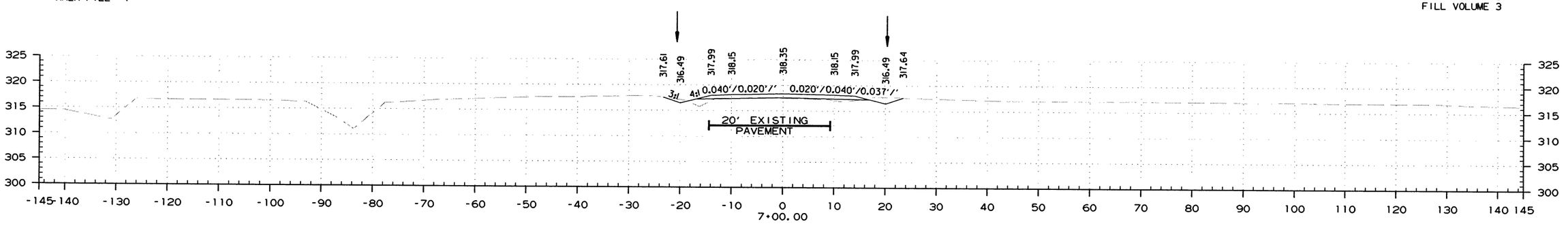
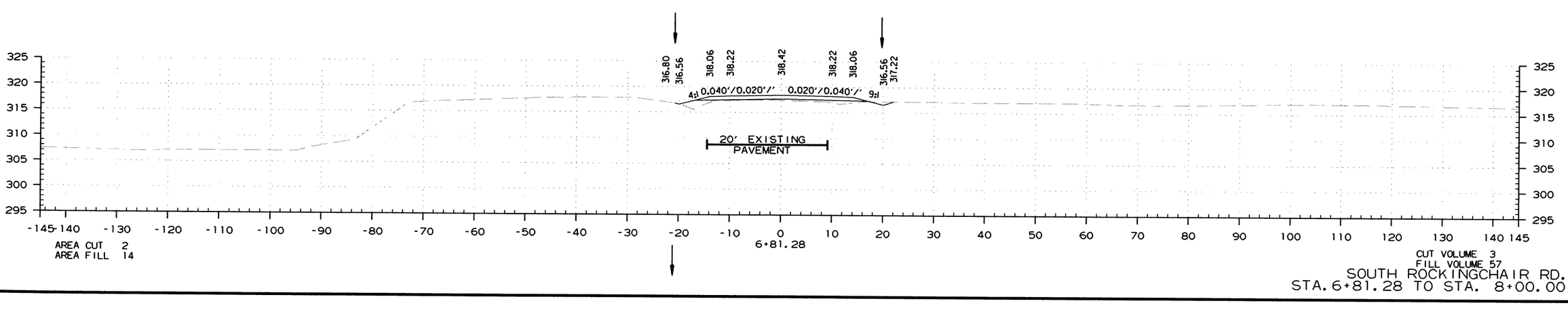
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	327	335

(2) CROSS SECTIONS









SOUTH ROCKINGCHAIR RD.
STA. 6+81.28 TO STA. 8+00.00

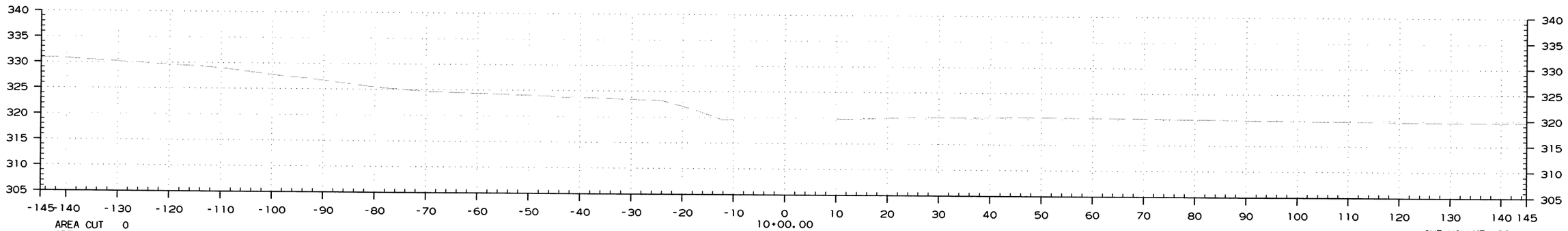
12/19/2016

R100708.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.		100708	328	335

(2) CROSS SECTIONS

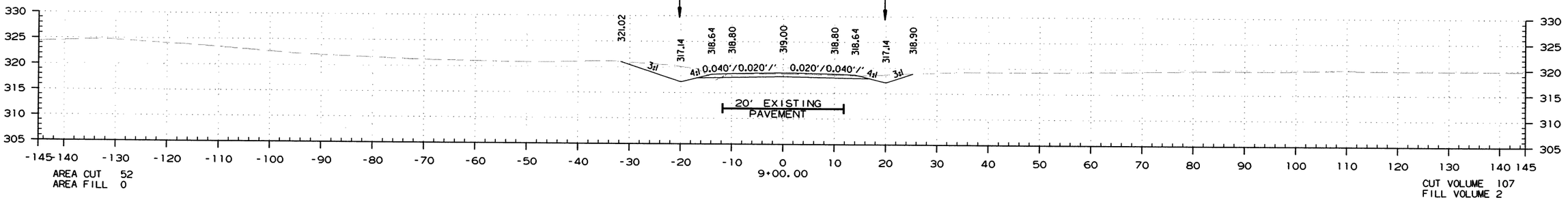
STA. 10+30.81 END 100' TRANSITION



AREA CUT 0
AREA FILL 0

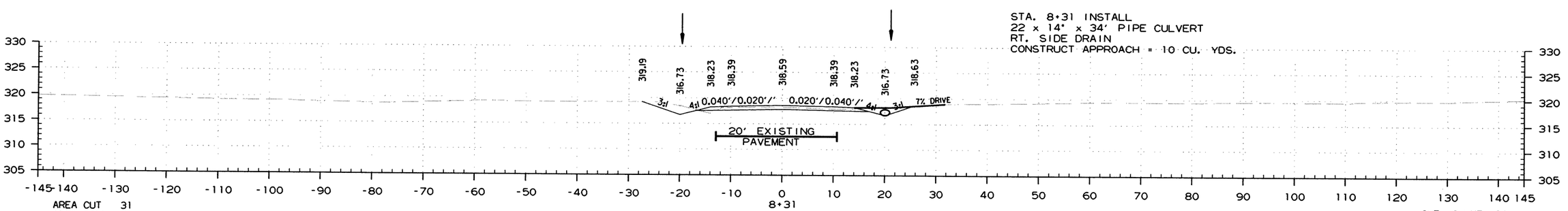
CUT VOLUME 96
FILL VOLUME 1

STA. 9+30.81 END SOUTH ROCKINGCHAIR RD.
BEGIN 100' TRANSITION



AREA CUT 52
AREA FILL 0

CUT VOLUME 107
FILL VOLUME 2



STA. 8+31 INSTALL
22 x 14" x 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 10 CU. YDS.

AREA CUT 31
AREA FILL 1

CUT VOLUME 34
FILL VOLUME 1

SOUTH ROCKINGCHAIR RD.
STA. 8+30.51 TO STA. 10+00.00

12/19/2016

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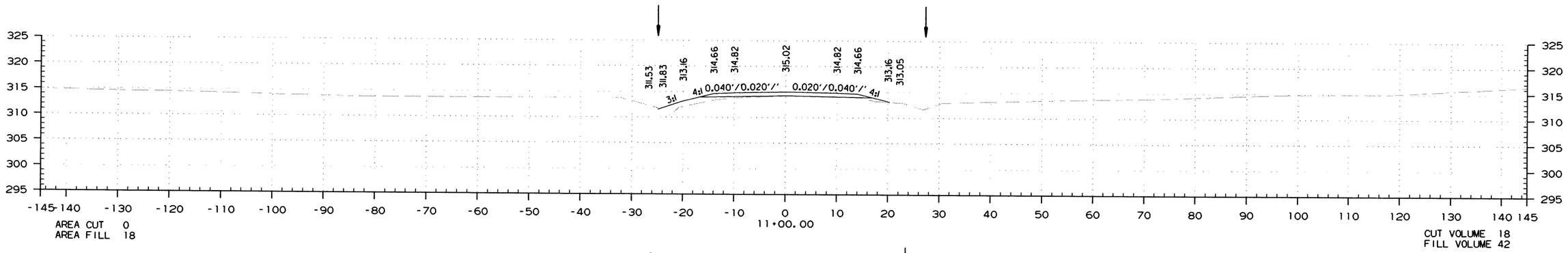
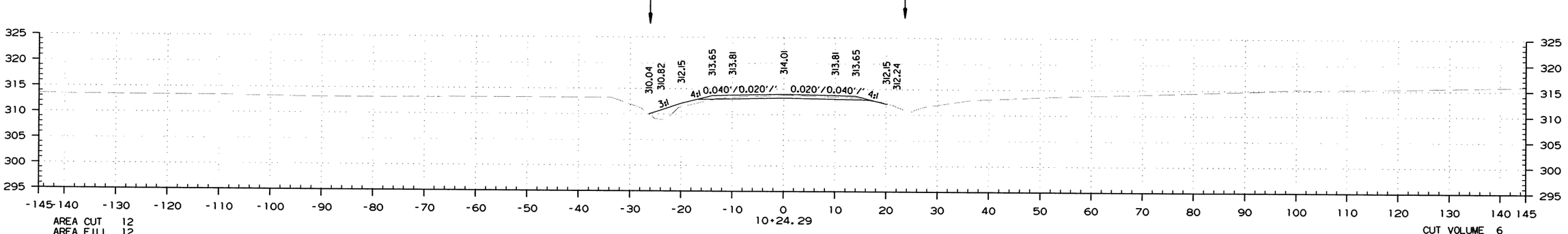
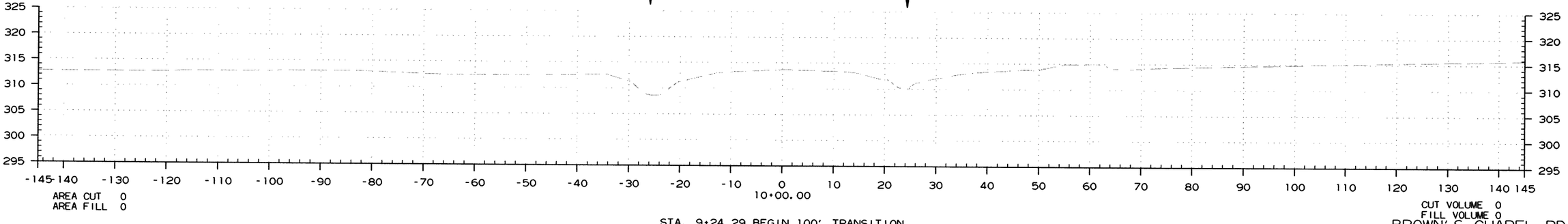
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	329	335

(2) CROSS SECTIONS





STA. 10+24.29 BEGIN BROWN'S CHAPEL RD.
END 100' TRANSITION



STA. 9+24.29 BEGIN 100' TRANSITION

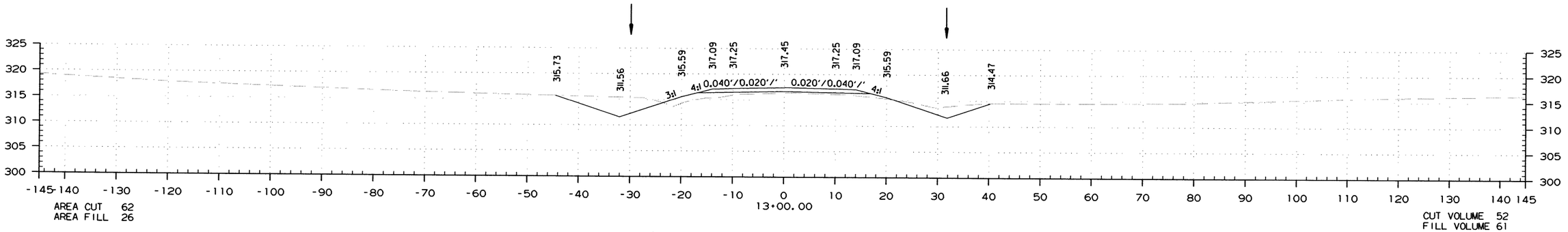
BROWN'S CHAPEL RD.
STA. 10+00.00 TO STA. 11+00.00

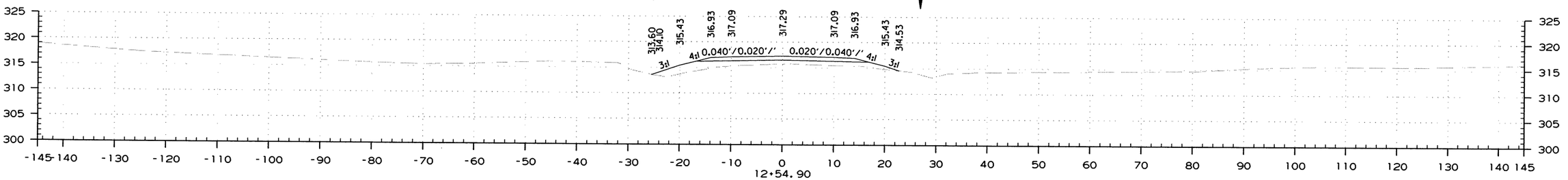
12/19/2016

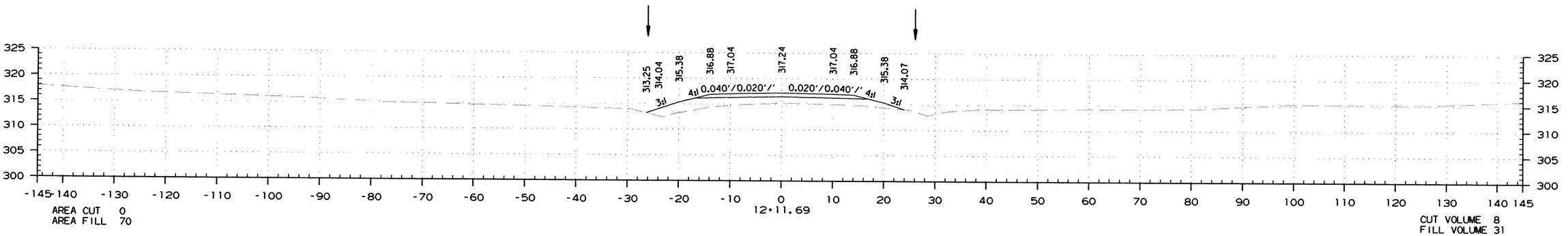
R100708.DGN

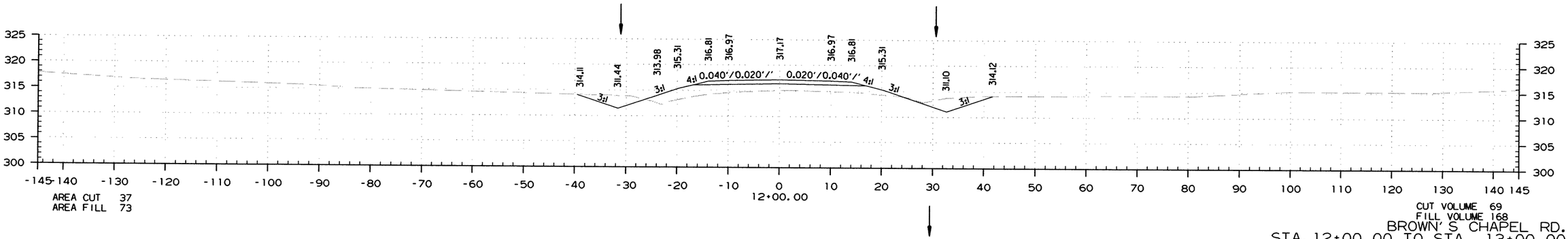
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	330	335

(2) CROSS SECTIONS









BROWN'S CHAPEL RD.
STA. 12+00.00 TO STA. 13+00.00

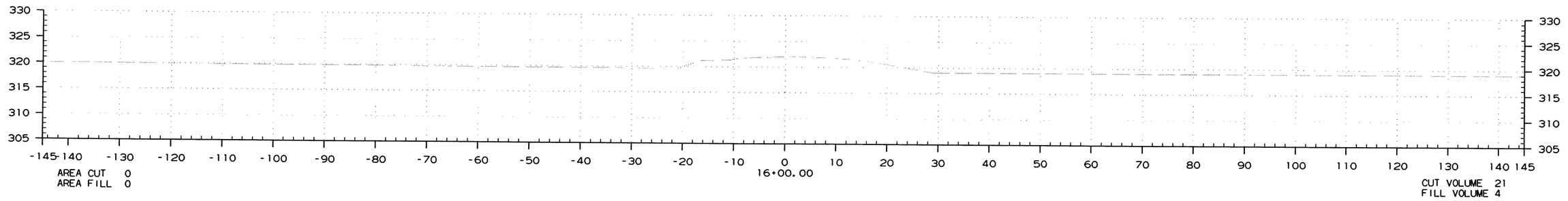
12/19/2016

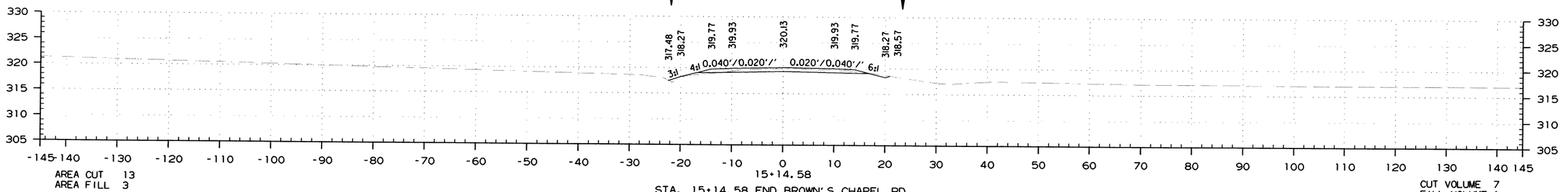
R100708.DGN

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.		100708	331	335

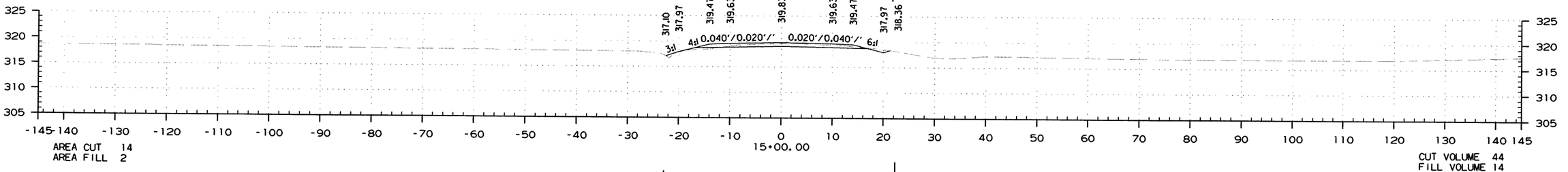
(2) CROSS SECTIONS

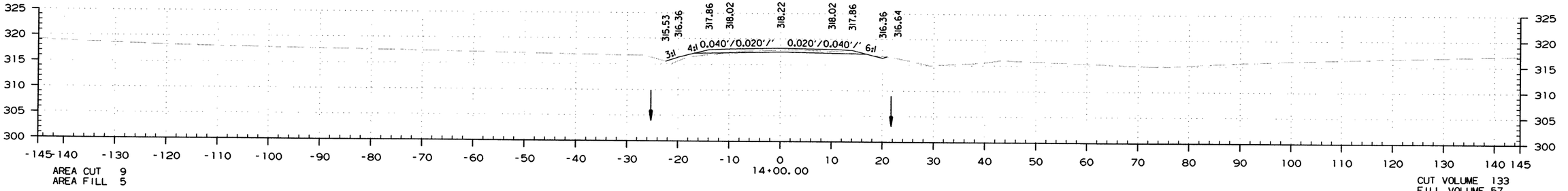
STA. 16+14.58 END 100' TRANSITION





STA. 15+14.58 END BROWN'S CHAPEL RD.
BEGIN 100' TRANSITION





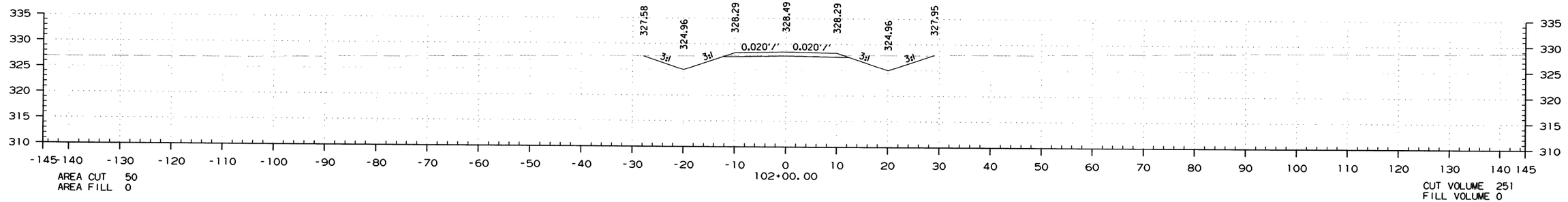
BROWN'S CHAPEL RD.
STA. 14+00.00 TO STA. 16+00.00

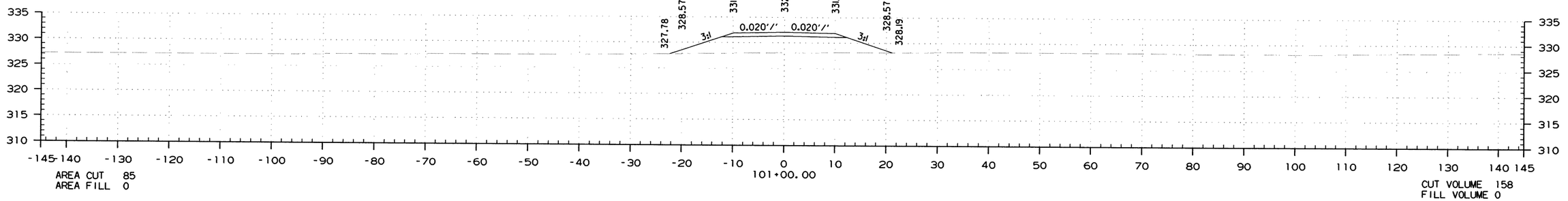
12/19/2016

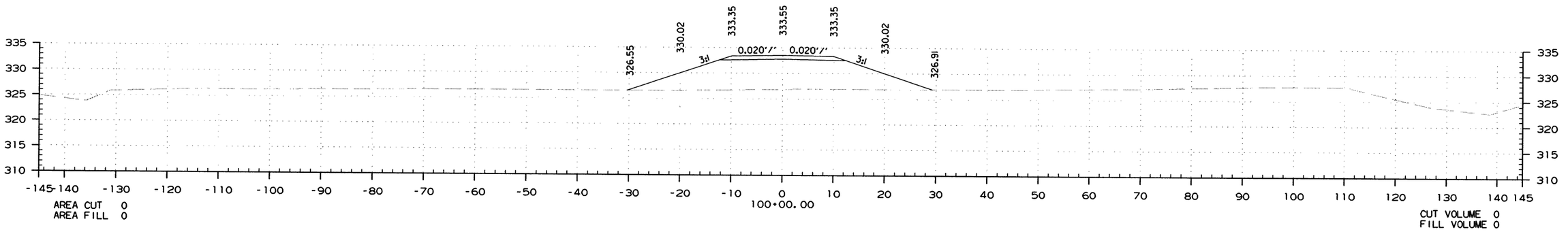
R100708.DGN

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.		100708	332	335

(2) CROSS SECTIONS







STA. 99+74.23 BEGIN JETTON DRIVE

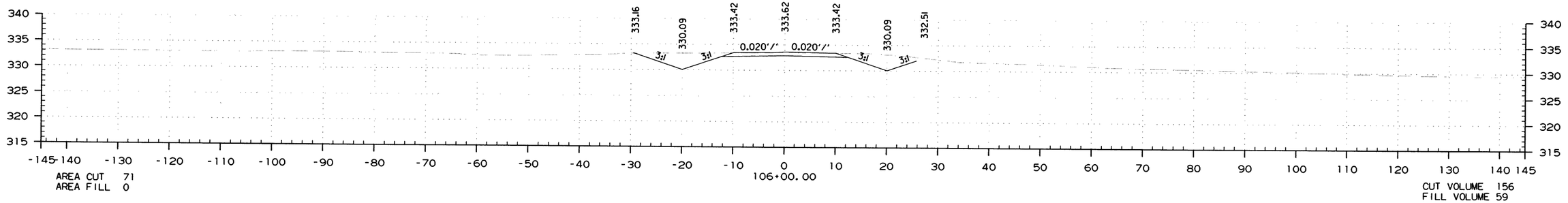
12/19/2016

R100708.DGN

JETTON DRIVE
STA. 100+00.00 TO STA. 102+00.00

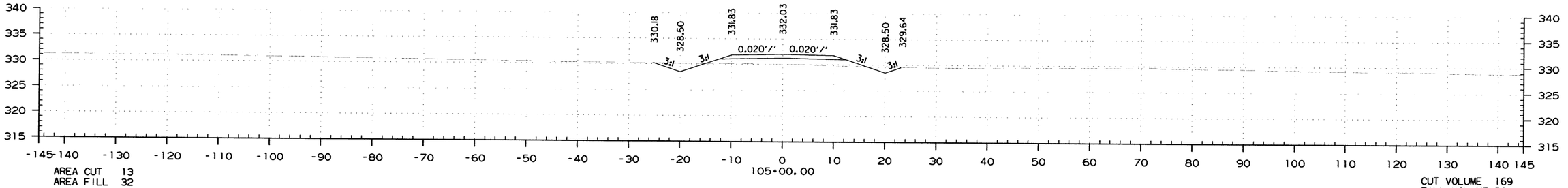
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	333	335

(2) CROSS SECTIONS



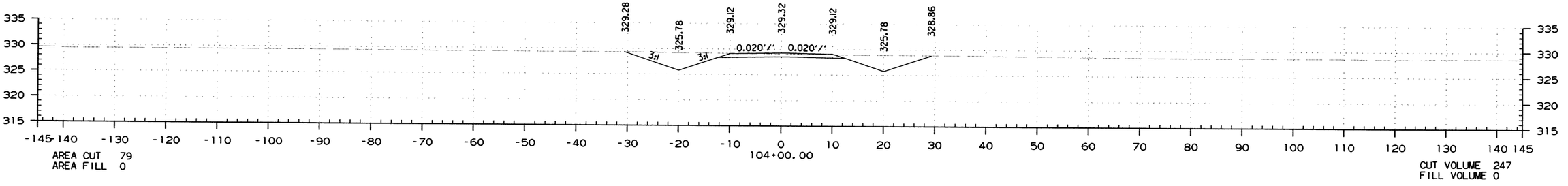
AREA CUT 71
AREA FILL 0

CUT VOLUME 156
FILL VOLUME 59



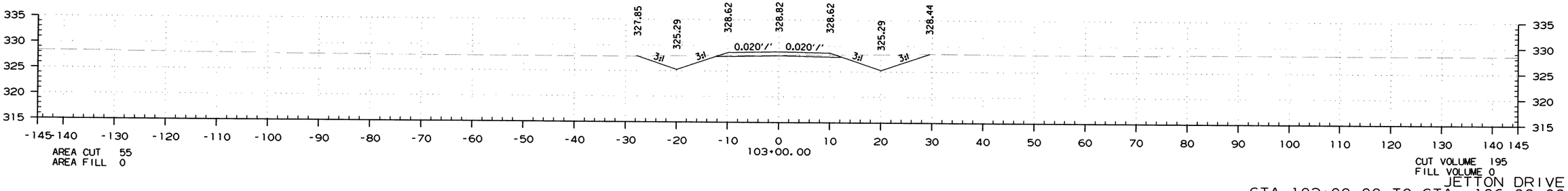
AREA CUT 13
AREA FILL 32

CUT VOLUME 169
FILL VOLUME 58



AREA CUT 79
AREA FILL 0

CUT VOLUME 247
FILL VOLUME 0



AREA CUT 55
AREA FILL 0

CUT VOLUME 195
FILL VOLUME 0

JETTON DRIVE
STA. 103+00.00 TO STA. 106+00.00

12/19/2016

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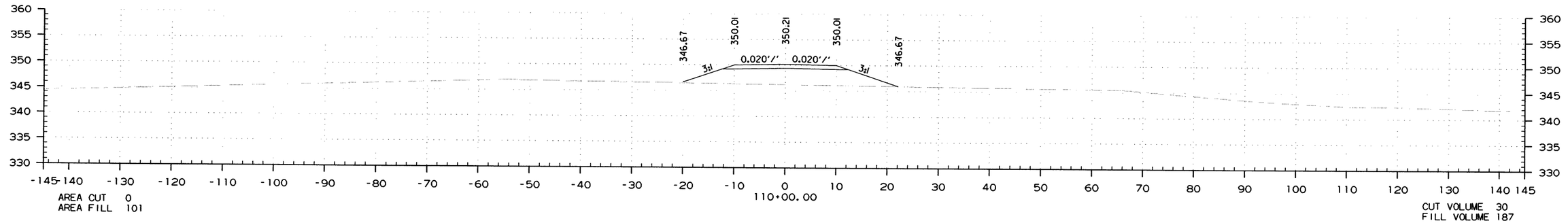
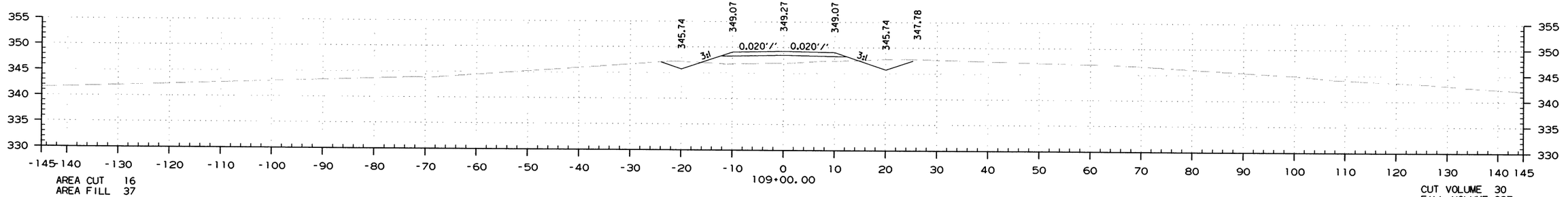
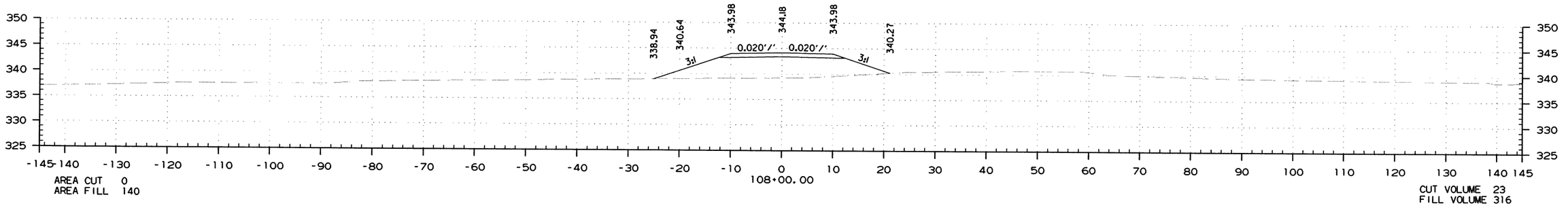
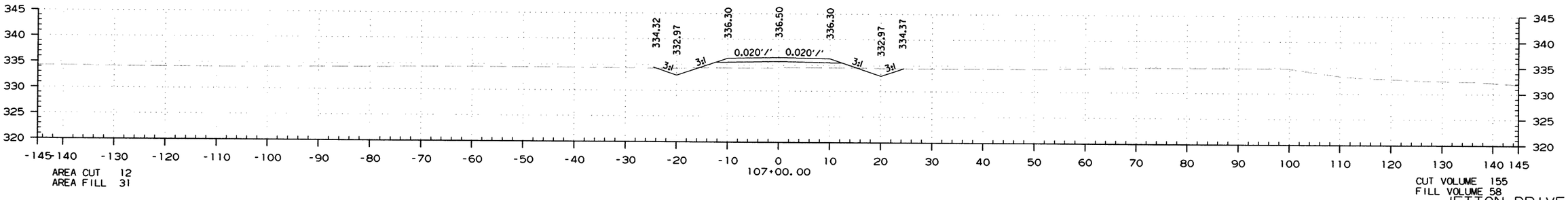
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	334	335

(2) CROSS SECTIONS









JETTON DRIVE
STA. 107+00.00 TO STA. 110+00.00

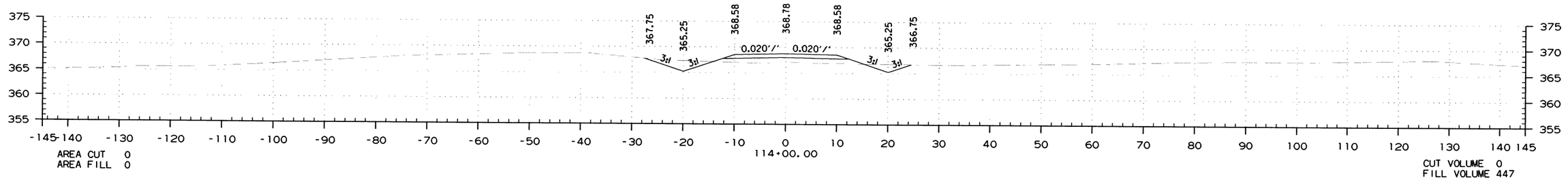
12/19/2016

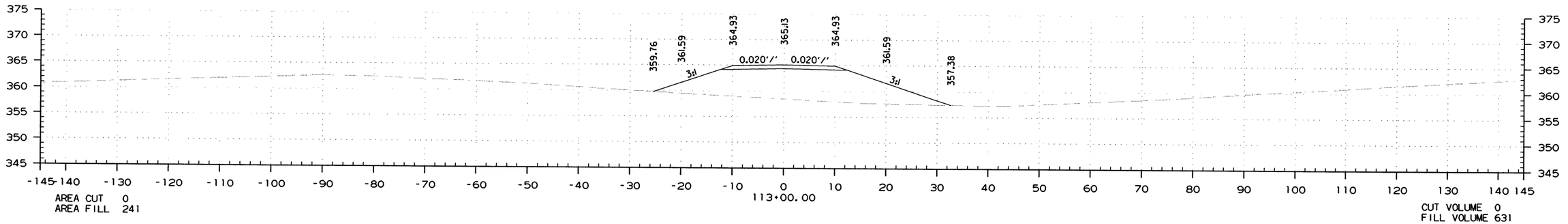
R100708.DGN

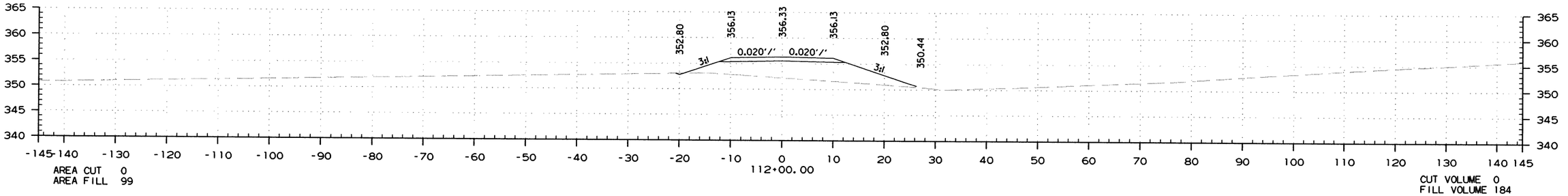
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100708	335	335

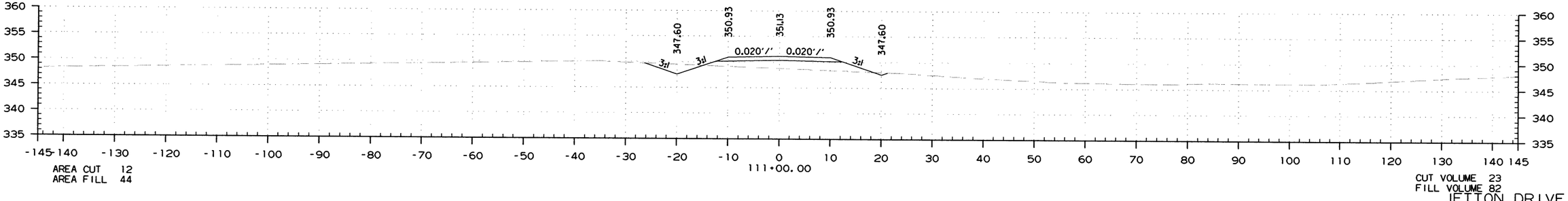
(2) CROSS SECTIONS

STA. 114+29.24 END JETTON DRIVE









JETTON DRIVE
STA. 111+00.00 TO STA. 114+00.00

12/19/2016

R100708.DGN