DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	1	114
				(2) SOUTH SYLAMORE CREEK - EAST (PASSING LANE) (S)				

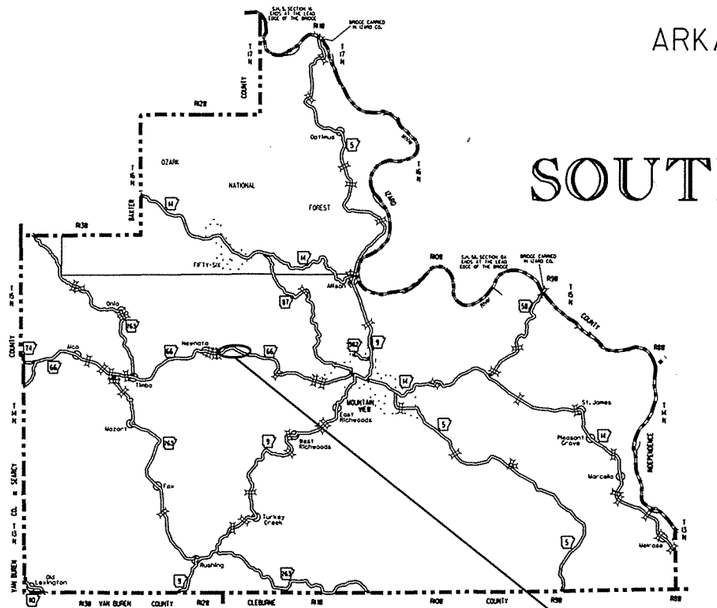
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

SOUTH SYLAMORE CREEK - EAST (PASSING LANE) (S)

STONE COUNTY
ROUTE 66 SECTION 2

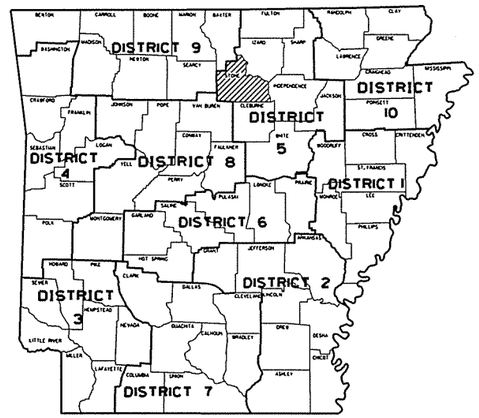
JOB 050289

FED. AID PROJ. STP-STPF-0069(20)



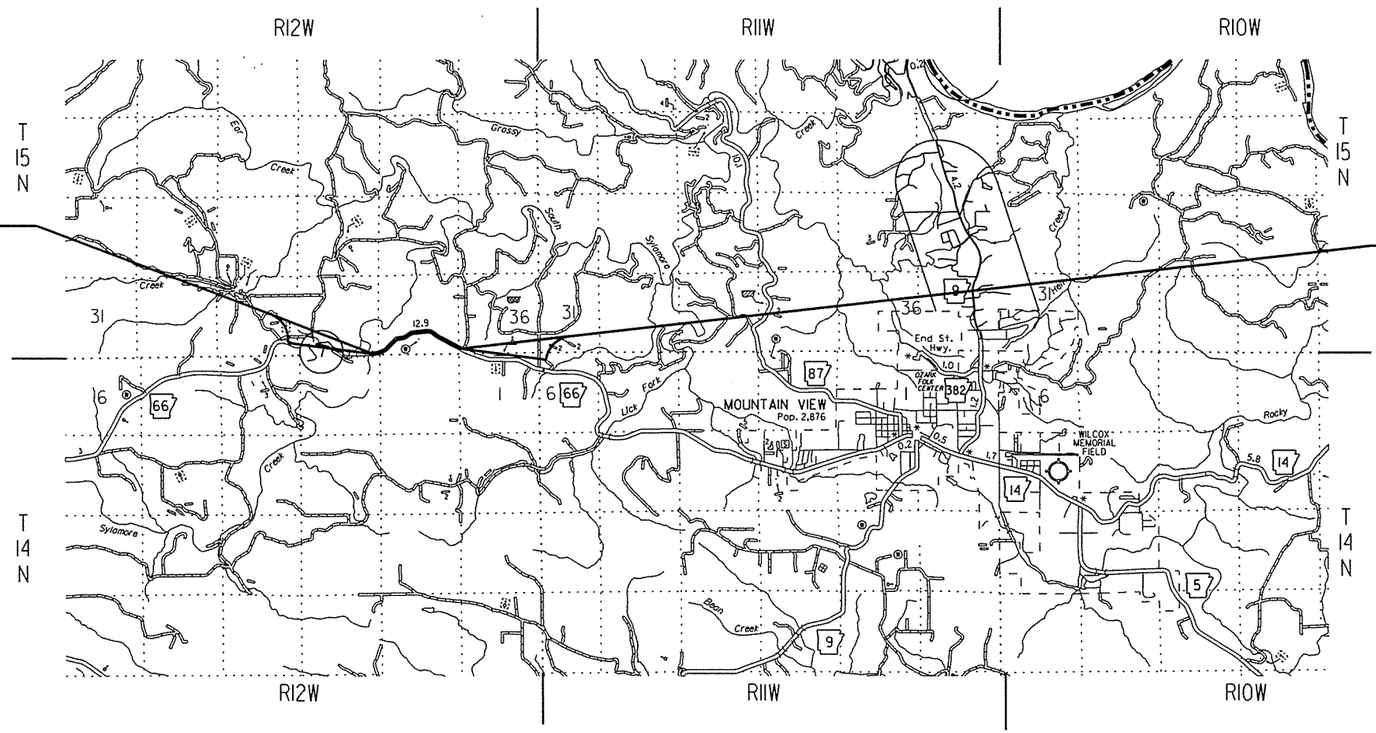
VICINITY MAP

PROJECT LOCATION



ARK. HWY. DIST. NO. 5

NOT TO SCALE



• DESIGN TRAFFIC DATA •

DESIGN YEAR	2035
2015 ADT	4300
2035 ADT	5600
2035 DHV	616
DIRECTIONAL DISTRIBUTION	60 %
TRUCKS	3 %
AVERAGE RUNNING SPEED	55 MPH

BEGINNING:	
LAT: N 35°53′11"	
LONG: W 92°14′18"	
MID POINT:	
LAT: N 35°53′24"	
LONG: W 92°13′45"	
ENDING:	
LAT: N 35°53′14"	
LONG: W 92°13′12"	

GROSS LENGTH OF PROJECT	6140.00	FEET	OR	1.163	MILES
NET " " ROADWAY	6140.00	"	"	1.163	"
NET " " BRIDGES	0.00	"	"	0.000	"
NET " " PROJECT	6140.00	"	"	1.163	"

P.E. 050289

APPROVED

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

9-10-15

DEPUTY DIRECTOR
AND CHIEF ENGINEER

9/10/2015

R050289.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
9/30/2015				6	ARK.			
				JOB NO.		050289	2	114

(2) INDEX, GOVERN. SPECS., AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

INDEX OF SHEETS

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

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
108-1	LIQUIDATED DAMAGES
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 050289	BIDDING REQUIREMENTS AND CONDITIONS
JOB 050289	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 050289	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 050289	CAVE DISCOVERY
JOB 050289	CULVERT CLEAN OUT
JOB 050289	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 050289	EXTENSION FOR PIPE CULVERTS
JOB 050289	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 050289	MANDATORY ELECTRONIC CONTRACT
JOB 050289	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB 050289	PARTNERING REQUIREMENTS
JOB 050289	PLASTIC PIPE
JOB 050289	ROCK FILL
JOB 050289	SHORING FOR CULVERTS
JOB 050289	SPECIAL CLEARING REQUIREMENTS
JOB 050289	STORM WATER POLLUTION PREVENTION PLAN
JOB 050289	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 050289	UTILITY ADJUSTMENTS
JOB 050289	VALUE ENGINEERING
JOB 050289	WARM MIX ASPHALT
JOB 050289	WATER POLLUTION CONTROL & RESTRAINING CONDITION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

R050289.DGN 1/6/2015

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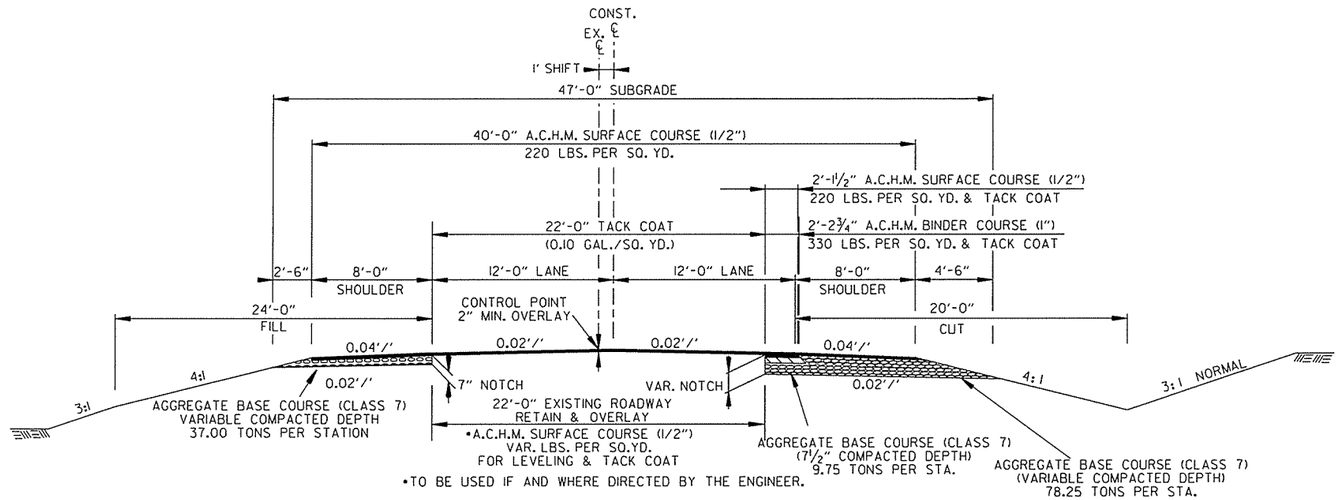
				6	ARK.			
				JOB NO.		050289	3	114

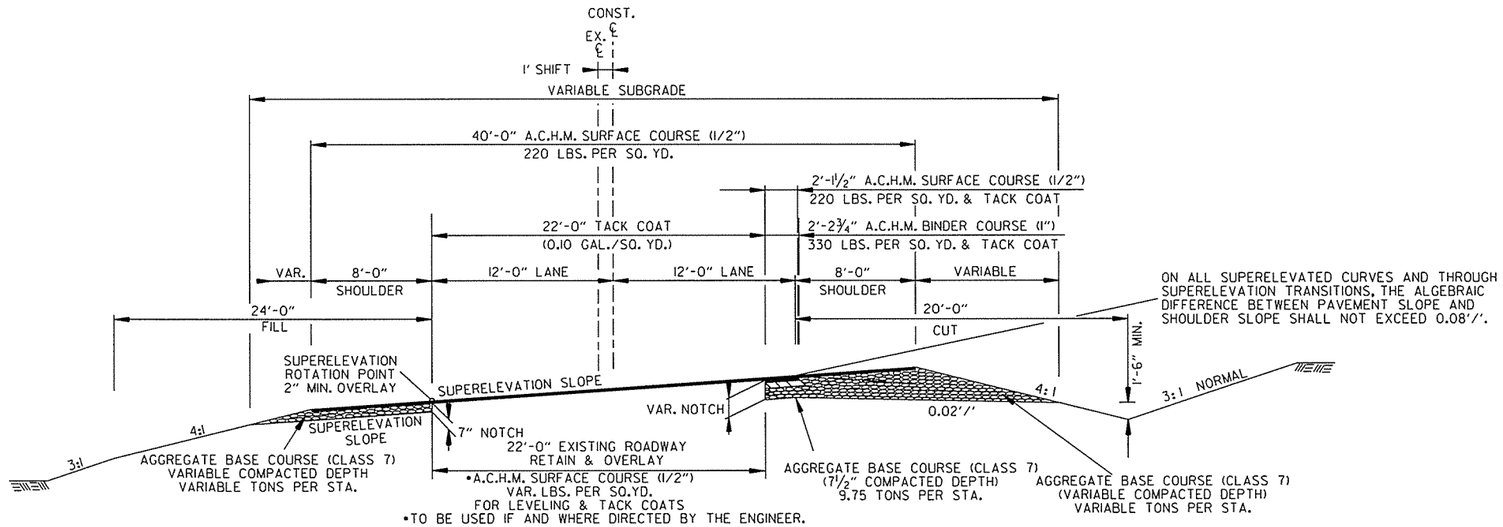
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-15



TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDENING
TANGENT SECTION - TWO LANE

STA. 301+43.28-STA. 302+43.28
STA. 363+83.28-STA. 364+83.28



TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDENING
SUPERELEVATION SECTION

STA. 301+43.28-STA. 302+43.28
STA. 363+83.28-STA. 364+83.28

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

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

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

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

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.

r050289.dgn 09/10/2015

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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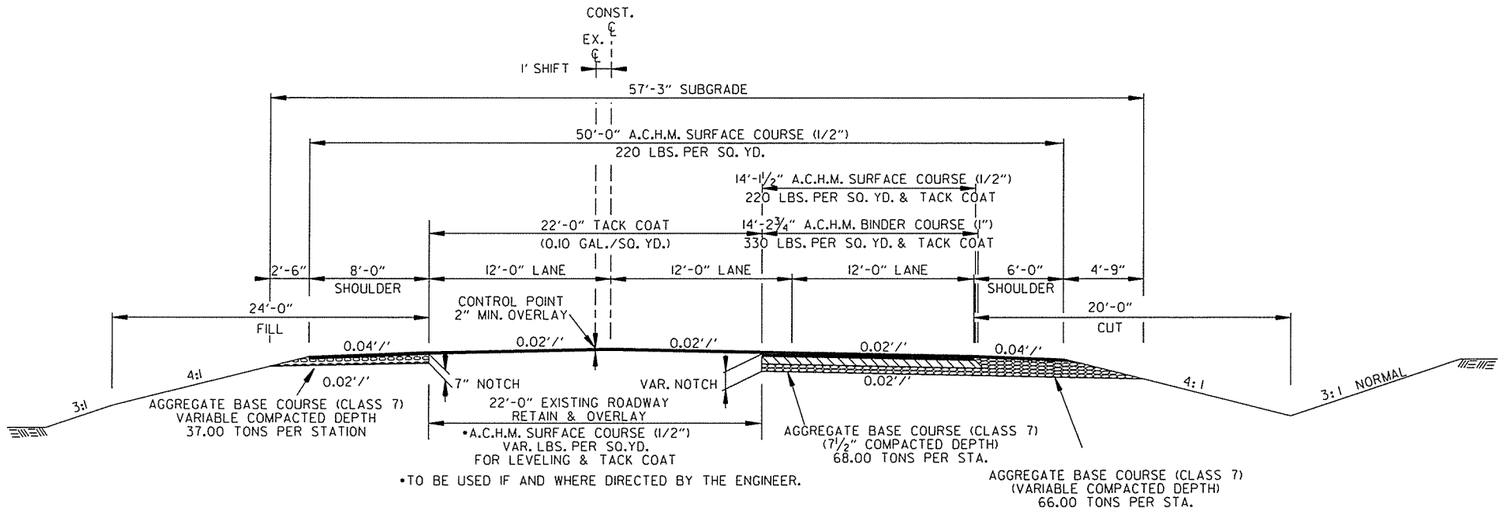
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-15



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

TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDENING
TANGENT SECTION-PASSING LANE
STA. 302+43.28 - STA. 363+83.28

NOTES:
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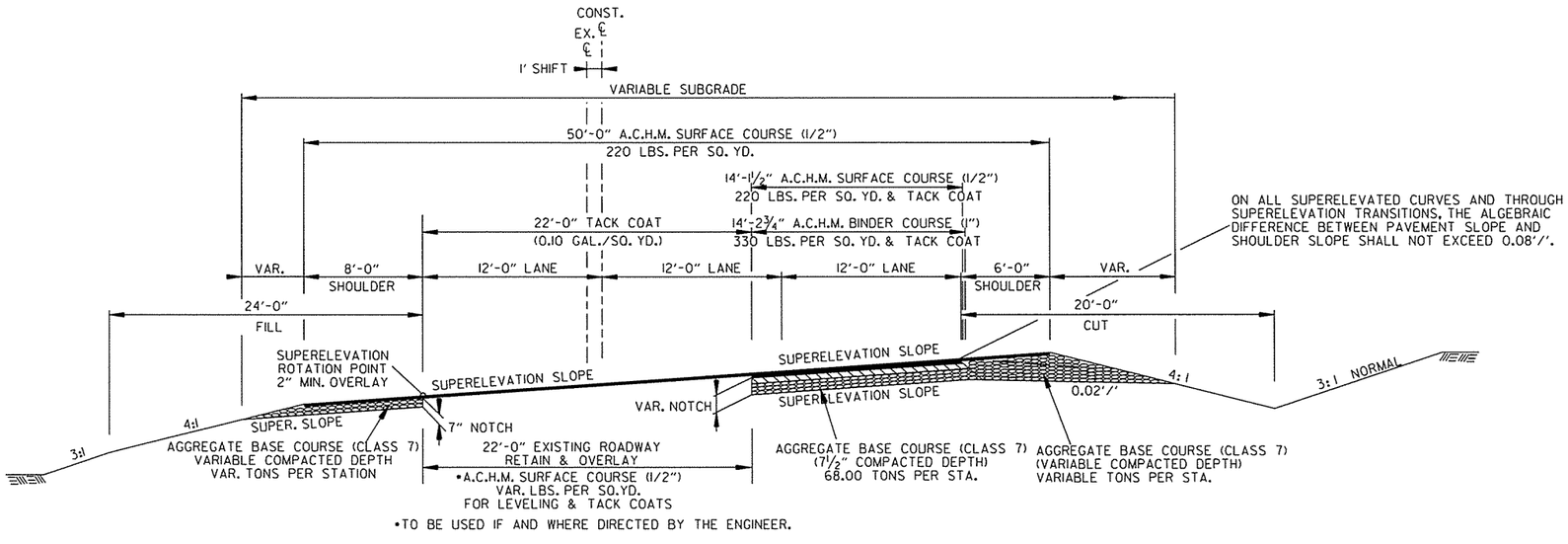

•TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDENING
SUPERELEVATION SECTION-PASSING LANE
STA. 302+43.28 - STA. 363+83.28

r050289.dgn 09/10/2015

TYPICAL SECTIONS OF IMPROVEMENT

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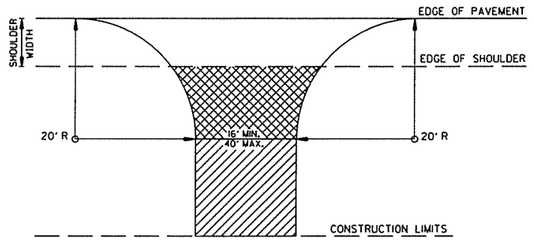
(2) SPECIAL DETAILS

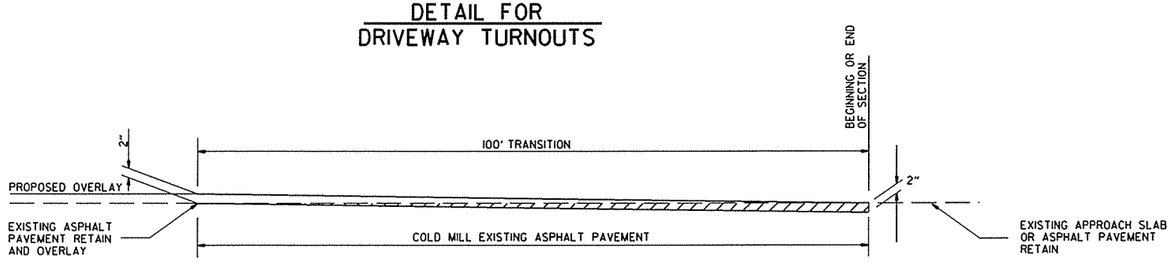


A.C.H.M. SURFACE COURSE (1/2")
(220 LBS./SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH) IF ASPHALT DRIVE EXISTS OR 6" CONCRETE IF CONCRETE DRIVE EXISTS. OVERLAY FOR EXISTING DRIVES SHALL BE A.C.H.M. SURFACE COURSE (1/2"X220 LBS./SQ. YD.) AND TACK COAT (0.10 GAL./SQ. YD.).

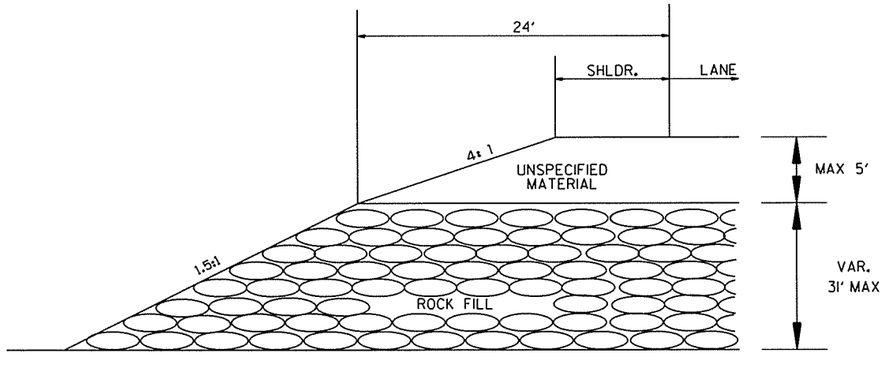
AGGREGATE BASE COURSE (CLASS 7)
9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY.

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

DETAIL FOR DRIVEWAY TURNOUTS



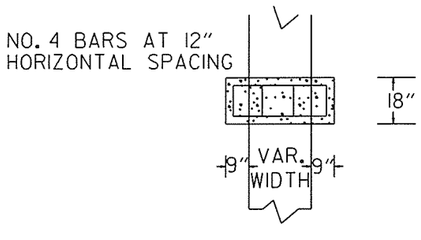
DETAIL FOR TRANSITIONS



DETAIL OF ROCK FILL

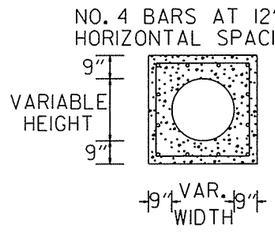
STA. 301+43 - STA. 303+50 LT.
STA. 338+50 - STA. 349+50 LT.
STA. 351+00 - STA. 357+50 LT.

STA. 301+43 - STA. 305+50 RT.
STA. 307+50 - STA. 315+50 RT.
STA. 316+50 - STA. 325+00 RT.

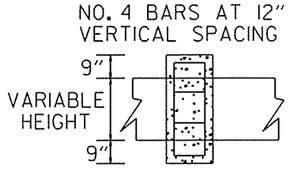


TOP VIEW

MIN. 3" COVER

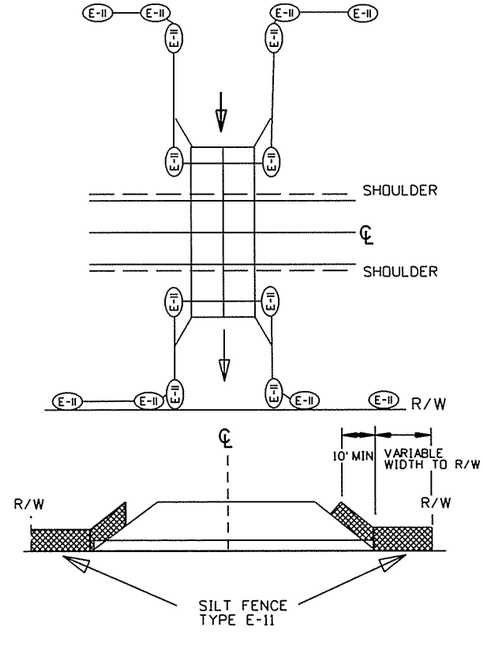


FRONT VIEW



SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL



DETAILS OF SILT FENCE AT CROSS DRAINS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-15

9/10/2015

R050289.DGN

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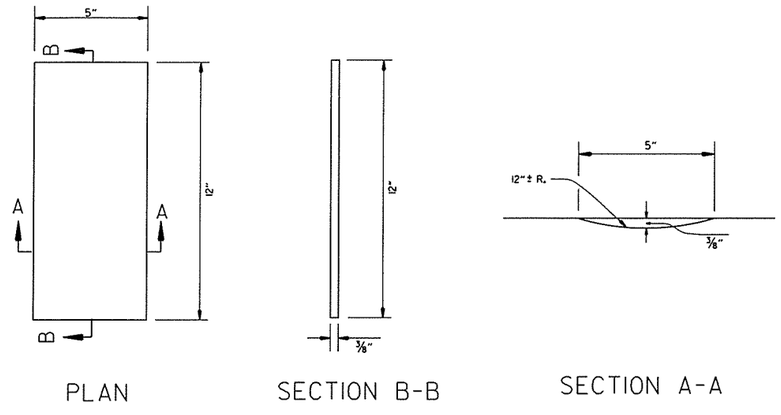
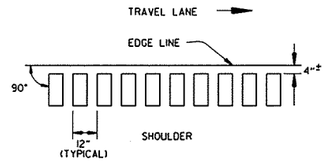
(2) SPECIAL DETAILS

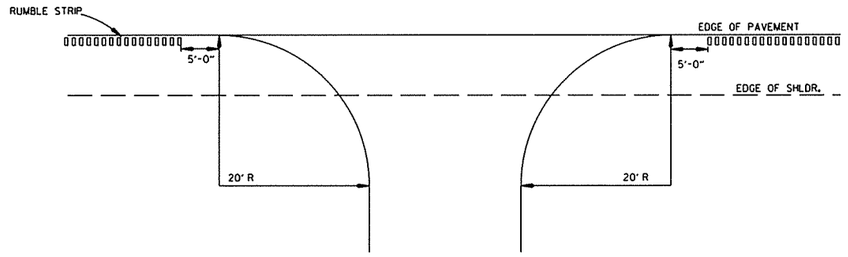
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-15



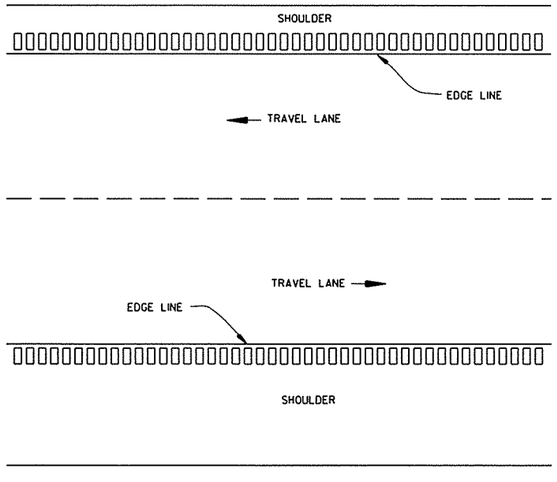
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



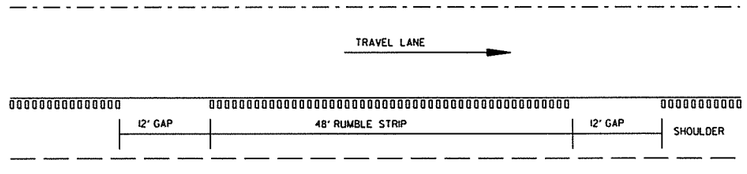
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



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.



DETAIL FOR GAP PATTERN RUMBLE STRIP

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

SPECIAL DETAILS

9/10/2015

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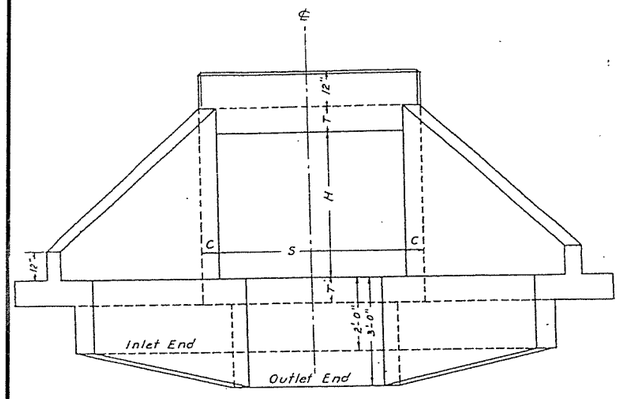
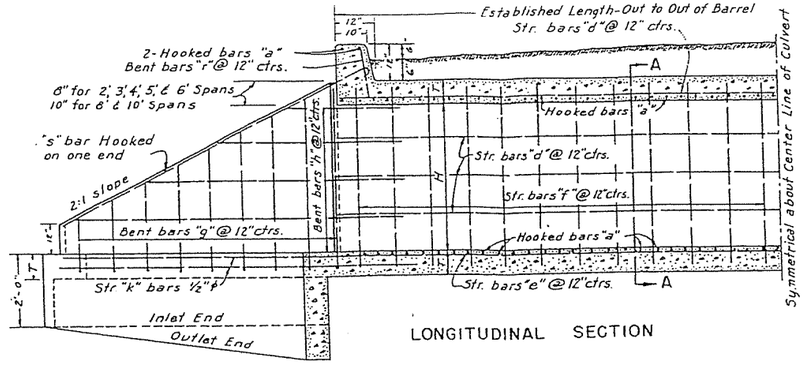
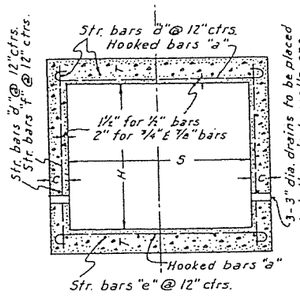
(2) SPECIAL DETAILS



END ELEVATION



LONGITUDINAL SECTION



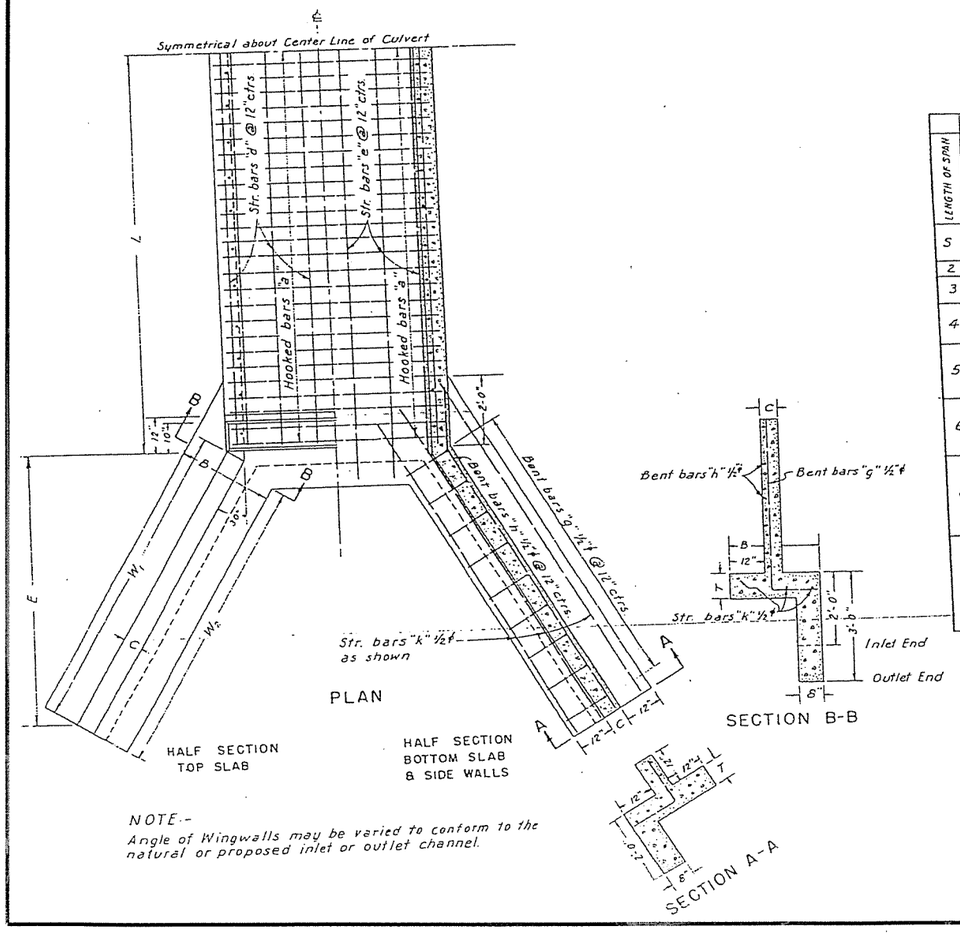
SECTION A-A

DIMENSIONS & QUANTITIES

SPAN	HEIGHT	AREA OF OPENING SQ. FT.	MINIMUM DEPTH OF COVER	THICKNESS OF TOP & BOTTOM SLAB	THICKNESS OF SIDE & WING WALLS	WIDTH OF FOOTING	LENGTH OF FOOTING	LENGTH OF WING WALLS	LENGTH OF WINGS FROM HEADWALLS TO WINGWALLS & FOOTING	CONCRETE CU. YD. HEADWALLS WINGWALLS & FOOTING	CONCRETE CU. YD. PER LINEAR FT. OF BARREL	STEEL LB. HEADWALLS WINGWALLS & FOOTING	STEEL LB. PER LINEAR FT. OF BARREL	STEEL LB. ADD STEEL FOR LAPS
S	H	A	D	T	C	B	W_2	W_1	E					
2	2	4	2'-0"	6½"	6"	2'-6"	3'-6½"	3'-10"	3'-4"	2.38	.194	155	17.91	8.9
3	2	6	2'-0"	7"	6"	2'-6"	3'-6½"	3'-10"	3'-4"	2.65	.247	164	22.77	11.1
	3	9			6"		3'-10½"	4'-2"	3'-4"	4.10	.284	243	25.43	13.4
4	2	8	1'-6"	7½"	6"	2'-6"	3'-6½"	3'-10"	3'-4"	2.90	.306	173	28.28	13.4
	3	12			6"		3'-10½"	4'-2"	3'-4"	4.36	.343	231	30.94	15.6
	4	16			6"		4'-2"	4'-5½"	3'-4"	5.98	.380	352	33.60	17.8
5	2	10	1'-0"	8"	6"	2'-6"	3'-6½"	3'-10"	3'-4"	3.15	.370	189	34.56	15.6
	3	15			6"		5'-10½"	6'-2"	5'-4"	4.60	.407	267	37.22	17.8
	4	20			6"		6'-2"	6'-5½"	5'-4"	6.20	.444	370	39.89	20.0
	5	25			7"	2'-9"	10'-8"	10'-9½"	9'-4"	8.78	.521	478	42.55	22.3
6	3	18	1'-0"	8½"	6"	2'-6"	5'-10½"	6'-2"	5'-4"	4.94	.478	278	41.88	20.0
	4	24			6"		8'-2"	8'-5½"	7'-4"	6.61	.515	383	44.54	22.3
	5	30			7"	2'-9"	10'-8"	10'-9½"	9'-4"	9.14	.592	492	47.20	24.5
	6	36			7"	3'-0"	13'-1"	13'-1"	11'-4"	11.58	.635	611	49.86	26.7
8	3	24	1'-0"	10½"	7"	2'-7"	6'-3½"	6'-6½"	5'-8"	6.28	.724	334	60.81	24.5
	4	32			7"	2'-7"	8'-7¼"	8'-10½"	7'-8"	8.25	.761	429	63.47	26.7
	5	40			7"	2'-9"	11'-0¼"	11'-2"	9'-8"	10.52	.810	536	66.13	28.9
	6	48			7"	3'-0"	13'-5¾"	13'-5¾"	11'-8"	13.08	.853	673	68.80	31.2
	7	56			7"	3'-4"	16'-0"	15'-5⅝"	13'-8"	16.03	.897	976	71.46	33.4
	8	64			8"	3'-10"	18'-8"	18'-1"	15'-8"	20.69	1.000	1168	74.81	35.6
10	4	40	1'-0"	11¾"	7"	2'-7"	8'-7¾"	8'-10½"	7'-8"	8.97	.983	505	90.62	31.2
	5	50			7"	2'-9"	11'-0¾"	11'-2"	9'-8"	11.33	1.026	611	93.28	33.4
	6	60			7"	3'-0"	13'-5¾"	13'-5¾"	11'-8"	13.99	1.067	749	95.94	35.6
	7	70			7"	3'-4"	16'-0"	15'-5⅝"	13'-8"	17.27	1.112	1060	98.60	37.9
	8	80			8"	3'-10"	18'-8"	18'-1"	15'-8"	21.88	1.217	1253	101.26	40.1
	9	90			9"	4'-3"	21'-2"	20'-4¼"	17'-8"	27.55	1.334	1740	111.86	42.3
	10	100			10"	4'-9"	23'-9½"	22'-8½"	19'-8"	34.76	1.463	2181	115.27	44.5

LAP NOTE:

In computing quantities of steel from the above table add one lap for culverts up to 50' in length and one lap for each additional 25' in length.



NOTE:-
Angle of Wingwalls may be varied to conform to the natural or proposed inlet or outlet channel.

STEEL SCHEDULE

For Culvert 32' in Length Out to Out of Barrel

LENGTH OF SPAN	HEIGHT	"a" bars (3" for 2, 3, 4, 5, 6 & 8' Span; 6" for 10' Span; 2 in each headwall Balance in Top and bottom slab of barrel) Size	Spacing	Number	Length	X	"d" bars ½" ϕ bars spaced at 12" Centers STRAIGHT Top slab and Sidewalls Number	Length	"e" bars Top of Bottom Slab Number	Length	"f" bars STRAIGHT Vertical bars in Sidewalls Size	Spacing	Number	Length	"g" bars Vertical bars in Wingwalls Size	Spacing	Number	Length	X Min.	X Max.	Y Min.	Y Max.	"h" bars ½" ϕ bars @ 12" Ctrs. Horizontal bars in Wingwalls Number	Length	Z Min	Z Max	"k" bars ½" ϕ Bars STRAIGHT Top of Wing Footings Number	Length	"r" bars ½" ϕ BENT Dowel bar to Headwall Number	Length	"s" bars ½" ϕ one in Top of Each Wingwall Number	Length
S	H																																
2	2	½" ϕ	6½"	122	3'-7"	2'-9"	5		3		½" ϕ	12"	64	2'-10"	½" ϕ	12"	16	3'-4"	1'-4"	2'-9"	1'-3"	1'-3"	12	4'-7"	1'-6"	3'-8"	12	5'-4"	6	3'-2"	4	5'-3"
3	2	½" ϕ	6"	132	4'-7"	3'-9"	6		4		½" ϕ	12"	64	2'-11"	½" ϕ	12"	16	3'-4½"	1'-4½"	2'-9½"	1'-3"	1'-3"	12	4'-7"	1'-6"	3'-8"	12	5'-4"	8	3'-2"	4	5'-3"
	3			132	4'-7"	3'-9"	8		4				64	3'-11"			24	3'-10½"	1'-6½"	3'-9½"	1'-3"	1'-3"	16	5'-11"	1'-6"	6'-0"	12	5'-4"	10	3'-2"	4	5'-3"
4	2	½" ϕ	5½"	144	5'-7"	4'-9"	7		5		½" ϕ	12"	64	3'-0"	½" ϕ	12"	16	3'-5"	1'-5"	2'-10"	1'-3"	1'-3"	12	4'-7"	1'-6"	3'-8"	12	5'-4"	8	3'-2"	4	5'-3"
	3			144	5'-7"	4'-9"	9		5				64	4'-0"			24	3'-11"	1'-5"	3'-10"	1'-3"	1'-3"	16	5'-11"	1'-6"	6'-0"	12	7'-8"	10	3'-2"	4	7'-9"
	4			144	5'-7"	4'-9"	11		5				64	5'-0"			36	4'-5"	1'-5"	4'-10"	1'-3"	1'-3"	20	7'-2"	1'-6"	8'-6"	12	10'-0"	10	3'-2"	4	10'-3"
5	2	½" ϕ	5"	158	6'-7"	5'-9"	8		6		½" ϕ	12"	64	3'-1"	½" ϕ	12"	16	3'-6"	1'-7"	2'-11"	1'-3"	1'-3"	12	4'-7"	1'-6"	3'-8"	12	5'-4"	14	3'-6"	4	5'-3"
	3			158	6'-7"	5'-9"	10		6				64	4'-1"			24	3'-11"	1'-5"	3'-11"	1'-3"	1'-3"	16	5'-11"	1'-6"	6'-0"	12	7'-8"	14	3'-6"	4	7'-9"
	4			158	6'-7"	5'-9"	12		6				64	5'-1"			36	4'-6"	1'-6"	4'-11"	1'-3"	1'-3"	20	7'-2"	1'-6"	8'-6"	12	10'-0"	14	3'-6"	4	10'-3"
	5			158	6'-7"	5'-9"	14		6				64	6'-1"			44	5'-2"	1'-7"	5'-11"	1'-4"	1'-6"	24	8'-5"	1'-6"	10'-8"	12	12'-4"	14	3'-6"	4	12'-9"
6	3	½" ϕ	5"	158	7'-7"	6'-9"	11		7		½" ϕ	12"	64	4'-2"	½" ϕ	12"	24	4'-1"	1'-5"	4'-3"	1'-3"	1'-3"	16	5'-11"	1'-6"	6'-0"	12	7'-8"	16	3'-6"	4	10'-3"
	4			158	7'-7"	6'-9"	13		7				64	5'-2"			36	4'-8"	1'-6"	5'-3"	1'-3"	1'-3"	20	7'-2"	1'-6"	8'-6"	12	10'-0"	16	3'-6"	4	12'-9"
	5			158	7'-7"	6'-9"	15		7				64	6'-2"			44	5'-4"	1'-7"	6'-3"	1'-4"	1'-6"	24	8'-5"	1'-6"	10'-8"	12	12'-4"	16	3'-6"	4	15'-3"
	6			158	7'-7"	6'-9"	17		7				66	7'-2"			52	5'-11"	1'-5"	7'-3"	1'-4"	1'-5"	28	9'-8"	1'-6"	13'-0"	12	14'-7"	16	3'-6"	4	15'-3"
8	3	⅝" ϕ	6"	132	9'-8"	8'-10"	13	31'-0" for 32'-0" Length	9	33'-0" for 32'-0" Length	½" ϕ	12"	64	4'-5"	½" ϕ	12"	28	4'-2"	1'-8"	4'-6"	1'-4"	1'-6"	16	6'-6"	1'-8"	6'-5"	12	8'-0"	20	3'-6"	4	8'-3"
	4			132	9'-8"	8'-10"	15		9				64	5'-5"			36	4'-11"	1'-9"	5'-4"	1'-4"	1'-6"	20	7'-6"	1'-8"	8'-9"	12	10'-4"	20	3'-6"	4	10'-5"
	5			132	9'-8"	8'-10"	17		9				64	6'-5"			44	5'-5"	1'-8"	6'-4"	1'-4"	1'-6"	24	8'-9"	1'-8"	11'-0"	12	12'-8"	20	3'-6"	4	13'-3"
	6			132	9'-8"	8'-10"	19		9				64	7'-5"			56	6'-0"	1'-7"	7'-4"	1'-4"	1'-6"	28	10'-0"	1'-8"	13'-4"	12	15'-0"	20	3'-6"	4	15'-9"
	7			132	9'-8"	8'-10"	21		9				64	8'-5"	⅝" ϕ	12"	64	6'-9"	1'-9"	8'-4"	1'-4"	2'-1"	32	11'-2"	1'-8"	15'-8"	12	17'-4"	20	3'-6"	4	18'-3"
	8			132	9'-8"	8'-10"	23		9				62	9'-5"			72	7'-5"	1'-7"	9'-6"	1'-5"	2'-6"	36	12'-5"	1'-8"	17'-11"	12	19'-8"	20	3'-6"	4	20'-9"
10	4	⅞" ϕ	9½"	86	12'-4"	10'-10"	17		11		½" ϕ	12"	64	5'-7"	½" ϕ	12"	36	5'-0"	1'-10"	5'-6"	1'-4"	1'-4"	20	7'-7"	1'-8"	8'-8"	12	10'-4"	24	3'-6"	4	10'-5"
	5			86	12'-4"	10'-10"	19		11				64	6'-7"			44	5'-6"	1'-8"	6'-6"	1'-4"	1'-6"	24	8'-9"	1'-8"	11'-0"	12	12'-8"	24	3'-6"	4	13'-3"
	6			86	12'-4"	10'-10"	21		11				64	7'-7"			56	6'-1"	1'-8"	7'-6"	1'-4"	1'-9"	28	10'-0"	1'-8"	13'-4"	12	15'-0"	24	3'-6"	4	15'-9"
	7			86	12'-4"	10'-10"	23		11				64	8'-7"			64	6'-11"	1'-10"	8'-6"	1'-4"	2'-1"	32	11'-2"	1'-8"	15'-8"	12	17'-4"	24	3'-6"	4	18'-3"
	8			86	12'-6"	11'-0"	25		11				64	9'-7"			72	7'-7"	1'-8"	9'-6"	1'-5"	2'-6"	36	12'-5"	1'-8"	17'-11"	12	19'-8"	24	3'-6"	4	20'-9"
	9			86	12'-8"	11'-2"	27		11				64	10'-7"			80	8'-7"	1'-8"	10'-6"	1'-6"	3'-0"	40	13'-7"	1'-8"	20'-2"	12	22'-0"	24	3'-6"	4	23'-3"
	10			86	12'-10"	11'-4"	29		11				64	11'-7"		8"	136	9'-3"	1'-10"	11'-6"	1'-7"	3'-6"	44	14'-5"	1'-8"	22'-6"	12	24'-4"	24	3'-6"	4	25'-9"

NOTE: Lengths given above do not include lap.

REINFORCING STEEL:- To be deformed bars of structural or intermediate grade.

CHAMFER:- All exposed corners to have ¾" Chamfer.

CONCRETE:- All Concrete to be Class "S".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-15

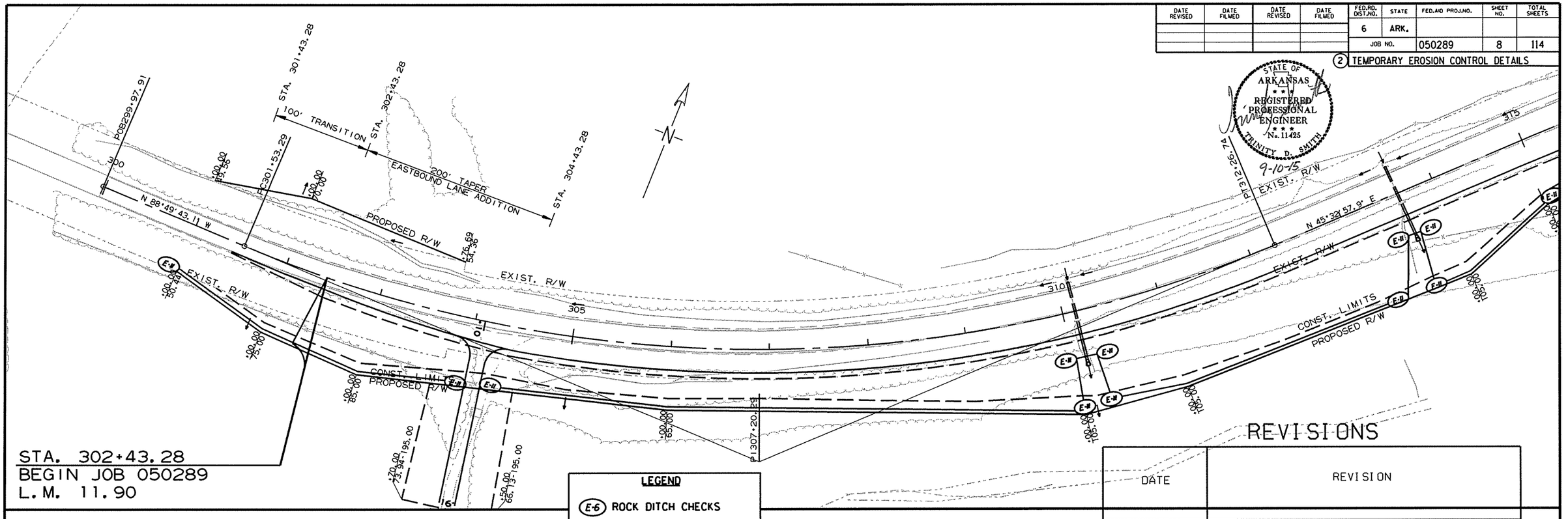
SPECIAL DETAILS FOR REINFORCED CONCRETE BOX CULVERTS

SINGLE

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.		050289	8	114

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-15



REVISIONS

DATE	REVISION

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

STAGE I
TEMPORARY EROSION CONTROL DETAILS

9/10/2015

R050289.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.		050289	9	114

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-15

REVISIONS

DATE	REVISION

- MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

LEGEND

- (E-6) ROCK DITCH CHECKS
- (E-11) SILT FENCE

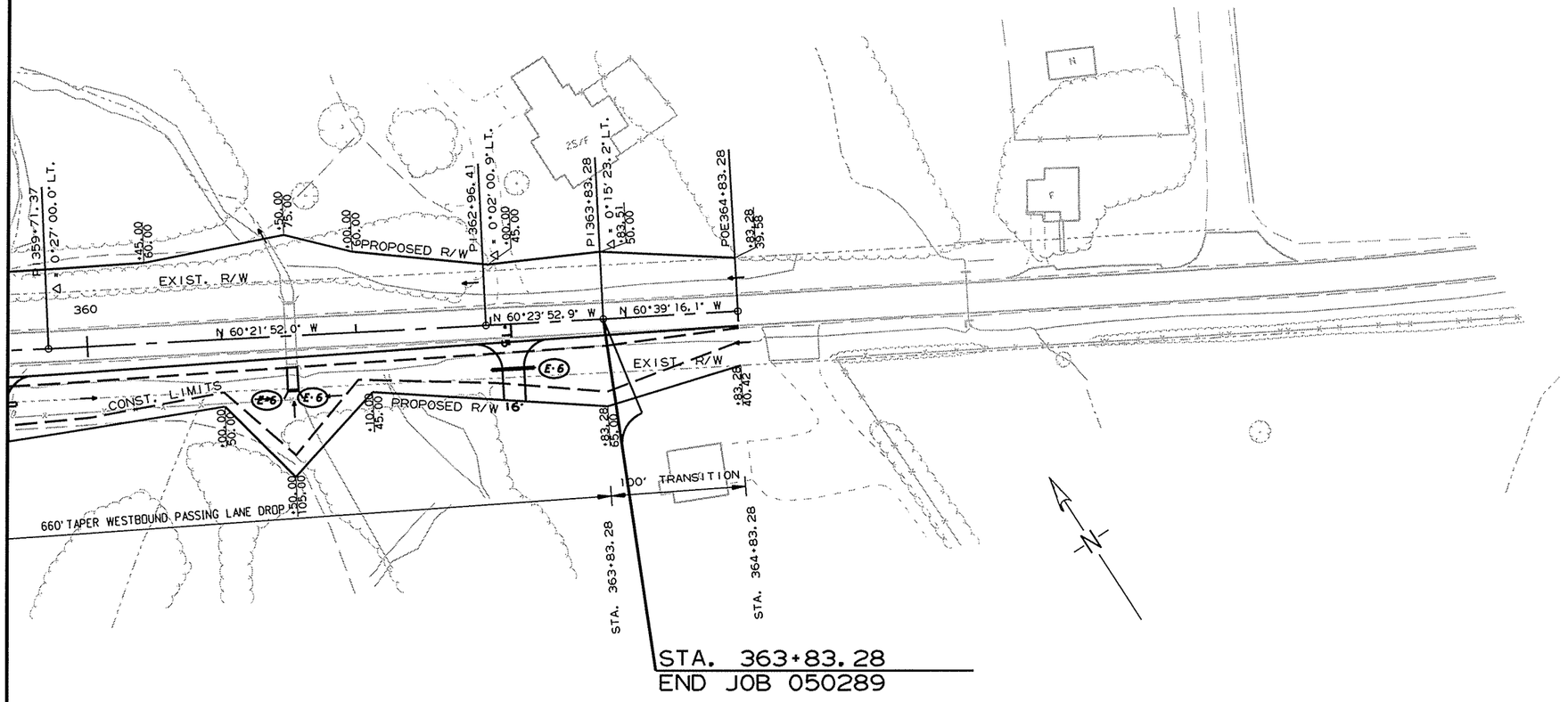
9/10/2015

R050289.DGN

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.		050289	10	114

(2) TEMPORARY EROSION CONTROL DETAILS



LEGEND

(E-6) ROCK DITCH CHECKS

(E-11) SILT FENCE

REVISIONS

DATE	REVISION

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-10-15

STAGE I
TEMPORARY EROSION CONTROL DETAILS

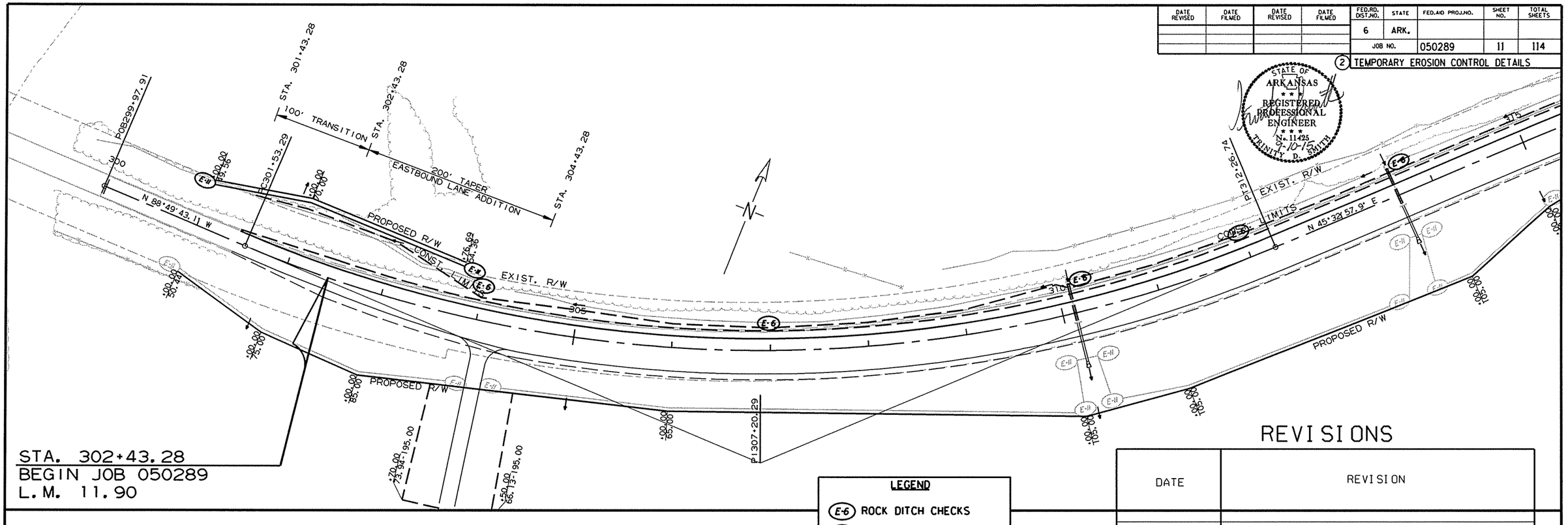
9/10/2015

R050289.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.		050289	11	114

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-10-15
TRINITY D. SMITH



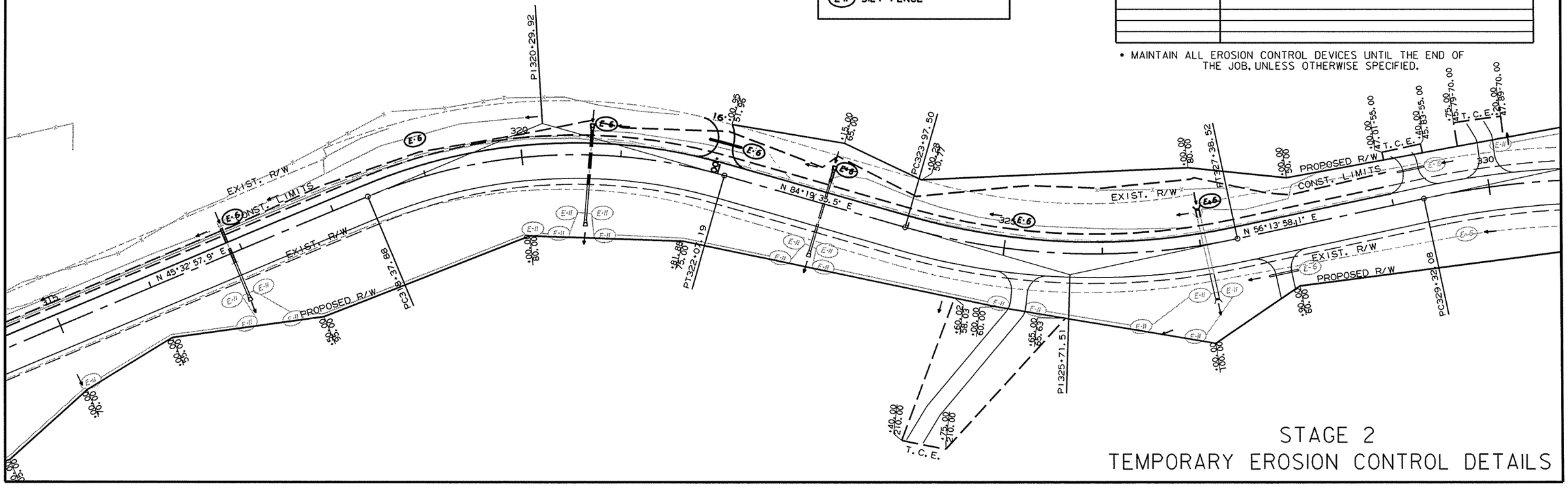
LEGEND

- (E-6) ROCK DITCH CHECKS
- (E-11) SILT FENCE

REVISIONS

DATE	REVISION

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



STAGE 2
TEMPORARY EROSION CONTROL DETAILS

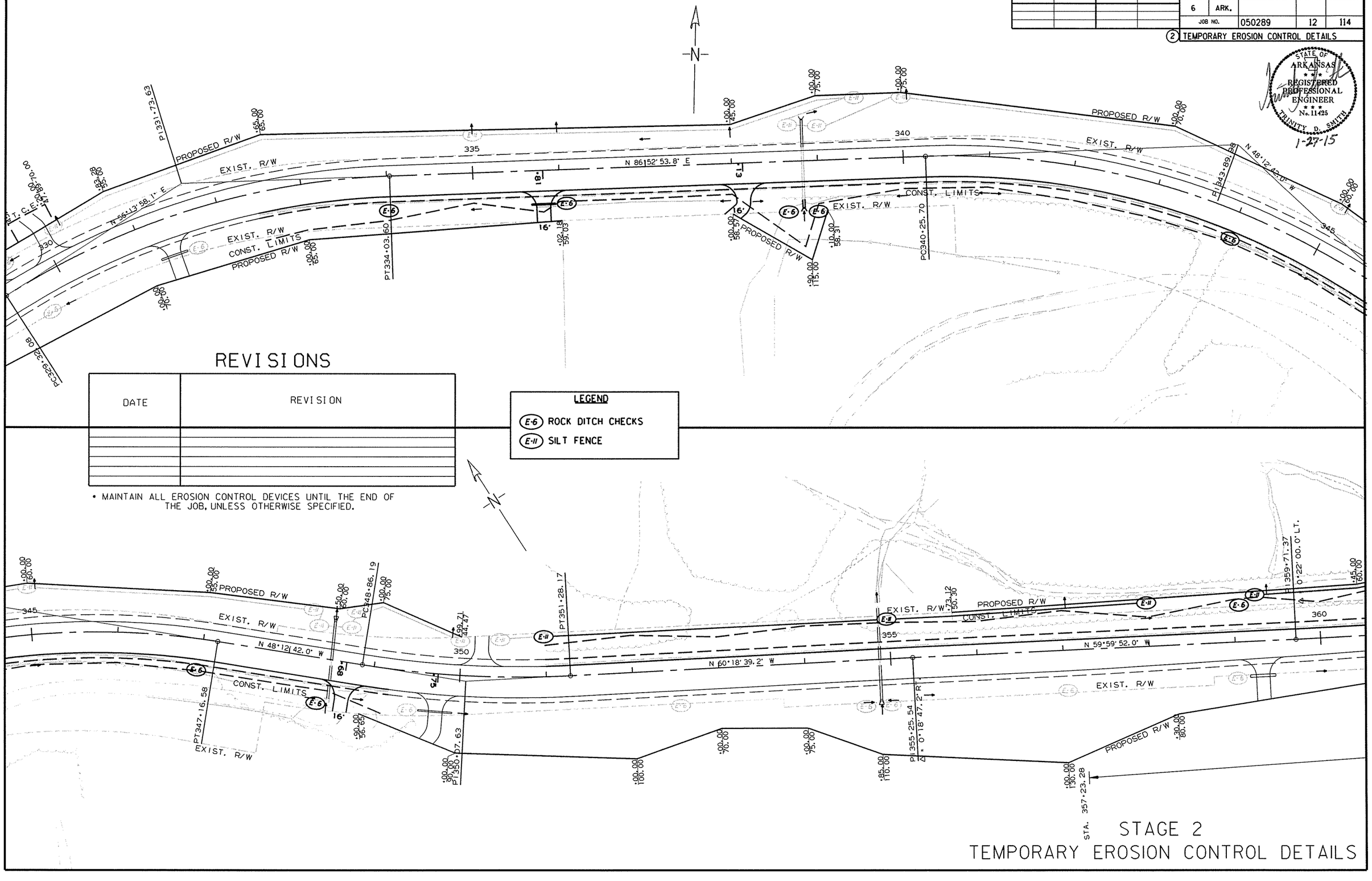
9/10/2015

R050289.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.		050289	12	114

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



REVISIONS

DATE	REVISION

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

LEGEND

- (E-6) ROCK DITCH CHECKS
- (E-11) SILT FENCE

12/31/2014

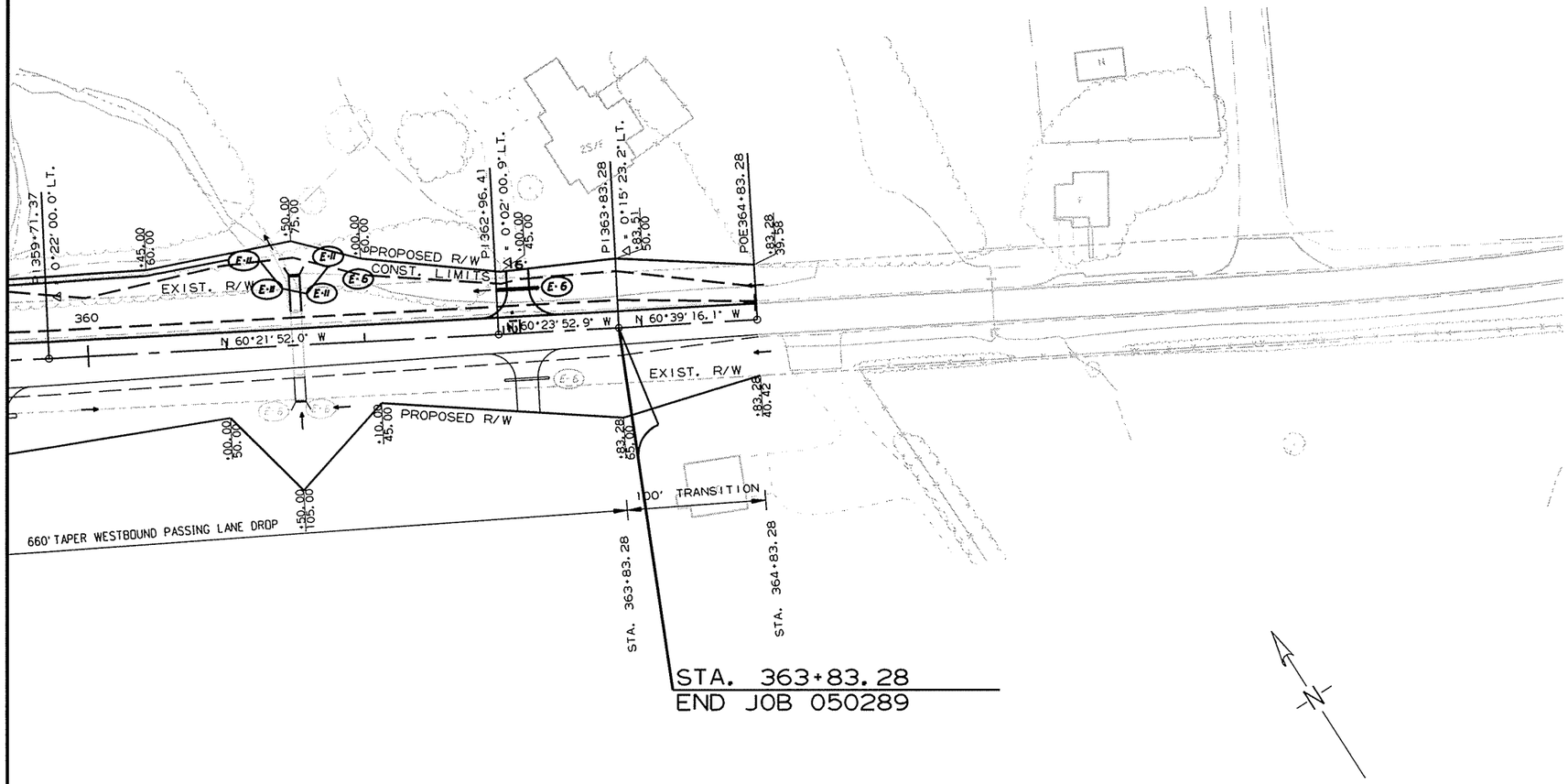
R050289.DGN

STAGE 2
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.		050289	13	114

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



LEGEND

(E-6) ROCK DITCH CHECKS

(E-11) SILT FENCE

REVISIONS

DATE	REVISION

• MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

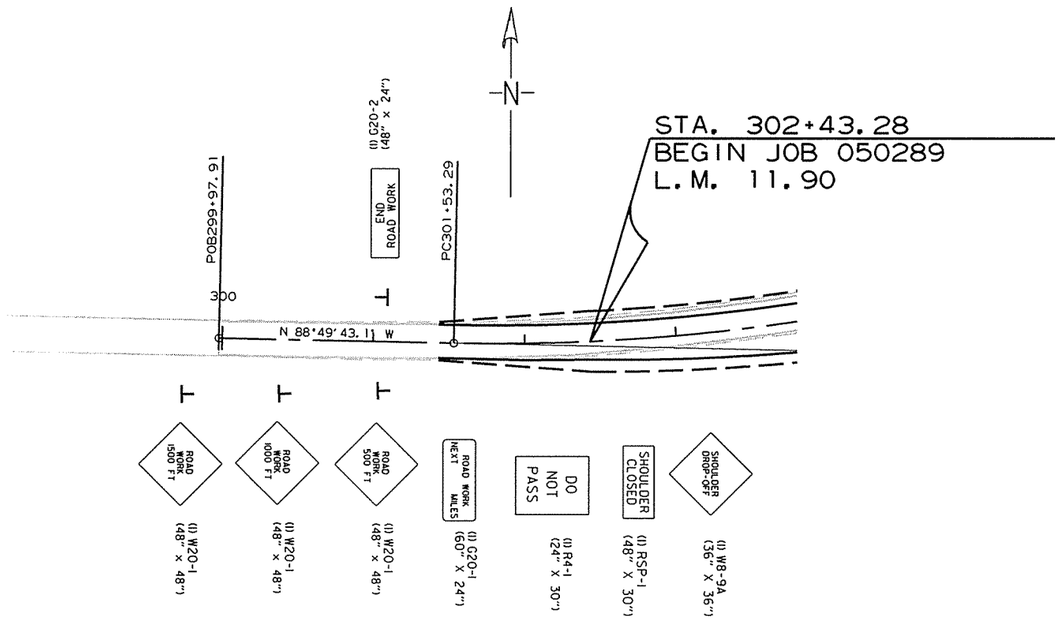
12/31/2014

R050289.DGN

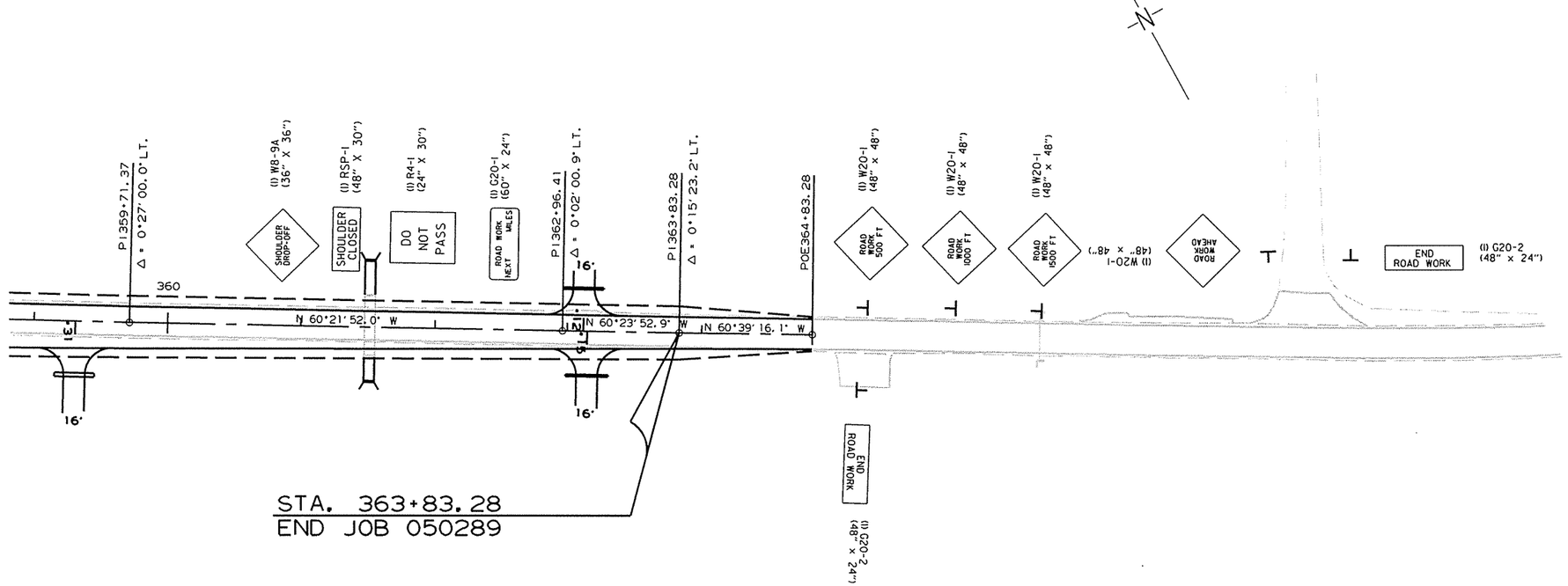
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	14	114

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



NOTE:
ADVANCE SIGNS AT ALL LOCATIONS ARE TO BE RETAINED THROUGH ALL STAGES OF CONSTRUCTION.



MAINTENANCE OF TRAFFIC DETAILS
ADVANCE WARNING SIGNS

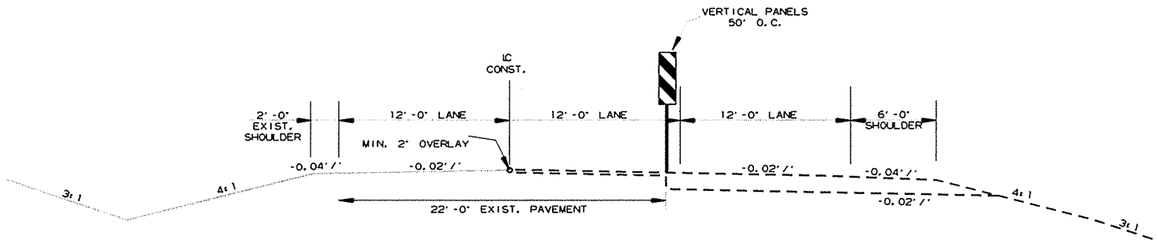
1/13/2015

R050289.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.		050289	15	114

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



OVERLAY TANGENT - PASSING LANE WIDENING STAGE 1

STA. 301+43.28 - STA. 333+50 RT.
STA. 329+00 - STA. 351+00 LT.
STA. 349+25 - STA. 363+83.28 RT.

SEQUENCING:

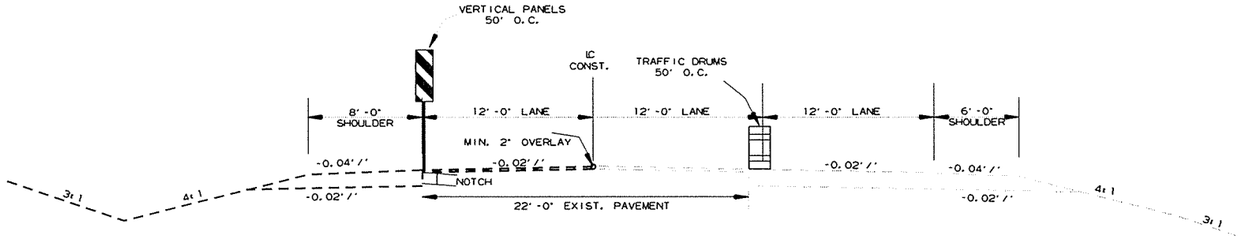
STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: WIDEN SHOULDER ON LT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT.

STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

CONSTRUCTION PAVEMENT MARKINGS:

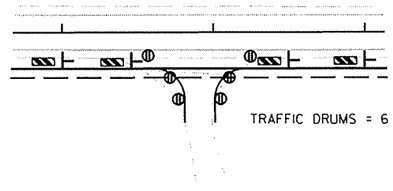
AS DIRECTED BY THE ENGINEER OVER LEVELING COURSE:
RT. AND LT. EDGE LINES = 12280 LIN. FT.
DBL. CENTERLINE = 12280 LIN. FT.



OVERLAY TANGENT - PASSING LANE WIDENING STAGE 2

STA. 301+43.28 - STA. 333+50 LT.
STA. 329+00 - STA. 351+00 RT.
STA. 349+25 - STA. 363+83.28 LT.

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR THE FULL LENGTH OF THE JOB. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.



DRIVEWAY TRAFFIC DRUM DETAIL

1/13/2015

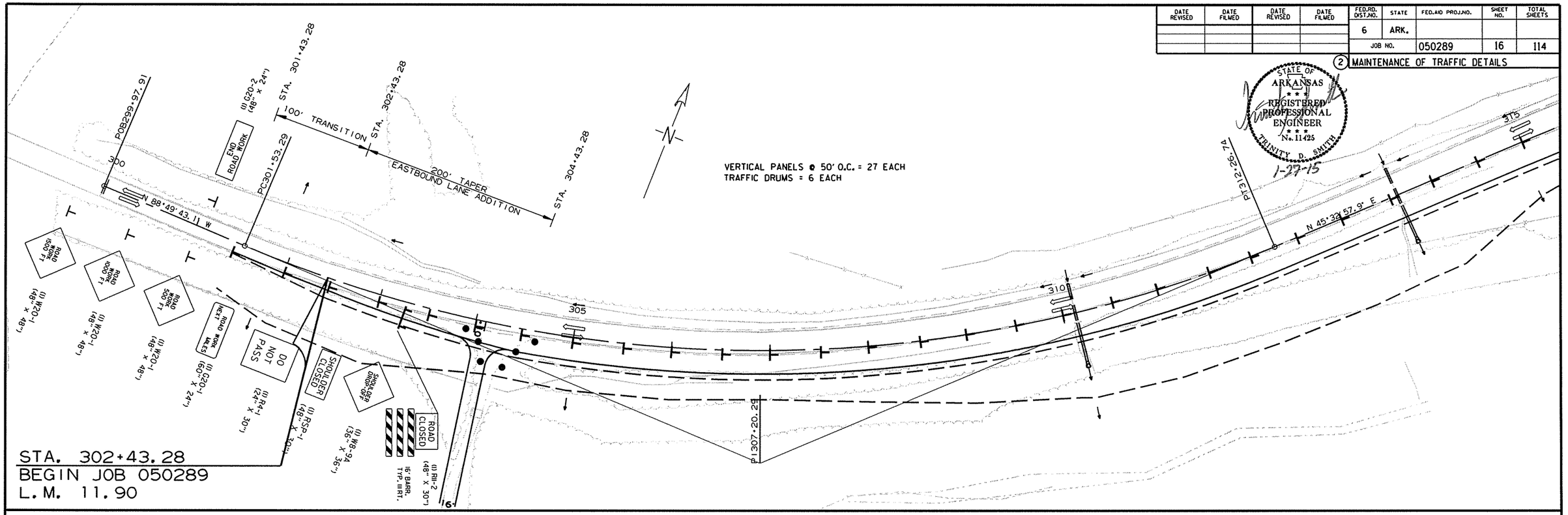
R050289.DGN

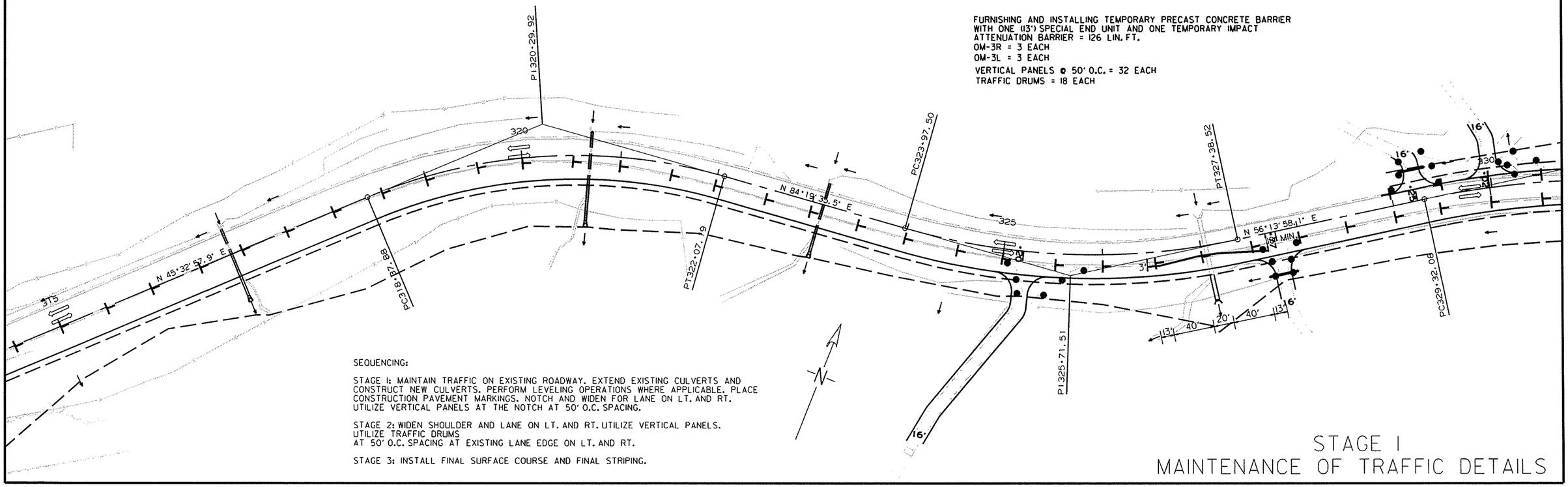
MAINTENANCE OF TRAFFIC DETAILS

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.		050289	16	114

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15





STAGE I
MAINTENANCE OF TRAFFIC DETAILS

1/13/2015

R050289.DGN

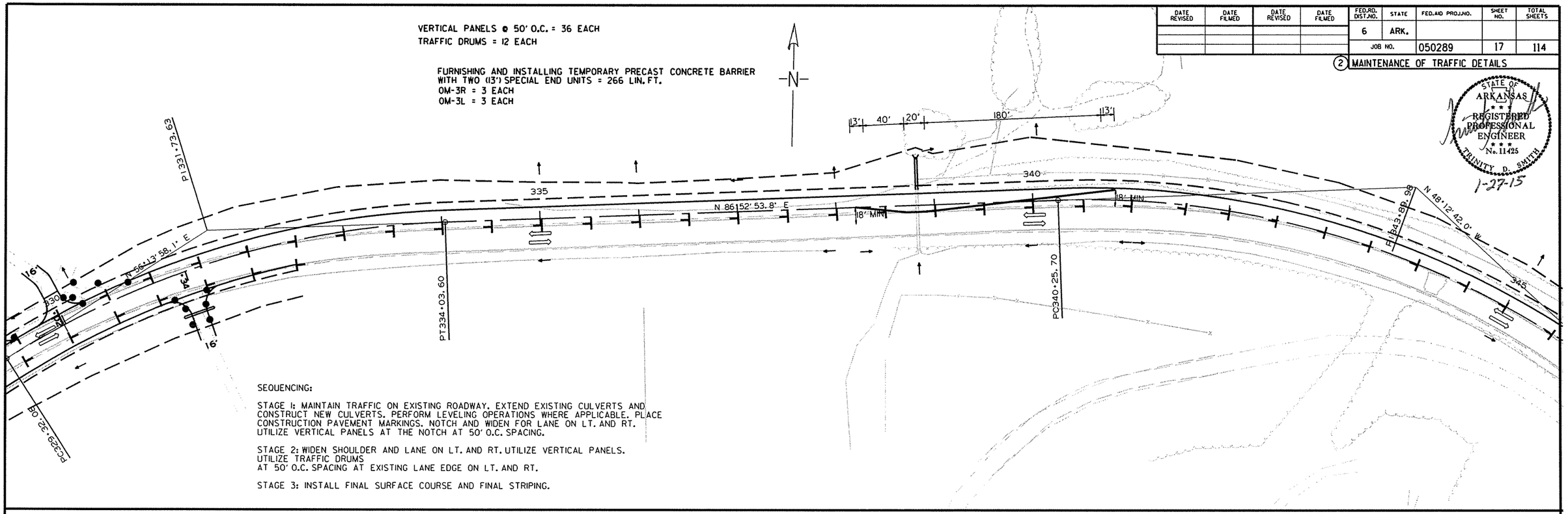
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	17	114

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15

VERTICAL PANELS @ 50' O.C. = 36 EACH
TRAFFIC DRUMS = 12 EACH

FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 266 LIN. FT.
OM-3R = 3 EACH
OM-3L = 3 EACH



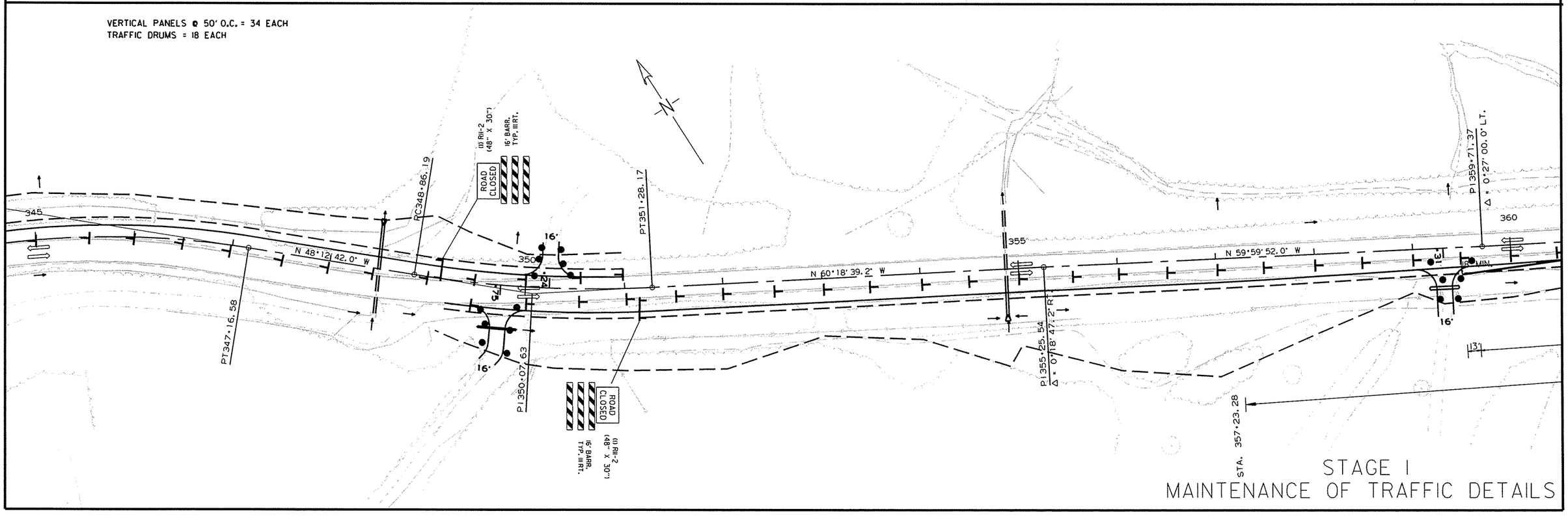
SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. AND RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: WIDEN SHOULDER AND LANE ON LT. AND RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT EXISTING LANE EDGE ON LT. AND RT.

STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

VERTICAL PANELS @ 50' O.C. = 34 EACH
TRAFFIC DRUMS = 18 EACH



STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

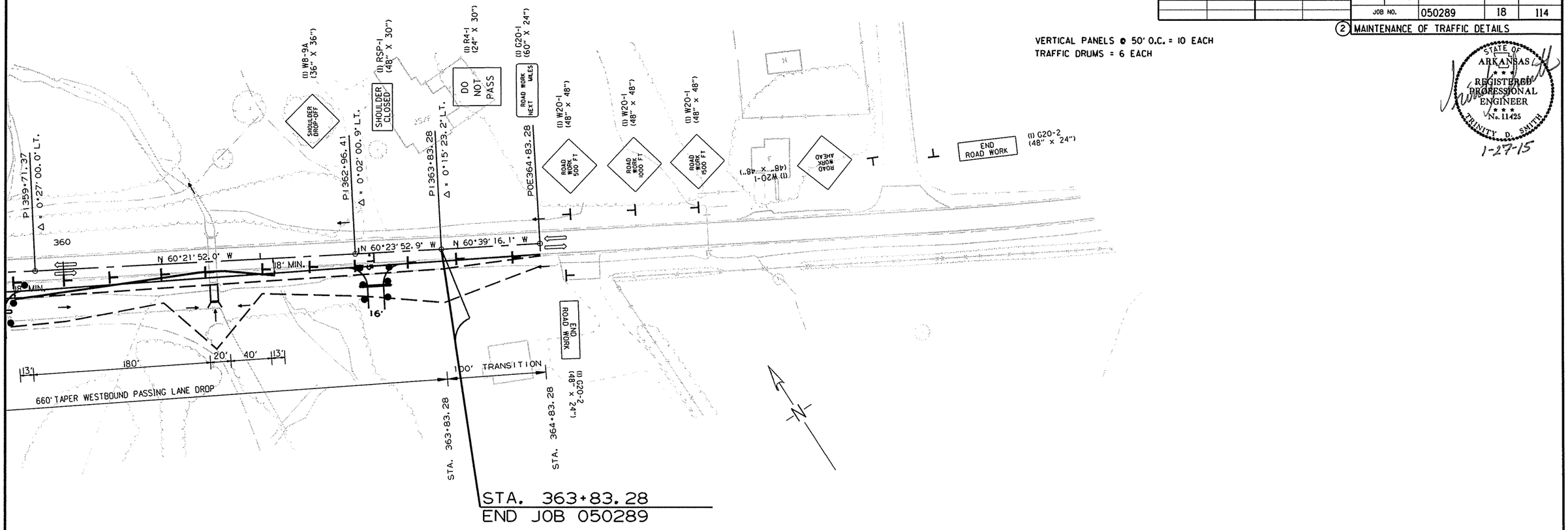
1/13/2015
R050289.DGN

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.		050289	18	114

(2) MAINTENANCE OF TRAFFIC DETAILS

VERTICAL PANELS @ 50' O.C. = 10 EACH
TRAFFIC DRUMS = 6 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



STA. 363+83.28
END JOB 050289

FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER
WITH TWO (13') SPECIAL END UNITS = 266 LIN. FT.
OM-3R = 3 EACH
OM-3L = 3 EACH

SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. AND RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: WIDEN SHOULDER AND LANE ON LT. AND RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT EXISTING LANE EDGE ON LT. AND RT.

STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

1/13/2015

R050289.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.		050289	19	114

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCING:

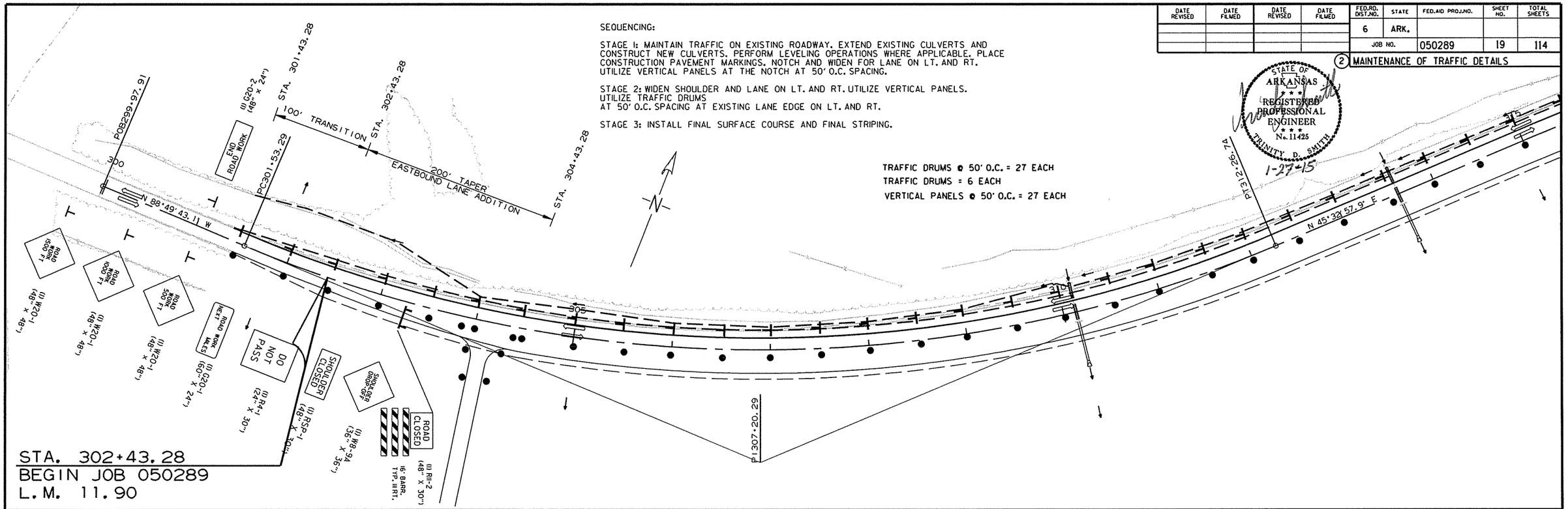
STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. AND RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: WIDEN SHOULDER AND LANE ON LT. AND RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT EXISTING LANE EDGE ON LT. AND RT.

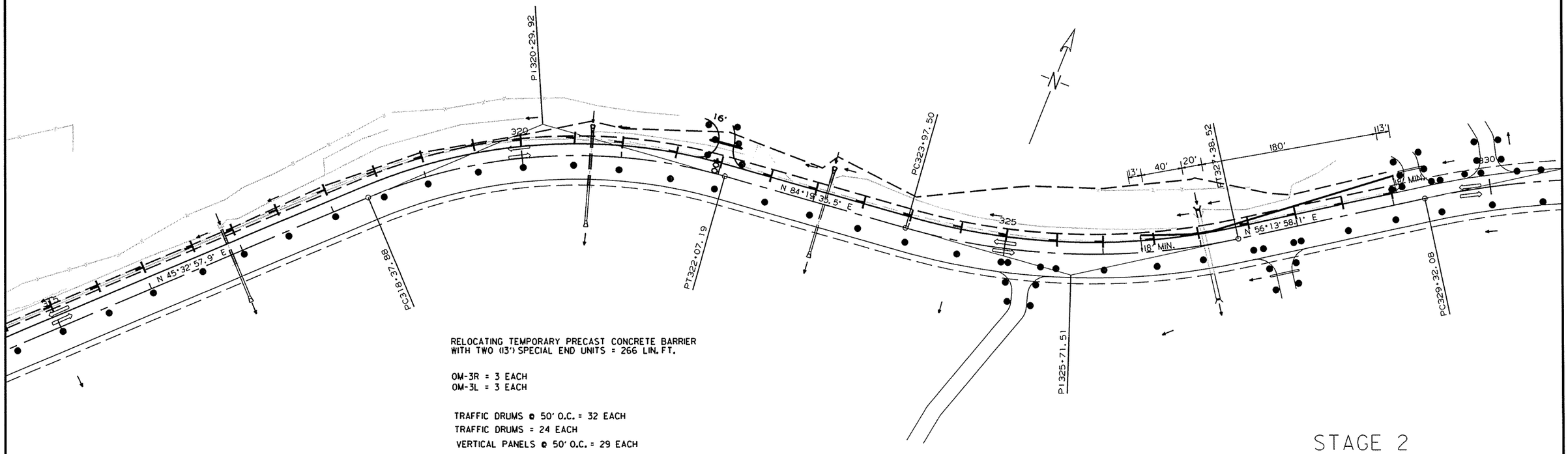
STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

TRAFFIC DRUMS @ 50' O.C. = 27 EACH
TRAFFIC DRUMS = 6 EACH
VERTICAL PANELS @ 50' O.C. = 27 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



STA. 302+43.28
BEGIN JOB 050289
L.M. 11.90



RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (13') SPECIAL END UNITS = 266 LIN. FT.

OM-3R = 3 EACH
OM-3L = 3 EACH

TRAFFIC DRUMS @ 50' O.C. = 32 EACH
TRAFFIC DRUMS = 24 EACH
VERTICAL PANELS @ 50' O.C. = 29 EACH

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

1/13/2015

R050289.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.		050289	20	114

(2) MAINTENANCE OF TRAFFIC DETAILS

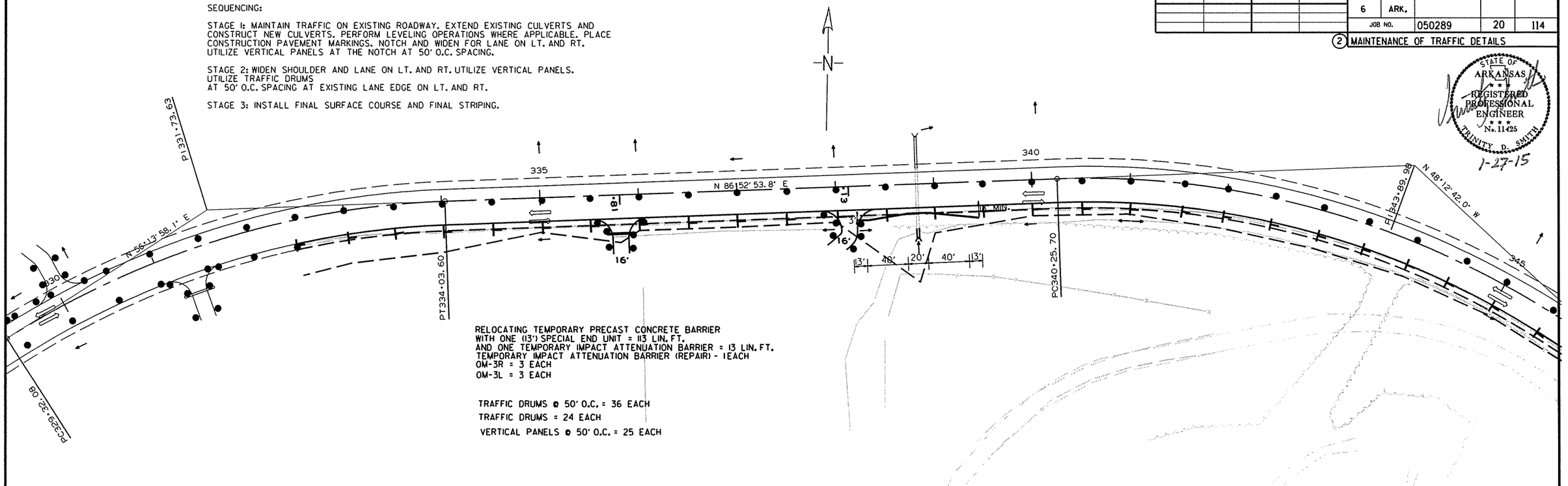
SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. AND RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: WIDEN SHOULDER AND LANE ON LT. AND RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT EXISTING LANE EDGE ON LT. AND RT.

STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

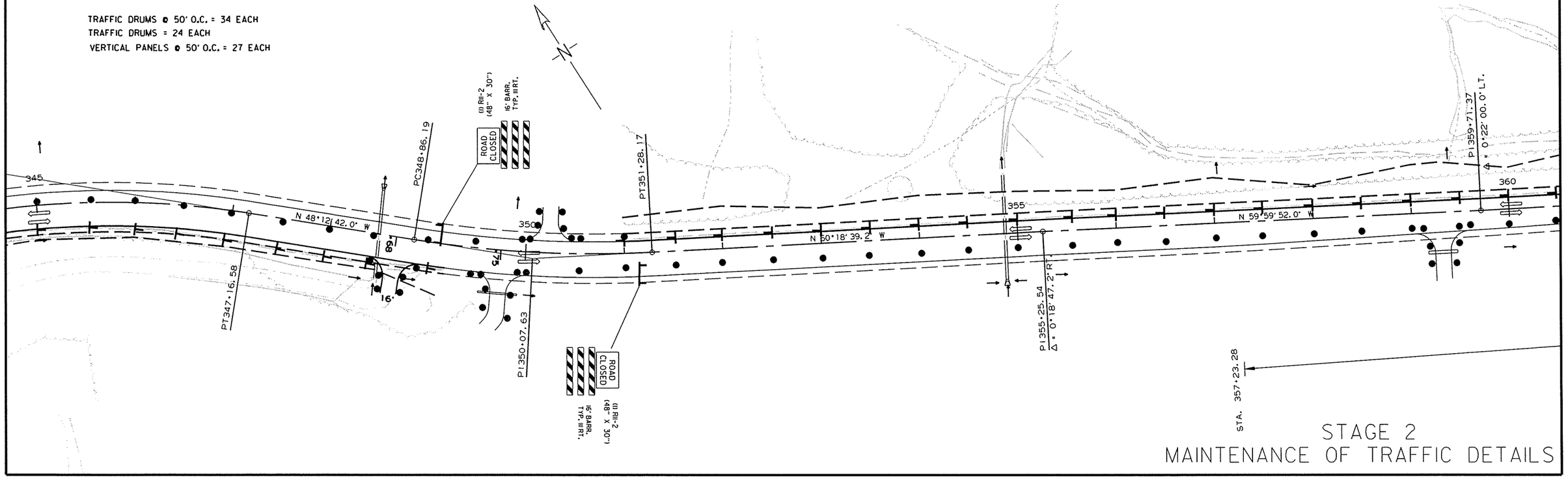
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



RELOCATING TEMPORARY PRECAST CONCRETE BARRIER
WITH ONE (13') SPECIAL END UNIT = 113 LIN. FT.
AND ONE TEMPORARY IMPACT ATTENUATION BARRIER = 13 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) - 1EACH
OM-3R = 3 EACH
OM-3L = 3 EACH

TRAFFIC DRUMS @ 50' O.C. = 36 EACH
TRAFFIC DRUMS = 24 EACH
VERTICAL PANELS @ 50' O.C. = 25 EACH

TRAFFIC DRUMS @ 50' O.C. = 34 EACH
TRAFFIC DRUMS = 24 EACH
VERTICAL PANELS @ 50' O.C. = 27 EACH



STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

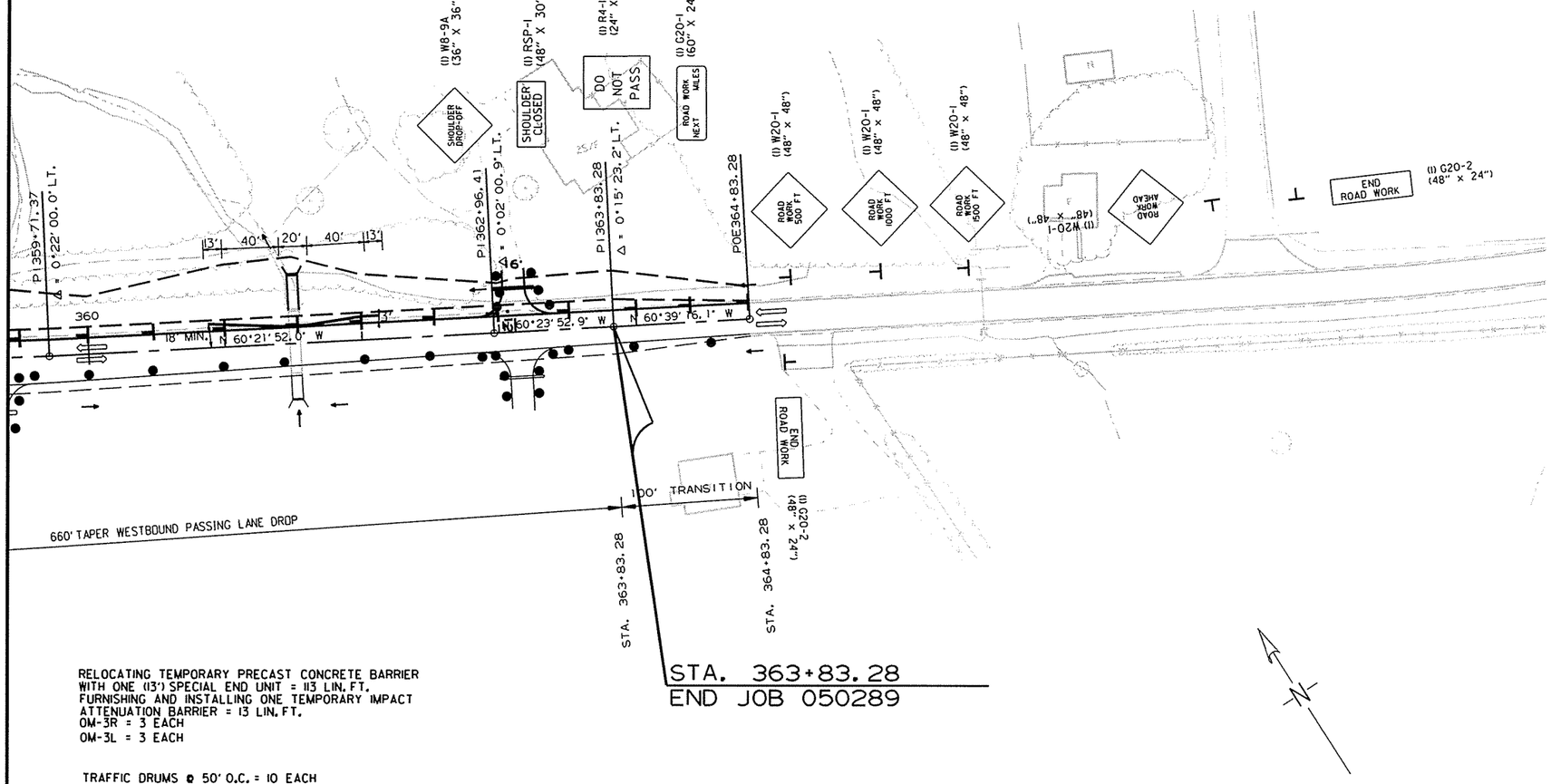
1/13/2015

R050289.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.		050289	21	114

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH ONE (13') SPECIAL END UNIT = 113 LIN. FT.
FURNISHING AND INSTALLING ONE TEMPORARY IMPACT ATTENUATION BARRIER = 13 LIN. FT.
OM-3R = 3 EACH
OM-3L = 3 EACH

TRAFFIC DRUMS @ 50' O.C. = 10 EACH
TRAFFIC DRUMS = 12 EACH
VERTICAL PANELS @ 50' O.C. = 11 EACH

SEQUENCING:

STAGE 1: MAINTAIN TRAFFIC ON EXISTING ROADWAY. EXTEND EXISTING CULVERTS AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS WHERE APPLICABLE. PLACE CONSTRUCTION PAVEMENT MARKINGS. NOTCH AND WIDEN FOR LANE ON LT. AND RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 2: WIDEN SHOULDER AND LANE ON LT. AND RT. UTILIZE VERTICAL PANELS. UTILIZE TRAFFIC DRUMS AT 50' O.C. SPACING AT EXISTING LANE EDGE ON LT. AND RT.

STAGE 3: INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

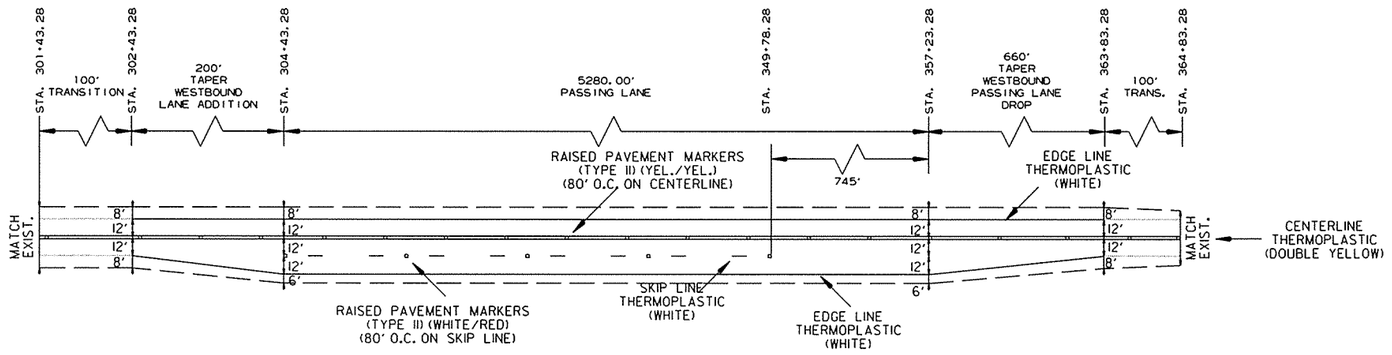
1/13/2015

R050289.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.		050289	22	114

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15



CONSTRUCTION PAVEMENT MARKINGS: 24560 LIN. FT.

PERMANENT PAVEMENT MARKING DETAILS:

THERMOPLASTIC PAVEMENT MARKINGS:
RT. AND LT. EDGE LINES = 12680 LIN. FT. WHITE
DBL. CENTERLINE = 12680 LIN. FT. YELLOW
SKIP LINE = 1134 LIN. FT. WHITE

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 80' O.C. ON CENTERLINE = 80 EACH
TYPE II (WHITE/RED) 80' O.C. ON SKIP LINE = 57 EACH

1/13/2015

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PERMANENT PAVEMENT MARKING DETAILS

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.		050289	23	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15

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)	FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
										RIGHT				
			LIN. FT. - EACH			NO.	SQ. FT.	EACH			LIN. FT.		EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	16.0							
G20-2	END ROAD WORK	48"x24"	3	3	3	3	24.0							
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2	2	2	20.0							
R11-2	ROAD CLOSED	48"x30"	3	3	3	3	30.0							
OM-3L	OBJECT MARKER	12"x36"	9	9	9	9	27.0							
OM-3R	OBJECT MARKER	12"x36"	9	9	9	9	27.0							
R4-1	DO NOT PASS	24"x30"	2	2	2	2	10.0							
RSP-1	SHOULDER CLOSED	48"x30"	2	2	2	2	20.0							
W8-9a	SHOULDER DROP OFF	36"X36"	2	2	2	2	18.0							
	VERTICAL PANELS		139	119	139			139						
	TRAFFIC DRUMS		60	229	229				229					
	TYPE III BARRICADE-RT. (16')		3	3	3					48				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		645		645						645			
	RELOCATING PRECAST CONCRETE BARRIER			492	492							492		
	TEMPORARY IMPACT ATTENUATION BARRIER		1	2	3								3	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1	2	3									3
TOTALS:							288.0	139	229	48	645	492	3	3

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

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR THE FULL LENGTH OF THE JOB. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH ONE MILE, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING	
					TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	4" WHITE	4" YELLOW
	LIN. FT. - EACH			LIN. FT.	EACH		LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS		24560		24560				
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)			57		57			
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			80			80		
THERMOPLASTIC PAVEMENT MARKING WHITE (4")			13814				13814	
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")			12680					12680
TOTALS:				24560	57	80	13814	12680

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

1/6/2015

R050289.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.		050289	24	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-10-15

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
301+00	332+00	HWY. 66	31	31
336+00	363+00	HWY. 66	27	27
TOTALS:			58	58

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
327+78	18"X24' C.M. PIPE CULVERT ON RT.	1
331+32	24"X24' C.M. PIPE CULVERT ON RT.	1
335+81	18"X18' C.M. PIPE CULVERT ON RT.	1
349+78	18"X18' C.M. PIPE CULVERT ON RT.	1
359+38	36"X30' R.C. PIPE CULVERT ON RT.	1
363+15	18"X25' C.M. PIPE CULVERT ON RT.	1
363+20	18"X37' C.M. PIPE CULVERT ON LT.	1
TOTAL:		7

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	COLUMN	CATTLE GUARD	PLANTERS
			EACH	EACH	EACH
304+19		HWY. 66 LT.		1	
325+39		HWY. 66 RT.	1		
359+31		HWY. 66 RT.			2
TOTALS:			1	1	2

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
301+31	314+78	RT.	1375	1
316+82	321+82	RT.	484	
321+82	325+12	RT.	346	
322+01	328+00	LT.	570	
325+28	331+21	RT.	611	1
330+45	348+76	LT.	1970	2
333+23	336+02	RT.	289	
338+61	338+98	RT.	42	
350+85	361+71	RT.	1139	2
TOTALS:			6826	6

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			1000	8
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			1000	8

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

CULVERT CLEAN OUT

STATION	LOCATION	EACH
313+62	24" R.C. PIPE CULVERT	1
TOTAL:		1

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
303+00	35	53	11.20	92	14	16.90	4' RT.	0-5	30	16	A-6(9)	BROWN
303+00	35	53	11.10	92	14	16.90	12' RT.	0-5	30	15	A-6(8)	BROWN
311+00	35	53	14.50	92	14	7.90	4' LT.	0-2.5Z	29	16	A-6(9)	BROWN
311+00	35	53	14.60	92	14	8.00	14' LT.	0-4.5Z	21	8	A-4(3)	BROWN
319+00	35	53	20.30	92	13	59.70	5' RT.	0-5	38	22	A-6(17)	BR/GR
319+00	35	53	20.20	92	13	59.60	14' RT.	0-5	32	18	A-6(10)	BR/GR
326+00	35	53	21.40	92	13	53.20	4' LT.	0-4.5Z	ND	NP	A-4(0)	BROWN
326+00	35	53	21.60	92	13	53.30	15' LT.	0-5	ND	NP	A-2-4(0)	BROWN
335+00	35	53	24.40	92	13	43.30	4' RT.	0-5	46	27	A-7-6(23)	BROWN
335+00	35	53	24.30	92	13	43.30	14' RT.	0-5	53	30	A-7-6(30)	BROWN
343+00	35	53	24.20	92	13	31.80	4' LT.	0-5	47	25	A-7-6(16)	BROWN
343+00	35	53	24.40	92	13	31.70	14' LT.	0-5	49	24	A-7-6(19)	BROWN
351+00	35	53	18.40	92	13	21.00	4' RT.	0-5	46	26	A-7-6(20)	BROWN
351+00	35	53	18.20	92	13	21.00	14' RT.	0-5	59	35	A-7-6(25)	BROWN
359+00	35	53	13.90	92	13	10.90	4' LT.	0-5	67	37	A-7-5(24)	BROWN
359+00	35	53	14.00	92	13	10.80	14' LT.	0-5	53	31	A-7-6(19)	BROWN
335+00	35	53	24.30	92	13	43.30	14' RT.	0-5	63	39	A-7-6(38)	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.
Z- AUGER REFUSAL
NP - NON-PLASTIC
ND - NOT DETERMINABLE

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
327+05	LT. HEADWALL OF BOX CULVERT	1
338+83	RT. HEADWALL OF BOX CULVERT	1
361+51	LT. HEADWALL OF BOX CULVERT	1
TOTAL:		3

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	7	7
TOTALS:	7	7

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
* 299+97.91	301+43.28	MAIN LANES	26	419.96
301+43.28	302+43.28	MAIN LANES - TRANSITION	26	288.89
* 302+43.28	363+83.28	MAIN LANES	26	17737.78
363+83.28	364+83.28	MAIN LANES - TRANSITION	26	288.89
TOTAL:				18735.52

NOTE: AVERAGE MILLING DEPTH 1".
* NOTE: AVERAGE MILLING DEPTH 2".

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	50
DIRECTED BY THE ENGINEER	
TOTAL:	50

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

1/6/2015

R050289.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	25	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	30	60
DIRECTED BY THE ENGINEER		
TOTALS:	30	60

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

SELECTED PIPE BEDDING

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

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE			* 16'-0" GATES
			(TYPE C)	(TYPE D)	(TYPE D-1)	
			LIN. FT.			EACH
301+31	314+78	RT.			1406	1
316+82	321+82	RT.			448	
321+82	325+08	RT.		333		
322+01	328+00	LT.		572		
325+28	331+21	RT.		601		1
330+45	339+69	LT.	955			2
333+27	336+02	RT.	269			
338+61	338+98	RT.		59		
339+69	348+76	LT.		958		
350+98	361+71	RT.		1117		2
TOTALS:			1224	3640	1854	6

* DENOTES ALTERNATE BID ITEM.

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
302+43	363+83	LT. SHOULDER	4648
302+43	363+83	RT. SHOULDER	4384
TOTAL:			9032

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 1	CLASS 3
			LIN. FT.	SQ. YD.	SQ. YD.
320+69	327+05	LT. DITCH	636.0		565.3
327+05	334+00	RT. DITCH	695.0		617.8
349+00	361+51	RT. DITCH	1251.0		1112.0
ENTIRE	PROJECT	TO BE USED IF AND WHERE		1000.0	
		DIRECTED BY THE ENGINEER			
TOTALS:				1000.0	2295.1

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

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YDS.	SQ. YDS.
320+69	INLET OF PIPE CULVERT	2	3
320+69	OUTLET OF PIPE CULVERT	4	7
323+12	INLET OF PIPE CULVERT	4	7
323+12	OUTLET OF PIPE CULVERT	3	6
327+05	INLET OF BOX CULVERT	8	16
327+05	OUTLET OF BOX CULVERT	13	25
338+83	INLET OF BOX CULVERT	9	17
338+83	OUTLET OF BOX CULVERT	4	7
348+50	INLET OF PIPE CULVERT	3	6
348+50	OUTLET OF PIPE CULVERT	3	6
354+87	INLET OF PIPE CULVERT	6	11
361+51	INLET OF BOX CULVERT	16	31
361+51	OUTLET OF BOX CULVERT	16	31
*	TO BE USED IF AND WHERE	50	
	DIRECTED BY THE ENGINEER		
TOTALS:		141	173

NOTE: QUANTITIES ESTIMATED.
* SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

CONCRETE DITCH PAVING

STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	SOLID SODDING	WATER
		LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	M. GAL.
310+13	OUTLET OF R.C. PIPE CULVERT	56.00	8	5	49.78	24.89	0.31
313+62	OUTLET OF R.C. PIPE CULVERT	60.00	8	5	53.33	26.67	0.34
316+88	OUTLET OF R.C. PIPE CULVERT	32.00	8	5	28.44	14.22	0.18
TOTALS:					131.55	65.78	0.83

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	ROCK FILL
			CU. YD.		
ENTIRE	PROJECT	MAIN LANES	12901	16119	
ENTIRE	PROJECT	MAIN LANES			35113
ENTIRE	PROJECT	APPROACHES		2145	
ENTIRE	PROJECT	TEMPORARY APPROACHES		500	
327+05		CHANNEL CHANGE	58		
338+83		CHANNEL CHANGE	43		
361+51		CHANNEL CHANGE	39		
TOTALS:			13041	18764	35113

1/6/2015
R050289.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	26	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE DITCH CHECKS 20" (E-1)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
301+43.28	364+83.28	MAIN LANES	14.56	29.12	14.56	1485.1	14.56	14.56	14.56	297.0						
301+43.28	364+83.28	STAGE 1										39	5332			210
301+43.28	364+83.28	STAGE 2										66	1257			69
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.											540	15		3600	3600	3665
TOTALS:			14.56	29.12	14.56	1485.1	14.56	14.56	14.56	297.0	540	120	6589	3600	3600	3944

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.
WATTLE DITCH CHECKS.....9 LIN. FT. / 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.

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III)		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.
		24"	30"	24"	30"									
		LIN. FT.		EACH		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
310+13	EXTEND R.C. PIPE CULVERT 42' RT. W/FES RT.	46		1								8	0.10	FES-1, FES-2, PCC-1
313+62	EXTEND R.C. PIPE CULVERT 36' RT. W/FES RT.	40		1								8	0.10	FES-1, FES-2, PCC-1
316+88	EXTEND R.C. PIPE CULVERT 36' RT. W/FES RT.	40		1								8	0.10	FES-1, FES-2, PCC-1
320+69	EXTEND R.C. PIPE CULVERT 4' LT. & 36' RT. W/FES LT. & RT.	48		2								16	0.20	FES-1, FES-2, PCC-1
323+12	EXTEND R.C. PIPE CULVERT 12' LT. & 20' RT. W/FES LT. & RT.	40		2								16	0.20	FES-1, FES-2, PCC-1
327+05	EXTEND R.C. BOX CULVERT 9' LT. & 27' RT. W/3:1 WINGS LT. & RT.					4	2	36	17.95	1618	12	10	0.13	R-1004-A, RCB-1,2,3
338+83	EXTEND R.C. BOX CULVERT 33' LT. & 11' RT. W/3:1 WINGS LT. & RT.					3	2	44	16.04	1380	11	9	0.11	R-1004-A, RCB-1,2,3
348+50	EXTEND R.C. PIPE CULVERT 32' LT. W/FES LT.		36		1							13	0.16	FES-1, FES-2, PCC-1
354+87	EXTEND R.C. PIPE CULVERT 26' RT. W/FES RT. **		30		1							13	0.16	FES-1, FES-2, PCC-1
361+51	EXTEND R.C. BOX CULVERT 27' LT. & 19' RT. W/3:1 WINGS LT. & RT.					8	3	46	48.27	3885	31	10	0.13	SPECIAL DETAIL, RCB-1,2,3
TOTALS:		214	66	7	2				82.26	6883	54	111	1.39	

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.

** TYPE 2 BEDDING

DRIVEWAYS & TURNOUTS

STATION	SIDE	DESCRIPTION	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"	36"	
			FEET	SQ. YD.	TON	TON	LIN. FT.			
304+10	RT.	DRIVEWAY	16	294.2	32.4	120.1				
322+00	LT.	DRIVEWAY	16	63.3	7.0	25.8	34			PCC-1, PCM-1, PCP-1, PCP-2
325+20	RT.	DRIVEWAY	16	361.1	39.7	147.4				
327+77	RT.	DRIVEWAY	16	68.4	7.5	27.9	30			PCC-1, PCM-1, PCP-1, PCP-2
329+25	LT.	DRIVEWAY	16	56.2	6.2	22.9	28			PCC-1, PCM-1, PCP-1, PCP-2
330+02	LT.	DRIVEWAY	16	90.5	10.0	37.0				
331+34	RT.	DRIVEWAY	16	79.6	8.8	32.5		32		PCC-1, PCM-1, PCP-1, PCP-2
335+81	RT.	DRIVEWAY	16	58.7	6.5	24.0	28			PCC-1, PCM-1, PCP-1, PCP-2
338+13	RT.	DRIVEWAY	16	70.8	7.8	28.9				
348+68	RT.	DRIVEWAY	16	56.2	6.2	22.9				
349+75	RT.	DRIVEWAY	16	96.9	10.7	39.6	40			PCC-1, PCM-1, PCP-1, PCP-2
350+24	LT.	DRIVEWAY	16	50.3	5.5	20.5				
359+31	RT.	DRIVEWAY	16	87.5	9.6	35.7			30	PCC-1, PCM-1, PCP-1, PCP-2
363+12	LT.	DRIVEWAY	16	49.1	5.4	20.0	30			PCC-1, PCM-1, PCP-1, PCP-2
363+15	RT.	DRIVEWAY	16	67.4	7.4	27.5	32			PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						100.0				
TOTALS:				1550.2	170.7	732.7	222	32	30	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

4/24/2013

R050289.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	27	114

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
2-10-15

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
			FEET			FEET				FEET			TON	FEET			TON
MAIN LANES																	
301+43.28	302+43.28	MAIN LANE NOTCH AND WIDEN TRANSITION	100.00	62.50	62.50	23.11	256.78	0.10	25.68	1.11	12.33	330	2.03	32.06	356.22	220	39.18
302+43.28	304+43.28	MAIN LANE NOTCH AND WIDEN TAPER PASSING LANE VAR. LT. NOTCH	200.00	146.75	293.50	41.62	924.89	0.03	27.75	9.89	219.78	330	36.26	54.73	1216.22	220	133.78
304+43.28	307+60.49	MAIN LANE NOTCH AND WIDEN PASSING LANE VAR. LT. NOTCH	317.21	170.75	541.64	61.62	2171.83	0.03	65.15	19.89	701.03	330	115.67	69.73	2457.67	220	270.34
307+60.49	319+02.29	MAIN LANE NOTCH AND WIDEN PASSING LANE LT. SHLDR. OVERLAY	1141.80	179.75	2052.39	70.06	8888.28	0.03	266.65	24.11	3058.76	330	504.70	72.45	9191.49	220	1011.06
319+02.29	321+38.70	MAIN LANE NOTCH AND WIDEN PASSING LANE VAR. LT. NOTCH	236.41	172.00	406.63	58.36	1532.99	0.03	45.99	18.23	478.86	330	79.01	68.13	1789.62	220	196.86
321+38.70	328+62.57	MAIN LANE NOTCH AND WIDEN PASSING LANE	723.87	171.00	1237.82	50.35	4049.65	0.03	121.49	14.23	1144.52	330	188.85	64.13	5157.98	220	567.38
328+62.57	332+45.39	MAIN LANE NOTCH AND WIDEN PASSING LANE VAR. NOTCH	382.82	212.25	812.54	50.71	2156.98	0.03	64.71	14.46	615.06	330	101.48	64.25	2732.91	220	300.62
332+45.39	334+00.00	MAIN LANE NOTCH AND WIDEN PASSING LANE VAR. RT. NOTCH	154.61	161.00	248.92	56.36	968.20	0.03	29.05	17.23	295.99	330	48.84	67.13	1153.22	220	126.85
334+00.00	348+24.66	MAIN LANE NOTCH AND WIDEN PASSING LANE RT. SHLDR. OVERLAY	1424.66	175.50	2500.28	62.36	9871.31	0.03	296.14	20.23	3202.32	330	528.38	70.13	11101.27	220	1221.14
348+24.66	350+90.10	MAIN LANE NOTCH AND WIDEN PASSING LANE VAR. NOTCH	265.44	194.00	514.95	56.36	1662.24	0.03	49.87	17.23	508.17	330	83.85	67.13	1979.89	220	217.79
350+90.10	357+23.28	MAIN LANE NOTCH AND WIDEN PASSING LANE	633.18	171.00	1082.74	50.35	3542.29	0.03	106.27	14.23	1001.13	330	165.19	64.13	4511.76	220	496.29
357+23.28	363+83.28	MAIN LANE NOTCH AND WIDEN TAPER PASSING LANE	660.00	148.00	976.80	38.36	2813.07	0.03	84.39	8.23	603.53	330	99.58	53.13	3896.20	220	428.58
363+83.28	364+83.28	MAIN LANE NOTCH AND WIDEN TRANSITION	100.00	62.50	62.50	23.11	256.78	0.10	25.68	1.11	12.33	330	2.03	32.06	356.22	220	39.18
ADDITIONAL FOR SUPERELEVATION AND LANE SHIFTS																	
302+43.28	363+83.28	MAIN LANES	6140.00			22.00	15008.89	0.10	1500.89					22.00	15008.89	VAR.	2600.00
ADDITIONAL FOR COLD MILLING AND INLAY																	
299+97.91	301+43.28	MAIN LANES	145.37			26.00	419.96	0.10	42.00					26.00	419.96	220.00	46.20
302+43.28	363+83.28	MAIN LANES	6140.00			26.00	17737.78	0.10	1773.78					26.00	17737.78	220.00	1951.16
ADDITIONAL FOR SUPERELEVATION																	
301+43.28	303+42.58	SUPERELEVATION TRANSITION	199.30	27.25	54.31												
303+42.58	311+39.24	MAX SUPERELEVATION	796.66	54.50	434.18												
311+39.24	314+89.24	SUPERELEVATION TRANSITION	350.00	27.25	95.38												
316+50.38	319+00.38	SUPERELEVATION TRANSITION	250.00	9.50	23.75												
319+00.38	320+52.34	MAX SUPERELEVATION	151.96	19.00	28.87												
320+52.34	323+02.34	SUPERELEVATION TRANSITION	250.00	26.50	66.25												
323+02.34	325+68.01	SUPERELEVATION TRANSITION	265.67	34.50	91.66												
325+68.01	328+33.68	SUPERELEVATION TRANSITION	265.67	34.50	91.66												
328+35.30	331+67.84	SUPERELEVATION TRANSITION	332.54	55.50	184.56												
331+67.84	335+00.38	SUPERELEVATION TRANSITION	332.54	55.50	184.56												
337+63.20	341+13.20	SUPERELEVATION TRANSITION	350.00	53.50	187.25												
341+13.20	344+51.39	MAX SUPERELEVATION	338.19	107.00	361.86												
344+51.39	348+01.39	SUPERELEVATION TRANSITION	350.00	53.50	187.25												
348+01.39	350+07.18	SUPERELEVATION TRANSITION	205.79	27.75	57.11												
350+07.18	352+12.97	SUPERELEVATION TRANSITION	205.79	27.75	57.11												
TOTALS:					12898.97		72261.92		4525.49		11853.81		1955.87		79067.30		9646.41

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

1/6/2015

R050289.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
9/30/2015				6	ARK.			
				JOB NO.		050289	28	114

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	58	STATION
201	GRUBBING	58	STATION
202	REMOVAL AND DISPOSAL OF FENCE	6826	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	6	EACH
202	REMOVAL AND DISPOSAL OF COLUMNS	1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	7	EACH
202	REMOVAL AND DISPOSAL OF CATTLE GUARD	1	EACH
202	REMOVAL AND DISPOSAL OF PLANTERS	2	EACH
210	UNCLASSIFIED EXCAVATION	13041	CU. YD.
210	COMPACTED EMBANKMENT	18764	CU. YD.
SP	ROCK FILL	35113	CU. YD.
303	AGGREGATE BASE COURSE (CLASS 7)	13632	TON
401	TACK COAT	4585	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1870	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	86	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	9297	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	520	TON
412	COLD MILLING ASPHALT PAVEMENT	18736	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	30	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY	50	TON
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	288	SQ. FT.
SS & 604	BARRICADES	48	LIN. FT.
SS & 604	TRAFFIC DRUMS	229	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	645	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER	492	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	24560	LIN. FT.
SS & 604	VERTICAL PANELS	139	EACH
605	CONCRETE DITCH PAVING (TYPE A)	132	SQ. YD.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	214	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	66	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	222	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	32	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	30	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	7	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	SELECTED PIPE BEDDING	50	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS	8	EACH
611	4" PIPE UNDERDRAINS	1000	LIN. FT.
619	WIRE FENCE (TYPE C)	1224	LIN. FT.
619	WIRE FENCE (TYPE D)	3640	LIN. FT.
619	WIRE FENCE (TYPE D-1)	1854	LIN. FT.
* 619	16' STEEL GATES (ALTERNATE NO. 1)	6	EACH
* 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	6	EACH
620	LIME	29	TON
620	SEEDING	14.56	ACRE
SS & 620	MULCH COVER	29.12	ACRE
620	WATER	1784.3	M.GAL.
621	TEMPORARY SEEDING	14.56	ACRE
621	SILT FENCE	6589	LIN. FT.
621	SEDIMENT BASIN	3600	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	3600	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	3944	CU. YD.
621	ROCK DITCH CHECKS	120	CU. YD.
621	WATTLE (20")	540	LIN. FT.
623	SECOND SEEDING APPLICATION	14.56	ACRE
624	SOLID SODDING	177	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 1)	1000	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	2295	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	7	EACH
637	MAILBOX SUPPORTS (SINGLE)	7	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	9032	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	13814	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	12680	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	137	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER	3	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	3	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	54	CU. YD.
802	CLASS S CONCRETE-ROADWAY	82.26	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	6883	POUND
816	FILTER BLANKET	173	SQ. YD.
816	DUMPED RIPRAP	141	CU. YD.
SP	CULVERT CLEAN OUT	1	EACH

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
9/30/2015	ADDED SPECIAL PROVISIONS "OFF-SITE RESTRAINING CONDITIONS FOR BATS" AND "SPECIAL CLEARING REQUIREMENTS" AND ADDED SP & TO PAY ITEM CLEARING	2, 28

1/6/2015

R050289.DGN

SUMMARY OF QUANTITIES & 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.		050289	29	114

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: 050231
Date: 6/17/2011
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	565942.0541	1238749.5777	560.186	CTL	•5/8" REBAR W•" CAP
2	565784.3751	1239388.2393	545.365	CTL	•5/8" REBAR W•" CAP
3	565475.2684	1240031.9489	529.425	CTL	•5/8" REBAR W•" CAP
4	565428.8900	1241164.2283	500.182	CTL	•5/8" REBAR W•" CAP
5	565458.4325	1242147.1524	545.231	CTL	•5/8" REBAR W•" CAP
6	565770.8441	1242712.9306	597.539	CTL	•5/8" REBAR W•" CAP
7	566372.1149	1243332.4497	666.919	CTL	•5/8" REBAR W•" CAP
8	566496.7651	1244007.2479	721.248	CTL	•5/8" REBAR W•" CAP
9	566769.7854	1244463.3774	751.457	CTL	•5/8" REBAR W•" CAP
10	566820.5770	1244941.9532	762.798	CTL	•5/8" REBAR W•" CAP
11	566796.5031	1245539.6485	764.494	CTL	•5/8" REBAR W•" CAP
12	566429.3776	1246119.0624	741.097	CTL	•5/8" REBAR W•" CAP
13	565883.6329	1246938.6655	700.842	CTL	•5/8" REBAR W•" CAP
14	565689.8231	1247394.3730	700.318	CTL	•5/8" REBAR W•" CAP
15	565379.3690	1247881.1906	704.754	CTL	•5/8" REBAR W•" CAP
16	565140.7441	1248600.6388	687.498	CTL	•5/8" REBAR W•" CAP
17	564796.0712	1249509.5734	689.113	CTL	•5/8" REBAR W•" CAP
18	564739.5627	1250252.9673	729.335	CTL	•5/8" REBAR W•" CAP
19	564773.2486	1250803.3983	746.984	CTL	•5/8" REBAR W•" CAP
20	564699.8308	1251485.5907	733.547	CTL	•5/8" REBAR W•" CAP
21	564239.7520	1252237.1653	699.246	CTL	•5/8" REBAR W•" CAP
22	564044.7214	1252724.9590	663.867	CTL	•5/8" REBAR W•" CAP
23	563816.5138	1253878.9813	662.898	CTL	•5/8" REBAR W•" CAP
24	563828.3917	1254997.3269	672.588	CTL	•5/8" REBAR W•" CAP
25	563495.1773	1256124.4159	728.683	CTL	•5/8" REBAR W•" CAP
26	563229.0652	1256509.6069	735.441	CTL	•5/8" REBAR W•" CAP
27	562707.2665	1256911.6696	731.242	CTL	•5/8" REBAR W•" CAP
28	561816.7005	1257149.1873	697.315	CTL	•5/8" REBAR W•" CAP
29	561147.1148	1257243.7285	673.426	CTL	•5/8" REBAR W•" CAP
30	560692.5207	1256962.4914	666.649	CTL	•5/8" REBAR W•" CAP
31	560420.8592	1256653.2462	647.643	CTL	•5/8" REBAR W•" CAP
32	560004.3597	1256367.9052	619.477	CTL	•5/8" REBAR W•" CAP
33	559637.4767	1256481.1955	590.316	CTL	•5/8" REBAR W•" CAP
34	559463.3115	1256964.5514	577.333	CTL	•5/8" REBAR W•" CAP
35	559356.2247	1257498.6769	612.546	CTL	•5/8" REBAR W•" CAP
36	559323.9277	1257880.3524	635.771	CTL	•5/8" REBAR W•" CAP
37	559476.2427	1258602.9160	641.965	CTL	•5/8" REBAR W•" CAP
38	559674.5664	1258960.3586	649.356	CTL	•5/8" REBAR W•" CAP
39	559702.5590	1259638.9820	646.581	CTL	•5/8" REBAR W•" CAP
40	559697.0071	1260707.3250	622.593	CTL	•5/8" REBAR W•" CAP
41	559685.6126	1261222.6787	619.016	CTL	•5/8" REBAR W•" CAP
42	559631.3653	1262120.4543	622.567	CTL	•5/8" REBAR W•" CAP
43	559233.1702	1262705.8314	642.102	CTL	•5/8" REBAR W•" CAP
44	559038.0526	1263073.6788	650.314	CTL	•5/8" REBAR W•" CAP
45	558667.4161	1263582.2102	662.900	CTL	•5/8" REBAR W•" CAP
46	558279.9754	1264296.8867	652.743	CTL	•5/8" REBAR W•" CAP
47	558233.8987	1265020.5152	670.358	CTL	•5/8" REBAR W•" CAP
48	557847.2935	1265820.6718	660.770	CTL	•5/8" REBAR W•" CAP
49	557519.5409	1266565.6242	635.348	CTL	•5/8" REBAR W•" CAP
50	557154.6346	1267882.5287	648.113	CTL	•5/8" REBAR W•" CAP
51	556747.5709	1269093.3182	626.532	CTL	•5/8" REBAR W•" CAP
100	557380.3911	1267287.3569	653.346	GPS	•AHTD GPS 690010
101	558772.4455	1267333.9417	672.283	GPS	•AHTD GPS 690010A
102	563751.3735	1255489.3919	697.271	GPS	•AHTD GPS 690011
103	563853.6258	1254082.6478	666.121	GPS	•AHTD GPS 690011A
104	566189.2666	1237993.4776	602.870	GPS	•AHTD GPS 690012
105	566102.2289	1236652.7109	684.618	GPS	•AHTD GPS 690012A
900	566111.5609	1237282.4040	634.061	TBM	•SQ CUT CNTR S HW
901	566015.7205	1238634.2082	562.229	TBM	•SQ CUT CNTR N HW
902	565428.3893	1240360.7835	516.007	TBM	•SQ CUT CNTR S HW
903	565707.3500	1242580.6662	584.949	TBM	•SQ CUT E CRNR L SHAPED HW
904	566537.7141	1243986.4113	721.411	TBM	•SQ CUT CNTR W HW
905	566146.4185	1246512.7482	716.072	TBM	•SQ CUT S END CNTR RCP
906	565119.0783	1248671.7883	685.466	TBM	•SQ CUT CNTR OF N HW
907	-99999.0000	-99999.0000	726.747	TBM	•SQ CUT CNTR S END RCP
908	563841.0573	1254691.9393	660.129	TBM	•SQ CUT CNTR N HW
909	562442.6665	1257017.0246	722.968	TBM	•SQ CUT CNTR N HW
910	560302.8941	1256538.4912	637.410	TBM	•CHSLD SQR N HW
911	559387.7645	1258364.2630	637.271	TBM	•SQ CUT CNTR S HW
912	559698.4015	1260512.1662	621.890	TBM	•SQ CUT CNTR S HW
913	559110.4120	1262893.7767	646.739	TBM	•SQ CUT CNTR S HW
914	558066.8918	1265482.5979	665.314	TBM	•CHSLD SQR
915	557060.2910	1268171.8839	637.739	TBM	•CHSLD SQR
916	557100.4715	1271090.7927	671.663	TBM	•CHSLD SQR
917	557827.1856	1273546.2393	686.243	TBM	•CHSLD SQR
918	558420.6208	1275857.9273	730.882	TBM	•CHSLD SQR
919	558883.7518	1277378.2139	768.040	BM	•NGS BRASS CAP SET VERTCAL
1500	557009.4989	1269903.6406	656.770	CTL	•RTK ELEV
1501	557002.3268	1269335.1528	643.096	CTL	•RTK ELEV
1502	557615.7400	1267345.5800	655.057	CTL	•RTK ELEV
1503	558008.6335	1267406.4951	658.082	CTL	•RTK ELEV
1504	559482.8070	1263139.8714	670.516	CTL	•RTK ELEV
1505	560233.0699	1263168.0231	675.732	CTL	•RTK ELEV
1506	559327.9683	1256457.9033	576.931	CTL	•RTK ELEV
1507	558833.1101	1256138.9349	585.960	CTL	•RTK ELEV
1508	563633.2029	1256658.3420	720.761	CTL	•RTK ELEV
1509	563996.2134	1257055.5356	722.214	CTL	•RTK ELEV
1510	564334.7811	1252747.9224	668.322	CTL	•RTK ELEV
1511	565173.7857	1252775.4368	685.516	CTL	•RTK ELEV
1513	558563.1687	1264813.1277	666.350	CTL	•ST 5/8" REBAR W/AL CAP TRIG ELEV
1514	558477.2962	1264216.8782	655.734	CTL	•ST 5/8" REBAR W/AL CAP TRIG ELEV
1515	559366.8931	1261605.8957	624.963	CTL	•ST 5/8" REBER W/ AL CAP TRIG ELEV
1516	558026.3121	1261561.1199	658.525	CTL	•ST 5/8" REBAR W/AL CAP TRIG ELEV
1517	559837.0299	1259037.3755	642.477	CTL	•ST 5/8" REBAR W/AL CAP TRIG ELEV
1518	559626.6782	1258244.9046	644.623	CTL	•ST 5/8" REBAR W/AL CAP TRIG ELEV
1519	561105.4773	1257817.8612	651.229	CTL	•ST 5/8" REBAR W/AL CAP TRIG ELEV
1520	562349.3952	1257288.4070	698.786	CTL	•ST 5/8" REBAR W/AL CAP TRIG ELEV

CONST

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	299•97.91	565435.7833	1241631.9292
8001	PC	301•53.29	565432.6070	1241787.2719
8003	PT	312•26.74	565818.0882	1242758.9228
8004	PC	318•37.88	566246.0634	1243195.1854
8006	PT	322•07.19	566399.5325	1243523.3729
8007	PC	323•97.50	566418.3471	1243712.7580
8009	PT	327•38.52	566532.2681	1244030.5716
8010	PC	329•32.08	566639.8519	1244191.4776
8012	PT	334•03.60	566787.2488	1244633.4664
8013	PC	340•25.70	566821.0907	1245254.6468
8015	PT	347•16.58	566598.1594	1245889.9954
8016	PC	348•86.19	566485.1322	1246016.4612
8018	PT	351•28.17	566344.0540	1246212.5126
8019	PI	355•25.54	566147.2390	1246557.7184
8020	PI	359•71.37	565924.3107	1246943.8070
8021	PI	362•96.41	565763.5834	1247226.3296
8022	PI	362•83.28	565720.6725	1247301.8605
8023	POE	364•83.28	565671.6649	1247389.0285

•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 0.9999174466 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE • GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME s050231gi.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: 690010 - 690010A, 690011 - 690011A, 690012 - 690012A
CONVERGENCE ANGLE: 00 06 31 LEFT AT LT: 35-52-35.6 LG: 092-11-11.8
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15

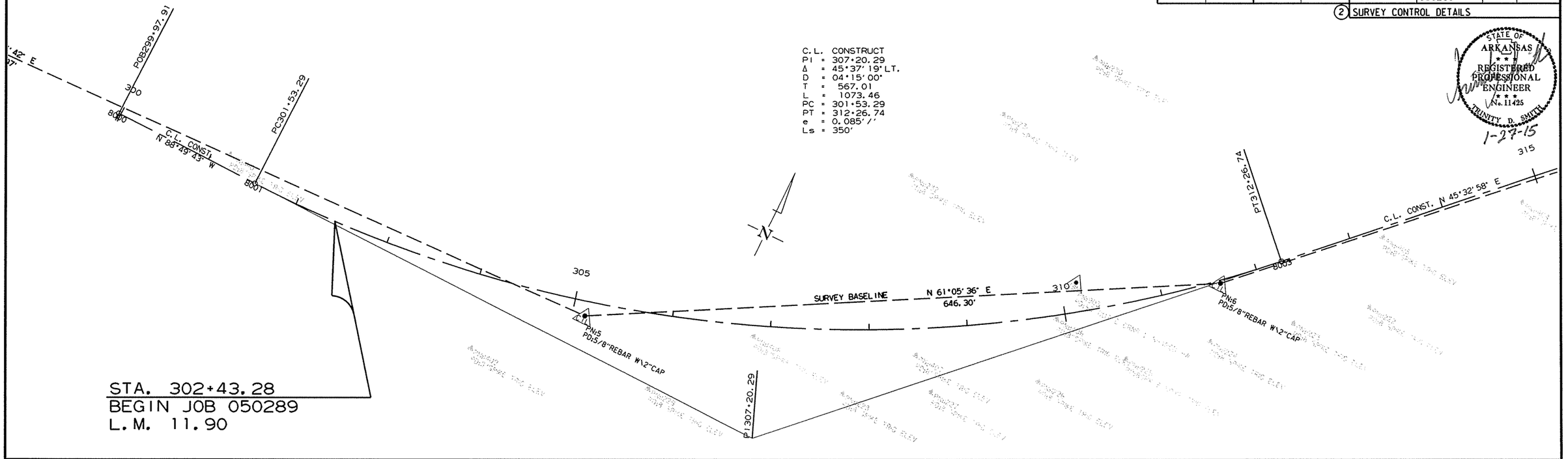
R050289.DGN 1/2/2015

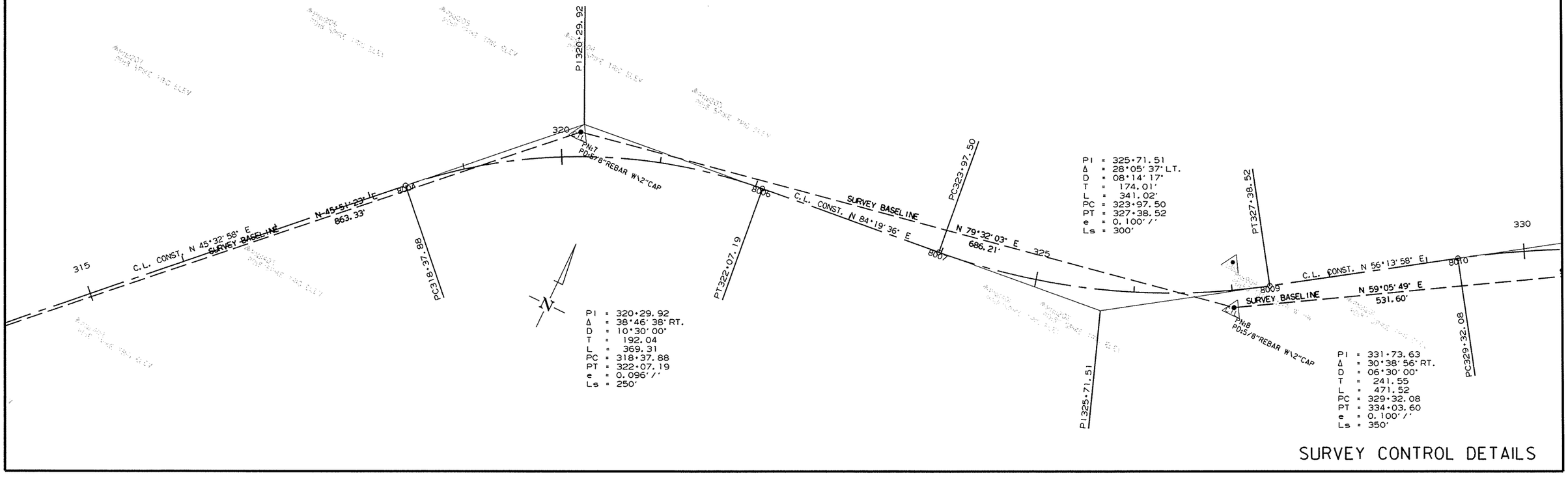
SURVEY CONTROL DETAILS

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.		050289	30	114

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15





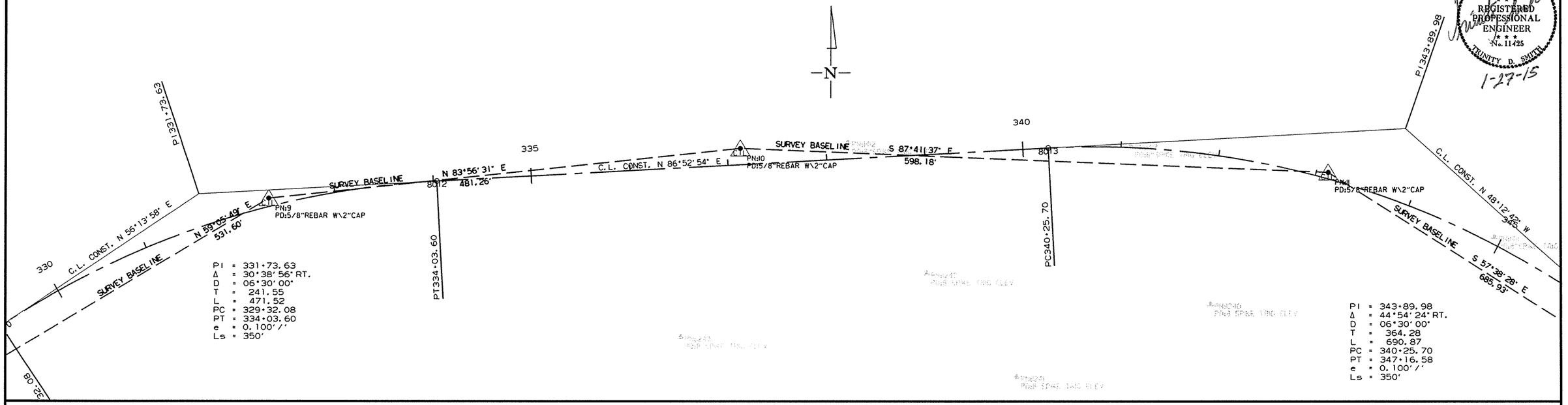
SURVEY CONTROL DETAILS

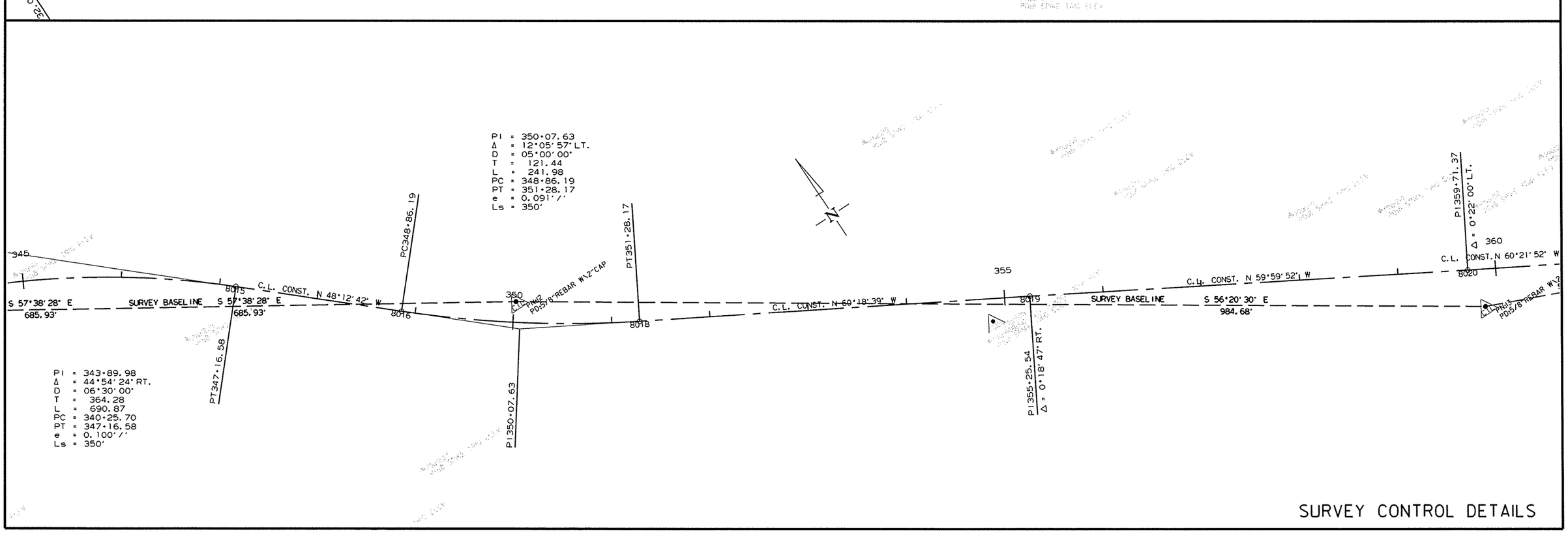
R050289.DGN 1/2/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	31	114

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15





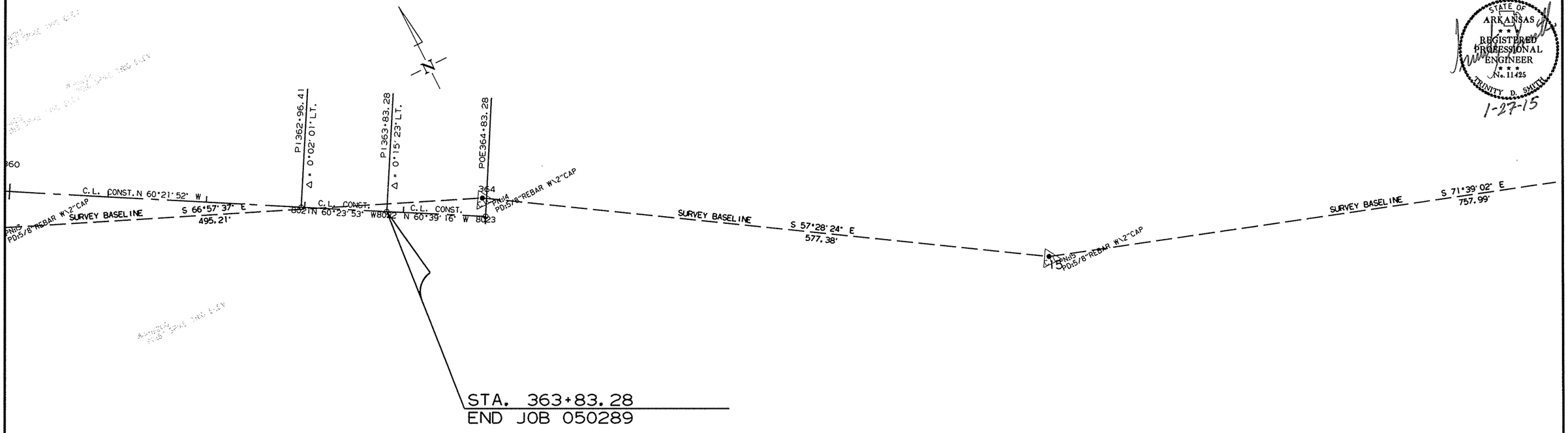
SURVEY CONTROL DETAILS

R050289.DGN 1/2/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	32	114

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
TRINITY D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11425
1-27-15



R050289.DGN 1/2/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	33	114

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15

REMOVAL AND DISPOSAL OF FENCE			GATES
STA. 301+31 - STA. 314+78	RT.	1375 LIN. FT.	1

WIRE FENCE (TYPE D-1)			GATES
STA. 301+31 - STA. 314+78	RT.	1406 LIN. FT.	1

C.L. CONSTRUCT
PI = 307+20.29
Δ = 45°37'19" LT.
D = 04°15'00"
T = 567.01
L = 1073.46
PC = 301+53.29
PT = 312+26.74
e = 0.085'/'
Ls = 350'

STA. 310+13 IN PLACE
24"x41' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWL. RT. & EXTEND R.C. PIPE
42' RT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES RT.
D.A. = 2.7 AC., Q25 = 6.4 C.F.S.
24" R.C. PIPE = 46 LIN. FT.
24" FES = 1EACH

STA. 313+62 IN PLACE
24"x41' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWL. RT. & EXTEND R.C. PIPE
36' RT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES RT.
D.A. = 3.1 AC., Q25 = 7.5 C.F.S.
24" R.C. PIPE = 40 LIN. FT.
24" FES = 1EACH

STA. 302+43.28
BEGIN JOB 050289
L.M. 11.90
STA. 304+10
CONST. APPR. ON RT. = 655 CU. YDS.

CONCRETE DITCH PAVING (TYPE A)	
STA. 310+13 R.C. PIPE OUTLET	49.78 SQ. YD.
STA. 313+62 R.C. PIPE OUTLET	53.33 SQ. YD.

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

STA. 301+43.28 MATCH EXISTING (0.037 FT./FT.)
STA. 303+42.58 MAX. SUPERELEVATION (0.085 FT./FT.)
STA. 311+39.24 MAX. SUPERELEVATION (0.085 FT./FT.)
STA. 314+89.24 END SUPERELEVATION

+13
F.L. INLET LT.= 581.67
F.L. OUTLET RT.= 579.93

+62
F.L. INLET LT.= 609.55
F.L. OUTLET RT.= 608.31

1/21/2015
R050289.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.		050289	34	114

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15

REMOVAL AND DISPOSAL OF FENCE

				GATES
STA. 301+31 - STA. 314+78	RT.	1375 LIN. FT.		1
STA. 316+82 - STA. 321+82	RT.	484 LIN. FT.		
STA. 321+82 - STA. 325+12	RT.	346 LIN. FT.		
STA. 322+01 - STA. 328+00	LT.	570 LIN. FT.		
STA. 325+28 - STA. 331+21	RT.	611 LIN. FT.		1

WIRE FENCE (TYPE D-1)

			GATES
STA. 301+31 - STA. 314+78	RT.	1406 LIN. FT.	1
STA. 316+82 - STA. 321+82	RT.	448 LIN. FT.	

CONCRETE DITCH PAVING (TYPE A)

STA. 316+88 R.C. PIPE OUTLET	28.44 SQ. YD.

EROSION CONTROL MATTING (CLASS 3)

STA. 320+69 - STA. 327+05	LT.	565.3 SQ. YD.
STA. 327+05 - STA. 334+00	RT.	617.8 SQ. YD.

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

STA. 322+00 INSTALL
18" X 34' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 40 CU. YDS.

STA. 323+12 IN PLACE
24"x53' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
12' LT. & 20' RT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 4.7 AC., 025 = 11.6 C.F.S.
24" R.C. PIPE = 40 LIN. FT.
24" FES = 2 EACH

PI = 325+71.51
Δ = 28°05' 37" LT.
D = 08°14' 17"
T = 174.01'
L = 341.02'
PC = 323+97.50
PT = 327+38.52
e = 0.100'/'
Ls = 300'

STA. 328+81 IN PLACE
24"X 20' C.M. PIPE CULV'T.
LT. SIDE DRAIN
RETAIN AND INSTALL ø 329+25
18" X 28' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 25 CU. YDS.

PI = 320+29.92
Δ = 38°46' 38" RT.
D = 10°30' 00"
T = 192.04
L = 369.31
PC = 318+37.88
PT = 322+07.19
e = 0.096'/'
Ls = 250'

STA. 316+88 IN PLACE
24"x41' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWL. RT. & EXTEND R.C. PIPE
36' RT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES RT.
D.A. = 4.5 AC., 025 = 9.7 C.F.S.
24" R.C. PIPE = 40 LIN. FT.
24" FES = 1EACH

STA. 320+69 IN PLACE
24"x55' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWLS. LT. & RT. & EXTEND R.C. PIPE
4' LT. & 36' RT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 2.8 AC., 025 = 6.2 C.F.S.
24" R.C. PIPE = 48 LIN. FT.
24" FES = 2 EACH

WIRE FENCE (TYPE D)

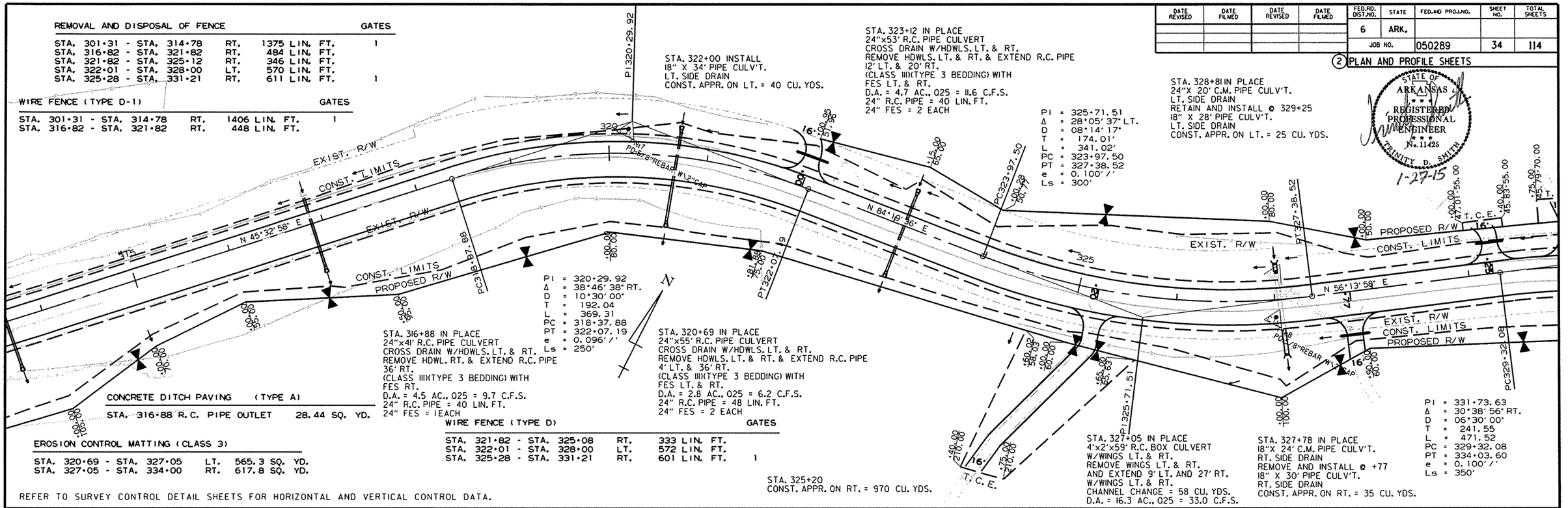
			GATES
STA. 321+82 - STA. 325+08	RT.	333 LIN. FT.	
STA. 322+01 - STA. 328+00	LT.	572 LIN. FT.	
STA. 325+28 - STA. 331+21	RT.	601 LIN. FT.	1

STA. 325+20
CONST. APPR. ON RT. = 970 CU. YDS.

STA. 327+05 IN PLACE
4'x2'x59' R.C. BOX CULVERT
W/WINGS LT. & RT.
REMOVE WINGS LT. & RT.
AND EXTEND 9' LT. AND 27' RT.
W/WINGS LT. & RT.
CHANNEL CHANGE = 58 CU. YDS.
D.A. = 16.3 AC., 025 = 33.0 C.F.S.

STA. 327+78 IN PLACE
18"X 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL ø +77
18" X 30' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 35 CU. YDS.

PI = 331+73.63
Δ = 30°38' 56" RT.
D = 06°30' 00"
T = 241.55
L = 471.52
PC = 329+32.08
PT = 334+03.60
e = 0.100'/'
Ls = 350'



STA. 316+50.38 BEGIN SUPERELEVATION
STA. 319+00.38 MAX. SUPERELEVATION (0.096 FT./FT.)
STA. 320+52.34 MAX. SUPERELEVATION (0.096 FT./FT.)
STA. 323+02.34 END SUPERELEVATION

UNNAMED TRIBUTARY AT STA. 316+88 IS CLASSIFIED AS AN INTERMITTENT. THE TOP OF CHANNEL ELEVATION IS 634 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

+88
F.L. INLET LT.= 634.99
F.L. OUTLET RT.= 632.64

STA. 323+02.34 BEGIN SUPERELEVATION
STA. 325+68.01 MAX. SUPERELEVATION (0.089 FT./FT.)
STA. 325+68.01 MAX. SUPERELEVATION (0.089 FT./FT.)
STA. 328+33.68 END SUPERELEVATION

UNNAMED TRIBUTARY AT STA. 323+12 IS CLASSIFIED AS AN INTERMITTENT. THE TOP OF CHANNEL ELEVATION IS 683 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

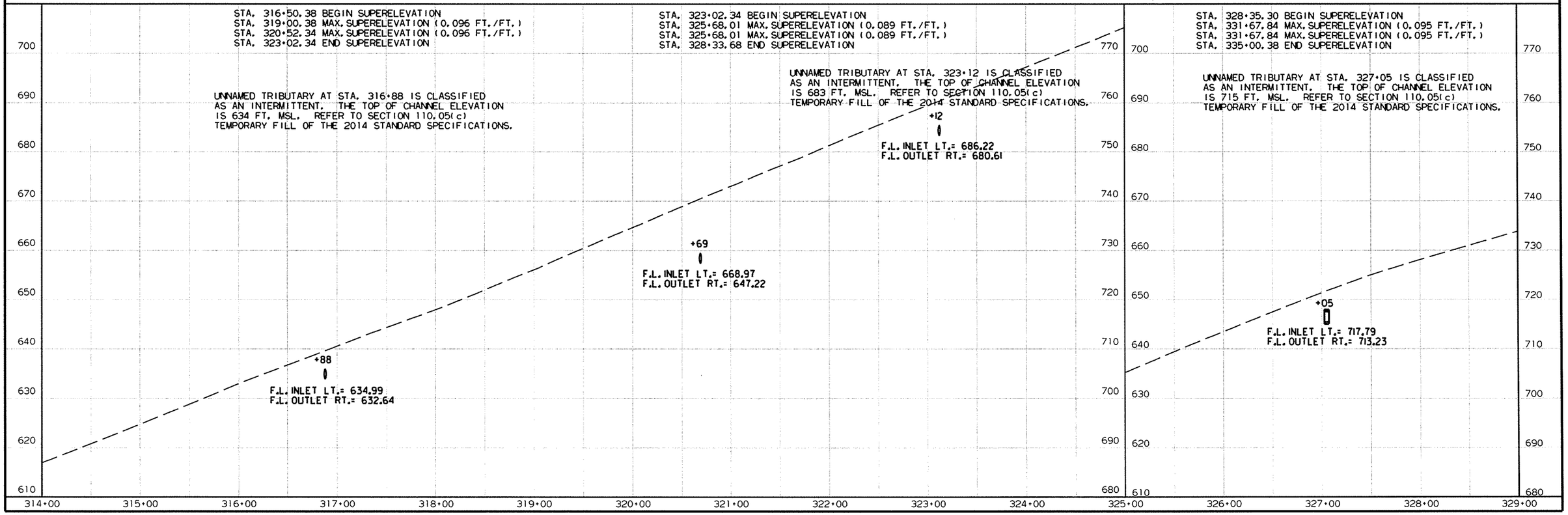
+69
F.L. INLET LT.= 668.97
F.L. OUTLET RT.= 647.22

+12
F.L. INLET LT.= 686.22
F.L. OUTLET RT.= 680.61

STA. 328+35.30 BEGIN SUPERELEVATION
STA. 331+67.84 MAX. SUPERELEVATION (0.095 FT./FT.)
STA. 331+67.84 MAX. SUPERELEVATION (0.095 FT./FT.)
STA. 335+00.38 END SUPERELEVATION

UNNAMED TRIBUTARY AT STA. 327+05 IS CLASSIFIED AS AN INTERMITTENT. THE TOP OF CHANNEL ELEVATION IS 715 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

+05
F.L. INLET LT.= 717.79
F.L. OUTLET RT.= 713.23



1/21/2015

R050289.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.		050289	35	114

(2) PLAN AND PROFILE SHEETS

REMOVAL AND DISPOSAL OF FENCE

			GATES
STA. 325+28 - STA. 331+21	RT.	611 LIN. FT.	1
STA. 330+45 - STA. 348+76	LT.	1970 LIN. FT.	2
STA. 333+23 - STA. 336+02	LT.	289 LIN. FT.	
STA. 338+61 - STA. 338+98	LT.	42 LIN. FT.	

WIRE FENCE (TYPE D)

			GATES
STA. 325+28 - STA. 331+21	RT.	601 LIN. FT.	1
STA. 338+61 - STA. 338+98	RT.	59 LIN. FT.	
STA. 339+69 - STA. 348+76	LT.	958 LIN. FT.	

WIRE FENCE (TYPE C)

			GATES
STA. 330+45 - STA. 339+69	LT.	955 LIN. FT.	2
STA. 333+27 - STA. 336+02	RT.	269 LIN. FT.	

STA. 330+02
CONST. APPR. ON LT. = 65 CU. YDS.

STA. 331+32 IN PLACE
24"X 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL @ +34
24" X 32' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 50 CU. YDS.

PI = 331+73.63
Δ = 30°38'56" RT.
D = 06°30'00"
T = 241.55
L = 471.52
PC = 329+32.08
PT = 334+03.60
e = 0.100'/'
Ls = 350'

EROSION CONTROL MATTING (CLASS 3)

STA. 327+05 - STA. 334+00 RT. 617.8 SQ. YD.

STA. 335+81 IN PLACE
18"X 18' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 25 CU. YDS.

STA. 338+83 IN PLACE
3'x2'x60' R.C. BOX CULVERT
W/WINGS LT. & RT.
REMOVE WINGS LT. & RT.
AND EXTEND 33' LT. AND 11' RT.
W/WINGS LT. & RT.
CHANNEL CHANGE = 43 CU. YDS.
D.A. = 13.1 AC., 025 = 31.5 C.F.S.

STA. 338+13
CONST. APPR. ON RT. = 15 CU. YDS.

PI = 343+89.98
Δ = 44°54'24" RT.
D = 06°30'00"
T = 364.28
L = 690.87
PC = 340+25.70
PT = 347+16.58
e = 0.100'/'
Ls = 350'

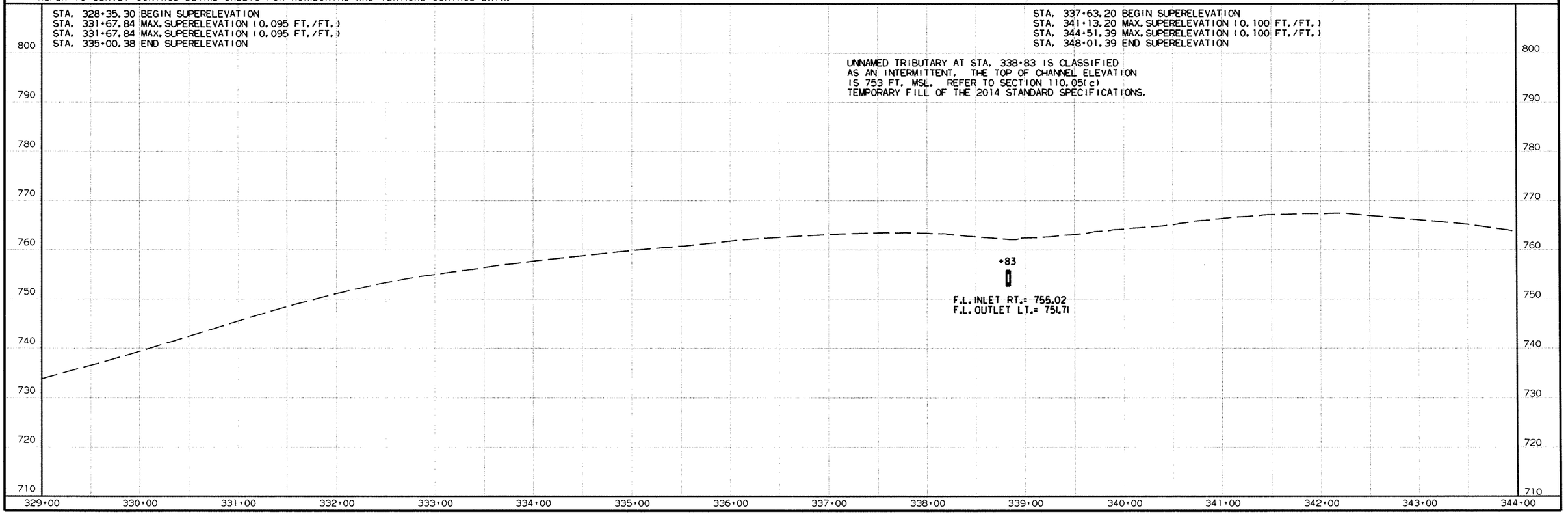
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-27-15

STA. 328+35.30 BEGIN SUPERELEVATION
STA. 331+67.84 MAX. SUPERELEVATION (0.095 FT./FT.)
STA. 331+67.84 MAX. SUPERELEVATION (0.095 FT./FT.)
STA. 335+00.38 END SUPERELEVATION

STA. 337+63.20 BEGIN SUPERELEVATION
STA. 341+13.20 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 344+51.39 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 348+01.39 END SUPERELEVATION

UNNAMED TRIBUTARY AT STA. 338+83 IS CLASSIFIED AS AN INTERMITTENT. THE TOP OF CHANNEL ELEVATION IS 753 FT. MSL. REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.



1/21/2015

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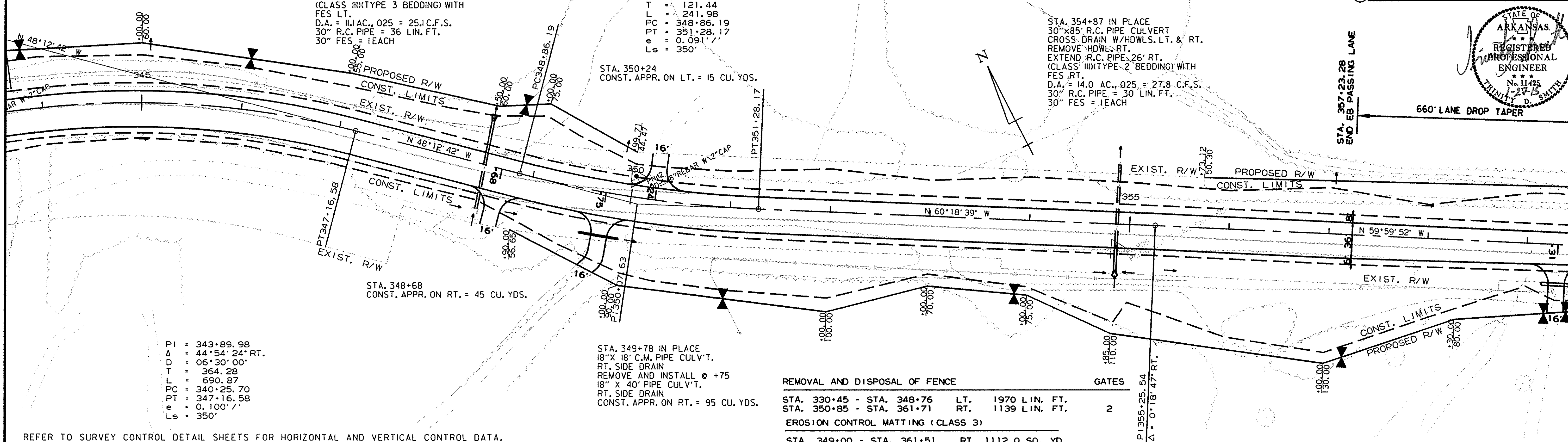
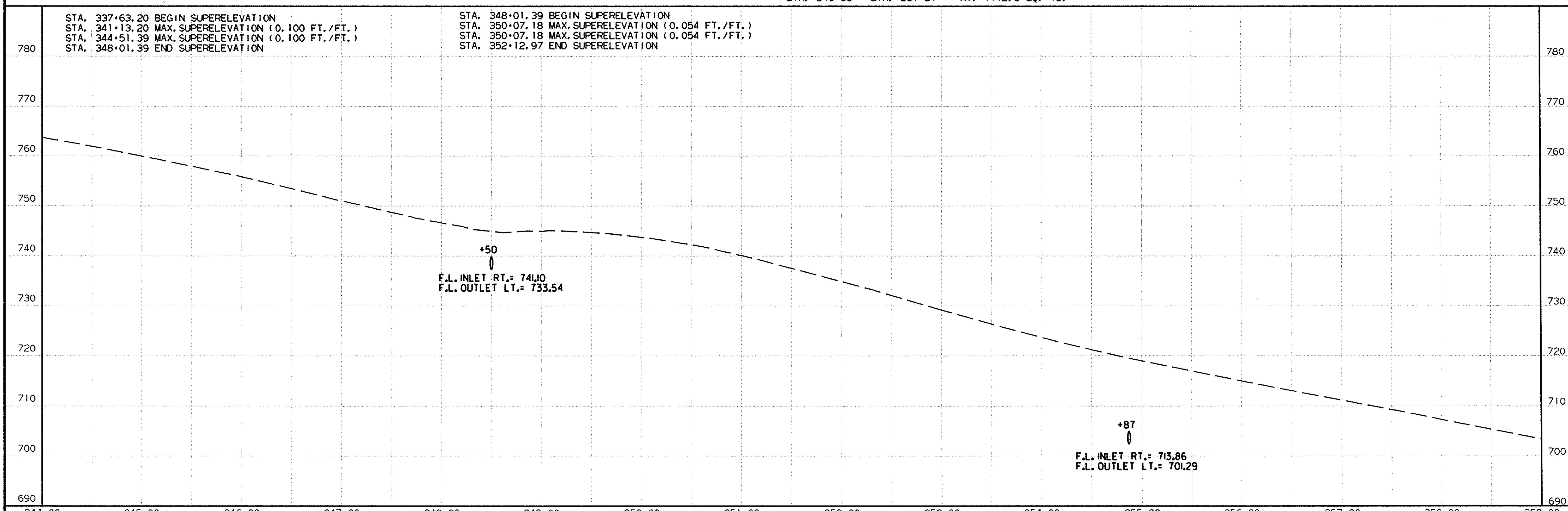
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	36	114

② PLAN AND PROFILE SHEETS



STA. 348+50 IN PLACE
30"×58' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWL. LT. & EXTEND R.C. PIPE
32' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT.
D.A. = 11.1 AC., 025 = 25.1 C.F.S.
30" R.C. PIPE = 36 LIN. FT.
30" FES = 1 EACH
PI = 350+07.63
Δ = 12°05'57" LT.
D = 05°00'00"
T = 121.44
L = 241.98
PC = 348+86.19
PT = 351+28.17
e = 0.091'/'
Ls = 350'
STA. 350+24
CONST. APPR. ON LT. = 15 CU. YDS.
WIRE FENCE (TYPE D) GATES
STA. 339+69 - STA. 348+76 LT. 958 LIN. FT.
STA. 350+98 - STA. 361+71 RT. 1117 LIN. FT. 2
STA. 354+87 IN PLACE
30"x85' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWL. RT.
EXTEND R.C. PIPE 26' RT.
(CLASS III)(TYPE 2 BEDDING) WITH
FES RT.
D.A. = 14.0 AC., 025 = 27.8 C.F.S.
30" R.C. PIPE = 30 LIN. FT.
30" FES = 1 EACH
STA. 357+23.28
END EB PASSING LANE
660' LANE DROP TAPER
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
N 48°12'42" W
PROPOSED R/W
CONST. LIMITS
EXIST. R/W
PC348+86.19
PT351+28.17
PT347+16.58
N 60°18'39" W
N 59°59'52" W
345
350
355
16'
STA. 348+68
CONST. APPR. ON RT. = 45 CU. YDS.
PT350+07.63
PI355+25.54
Δ = 0°18'47" RT.
PI = 343+89.98
Δ = 44°54'24" RT.
D = 06°30'00"
T = 364.28
L = 690.87
PC = 340+25.70
PT = 347+16.58
e = 0.100'/'
Ls = 350'
STA. 349+78 IN PLACE
18"X 18' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL @ +75
18" X 40' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 95 CU. YDS.
REMOVAL AND DISPOSAL OF FENCE GATES
STA. 330+45 - STA. 348+76 LT. 1970 LIN. FT.
STA. 350+85 - STA. 361+71 RT. 1139 LIN. FT. 2
EROSION CONTROL MATTING (CLASS 3)
STA. 349+00 - STA. 361+51 RT. 1112.0 SQ. YD.

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



STA. 337+63.20 BEGIN SUPERELEVATION
STA. 341+13.20 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 344+51.39 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 348+01.39 END SUPERELEVATION
STA. 348+01.39 BEGIN SUPERELEVATION
STA. 350+07.18 MAX. SUPERELEVATION (0.054 FT./FT.)
STA. 350+07.18 MAX. SUPERELEVATION (0.054 FT./FT.)
STA. 352+12.97 END SUPERELEVATION
+50
F.L. INLET RT.= 741.10
F.L. OUTLET LT.= 733.54
+87
F.L. INLET RT.= 713.86
F.L. OUTLET LT.= 701.29
780
770
760
750
740
730
720
710
700
690
344+00
345+00
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

1/21/2015

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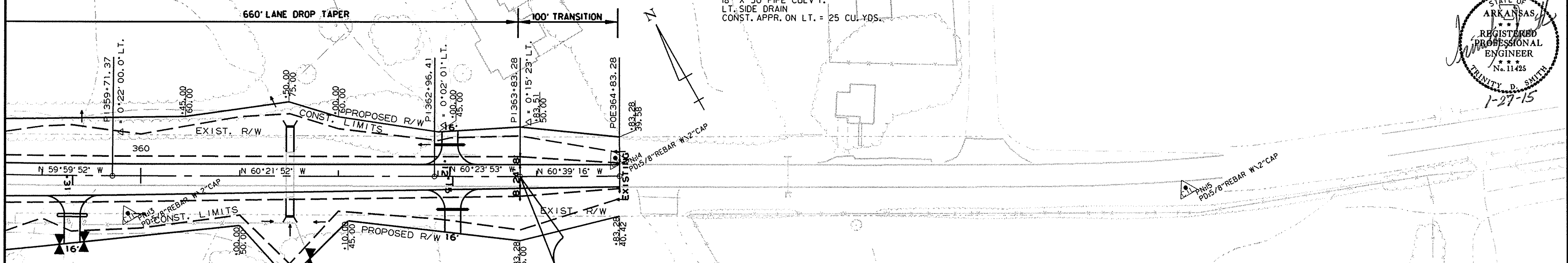
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
					JOB NO.	050289	37	114

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 1-27-15

WIRE FENCE (TYPE D)				GATES
STA. 350+98 - STA. 361+71	LT.	1117 LIN. FT.		2

STA. 363+20 IN PLACE
18"X 37' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +12
18" X 30' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 25 CU. YDS.



STA. 359+38 IN PLACE
36"X 30' R.C. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL @ +31
36" X 30' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 50 CU. YDS.

STA. 361+51 IN PLACE
8'x3'x47' R.C. BOX CULVERT
W/WINGS LT. & RT.
REMOVE WINGS LT. & RT.
AND EXTEND 27' LT. AND 19' RT.
W/WINGS LT. & RT.
CHANNEL CHANGE = 39 CU. YDS.
D.A. = 52.0 AC., 025 = 103.3 C.F.S.

STA. 363+15 IN PLACE
18"X 25' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 32' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 35 CU. YDS.

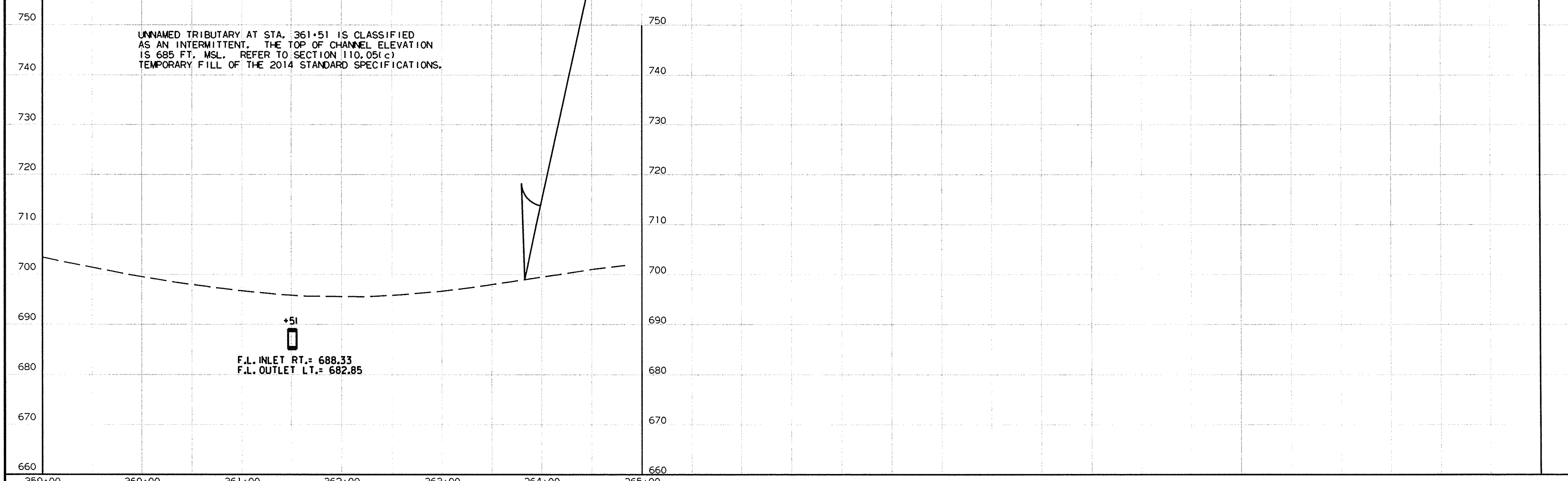
STA. 363+83.28
END JOB 050289

REMOVAL AND DISPOSAL OF FENCE				GATES
STA. 350+85 - STA. 361+71	RT.	1139 LIN. FT.		2

EROSION CONTROL MATTING (CLASS 3)		
STA. 349+00 - STA. 361+51	RT.	1112.0 SQ. YD.

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

UNNAMED TRIBUTARY AT STA. 361+51 IS CLASSIFIED
AS AN INTERMITTENT. THE TOP OF CHANNEL ELEVATION
IS 685 FT. MSL. REFER TO SECTION 110.05(c)
TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.



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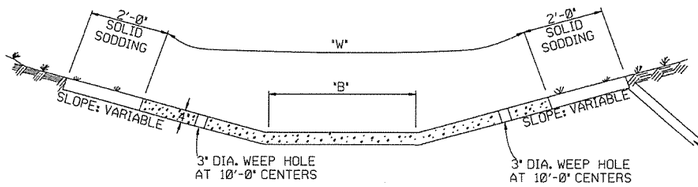
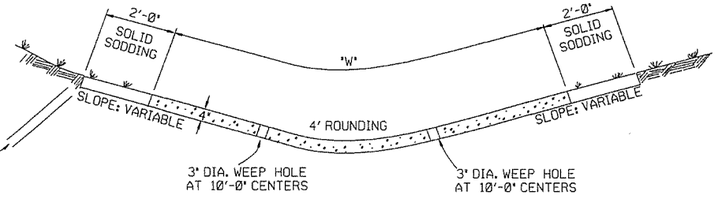
REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

TYPE A

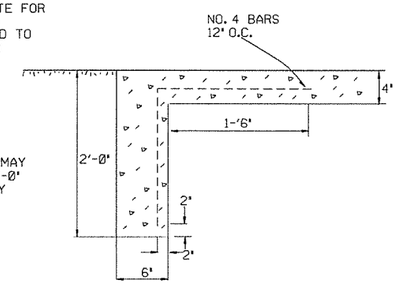
REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



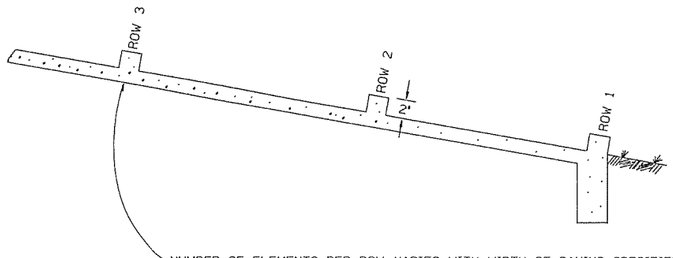
TYPE B

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.'

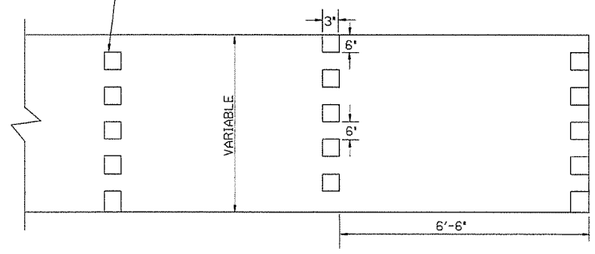
TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED



ENERGY DISSIPATORS
(NO SCALE)

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 UNCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

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.

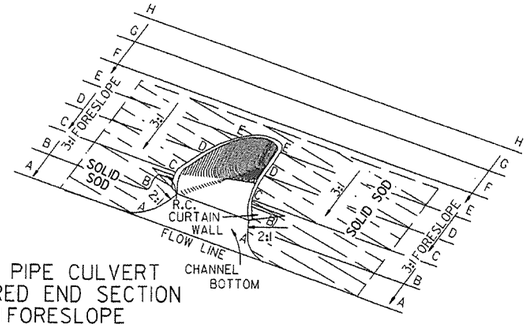
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

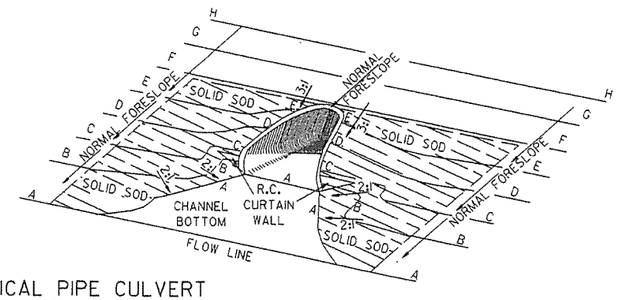
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

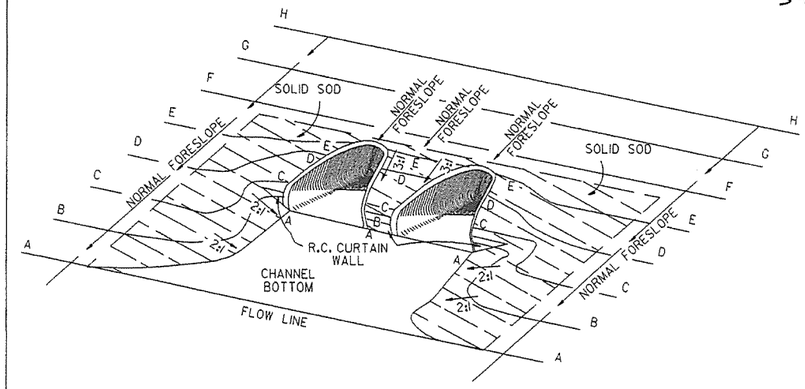
STANDARD DRAWING CDP-1



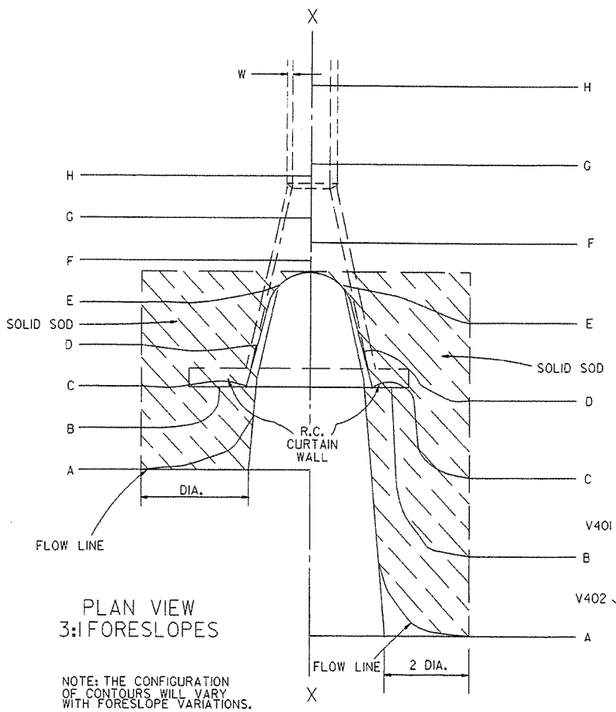
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

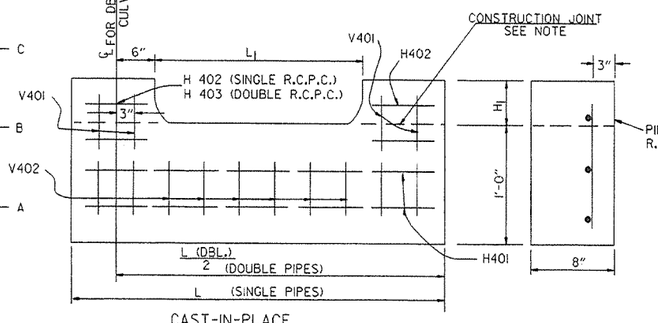
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

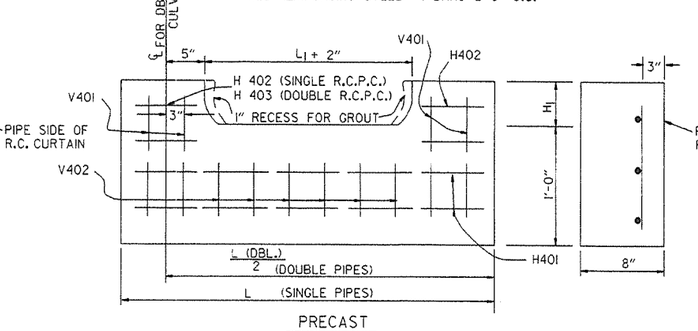
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	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.



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.

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	V401 L	NO.	V402 L	NO.	DOUBLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	H403 L	NO.	V401 L	NO.	V402 L	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.

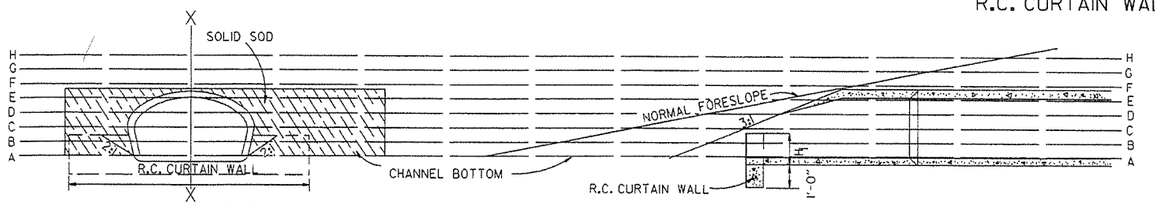
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 3:1	4:1	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 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

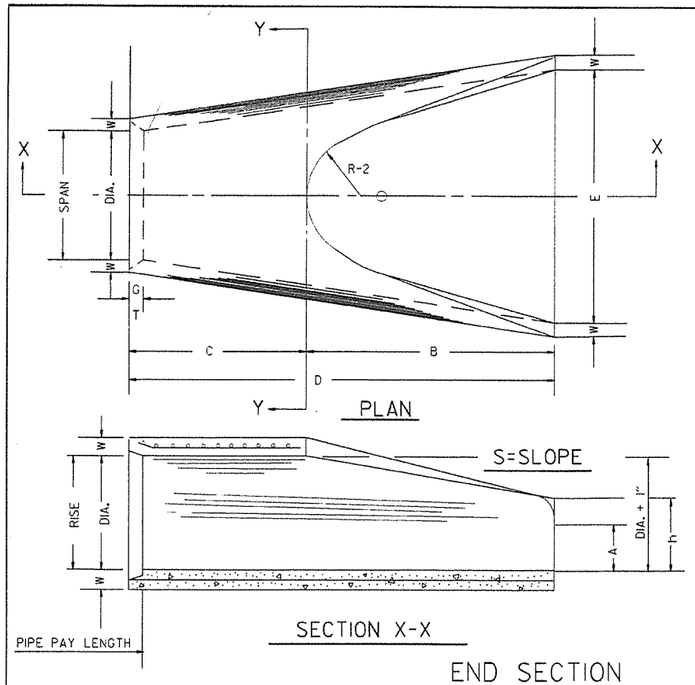
SECTIONAL VIEW "X-X"

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

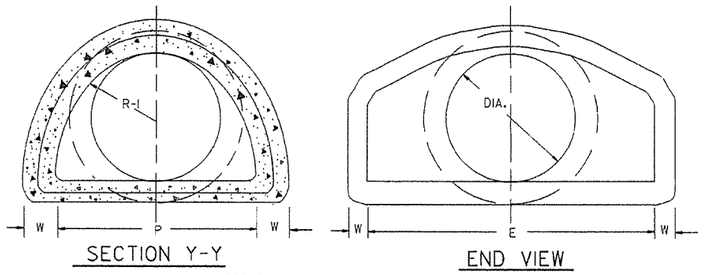
STANDARD DRAWING FES-1



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"	33¾16"	16¹³⁄16"	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'-1¾"	6'-0"	3:1	37"	47¹³⁄16"	24⅝16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	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'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36¹¹⁄16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77¹³⁄16"	38⅝16"	24"	5"	13250	4'-6"

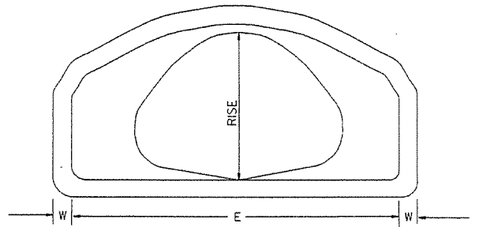


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

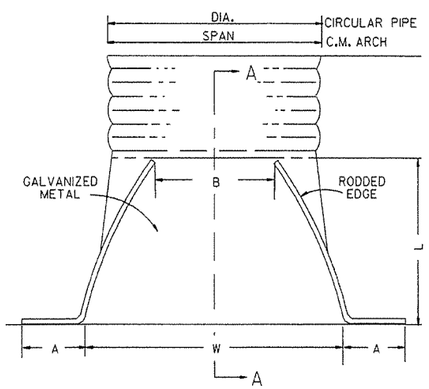
ARCH PIPE

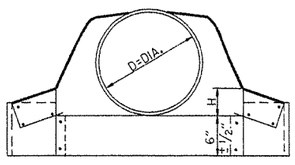
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36¹³⁄16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47¹³⁄16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅝16"	22"	3½"	2½:1
42	51⅛	51	31⅝16	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"	70⅝16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77¹³⁄16"	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.

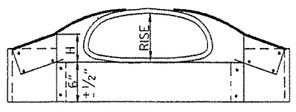


END VIEW
CONCRETE ARCH PIPE





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

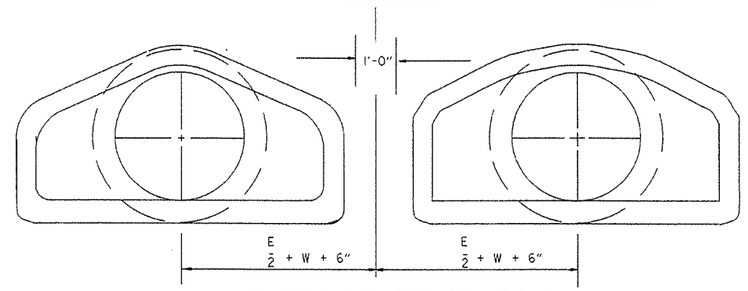
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	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

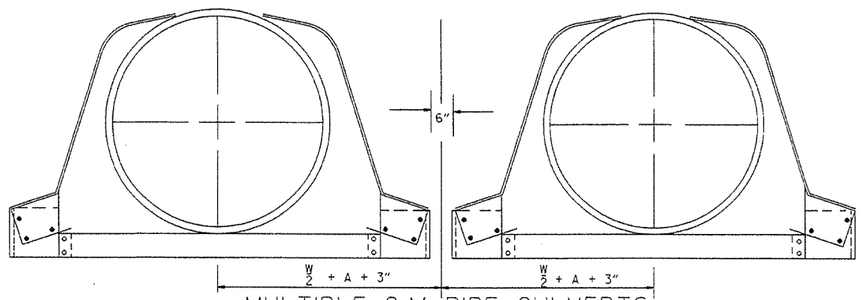
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
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

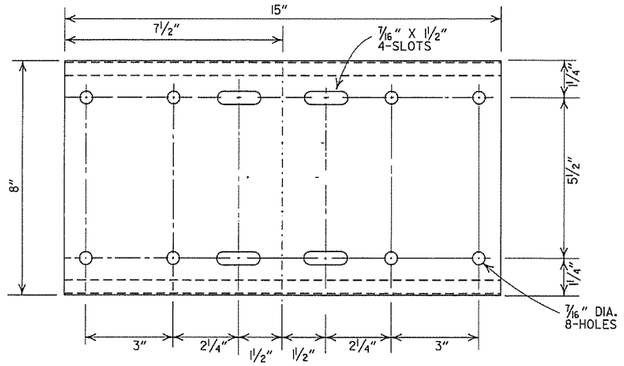
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
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

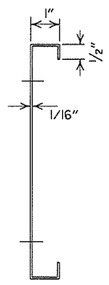
FLARED END SECTION

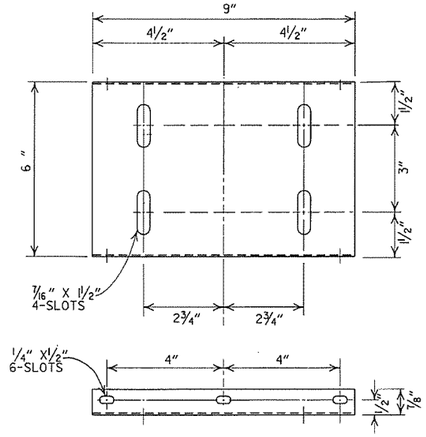
STANDARD DRAWING FES-2

stdfes2.dgn

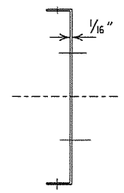


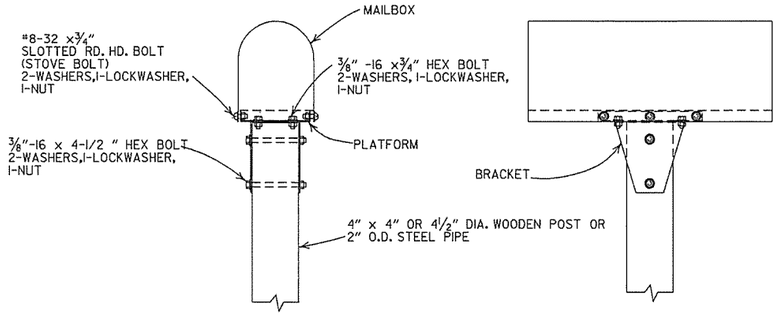
SHELF



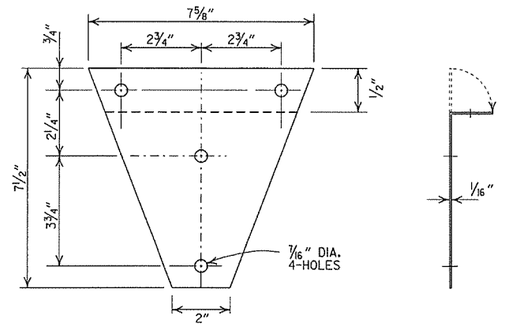


PLATFORM





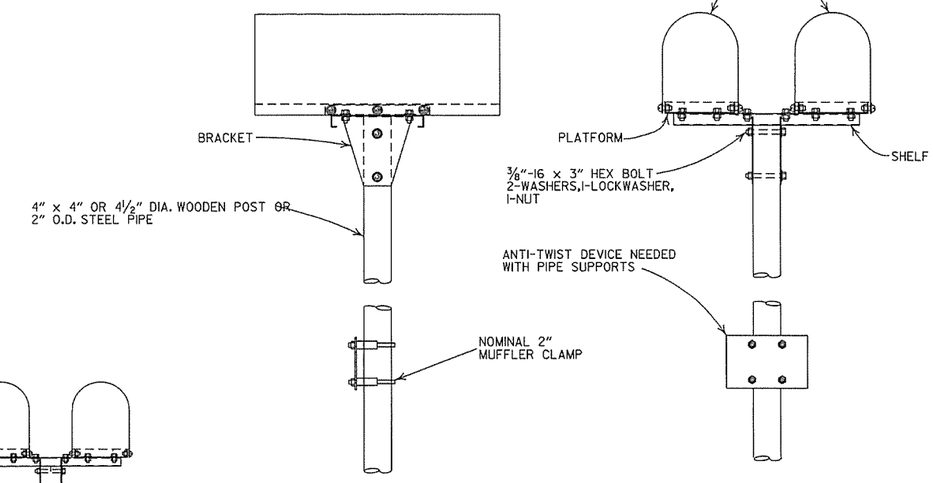
SINGLE INSTALLATION



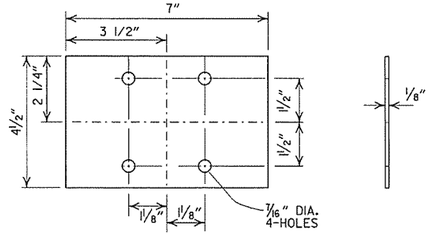
BRACKET

GENERAL NOTES

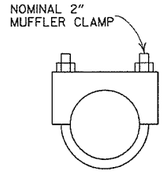
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



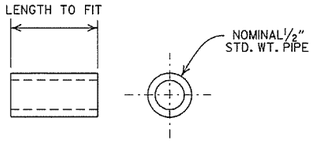
DOUBLE INSTALLATION



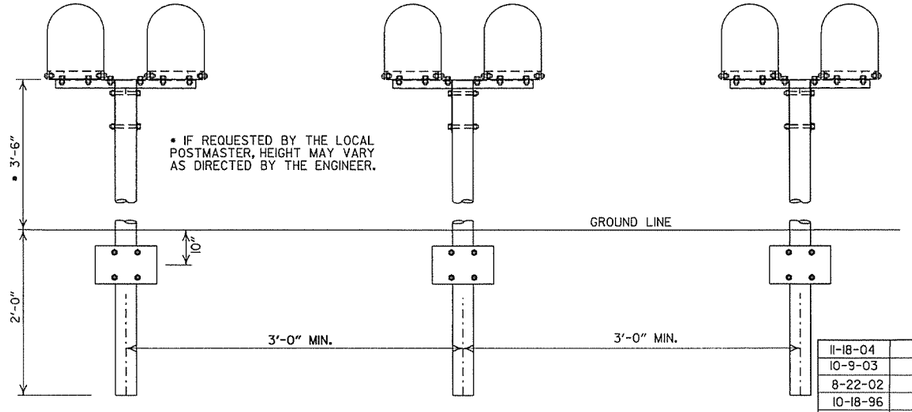
ANTI-TWIST PLATE



CLAMP



SPACER



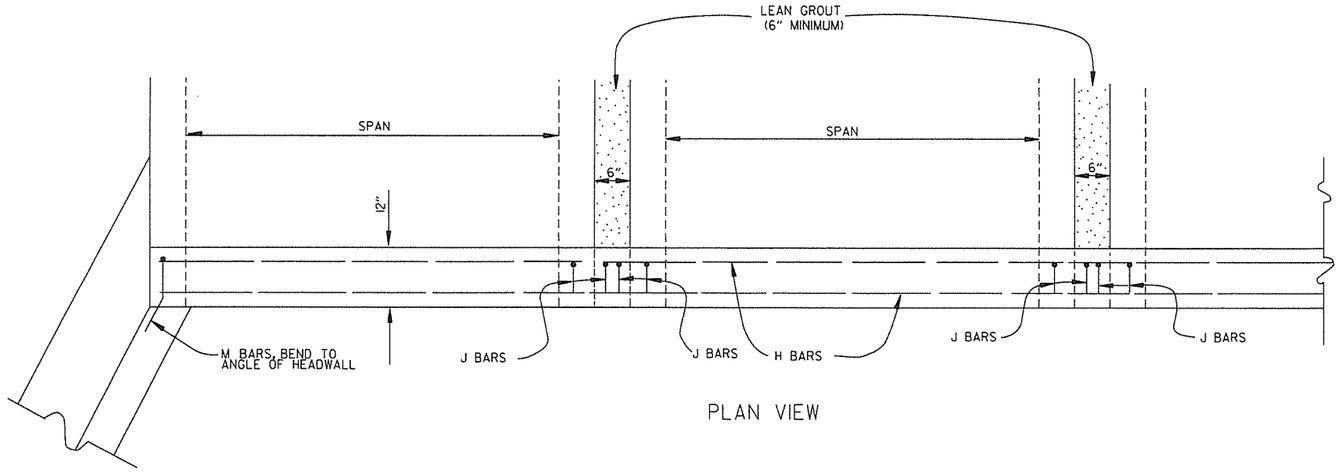
SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

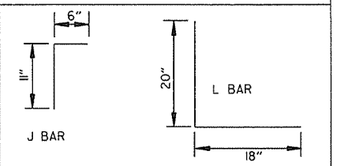
STANDARD DRAWING MB-1



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

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.

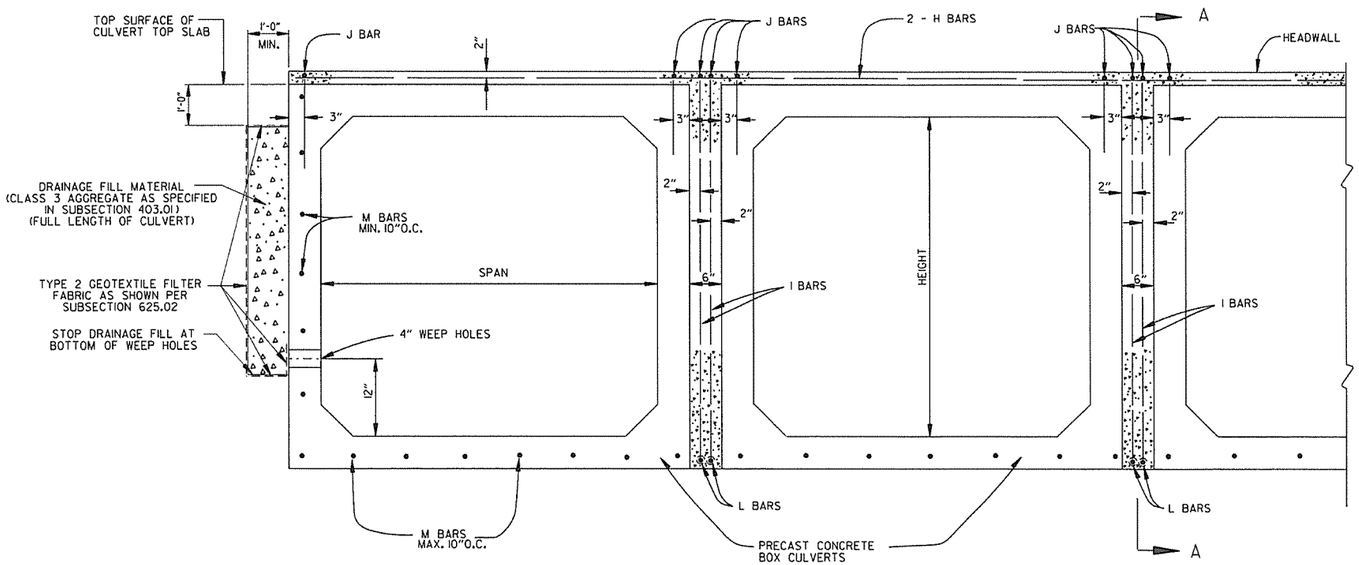
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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.

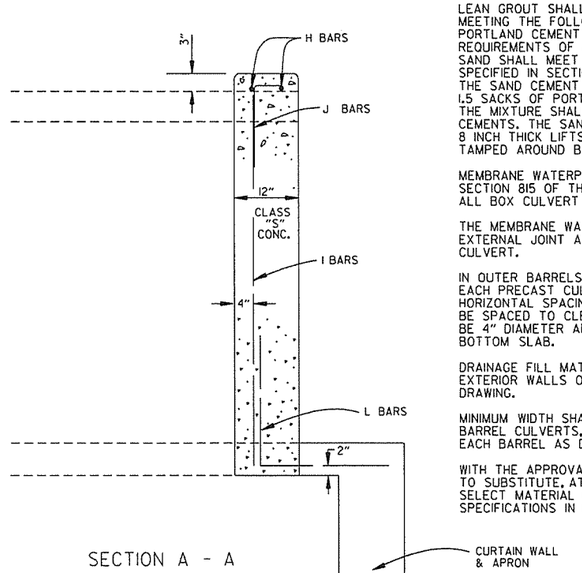
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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.



END VIEW



SECTION A - A

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

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

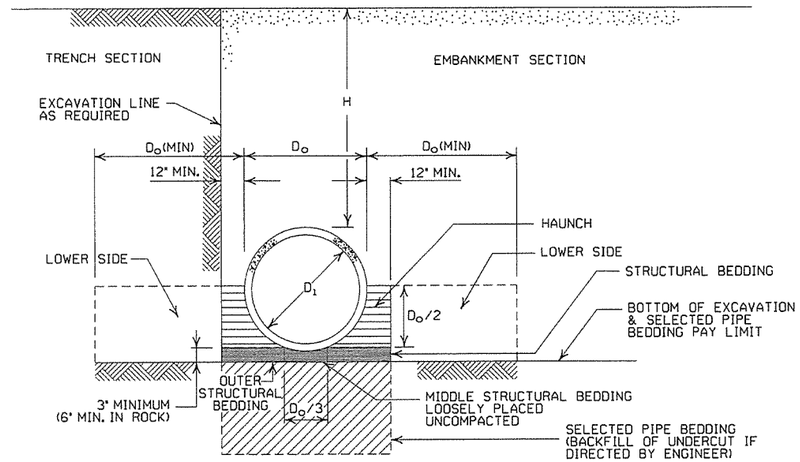
- LEGEND -

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

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

*SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	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			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION	INSTALLATION			
				TYPE 2 / TYPE 1	TYPE 2 / TYPE 1			
36	40x31	5	0.079	3 / 2	12 / 15			
42	46x36	6	0.079	3 / 2	13 / 15			
48	53x41	7	0.079	3 / 2	13 / 15			
54	60x46	8	0.079	3 / 2	13 / 15			
60	66x51	9	0.079	3 / 2	13 / 15			
66	73x55	12	0.079	3 / 2	15 / 15			
72	81x59	14	0.079	3 / 2	15 / 15			
78	87x63	14	0.079	3 / 2	15 / 15			
84	95x67	16	0.109	3 / 2	15 / 15			
90	103x71	16	0.109	3 / 2	15 / 15			
96	112x75	18	0.109	3 / 2	15 / 15			
102	117x79	18	0.109	3 / 2	15 / 15			
108	128x83	18	0.138	3 / 2	15 / 15			

CONSTRUCTION SEQUENCE

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

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

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

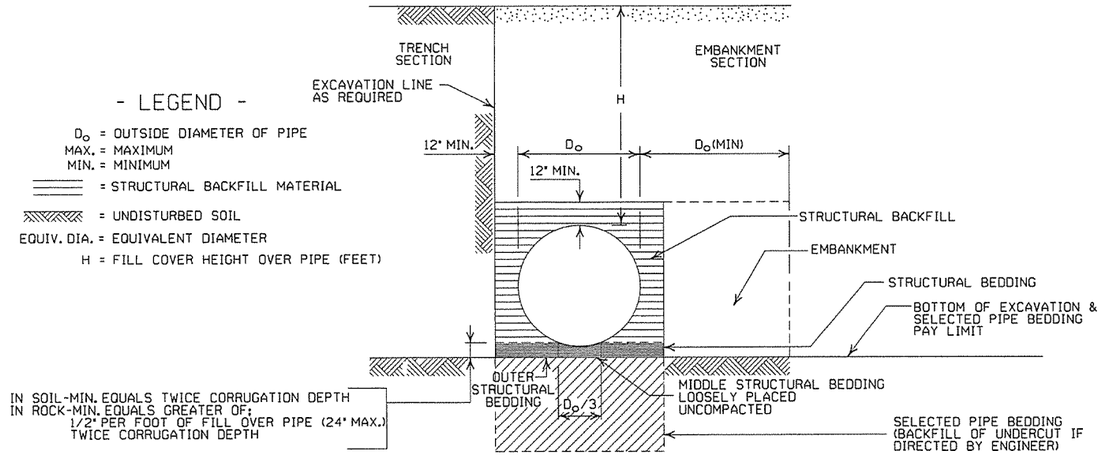
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

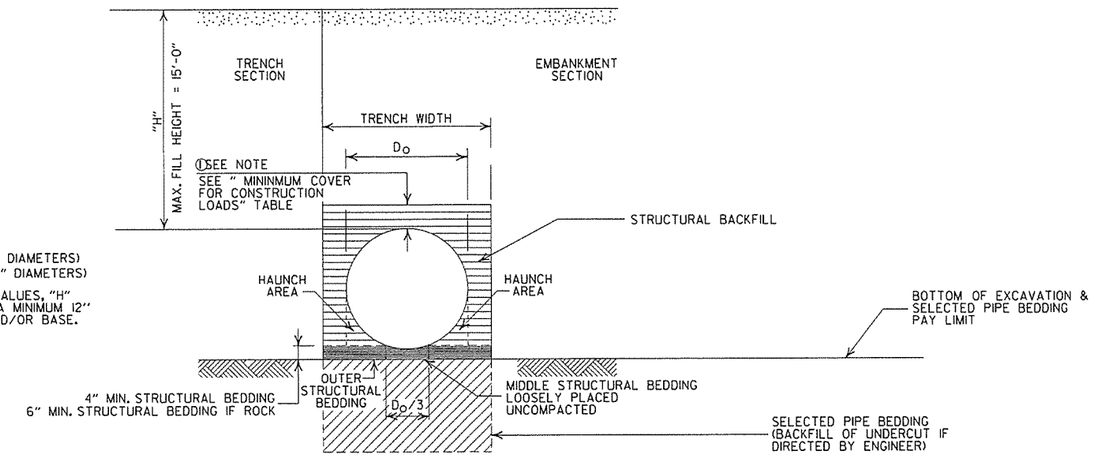
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

H = FILL HEIGHT (FT.)
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	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.

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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

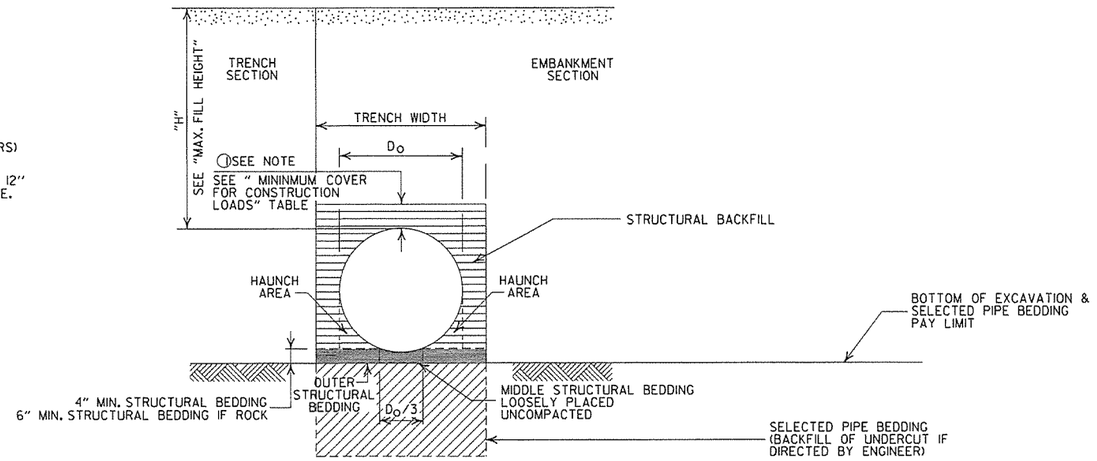
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

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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.
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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

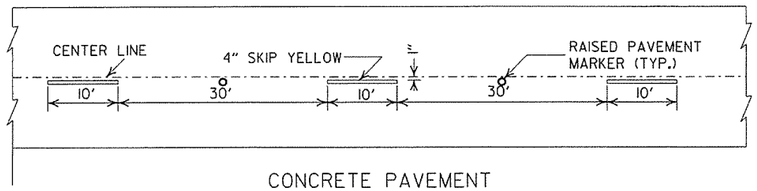
= UNDISTURBED SOIL

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	

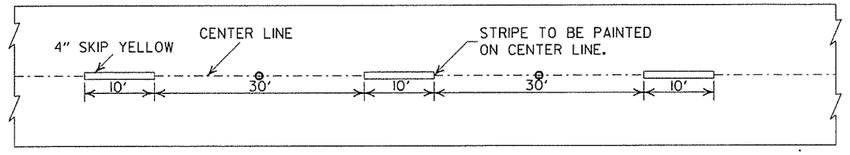
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

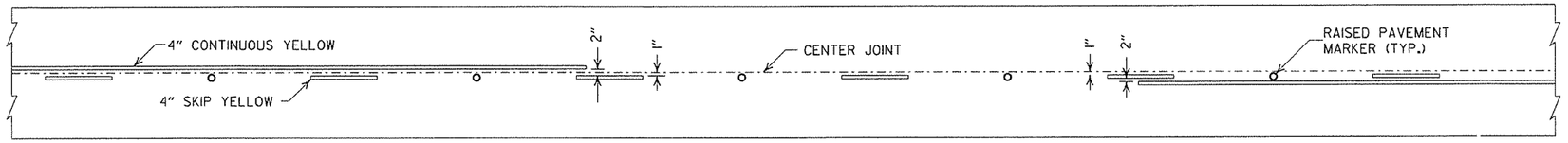


CONCRETE PAVEMENT

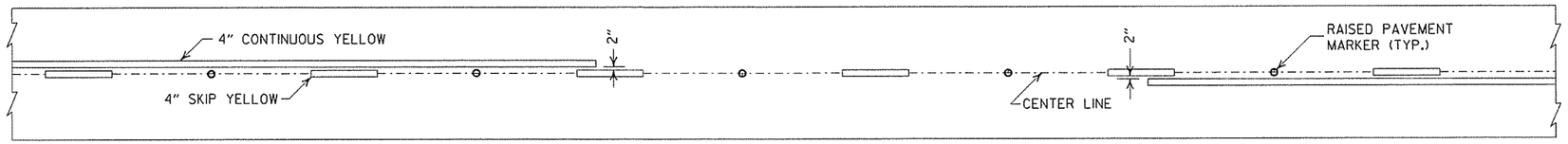


ASPHALT PAVEMENT

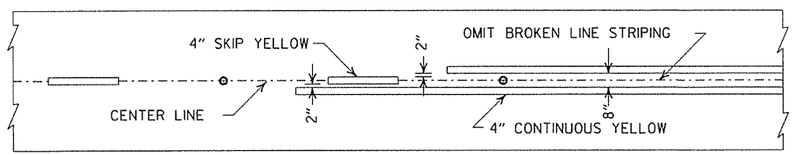
BROKEN LINE STRIPING



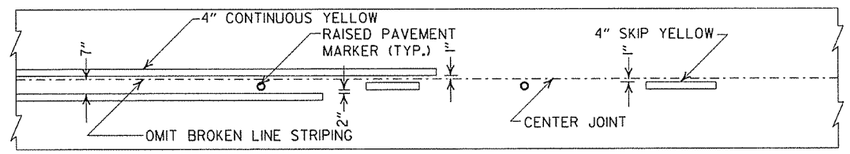
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

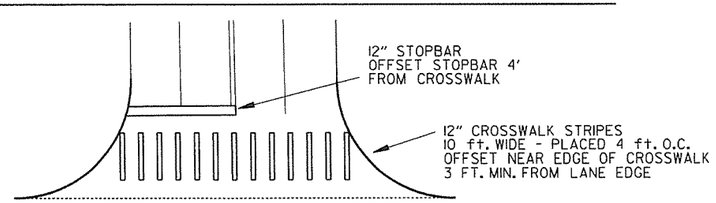


ASPHALT PAVEMENT



CONCRETE PAVEMENT

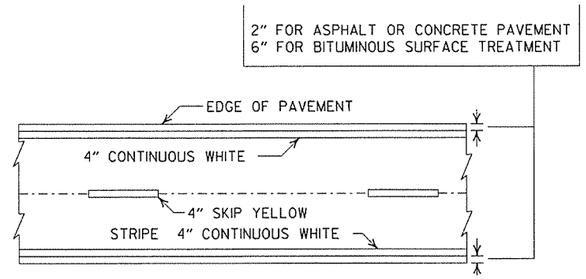
STRIPING AT ADJACENT NO PASSING LANES



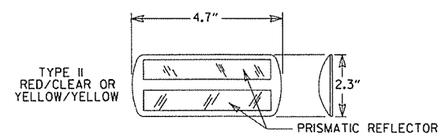
CROSSWALK AND STOPBAR DETAILS

NOTES:

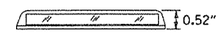
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED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



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

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

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

NOTE:

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

DATE	REVISION	FILMED
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

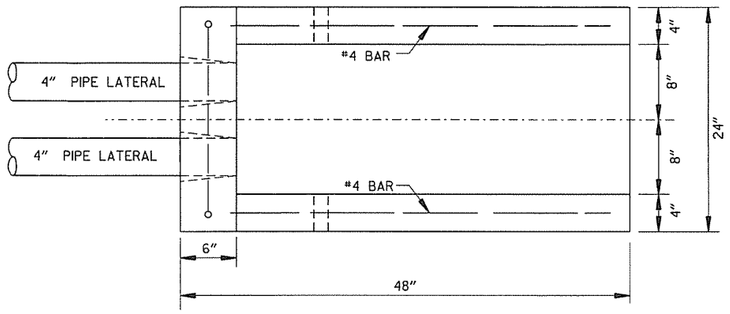
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

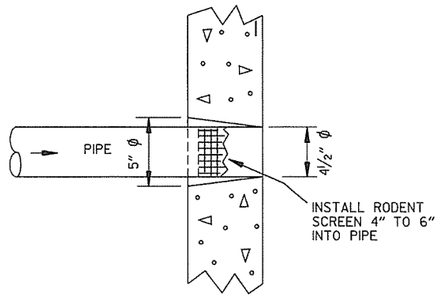
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

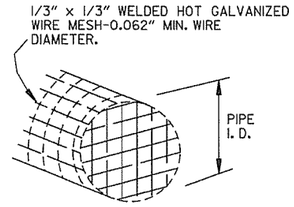
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



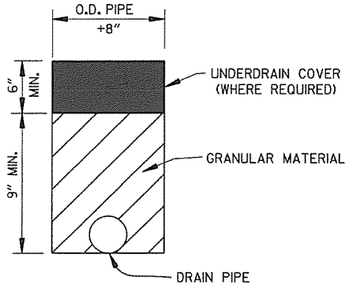
PLAN VIEW

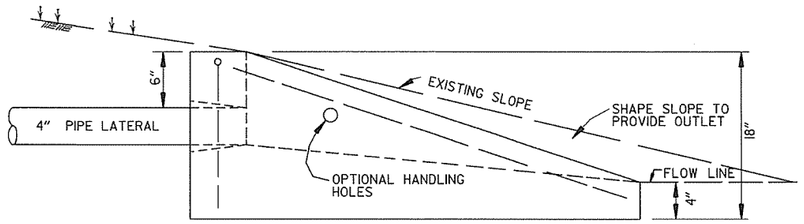


DETAIL OF HOLE FOR 4" PIPE

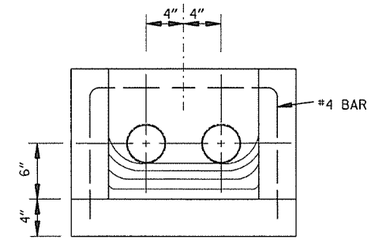


DETAIL OF RODENT SCREEN

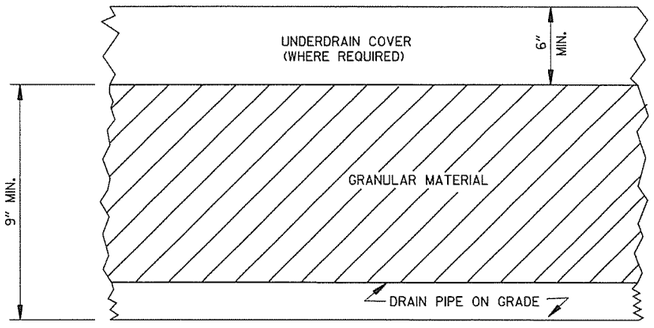




SIDE VIEW

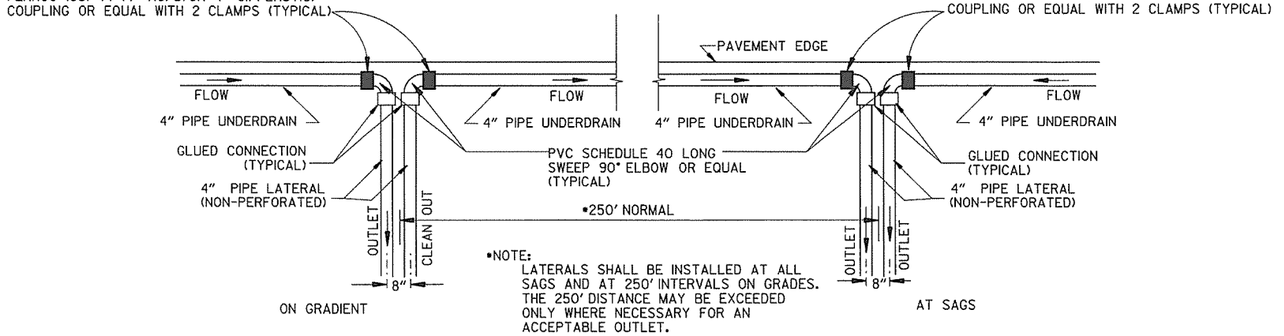


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



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
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

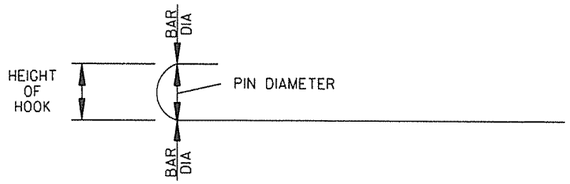
STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

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

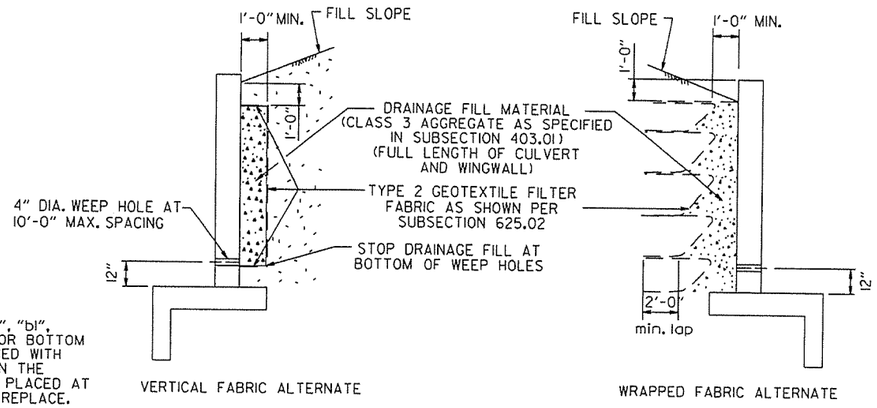
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

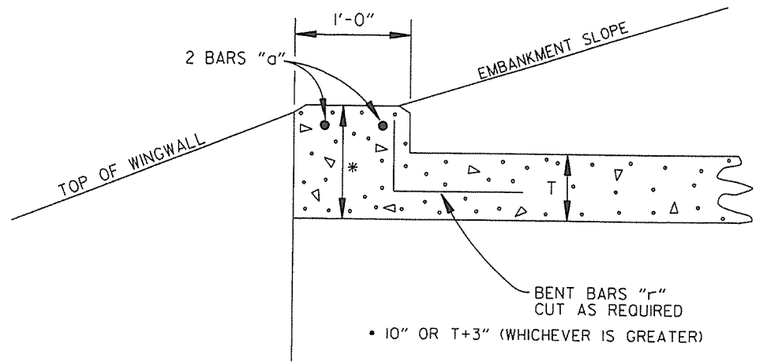
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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.

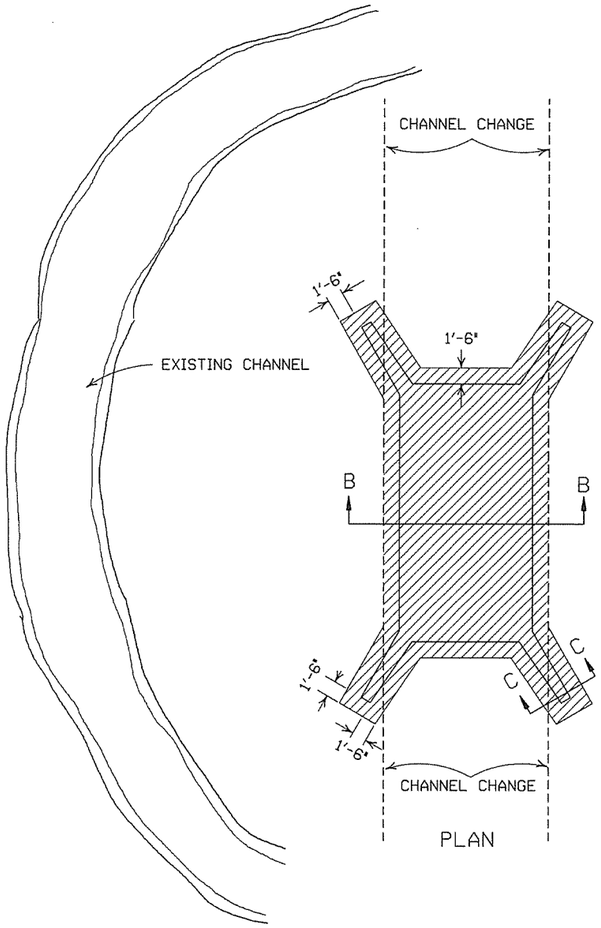
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

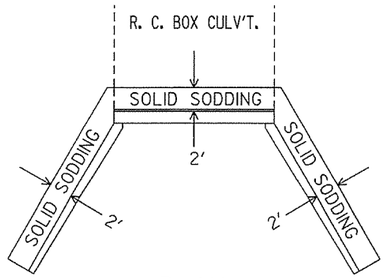
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

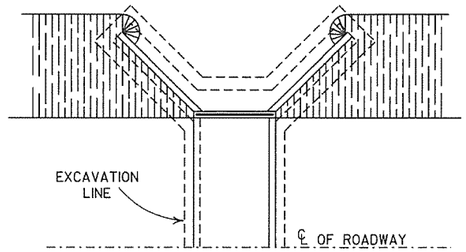
SOLID SODDING



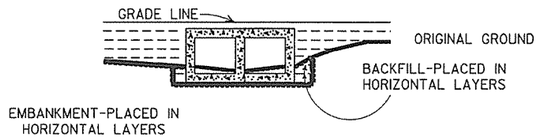
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

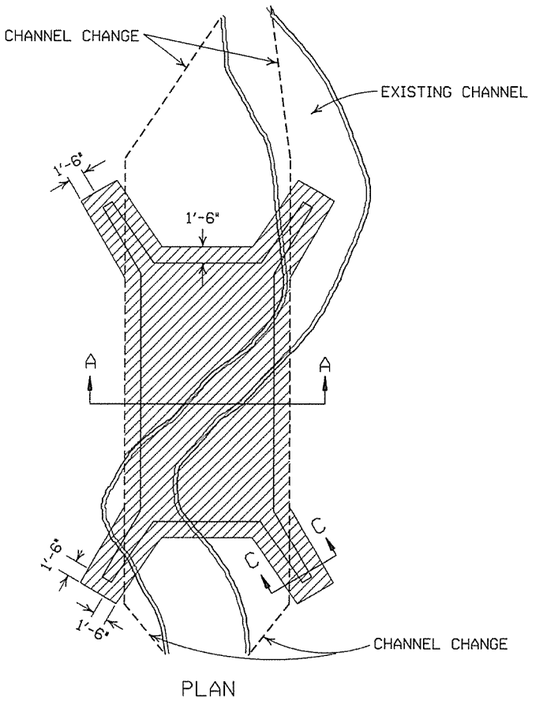


PLAN

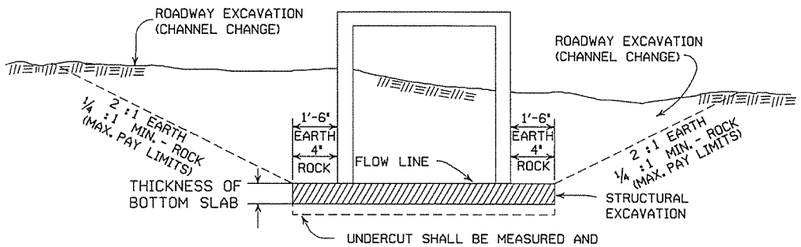


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

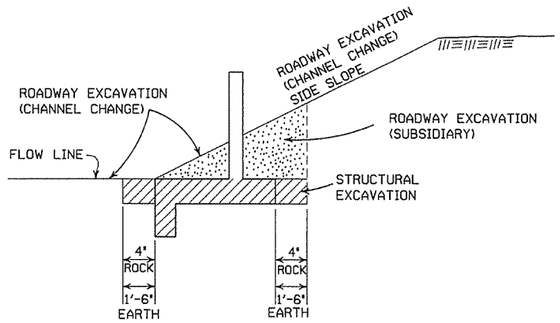


PLAN

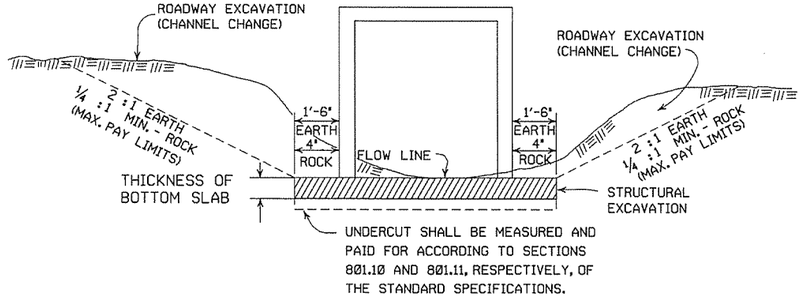


SECTION B-B

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.

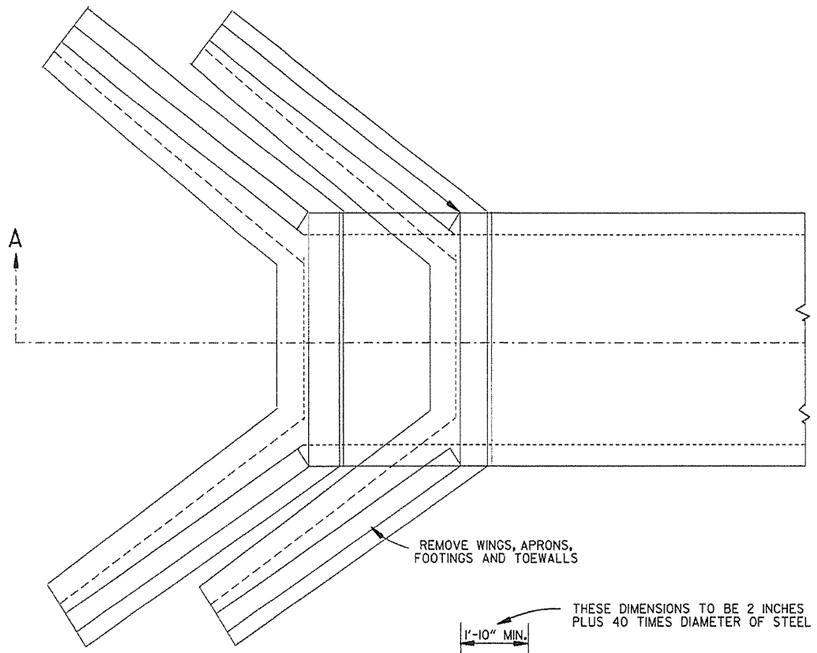
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

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

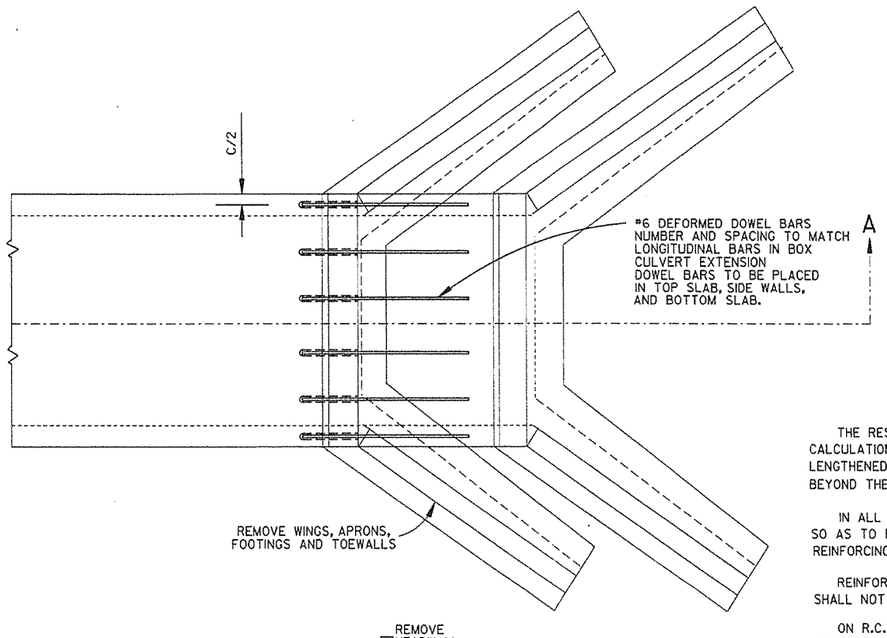
STANDARD DRAWING RCB-2



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 1



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER, AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2. REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

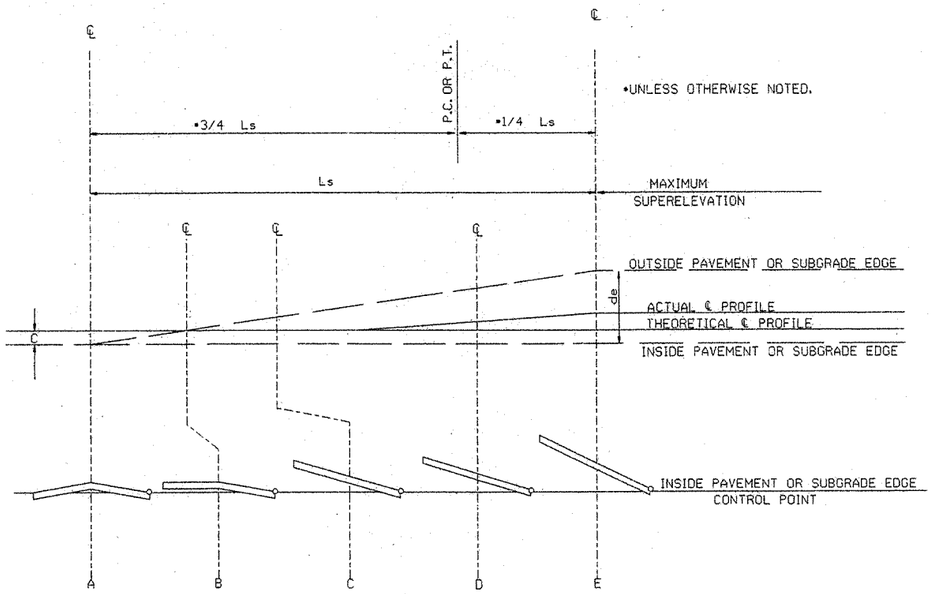
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

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			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			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			0.040			0.057			0.067	230		0.077	260		0.096	350	
3° 15′	0.027	150		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	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350			
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							
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										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220	250	0.100	290										
8° 30′	0.061			0.087	225													
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	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′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

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.)



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

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

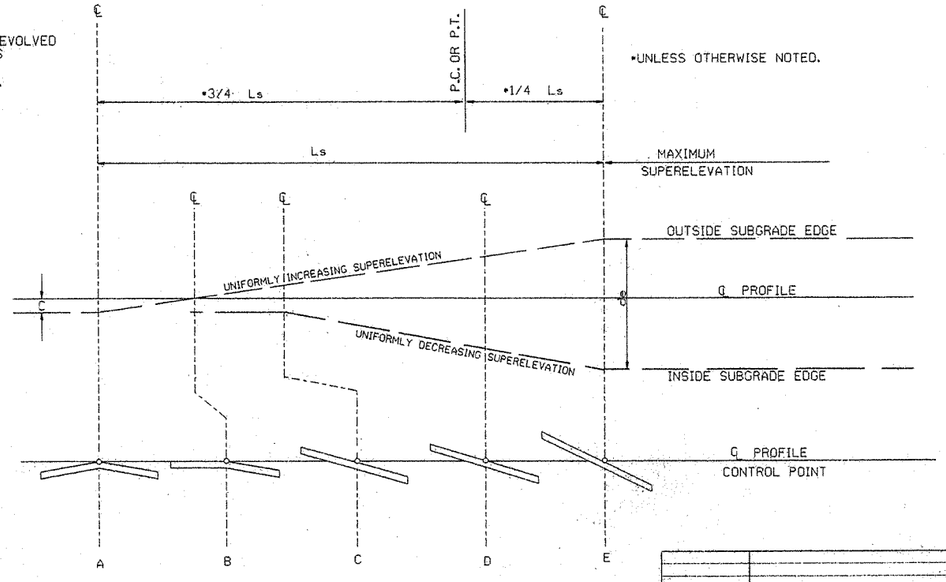
GENERAL NOTES

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

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

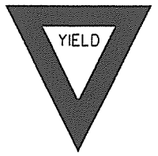
STANDARD DRAWING SE-2

FILE STDSE2.DGN

R1-1

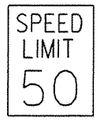
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

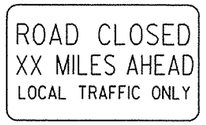
R5-1

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

RII-2

48"X30"

RII-3A



60"X30"

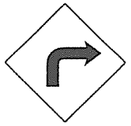
RII-4

60"X30"

RSP-1

48"X30"

WI-1



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

WI-2

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

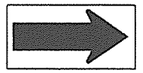
WI-3

STD. 48"X48"

WI-4

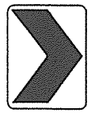
STD. 48"X48"

WI-6



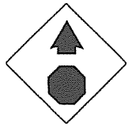
STD. 48"X24"
SPECIAL 60"X30"

WI-8



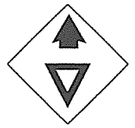
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



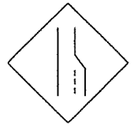
STD. 36"X36"
SPECIAL 48"X48"

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"

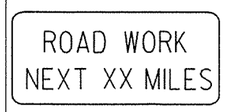
W8-11

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

W8-9

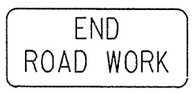
STD. 36"X36"
FWY. 48"X48"

G20-1



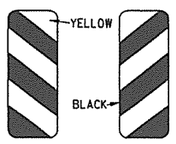
60"X24"

G20-2



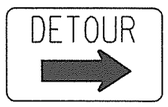
48"X24"

OM-3L OM-3R



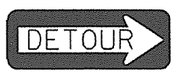
12"X36"

M4-9



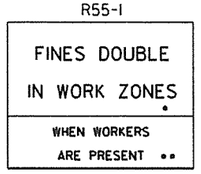
STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

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.

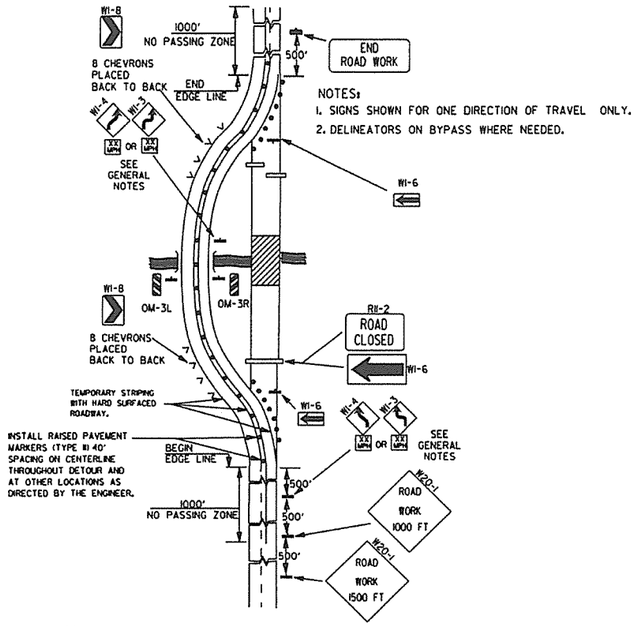
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY 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	
8-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
8-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-9	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

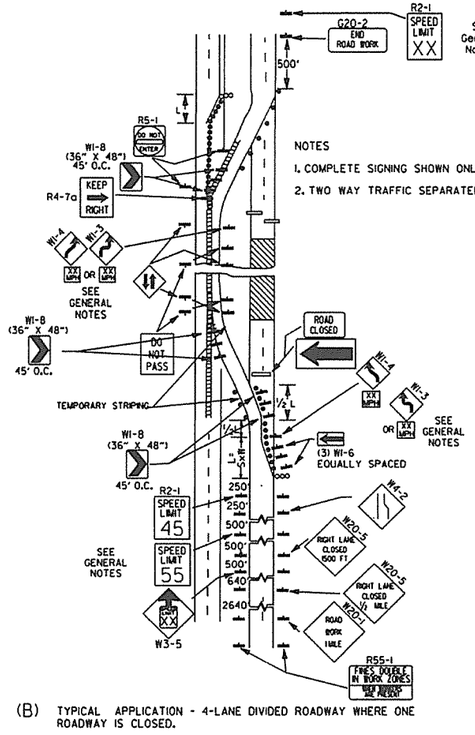
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



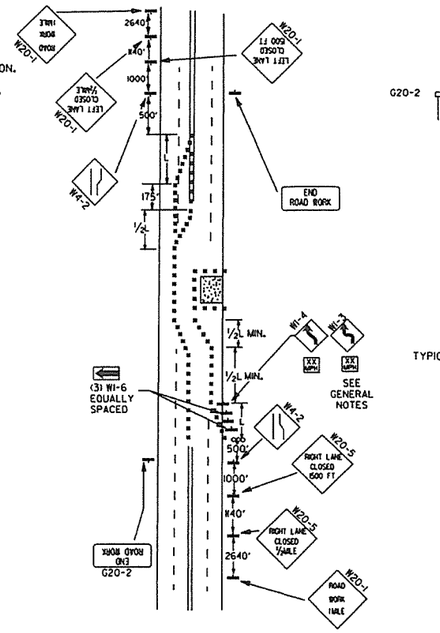
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

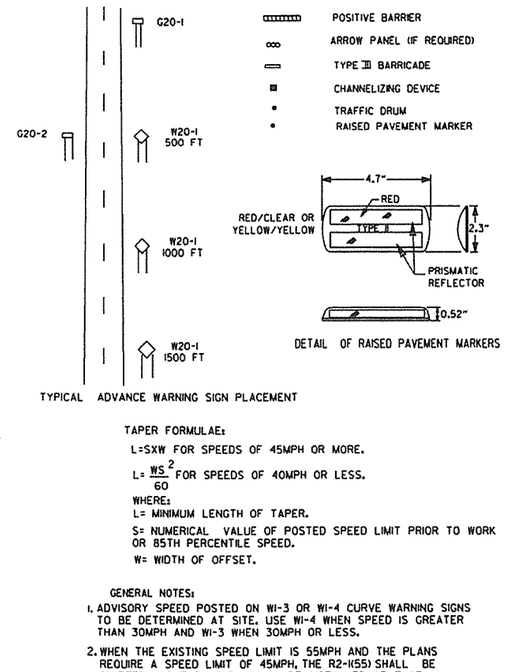


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

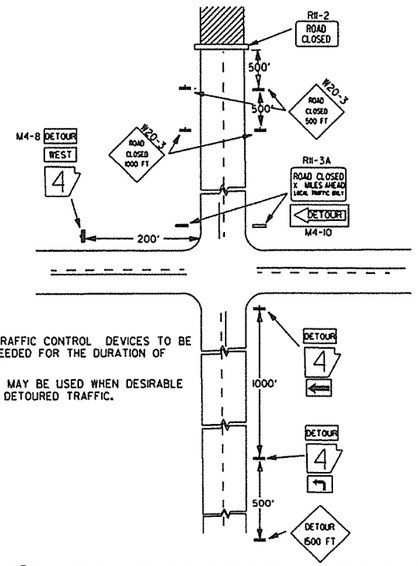
TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

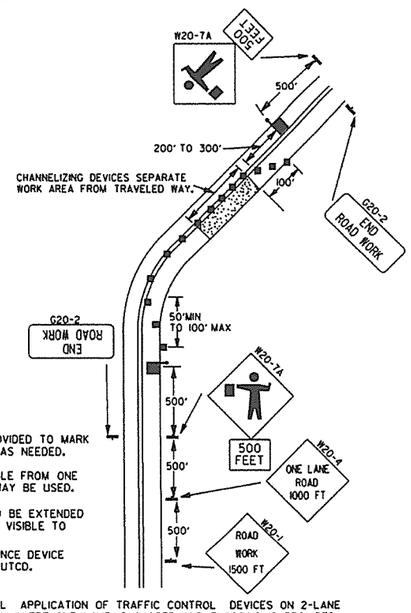
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

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.



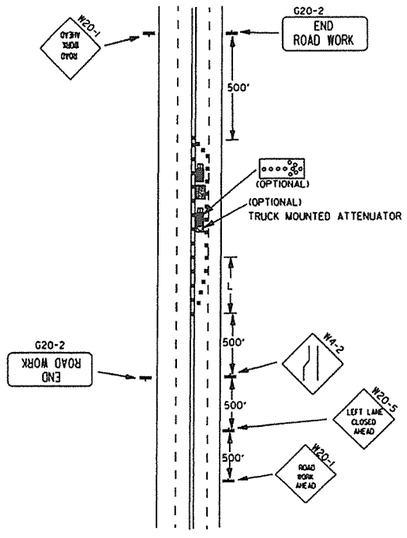
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



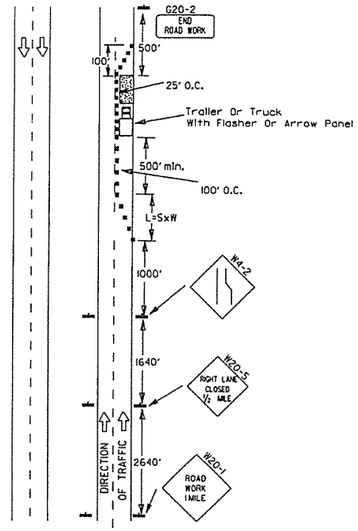
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
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	

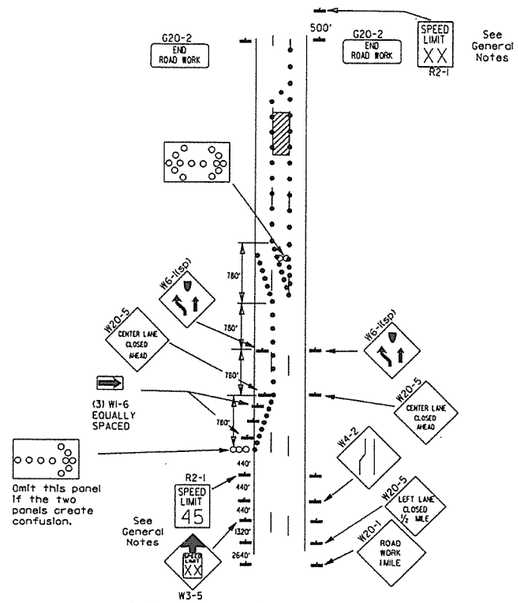
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

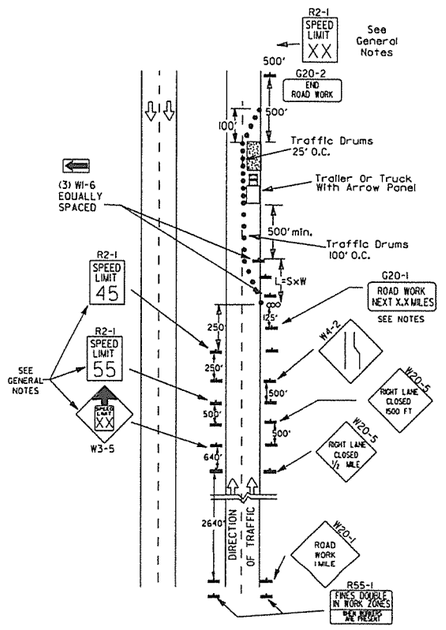
STANDARD DRAWING TC-2



(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.

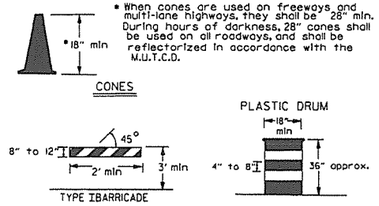
KEY:

- Arrow Panel (If Required)
- Channelizing Device
- Traffic drum

GENERAL NOTES:

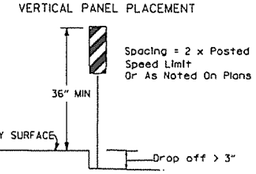
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional 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.

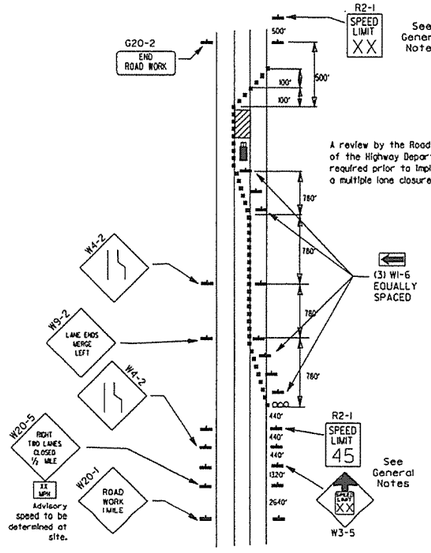
Channelizing devices



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

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





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

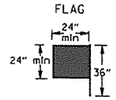
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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.

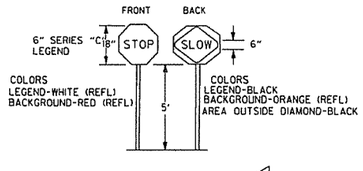
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

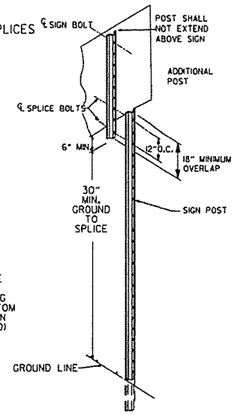


Flag shall be of good grade red material

STOP SLOW PADDLE



DETAIL OF SPLICES



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

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

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

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

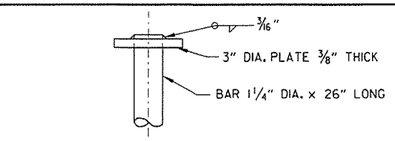
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

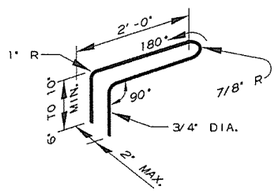
REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", 90°, 3 3/8" R, LIFTING HOLE
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S ℄ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 1" MIN. CLEAR TO BAR, 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP, 1'-6"
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 4 3/8", 2'-1 3/8", 9 1/2"

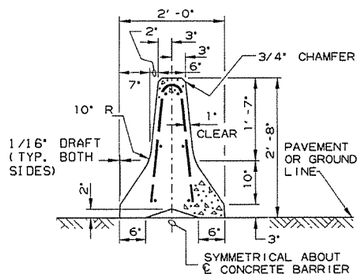


SECTION E-E

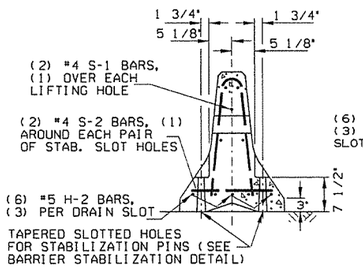
CONNECTION DETAILS



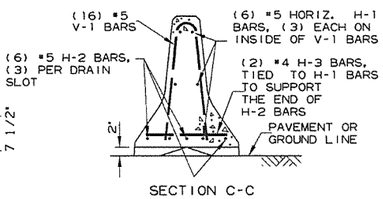
CONNECTION LOOP



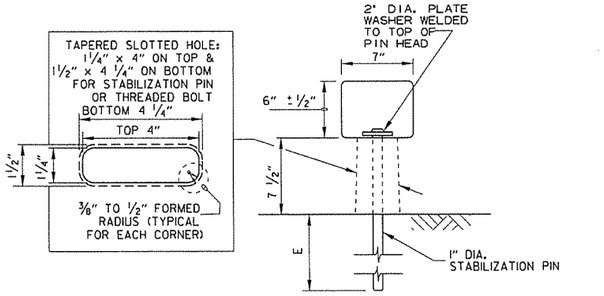
SECTION A-A



SECTION B-B



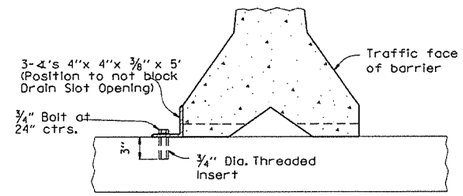
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

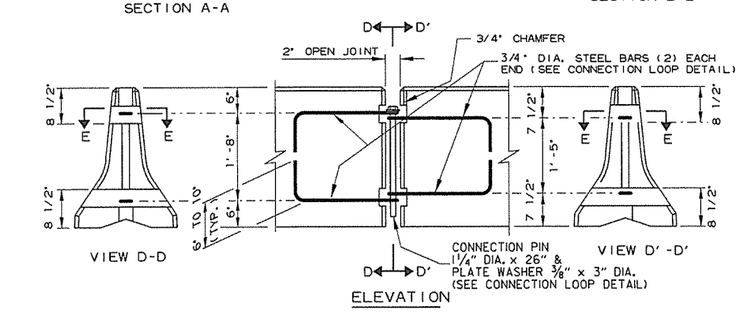
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the Inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

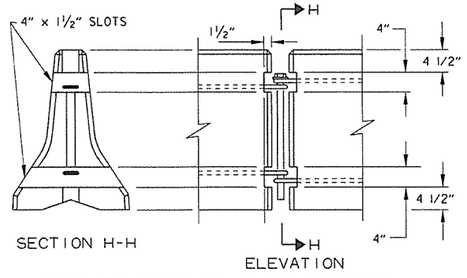
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

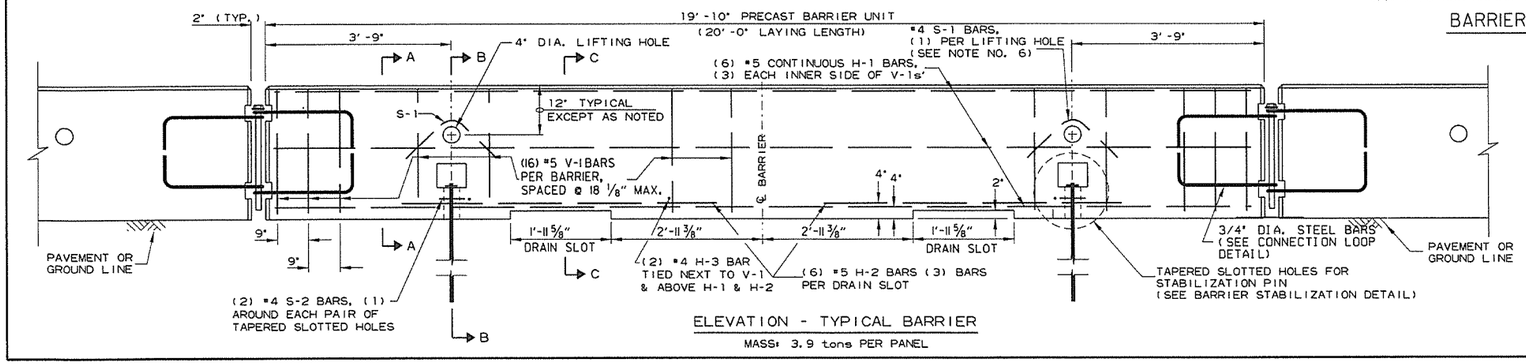
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

2. Materials shall meet the following minimum requirements;
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

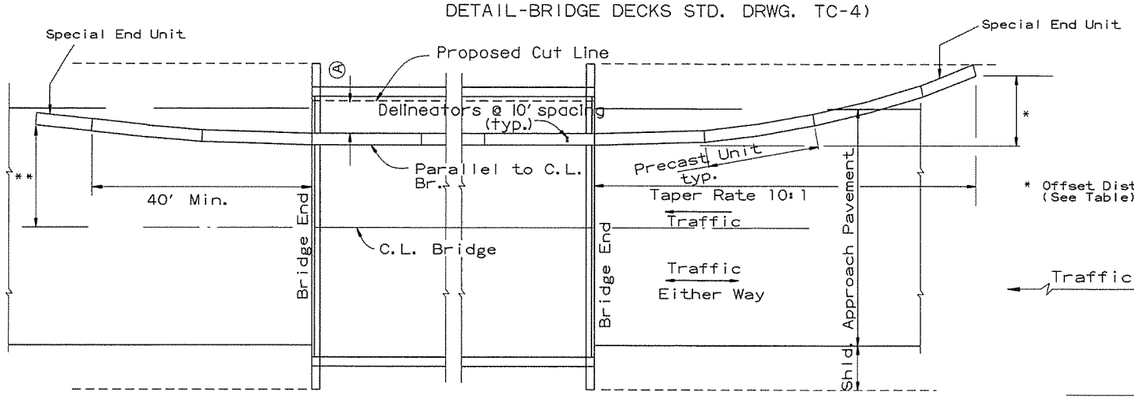
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

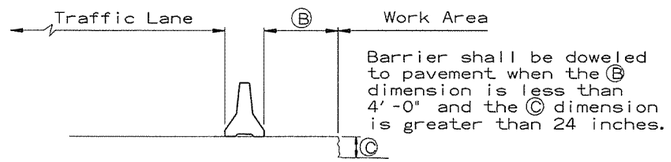
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

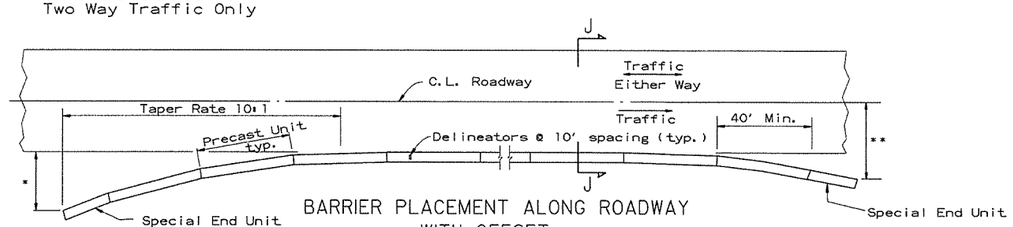


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

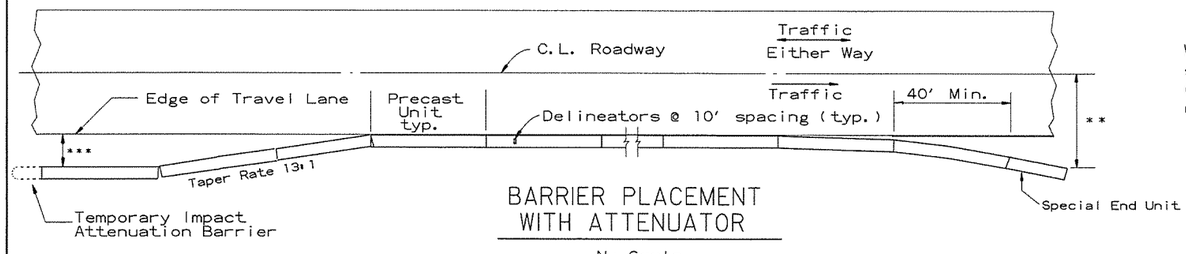
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.

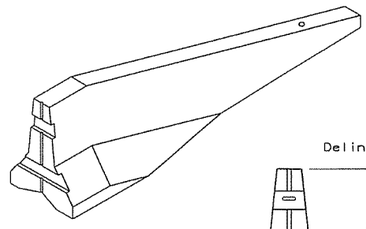


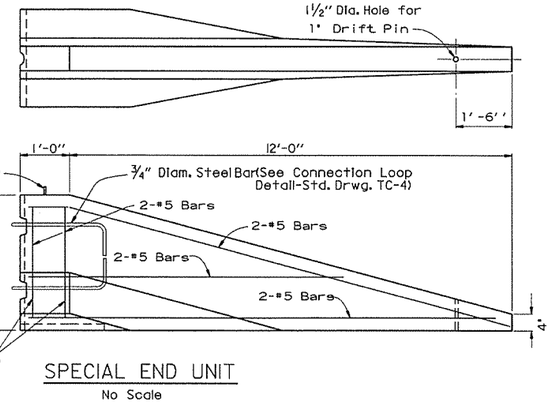
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator





SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

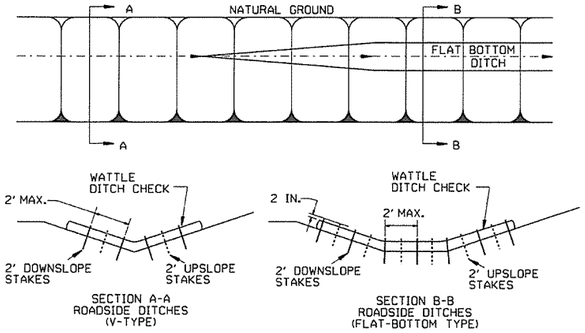
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

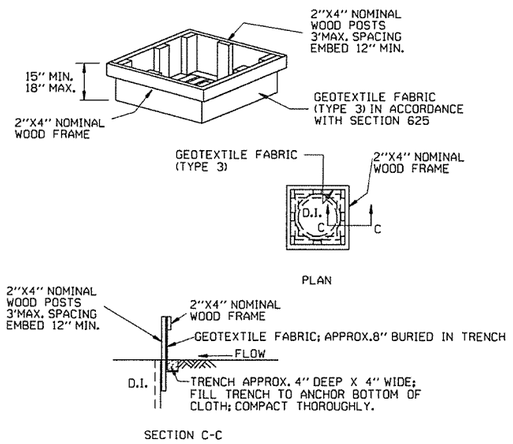
STANDARD DRAWING TC-5

GENERAL NOTES

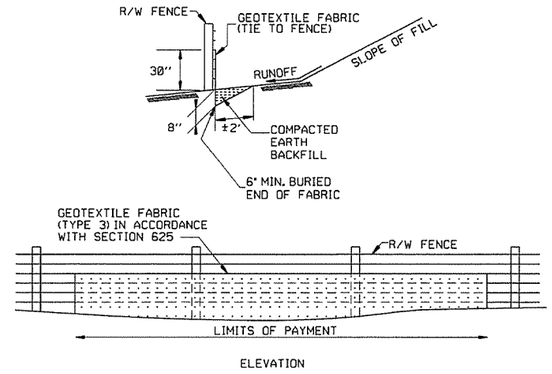
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

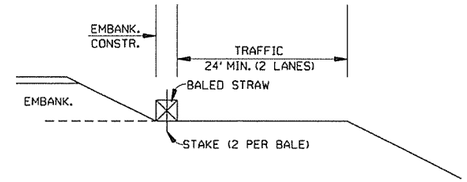
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

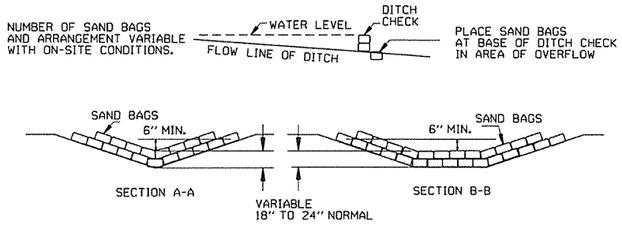
2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.

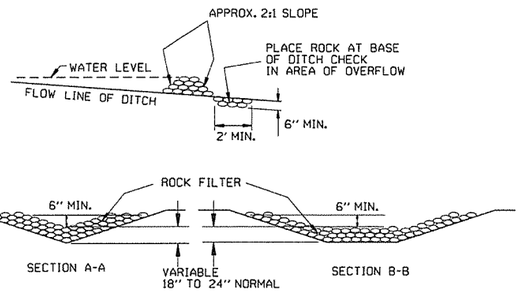


BALED STRAW FILTER BARRIER (E-2)

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

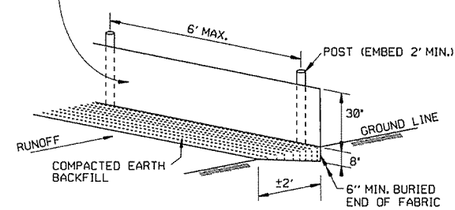


SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625



SILT FENCE (E-11)

GENERAL NOTES

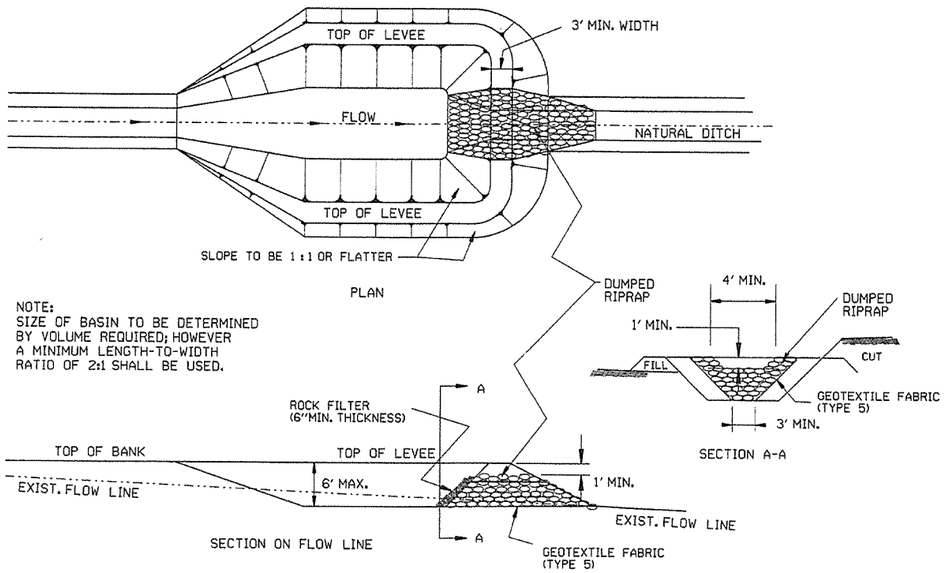
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

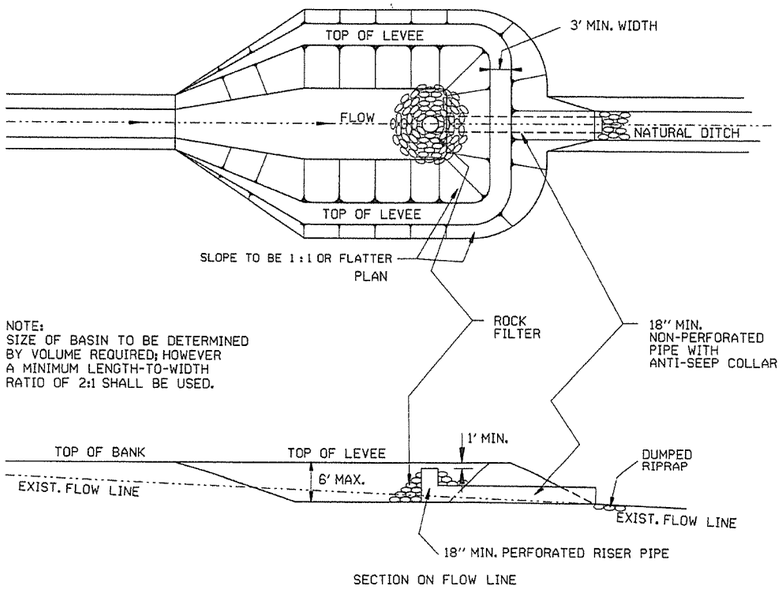
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

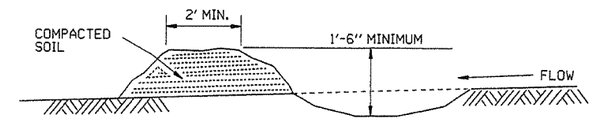
STANDARD DRAWING TEC-1



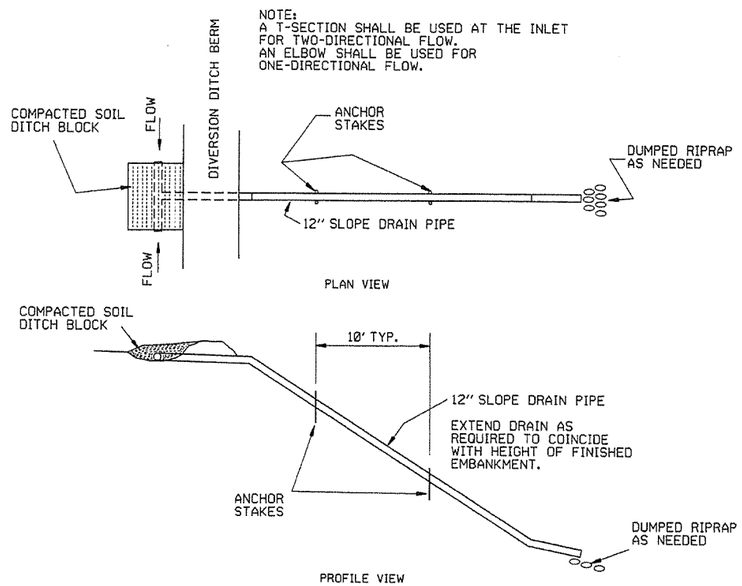
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



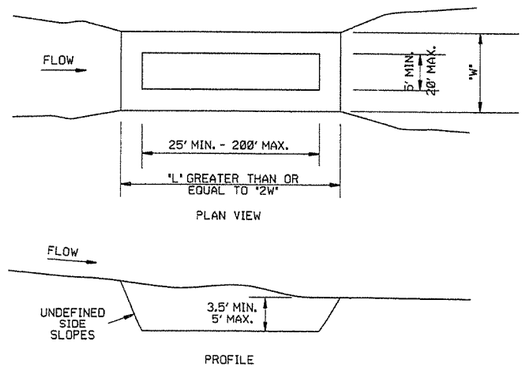
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

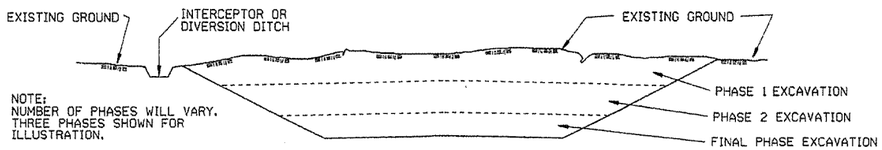
STANDARD DRAWING TEC-2

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



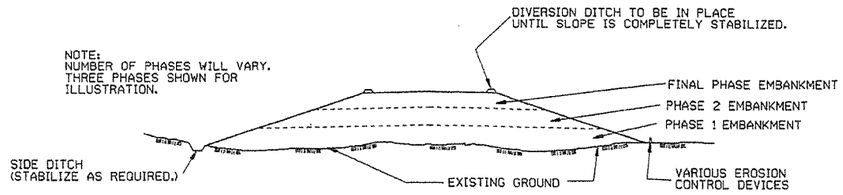
GENERAL NOTE

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

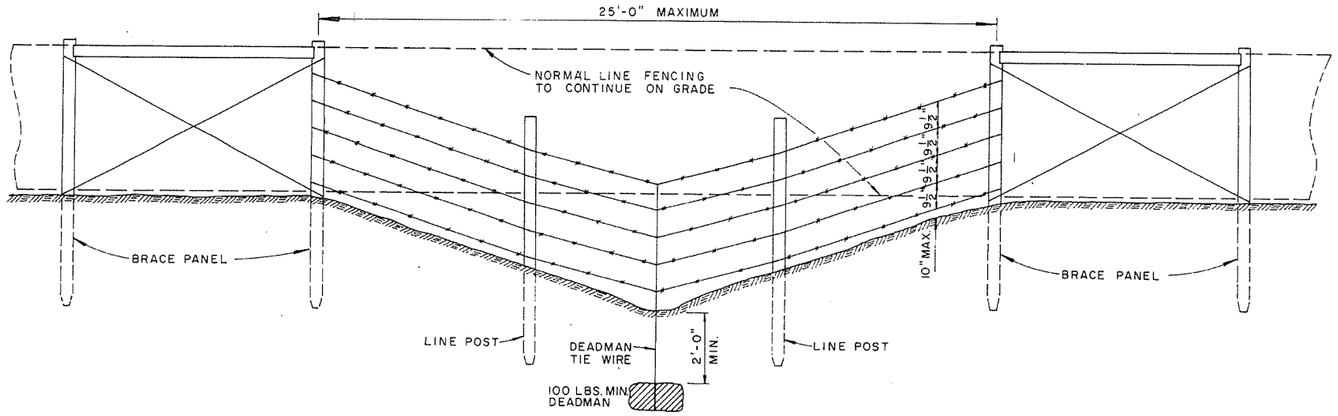
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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.

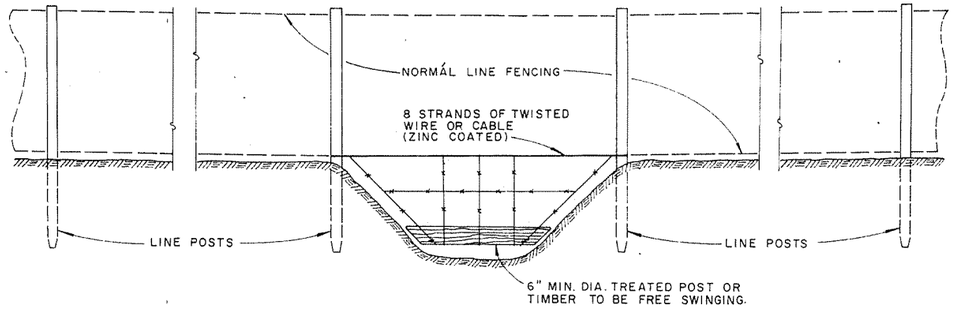
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

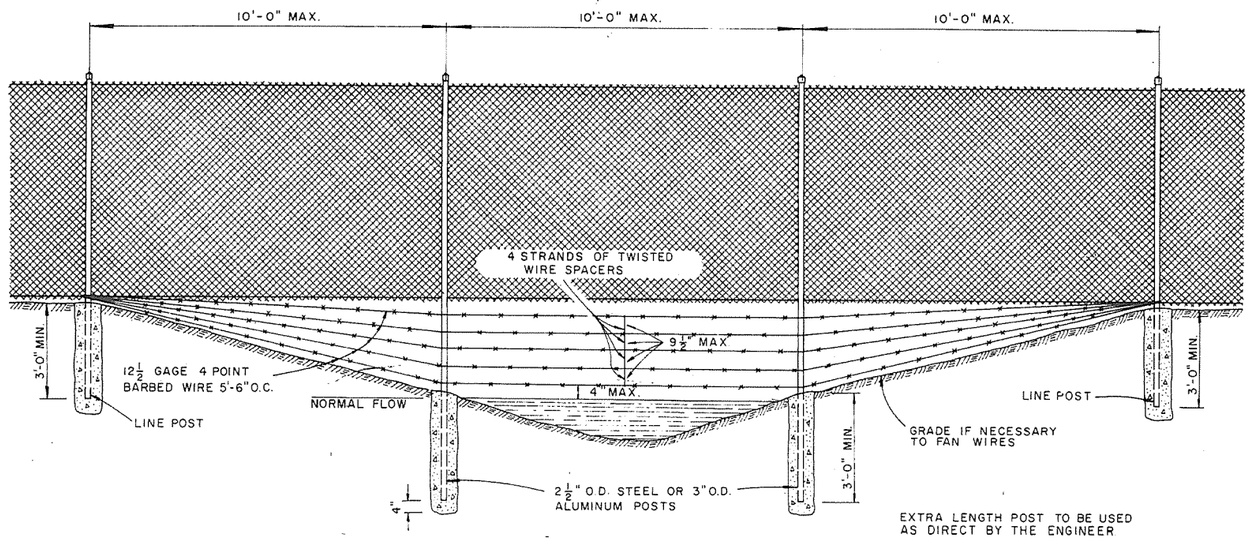
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3







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

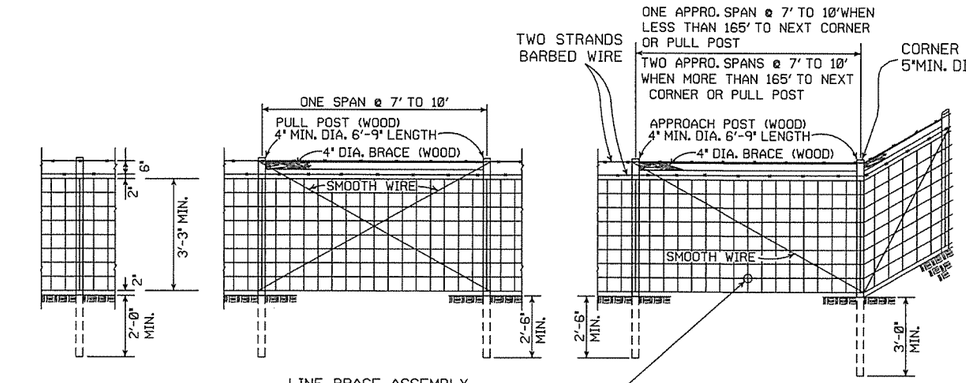
WIRE FENCE WATER GAPS

STANDARD DRAWING

WF-2

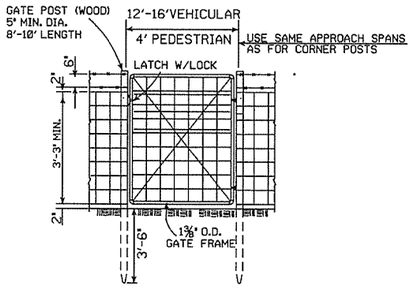
73

(M—11-71—67001—PPASC)



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

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'



GENERAL NOTES:

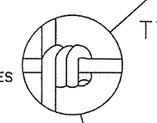
STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO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

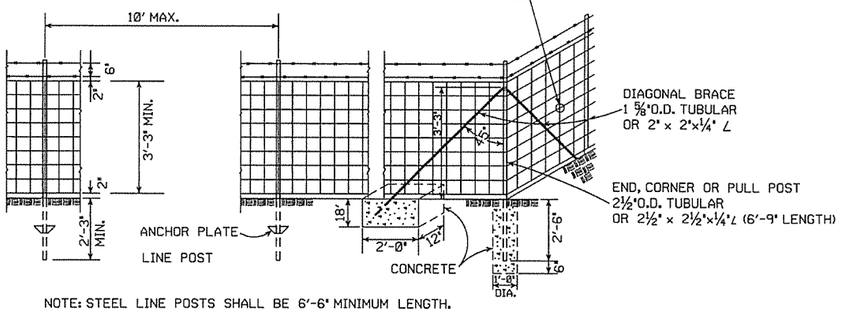
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED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

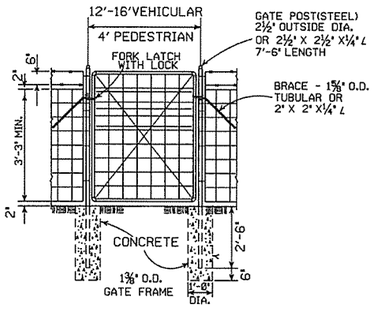
AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED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

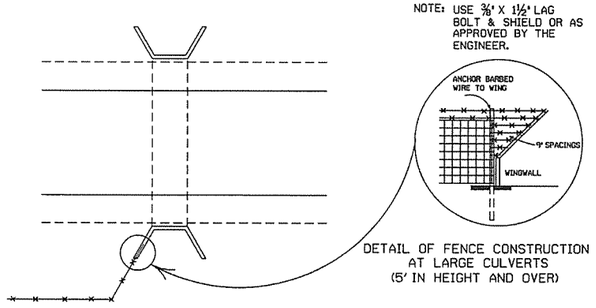
TYPE C FENCE (WOOD POSTS)



OTHER APPROVED TIES WILL BE PERMITTED







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

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.

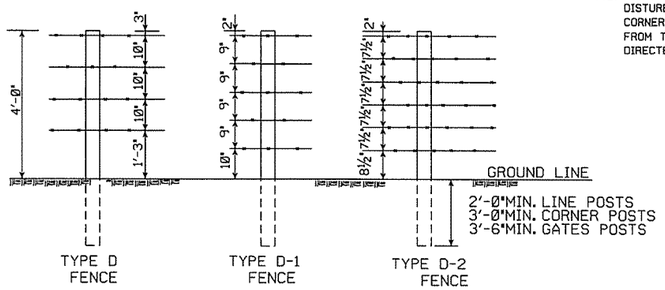
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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

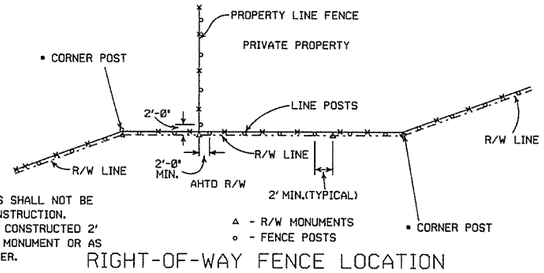
NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.

TYPE C FENCE (STEEL POSTS)

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

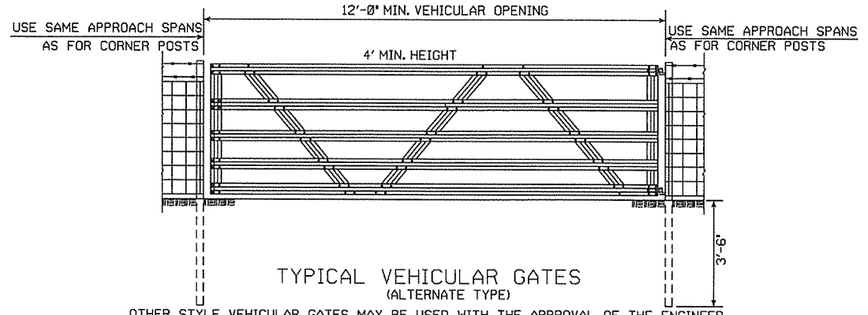


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



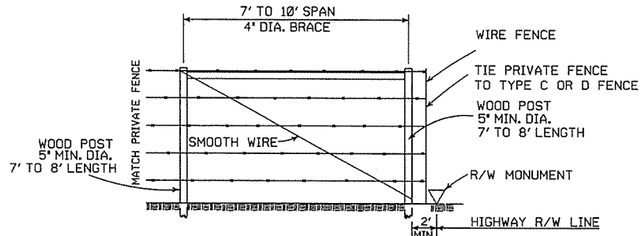
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



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.



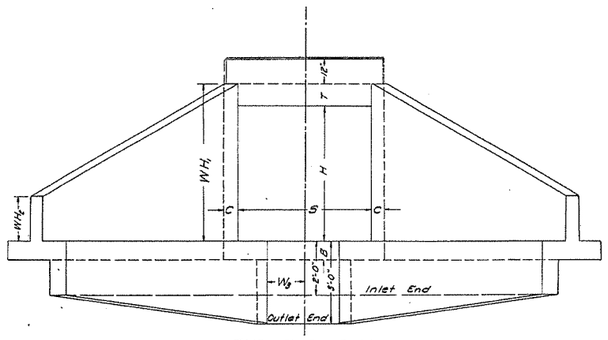
PRIVATE FENCE TERMINAL INSTALLATION
WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

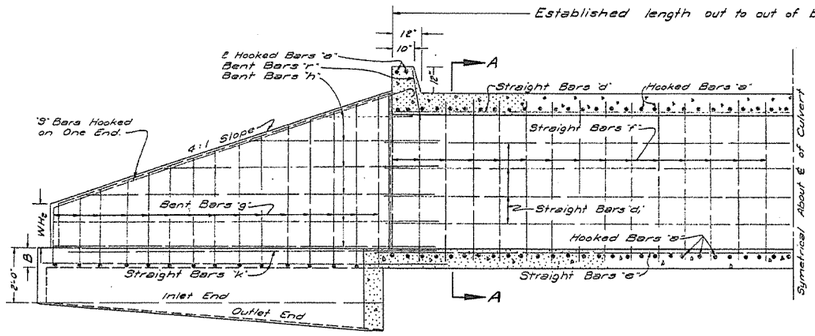
DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	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

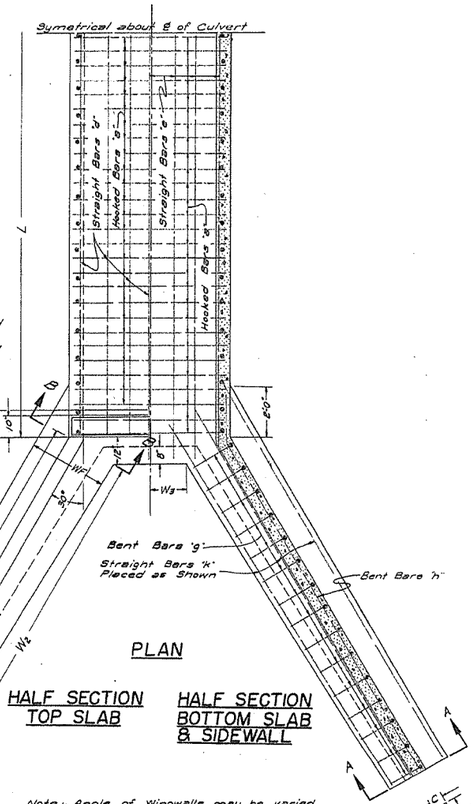
ARKANSAS STATE HIGHWAY COMMISSION

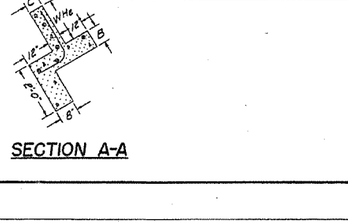
WIRE FENCE TYPE C AND D

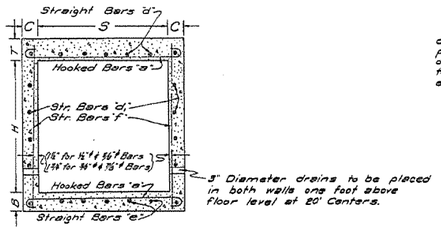
STANDARD DRAWING WF-4

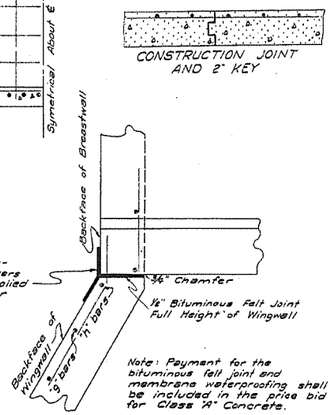












Reshot 3-4-93 345 87

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.			63	
JOB NO.					

END ELEVATION

LONGITUDINAL SECTION

CONSTRUCTION JOINT AND 2" KEY

3" Diameter drains to be placed in both walls one foot above floor level at 20' Centers.

SECTION A-A

A membrane waterproofing 12" wide consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the backface of abutment to cover expansion joint.

Note: Payment for the bituminous felt joint and membrane waterproofing shall be included in the price bid for Class "A" Concrete.

DETAIL OF EXPANSION JOINT
FOR CULVERT WHEN HEIGHT "H"=8' OR MORE

Scale ¾" = 1'-0"

SECTION B-B

PLAN

HALF SECTION TOP SLAB

HALF SECTION BOTTOM SLAB & SIDEWALL

Note: Angle of Wingwalls may be varied to conform to the natural or proposed Inlet or Outlet Channel.

SECTION A-A

STEEL SCHEDULE

For Culverts 30'-0" in Length - Out to Out of Barrel

SPAN	HEIGHT	"a" bars					"d" bars				"d1" bars				"e" bars				"f" bars			
		3" for ½"φ & ⅝"φ bars, 6" for ¾"φ & ⅞"φ bars; 2 in each headwall balance in top and bottom slab of barrel					STRAIGHT In Bottom of Top Slab				STRAIGHT In Sidewalls				STRAIGHT In Top of Bottom Slab				STRAIGHT Vertical Bars In Sidewalls			
S	H	SIZE	SPACING	NUMBER	LENGTH	X	SIZE	SPACING	NUMBER	LENGTH	SIZE	SPACING	NUMBER	LENGTH	SIZE	SPACING	NUMBER	LENGTH	SIZE	SPACING	NUMBER	LENGTH
3	2	½"φ	6"	124	4'-6"	3'-9"	½"φ	12"	4	29'-9" for 30'-0" Length	½"φ	12"	2	29'-9" for 30'-0" Length	½"φ	12	4	31'-9" for 30'-0" Length	½"φ	12"	62	2'-10"
	3			124	4'-6"	3'-9"			4				4				4				62	3'-10"
	4			124	4'-6"	3'-9"			4				6				4				62	4'-10"
4	2	½"φ	5"	148	5'-6"	4'-9"	½"φ	10"	6		½"φ	12"	2		½"φ	10	6		½"φ	12"	62	3'-0"
	3			148	5'-6"	4'-9"			6				4				6				62	4'-0"
	4			148	5'-6"	4'-9"			6				6				6				62	5'-0"
	6			148	5'-8"	4'-11"			6				10				6				62	7'-0"
5	2	⅝"φ	7"	108	6'-6"	5'-9"	½"φ	10"	7		½"φ	12"	2		½"φ	10	7		½"φ	12"	62	3'-1"
	3			108	6'-6"	5'-9"			7				4				7				62	4'-1"
	4			108	6'-6"	5'-9"			7				6				7				62	5'-1"
	5			108	6'-6"	5'-9"			7				8				7				62	6'-1"
	7			108	6'-9"	6'-0"			7				12				7		⅝"φ		62	8'-1"
6	3	⅝"φ	6"	124	7'-6"	6'-9"	½"φ	10'	8		½"φ	12"	4		½"φ	10	8		½"φ	12"	62	4'-3"
	4			124	7'-6"	6'-9"			8				6				8				62	5'-3"
	5			124	7'-6"	6'-9"			8				8				8				62	6'-3"
	6			124	7'-8"	6'-11"			8				10				8				62	7'-3"
	8			124	7'-10"	7'-1"			8				14				8		⅝"φ	12"	62	9'-3"
8	7	¾"φ	9"	84	10'-5½"	8'-11½"	½"φ	9"	12		½"φ	12"	12		½"φ	9	12		⅝"φ	12"	62	8'-7"
	8			84	10'-6½"	9'-0½"			12				14				12		⅝"φ	12"	62	9'-7"
	10			84	10'-10½"	9'-4½"			12				18				12			10"	74	11'-7"
10	8	⅞"φ	7"	108	12'-6½"	11'-0½"	½"φ	10"	13		½"φ	12"	14		½"φ	10	13		⅝"φ	12'	62	9'-11"
	10			108	12'-10½"	11'-4½"			13				18				13		⅝"φ	10"	74	11'-11"
	12			108	13'-2½"	11'-8½"			13				22				13		⅝"φ	8"	92	13'-11"

SPAN	HEIGHT	"g" bars								"h" bars				"k" bars		"r" bars		"s" bars		
		Vertical Bars in back face of Wingwall bent into bottom of footing (Y, 90°, X)								½"φ bars @ 12" Ctrs. (1'-8", 150°, Z) Horizontal bars in Wingwalls				½"φ bars STRAIGHT In Wing Footing		½"φ bars @ 12" Ctrs. (Var., 1'-8") Dowels in Headwalls		½"φ bars (4", 4", Z) In Top of Each Wingwall		
		SIZE	SPACING	NUMBER	AVERAGE LENGTH	X Min.	X Max.	Y Min.	Y Max.	NUMBER	AVERAGE LENGTH	Z Min.	Z Max.	NUMBER	LENGTH	NUMBER	LENGTH	NUMBER	LENGTH	Z
S	H																			
3	2	½"φ	12"	36	3'-5"	1'-3"	1'-3"	1'-3½"	3'-0½"	12	7'-11½"	3'-2½"	7'-10"	12	9'-7⅝"	10	2'-11½"	4	9'-7⅝"	9'-1⅝"
	3			52	3'-11"	1'-3"	1'-3"	1'-4½"	3'-11½"	16	10'-7⅞"	3'-2½"	12'-5⅝"	12	14'-3⅝"	10	2'-11½"	4	14'-4⅝"	13'-10"
	4			64	4'-7"	1'-3"	1'-3"	1'-9"	4'-11"	20	12'-6⅞"	3'-2½"	15'-6⅝"	12	17'-4⅝"	10	2'-11½"	4	17'-5⅝"	16'-11½"
4	2	½"φ	12"	36	3'-6"	1'-3"	1'-3"	1'-4½"	3'-1½"	12	7'-11½"	3'-2½"	7'-10"	12	9'-7⅝"	12	3'-0½"	4	9'-7⅝"	9'-1⅝"
	3			52	4'-0"	1'-3"	1'-3"	1'-5½"	4'-0½"	16	10'-7⅞"	3'-2½"	12'-5⅝"	12	14'-3⅝"	12	3'-0½"	4	14'-4"	13'-10"
	4			64	4'-8"	1'-3"	1'-3"	1'-10"	5'-0"	20	12'-6⅞"	3'-2½"	15'-6⅝"	12	17'-4⅝"	12	3'-0½"	4	17'-5⅝"	16'-11⅝"
	6			88	6'-5½"	1'-4"	2'-1"	2'-5½"	7'-0½"	28	16'-9¾"	3'-2½"	21'-8¼"	12	23'-6"	12	3'-0½"	4	23'-9½"	23'-3½"
5	2	½"φ	12"	36	3'-7"	1'-3"	1'-3"	1'-6"	3'-2"	12	8'-4"	3'-7¼"	8'-2⅝"	12	10'-0⅝"	14	3'-1"	4	10'-0"	9'-6"
	3			52	4'-1"	1'-3"	1'-3"	1'-6½"	4'-1½"	16	11'-0½"	3'-7¼"	12'-10⅝"	12	14'-7¾"	14	3'-1"	4	14'-8¾"	14'-2⅜"
	4			68	4'-9"	1'-3"	1'-3"	1'-9"	5'-3"	20	12'-11½"	3'-7¼"	15'-11"	12	17'-8¾"	14	3'-1"	4	17'-10⅝"	17'-4⅝"
	5			80	5'-7½"	1'-3"	1'-8"	2'-2"	6'-2"	24	15'-0⅛"	3'-7¼"	18'-11⅜"	12	20'-9¾"	14	3'-1"	4	21'-0⅜"	20'-6⅜"
	7	⅝"φ		100	7'-6½"	1'-4½"	2'-8"	2'-9"	8'-3"	32	19'-1¾"	3'-7¼"	25'-1⅜"	12	26'-11⅝"	14	3'-1"	4	27'-4"	26'-10"
6	3	½"φ	12"	52	4'-2"	1'-3"	1'-3"	1'-7½"	4'-2¾"	16	11'-0½"	3'-7¼"	12'-10⅝"	12	14'-7¾"	16	3'-2"	4	14'-8¾"	14'-2⅜"
	4			64	4'-10"	1'-3"	1'-3"	1'-10"	5'-4"	20	12'-11½"	3'-7¼"	15'-11"	12	17'-8¾"	16	3'-2"	4	17'-10⅝"	17'-4⅝"
	5			80	5'-8½"	1'-3"	1'-8"	2'-3"	6'-3"	24	15'-0⅛"	3'-7¼"	18'-11⅜"	12	20'-9¾"	16	3'-2"	4	21'-0⅜"	20'-6⅜"
	6			92	6'-8"	1'-4"	2'-2"	2'-7¼"	7'-2¾"	28	17'-1¾"	3'-7¼"	22'-0⅜"	12	23'-10⅝"	16	3'-2"	4	24'-2⅝"	23'-8½"
	8	⅝"φ	12"	116	8'-6½"	1'-5"	3'-2"	3'-2⅝"	9'-3⅝"	36	21'-2⅝"	3'-7¼"	28'-2¾"	12	30'-0⅝"	16	3'-2"	4	30'-5⅜"	29'-11⅝"
8	7	⅝"φ	12"	108	7'-10⅝"	1'-4½"	2'-9"	3'-1"	8'-7"	32	19'-10⅝"	4'-4⅝"	25'-11⅝"	12	27'-8⅞"	20	3'-4"	4	28'-1⅜"	27'-7⅝"
	8			120	8'-10"	1'-5"	3'-3"	3'-5⅝"	9'-6⅝"	36	21'-11⅝"	4'-4⅝"	29'-0"	12	30'-9¾"	20	3'-4"	4	31'-3¼"	30'-9⅝"
	10		10"	172	10'-9"	1'-7"	4'-3"	4'-1"	11'-7"	44	26'-0⅝"	4'-4⅝"	35'-1⅝"	12	36'-11⅝"	20	3'-4"	4	37'-6⅞"	37'-0⅞"
10	8	⅝"φ	12"	120	9'-0"	1'-5"	3'-3"	3'-7⅝"	9'-8⅝"	36	21'-11⅝"	4'-4⅝"	29'-0"	12	30'-9¾"	24	3'-6"	4	31'-3¼"	30'-9⅝"
	10		10"	172	10'-11"	1'-7"	4'-3"	4'-3"	11'-9"	44	26'-0⅝"	4'-4⅝"	35'-1⅝"	12	36'-11⅝"	24	3'-6"	4	37'-6⅞"	37'-0⅞"
	12		8"	252	12'-10"	1'-9"	5'-3"	4'-10½"	13'-9⅝"	52	30'-2⅝"	4'-4⅝"	41'-3⅝"	12	43'-1⅝"	26	3'-6"	4	43'-10½"	43'-4½"

NOTE: Lengths given above do not include lap

DIMENSIONS AND QUANTITIES

SPAN	HEIGHT	AREA OF OPENING SQ. FT.	MAXIMUM DEPTH OF COVER	THICKNESS OF TOP SLAB	THICKNESS OF SIDE WALLS & WINGWALLS	THICKNESS OF BOTTOM SLAB	WINGWALL HEIGHTS AT HEADWALLS	WINGWALL HEIGHTS AT WINGEND	MAXIMUM WIDTH OF WING FOOTING	PERPENDICULAR DIST. FROM FACE OF HDWL. TO END OF WING	LENGTH OF WINGWALLS	INSIDE LENGTH OF WING FOOTINGS	FOOTING DIMENSION FROM CL of Box	CONCRETE CU. YD. HEADWALLS WINGWALLS & FOOTINGS	CONCRETE CU. YD. PER LINEAR FT. OF BARREL	STEEL LB. HEADWALLS WINGWALLS & FOOTINGS	STEEL LB. PER LINEAR FT. OF BARREL	STEEL LB. ADD'L STEEL FOR LAPS
S	H	A	D	T	C	B	WH1	WH2	WF	E	W1	W2	W3					
3	2	6	16'	6½"	6"	6½"	2'-9"	1'-0"	2'-6"	7'-0"	8'-1"	7'-9½"	0'-10⅛"	4.76	0.235	286	22.56	11.1
	3	9			6"		3'-9"	1'-0"	2'-6"	11'-0"	12'-8½"	12'-5"	0'-10⅛"	7.59	0.272	440	25.27	13.4
	4	12			6"		4'-9"	1'-4"	2'-6"	13'-8"	15'-9⅝"	15'-6"	0'-10⅛"	10.06	0.309	587	27.97	15.6
4	2	8	13'	7½"	6"	7½"	2'-9"	1'-0"	2'-6"	7'-0"	8'-1"	7'-9½"	1'-4⅛"	5.10	0.306	298	31.05	15.6
	3	12	13'		6"		3'-9"	1'-0"	2'-6"	11'-0"	12'-8½"	12'-5"	1'-4⅛"	8.03	0.343	453	33.76	17.8
	4	16	13'		6"		4'-9"	1'-4"	2'-6"	13'-8"	15'-9⅝"	15'-6"	1'-4⅛"	10.64	0.380	600	36.46	20.0
	6	24	11'		7"		6'-9"	2'-0"	3'-4½"	19'-0"	21'-11⅝"	22'-2"	0'-5"	18.73	0.498	893	42.41	24.5
5	2	10	11'	8"	6"	8"	2'-10"	1'-0"	2'-6"	7'-4"	8'-5½"	8'-2⅛"	1'-10⅛"	6.36	0.370	325	38.31	17.8
	3	15	11'		6"		3'-10"	1'-0"	2'-6"	11'-4"	13'-1"	12'-9½"	1'-10⅛"	8.73	0.407	482	41.06	20.0
	4	20	11'		6"		4'-10"	1'-4"	2'-6"	14'-0"	16'-2"	15'-10½"	1'-10⅛"	11.33	0.444	645	43.77	22.3
	5	25	11'		6"		5'-10"	1'-8"	2'-11"	16'-8"	19'-3"	19'-2⅛"	1'-4⅝"	14.53	0.481	830	46.47	24.5
	7	35	9'		7½"		7'-10"	2'-4"	3'-11"	22'-0"	25'-4⅝"	25'-11½"	0'-4"	25.20	0.633	1551	58.60	28.9
6	3	18	9'	9"	6"	9"	3'-10"	1'-0"	2'-6"	11'-4"	13'-1"	12'-9½"	2'-4⅛"	9.26	0.500	495	50.41	22.3
	4	24	9'		6"		4'-10"	1'-4"	2'-6"	14'-0"	16'-2"	15'-10½"	2'-4⅛"	11.93	0.537	645	53.11	24.5
	5	30	9'		6"		5'-10"	1'-8"	2'-11"	16'-8"	19'-3"	19'-2⅛"	1'-10⅝"	15.30	0.574	845	55.82	26.7
	6	36	9'		7"		6'-10"	2'-0"	3'-5"	19'-4"	22'-4"	22'-7"	1'-4½"	20.57	0.657	1063	58.55	28.9
	8	48	7'		8"		8'-10"	2'-8"	4'-5"	24'-8"	28'-5⅝"	29'-4⅛"	0'-3⅝"	32.89	0.802	1842	72.49	33.4
8	7	56	7'	11"	7½"	11"	8'-0"	2'-4"	4'-0"	22'-8"	26'-2"	26'-9½"	1'-8⅝"	29.52	0.952	1735	84.24	40.1
	8	64	7'		8"		9'-0"	2'-8"	4'-6"	25'-4"	29'-3"	30'-2⅛"	1'-2½"	36.71	1.029	2088	88.05	42.3
	10	80	7'		10"		11'-0"	3'-4"	5'-6"	30'-8"	35'-5"	36'-11½"	0'-2½"	57.93	1.274	3217	101.18	46.8
10	8	80	6'	13"	8"	13"	9'-0"	2'-8"	4'-6"	25'-4"	29'-3"	30'-2⅛"	2'-2½"	39.32	1.305	2159	136.74	44.5
	10	100	6'		10"		11'-0"	3'-4"	5'-6"	30'-8"	35'-5"	36'-11½"	1'-2½"	61.51	1.553	3299	151.04	49.0
	12	120	6'		12"		13'-0"	4'-0"	6'-6"	36'-0"	41'-6¾"	43'-8⅝"	0'-2⅜"	91.44	1.852	5333	169.90	53.4

LAP NOTE: In computing quantities of steel from the above table, add one lap for culverts up to 50'-0" in length and one lap for each additional 25'-0" in length.

SPECIFICATIONS: Arkansas Standard Road and Bridge Specifications.

*REINFORCING STEEL: To be deformed bars of Structural or Intermediate grade.

CHAMFER: All exposed cornors to have ¾" Chamfer.

CONCRETE: All Concrete to be Class "A".

*Reinforcing Steel to be deformed bars of intermediate or rail grade on all Interstate Highways.

CONSTRUCTION JOINTS: Construction joints in wing walls and apron slabs shall be made only where shown on the plans. Maximum length of culvert between headwalls for which continuous pours will be permitted is 75'. For longer culverts construction joints shall be provided in slabs and walls at intervals not greater than 50'. Joints shall be normal to CL of barrel and shall have 2" continuous keys.

Longitudinal reinforcing shall be continuous through joints.

REVISIONS	
March, '58	Drawn
July, 1958	Construction Joints

AASHO DESIGN LIVE LOADING H-20 S-16
UNIT STRESSES

Concrete (n-15)	840 Lbs Per Sq. In.
Reinforcing Steel (Str. Gr.)	18000 Lbs. Per Sq. In.

SPECIAL MILITARY LOADING

Add'l Loading For Interstate Highways
2 - 24,000 Lb. Axles @ 4'-0" Ctrs.
Concrete (n-15) - 840 Lbs. Per Sq. In.
Reinf. Steel (Int. or Rail) - 20000 Lbs. Per Sq. In.

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERTS

3' TO 10' SPAN **4:1 SLOPES**
SINGLE **OVER 3'-6" COVER**

STD. DWG. NO. R-1004-A

(11-A)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	64	114

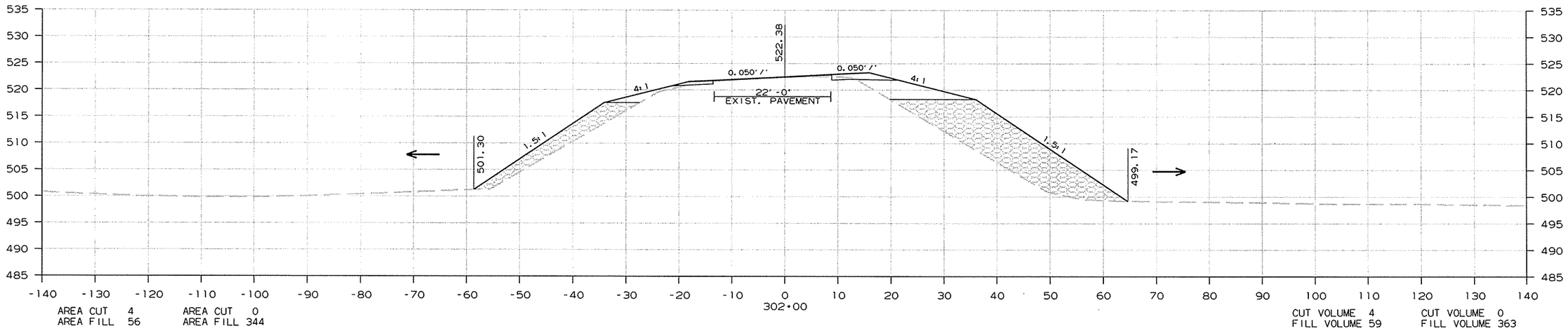
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

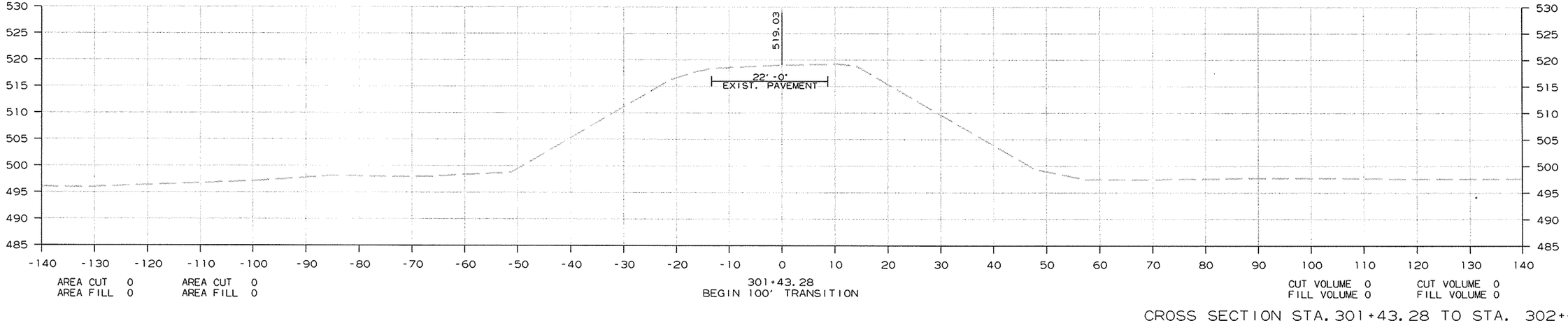
VOLUME

MAIN LANES ROCK FILL



AREA CUT 4 AREA CUT 0
AREA FILL 56 AREA FILL 344

CUT VOLUME 4 CUT VOLUME 0
FILL VOLUME 59 FILL VOLUME 363



AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 0

CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 0

CROSS SECTION STA. 301+43.28 TO STA. 302+00

1/5/2015

R050289.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.		050289	65	114

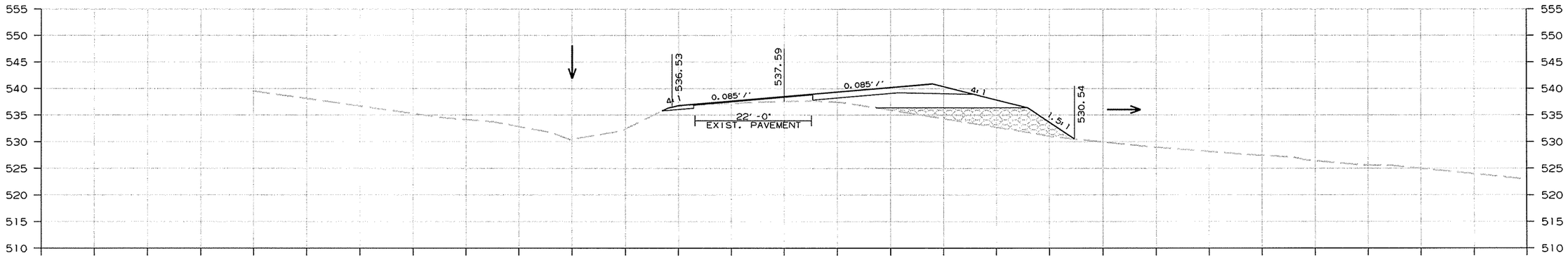
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

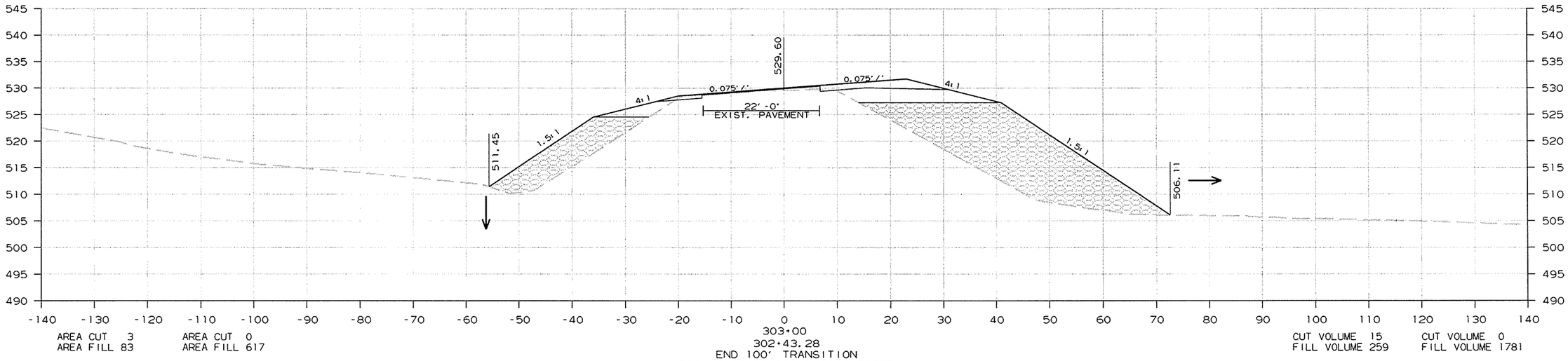
MAIN LANES ROCK FILL



AREA CUT 3 AREA CUT 0
AREA FILL 81 AREA FILL 87

304+00

CUT VOLUME 11 CUT VOLUME 0
FILL VOLUME 304 FILL VOLUME 1304



AREA CUT 3 AREA CUT 0
AREA FILL 83 AREA FILL 617

303+00

302+43.28
END 100' TRANSITION
BEGIN JOB 050289 & 200' TAPER

CUT VOLUME 15 CUT VOLUME 0
FILL VOLUME 259 FILL VOLUME 1781

CROSS SECTION STA. 303+00 TO STA. 304+00

1/5/2015

R050289.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.		050289	66	114

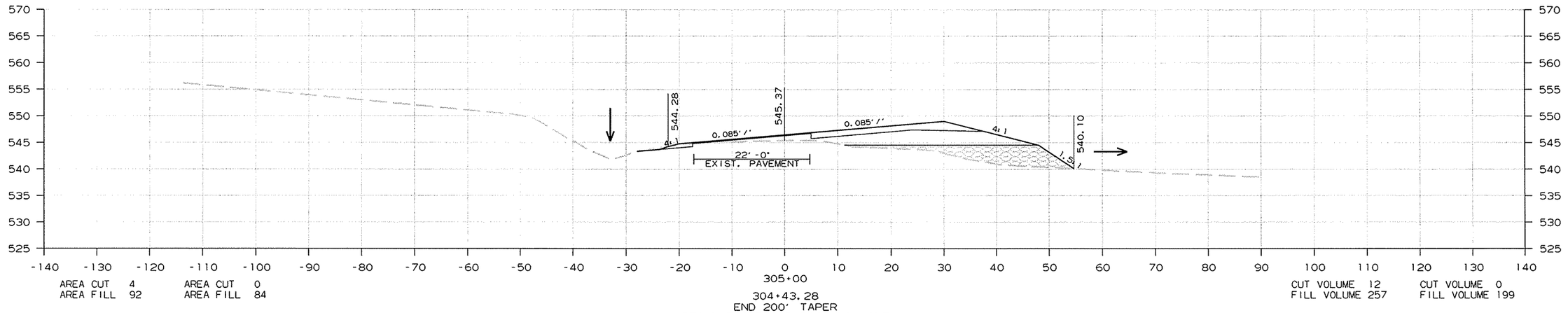
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL

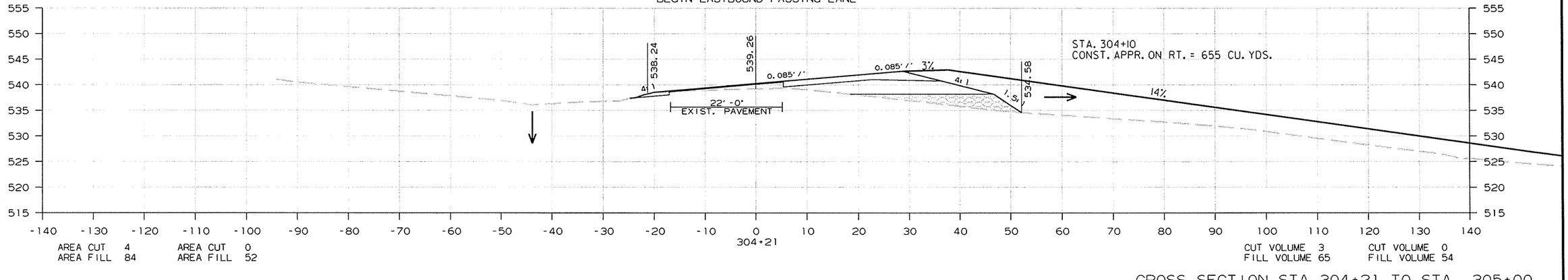


AREA CUT 4 AREA CUT 0
AREA FILL 92 AREA FILL 84

305+00

CUT VOLUME 12 CUT VOLUME 0
FILL VOLUME 257 FILL VOLUME 199

304+43.28
END 200' TAPER
BEGIN EASTBOUND PASSING LANE



AREA CUT 4 AREA CUT 0
AREA FILL 84 AREA FILL 52

304+21

CUT VOLUME 3 CUT VOLUME 0
FILL VOLUME 65 FILL VOLUME 54

CROSS SECTION STA. 304+21 TO STA. 305+00

1/5/2015

R050289.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.		050289	67	114

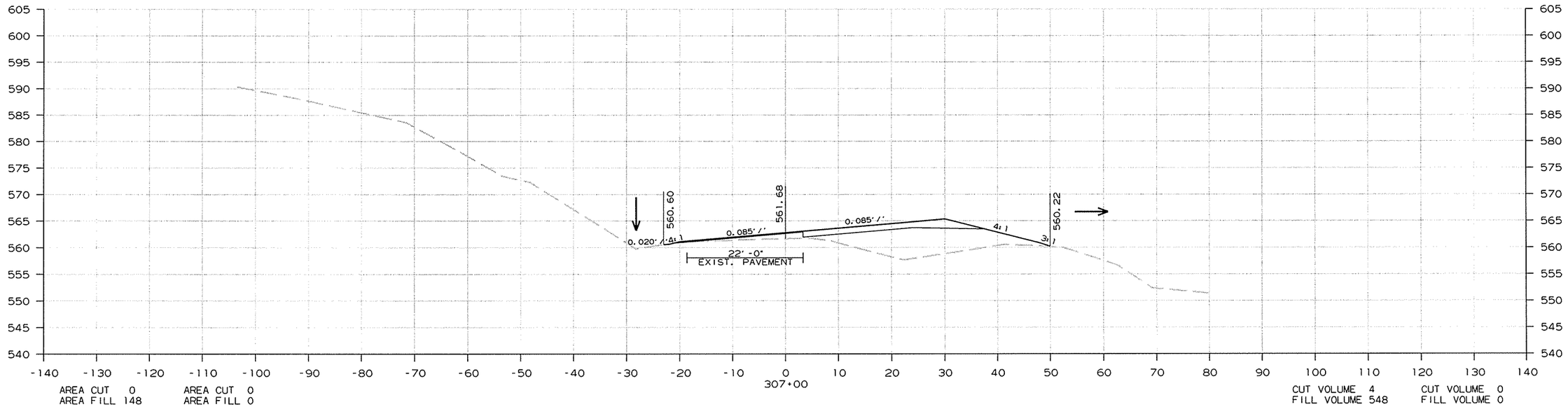
(2) CROSS SECTIONS

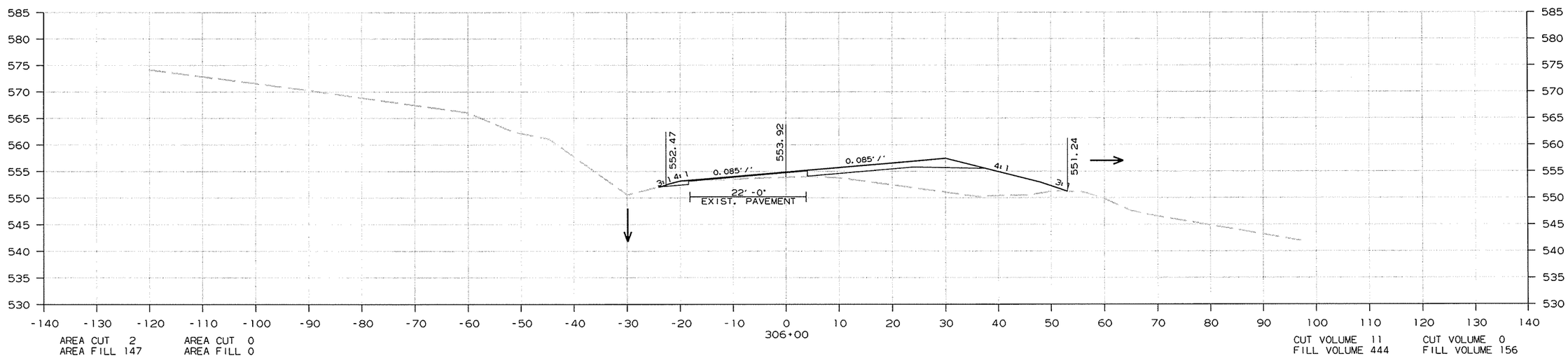
AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL





CROSS SECTION STA. 306+00 TO STA. 307+00

1/5/2015

R050289.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.		050289	68	114

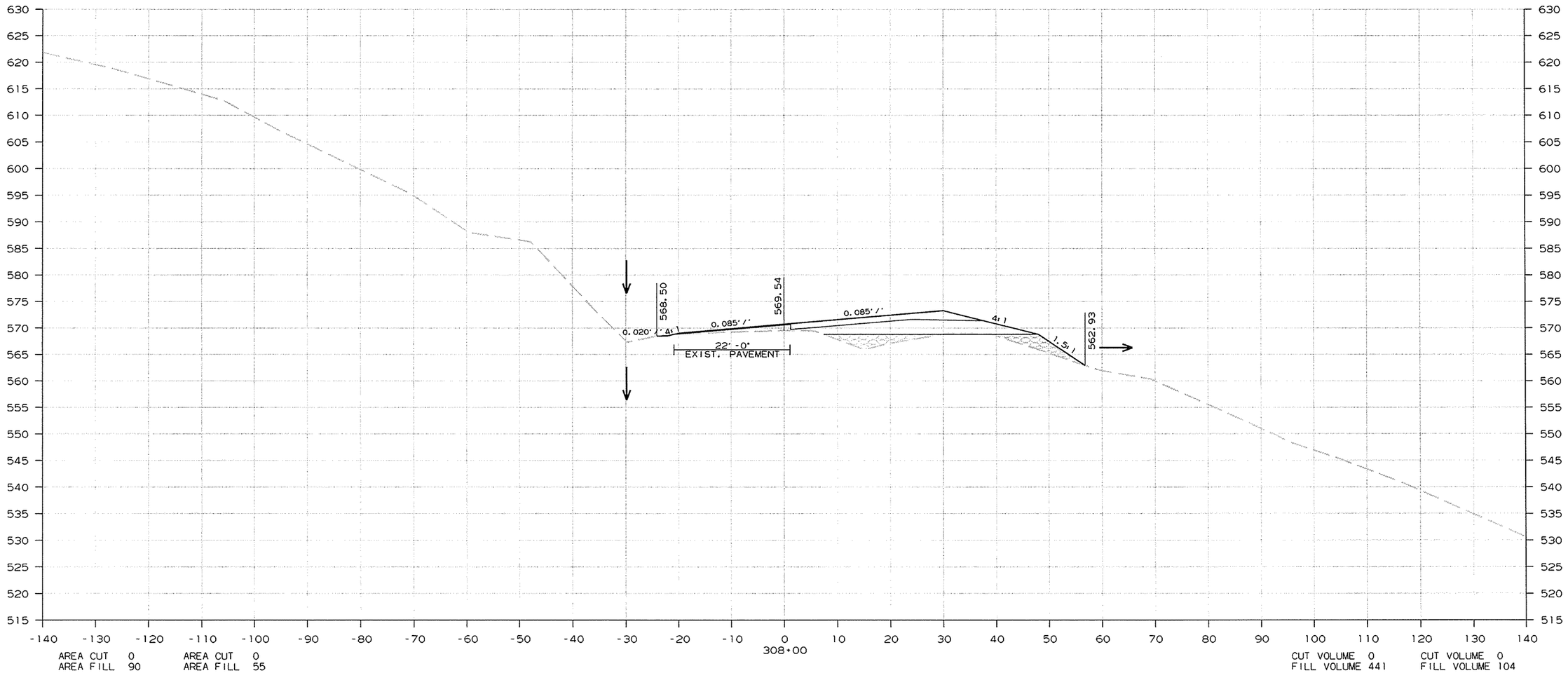
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 308+00 TO STA. 308+00

1/5/2015

R050289.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.		050289	69	114

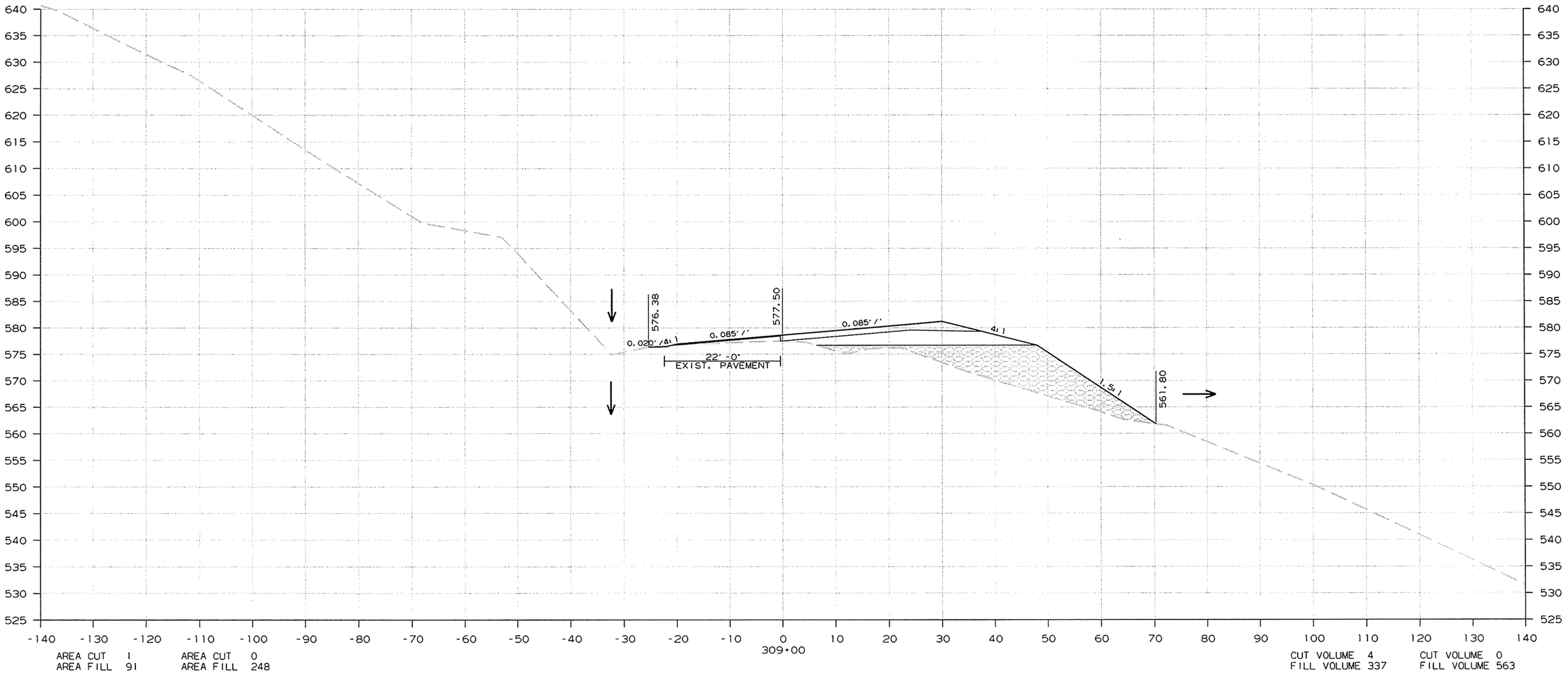
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 1
AREA FILL 91

AREA CUT 0
AREA FILL 248

CUT VOLUME 4
FILL VOLUME 337

CUT VOLUME 0
FILL VOLUME 563

CROSS SECTION STA. 309+00 TO STA. 309+00

1/5/2015

R050289.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.		050289	70	114

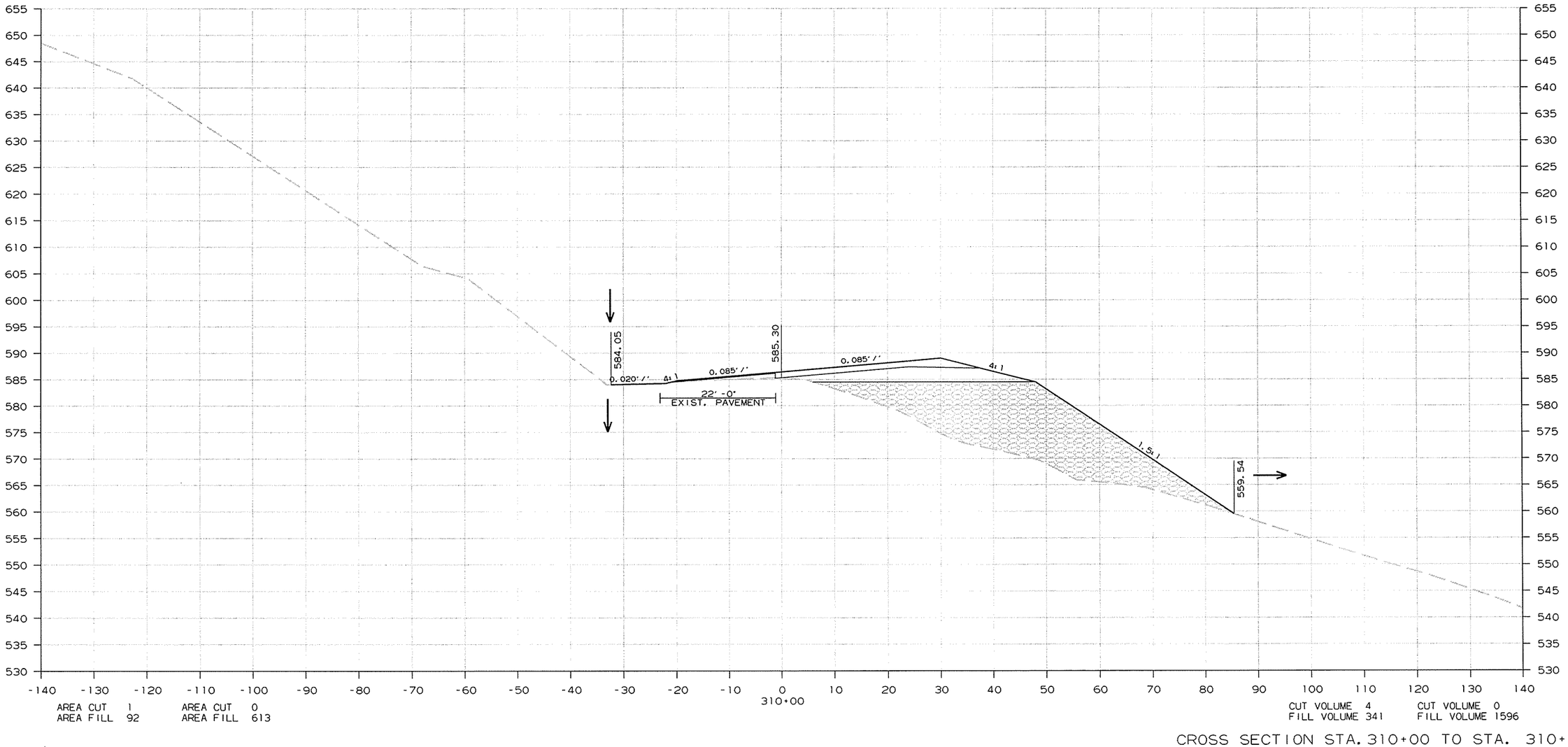
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 310+00 TO STA. 310+00

1/5/2015

R050289.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.		050289	71	114

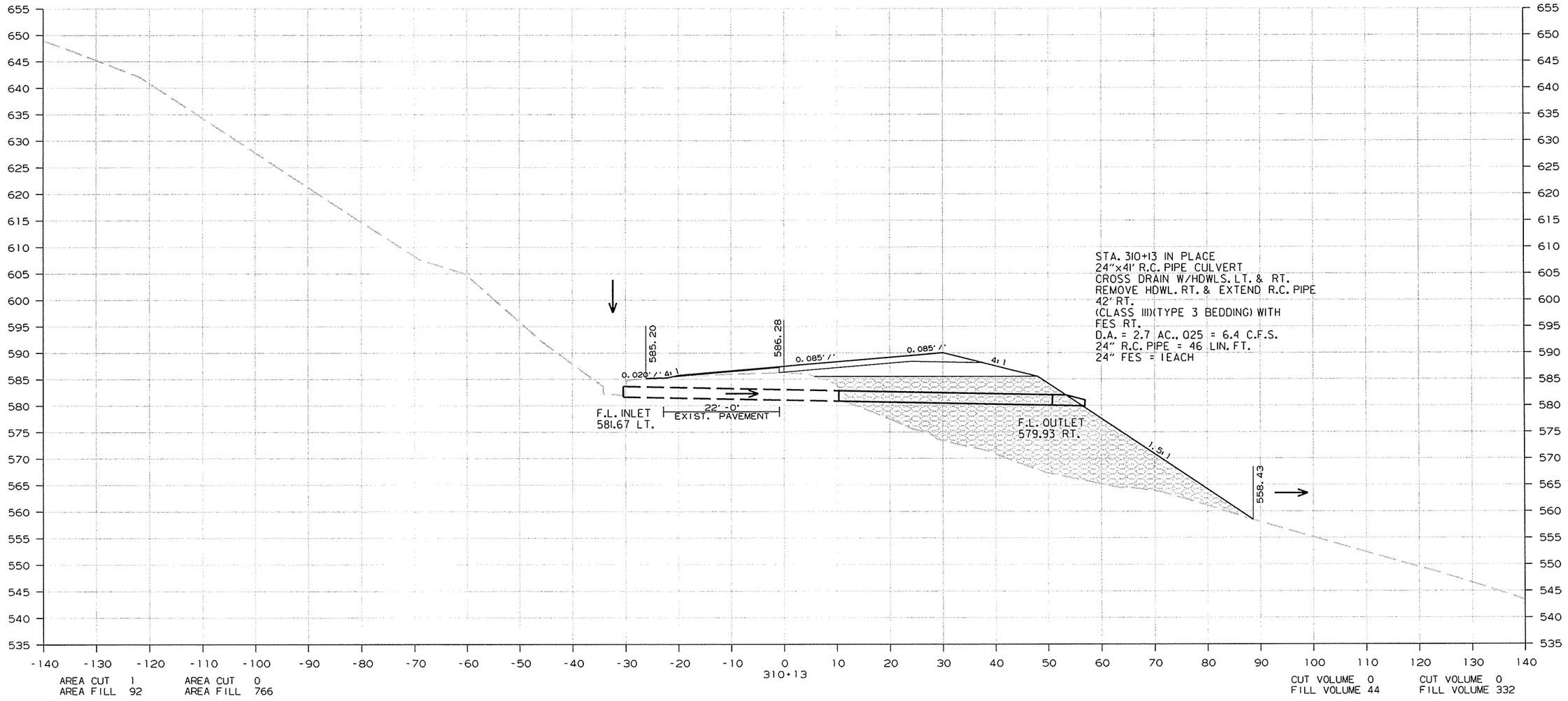
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 310+13 TO STA. 310+13

1/5/2015

R050289.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.		050289	72	114

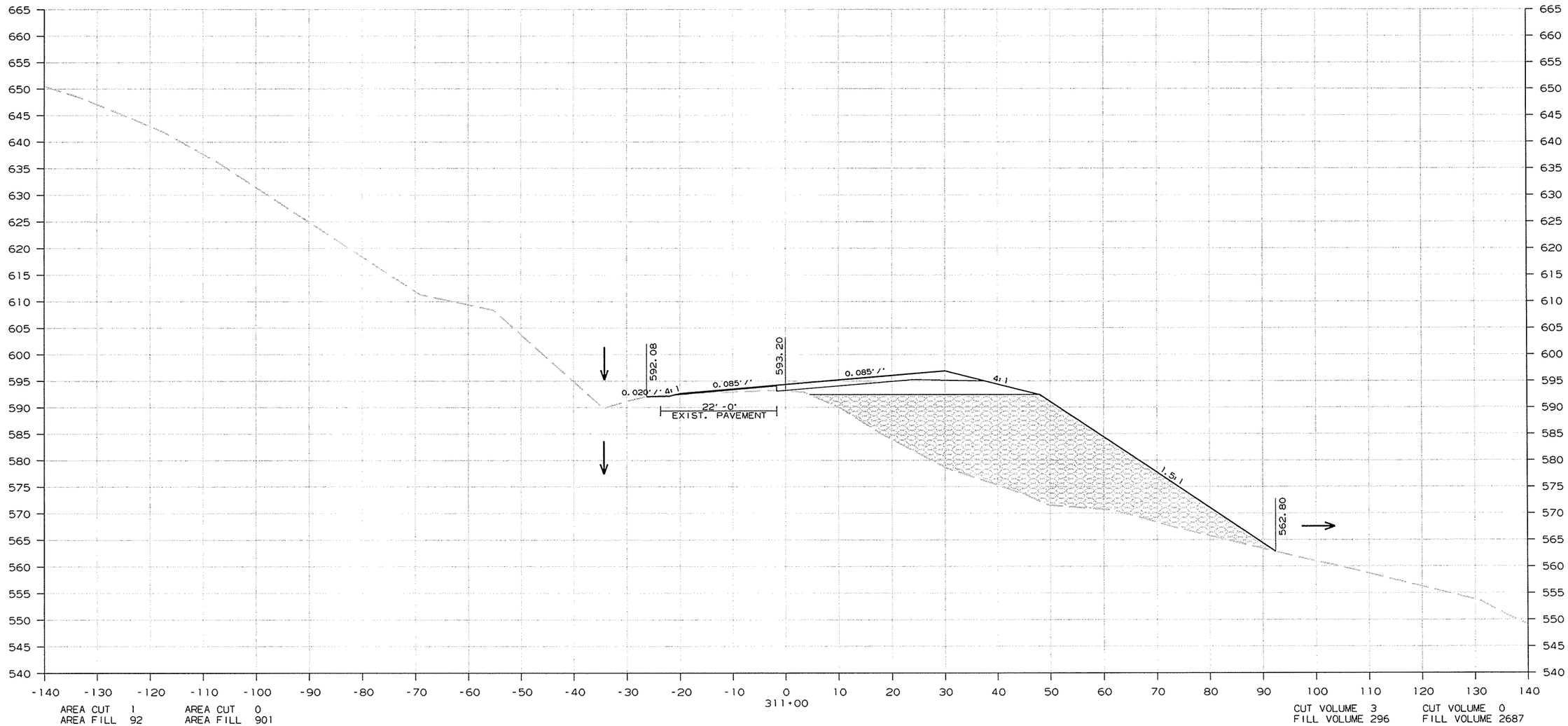
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 1 AREA FILL 92

AREA CUT 0 AREA FILL 901

CUT VOLUME 3 FILL VOLUME 296

CUT VOLUME 0 FILL VOLUME 2687

CROSS SECTION STA. 311+00 TO STA. 311+00

1/5/2015

R050289.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.		050289	73	114

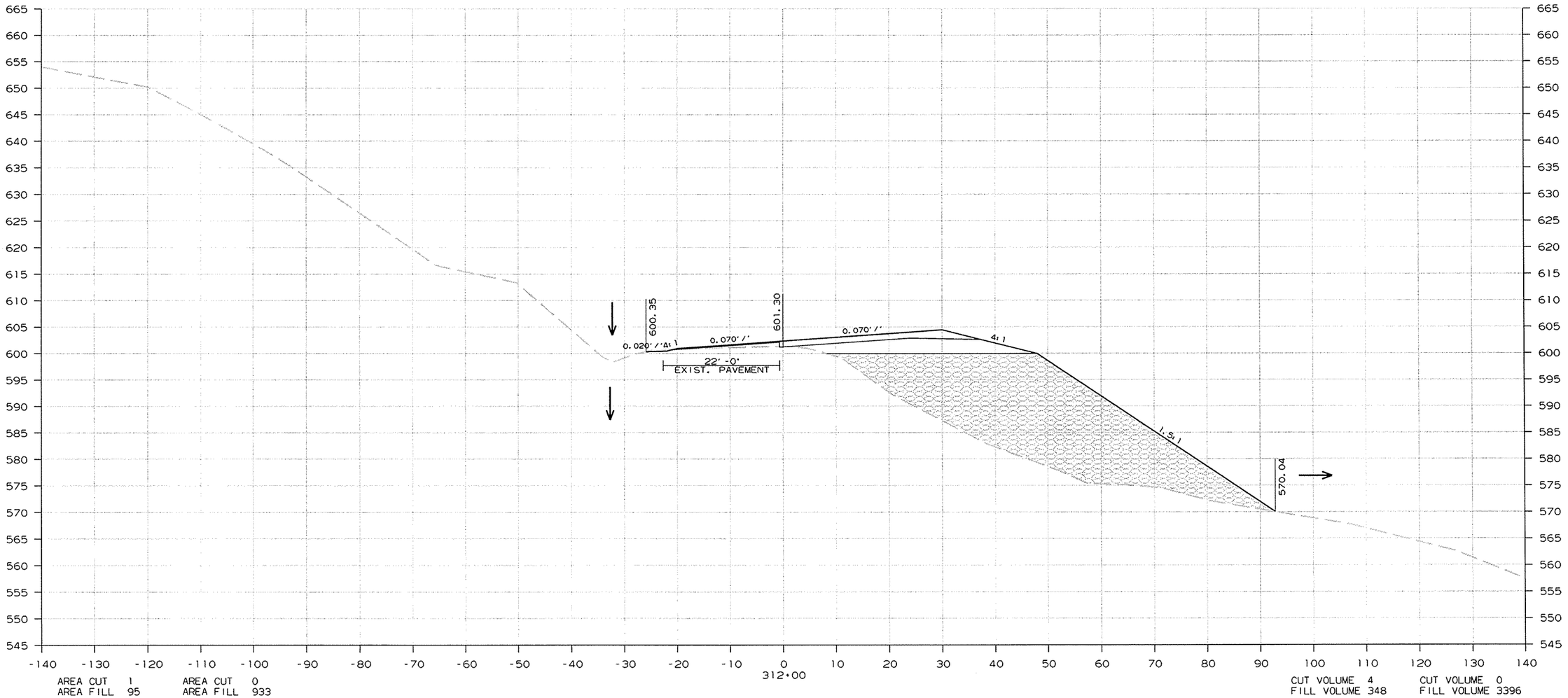
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 1 AREA CUT 0
AREA FILL 95 AREA FILL 933

CUT VOLUME 4 CUT VOLUME 0
FILL VOLUME 348 FILL VOLUME 3396

CROSS SECTION STA. 312+00 TO STA. 312+00

1/5/2015

R050289.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.		050289	74	114

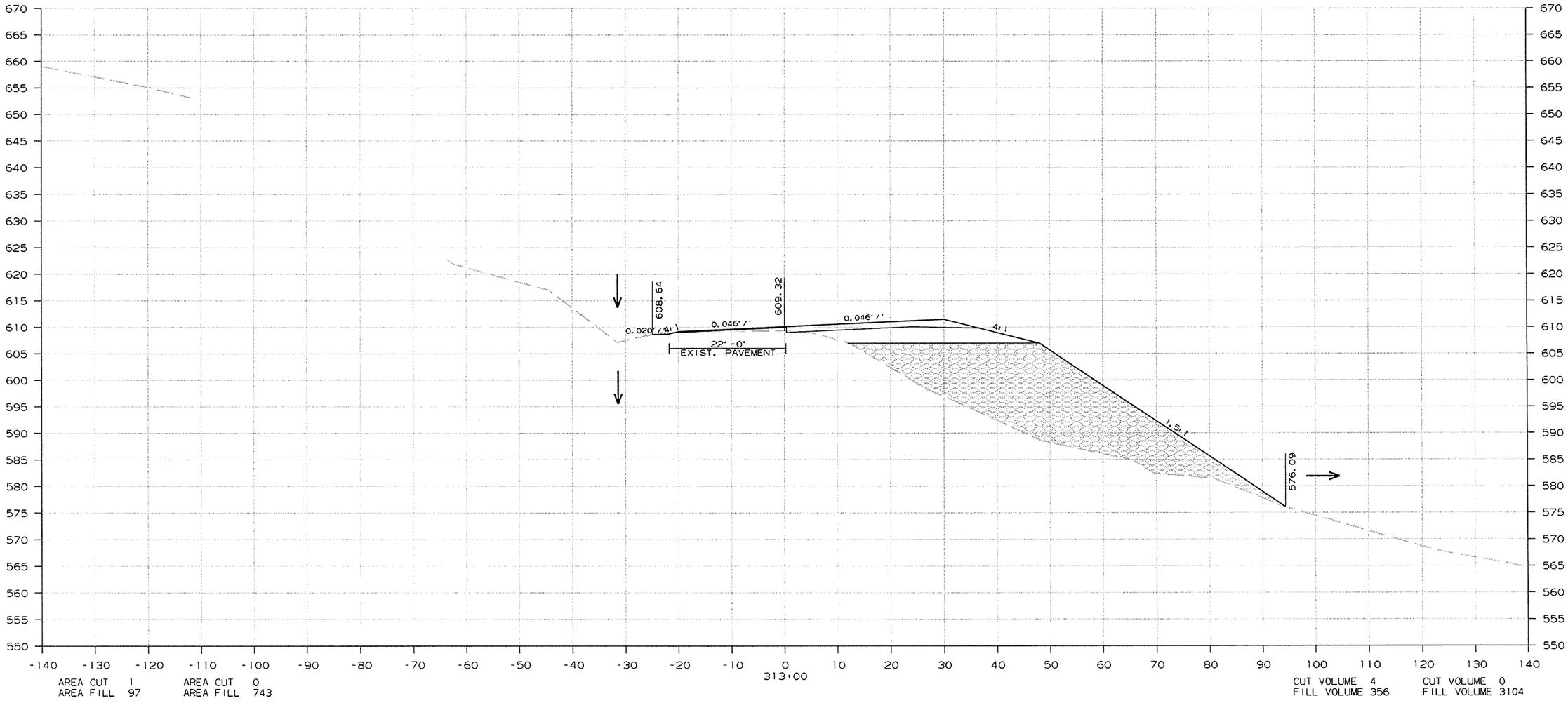
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 1 AREA FILL 97

AREA CUT 0 AREA FILL 743

CUT VOLUME 4 FILL VOLUME 356

CUT VOLUME 0 FILL VOLUME 3104

CROSS SECTION STA. 313+00 TO STA. 313+00

1/5/2015

R050289.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.		050289	75	114

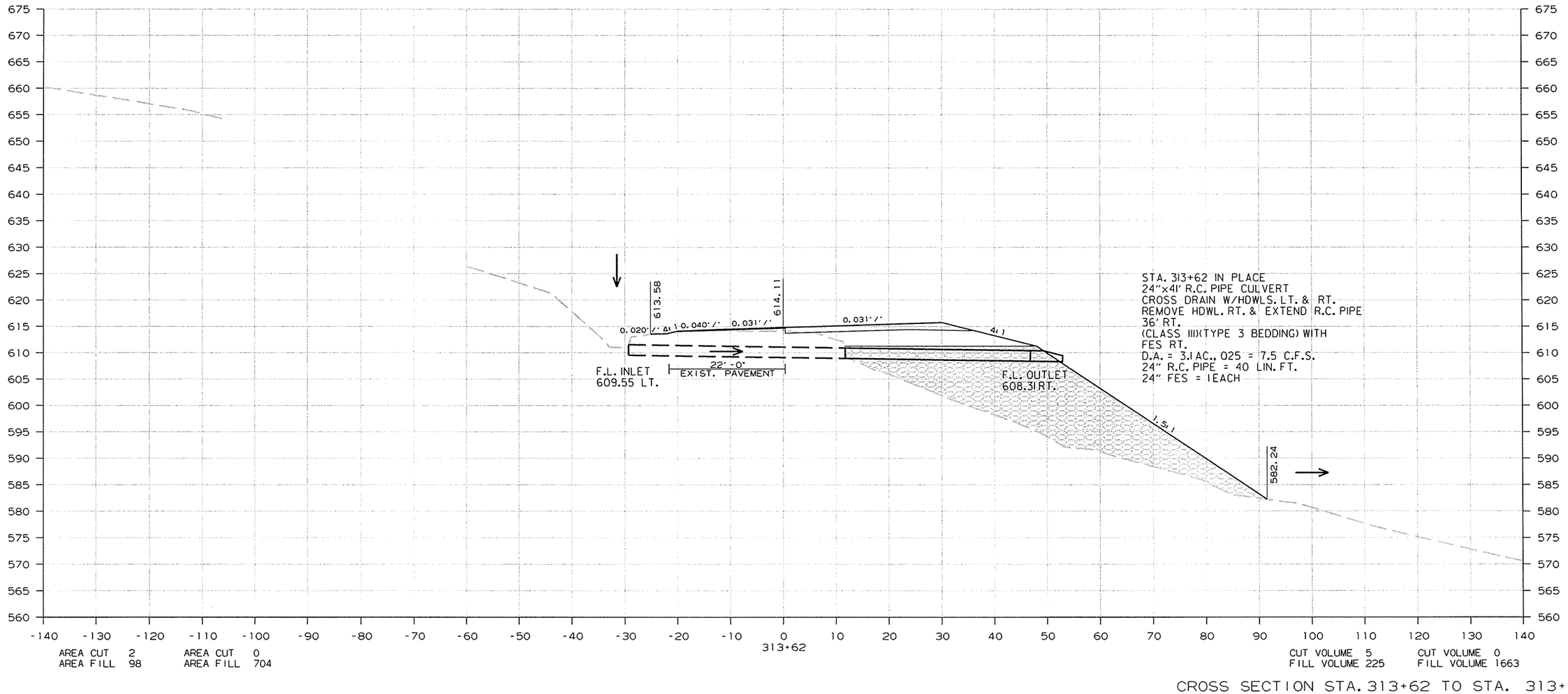
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 2 AREA CUT 0
AREA FILL 98 AREA FILL 704

CUT VOLUME 5 CUT VOLUME 0
FILL VOLUME 225 FILL VOLUME 1663

CROSS SECTION STA. 313+62 TO STA. 313+62

1/5/2015

R050289.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.		050289	76	114

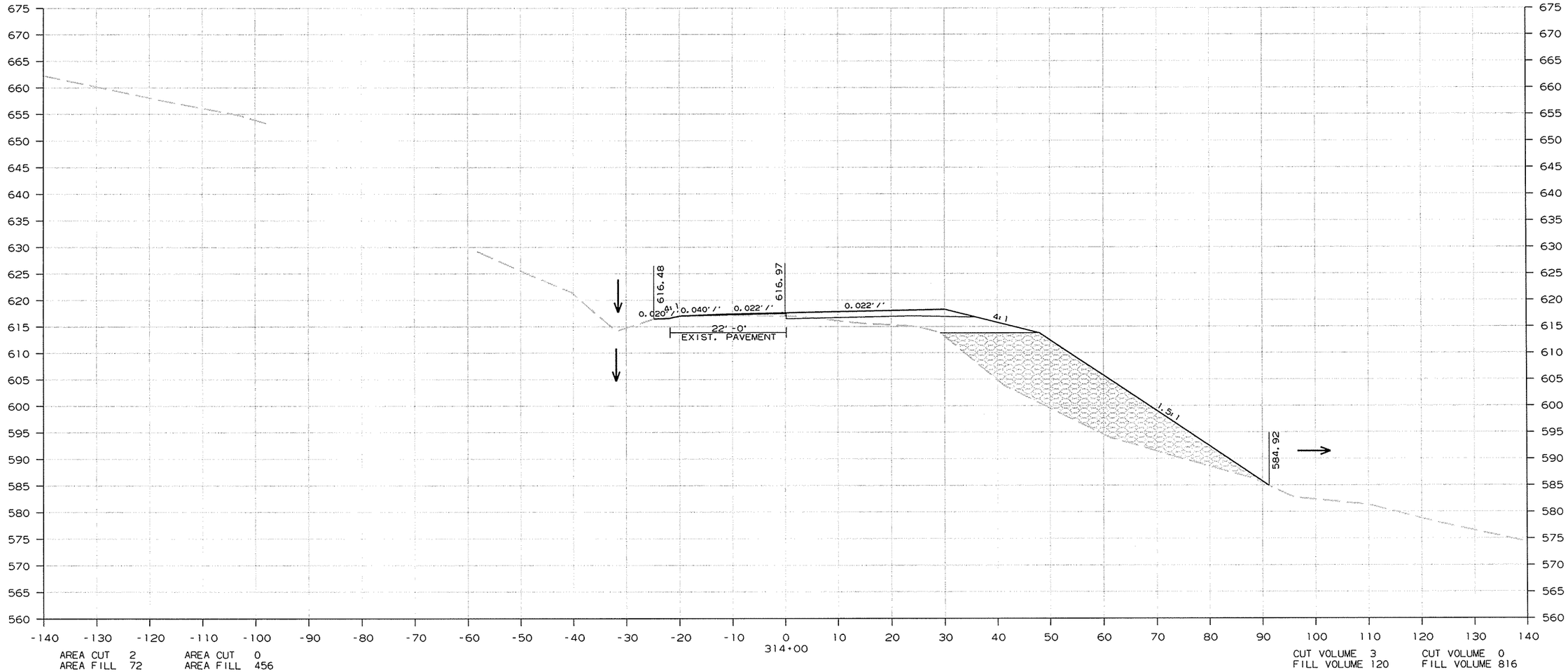
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 2
AREA FILL 72

AREA CUT 0
AREA FILL 456

CUT VOLUME 3
FILL VOLUME 120

CUT VOLUME 0
FILL VOLUME 816

CROSS SECTION STA. 314+00 TO STA. 314+00

1/5/2015

R050289.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.		050289	77	114

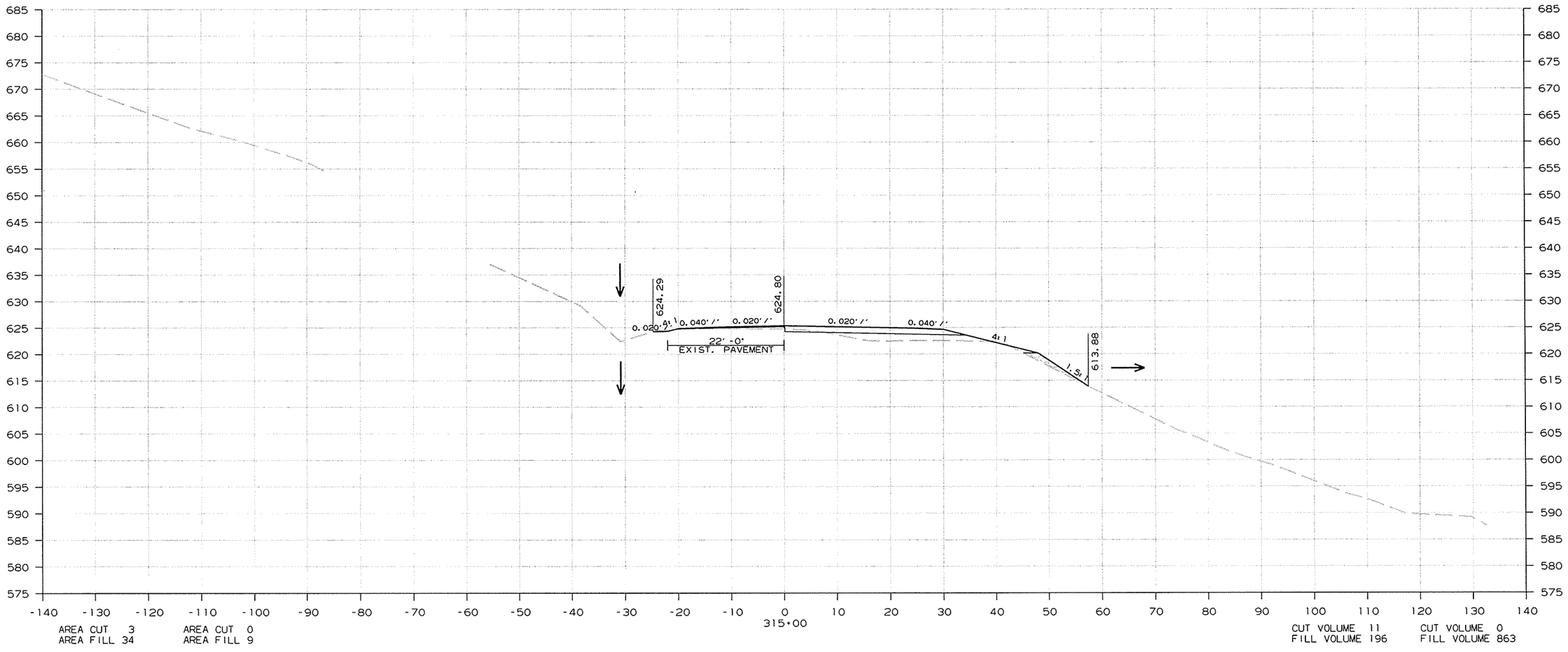
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 3
AREA FILL 34

AREA CUT 0
AREA FILL 9

CUT VOLUME 11
FILL VOLUME 196

CUT VOLUME 0
FILL VOLUME 863

CROSS SECTION STA. 315+00 TO STA. 315+00

1/5/2015

R050289.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.		050289	78	114

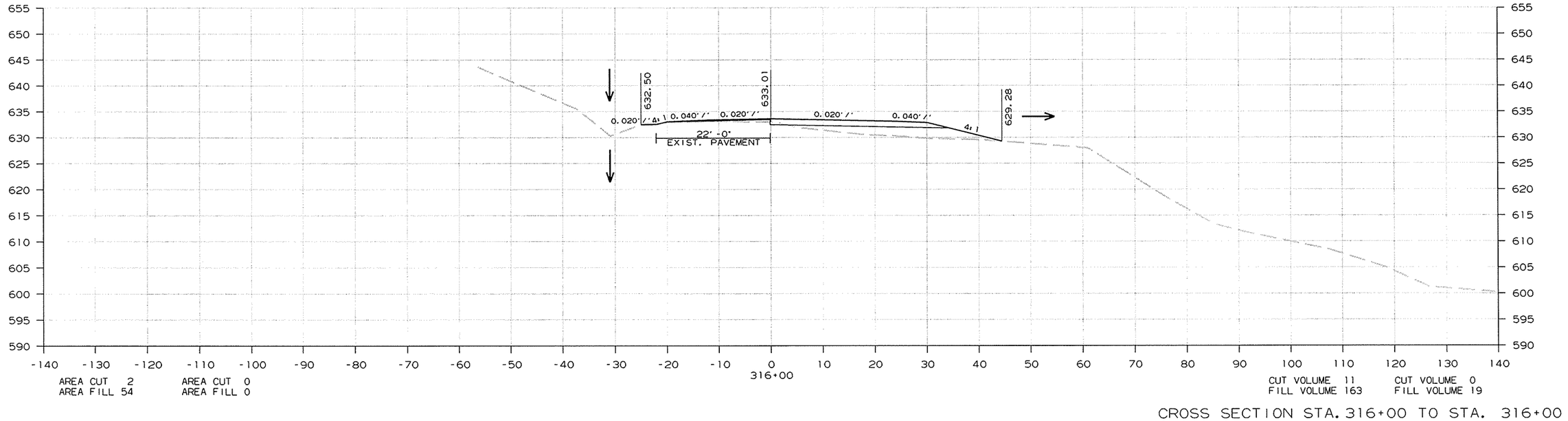
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 2
AREA FILL 54

AREA CUT 0
AREA FILL 0

CUT VOLUME 11
FILL VOLUME 163

CUT VOLUME 0
FILL VOLUME 19

CROSS SECTION STA. 316+00 TO STA. 316+00

1/5/2015

R050289.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.		050289	79	114

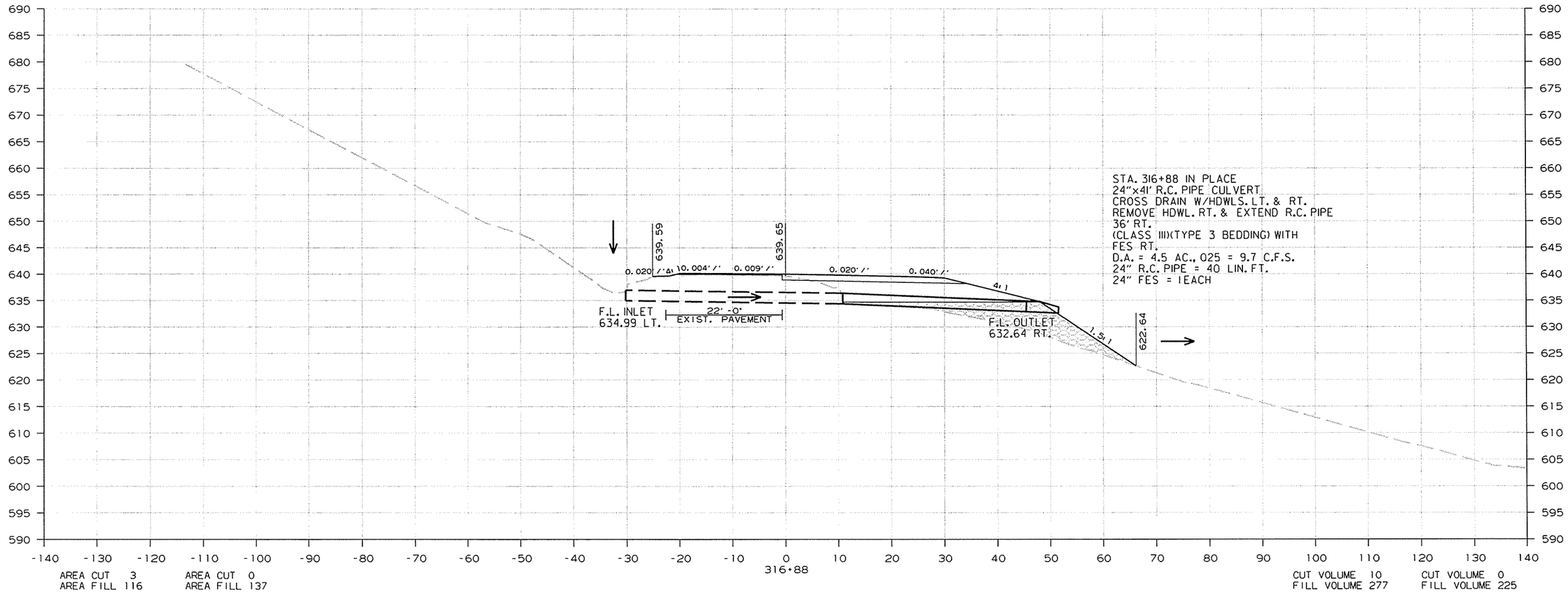
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 316+88 TO STA. 316+88

1/5/2015

R050289.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.		050289	80	114

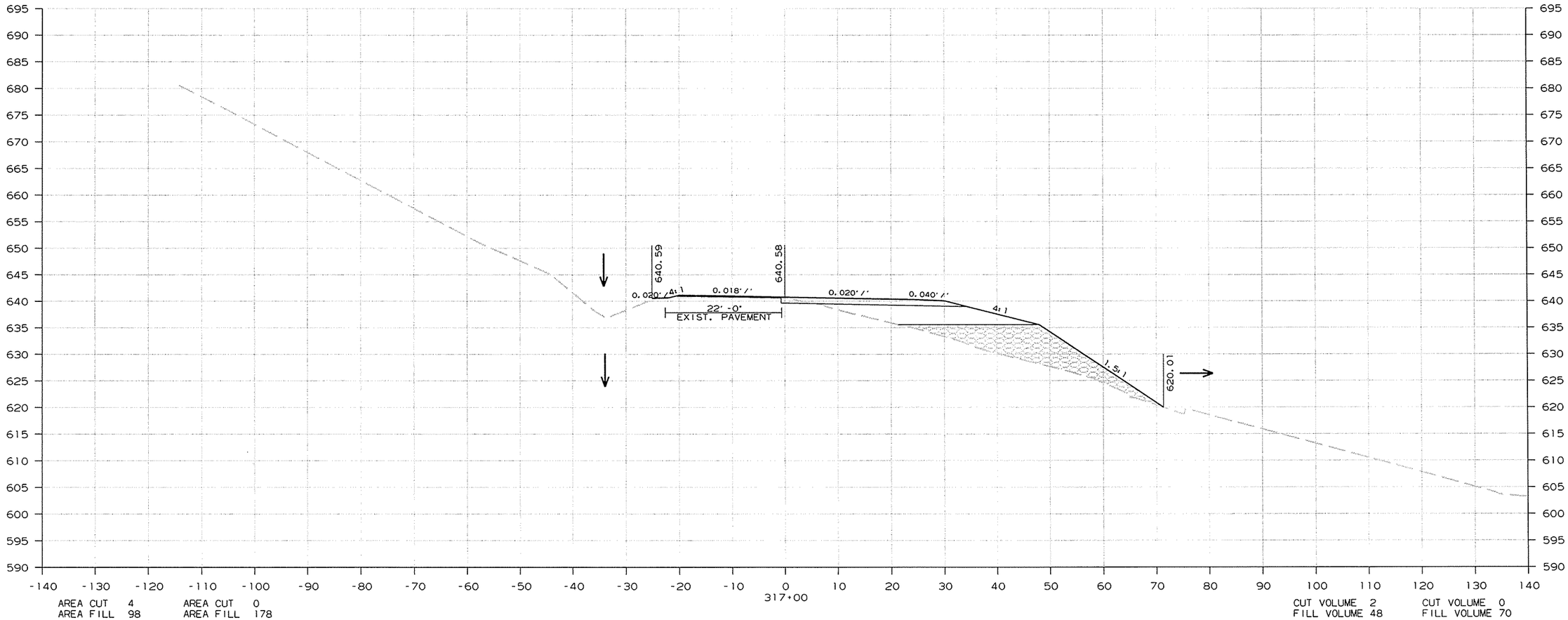
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 4
AREA FILL 98

AREA CUT 0
AREA FILL 178

CUT VOLUME 2
FILL VOLUME 48

CUT VOLUME 0
FILL VOLUME 70

CROSS SECTION STA. 317+00 TO STA. 317+00

1/5/2015

R050289.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.		050289	81	114

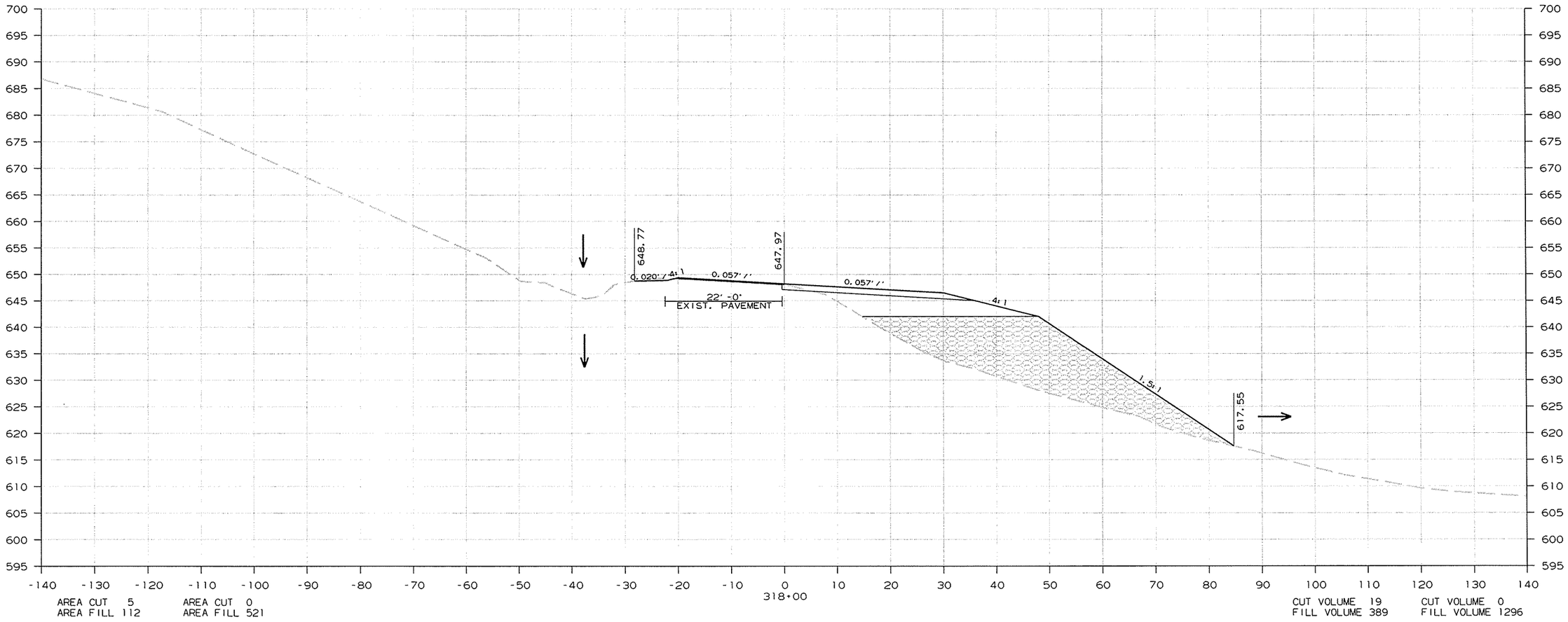
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 318+00 TO STA. 318+00

1/5/2015

R050289.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.		050289	82	114

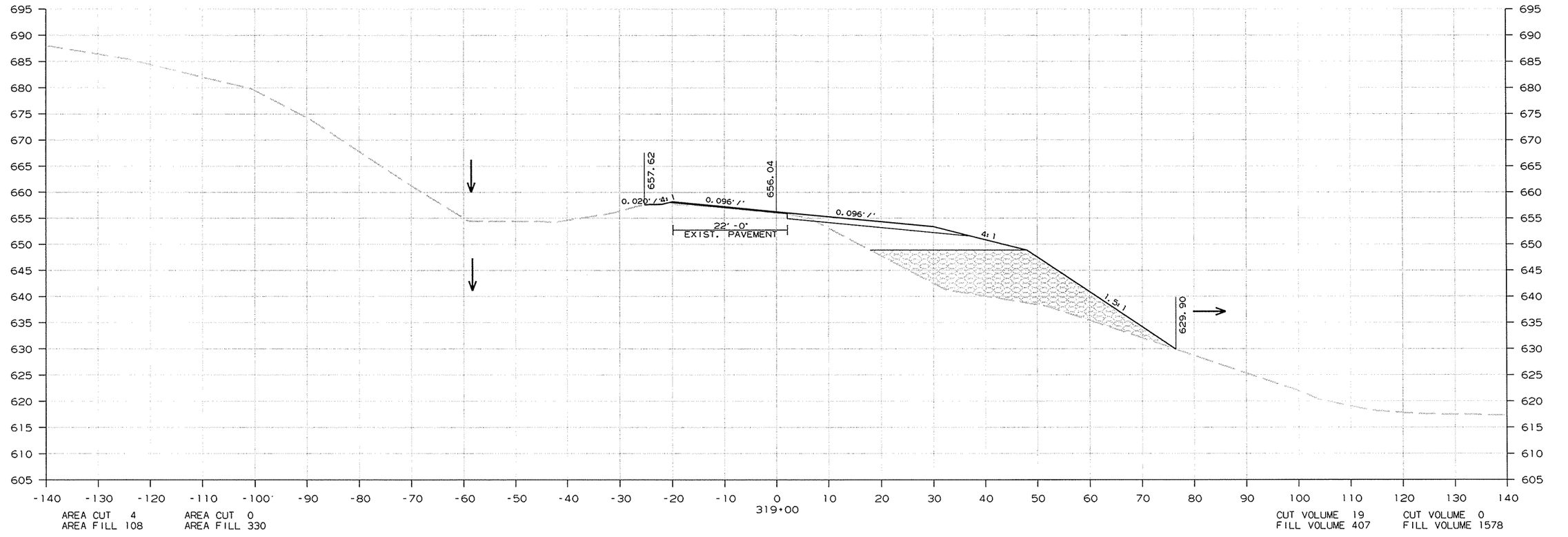
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 319+00 TO STA. 319+00

1/5/2015

R050289.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.		050289	83	114

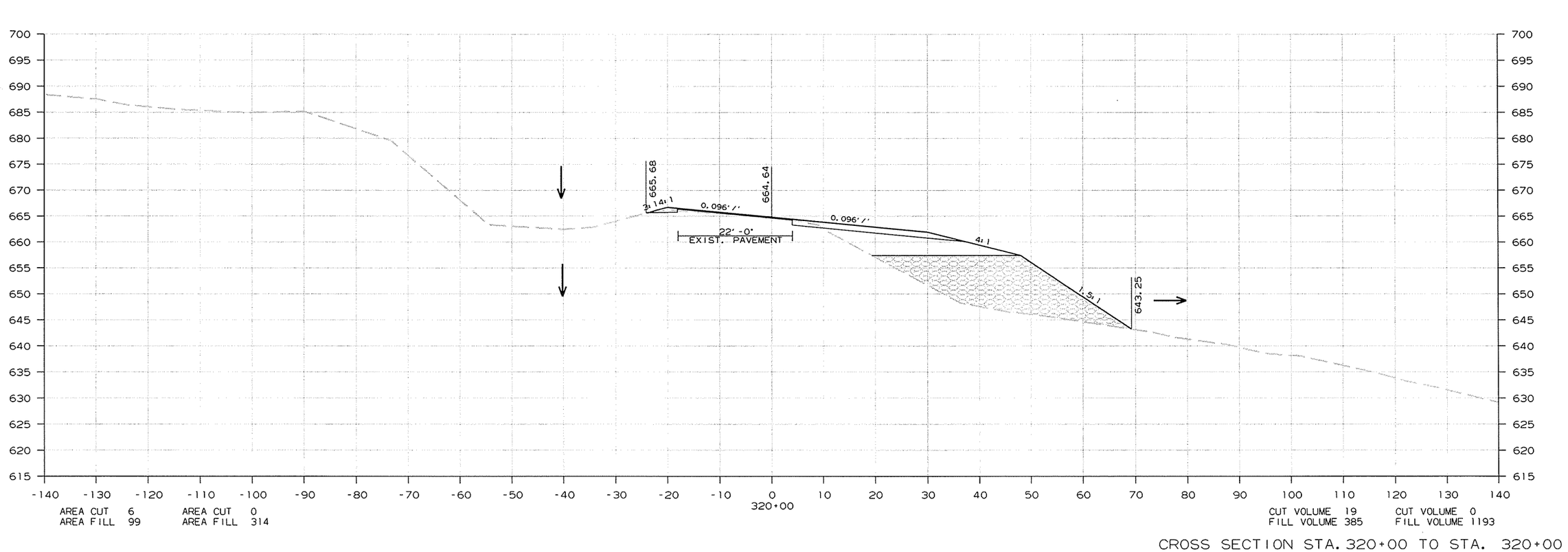
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 6 AREA CUT 0
AREA FILL 99 AREA FILL 314

CUT VOLUME 19 CUT VOLUME 0
FILL VOLUME 385 FILL VOLUME 1193

CROSS SECTION STA. 320+00 TO STA. 320+00

1/5/2015

R050289.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.		050289	84	114

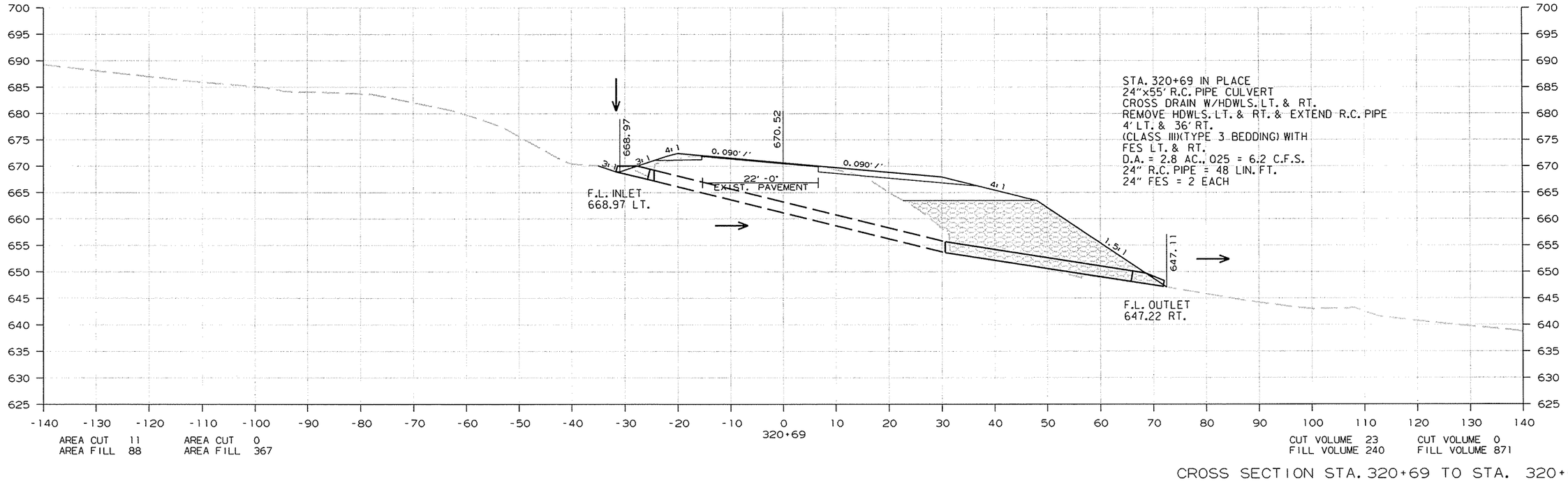
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 320+69 TO STA. 320+69

1/5/2015

R050289.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.		050289	85	114

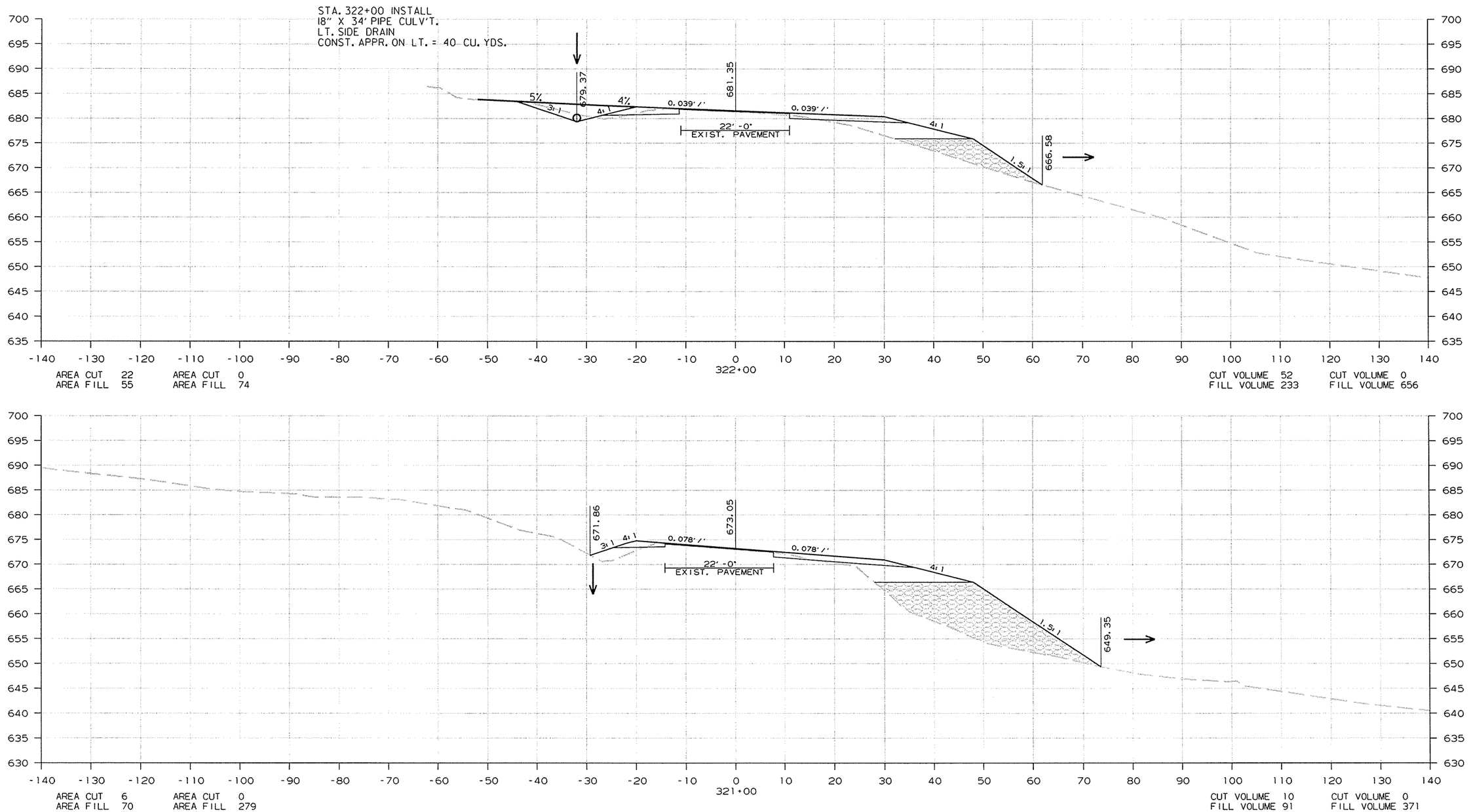
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 22 AREA CUT 0
AREA FILL 55 AREA FILL 74

CUT VOLUME 52 CUT VOLUME 0
FILL VOLUME 233 FILL VOLUME 656

AREA CUT 6 AREA CUT 0
AREA FILL 70 AREA FILL 279

CUT VOLUME 10 CUT VOLUME 0
FILL VOLUME 91 FILL VOLUME 371

CROSS SECTION STA. 321+00 TO STA. 322+00

1/5/2015

R050289.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.		050289	86	114

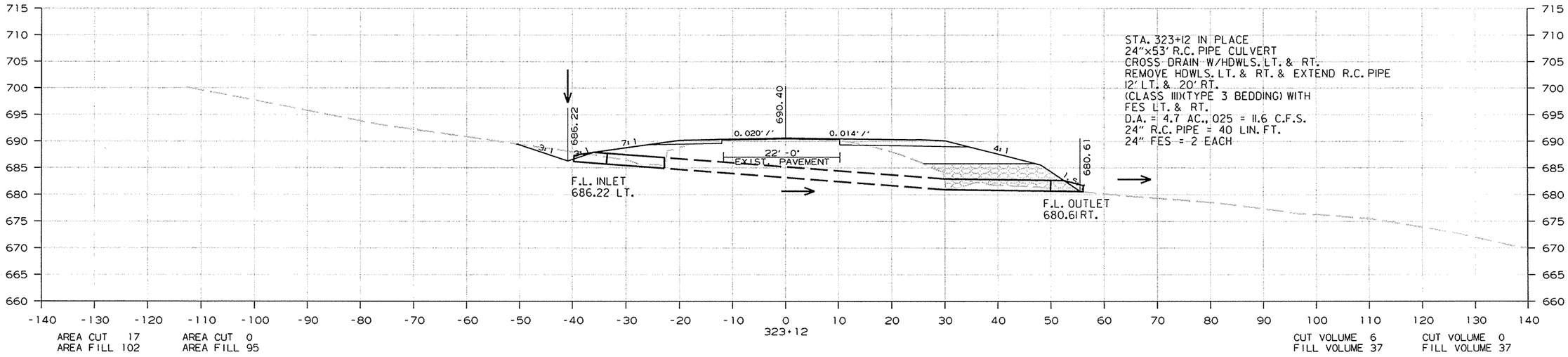
(2) CROSS SECTIONS

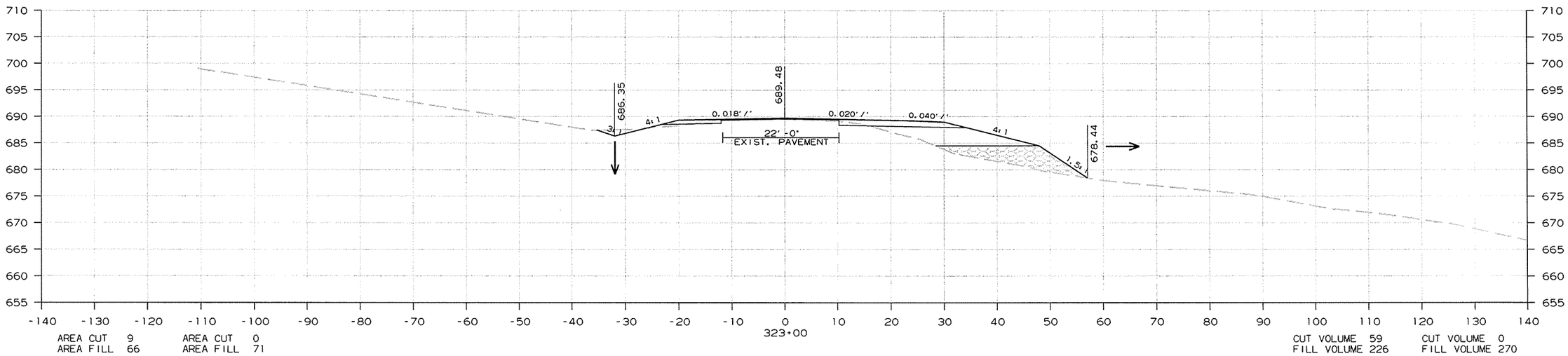
AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL





CROSS SECTION STA. 323+00 TO STA. 323+12

1/5/2015

R050289.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.		050289	87	114

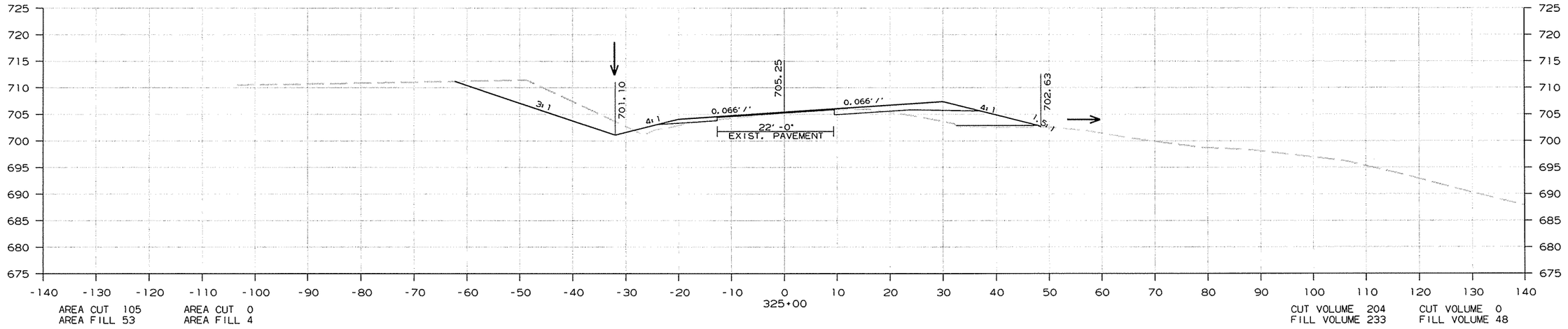
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

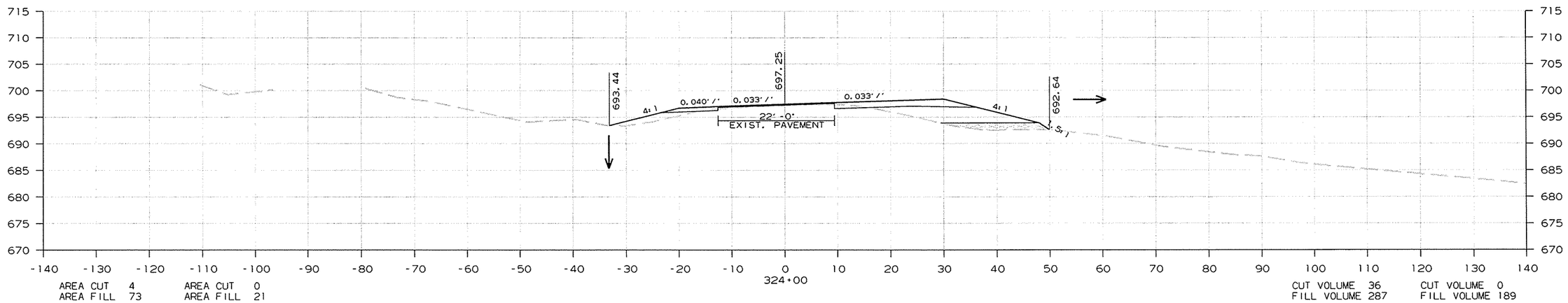
VOLUME

MAIN LANES ROCK FILL



AREA CUT 105 AREA CUT 0
AREA FILL 53 AREA FILL 4

CUT VOLUME 204 CUT VOLUME 0
FILL VOLUME 233 FILL VOLUME 48



AREA CUT 4 AREA CUT 0
AREA FILL 73 AREA FILL 21

CUT VOLUME 36 CUT VOLUME 0
FILL VOLUME 287 FILL VOLUME 189

CROSS SECTION STA. 324+00 TO STA. 325+00

1/5/2015

R050289.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.		050289	88	114

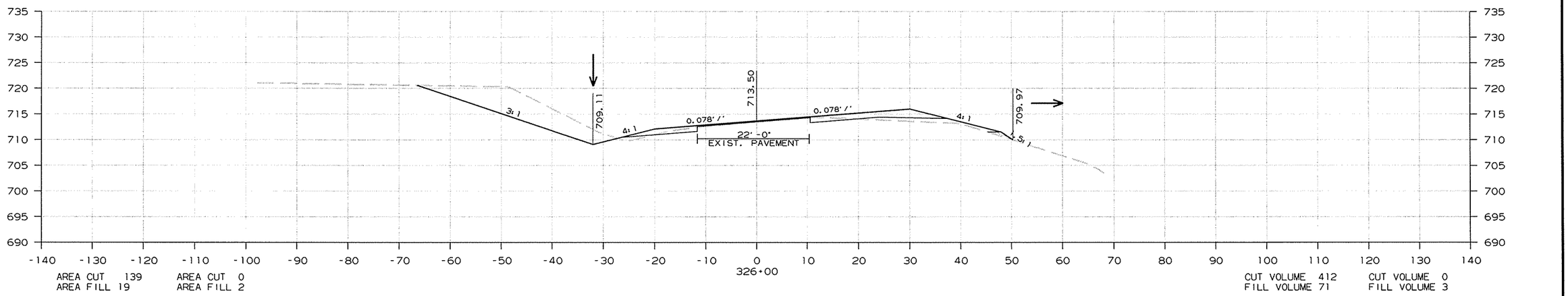
(2) CROSS SECTIONS

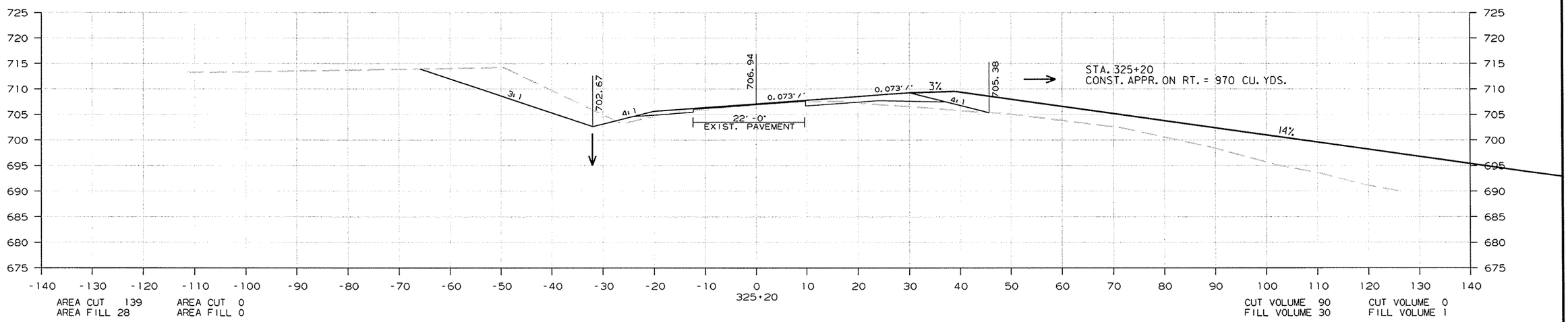
AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL





CROSS SECTION STA. 325+20 TO STA. 326+00

1/5/2015

R050289.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.		050289	89	114

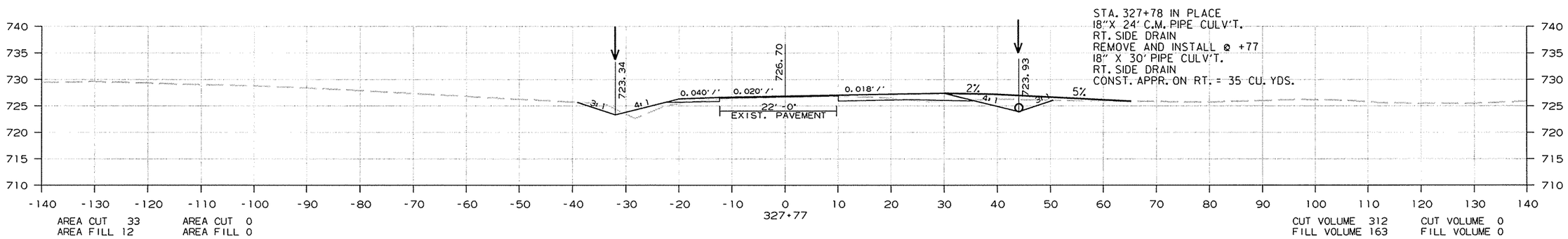
(2) CROSS SECTIONS

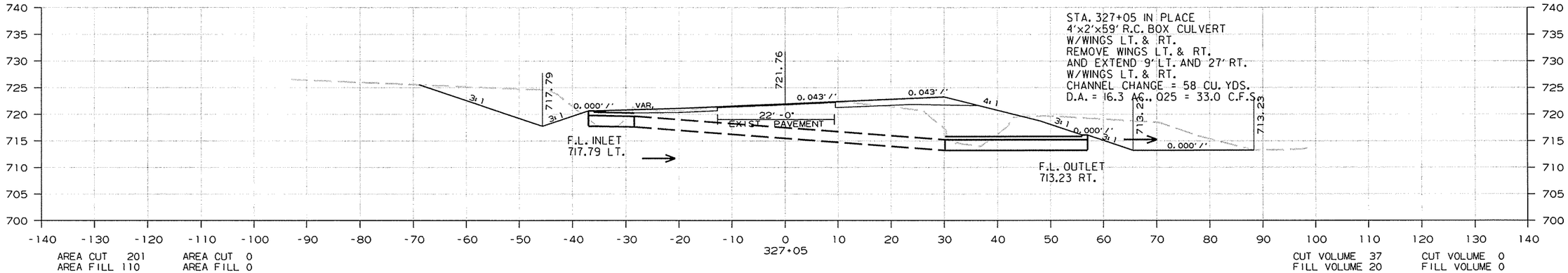
AREA

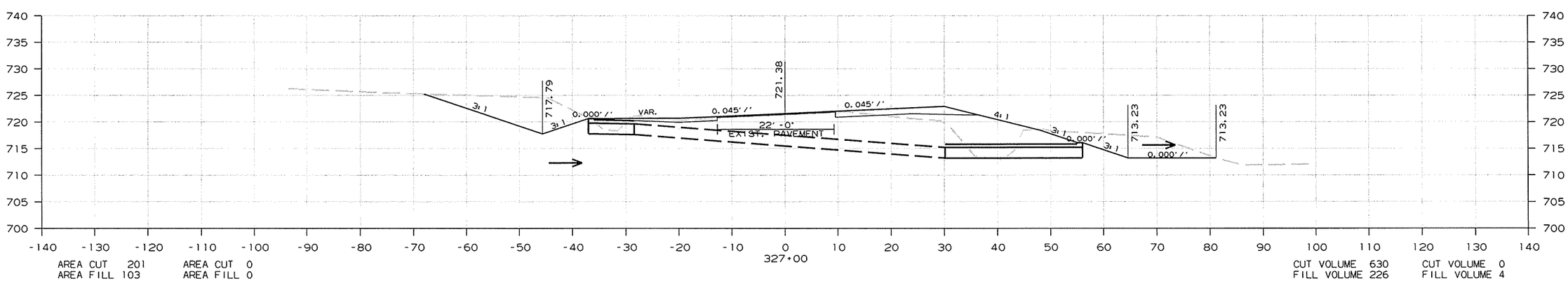
MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL







CROSS SECTION STA. 327+00 TO STA. 327+77

1/5/2015

R050289.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.		050289	90	114

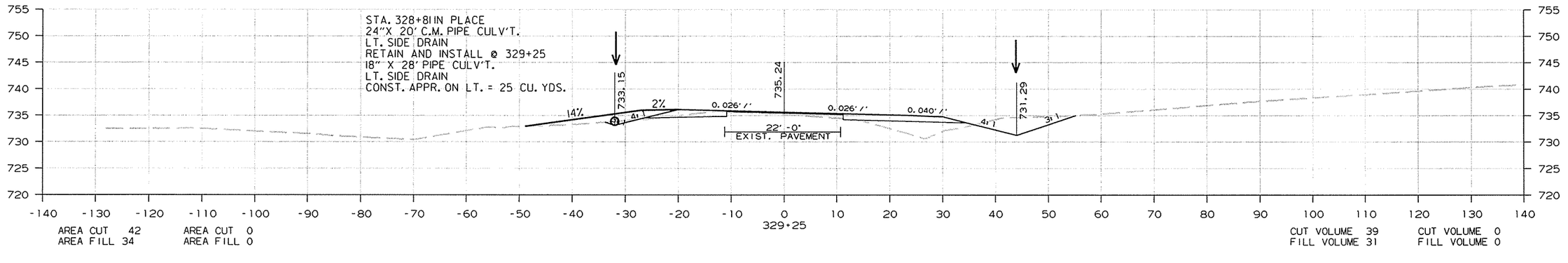
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL

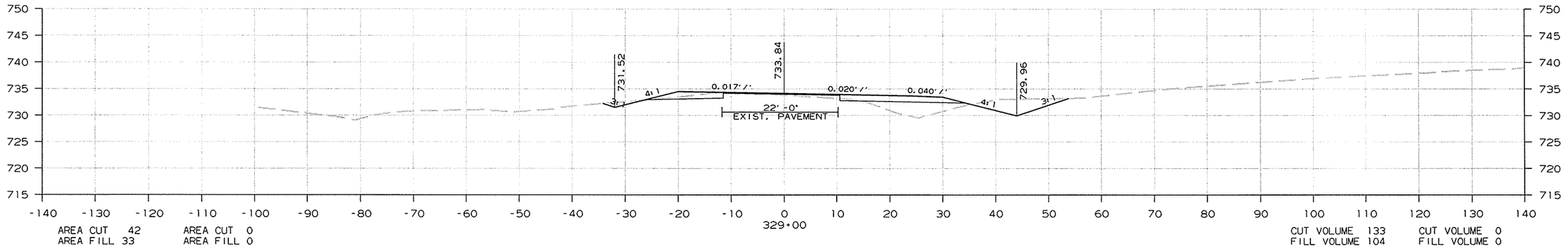


AREA CUT 42
AREA FILL 34

AREA CUT 0
AREA FILL 0

CUT VOLUME 39
FILL VOLUME 31

CUT VOLUME 0
FILL VOLUME 0

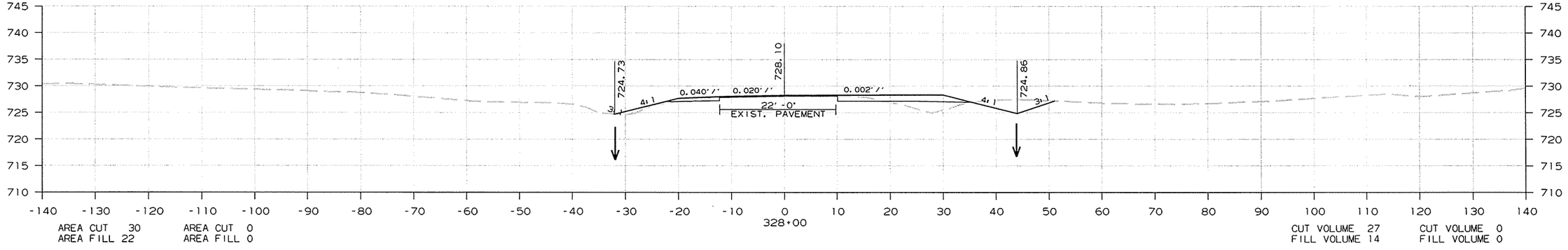


AREA CUT 42
AREA FILL 33

AREA CUT 0
AREA FILL 0

CUT VOLUME 133
FILL VOLUME 104

CUT VOLUME 0
FILL VOLUME 0



AREA CUT 30
AREA FILL 22

AREA CUT 0
AREA FILL 0

CUT VOLUME 27
FILL VOLUME 14

CUT VOLUME 0
FILL VOLUME 0

CROSS SECTION STA. 328+00 TO STA. 329+25

1/5/2015

R050289.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.		050289	91	114

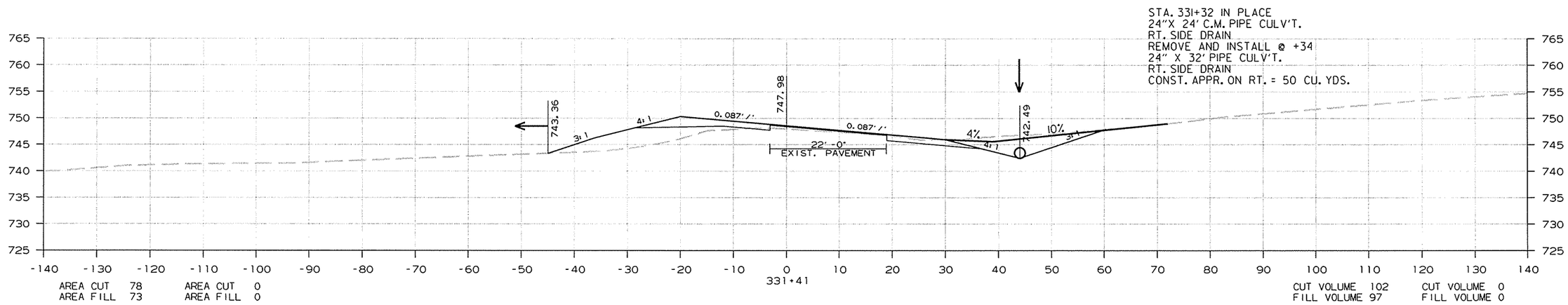
(2) CROSS SECTIONS

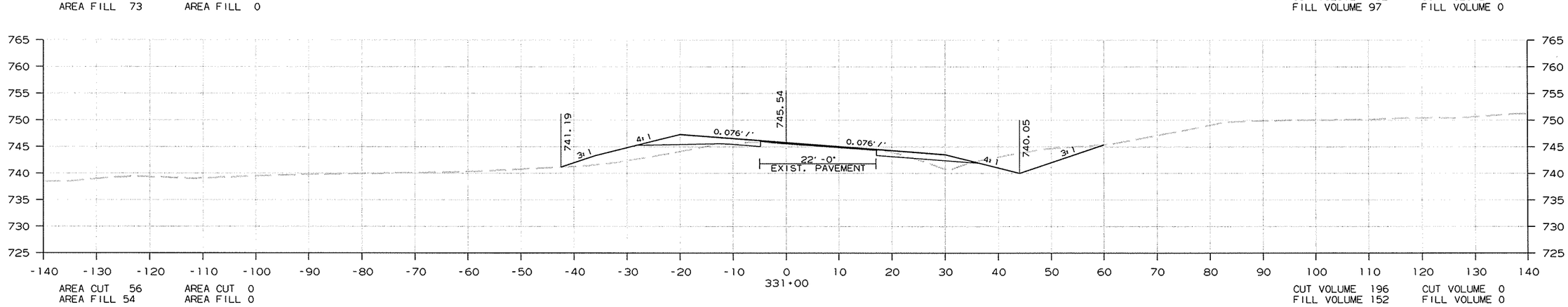
AREA

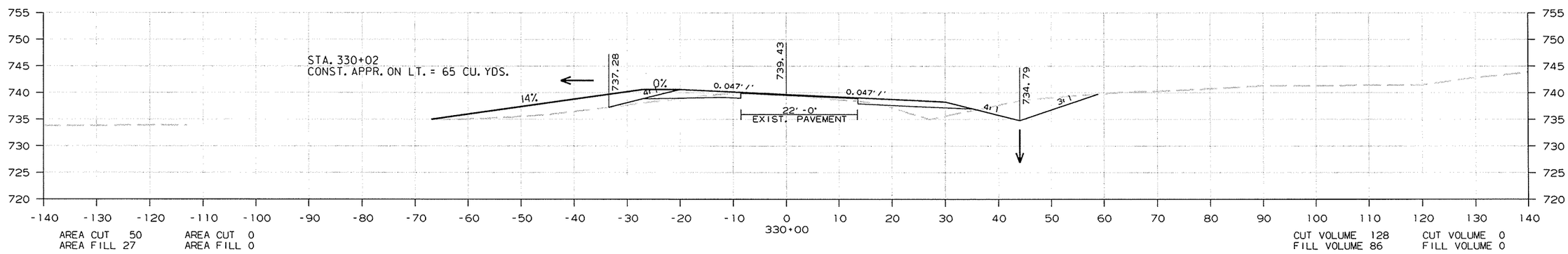
MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL







CROSS SECTION STA. 330+00 TO STA. 331+41

1/5/2015

R050289.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.		050289	92	114

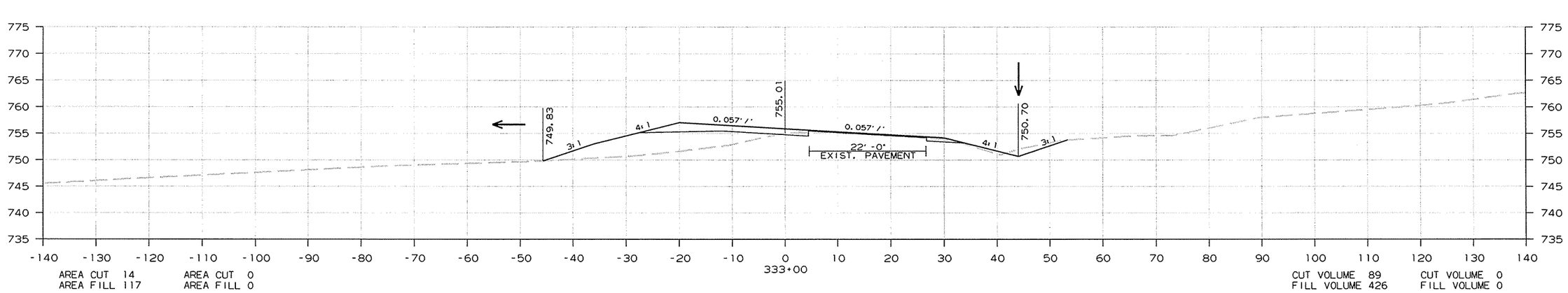
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

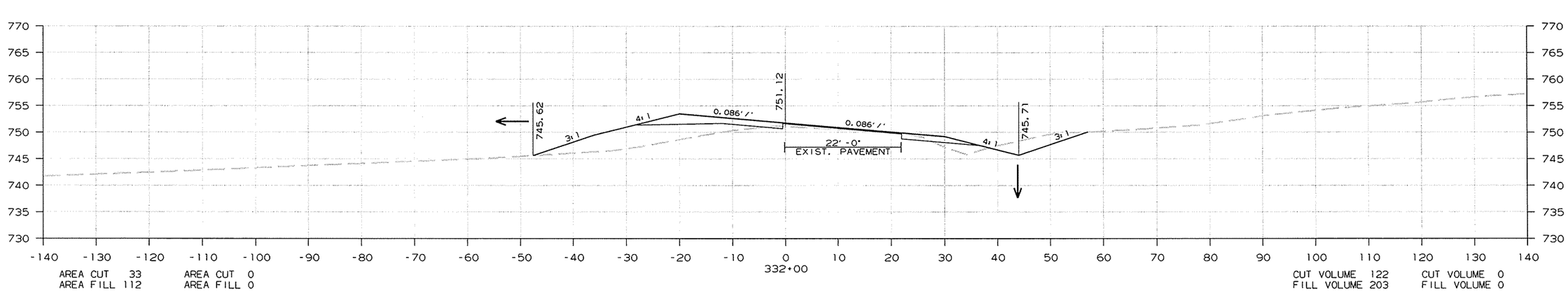
VOLUME

MAIN LANES ROCK FILL



AREA CUT 14 AREA CUT 0
AREA FILL 117 AREA FILL 0

CUT VOLUME 89 CUT VOLUME 0
FILL VOLUME 426 FILL VOLUME 0



AREA CUT 33 AREA CUT 0
AREA FILL 112 AREA FILL 0

CUT VOLUME 122 CUT VOLUME 0
FILL VOLUME 203 FILL VOLUME 0

CROSS SECTION STA. 332+00 TO STA. 333+00

1/5/2015

R050289.DGN

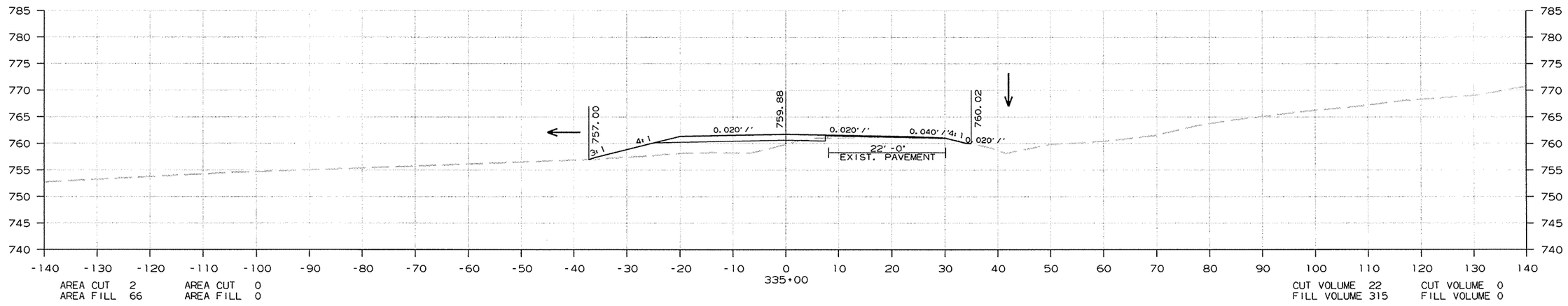
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050289	93	114
				(2) CROSS SECTIONS				

AREA

MAIN LANES ROCK FILL

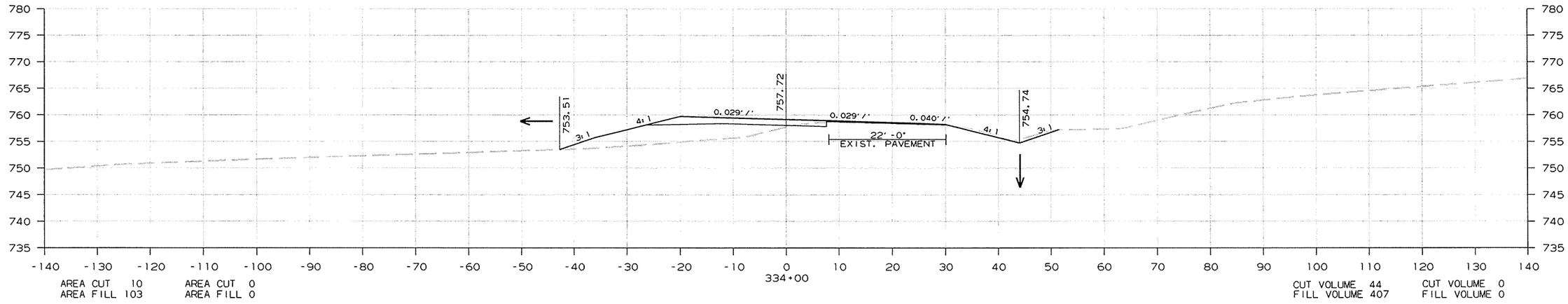
VOLUME

MAIN LANES ROCK FILL



AREA CUT 2 AREA CUT 0
AREA FILL 66 AREA FILL 0

CUT VOLUME 22 CUT VOLUME 0
FILL VOLUME 315 FILL VOLUME 0



AREA CUT 10 AREA CUT 0
AREA FILL 103 AREA FILL 0

CUT VOLUME 44 CUT VOLUME 0
FILL VOLUME 407 FILL VOLUME 0

CROSS SECTION STA. 334+00 TO STA. 335+00

1/5/2015

R050289.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.		050289	94	114

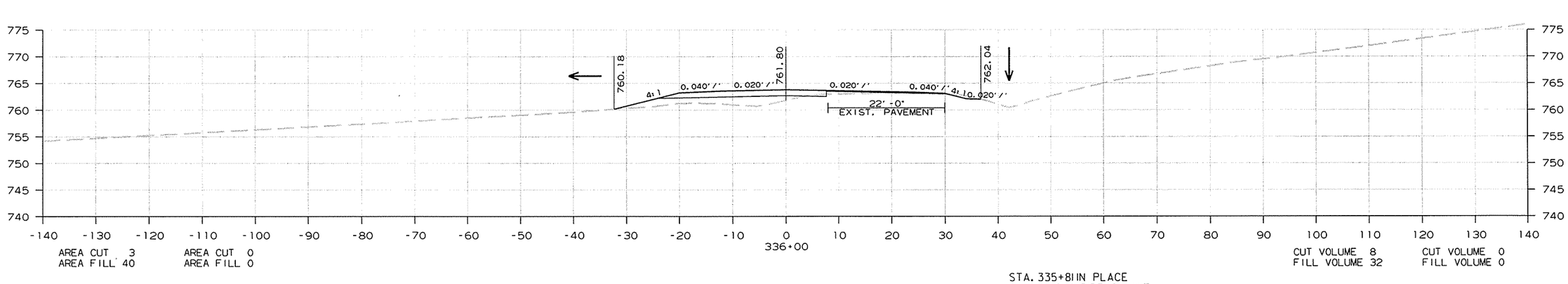
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



STA. 335+81 IN PLACE
18"X 18' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 28' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 25 CU. YDS.

CROSS SECTION STA. 335+81 TO STA. 336+00

1/5/2015

R050289.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.		050289	95	114

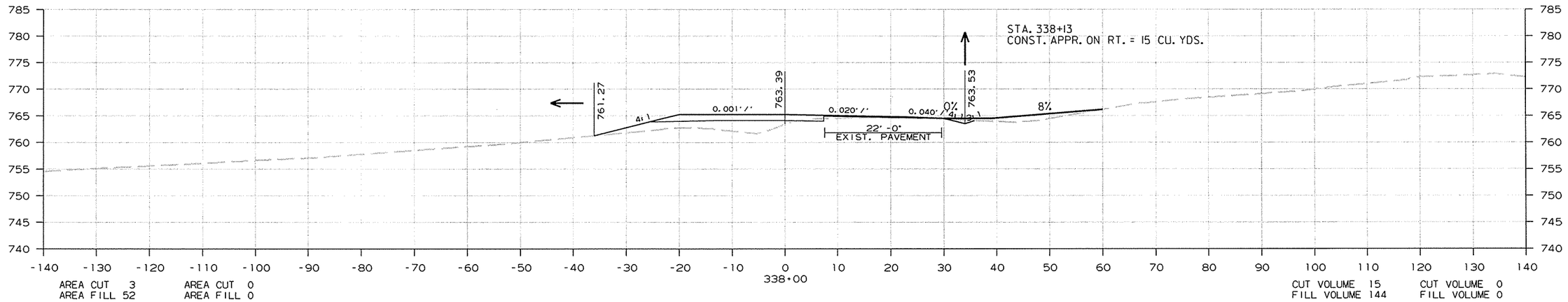
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

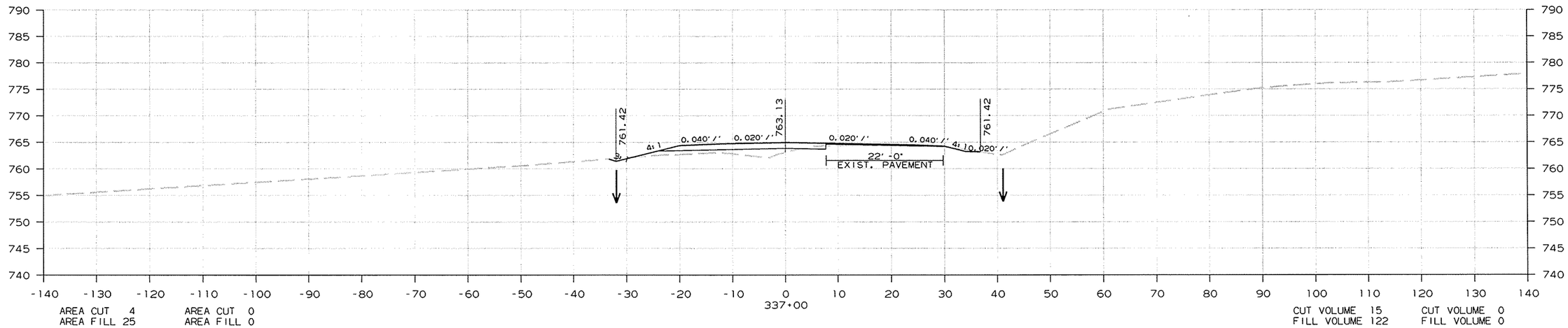
VOLUME

MAIN LANES ROCK FILL



AREA CUT 3 AREA CUT 0
AREA FILL 52 AREA FILL 0

CUT VOLUME 15 CUT VOLUME 0
FILL VOLUME 144 FILL VOLUME 0



AREA CUT 4 AREA CUT 0
AREA FILL 25 AREA FILL 0

CUT VOLUME 15 CUT VOLUME 0
FILL VOLUME 122 FILL VOLUME 0

CROSS SECTION STA. 337+00 TO STA. 338+00

1/5/2015

R050289.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.		050289	96	114

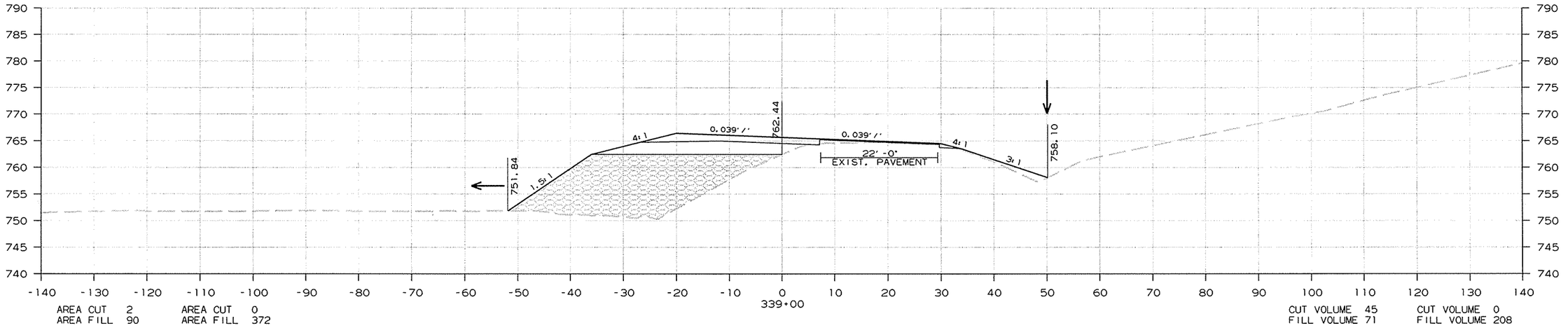
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

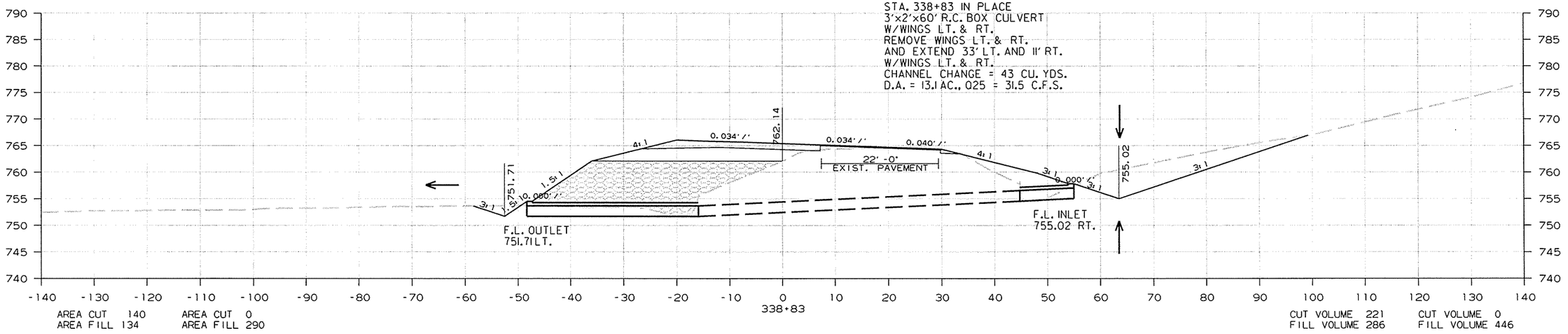
VOLUME

MAIN LANES ROCK FILL



AREA CUT 2 AREA CUT 0
AREA FILL 90 AREA FILL 372

CUT VOLUME 45 CUT VOLUME 0
FILL VOLUME 71 FILL VOLUME 208



AREA CUT 140 AREA CUT 0
AREA FILL 134 AREA FILL 290

CUT VOLUME 221 CUT VOLUME 0
FILL VOLUME 286 FILL VOLUME 446

CROSS SECTION STA. 338+83 TO STA. 339+00

1/5/2015

R050289.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.		050289	97	114

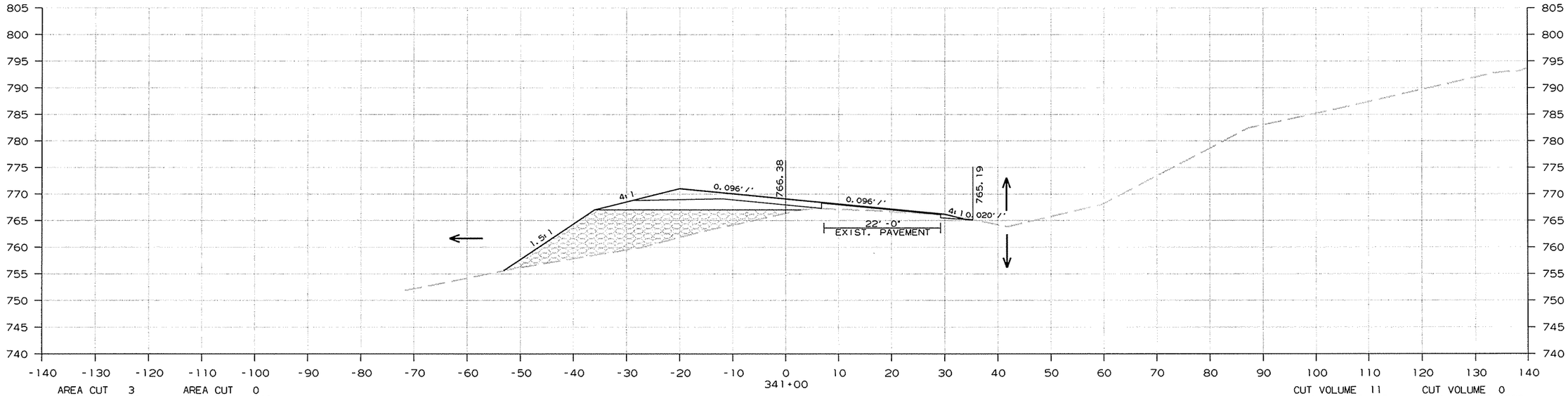
(2) CROSS SECTIONS

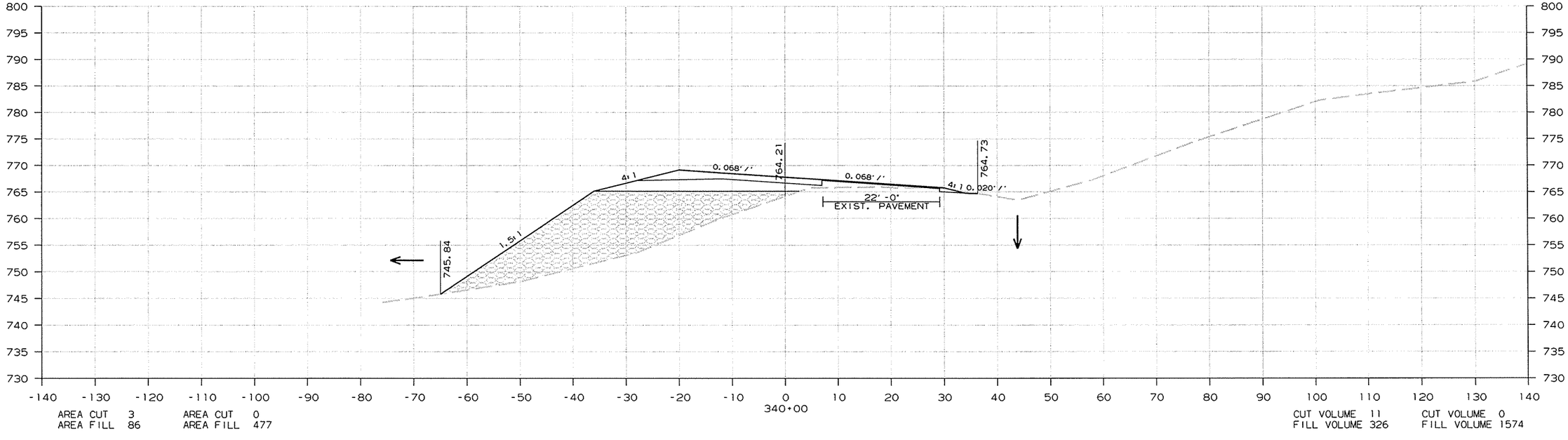
AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL





CROSS SECTION STA. 340+00 TO STA. 341+00

1/5/2015

R050289.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.		050289	98	114

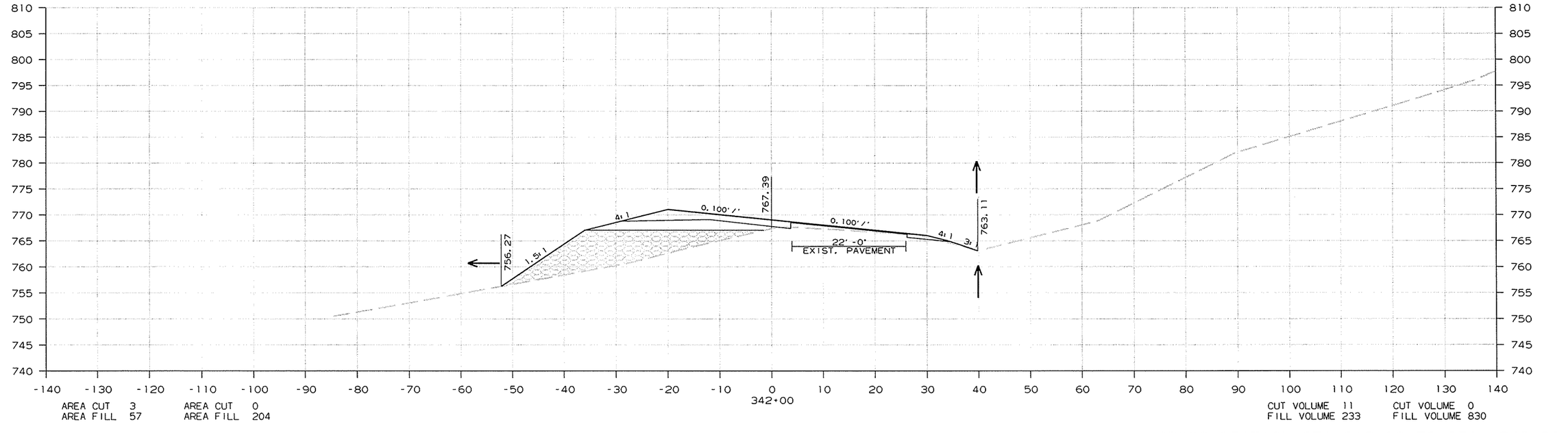
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 342+00 TO STA. 342+00

1/5/2015

R050289.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.		050289	99	114

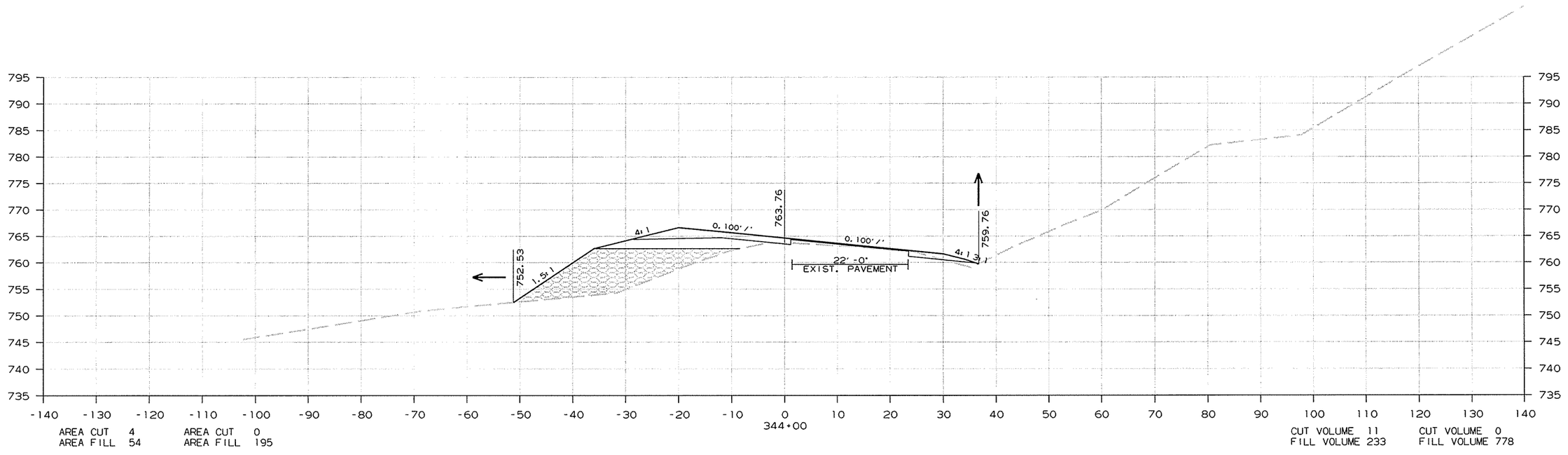
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

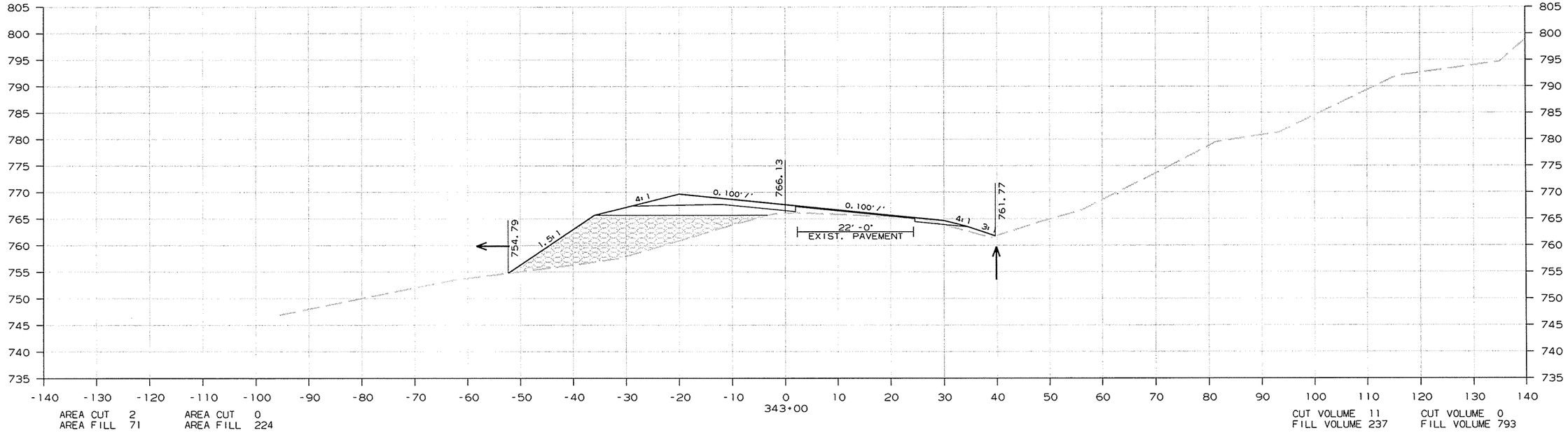
VOLUME

MAIN LANES ROCK FILL



AREA CUT 4 AREA CUT 0
AREA FILL 54 AREA FILL 195

CUT VOLUME 11 CUT VOLUME 0
FILL VOLUME 233 FILL VOLUME 778



AREA CUT 2 AREA CUT 0
AREA FILL 71 AREA FILL 224

CUT VOLUME 11 CUT VOLUME 0
FILL VOLUME 237 FILL VOLUME 793

CROSS SECTION STA. 343+00 TO STA. 344+00

1/5/2015

R050289.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.		050289	100	114

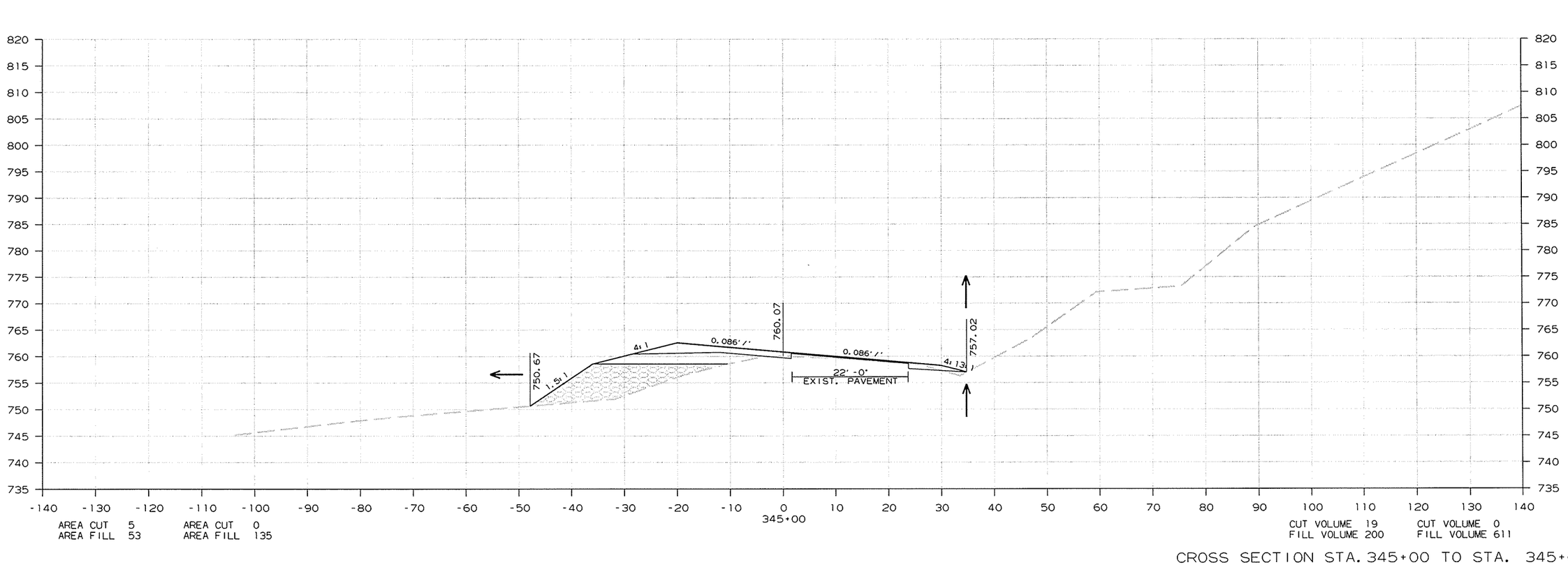
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 5 AREA FILL 53

AREA CUT 0 AREA FILL 135

CUT VOLUME 19 FILL VOLUME 200

CUT VOLUME 0 FILL VOLUME 611

CROSS SECTION STA. 345+00 TO STA. 345+00

1/5/2015

R050289.DGN

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				6	ARK.			
				JOB NO.		050289	101	114

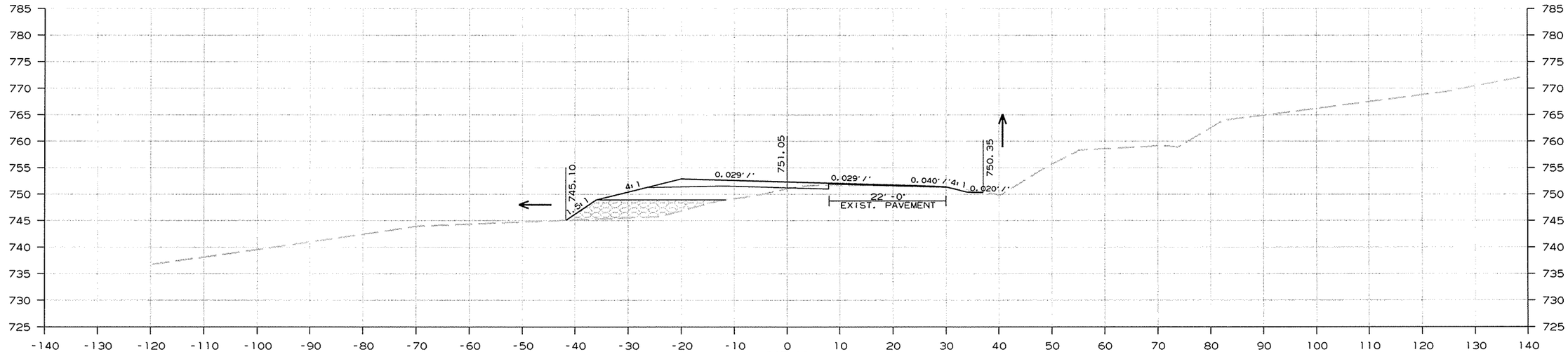
(2) CROSS SECTIONS

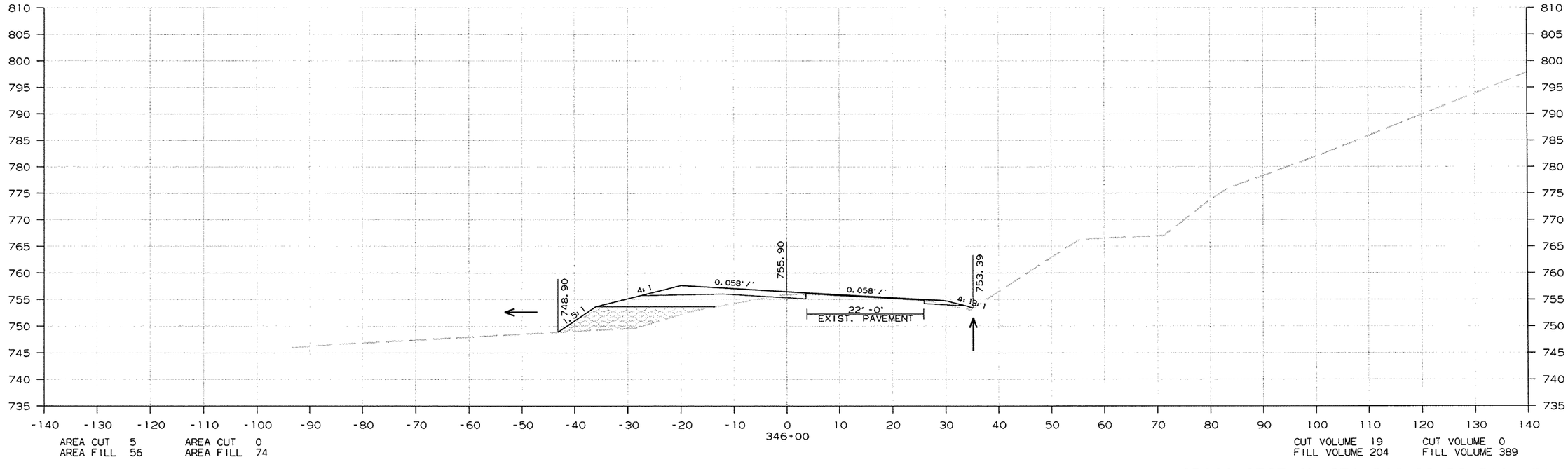
AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL





CROSS SECTION STA. 346+00 TO STA. 347+00

1/5/2015

R050289.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.		050289	102	114

(2) CROSS SECTIONS

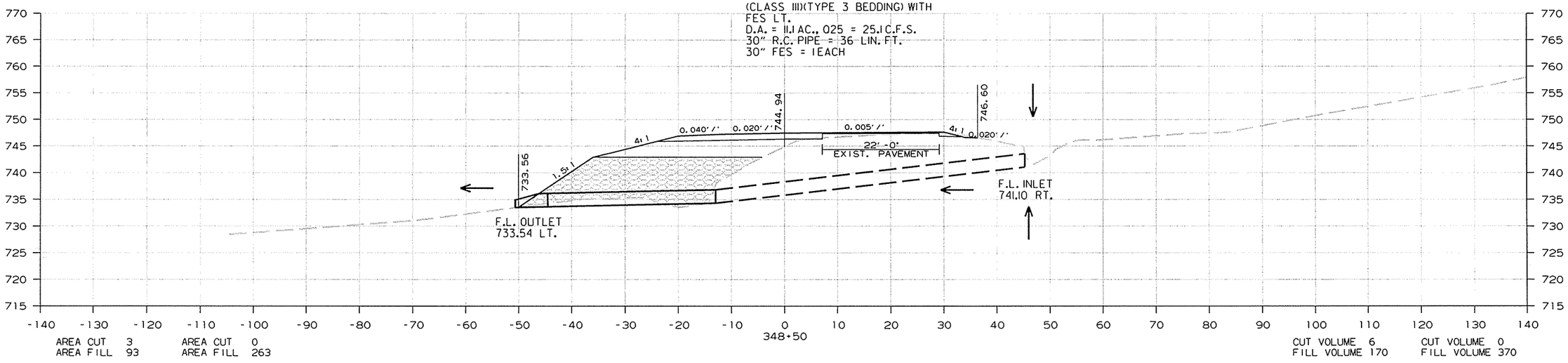
AREA

MAIN LANES ROCK FILL

VOLUME

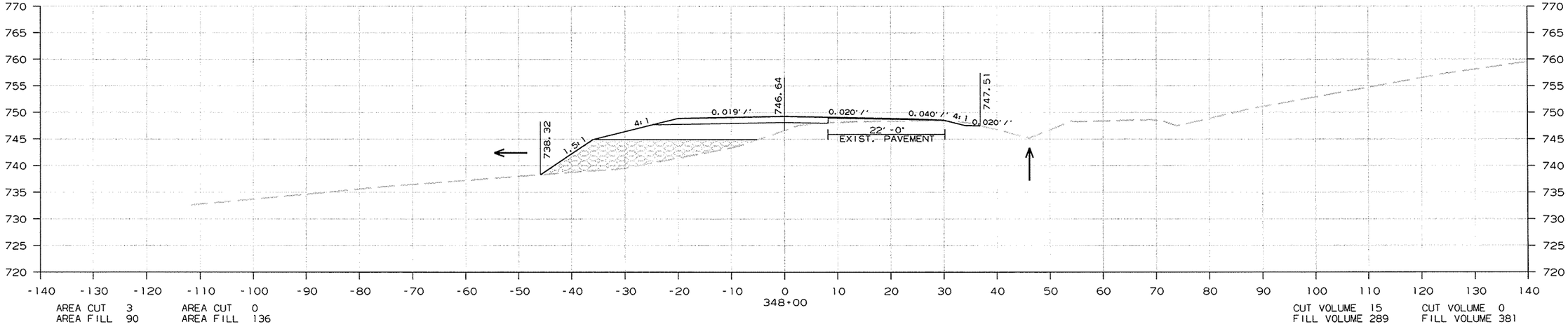
MAIN LANES ROCK FILL

STA. 348+50 IN PLACE
30"x58' R.C. PIPE CULVERT
CROSS DRAIN W/HDWLS. LT. & RT.
REMOVE HDWL. LT. & EXTEND R.C. PIPE
32' LT.
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT.
D.A. = 11.1 AC., Q25 = 25.1 C.F.S.
30" R.C. PIPE = 36 LIN. FT.
30" FES = 1 EACH



AREA CUT 3 AREA CUT 0
AREA FILL 93 AREA FILL 263

CUT VOLUME 6 CUT VOLUME 0
FILL VOLUME 170 FILL VOLUME 370



AREA CUT 3 AREA CUT 0
AREA FILL 90 AREA FILL 136

CUT VOLUME 15 CUT VOLUME 0
FILL VOLUME 289 FILL VOLUME 381

CROSS SECTION STA. 348+00 TO STA. 348+50

1/5/2015

R050289.DGN

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				6	ARK.			
				JOB NO.		050289	103	114

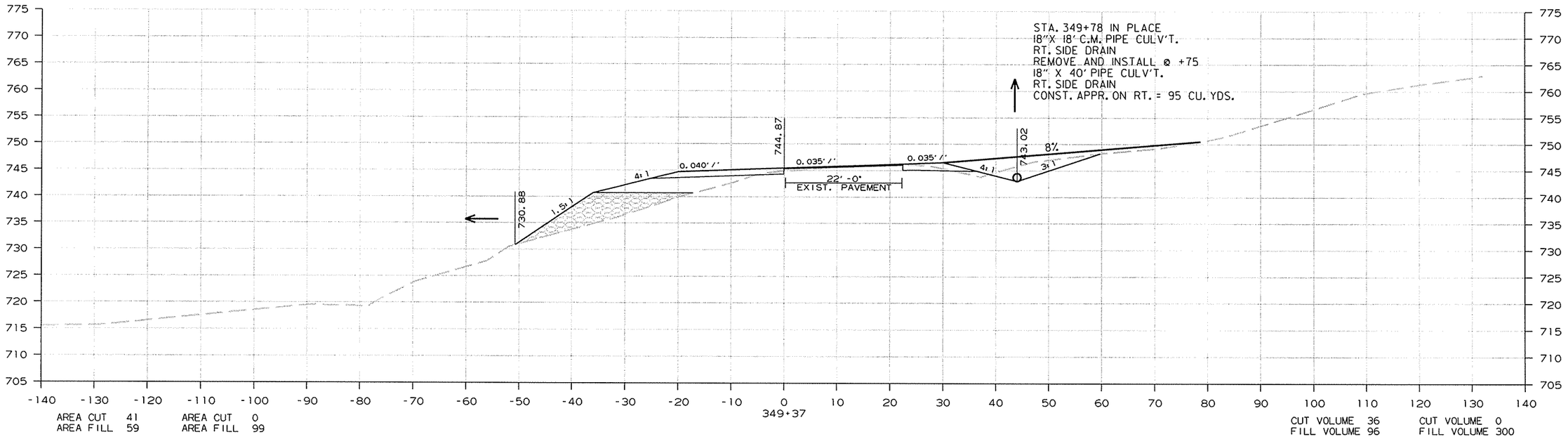
(2) CROSS SECTIONS

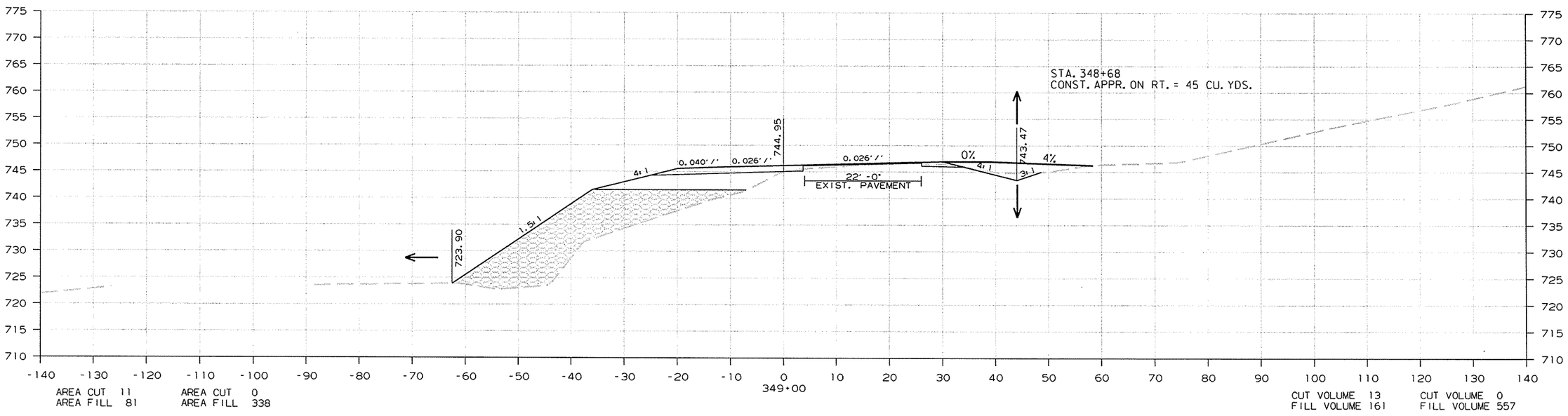
AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL





CROSS SECTION STA. 349+00 TO STA. 349+37

1/5/2015

R050289.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.		050289	104	114

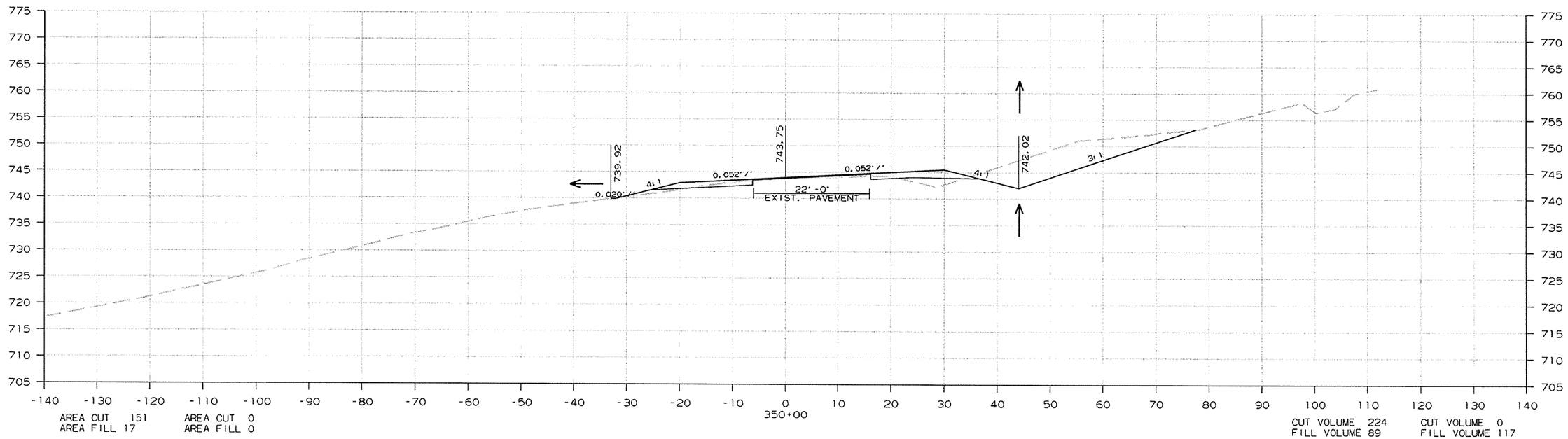
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 350+00 TO STA. 350+00

1/5/2015

R050289.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.		050289	105	114

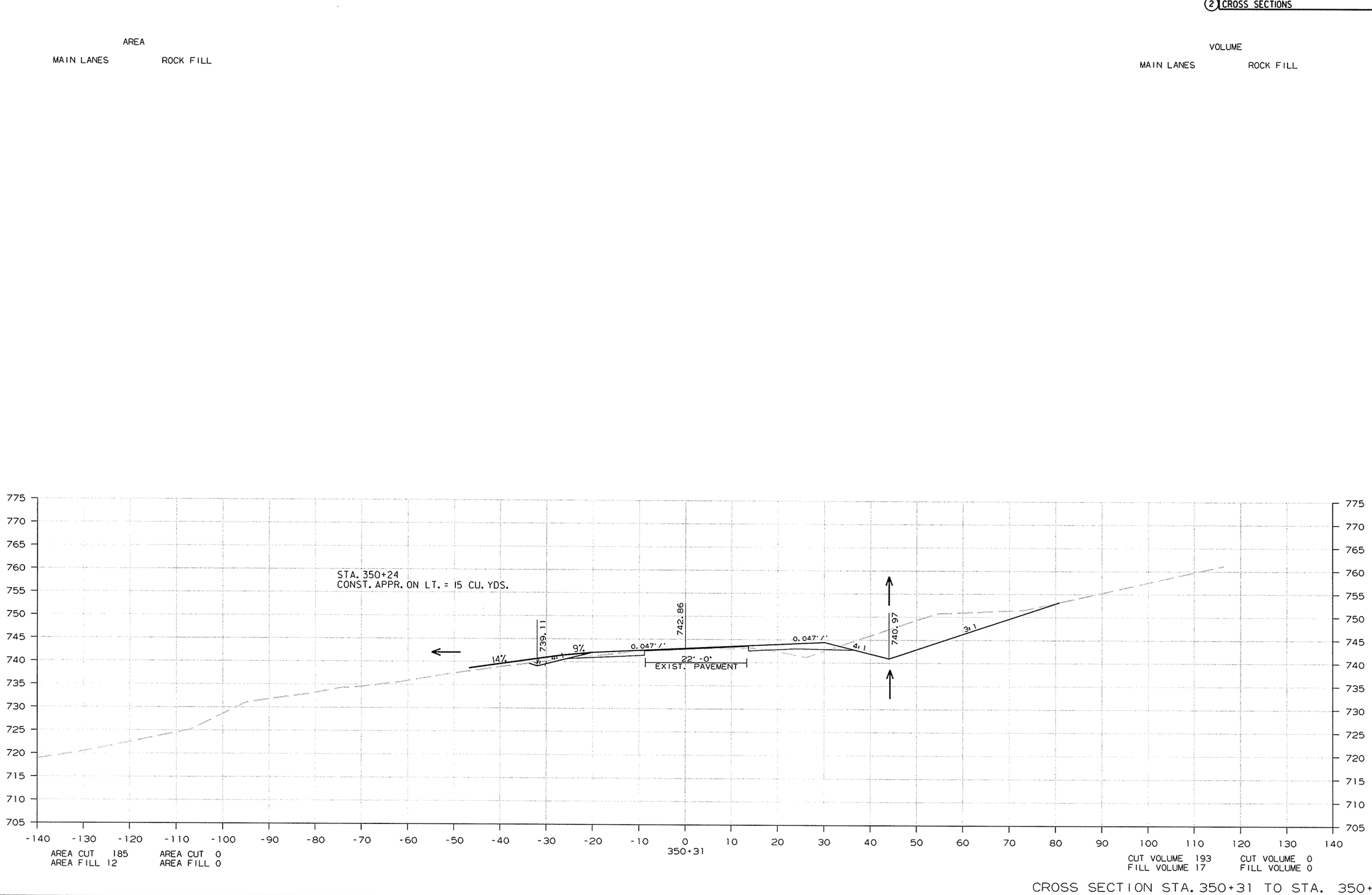
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 350+31 TO STA. 350+31

1/5/2015

R050289.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.		050289	106	114

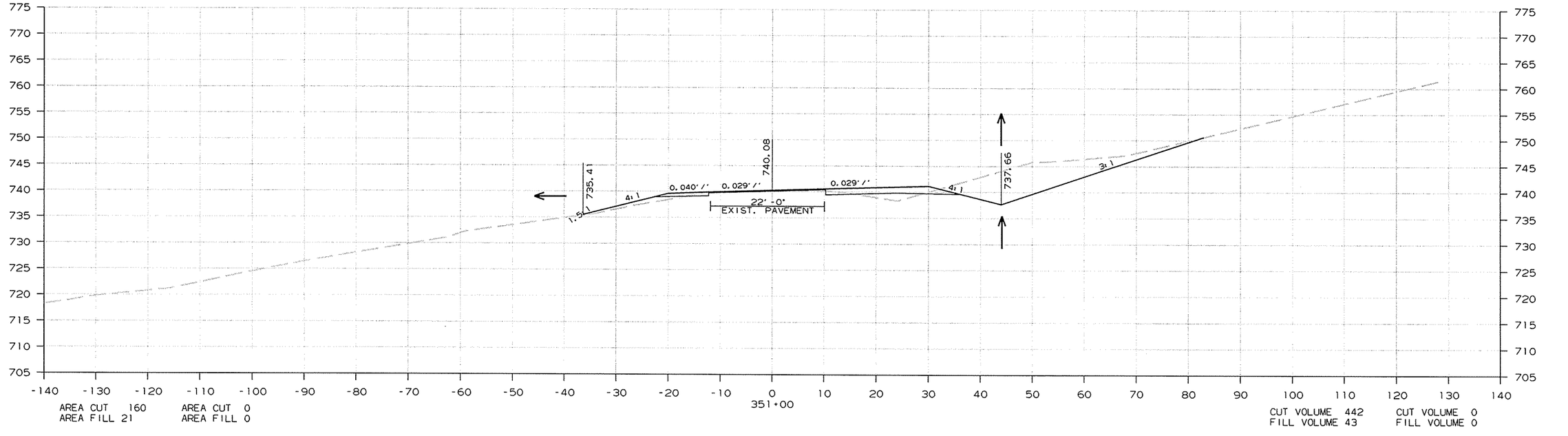
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 351+00 TO STA. 351+00

1/5/2015

R050289.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.		050289	107	114

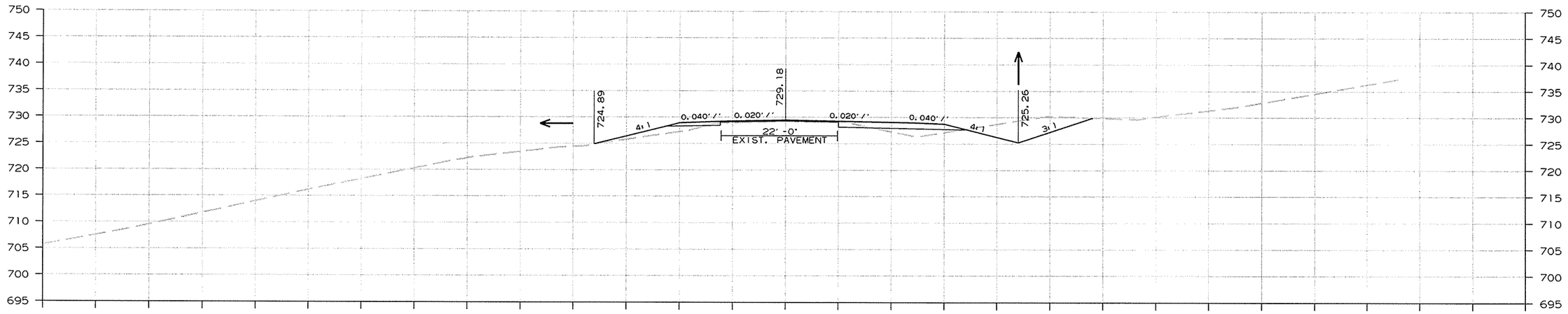
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL

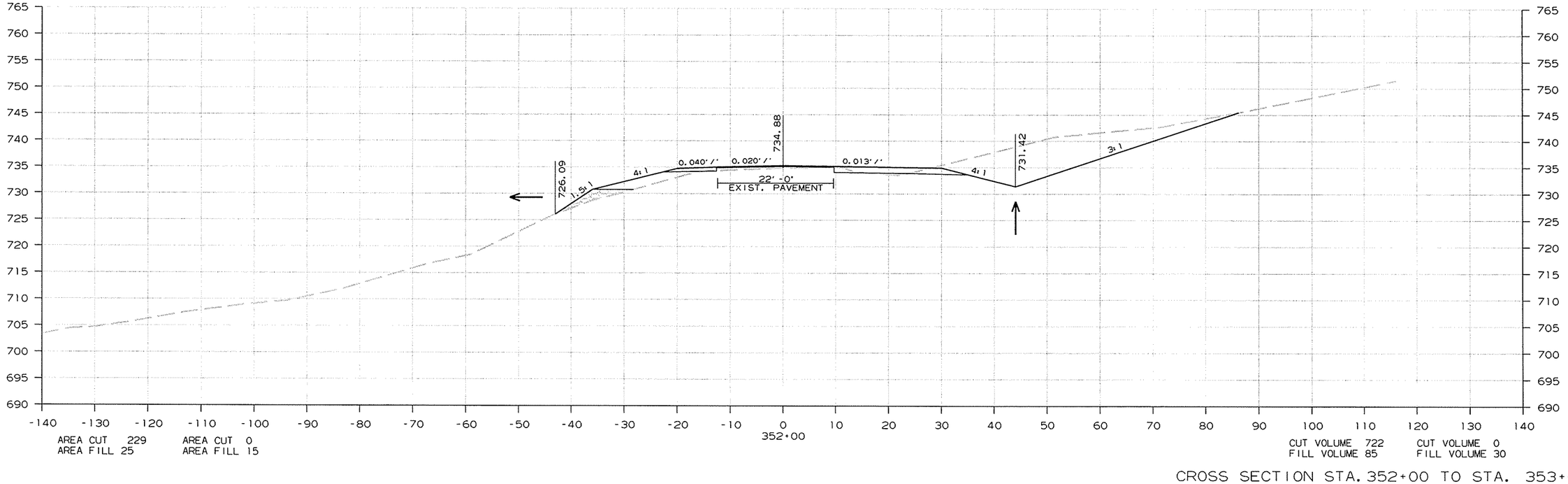


AREA CUT 58
AREA FILL 29

AREA CUT 0
AREA FILL 0

CUT VOLUME 533
FILL VOLUME 100

CUT VOLUME 0
FILL VOLUME 30



AREA CUT 229
AREA FILL 25

AREA CUT 0
AREA FILL 15

CUT VOLUME 722
FILL VOLUME 85

CUT VOLUME 0
FILL VOLUME 30

CROSS SECTION STA. 352+00 TO STA. 353+00

1/5/2015

R050289.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.		050289	108	114

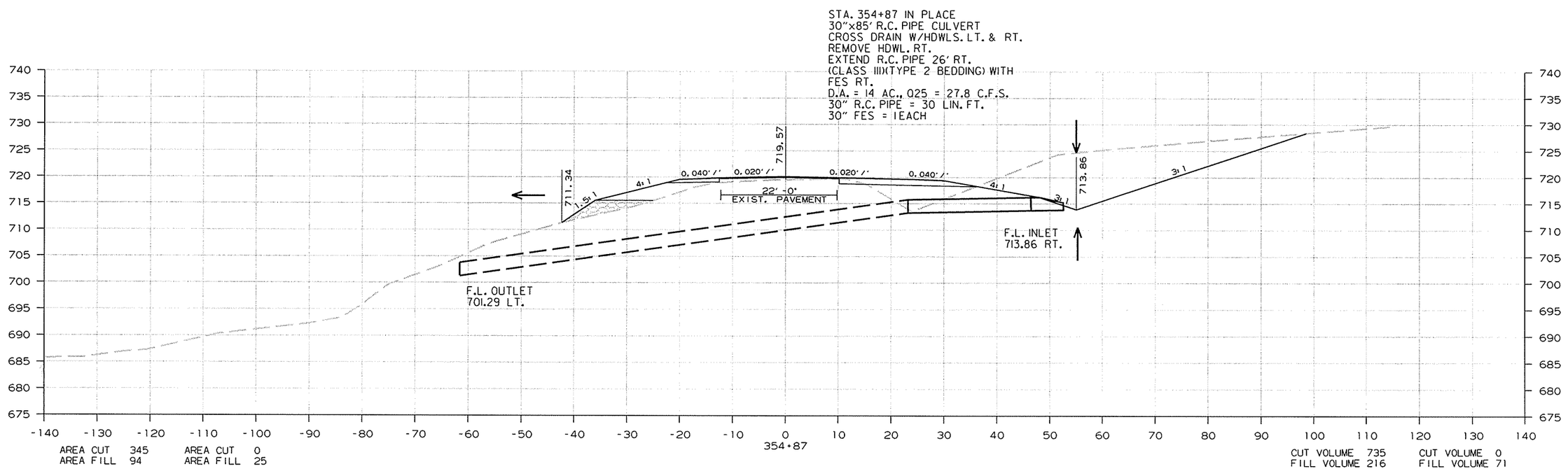
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 354+00 TO STA. 354+87

1/5/2015

R050289.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.		050289	109	114

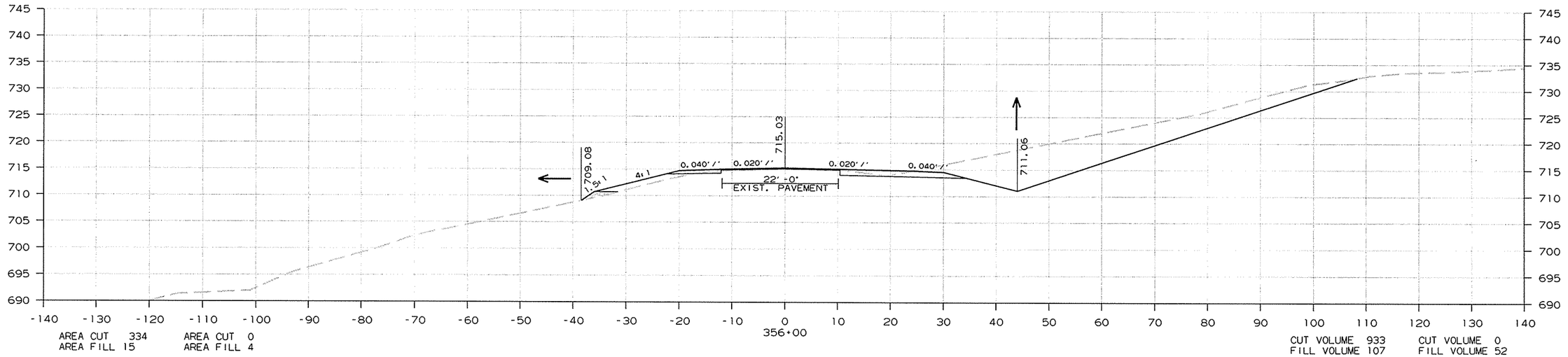
(2) CROSS SECTIONS

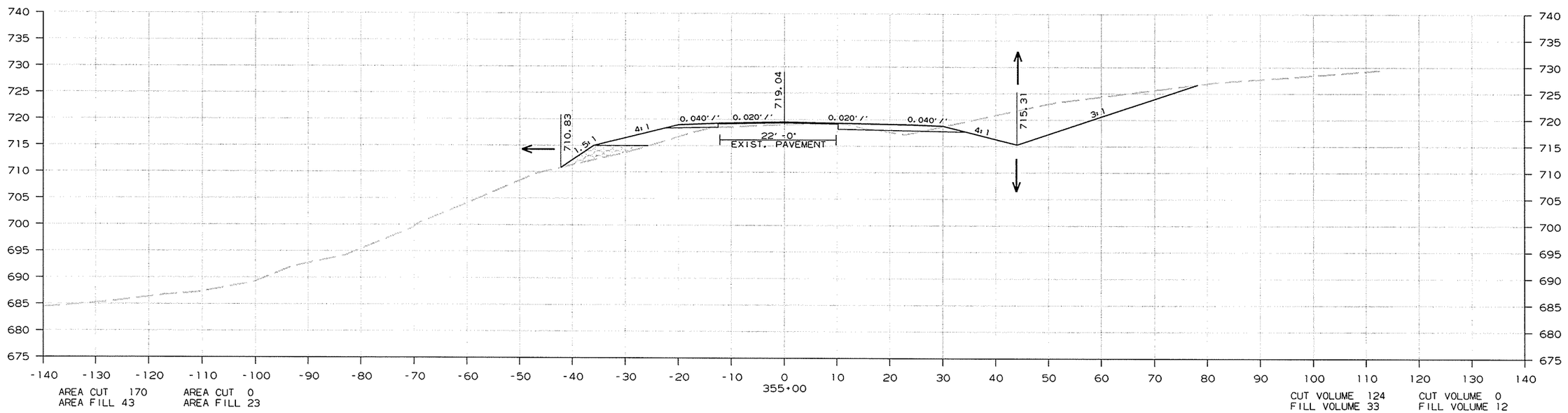
AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL





CROSS SECTION STA. 355+00 TO STA. 356+00

1/5/2015

R050289.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.		050289	110	114

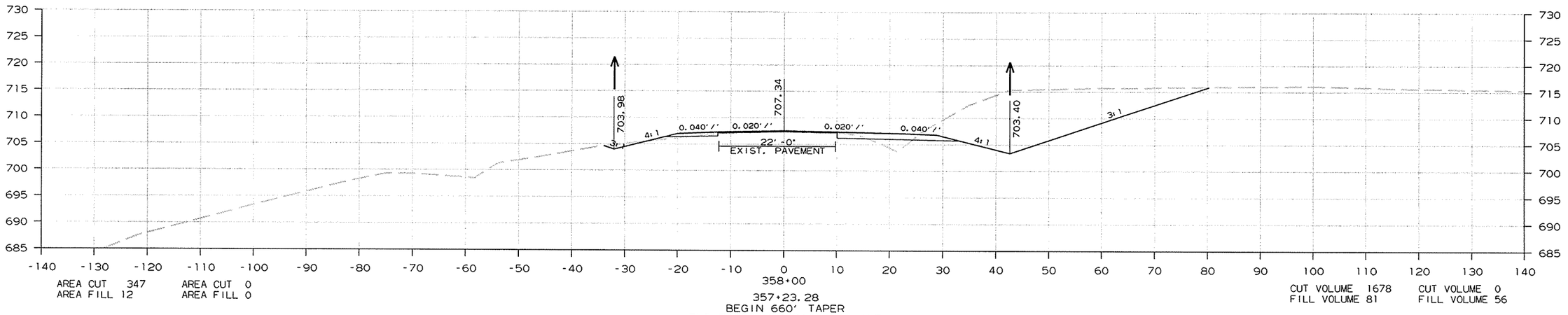
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



AREA CUT 347
AREA FILL 12

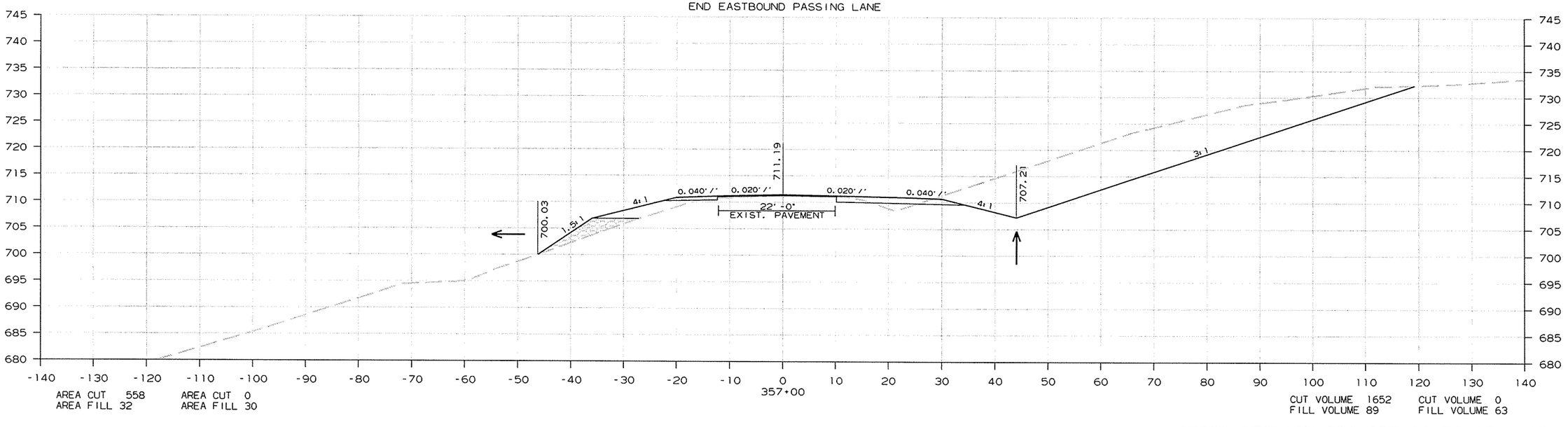
AREA CUT 0
AREA FILL 0

358+00

CUT VOLUME 1678
FILL VOLUME 81

CUT VOLUME 0
FILL VOLUME 56

357+23.28
BEGIN 660' TAPER
END EASTBOUND PASSING LANE



AREA CUT 558
AREA FILL 32

AREA CUT 0
AREA FILL 30

357+00

CUT VOLUME 1652
FILL VOLUME 89

CUT VOLUME 0
FILL VOLUME 63

CROSS SECTION STA. 357+00 TO STA. 358+00

1/5/2015

R050289.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.		050289	111	114

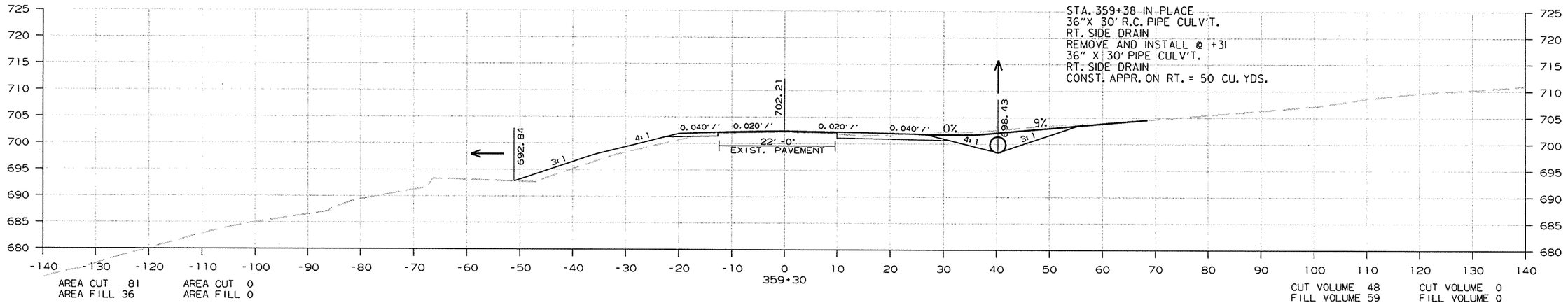
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 359+00 TO STA. 359+30

1/5/2015

R050289.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.		050289	112	114

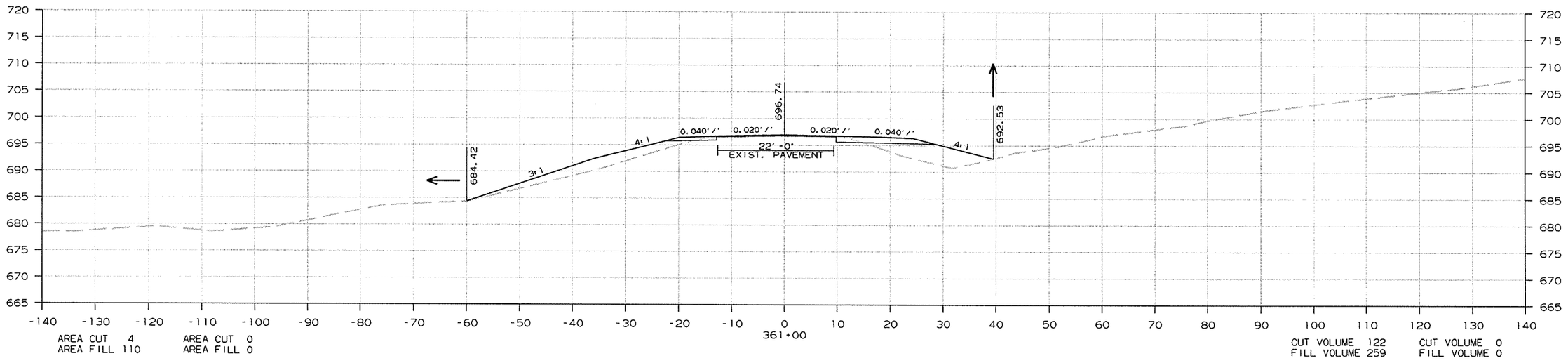
(2) CROSS SECTIONS

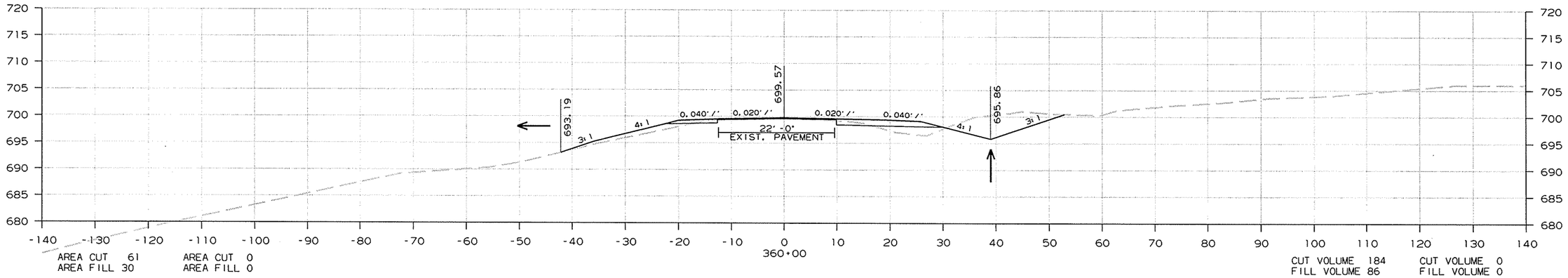
AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL





CROSS SECTION STA. 360+00 TO STA. 361+00

1/5/2015

R050289.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.		050289	113	114

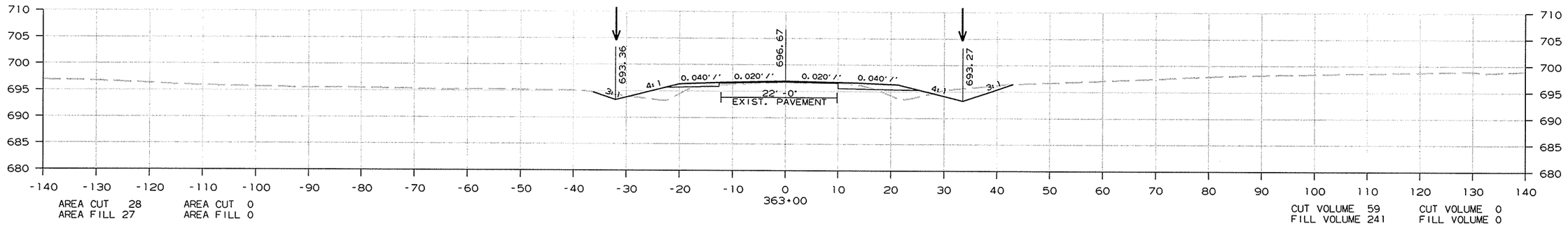
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL

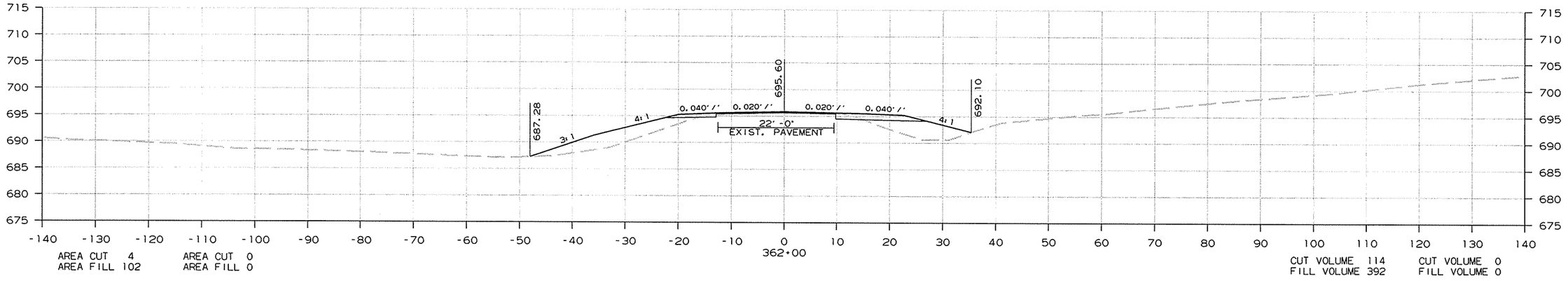


AREA CUT 28
AREA FILL 27

AREA CUT 0
AREA FILL 0

CUT VOLUME 59
FILL VOLUME 241

CUT VOLUME 0
FILL VOLUME 0

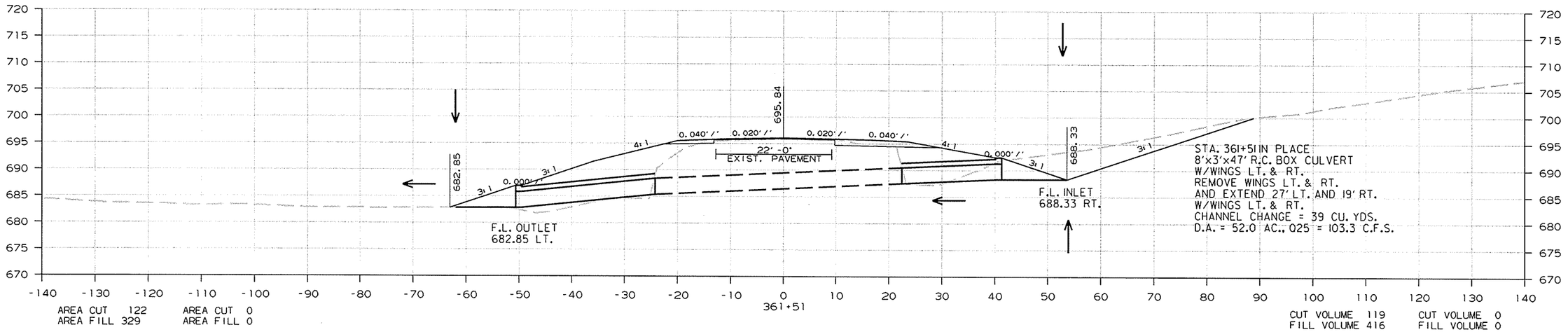


AREA CUT 4
AREA FILL 102

AREA CUT 0
AREA FILL 0

CUT VOLUME 114
FILL VOLUME 392

CUT VOLUME 0
FILL VOLUME 0



AREA CUT 122
AREA FILL 329

AREA CUT 0
AREA FILL 0

CUT VOLUME 119
FILL VOLUME 416

CUT VOLUME 0
FILL VOLUME 0

CROSS SECTION STA. 361+51 TO STA. 363+00

1/5/2015

R050289.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.		050289	114	114

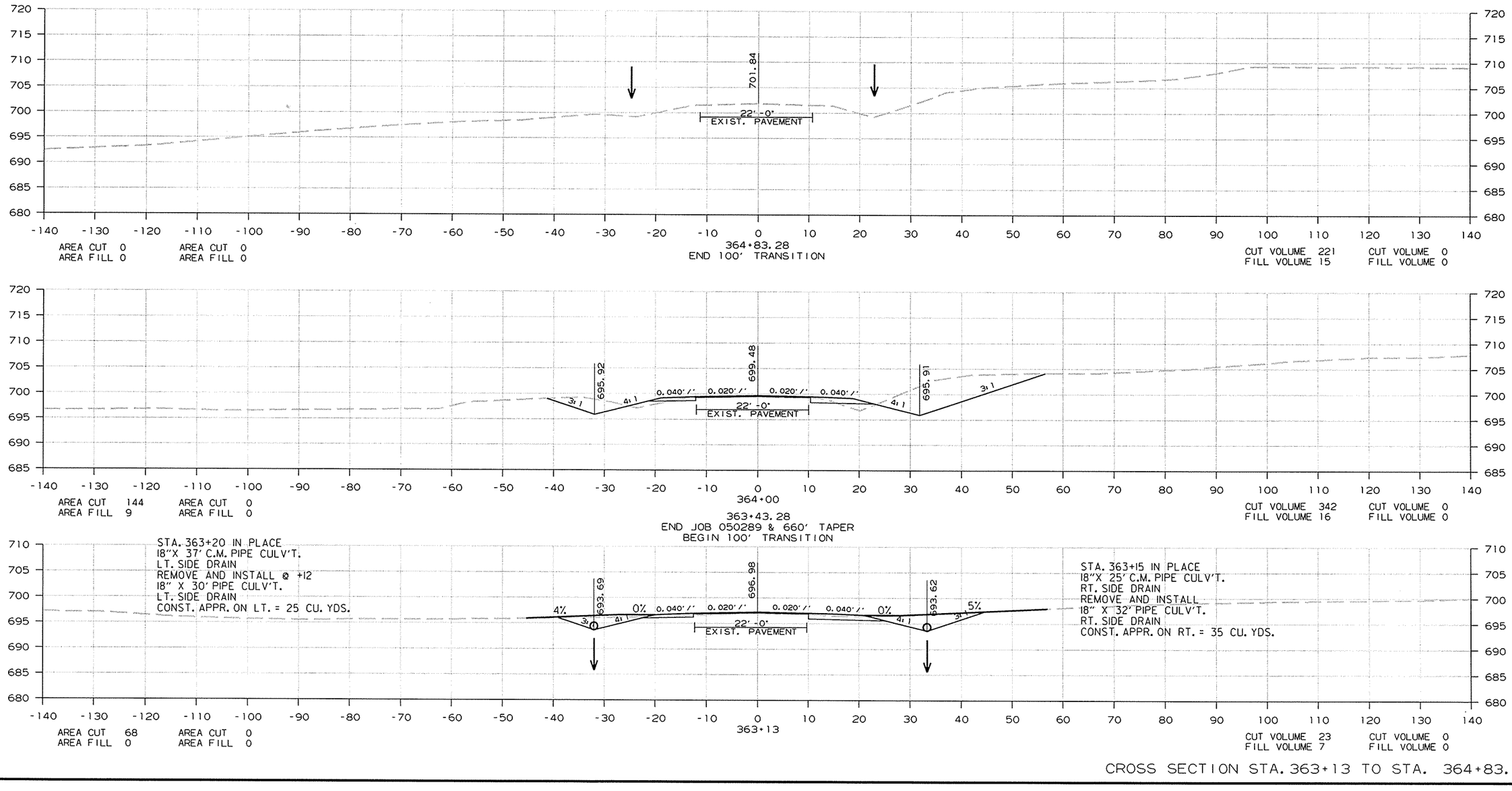
(2) CROSS SECTIONS

AREA

MAIN LANES ROCK FILL

VOLUME

MAIN LANES ROCK FILL



CROSS SECTION STA. 363+13 TO STA. 364+83.28

1/5/2015

R050289.DGN