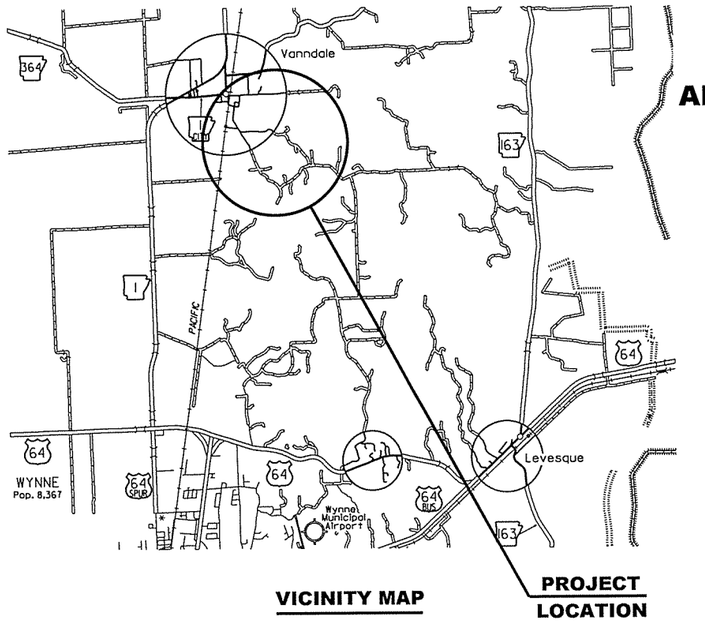
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	STP-0019(39)		
				JOB NO.		FA1915	1	73
				4	VANNDALE-EAST (PHASE 1) (RECONSTRUCTION) (S)			



VICINITY MAP

PROJECT LOCATION

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

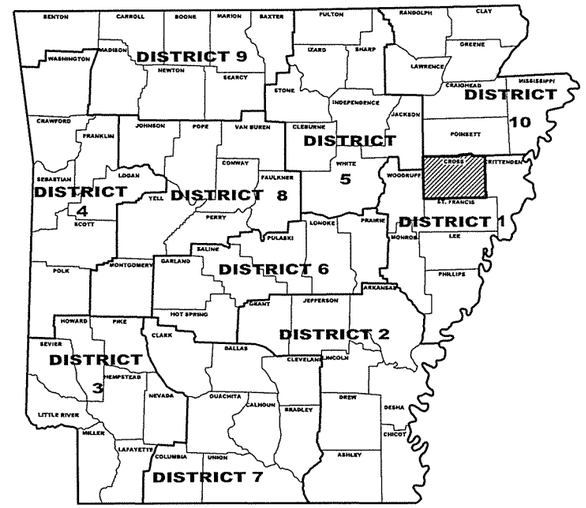
CONSTRUCTION PLANS FOR PROPOSED COUNTY ROAD

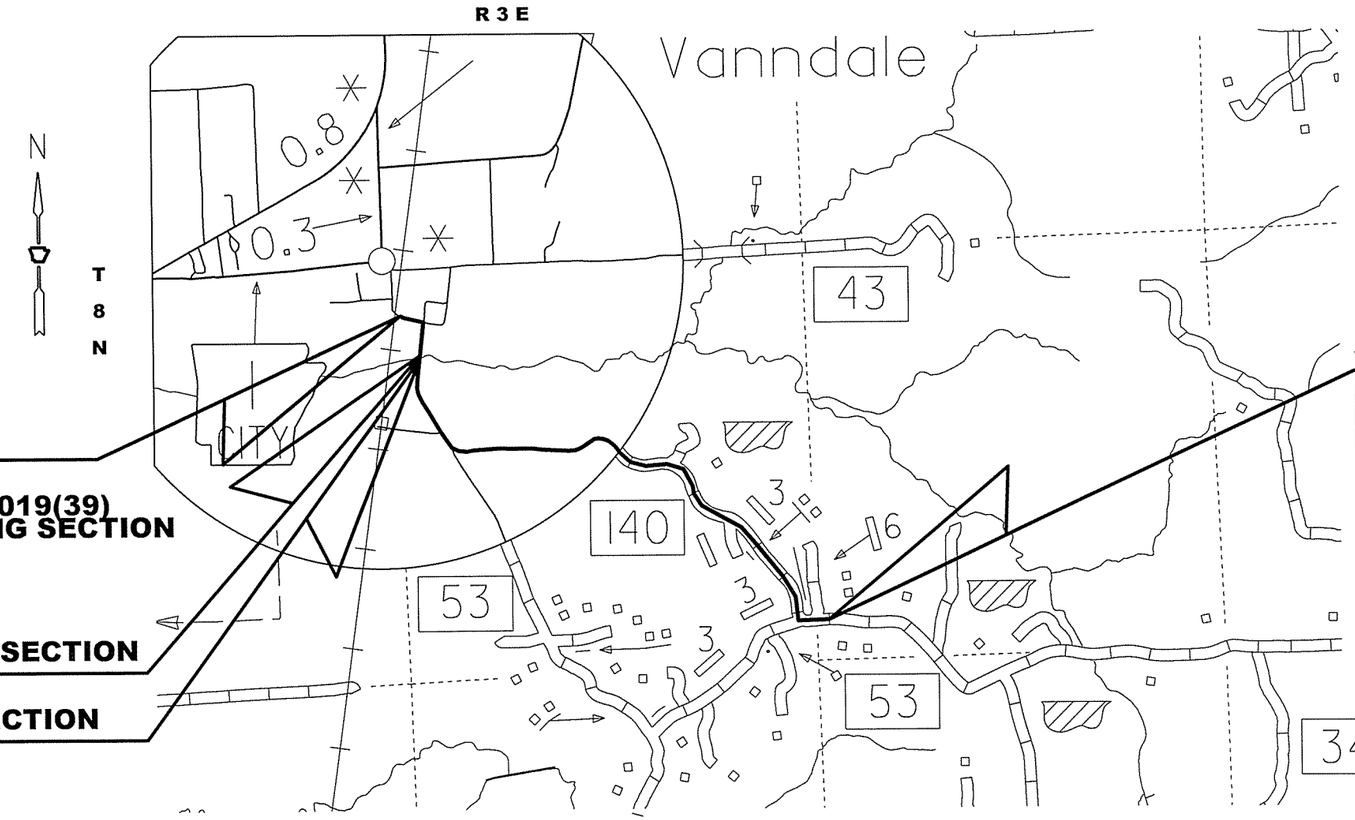
VANNDALE-EAST (PHASE 1) (RECONSTRUCTION) (S)

COUNTY ROADS 53 & 140
CROSS COUNTY
FED. AID PROJECT STP-0019(39)

JOB FA1915

NOT TO SCALE





STA. 100+00.00

BEGIN JOB FA1915
FED. AID PROJECT STPR-0019(39)
START NON-PARTICIPATING SECTION

STA. 107+28.00
END NON-PARTICIPATING SECTION

STA. 108+21.00
START PARTICIPATING SECTION

STA. 182+00.00

END JOB FA1915
END PARTICIPATING SECTION
FED. AID PROJECT STPR-0019(39)

	BEGIN	MID-POINT	END
LATITUDE	N35^18'42.6"	N35^18'21.7"	N35^18'00.7"
LONGITUDE	W90^46'22.3"	W90^45'43.5"	W90^45'19.1"

	NON-PARTICIPATING	PARTICIPATING	TOTAL
GROSS LENGTH OF PROJECT	728.00 FEET OR 0.138 MILES	7379.00 FEET OR 1.398 MILES	8107.00 FEET OR 1.535 MILES
NET " " ROADWAY	728.00 " " 0.138 "	7379.00 " " 1.398 "	8107.00 " " 1.535 "
NET " " BRIDGE	0.00 " " 0.000 "	0.00 " " 0.000 "	0.00 " " 0.000 "
NET " " PROJECT	728.00 " " 0.138 "	7379.00 " " 1.398 "	8107.00 " " 1.535 "

ARKANSAS HIGHWAY DIST. 1

DESIGN TRAFFIC DATA

DESIGN YEAR	2036
2016 ADT	350
2036 ADT	450
2036 DHV	68
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	9%
DESIGN SPEED	30 MPH

APPROVED

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

1-8-16

DEPUTY DIRECTOR
AND CHIEF ENGINEER

P.E. JOB FA1911

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	2	73
				(4)	INDEX OF SHEETS, GOV. SPECS. & GEN. NOTES			

INDEX OF SHEETS

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. UTILITIES INTERFERING WITH CONSTRUCTION SHALL BE MOVED BY THE OWNERS.
3. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
4. 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.
5. 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.
6. SUPERELEVATION SHALL BE COMPUTED IN ACCORDANCE WITH STD. DRWG. SE-2 USING 30 M.P.H. DESIGN VALUES AND REVOLVE ABOUT THE INNER EDGE OF TRAVEL LANE UNLESS OTHERWISE SHOWN.
7. ALL SALVAGEABLE PIPE CULVERTS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.
8. ROAD IS TO REMAIN OPEN THROUGHOUT THE COMPLETION OF THE PROJECT.
9. 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.

GOVERNING SPECIFICATIONS

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

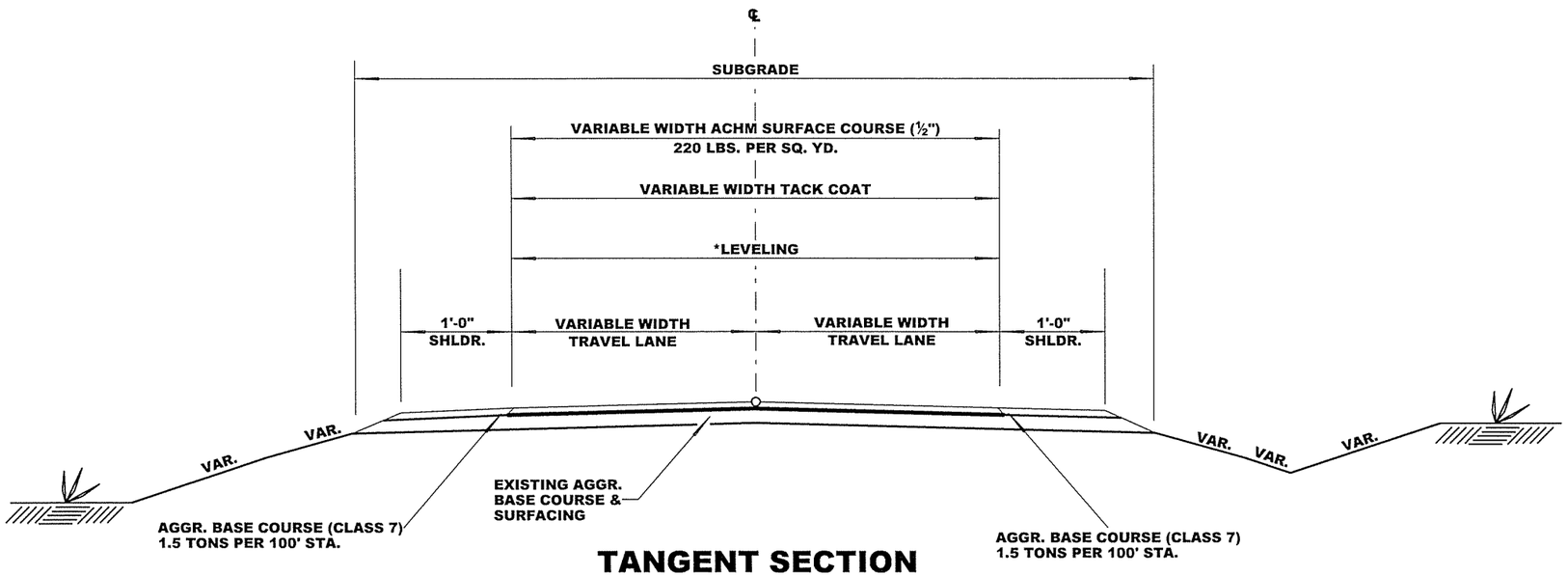
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1	AGGREGATE BASE COURSE
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB FA1915	BIDDING REQUIREMENTS AND CONDITIONS
JOB FA1915	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB FA1915	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB FA1915	CARGO PREFERENCE ACT REQUIREMENTS
JOB FA1915	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB FA1915	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB FA1915	ISSUANCE OF PROPOSALS
JOB FA1915	MANDATORY ELECTRONIC CONTRACT
JOB FA1915	PLASTIC PIPE
JOB FA1915	RECYCLED ASPHALT SHINGLES
JOB FA1915	STORM WATER POLLUTION PREVENTION PLAN
JOB FA1915	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB FA1915	UTILITY ADJUSTMENTS
JOB FA1915	WARM MIX ASPHALT

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, & GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9368
DAVID R. MAXON
6/22/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	3	73

(4) TYPICAL SECTION OF IMPROVEMENT



TANGENT SECTION

NON-PARTICIPATING SECTION
STA. 100+00 - STA. 107+28

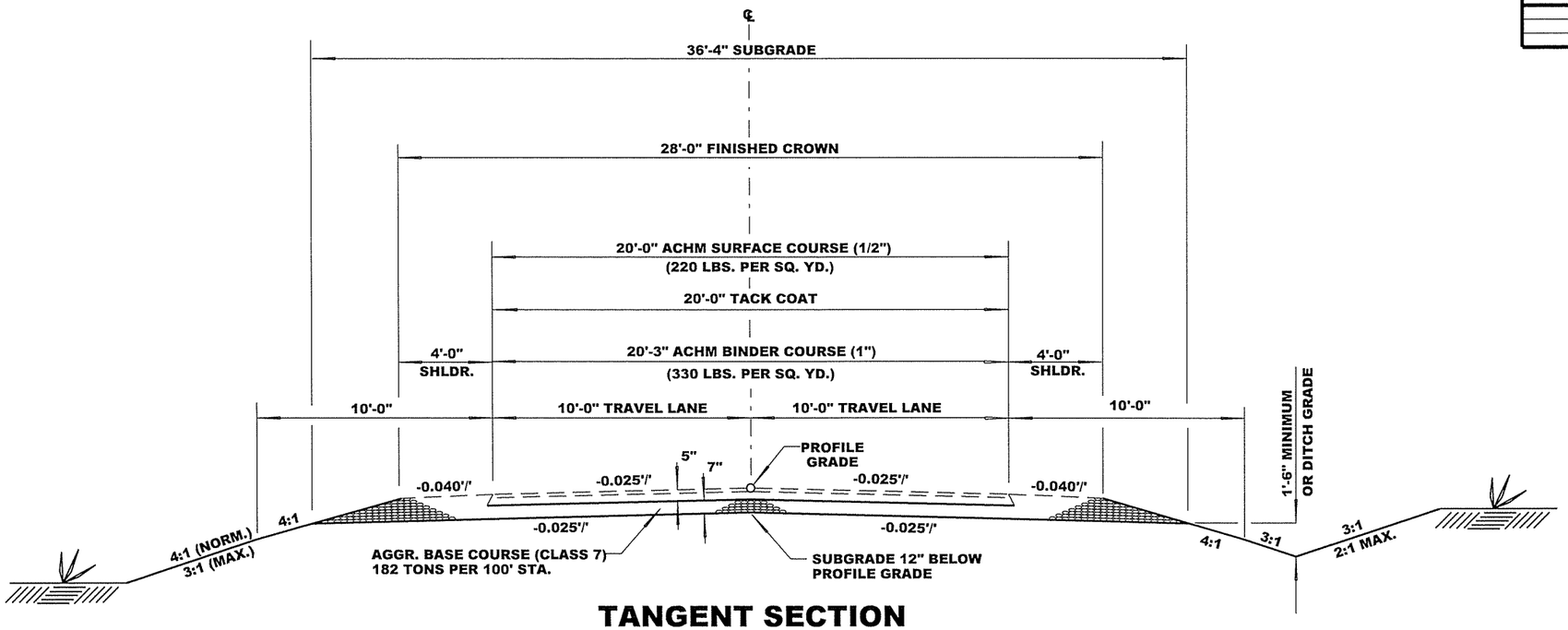
*NOTE: LEVELING COURSE LOCATION AND APPLICATION RATES ARE AT THE DIRECTION OF THE ENGINEER. SEE QUANTITY SHEETS FOR ESTIMATED AMOUNT.

TYPICAL SECTION OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

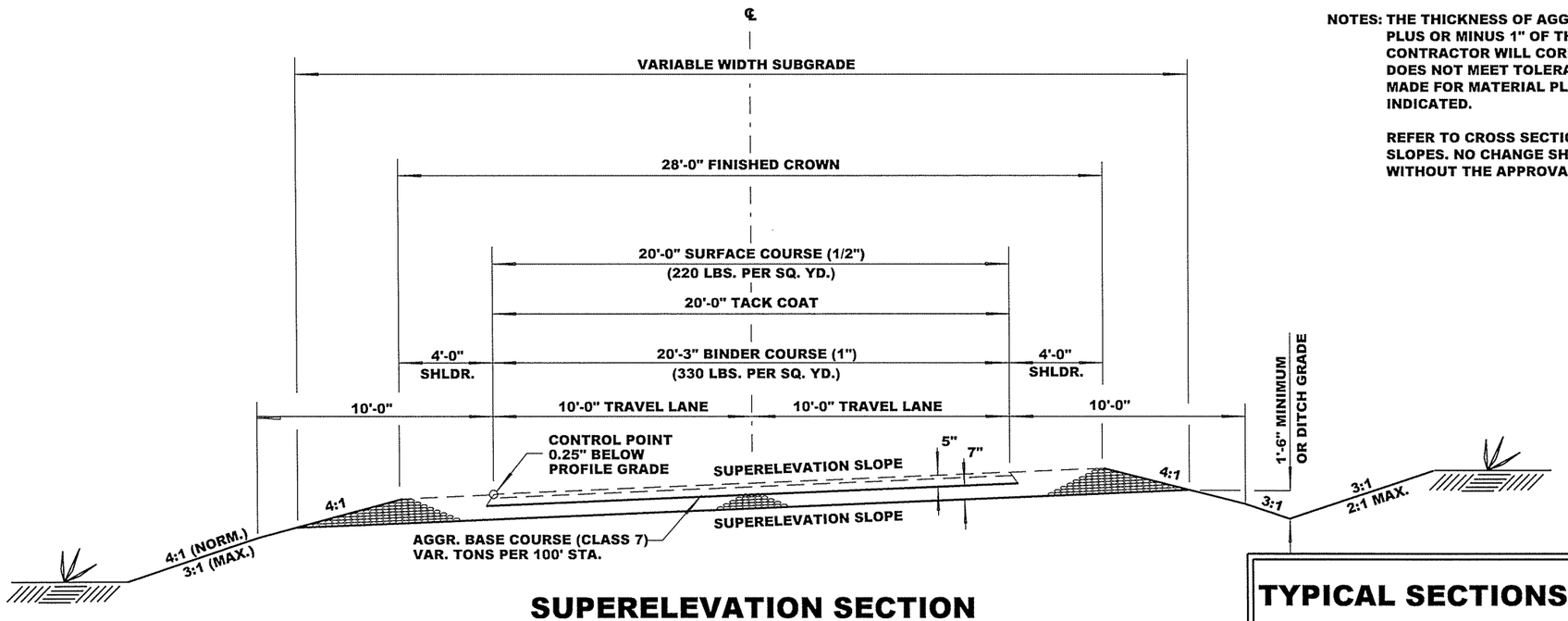
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	4	73

4 TYPICAL SECTIONS OF IMPROVEMENT



TANGENT SECTION

PARTICIPATING SECTION
STA. 108+21 - STA. 182+00



SUPERELEVATION SECTION

PARTICIPATING SECTION
STA. 108+21 - STA. 182+00

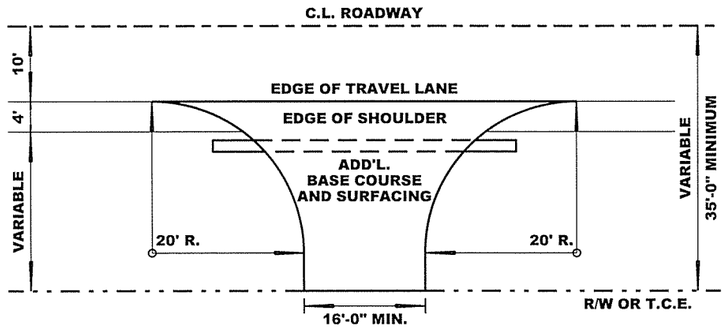
NOTES: THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

TYPICAL SECTIONS OF IMPROVEMENT

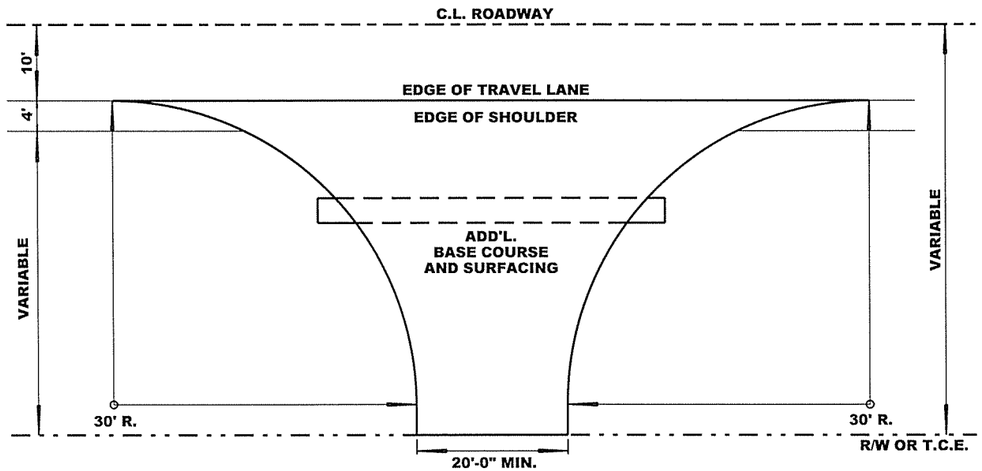
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	5	73
				4	SPECIAL DETAILS			



DETAIL OF PRIVATE ENTRANCES

ADD'L.BASE COURSE AND SURFACING
PARTICIPATING SECTION



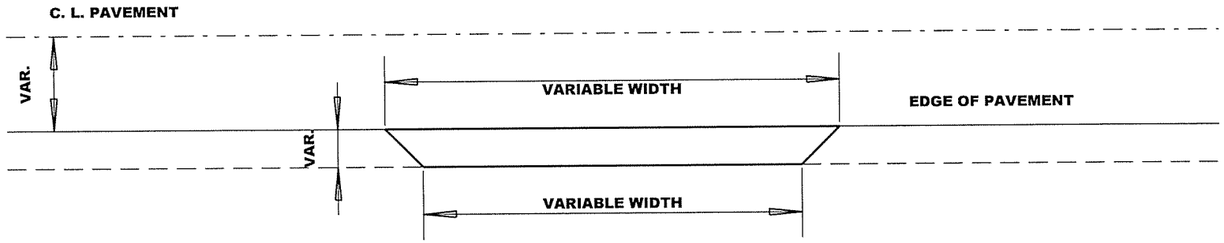
DETAIL OF COUNTY ROAD TURNOUT

ADD'L.BASE COURSE AND SURFACING
PARTICIPATING SECTION

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

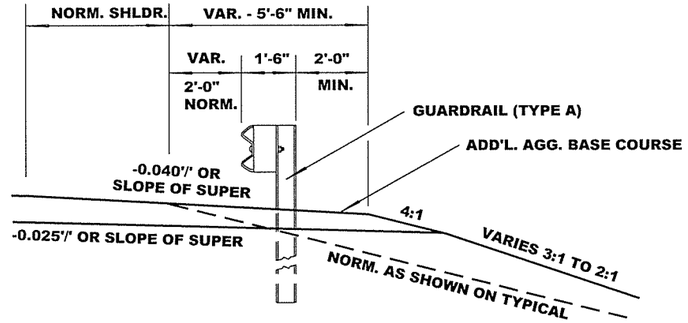
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	6	73
				4	SPECIAL DETAILS			



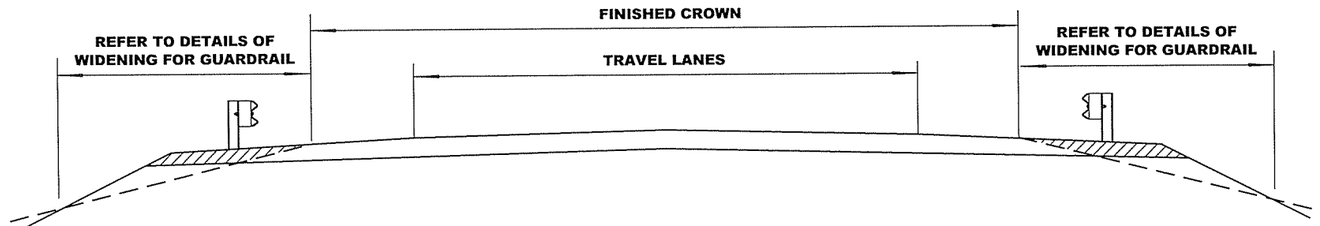
DETAIL OF PRIVATE ENTRANCES

ADD'L.BASE COURSE
NON-PARTICIPATING SECTION

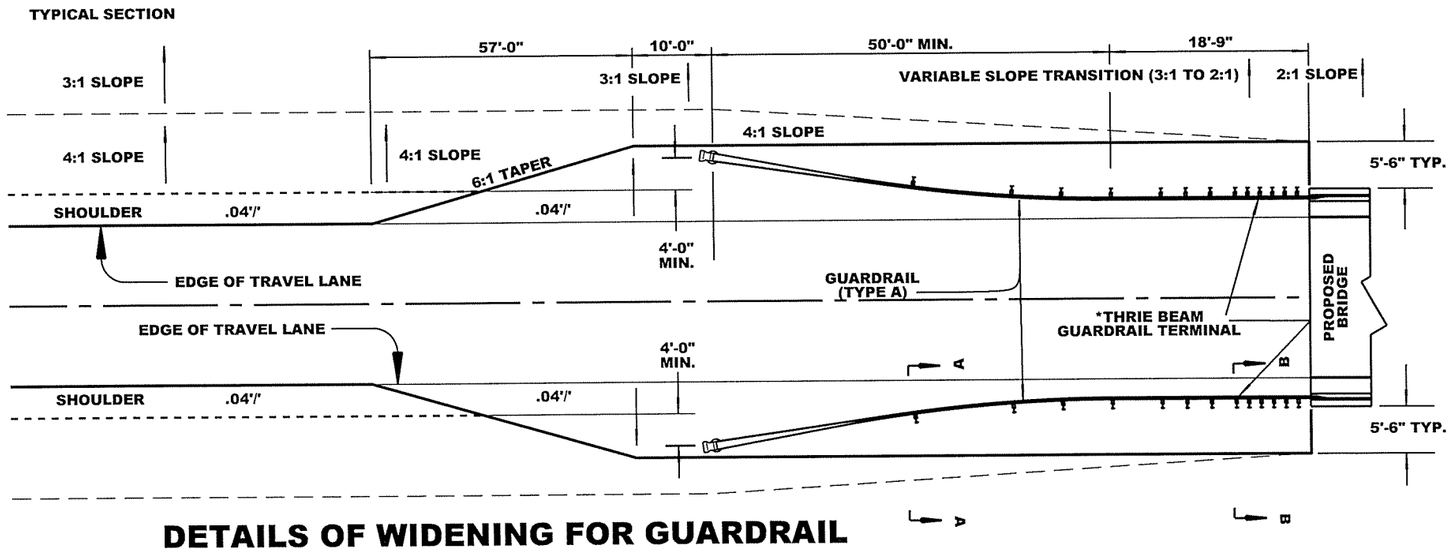
NOTE: THE ABOVE DETAIL MAY BE MODIFIED TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.



SECTION A-A

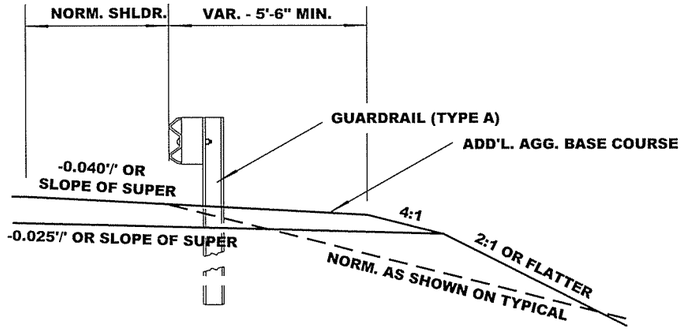


TYPICAL SECTION GUARDRAIL WIDENING



DETAILS OF WIDENING FOR GUARDRAIL

NOT TO SCALE
(GR-9A)



SECTION B-B

*NOTE: THE CONTRACTOR SHALL DRILL 1" DIA. HOLES FOR THE NEW THRIE-BEAM CONNECTION BOLTS IN THE EXISTING TRANSITION RAIL. CARE SHALL BE EXERCISED TO AVOID THE EXISTING REINFORCING STEEL IN THE RAIL. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED INCLUDED IN THE VARIOUS CONTRACT ITEMS. SEE STANDARD DRAWING GR-10 FOR ADDITIONAL DETAILS.

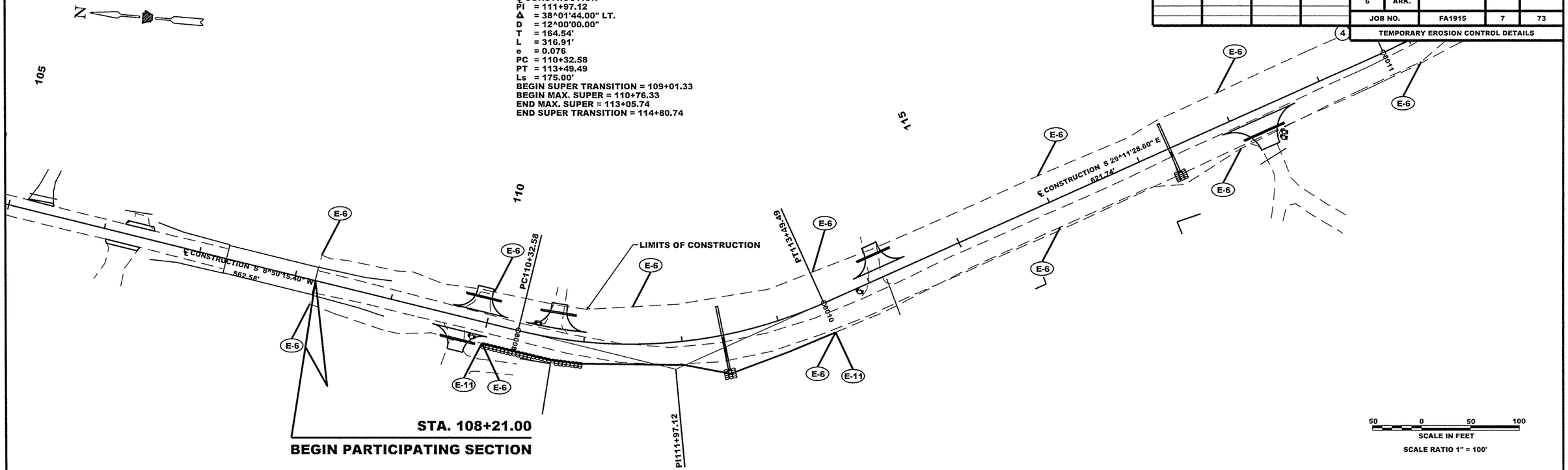
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/22/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	7	73

4 TEMPORARY EROSION CONTROL DETAILS

℄ CONSTRUCTION
PI = 111+97.12
Δ = 38^01'44.00" LT.
D = 12^00'00.00"
T = 164.54'
L = 316.91'
e = 0.076
PC = 110+32.58
PT = 113+49.49
Ls = 175.00'
BEGIN SUPER TRANSITION = 109+01.33
BEGIN MAX. SUPER = 110+76.33
END MAX. SUPER = 113+05.74
END SUPER TRANSITION = 114+80.74



50 0 50 100
SCALE IN FEET
SCALE RATIO 1" = 100'

TEMPORARY EROSION CONTROL DEVICES

ROCK DITCH CHECKS (E-6)				SEDIMENT REMOVAL AND DISPOSAL
STA. 108+21	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 110+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 111+50	LT.	= 2	CU. YD.	2 CU. YD.
STA. 113+50	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 116+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 118+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.

SILT FENCE (E-11)			SEDIMENT REMOVAL AND DISPOSAL
STA. 110+00 - STA. 113+50	LT.	= 370 LIN. FT.	12 CU. YD.

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

REVISION NO.	REVISION
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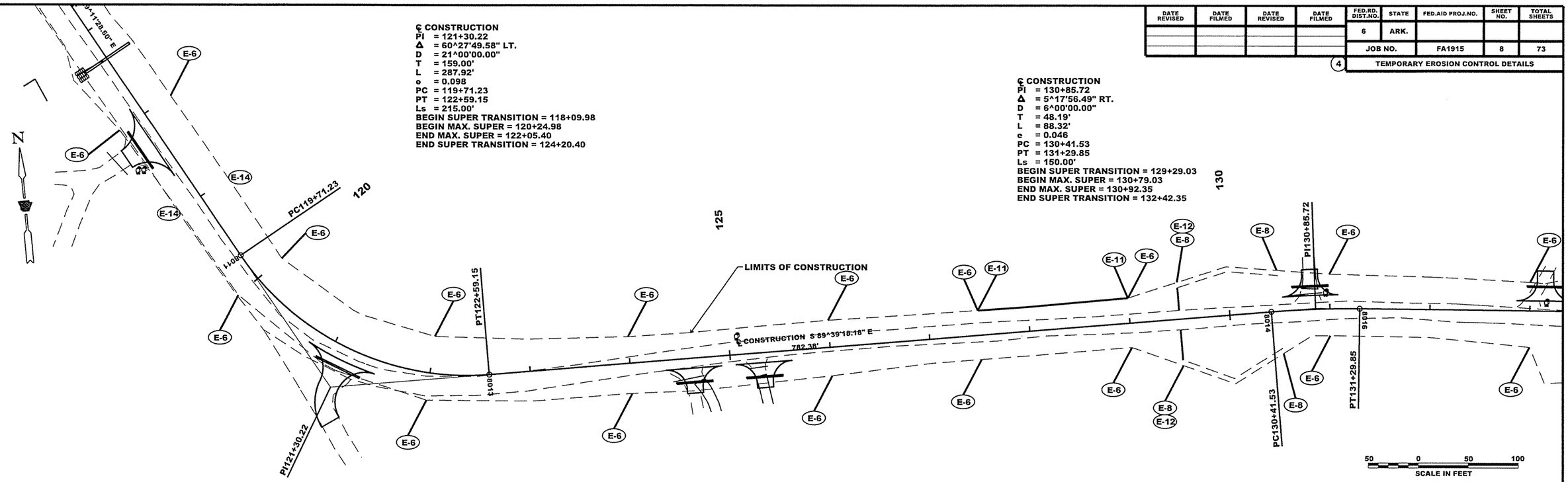
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, P.E.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	8	73

4 TEMPORARY EROSION CONTROL DETAILS



TEMPORARY EROSION CONTROL DEVICES

ROCK DITCH CHECKS (E-6)

				SEDIMENT REMOVAL AND DISPOSAL
STA. 120+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 122+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 124+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 126+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 127+50	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 129+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 131+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.

SILT FENCE (E-11)

			SEDIMENT REMOVAL AND DISPOSAL
STA. 127+50 - STA. 129+00	LT.	= 150 LIN. FT.	5 CU. YD.

SEDIMENT BASIN (E-14)

				SEDIMENT REMOVAL AND DISPOSAL
STA. 119+00	LT.	= 75	CU. YD.	75 CU. YD.
STA. 119+00	RT.	= 75	CU. YD.	75 CU. YD.

OBLIT. OF SED. BASIN = 150 CU. YD.

DIVERSION DITCH (E-8)

STA. 129+50 - STA. 130+50 LT. = 100 LIN. FT.
STA. 129+50 - STA. 130+50 RT. = 100 LIN. FT.

PIPE FOR SLOPE DRAINS (E-12)

STA. 129+50	LT.	= 25	LIN. FT.
STA. 129+50	RT.	= 45	LIN. FT.

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

REVISION NO.	REVISION
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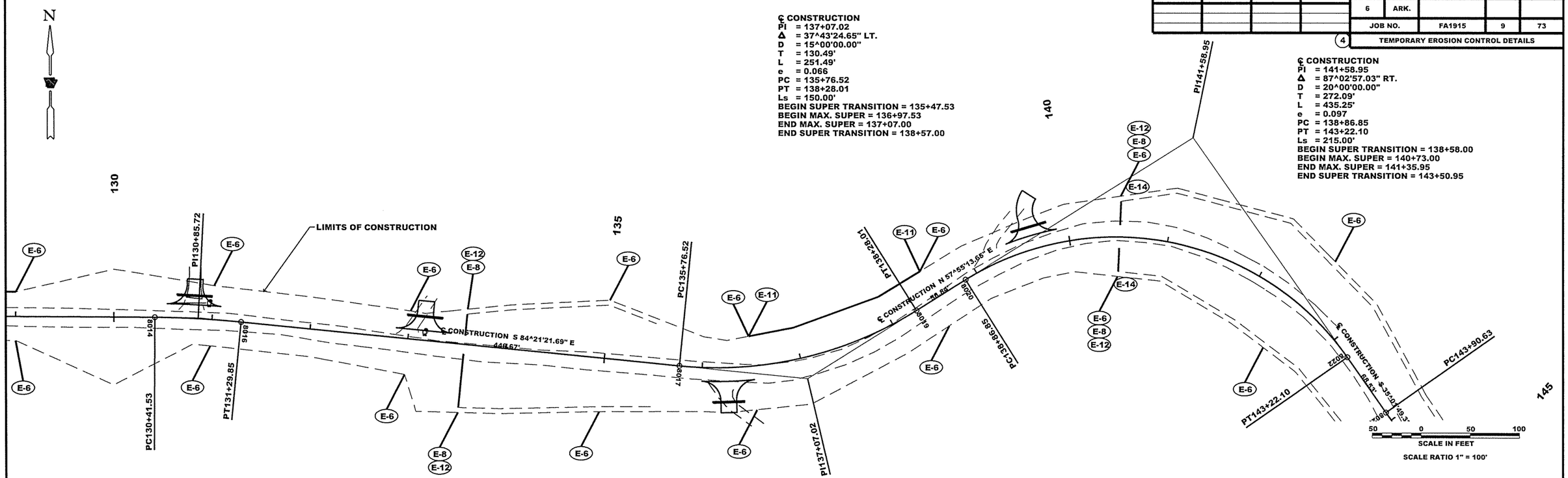
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO
6/17/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	9	73

4 TEMPORARY EROSION CONTROL DETAILS



TEMPORARY EROSION CONTROL DEVICES

			SEDIMENT REMOVAL AND DISPOSAL
ROCK DITCH CHECKS (E-6)			
STA. 133+00	LT. & RT.	= 4 CU. YD.	4 CU. YD.
STA. 135+00	LT. & RT.	= 4 CU. YD.	4 CU. YD.
STA. 136+50	LT. & RT.	= 4 CU. YD.	4 CU. YD.
STA. 138+50	LT. & RT.	= 4 CU. YD.	4 CU. YD.
STA. 140+50	LT. & RT.	= 4 CU. YD.	4 CU. YD.
STA. 142+50	LT. & RT.	= 4 CU. YD.	4 CU. YD.
SILT FENCE (E-11)			SEDIMENT REMOVAL AND DISPOSAL
STA. 136+50 - STA. 138+50	LT.	= 200 LIN. FT.	6 CU. YD.
SEDIMENT BASIN (E-14)			SEDIMENT REMOVAL AND DISPOSAL
STA. 140+50	LT.	= 75 CU. YD.	75 CU. YD.
STA. 140+50	RT.	= 75 CU. YD.	75 CU. YD.
OBLIT. OF SED. BASIN		= 150 CU. YD.	

DIVERSION DITCH (E-8)

STA. 133+50 - STA. 135+50	LT.	= 200 LIN. FT.
STA. 133+50 - STA. 135+50	RT.	= 200 LIN. FT.
STA. 140+50 - STA. 145+00	LT.	= 450 LIN. FT.
STA. 140+50 - STA. 145+00	RT.	= 450 LIN. FT.

PIPE FOR SLOPE DRAINS (E-12)

STA. 133+50	LT.	= 25 LIN. FT.
STA. 133+50	RT.	= 45 LIN. FT.
STA. 140+50	LT.	= 30 LIN. FT.
STA. 140+50	RT.	= 20 LIN. FT.

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

REVISION NO.	REVISION
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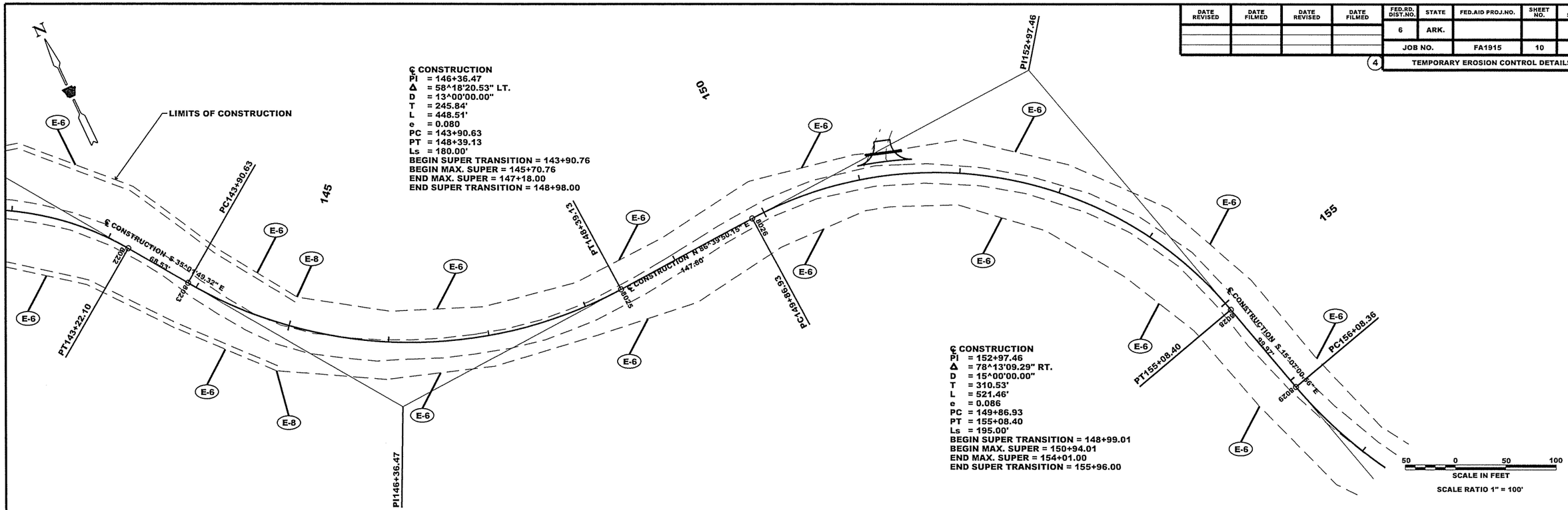
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, P.E.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	10	73

4 TEMPORARY EROSION CONTROL DETAILS



TEMPORARY EROSION CONTROL DEVICES

ROCK DITCH CHECKS (E-6)				SEDIMENT REMOVAL AND DISPOSAL	
STA. 144+50	LT. & RT.	= 4	CU. YD.	4	CU. YD.
STA. 146+50	LT. & RT.	= 4	CU. YD.	4	CU. YD.
STA. 148+50	LT. & RT.	= 4	CU. YD.	4	CU. YD.
STA. 150+50	LT. & RT.	= 4	CU. YD.	4	CU. YD.
STA. 152+50	LT. & RT.	= 4	CU. YD.	4	CU. YD.
STA. 154+50	LT. & RT.	= 4	CU. YD.	4	CU. YD.
STA. 156+00	LT. & RT.	= 4	CU. YD.	4	CU. YD.

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

REVISION NO.	REVISION
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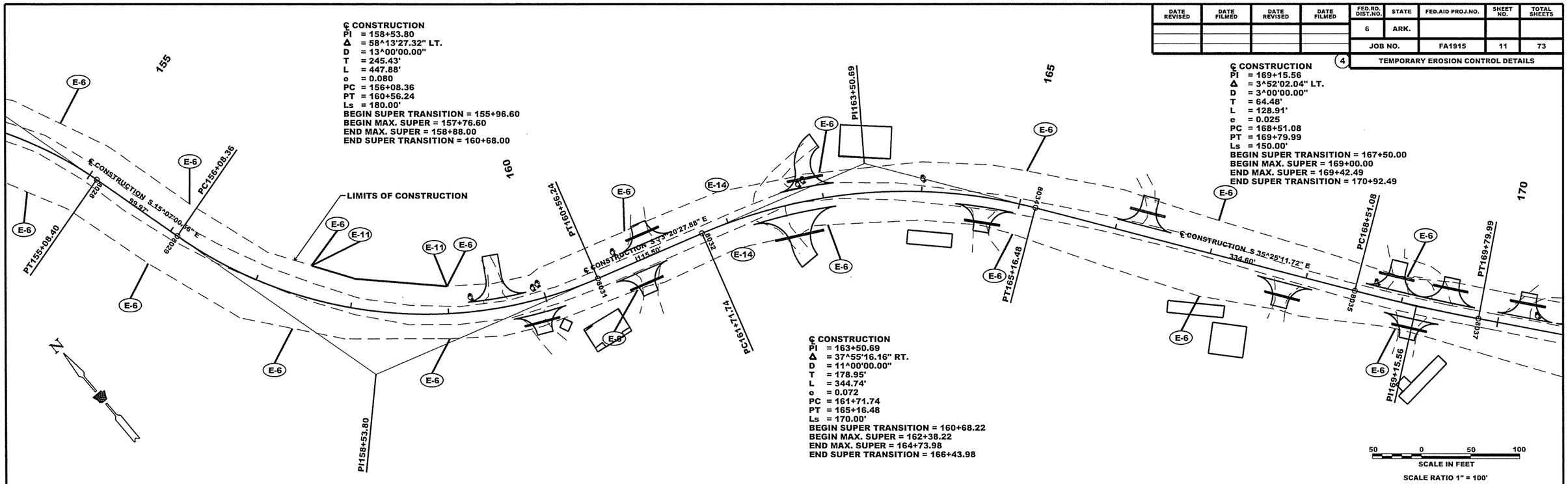
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R MAYO, JR.

6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	11	73

4 TEMPORARY EROSION CONTROL DETAILS



TEMPORARY EROSION CONTROL DEVICES

				SEDIMENT REMOVAL AND DISPOSAL
ROCK DITCH CHECKS (E-6)				
STA. 157+50	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 159+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 161+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 163+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 165+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 167+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 169+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
SILT FENCE (E-11)				SEDIMENT REMOVAL AND DISPOSAL
STA. 157+50 - STA. 159+00	LT.	= 150	LIN. FT.	5 CU. YD.
SEDIMENT BASIN (E-14)				SEDIMENT REMOVAL AND DISPOSAL
STA. 162+00	LT.	= 75	CU. YD.	75 CU. YD.
STA. 162+00	RT.	= 75	CU. YD.	75 CU. YD.
OBLIT. OF SED. BASIN		= 150	CU. YD.	

REVISION NO.	REVISION
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REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

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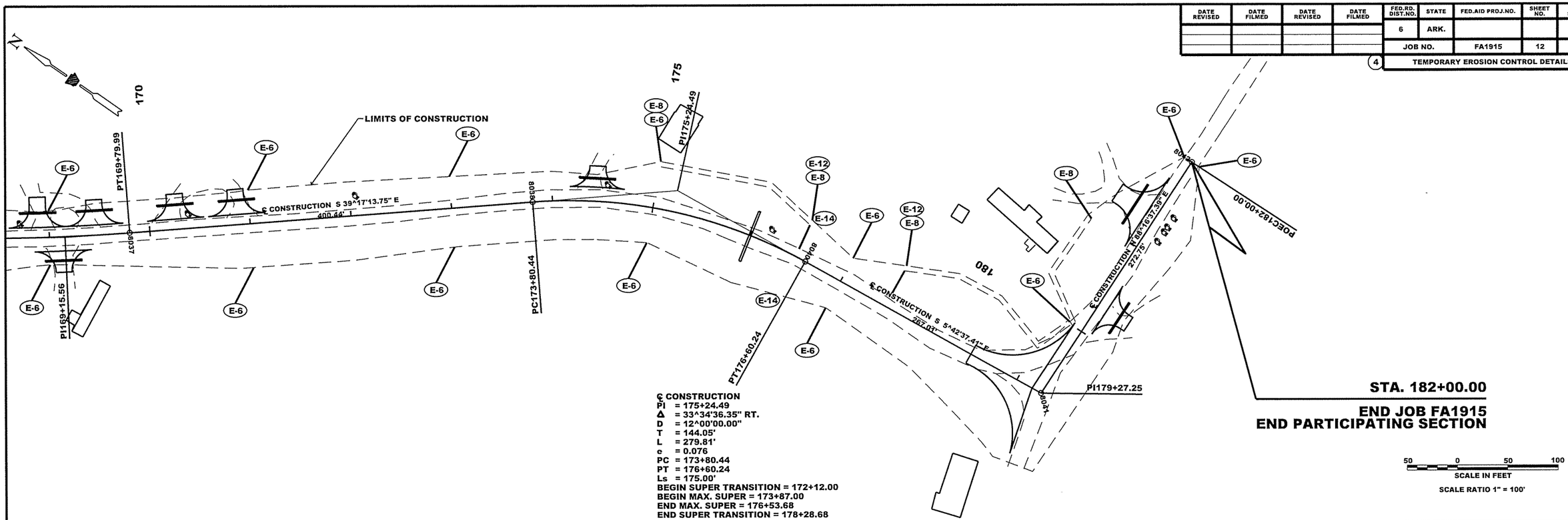
				6	ARK.			
				JOB NO.		FA1915	12	73

4 TEMPORARY EROSION CONTROL DETAILS



℄ CONSTRUCTION
PI = 175+24.49
Δ = 33^34'36.35" RT.
D = 12^00'00.00"
T = 144.05'
L = 279.81'
e = 0.076
PC = 173+80.44
PT = 176+60.24
Ls = 175.00'
BEGIN SUPER TRANSITION = 172+12.00
BEGIN MAX. SUPER = 173+87.00
END MAX. SUPER = 176+53.68
END SUPER TRANSITION = 178+28.68

STA. 182+00.00
END JOB FA1915
END PARTICIPATING SECTION

50 0 50 100
SCALE IN FEET
SCALE RATIO 1" = 100'

TEMPORARY EROSION CONTROL DEVICES

ROCK DITCH CHECKS (E-6)

				SEDIMENT REMOVAL AND DISPOSAL
STA. 171+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 173+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 175+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 177+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 180+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.
STA. 182+00	LT. & RT.	= 4	CU. YD.	4 CU. YD.

SEDIMENT BASIN (E-14)

				SEDIMENT REMOVAL AND DISPOSAL
STA. 176+50	LT.	= 75	CU. YD.	75 CU. YD.
STA. 176+50	RT.	= 75	CU. YD.	75 CU. YD.

OBLIT. OF SED. BASIN = 150 CU. YD.

DIVERSION DITCH (E-8)

STA. 175+00 - STA. 176+50 LT. = 150 LIN. FT.
STA. 177+50 - STA. 181+00 LT. = 315 LIN. FT.

PIPE FOR SLOPE DRAINS (E-12)

STA. 176+50	LT.	= 30	LIN. FT.
STA. 177+50	LT.	= 35	LIN. FT.

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

REVISION NO.	REVISION
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DAVID R MAYOUR
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				6	ARK.			
				JOB NO.		FA1915	13	73
				4	QUANTITIES			

EARTHWORK

STATION	STATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT		
		MAIN LANES	MAIN LANES	ADDITIONAL	TOTAL
		CUBIC YARD			
PARTICIPATING SECTION					
108+21	182+00	31279	4219		4219
109+75				20	20
109+91				25	25
110+70				30	30
114+15				25	25
118+28				30	30
121+13				45	45
124+63				25	25
125+33				25	25
130+81				25	25
133+15				25	25
136+26				70	70
139+64				40	40
151+27				25	25
159+51				45	45
159+90				25	25
161+00				25	25
161+16				25	25
162+68				110	110
162+85				35	35
164+65				25	25
166+28				30	30
167+81				25	25
168+89				30	30
169+13				20	20
169+46				25	25
170+27				25	25
170+88				25	25
174+43				20	20
180+31				25	25
181+34				50	50
TOTALS:		31279	4219	975	5194

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	DESCRIPTION	PIPE CULVERTS	FENCE	CONCRETE DRIVEWAYS	GUARDRAIL
				EACH	LIN. FT.	SQ. YD.	LIN. FT.
NON-PARTICIPATING SECTION							
106+52	107+28	LT. & RT.	GUARDRAIL				152
SUBTOTALS:							152
PARTICIPATING SECTION							
108+21	108+97	LT. & RT.	GUARDRAIL				152
109+71		RT.	12"X28' CMP PIPE CULVERT SIDE DRAIN	1			
111+84	116+37	RT.	FENCE		467		
112+42		CROSS DRAIN	18"X39' CMP PIPE CULVERT	1			
114+18		CROSS DRAIN	18"X39' CMP PIPE CULVERT	1			
117+33		CROSS DRAIN	18"X30' CMP PIPE CULVERT	1			
123+09	124+45	RT.	FENCE		140		
124+58		RT.	12"X32' CMP PIPE CULVERT SIDE DRAIN	1			
124+63		RT.	CONCRETE DRIVEWAYS			8	
125+27		RT.	12"X20' CMP PIPE CULVERT SIDE DRAIN	1			
125+33		RT.	CONCRETE DRIVEWAYS			14	
126+77	129+47	LT.	FENCE		270		
129+19	130+81	RT.	FENCE		159		
130+77		LT.	18"X32' CMP PIPE CULVERT SIDE DRAIN	1			
130+81		LT.	CONCRETE DRIVEWAYS			29	
131+09	132+86	LT.	FENCE		202		
132+66	138+99	RT.	FENCE		656		
133+40	139+12	LT.	FENCE		565		
139+35	143+17	LT.	FENCE		440		
146+29	159+39	RT.	FENCE		1308		
167+90	168+14	LT.	FENCE		32		
179+27	179+75	RT.	FENCE		135		
SUBTOTALS:				7	4374	51	152
TOTALS:				7	4374	51	304

WIRE FENCE

STATION	STATION	SIDE	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D-1)
			LIN. FT.	LIN. FT.
PARTICIPATING SECTION				
111+84	116+37	RT.	473	
123+09	124+45	RT.		137
126+77	129+47	LT.		272
129+19	130+81	RT.		167
131+09	132+86	LT.		176
132+66	138+86	RT.		656
133+40	139+12	LT.		565
139+35	143+18	LT.		440
146+29	159+39	RT.		1293
167+90	168+14	LT.		24
179+27	179+75	RT.	128	
TOTALS:			601	3730

DUMPED RIPRAP

STATION	STATION	SIDE	DUMPED RIPRAP	FILTER BLANKET
			CU. YD.	SQ. YD.
PARTICIPATING SECTION				
110+00	111+00	RT.	33	66
112+37	112+47	RT.	4	8
117+28	117+38	RT.	4	8
160+00	160+90	RT.	54	108
163+00	164+00	LT.	71	142
TOTALS:			166	332

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	STATION
PARTICIPATING SECTION			
108+21	182+00	66	66
TOTALS:		66	66

ITEMS REMOVED AND RECONSTRUCTED

STATION	STATION	SIDE	DESCRIPTION	FENCE REMOVED AND RECONSTRUCTED
				LIN. FT.
PARTICIPATING SECTION				
159+49	159+77	RT.	4' WOOD FENCE	39
159+99	160+75	RT.	4' WOOD FENCE	92
172+44	173+52	LT.	6' WOOD FENCE	108
TOTAL:				239

REFLECTORIZED PAINT PAVEMENT MARKING

STATION	STATION	4" YELLOW	4" WHITE
		LIN. FT.	LIN. FT.
NON-PARTICIPATING SECTION			
100+00	108+21	1642	1642
SUBTOTALS:		1642	1642
PARTICIPATING SECTION			
108+21	182+00	14758	14758
SUBTOTALS:		14758	14758
TOTALS:		16400	16400

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

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				6	ARK.			
				JOB NO.		FA1915	14	73
				4	QUANTITIES			

STRUCTURES

STATION	DESCRIPTION	SIDE DRAIN	CROSS DRAIN ALTS.		F.E.S. ALTS.		SOLID SODDING	WATER	SELECTED PIPE BEDDING	STANDARD DRAWING
		18"	24" R.C.P. (CLASS V)	24" COATED CSP, H.D.P.E.&PVC (16 GAUGE)	24" R.C.P.	24" C.M.P.				
		LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	SQ. YD.	M. GAL.	CU. YD.	
PARTICIPATING SECTION										
109+75	SIDE DRAIN RT.	36								PCC-1, PCM-1
109+91	SIDE DRAIN LT.	36								PCC-1, PCM-1
110+70	SIDE DRAIN LT.	36								PCC-1, PCM-1
112+42	CROSS DRAIN		54	60	2	2	16	0.20	2	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
114+15	SIDE DRAIN LT.	36								PCC-1, PCM-1
117+33	CROSS DRAIN		42	48	2	2	16	0.20	2	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
118+28	SIDE DRAIN RT.	44								PCC-1, PCM-1
121+13	SIDE DRAIN RT.	48								PCC-1, PCM-1
124+63	SIDE DRAIN RT.	36								PCC-1, PCM-1
125+33	SIDE DRAIN RT.	36								PCC-1, PCM-1
130+81	SIDE DRAIN LT.	36								PCC-1, PCM-1
133+15	SIDE DRAIN LT.	36								PCC-1, PCM-1
136+26	SIDE DRAIN RT.	38								PCC-1, PCM-1
139+64	SIDE DRAIN LT.	36								PCC-1, PCM-1
151+27	SIDE DRAIN LT.	36								PCC-1, PCM-1
159+90	SIDE DRAIN RT.	36								PCC-1, PCM-1
161+00	SIDE DRAIN RT.	36								PCC-1, PCM-1
161+16	SIDE DRAIN LT.	36								PCC-1, PCM-1
162+68	SIDE DRAIN RT.	50								PCC-1, PCM-1
162+85	SIDE DRAIN LT.	36								PCC-1, PCM-1
164+65	SIDE DRAIN RT.	36								PCC-1, PCM-1
166+28	SIDE DRAIN LT.	36								PCC-1, PCM-1
167+81	SIDE DRAIN RT.	36								PCC-1, PCM-1
168+89	SIDE DRAIN LT.	36								PCC-1, PCM-1
169+13	SIDE DRAIN RT.	36								PCC-1, PCM-1
169+46	SIDE DRAIN LT.	36								PCC-1, PCM-1
170+27	SIDE DRAIN LT.	36								PCC-1, PCM-1
170+88	SIDE DRAIN LT.	36								PCC-1, PCM-1
174+43	SIDE DRAIN LT.	36								PCC-1, PCM-1
176+00	CROSS DRAIN		42	48	2	2	16	0.20	2	PCC-1, PCM-1, FES-1, FES-2, PCP-1, PCP-2
180+31	SIDE DRAIN RT.	36								PCC-1, PCM-1
181+34	SIDE DRAIN LT.	36								PCC-1, PCM-1
TOTALS:		1080	138	156	6	6	48	0.60	6	

BASIS OF ESTIMATE:

WATER = 12.6 GAL. PER SQ. YD. SOLID SODDING.
NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS, USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. OR PLASTIC PIPE CULVERT INSTALLATIONS, USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

TEMPORARY EROSION CONTROL

STATION	STATION	LOCATION	SAND BAG DITCH CKS. (E-5)	ROCK DITCH CKS. (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLIT. OF SEDIMENT BASIN	DIVERSION DITCH (E-8)	PIPE FOR SLOPE DRAINS (E-12)	SEDIMENT REMOVAL & DISPOSAL	STANDARD DRAWING NUMBER
			BAG	CU. YD.	LIN. FT.	CU. YD.	CU. YD.	LIN. FT.	LIN. FT.	CU. YD.	
PARTICIPATING SECTION											
108+21	182+00	MAIN LANES		154	870	600	600	1965	255	782	TEC-1, 2&3
* ENTIRE SECTION AS DIRECTED BY ENGINEER			78		100					16	TEC-1, 2&3
TOTALS:			78	154	970	600	600	1965	255	798	

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 ARE ESTIMATED AND SHALL BE PLACED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.**

TEMPORARY & PERMANENT SEEDING

STATION	TEMPORARY SEEDING	LIME	SEEDING	MULCH COVER	WATER	STANDARD DRAWING NO.
	ACRE	TON	ACRE	ACRE	M. GAL.	
PARTICIPATING SECTION						
ENTIRE SECTION	5.76	12	5.76	11.52	705.02	TEC-3
TOTALS:	5.76	12	5.76	11.52	705.02	

BASIS OF ESTIMATE:

LIME 2 TONS PER ACRE
WATER 102 M. GALS. PER ACRE PERMANENT SEEDING
WATER 20.4 M. GALS. PER ACRE TEMPORARY SEEDING

MAILBOXES

STATION	SIDE	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)	MAILBOXES
		EACH		
PARTICIPATING SECTION				
110+03	RT.	1		1
110+39	LT.	1		1
113+87	LT.	1		1
118+68	RT.		1	2
125+08	LT.	1		1
131+08	LT.	1		1
133+43	LT.	1		1
159+21	LT.	1		1
159+93	LT.		1	2
160+88	LT.	1		1
163+12	LT.		1	2
164+00	LT.	1		1
168+61	LT.	1		1
170+55	LT.	1		1
172+06	LT.	1		1
174+69	LT.	1		1
176+18	LT.	1		1
181+35	RT.		1	2
181+37	RT.		1	2
TOTALS:		14	5	24

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				JOB NO.		FA1915	15	73

(4) QUANTITIES

AGGREGATE BASE COURSE AND SURFACING

STATION	STATION	DESCRIPTION	LENGTH	AGGREGATE BASE CRS. (CLASS 7)	TACK COAT			*ACHM BINDER COURSE (1")			*ACHM SURFACE COURSE (½")		
					WIDTH	SQ. YD.	GAL.	WIDTH	SQ. YD.	TON	WIDTH	SQ. YD.	TON
			LIN. FT.	TON	LIN. FT.			LIN. FT.			LIN. FT.		
NON-PARTICIPATING SECTION													
100+00	107+28	SHOULDERS	728	21.8									
100+00	107+28	MAIN LANES	728		VARIES	1593.3	127.5				VARIES	1512.5	166.3
100+00	107+28	LEVELING	728	20.0	VARIES								
101+33		PRIVATE DRIVE ON RT.				2.7	0.2					2.7	0.3
101+68		PRIVATE DRIVE ON RT.				1.0	0.1					1.0	0.1
103+15		COUNTY ROAD TURNOUT ON LT.				113.0	9.0					113.0	12.4
103+21		COUNTY ROAD TURNOUT ON LT.				164.7	13.2					164.7	18.1
104+09		PRIVATE DRIVE ON LT.				8.8	0.7					8.8	1.0
104+29		PRIVATE DRIVE ON RT.				10.7	0.9					10.7	1.2
105+31		PRIVATE DRIVE ON LT.				5.9	0.5					5.9	0.6
106+21		PRIVATE DRIVE ON RT.				15.3	1.2					15.3	1.7
106+35		PRIVATE DRIVE ON LT.				12.6	1.0					12.6	1.4
SUBTOTALS:				41.8			154.3						203.1
PARTICIPATING SECTION													
108+21.00	109+09.15	WIDENING FOR GUARDRAIL	88.15	223.9	21	205.7	16.5	20.25	198.3	32.7	20	195.9	21.5
109+09.15	109+66.15	TAPER	57.00	124.3	21	133.0	10.6	20.25	128.3	21.2	20	126.7	13.9
109+66.15	182+00.00	MAIN LANES	7233.85	13165.6	21	16879.0	1350.3	20.25	16276.2	2685.6	20	16075.2	1768.3
109+75		PRIVATE DRIVE ON RT.		23.0		56.4	4.5					56.4	6.2
109+91		PRIVATE DRIVE ON LT.		25.9		63.5	5.1					63.5	7.0
110+70		PRIVATE DRIVE ON LT.		26.8		65.6	5.2					65.6	7.2
114+15		PRIVATE DRIVE ON LT.		25.9		63.5	5.1					63.5	7.0
118+28		COUNTY ROAD TURNOUT ON RT.		44.7		109.6	8.8					109.6	12.1
121+13		COUNTY ROAD TURNOUT ON RT.		74.2		181.7	14.5					181.7	20.0
124+63		PRIVATE DRIVE ON RT.		25.9									
125+33		PRIVATE DRIVE ON RT.		25.9									
130+81		PRIVATE DRIVE ON LT.		26.3									
133+15		PRIVATE DRIVE ON LT.		29.6		72.4	5.8					72.4	8.0
136+26		FIELD ENTRANE ON RT.		30.0		73.4	5.9					73.4	8.1
139+64		PRIVATE DRIVE ON LT.		38.0		93.0	7.4					93.0	10.2
151+27		FIELD ENTRANCE ON LT.		22.1		54.1	4.3					54.1	6.0
159+51		PRIVATE DRIVE ON LT.		40.8		99.8	8.0					99.8	11.0
159+90		PRIVATE DRIVE ON RT.		22.2		54.4	4.4					54.4	6.0
161+00		PRIVATE DRIVE ON RT.		25.2		61.7	4.9					61.7	6.8
161+16		PRIVATE DRIVE ON LT.		23.0		56.4	4.5					56.4	6.2
162+68		COUNTY ROAD TURNOUT ON RT.		66.2		162.1	13.0					162.1	17.8
162+85		PRIVATE DRIVE ON LT.		44.4		108.7	8.7					108.7	12.0
164+65		PRIVATE DRIVE ON RT.		26.8		65.5	5.2					65.5	7.2
166+28		FIELD ENTRANCE ON LT.		29.6		72.4	5.8					72.4	8.0
167+81		PRIVATE DRIVE ON RT.		25.9		63.5	5.1					63.5	7.0
168+89		PRIVATE DRIVE ON LT.		29.8		72.9	5.8					72.9	8.0
169+13		PRIVATE DRIVE ON RT.		22.8		55.9	4.5					55.9	6.1
169+46		PRIVATE DRIVE ON LT.		26.1		64.0	5.1					64.0	7.0
170+27		PRIVATE DRIVE ON LT.		25.9		63.5	5.1					63.5	7.0
170+88		PRIVATE DRIVE ON LT.		25.9		63.5	5.1					63.5	7.0
174+43		PRIVATE DRIVE ON LT.		22.3		54.6	4.4					54.6	6.0
178+48	179+17	ADDITIONAL FOR COUNTY ROAD TURNOUT		307.9		200.7	16.1					200.7	22.1
180+31		FIELD ENTRANCE ON RT.		25.9		63.5	5.1					63.5	7.0
181+34		COUNTY ROAD TURNOUT ON LT.		49.3		120.7	9.7					120.7	13.3
** ENTIRE SECTION		MAINTENANCE OF TRAFFIC		2000.0									
SUBTOTALS:				16772.1			1564.5			2739.5			2061.0
TOTALS:				16813.9			1718.8			2739.5			2264.1
USE:				16814			1719			2740			2264

BASIS OF ESTIMATE:

AGGREGATE BASE COURSE (CLASS 7)	254 TONS PER 100' STA. (WIDENING FOR GUARDRAIL)
AGGREGATE BASE COURSE (CLASS 7)	218 TONS PER 100' STA. (TAPER)
AGGREGATE BASE COURSE (CLASS 7)	182 TONS PER 100' STA. (MAIN LANES)
AGGREGATE BASE COURSE (CLASS 7)	3 TONS PER 100' STA. (SHOULDERS)
TACK COAT	0.08 GAL./SQ. YD.
ACHM BINDER COURSE (1")	330 LBS./SQ. YD.
ACHM SURFACE COURSE (1/2")	220 LBS./SQ. YD.

**QUANTITIES ARE ESTIMATED AND SHALL BE PLACED IF AND WHERE BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

NOTE: RATES MAY BE MODIFIED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

* Nmax = 115

PROPORTION BY WEIGHT:

MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	95.8%
ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	4.2%
MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	94.8%
ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	5.2%

GUARDRAIL

STATION	STATION	SIDE	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TYPE 1)	THRIE BEAM GUARDRAIL TERMINAL
			LIN. FT.	EACH	EACH
NON-PARTICIPATING SECTION					
106+59.25	107+09.25	LT. & RT.	100	2	2
SUBTOTALS:			100	2	2
PARTICIPATING SECTION					
108+39.75	108+89.75	LT. & RT.	100	2	2
SUBTOTALS:			100	2	2
TOTALS:			200	4	4

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/22/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	16	73
				4	QUANTITIES			

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

STATION	SIDE	STANDARD SIGN NUMBER																		SUPPORT ASSEMBLIES (TYPE A)	STANDARD DRAWING NUMBER
		R1-1		W1-1L		W1-1R		W1-2L		W1-2R		W1-4L		W1-5L		W3-1		W8-3		W10-1			
		NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	EACH	
NON-PARTICIPATING SECTION																							
98+87	RT.							1	6.25													1	SHS - 1 & 2
100+85	RT.					1	6.25															1	SHS - 1 & 2
101+00	LT.																			1	7.07	1	SHS - 1 & 2
102+86	LT.									1	6.25											1	SHS - 1 & 2
105+51	LT.			1	6.25																	1	SHS - 1 & 2
SUBTOTALS:				1	6.25	1	6.25	1	6.25	1	6.25									1	7.07	5	
PARTICIPATING SECTION																							
108+58	RT.							1	6.25													1	SHS - 1 & 2
115+25	LT.									1	6.25											1	SHS - 1 & 2
117+96	RT.							1	6.25													1	SHS - 1 & 2
124+34	LT.									1	6.25											1	SHS - 1 & 2
134+02	RT.													1	6.25							1	SHS - 1 & 2
154+33	RT.											1	6.25									1	SHS - 1 & 2
156+83	LT.													1	6.25							1	SHS - 1 & 2
166+91	LT.											1	6.25									1	SHS - 1 & 2
172+05	RT.									1	6.25											1	SHS - 1 & 2
176+00	RT.															1	9.00					1	SHS - 1 & 2
178+35	LT.							1	6.25													1	SHS - 1 & 2
179+00	RT.	1	6.25															1	9.00			1	SHS - 1 & 2
180+25	RT.																	1	9.00			1	SHS - 1 & 2
180+60	LT.																						
SUBTOTALS:		1	6.25					3	18.75	3	18.75	2	12.50	2	12.50	1	9.00	2	18.00			14	
TOTALS:		1	6.25	1	6.25	1	6.25	4	25.00	4	25.00	2	12.50	2	12.50	1	9.00	2	18.00	1	7.07	19	

NOTE: ALL STANDARD SIGN BLANKS TO BE 0.080" THICK. REFER TO STANDARD DWG. SHS-2 FOR CHANNEL POST SPLICING DETAILS.

TRAFFIC CONTROL DEVICES

LOCATION	W20-1								G20-1		G20-2		TRAFFIC DRUMS	STANDARD DRAWING NUMBER
	1500 FT.		1000 FT.		500 FT.		AHEAD							
	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	NO.	SQ. FT.	EACH	
NON-PARTICIPATING SECTION														
STA. 85+00	1	16												TC-1, 2 & 3
STA. 90+00			1	16										TC-1, 2 & 3
STA. 95+00					1	16					1	8		TC-1, 2 & 3
STA. 100+00									1	10				TC-1, 2 & 3
STA. 103+15							1	16						TC-1, 2 & 3
STA. 103+30							1	16						TC-1, 2 & 3
SUBTOTALS:	1	16	1	16	1	16	2	32	1	10	1	8		
PARTICIPATING SECTION														
STA. 121+13							1	16						TC-1, 2 & 3
STA. 182+00									1	10				TC-1, 2 & 3
STA. 187+00					1	16					1	8		TC-1, 2 & 3
STA. 192+00			1	16										TC-1, 2 & 3
STA. 197+00	1	16												TC-1, 2 & 3
ENTIRE JOB													50	
SUBTOTALS:	1	16	1	16	1	16	1	16	1	10	1	8	50	
TOTALS:	2	32	2	32	2	32	3	48	2	20	2	16	50	

PORTLAND CEMENT CONCRETE DRIVEWAY

STATION	SIDE	PORTLAND CEMENT CONCRETE DRIVEWAY
		SQ. YD.
PARTICIPATING SECTION		
124+63	RT.	63.52
125+33	RT.	63.52
130+81	LT.	64.39
TOTAL:		191.43

STATE OF ARKANSAS
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No. 5368
DAVID R. MAYO, JR.
6/22/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
08-01-16				6	ARK.			
				JOB NO.		FA1915	17	73
				SUMMARY OF QUANTITIES AND REVISIONS				

④

SUMMARY OF QUANTITIES

	ITEM NUMBER	ITEM		PARTICIPATING	NON-PARTICIPATING	TOTAL	UNIT
	201	CLEARING		66		66	STA.
	201	GRUBBING		66		66	STA.
	202	REMOVAL AND DISPOSAL OF FENCE		4374		4374	LIN. FT.
	202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		51		51	SQ. YD.
	202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		7		7	EACH
	202	REMOVAL AND DISPOSAL OF GUARDRAIL		152	152	304	LIN. FT.
	208	FENCE REMOVED AND RECONSTRUCTED		239		239	LIN. FT.
	210	UNCLASSIFIED EXCAVATION		31279		31279	CU. YD.
	210	COMPACTED EMBANKMENT		5194		5194	CU. YD.
	SS&303	AGGREGATE BASE COURSE (CLASS 7)		16772	42	16814	TON
	SS&401	TACK COAT		1565	154	1719	GAL.
	SPSS&406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		2625		2625	TON
	SPSS&406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		115		115	TON
	SPSS&407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (½")		1954	192	2146	TON
	SPSS&407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (½")		107	11	118	TON
	505	PORTLAND CEMENT CONCRETE DRIVEWAY		191.43		191.43	SQ. YD.
	601	MOBILIZATION		0.91	0.09	1.00	LUMP SUM
	SP&602	FURNISHING FIELD OFFICE		1		1	EACH
	603	MAINTENANCE OF TRAFFIC		0.91	0.09	1.00	LUMP SUM
	SS&604	SIGNS		82	98	180	SQ. FT.
	SS&604	TRAFFIC DRUMS		50		50	EACH
	SPSS&606	18" SIDE DRAIN		1080		1080	LIN. FT.
*	606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	ALT. NO. 1	138		138	LIN. FT.
*	606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALT. NO. 2	156		156	LIN. FT.
*	606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALT. NO. 3	156		156	LIN. FT.
*	606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	ALT. NO. 4	156		156	LIN. FT.
*	SP&606	24" HIGH DENSITY POLYETHYLENE PIPE	ALT. NO. 5	156		156	LIN. FT.
*	SP&606	24" PVC PIPE	ALT. NO. 6	156		156	LIN. FT.
*	606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	ALT. NO. 1	6		6	EACH
*	606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	ALT. NO. 2	6		6	EACH
	606	SELECTED PIPE BEDDING		6		6	CU. YD.
	617	GUARDRAIL (TYPE A)		100	100	200	LIN. FT.
	617	TERMINAL ANCHOR POSTS (TYPE 1)		2	2	4	EACH
	617	THRIE BEAM GUARDRAIL TERMINAL		2	2	4	EACH
	619	WIRE FENCE (TYPE C)		601		601	LIN. FT.
	619	WIRE FENCE (TYPE D-1)		3730		3730	LIN. FT.
	620	LIME		12		12	TON
	620	SEEDING		5.76		5.76	ACRE
	SS&620	MULCH COVER		11.52		11.52	ACRE
	620	WATER		705.62		705.62	M. GAL.
	621	TEMPORARY SEEDING		5.76		5.76	ACRE
	621	SILT FENCE		970		970	LIN. FT.
	621	SAND BAG DITCH CHECKS		78		78	BAGS
	621	DIVERSION DITCH		1965		1965	LIN. FT.
	621	SEDIMENT BASIN		600		600	CU. YD.
	621	OBLITERATION OF SEDIMENT BASIN		600		600	CU. YD.
	621	SEDIMENT REMOVAL AND DISPOSAL		798		798	CU. YD.
	621	PIPE FOR SLOPE DRAINS		255		255	LIN. FT.
	621	ROCK DITCH CHECKS		154		154	CU. YD.
	624	SOLID SODDING		48		48	SQ. YD.
	635	ROADWAY CONSTRUCTION CONTROL		0.91	0.09	1.00	LUMP SUM
	637	MAILBOXES		24		24	EACH
	637	MAILBOX SUPPORTS (SINGLE)		14		14	EACH
	637	MAILBOX SUPPORTS (DOUBLE)		5		5	EACH
	718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")		14758	1642	16400	LIN. FT.
	718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")		14758	1642	16400	LIN. FT.
	726	STANDARD SIGN		95.75	32.07	127.82	SQ. FT.
	729	CHANNEL POST SIGN SUPPORT (TYPE A)		14	5	19	EACH
	816	FILTER BLANKET		332		332	SQ. YD.
	816	DUMPED RIPRAP		166		166	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
08-01-2016	CHANGED 24" RCP (CL. III) TO 24" RCP (CL. V) AT STA. 112+42 & 117+33	17 & 24

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
8/1/2016

SURVEY CONTROL COORDINATES

Project Name: FA 1911
Date: 7/25/2014
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *190001 & 190002A*
Projected to Ground Coordinates
Units: U.S. Survey Foot

COORDINATES LISTED BELOW ARE GROUND (Localized) COORDINATES !!!!

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
1	359819.4132	0.0400	1678450.3612	0.0380	271.62	0.003	CTL	PD:AHTD STD. MON STAMPED T-1
2	359065.3477	0.0500	1677954.9438	0.0400	272.98	0.003	CTL	PD:AHTD STD. MON STAMPED T-2
3	359059.3406	0.0430	1678401.3265	0.0350	274.63	0.003	CTL	PD:AHTD STD. MON STAMPED T-3
4	358477.7029	0.0320	1678442.2638	0.0290	278.26	0.004	CTL	PD:AHTD STD. MON STAMPED T-4
5	358354.5181	0.0300	1678843.1820	0.0260	278.73	0.004	CTL	PD:AHTD STD. MON STAMPED T-5
6	357587.6739	0.0360	1678725.7395	0.0340	277.43	0.004	CTL	PD:AHTD STD. MON STAMPED T-6
7	357117.6767	0.0295	1678876.5058	0.0219	276.85	0.004	CTL	PD:AHTD STD. MON STAMPED T-7
8	356677.5601	0.0230	1679382.6719	0.0155	282.34	0.004	CTL	PD:AHTD STD. MON STAMPED T-8
9	356674.6310	0.0220	1680167.8184	0.0134	318.95	0.005	CTL	PD:AHTD STD. MON STAMPED T-9
10	356617.4076	0.0211	1680510.0863	0.0133	342.50	0.005	CTL	PD:AHTD STD. MON STAMPED T-10
11	356623.9624	0.0204	1680750.8337	0.0135	339.20	0.005	CTL	PD:AHTD STD. MON STAMPED T-11
12	356770.3696	0.0201	1681077.2928	0.0147	342.16	0.006	CTL	PD:AHTD STD. MON STAMPED T-12
13	356652.9031	0.0204	1681304.8454	0.0135	350.55	0.006	CTL	PD:AHTD STD. MON STAMPED T-13
14	356442.8939	0.0195	1681449.9944	0.0135	359.93	0.006	CTL	PD:AHTD STD. MON STAMPED T-14
15	356391.9980	0.0171	1681701.4514	0.0135	362.67	0.006	CTL	PD:AHTD STD. MON STAMPED T-15
16	356405.8501	0.0168	1682029.9476	0.0140	368.70	0.006	CTL	PD:AHTD STD. MON STAMPED T-16
17	356198.9728	0.0186	1682254.1560	0.0147	373.51	0.006	CTL	PD:AHTD STD. MON STAMPED T-17
18	355869.5565	0.0189	1682362.9680	0.0164	370.48	0.006	CTL	PD:AHTD STD. MON STAMPED T-18
19	355669.5648	0.0178	1682650.3209	0.0169	368.60	0.006	CTL	PD:AHTD STD. MON STAMPED T-19
20	355535.6576	0.0171	1682943.9262	0.0167	370.15	0.006	CTL	PD:AHTD STD. MON STAMPED T-20
21	355154.9951	0.0163	1683201.6965	0.0159	377.04	0.006	CTL	PD:AHTD STD. MON STAMPED T-21
22	354728.3163	0.0161	1683573.7841	0.0152	367.11	0.007	CTL	PD:AHTD STD. MON STAMPED T-22
23	354283.4186	0.0165	1683653.2255	0.0147	371.65	0.007	CTL	PD:AHTD STD. MON STAMPED T-23
24	354276.3320	0.0178	1684124.8606	0.0145	383.60	0.007	CTL	PD:AHTD STD. MON STAMPED T-24
25	354209.6173	0.0184	1684687.7688	0.0145	378.65	0.007	CTL	PD:AHTD STD. MON STAMPED T-25
26	354226.8702	0.0188	1684997.1820	0.0149	378.95	0.007	CTL	PD:AHTD STD. MON STAMPED T-26
27	353763.3375	0.0190	1685433.6091	0.0149	384.02	0.007	CTL	PD:AHTD STD. MON STAMPED T-27
28	353466.1182	0.0174	1686260.8470	0.0153	394.18	0.008	CTL	PD:AHTD STD. MON STAMPED T-28
39	353662.9982	0.0273	1686711.0239	0.0192	384.25	0.008	CTL	PD:AHTD STD. MON STAMPED T-39
41	353292.3427	0.0174	1685804.3887	0.0163	389.64	0.008	CTL	PD:AHTD STD. MON STAMPED T-41
100	341337.7903	0.0010	1672637.5182	0.0010	257.77	0.015	GPS	PD:AHTD GPS MON 190001
101	358665.3495	0.0010	1674372.2593	0.0010	261.86	0.013	GPS	PD:AHTD GPS MON 190002A
900	359706.8960	0.0510	1678410.8560	0.0510	272.27	0.003	TBM	PD:CHIS SQ CUT IN CTR HW
901	359096.5232	0.0500	1678441.0507	0.0510	274.86	0.003	TBM	PD:CHIS SQ CUT IN CONC
902	357865.0740	0.0510	1678771.7630	0.0430	278.12	0.004	TBM	PD:AHTD DISK IN SE CNR BR WR
903	356646.5153	0.0610	1679527.5129	0.0470	284.49	0.005	TBM	PD:CHIS SQ CUT IN CTR W DW
904	356741.9485	0.0690	1680957.5431	0.0500	341.78	0.005	TBM	PD:5/8" RBR 2" ALUM CAP
905	356006.9196	0.0650	1682286.1317	0.0670	376.15	0.006	TBM	PD:5/8" RBR 2" ALUM CAP
906	354918.2101	0.0690	1683423.6458	0.0670	373.08	0.007	TBM	PD:5/8" RBR 2" ALUM CAP
907	354210.2536	0.0670	1684575.7026	0.0660	380.24	0.007	TBM	PD:5/8" RBR 2" ALUM CAP
908	353542.6072	0.0620	1685577.4371	0.0600	383.71	0.008	TBM	PD:5/8" RBR 2" ALUM CAP
909	353462.7657	0.0570	1686339.4533	0.0570	394.77	0.008	TBM	PD:5/8" RBR 2" ALUM CAP
914	353800.6893	30.0000	1685410.4175	30.0000	388.19	0.007	TBM	PD:8 SPIKE IN 36" OAK
915	353511.5521	30.0000	1686290.3315	30.0000	398.18	0.008	TBM	PD:8 SPIKE IN 30" OAK
990	362039.1054	30.0000	1679170.6062	30.0000	271.52	0.001	BM	PD:NGS RV863

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "Job######", & "PS####". The consultant Professional Surveyor in charge will stamp his/her PS license number on the cap.

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. These monuments will be stamped "Ark. State Hwy Trans. Dept.", "GPS Survey", & "Point No. ######".

SX, SY, SZ – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX:, SY:, and SZ: for additional information. These values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 30 is defined as location by handheld GPS device or scaled from USGS Quadmap.

Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techiniques.

All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

Positional Accuracy:
- Horizontal - GPS (1.0 cm± 1PPM) — *PN: 100-101*
- Horizontal - Primary (2.0cm± 20PPM): — *PN:1-28, 39,41*
- Horizontal - Secondary (3 cm ± 50PPM): — *PN:N/A*
- Vertical - NGS 1st Order (±4mm x Vdist in km) — *PN:990*
- Vertical - NGS 2nd Order (±6mm x Vdist in km) — *PN:N/A*
- Vertical - NGS 3rd Order (±8mm x Vdist in km) — *PN:N/A*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0301 - North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.9999445940 has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM:
A project Elevation Factor of: 0.9999838153 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 338.36 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-28,39,41, 100 & 101 From NGS BM: RV863

Basis of Bearing: Grid Bearings based on AHTD GPS points: *190001 & 190002A*
Convergence Angle is: 00 43 15.06 RIGHT at PN: 16
LT: 35-18-22 N LG: 090-45-40 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

POINT NAME	STATION	NORTHING	EASTING
8000	POB 100+00.00	358467.32661	1678516.63815
8001	PC 100+11.37	358460.99787	1678526.07863
8002	CC	358667.91601	1678664.79313
8003	PT 101+10.91	358423.33193	1678617.51251
8004	PC 102+60.47	358394.94741	1678764.34649
8005	CC	358321.31065	1678750.11175
8006	PT 103+75.67	358309.64819	1678824.19945
8007	PI 104+70.00	358216.45684	1678809.52980
8008	PC 110+32.58	357660.55848	1678723.09850
8009	CC	357587.20341	1679194.89475
8010	PT 113+49.49	357354.33102	1678778.06971
8011	PC 119+71.23	356811.55700	1679081.30744
8012	CC	356944.62693	1679319.49318
8013	PT 122+59.15	356671.79483	1679317.85057
8014	PC 130+14.53	356667.08453	1680100.21819
8015	CC	355712.17218	1680094.46907
8016	PT 131+29.85	356662.47254	1680188.38325
8017	PC 135+76.52	356618.54360	1680632.89221
8018	CC	356998.66374	1680670.45788
8019	PT 138+28.01	356675.01455	1680873.32163
8020	PC 138+86.85	356706.26501	1680923.17868
8021	CC	356463.52811	1681075.32649
8022	PT 143+22.10	356627.97000	1681309.90915
8023	PC 143+90.63	356571.85411	1681349.24625
8024	CC	356824.84164	1681710.14265
8025	PT 148+39.13	356384.85175	1681735.79022
8026	PC 149+86.93	356393.45256	1681883.33889
8027	CC	356012.12799	1681905.56679
8028	PT 155+08.40	356111.74165	1682274.32094
8029	PC 156+08.36	356015.23450	1682300.39097
8030	CC	356130.17334	1682725.87652
8031	PT 160+56.24	355707.93506	1682599.52886
8032	PC 161+71.74	355674.82370	1682710.18292
8033	PC 161+71.74	355175.81483	1682560.86295
8034	PT 165+16.48	355477.69303	1682985.33422
8035	PC 168+51.08	355205.01513	1683179.25905
8036	CC	356311.90188	1684735.65370
8037	PT 169+79.99	355102.56492	1683257.45658
8038	PC 173+80.44	354792.62929	1683511.01994
8039	CC	354490.29505	1683141.47066
8040	PT 176+60.24	354537.80289	1683616.56609
8041	PI 179+27.25	354272.12058	1683643.13337

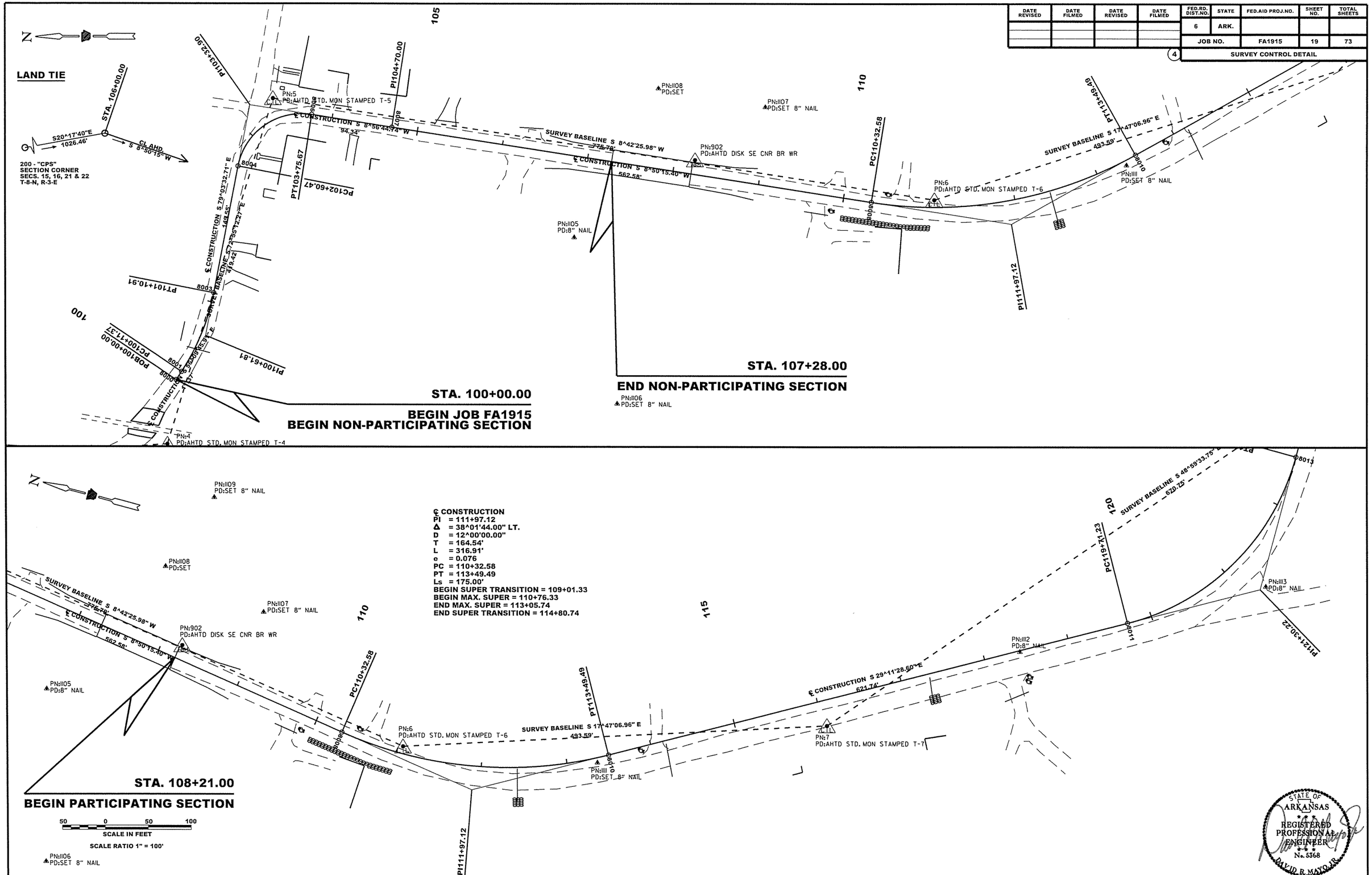
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	18	73

4 SURVEY CONTROL DETAIL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	19	73

4 SURVEY CONTROL DETAIL



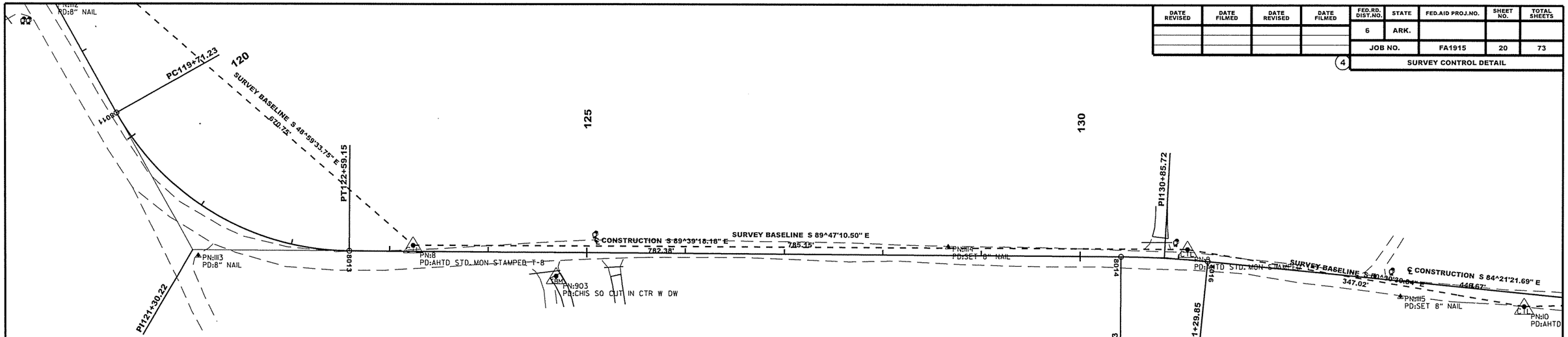
℄ CONSTRUCTION
PI = 111+97.12
Δ = 38^01'44.00" LT.
D = 12^00'00.00"
T = 164.54'
L = 316.91'
e = 0.076
PC = 110+32.58
PT = 113+49.49
Ls = 175.00'
BEGIN SUPER TRANSITION = 109+01.33
BEGIN MAX. SUPER = 110+76.33
END MAX. SUPER = 113+05.74
END SUPER TRANSITION = 114+80.74

50 0 50 100
SCALE IN FEET
SCALE RATIO 1" = 100'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/13/2016

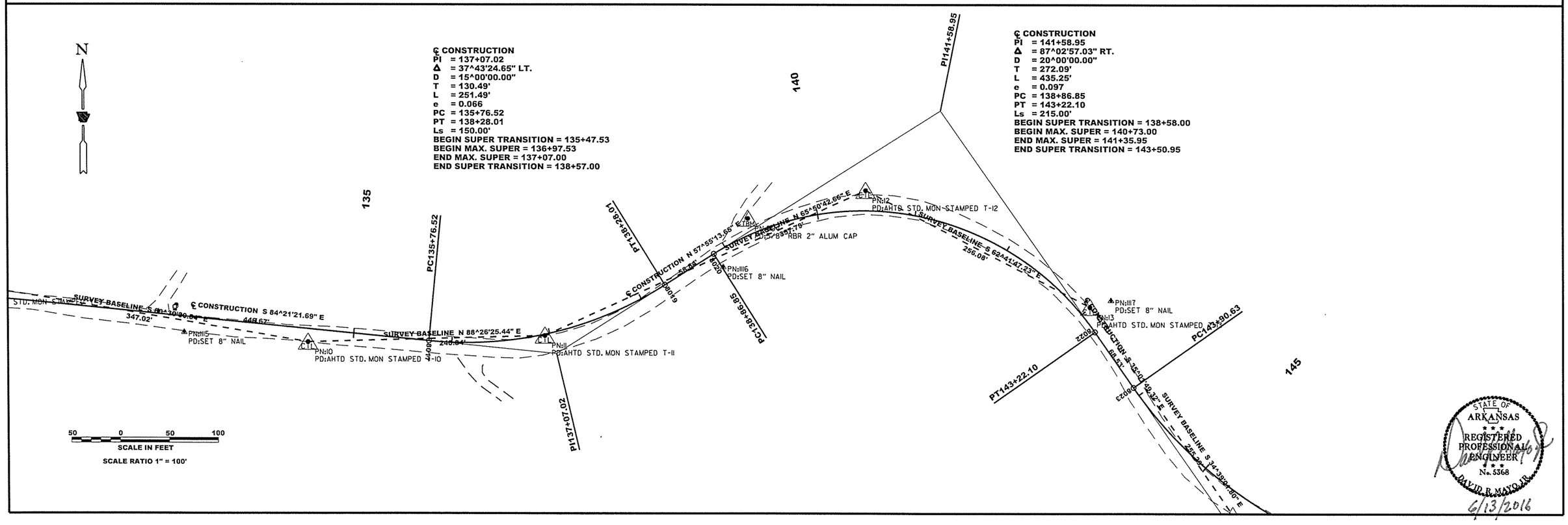
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	20	73

4 SURVEY CONTROL DETAIL



℄ CONSTRUCTION
PI = 121+30.22
Δ = 60^27'49.58" LT.
D = 21^00'00.00"
T = 159.00'
L = 287.92'
e = 0.098
PC = 119+71.23
PT = 122+59.15
Ls = 215.00'
BEGIN SUPER TRANSITION = 118+09.98
BEGIN MAX. SUPER = 120+24.98
END MAX. SUPER = 122+05.40
END SUPER TRANSITION = 124+20.40

℄ CONSTRUCTION
PI = 130+85.72
Δ = 5^17'56.49" RT.
D = 6^00'00.00"
T = 48.19'
L = 88.32'
e = 0.050
PC = 130+41.53
PT = 131+29.85
Ls = 150.00'
BEGIN SUPER TRANSITION = 129+29.03
BEGIN MAX. SUPER = 130+79.03
END MAX. SUPER = 130+92.35
END SUPER TRANSITION = 132+42.35



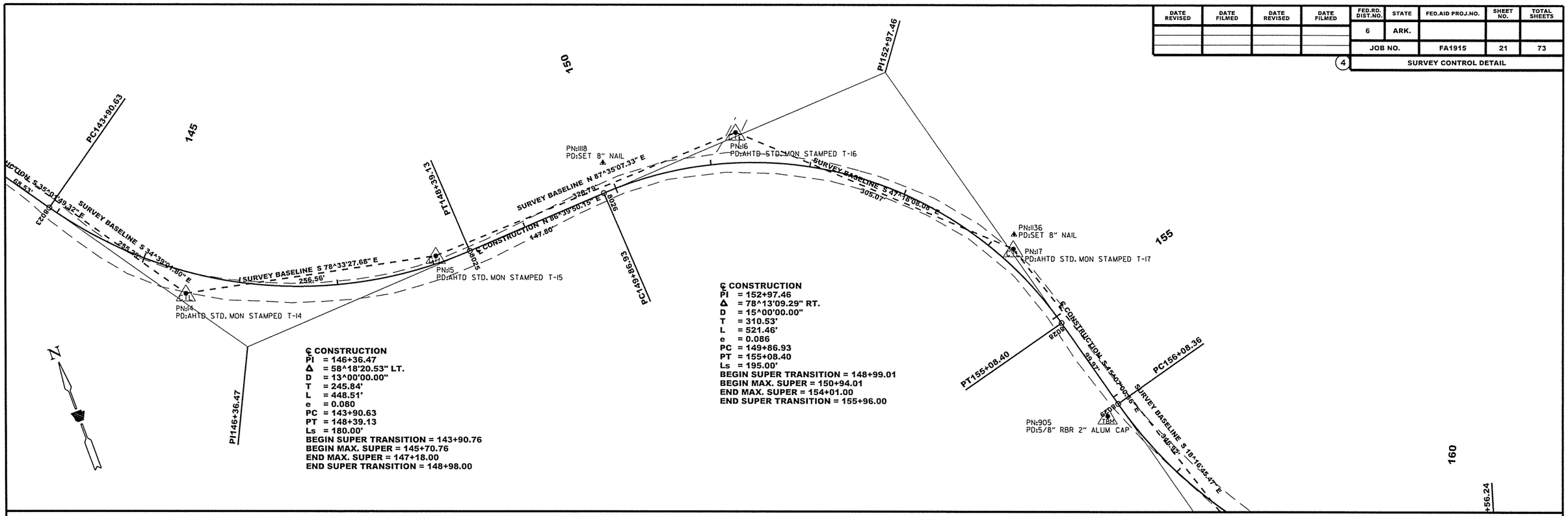
℄ CONSTRUCTION
PI = 137+07.02
Δ = 37^43'24.65" LT.
D = 15^00'00.00"
T = 130.49'
L = 251.49'
e = 0.066
PC = 135+76.52
PT = 138+28.01
Ls = 150.00'
BEGIN SUPER TRANSITION = 135+47.53
BEGIN MAX. SUPER = 136+97.53
END MAX. SUPER = 137+07.00
END SUPER TRANSITION = 138+57.00

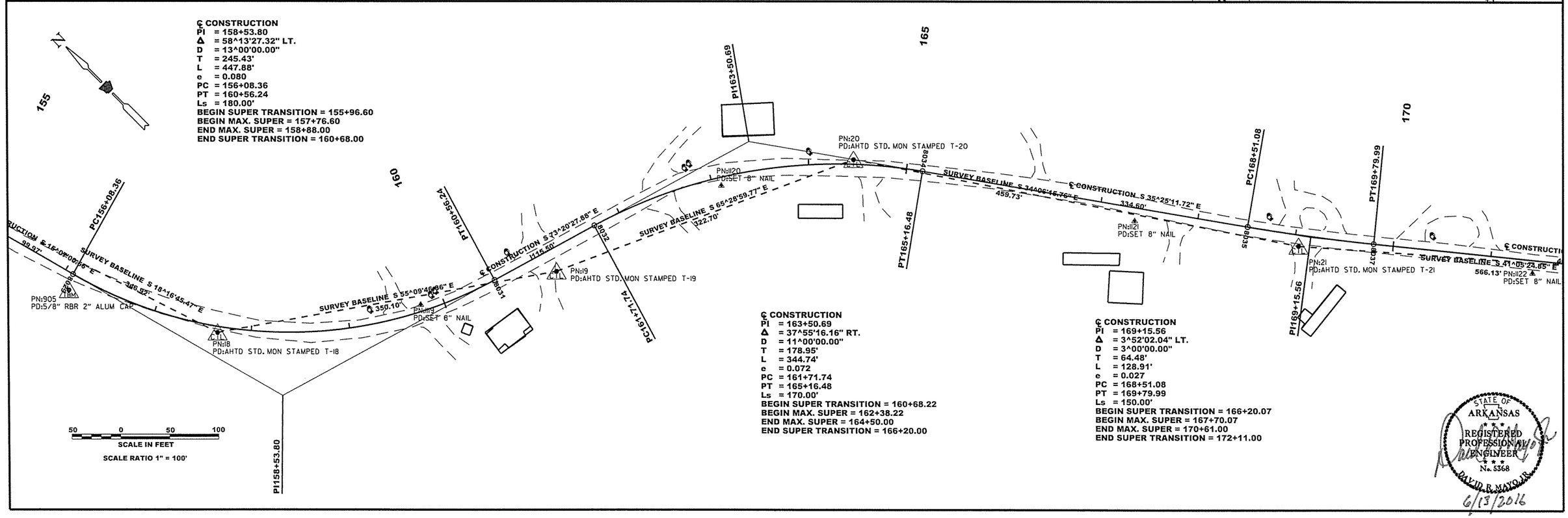
℄ CONSTRUCTION
PI = 141+58.95
Δ = 87^02'57.03" RT.
D = 20^00'00.00"
T = 272.09'
L = 435.25'
e = 0.097
PC = 138+86.85
PT = 143+22.10
Ls = 215.00'
BEGIN SUPER TRANSITION = 138+58.00
BEGIN MAX. SUPER = 140+73.00
END MAX. SUPER = 141+35.95
END SUPER TRANSITION = 143+50.95

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	21	73

4 SURVEY CONTROL DETAIL

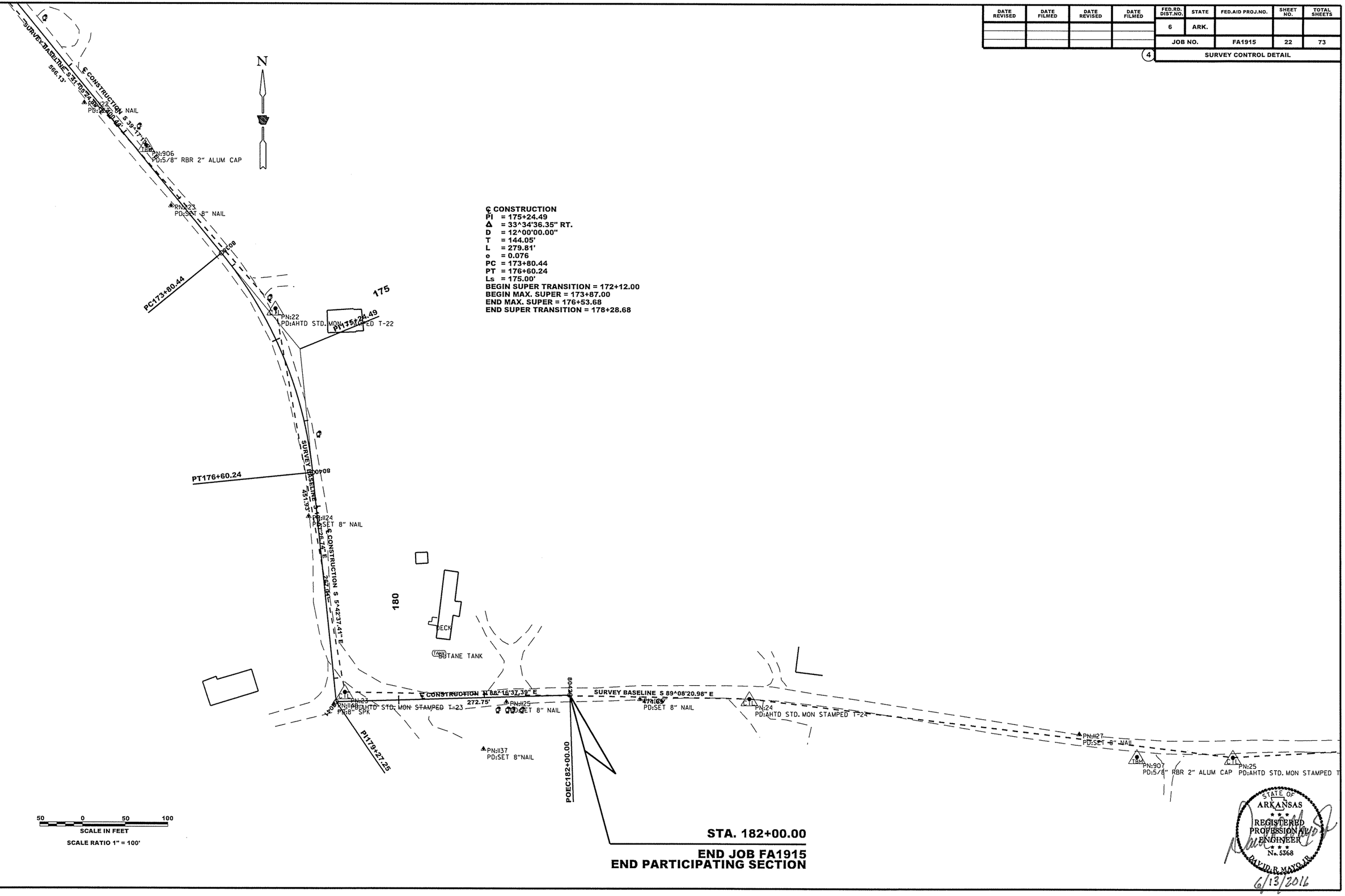




STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/13/2016

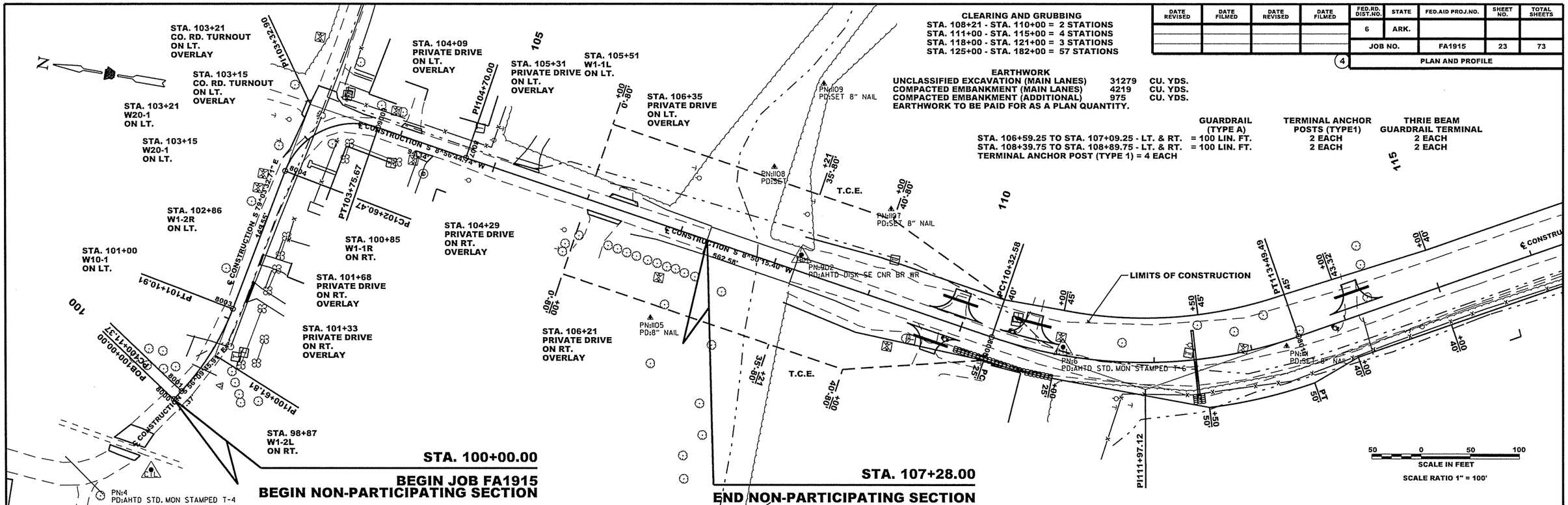
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	22	73

4 SURVEY CONTROL DETAIL



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	23	73
				4	PLAN AND PROFILE			



CLEARING AND GRUBBING

STA. 108+21 - STA. 110+00 = 2 STATIONS
STA. 111+00 - STA. 115+00 = 4 STATIONS
STA. 118+00 - STA. 121+00 = 3 STATIONS
STA. 125+00 - STA. 182+00 = 57 STATIONS

EARTHWORK

UNCLASSIFIED EXCAVATION (MAIN LANES)	31279	CU. YDS.
COMPACTED EMBANKMENT (MAIN LANES)	4219	CU. YDS.
COMPACTED EMBANKMENT (ADDITIONAL)	975	CU. YDS.

EARTHWORK TO BE PAID FOR AS A PLAN QUANTITY.

	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POSTS (TYPE1)	THRIE BEAM GUARDRAIL TERMINAL
STA. 106+59.25 TO STA. 107+09.25 - LT. & RT.	= 100 LIN. FT.	2 EACH	2 EACH
STA. 108+39.75 TO STA. 108+89.75 - LT. & RT.	= 100 LIN. FT.	2 EACH	2 EACH
TERMINAL ANCHOR POST (TYPE 1) = 4 EACH			

TRAFFIC CONTROL DEVICES

G20-1	
STA. 100+00	- RT.(1 SIGN) = 10 SQ. FT.
STA. 182+00	- LT.(1 SIGN) = 10 SQ. FT.
G20-2	
STA. 95+00	- LT.(1 SIGN) = 8 SQ. FT.
STA. 187+00	- RT.(1 SIGN) = 8 SQ. FT.
W20-1	
STA. 85+00 (1500)	- RT.(1 SIGN) = 16 SQ. FT.
STA. 90+00 (1000)	- RT.(1 SIGN) = 16 SQ. FT.
STA. 95+00 (500)	- RT.(1 SIGN) = 16 SQ. FT.
STA. 103+15 (AHEAD)	- LT.(1 SIGN) = 16 SQ. FT.
STA. 103+30 (AHEAD)	- LT.(1 SIGN) = 16 SQ. FT.
STA. 118+28 (AHEAD)	- RT.(1 SIGN) = 16 SQ. FT.
STA. 121+13 (AHEAD)	- RT.(1 SIGN) = 16 SQ. FT.
STA. 162+68 (AHEAD)	- RT.(1 SIGN) = 16 SQ. FT.
STA. 187+00 (500)	- LT.(1 SIGN) = 16 SQ. FT.
STA. 192+00 (1000)	- LT.(1 SIGN) = 16 SQ. FT.
STA. 197+00 (1500)	- LT.(1 SIGN) = 16 SQ. FT.
TRAFFIC DRUMS	
ENTIRE JOB	- 50 DRUMS

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

LEGEND

- POWER POLE
- COMBINATION POLE
- POLE W/GUY
- TELEPHONE RISER
- TELEPHONE POLE
- UNDERGROUND CABLE MKR.
- WATER METER
- WATER VALVE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
08-01-16				6	ARK.			
				JOB NO.		FA1915	24	73
				PLAN AND PROFILE				

℄ CONSTRUCTION
PI = 111+97.12
Δ = 38^01'44.00" LT.
D = 12^00'00.00"
T = 164.54'
L = 316.91'
e = 0.076
PC = 110+32.58
PT = 113+49.49
Ls = 175.00'
BEGIN SUPER TRANSITION = 109+01.33
BEGIN MAX. SUPER = 110+76.33
END MAX. SUPER = 113+05.74
END SUPER TRANSITION = 114+80.74

WIRE FENCE (TYPE C)
STA. 111+84 - STA. 116+37 RT. = 473 FT.

STA. 115+25
W1-2R
ON LT.

STA. 109+91 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 110+70 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.

STA. 114+15 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 112+42
18" X 39' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE

PN:110 PD:SET 8" NAIL
PN:109 PD:SET 8" NAIL
PN:108 PD:SET
PN:107 PD:SET 8" NAIL
PN:105 PD:8" NAIL
PN:902 PD:AHTD DISK SE CNR BR WR
PN:6 PD:AHTD STD. MON STAMPED T-6
PN:5 PD:SET 8" NAIL
PN:7 PD:AHTD STD. MON STAMPED T-7
PN:2 PD:8" NAIL
T.C.E.
℄ CONSTRUCTION S 8°58'15.40" W 562.58'
℄ CONSTRUCTION S 29°11'28.60" E 627.74'
LIMITS OF CONSTRUCTION
PC 110+32.58
PT 113+49.49
PI 111+97.12

STA. 108+58
W1-2L
ON RT.

STA. 109+75 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.

STA. 110+00 - STA. 111+00
DUMPED RIPRAP = 33 CU. YDS.
FILTER BLANKET = 66 SQ. YD.
DRAINAGE DITCH ON RT.

STA. 109+71
12" X 28' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 108+21.00
BEGIN PARTICIPATING SECTION

STA. 112+42 CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN
D.A. = N/A Q25 = N/A
24" RCP(CL. V)(TYPE 3 BEDDING) = 54 LIN. FT.
24" CMP OR PLASTIC(TYPE 2 BEDDING) = 60 LIN. FT.
24" FES ON LT. AND RT. = 2 EACH

STA. 114+18
18" X 39' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE

STA. 112+37 - STA. 112+47
DUMPED RIPRAP = 4 CU. YD.
FILTER BLANKET = 8 SQ. YD.
PIPE CULVERT OUTLET ON RT.

STA. 117+28 - STA. 117+38
DUMPED RIPRAP = 4 CU. YD.
FILTER BLANKET = 8 SQ. YD.
PIPE CULVERT OUTLET ON RT.

STA. 117+33
18" X 30' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE

STA. 117+33 CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN
D.A. = N/A Q25 = N/A
24" RCP(CL. V)(TYPE 3 BEDDING) = 42 LIN. FT.
24" CMP OR PLASTIC(TYPE 2 BEDDING) = 48 LIN. FT.
24" FES ON LT. AND RT. = 2 EACH

50 0 50 100
SCALE IN FEET
SCALE RATIO 1" = 100'

REMOVAL AND DISPOSAL OF FENCE
STA. 111+84 - STA. 116+37 RT. = 467'

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

0.11%
LT. DITCH GRADE 0.05%
LT. DITCH GRADE -0.59%
RT. DITCH GRADE 1.02%
LT. DITCH GRADE 0.16%
INLET = 274.47 OUTLET = 273.60
INLET = 275.54 OUTLET = 275.22

108+21.00 278.58
108+30.00 275.48
109+15.00 275.52
111+00.00 275.31
112+42.00 274.47
273.65
115+00.00 276.29
117+33.00 275.54

280 275 270 265
108+21 110+00 115+00 118+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, P.E.
8/1/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	25	73
				4	PLAN AND PROFILE			

℄ CONSTRUCTION
PI = 121+30.22
Δ = 60^27'49.58" LT.
D = 21^00'00.00"
T = 159.00'
L = 287.92'
e = 0.098
PC = 119+71.23
PT = 122+59.15
Ls = 215.00'
BEGIN SUPER TRANSITION = 118+09.98
BEGIN MAX. SUPER = 120+24.98
END MAX. SUPER = 122+05.40
END SUPER TRANSITION = 124+20.40

WIRE FENCE (TYPE D-1)
STA. 123+09 - STA. 124+45 RT. = 137 FT.
STA. 126+77 - STA. 129+47 LT. = 272 FT.
STA. 129+19 - STA. 130+81 RT. = 167 FT.

℄ CONSTRUCTION
PI = 130+85.72
Δ = 5^17'56.49" RT.
D = 6^00'00.00"
T = 48.19'
L = 88.32'
e = 0.046
PC = 130+41.53
PT = 131+29.85
Ls = 150.00'
BEGIN SUPER TRANSITION = 129+29.03
BEGIN MAX. SUPER = 130+79.03
END MAX. SUPER = 130+92.35
END SUPER TRANSITION = 132+42.35

STA. 130+81 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 130+77
18" X 32' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 130+81 LT.
CONCRETE DRIVE
29 SQ. YDS.
REMOVE

STA. 124+34
W1-2R
ON LT.

STA. 118+28 INSTALL
18" X 44' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.

STA. 117+96
W1-2L
ON RT.

STA. 121+13 INSTALL
18" X 48' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 45 CU. YDS.

STA. 124+63 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 124+63 RT.
CONCRETE DRIVE
8 SQ. YDS.
REMOVE

STA. 124+58
12" X 32' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 125+33 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 125+27
12" X 20' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 125+33 RT.
CONCRETE DRIVE
8 SQ. YDS.
REMOVE

LIMITS OF CONSTRUCTION

℄ CONSTRUCTION S 89^39'18.18" E
782.38'

PN:111 PD:8" NAIL
PN:111 PD:8" NAIL
PN:111 PD:8" NAIL
PN:8 PD:AHID STD. MON STAMPED
PN:903 PD:CHIS SQ CUT IN CTR W DW
PN:111 PD:SET 8" NAIL
PD:AHID STD. MON STAMPED T-9

PT122+59.15
PI121+30.22
PC119+71.23
PC130+41.53
PI130+85.72
PT131+29.85

T.C.E.

SCALE IN FEET
50 0 50 100
SCALE RATIO 1" = 100'

REMOVAL AND DISPOSAL OF FENCE

STA. 123+09 - STA. 124+45	RT. =	140'
STA. 126+77 - STA. 129+47	LT. =	270'
STA. 129+19 - STA. 130+81	RT. =	159'

121+00.00 276.11
121+00.00 279.78
123+00.00 279.81
126+50.00 291.07
280.50
VC=1000'
0.11%
RT. DITCH GRADE 0.01%
LT. DITCH GRADE 0.16%

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

320 315 310 305 300 295 290 285 280 275
118+00 120+00 125+00 130+00 131+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYOLO
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	26	73

4 PLAN AND PROFILE

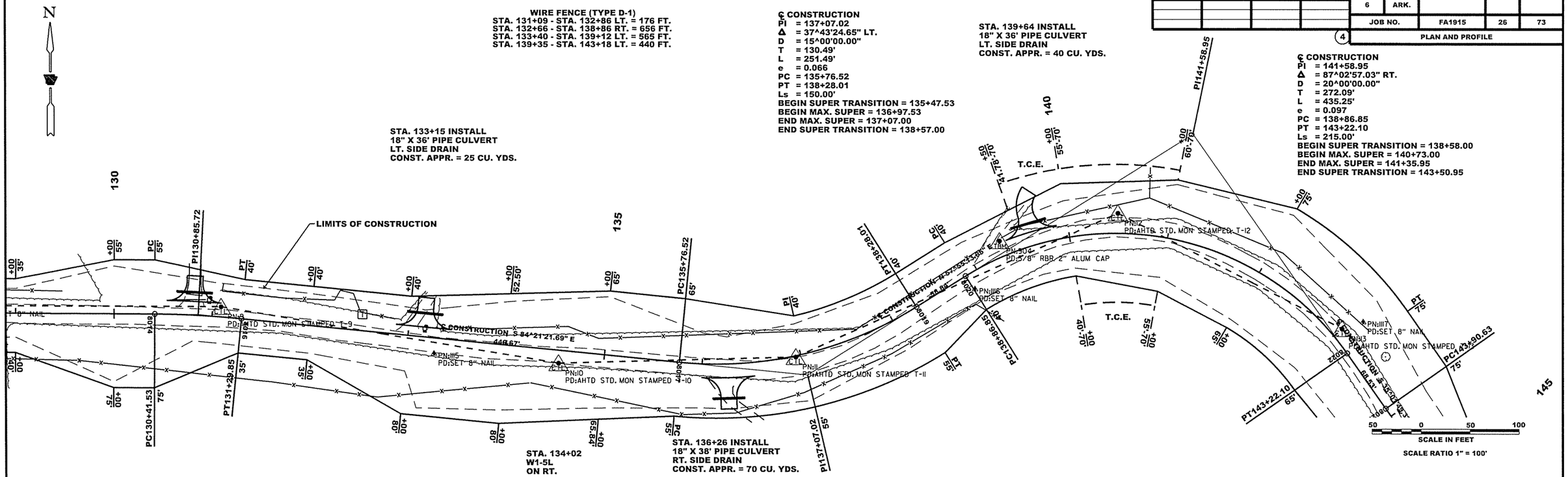
WIRE FENCE (TYPE D-1)
STA. 131+09 - STA. 132+86 LT. = 176 FT.
STA. 132+66 - STA. 138+86 RT. = 656 FT.
STA. 133+40 - STA. 139+12 LT. = 565 FT.
STA. 139+35 - STA. 143+18 LT. = 440 FT.

℄ CONSTRUCTION
PI = 137+07.02
Δ = 37^43'24.65" LT.
D = 15^00'00.00"
T = 130.49'
L = 251.49'
e = 0.066
PC = 135+76.52
PT = 138+28.01
Ls = 150.00'
BEGIN SUPER TRANSITION = 135+47.53
BEGIN MAX. SUPER = 136+97.53
END MAX. SUPER = 137+07.00
END SUPER TRANSITION = 138+57.00

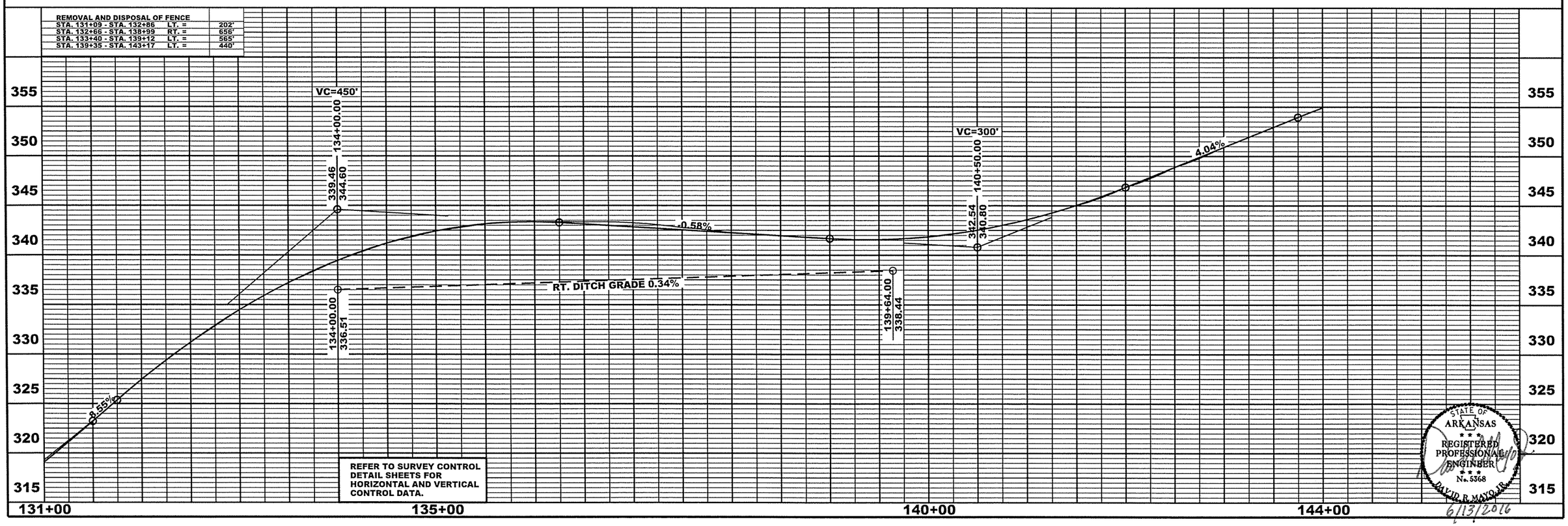
STA. 139+64 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 40 CU. YDS.

℄ CONSTRUCTION
PI = 141+58.95
Δ = 87^02'57.03" RT.
D = 20^00'00.00"
T = 272.09'
L = 435.25'
e = 0.097
PC = 138+86.85
PT = 143+22.10
Ls = 215.00'
BEGIN SUPER TRANSITION = 138+58.00
BEGIN MAX. SUPER = 140+73.00
END MAX. SUPER = 141+35.95
END SUPER TRANSITION = 143+50.95

STA. 133+15 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



REMOVAL AND DISPOSAL OF FENCE		
STA. 131+09 - STA. 132+86	LT. =	202'
STA. 132+66 - STA. 138+99	RT. =	656'
STA. 133+40 - STA. 139+12	LT. =	565'
STA. 139+35 - STA. 143+17	LT. =	440'



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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO, JR.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	27	73

4 PLAN AND PROFILE

WIRE FENCE (TYPE D-1)
STA. 146+29 - STA. 159+39 RT. = 1293 FT.

℄ CONSTRUCTION
PI = 146+36.47
Δ = 58^18'20.53" LT.
D = 13^00'00.00"
T = 245.84'
L = 448.51'
e = 0.080
PC = 143+90.63
PT = 148+39.13
Ls = 180.00'
BEGIN SUPER TRANSITION = 143+90.76
BEGIN MAX. SUPER = 145+70.76
END MAX. SUPER = 147+18.00
END SUPER TRANSITION = 148+98.00

STA. 151+27 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 154+33
W1-4L
ON RT.

℄ CONSTRUCTION
PI = 152+97.46
Δ = 78^13'09.29" RT.
D = 15^00'00.00"
T = 310.53'
L = 521.46'
e = 0.086
PC = 149+86.93
PT = 155+08.40
Ls = 195.00'
BEGIN SUPER TRANSITION = 148+99.01
BEGIN MAX. SUPER = 150+94.01
END MAX. SUPER = 154+01.00
END SUPER TRANSITION = 155+96.00

LIMITS OF CONSTRUCTION

PN:III7 PD:SET 8" NAIL
PN:II3 PD:AHTD STD. MON STAMPED T-13
PN:II4 PD:AHTD STD. MON STAMPED T-14
PN:II5 PD:AHTD STD. MON STAMPED T-15
PN:II6 PD:AHTD STD. MON STAMPED T-16
PN:II36 PD:SET 8" NAIL
PN:II7 PD:AHTD STD. MON STAMPED T-17
PN:305 PD:5/8" RBR 2" ALUM CAP

℄ CONSTRUCTION S 35°01'45.32" E 68.51'
℄ CONSTRUCTION N 86°39'50.76" E 147.80'
℄ CONSTRUCTION S 15°02'00.56" E 59.97'

PI 146+36.47
PT143+22.10
PC143+90.63
PT148+38.13
PC149+86.93
PT155+08.40
PC156+08.36

SCALE IN FEET
50 0 50 100
SCALE RATIO 1" = 100'

REMOVAL AND DISPOSAL OF FENCE
STA. 146+29 - STA. 159+39 RT. = 1308'

VC=300'
359.07 | 145+25.00 | 360.00
1.56%
VC=200'
375.26 | 155+50.00 | 376.00
-1.41%

380 375 370 365 360 355 350

144+00 145+00 150+00 155+00 157+00

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID R. MAYO JR.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	28	73

4 PLAN AND PROFILE

℄ CONSTRUCTION
PI = 158+53.80
Δ = 58^13'27.32" LT.
D = 13^00'00.00"
T = 245.43'
L = 447.88'
e = 0.080
PC = 156+08.36
PT = 160+56.24
Ls = 180.00'
BEGIN SUPER TRANSITION = 155+96.60
BEGIN MAX. SUPER = 157+76.60
END MAX. SUPER = 158+88.00
END SUPER TRANSITION = 160+68.00

STA. 156+83
W1-5L
ON LT.

STA. 159+51
CONST. APPR.
ON LT. = 45 CU. YDS.

STA. 161+16 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 163+00 - STA. 164+00
DUMPED RIPRAP = 71 CU. YD.
FILTER BLANKET = 142 SQ. YD.
DRAINAGE DITCH ON LT.

STA. 162+85 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 35 CU. YDS.

WIRE FENCE (TYPE D-1)
STA. 167+90 - STA. 168+14 LT. = 24 FT.

STA. 166+28 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.

STA. 166+91
W1-4L
ON LT.

℄ CONSTRUCTION
PI = 169+15.56
Δ = 3^52'02.04" LT.
D = 3^00'00.00"
T = 64.48'
L = 128.91'
e = 0.025
PC = 168+51.08
PT = 169+79.99
Ls = 150.00'
BEGIN SUPER TRANSITION = 167+50.00
BEGIN MAX. SUPER = 169+00.00
END MAX. SUPER = 169+42.49
END SUPER TRANSITION = 170+92.49

STA. 168+89 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.

STA. 169+46 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 162+68 INSTALL
18" X 50' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 110 CU. YDS.

℄ CONSTRUCTION
PI = 163+50.69
Δ = 37^55'16.16" RT.
D = 11^00'00.00"
T = 178.95'
L = 344.74'
e = 0.072
PC = 161+71.74
PT = 165+16.48
Ls = 170.00'
BEGIN SUPER TRANSITION = 160+68.22
BEGIN MAX. SUPER = 162+38.22
END MAX. SUPER = 164+73.98
END SUPER TRANSITION = 166+43.98

STA. 164+65 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 167+81 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 169+13 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.

STA. 159+90 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 161+00 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

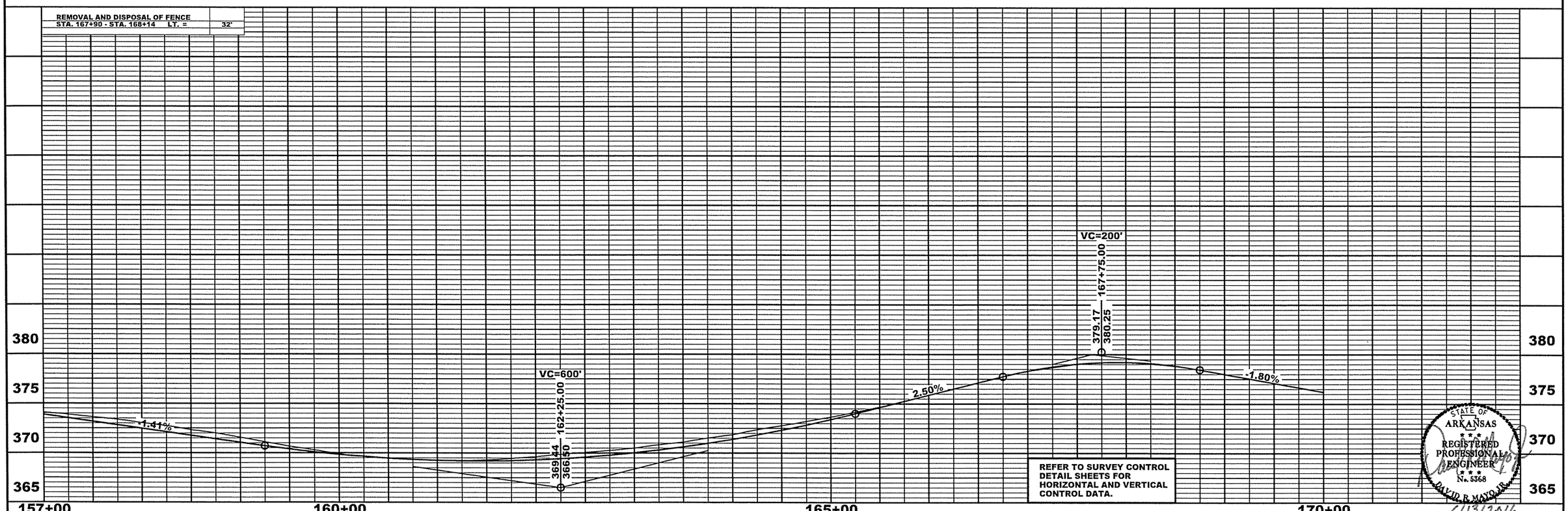
STA. 160+00 - STA. 160+90
DUMPED RIPRAP = 54 CU. YD.
FILTER BLANKET = 108 SQ. YD.
DRAINAGE DITCH ON RT.

REMOVE AND RECONSTRUCT 4' WOOD FENCE
STA. 159+49 - STA. 159+77 RT. = 39 FT.
STA. 159+99 - STA. 160+75 RT. = 92 FT.

LIMITS OF CONSTRUCTION

SCALE IN FEET
50 0 50 100
SCALE RATIO 1" = 100'

REMOVAL AND DISPOSAL OF FENCE
STA. 167+90 - STA. 168+14 LT. = 32'



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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 5368
DAVID B. MAYO JR.
6/13/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		FA1915	29	73
				4	PLAN AND PROFILE			

STA. 170+27 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 170+88 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 174+43 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.

WIRE FENCE (TYPE C)
STA. 179+27 - STA. 179+75 RT. = 128 FT.

REMOVE AND RECONSTRUCT 6' WOOD FENCE
STA. 172+44 - STA. 173+52 LT. = 108 FT.

STA. 181+34 INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 50 CU. YDS.

LIMITS OF CONSTRUCTION

PI169+79.99
PI169+15.56
PI175+24.49
PI179+27.25
PC173+80.44
PT176+60.24
POEC182+00.00

PN:I22 PD:SET 8" NAIL
PN:I22 PD:AHTD STD. MON STAMPED T-21
PN:I22 PD:AHTD STD. MON STAMPED T-22
PN:I23 PD:SET 8" NAIL
PN:I23 PD:AHTD STD. MON STAMPED T-23
PN:I24 PD:SET 8" NAIL
PN:I25 PD:SET 8" NAIL
PN:I26 PD:SET 8" NAIL
PN:I37 PD:SET 8" NAIL
PN:I38 PD:SET 8" NAIL
PN:I39 PD:SET 8" NAIL

℄ CONSTRUCTION S 39°11'12"W
400.44'
PN:906 PD:5/8" REBAR & ALUM. CAP

℄ CONSTRUCTION S 5°42'37.41"E
267.01'

℄ CONSTRUCTION N 88°16'37.59"E
272.25'

T.C.E.
T.C.E.

STA. 172+05
W1-2R
ON RT.

STA. 176+00
W3-1
ON RT.

STA. 178+35
W1-2L
ON LT.

STA. 180+60
W8-3
ON LT.

STA. 180+25
W8-3
ON RT.

STA. 179+00
R1-1
ON RT.

STA. 180+31 INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

STA. 176+00 CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN
D.A. = N/A Q25 = N/A
24" RCP(CL. III)(TYPE 3 BEDDING) = 42 LIN. FT.
24" CMP OR PLASTIC(TYPE 2 BEDDING) = 48 LIN. FT.
24" FES ON LT. AND RT. = 2 EACH

℄ CONSTRUCTION
PI = 175+24.49
Δ = 33^34'36.35" RT.
D = 12^00'00.00"
T = 144.05'
L = 279.81'
e = 0.076
PC = 173+80.44
PT = 176+60.24
Ls = 175.00'
BEGIN SUPER TRANSITION = 172+12.00
BEGIN MAX. SUPER = 173+87.00
END MAX. SUPER = 176+53.68
END SUPER TRANSITION = 178+28.68

STA. 182+00.00
END JOB FA1915
END PARTICIPATING SECTION

50 0 50 100
SCALE IN FEET
SCALE RATIO 1" = 100'

REMOVAL AND DISPOSAL OF FENCE
STA. 179+27 - STA. 179+75 RT. = 135'

100' TRANSITION

VC=400'
VC=200'
-1.80%
2.92%
1.13%
INLET = 365.04
OUTLET = 362.24

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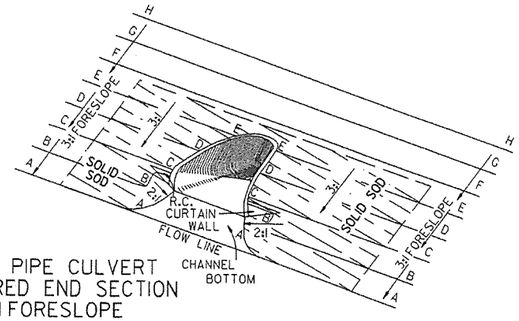
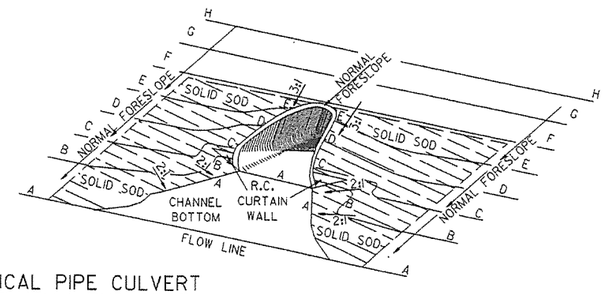
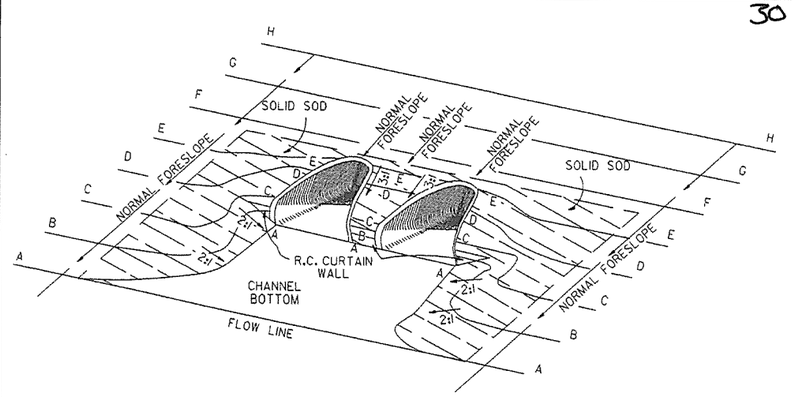


TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

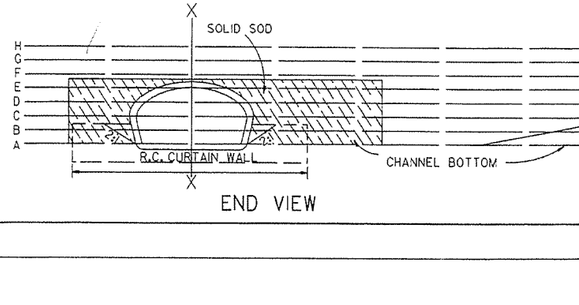
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

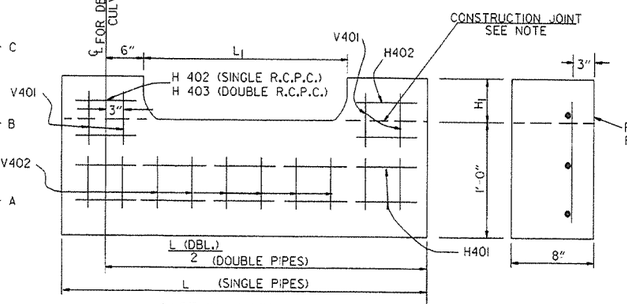
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

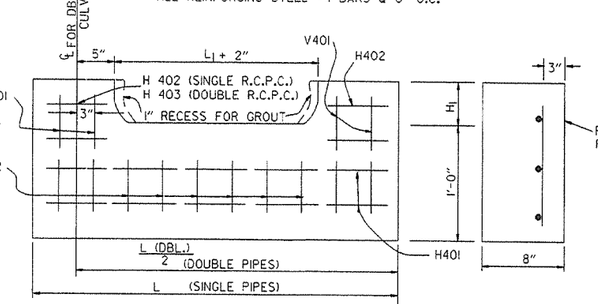
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.

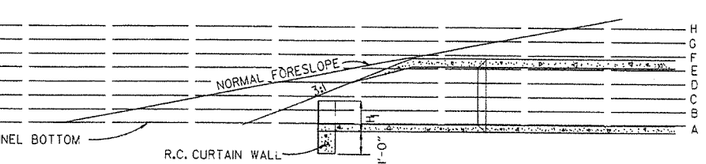


PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

END VIEW



SECTIONAL VIEW "X-X"

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

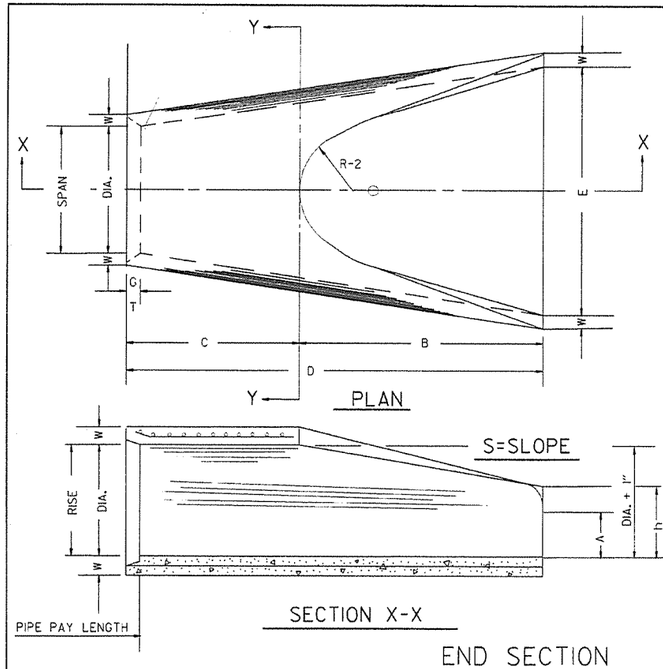
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: 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 W.10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

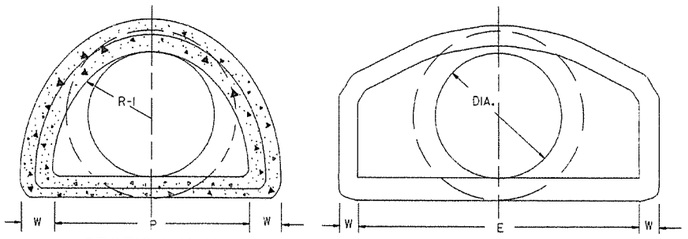
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ± 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 15/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅜"	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"	33⅜"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 5/16"	24"	5"	13250	4'-6"

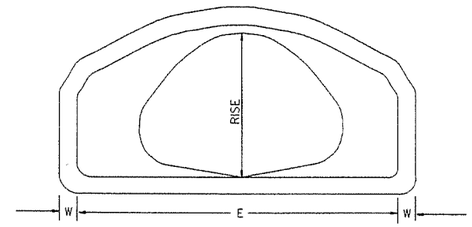


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

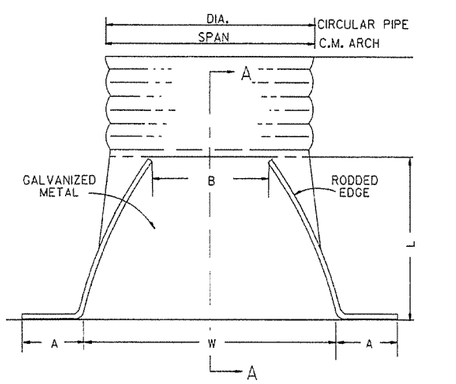
ARCH PIPE

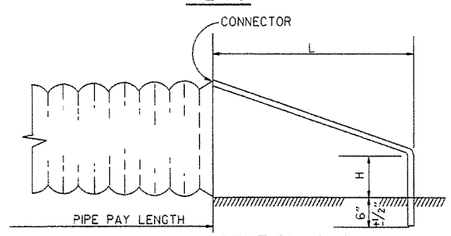
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 13/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31 1/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2½:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

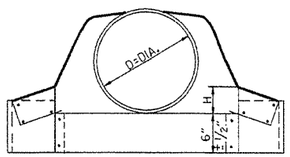
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



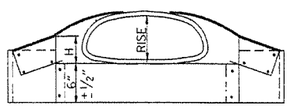
END VIEW
CONCRETE ARCH PIPE







CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

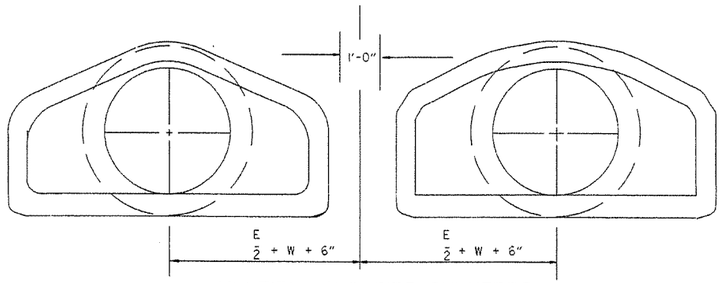
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
INCHES							
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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

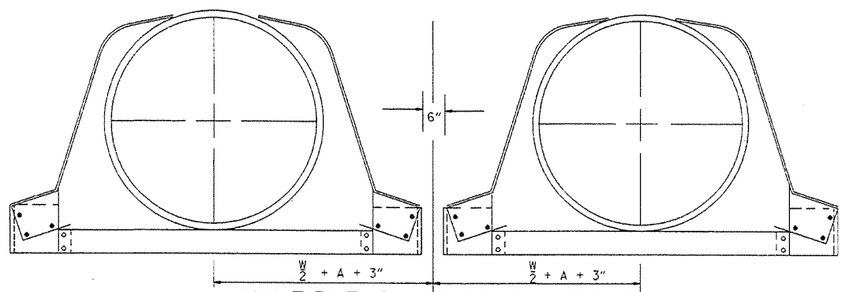
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
INCHES									
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12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



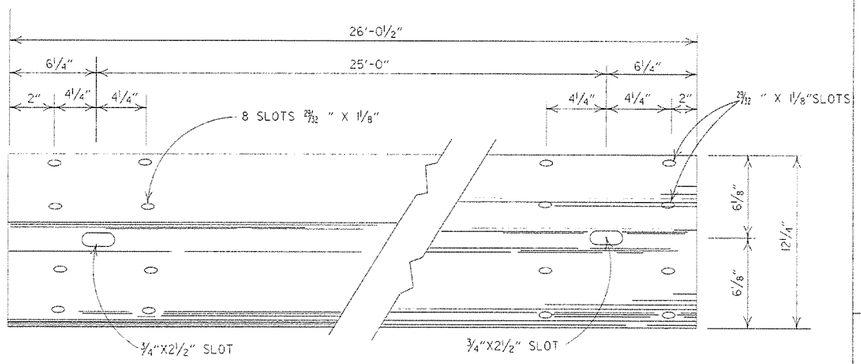
MULTIPLE R.C. PIPE CULVERTS

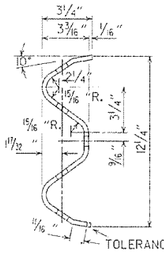


MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED	
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96	ARKANSAS STATE HIGHWAY COMMISION
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	FLARED END SECTION
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	STANDARD DRAWING FES-2

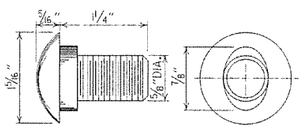
stdfes2.dgn



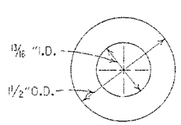


DETAILS OF W-BEAM GUARD RAIL

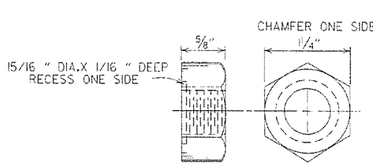
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



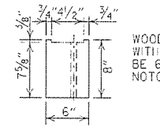
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

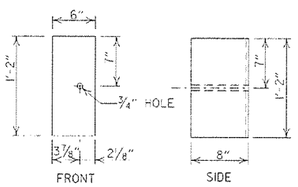


NUT

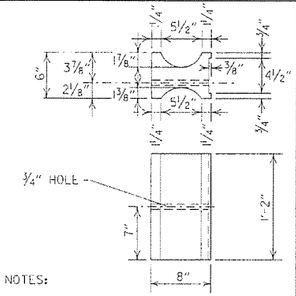


TOP

WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.



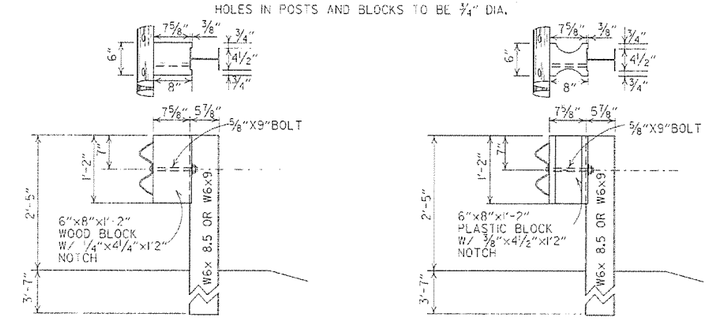
WOOD BLOCKOUT (W-BEAM)



NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

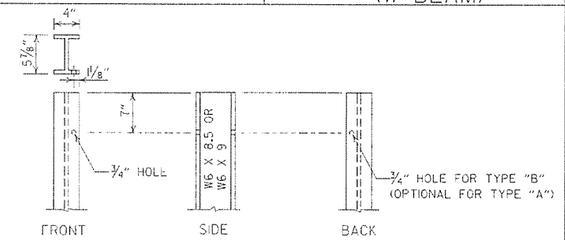
HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



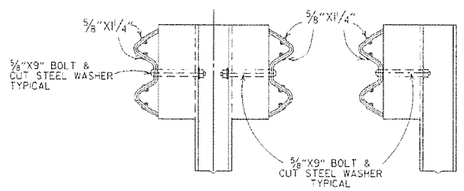
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO.1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO.1 1350 # SOUTHERN PINE.

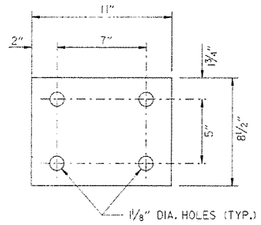
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-5-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

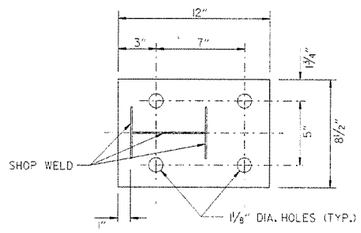
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

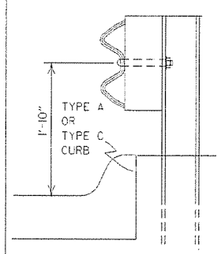


WASHER PLATE



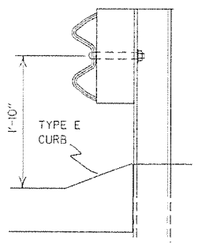
BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



FOR DESIGN SPEEDS OF 50 MPH OR LESS

ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.

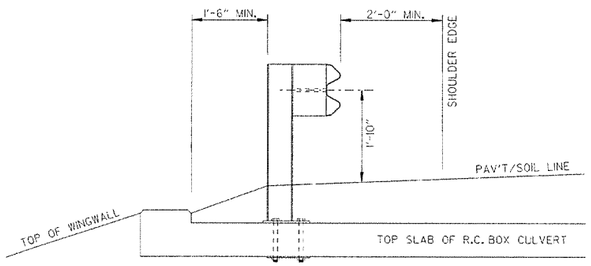


FOR DESIGN SPEEDS OF 55 MPH OR MORE

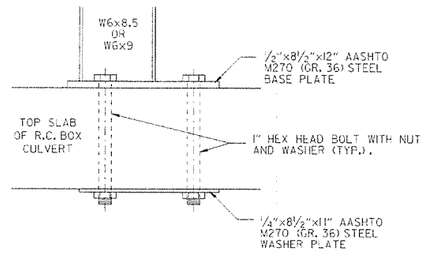
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

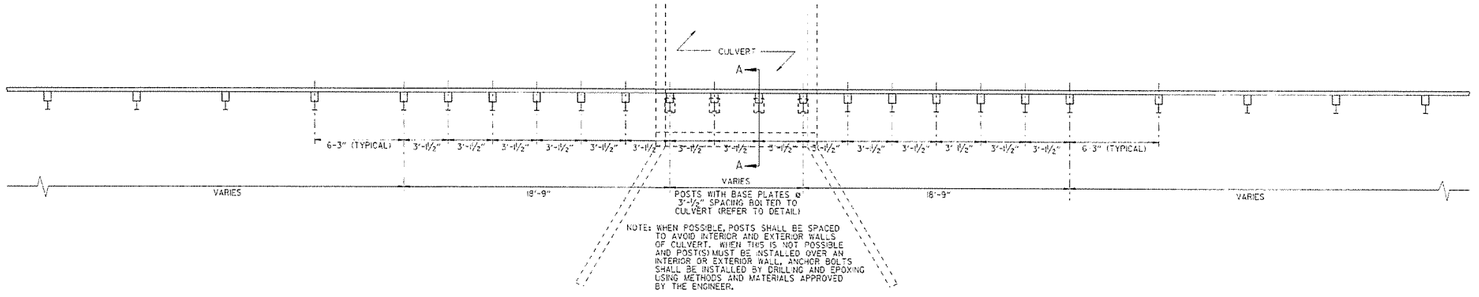
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A



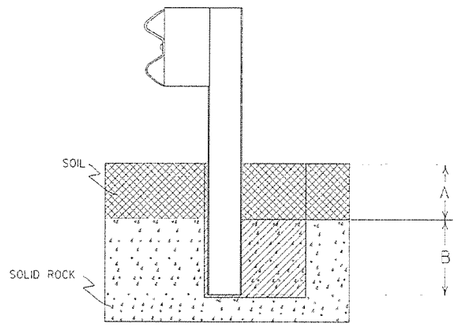
DETAIL OF CONNECTION



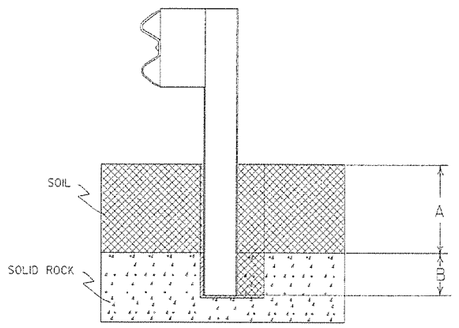
PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

Case 1

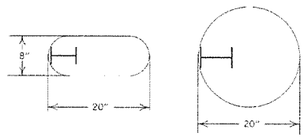


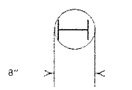
Case 2



Plan View Steel Posts

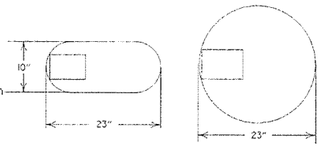
Either hole configuration acceptable

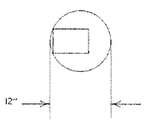




Plan View Wood Posts

Either hole configuration acceptable





Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

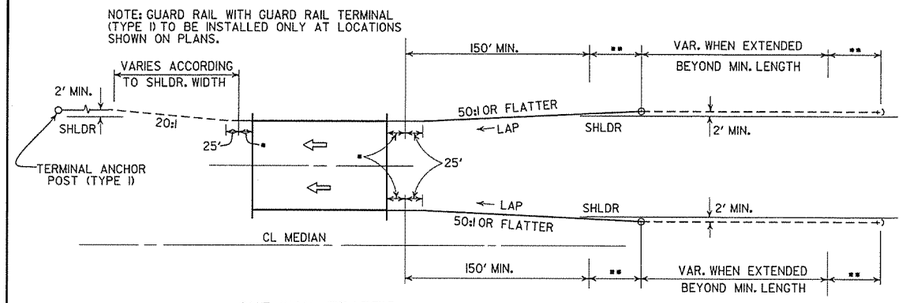
DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
1-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
1-18-04	REVISED POST PLACEMENT N ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULVT. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-6-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	742-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

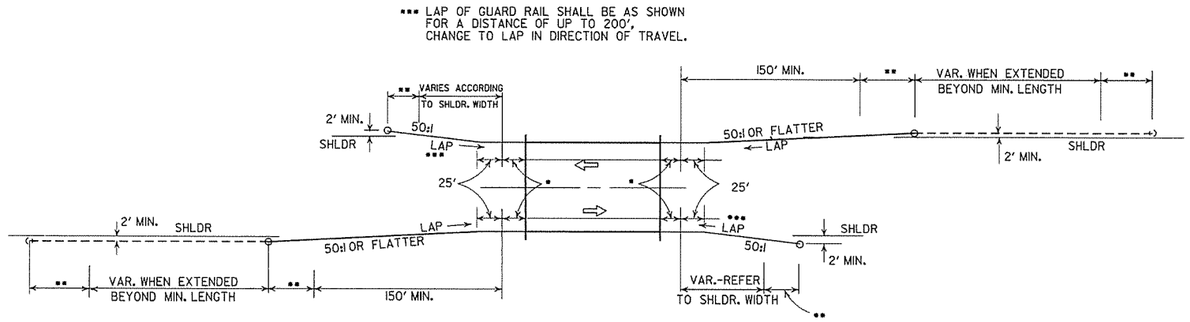
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8A



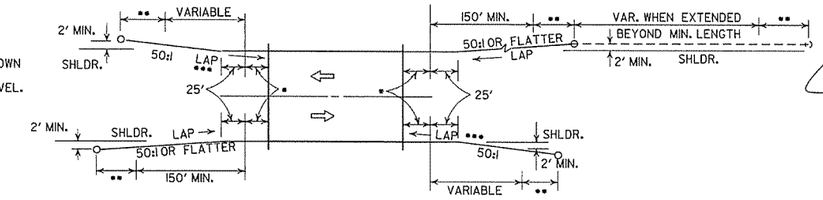
ONE-WAY TRAFFIC



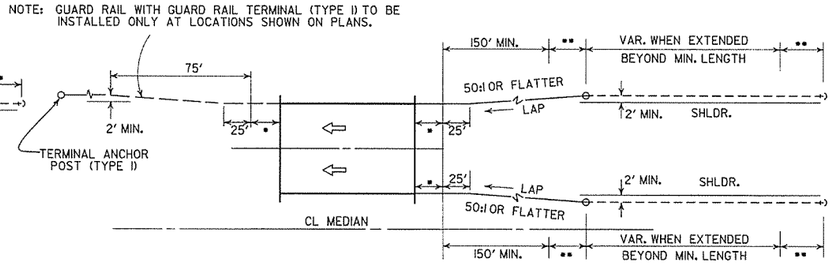
TWO-WAY TRAFFIC

METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



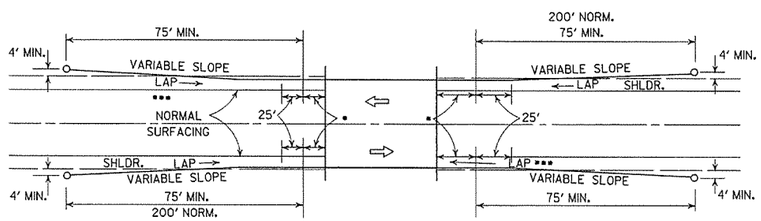
TWO-WAY TRAFFIC



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

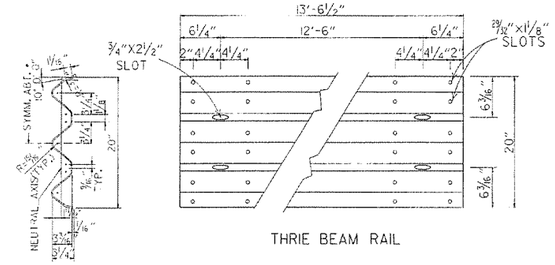
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

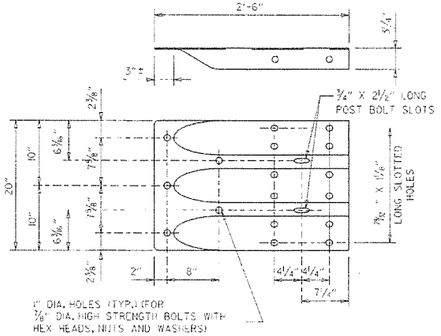
GUARD RAIL DETAILS

STANDARD DRAWING GR-9



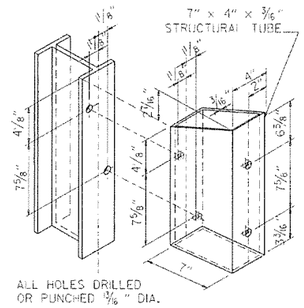
THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

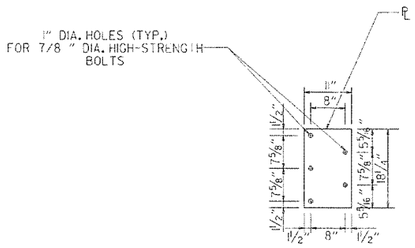
SPECIAL END SHOE



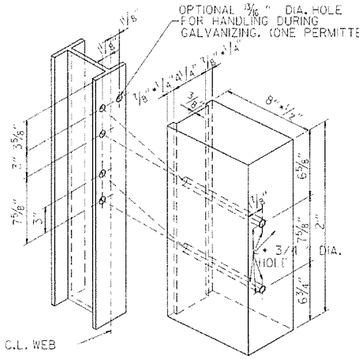
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



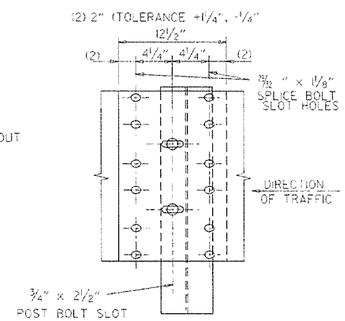
CONNECTOR PLATE



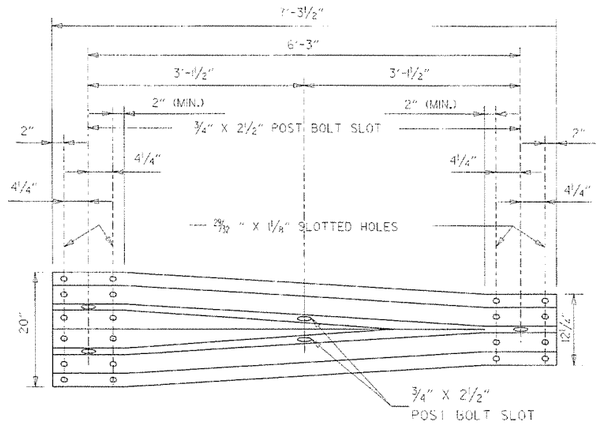
ALL HOLES ⅜" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



THRIE BEAM RAIL SPLICE AT POST

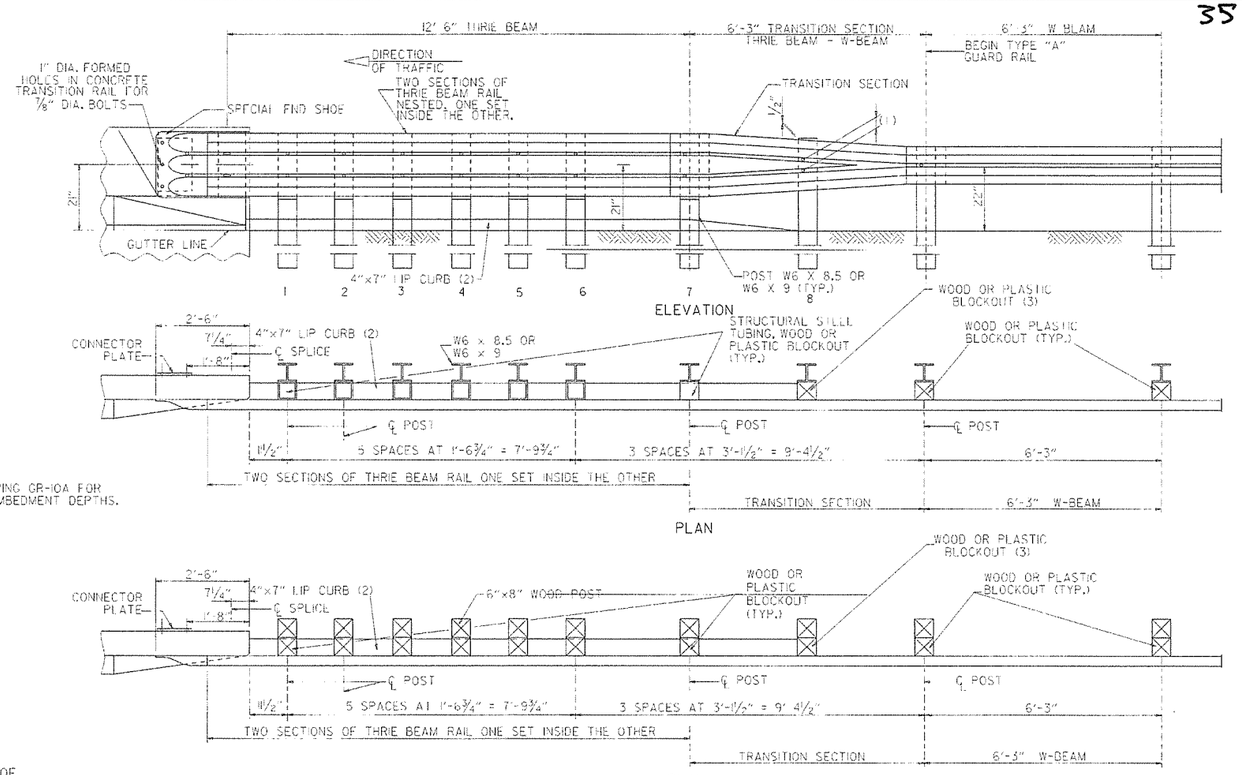


TRANSITION SECTION

NOTE: SET STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.9 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE II.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 (1350 f SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

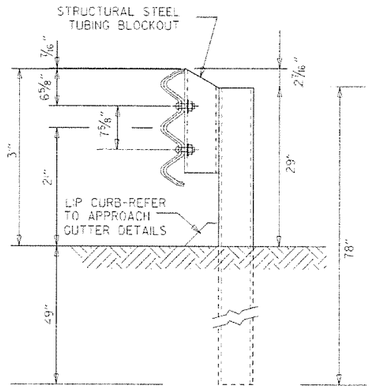
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

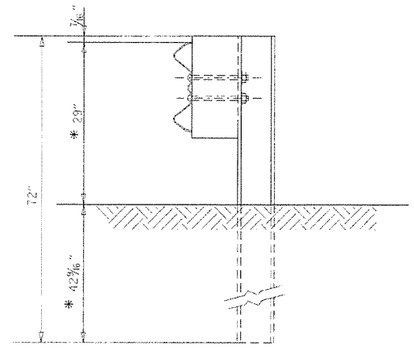
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

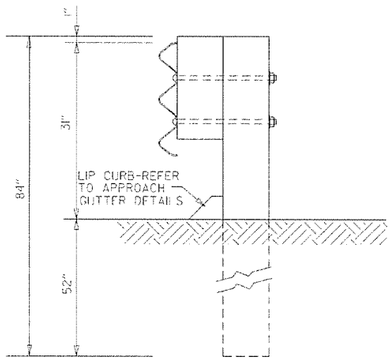


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

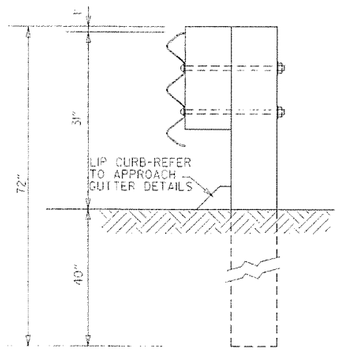


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

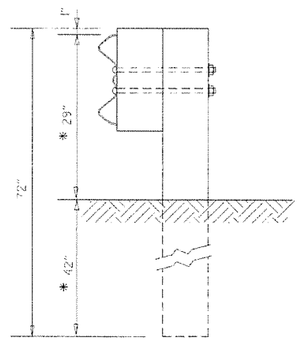
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

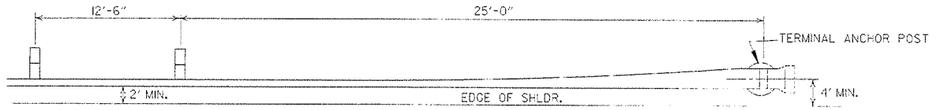
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 #) OR NO. 1 1350 # SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

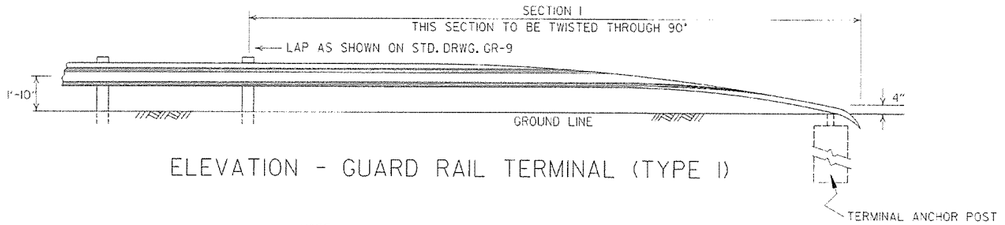
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

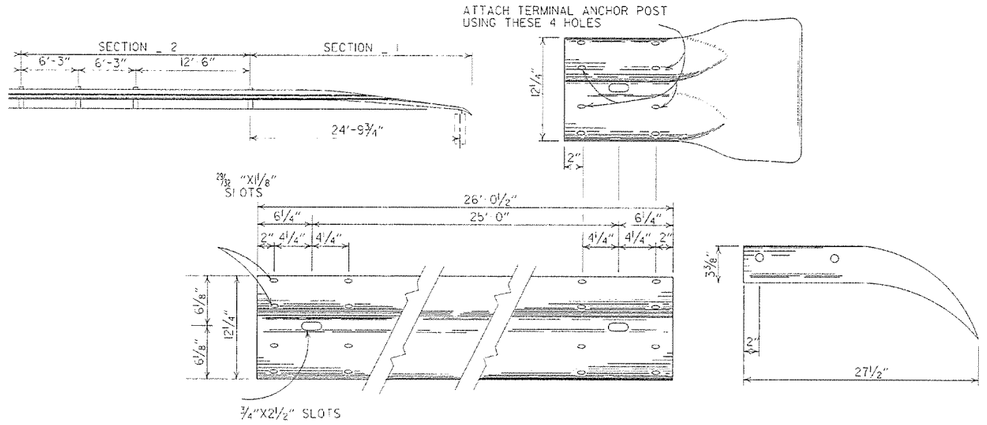


PLAN - GUARD RAIL TERMINAL (TYPE I)



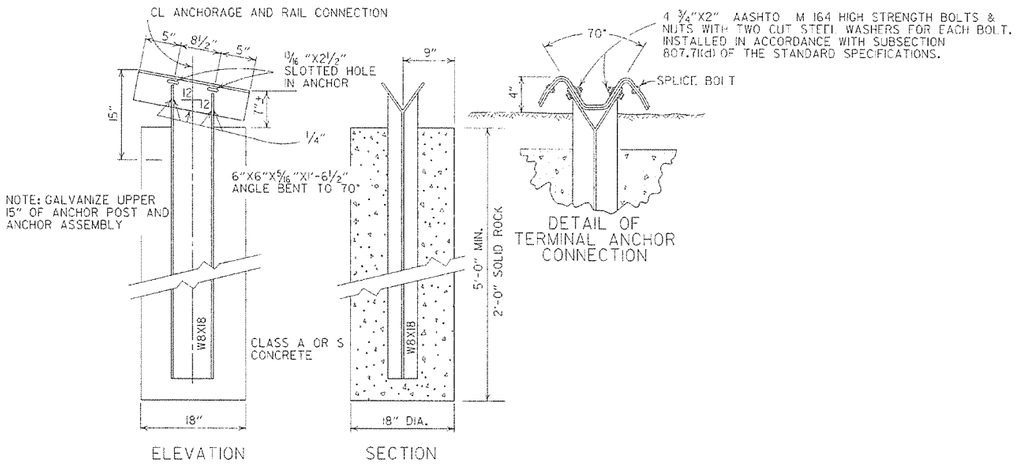
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS I AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION I

TERMINAL SECTION



NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

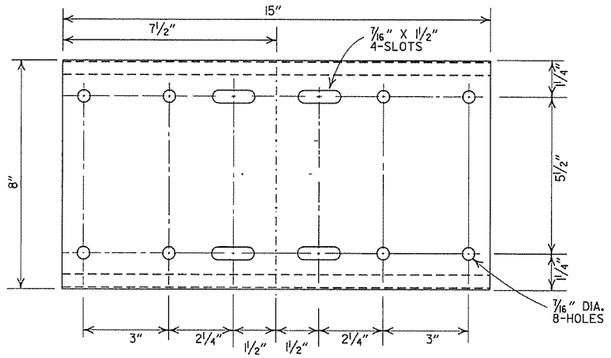
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

DATE	REVISION	DATE FILM
7-14-0	RAISED HEIGHT OF GUARD RAIL 1"	
6-26-97 10 16 96	REVISED I AP NOTE REVISED ASTM REF. TO AASHTO	
11-3-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92

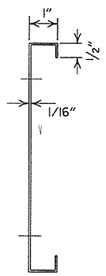
ARKANSAS STATE HIGHWAY COMMISSION

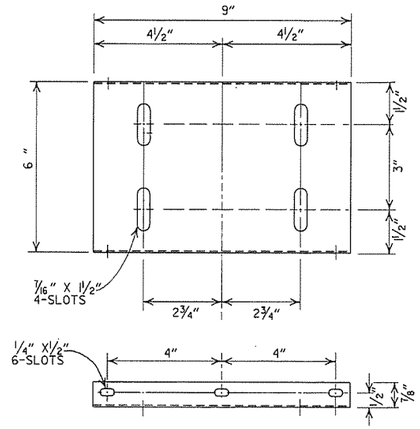
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

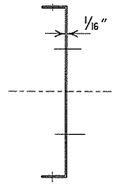


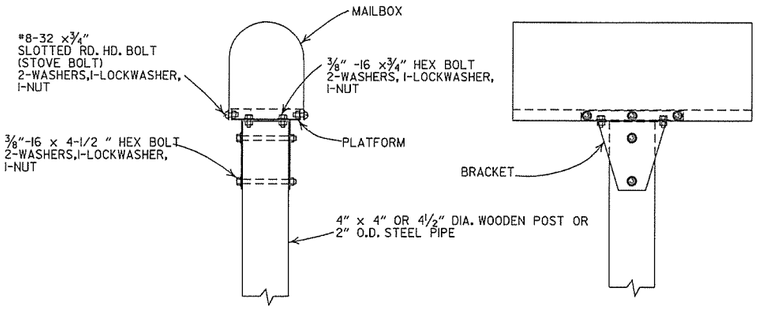
SHELF



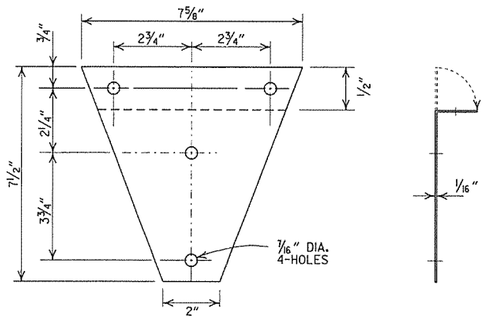


PLATFORM





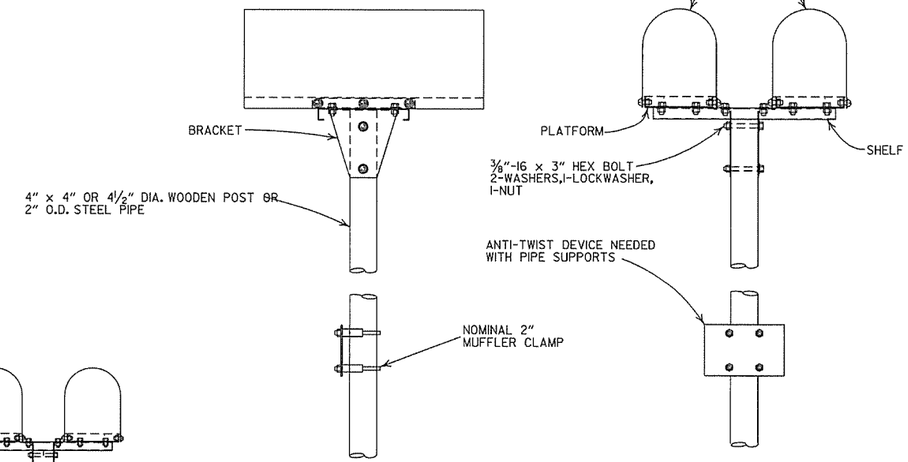
SINGLE INSTALLATION



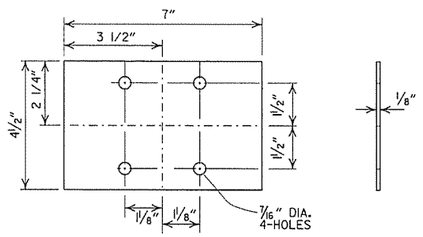
BRACKET

GENERAL NOTES

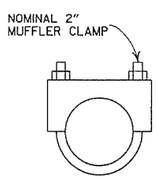
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL. HOWEVER TREATED 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.



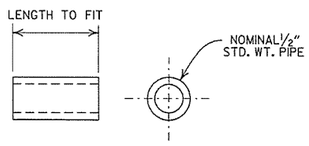
DOUBLE INSTALLATION



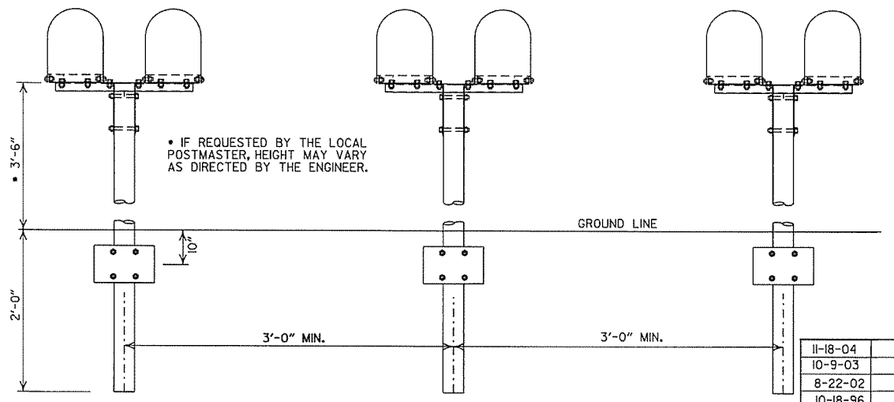
ANTI-TWIST PLATE



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

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31 7/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

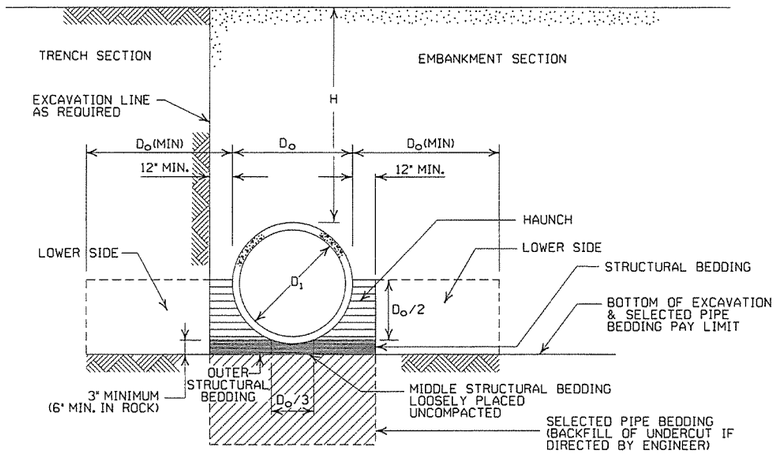
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION		INSTALLATION		INSTALLATION		INSTALLATION
				TYPE 1		TYPE 1		TYPE 1		TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2		15	0.060	2		15
18	21x15	3	0.064	2		15	0.060	2		15
21	24x18	3	0.064	2.25		15	0.060	2.25		15
24	28x20	3	0.064	2.5		15	0.075	2.5		15
30	35x24	3	0.079	3		12	0.075	3		12
36	42x29	3½	0.079	3		12	0.105	3		12
42	49x33	4	0.079	3		12	0.105	3		12
48	57x38	5	0.109	3		13	0.135	3		13
54	64x43	6	0.109	3		14	0.135	3		14
60	71x47	7	0.138	3		15	0.164	3		15
66	77x52	8	0.168	3		15				
72	83x57	9	0.168	3		15				
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM							
				INSTALLATION		INSTALLATION				
				TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

CONSTRUCTION SEQUENCE

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

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

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

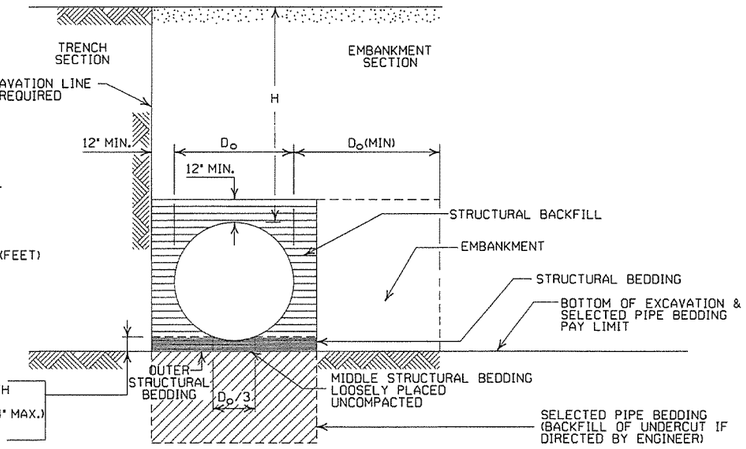
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

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 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"

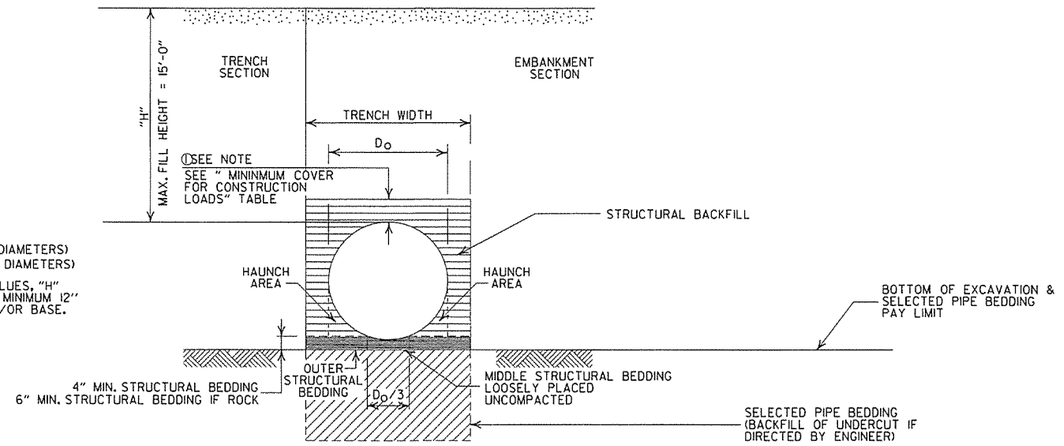
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

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.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

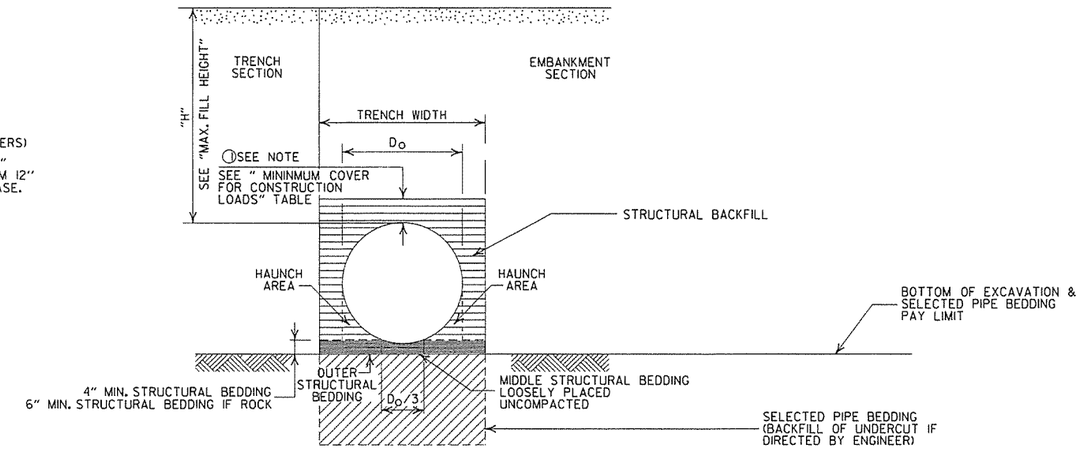
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

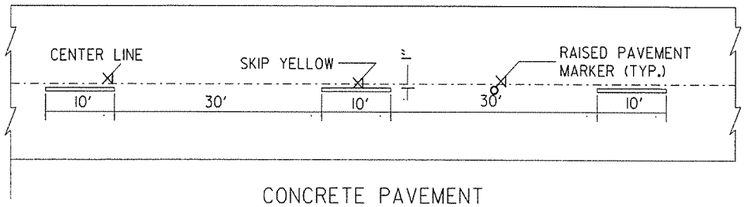
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

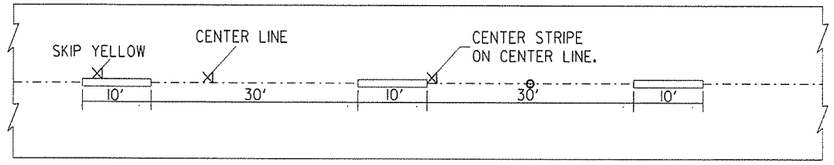
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

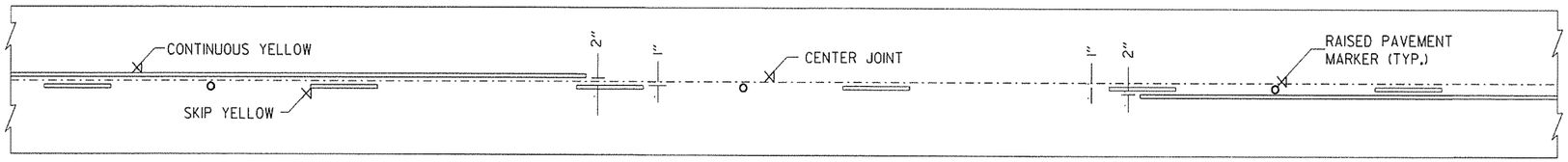


CONCRETE PAVEMENT

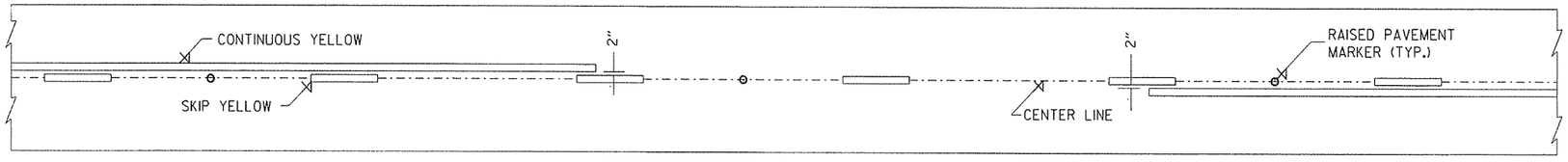


ASPHALT PAVEMENT

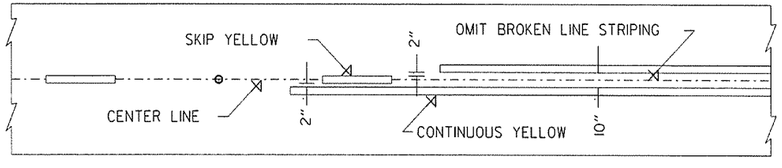
BROKEN LINE STRIPING



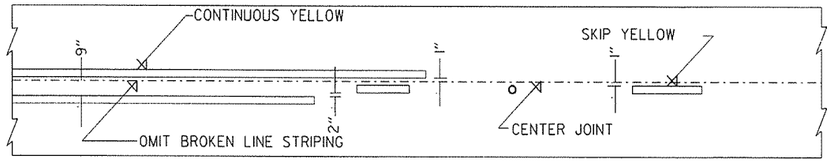
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

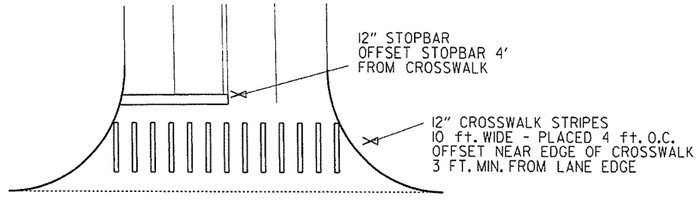


ASPHALT PAVEMENT



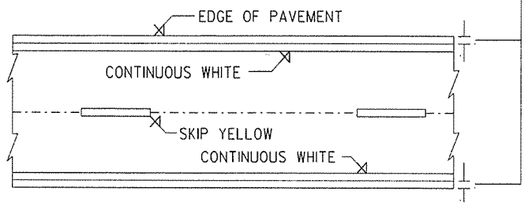
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

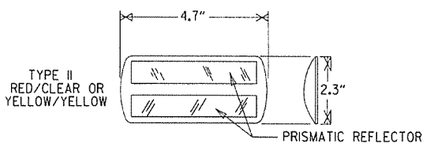


CROSSWALK AND STOPBAR DETAILS

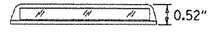
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

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

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

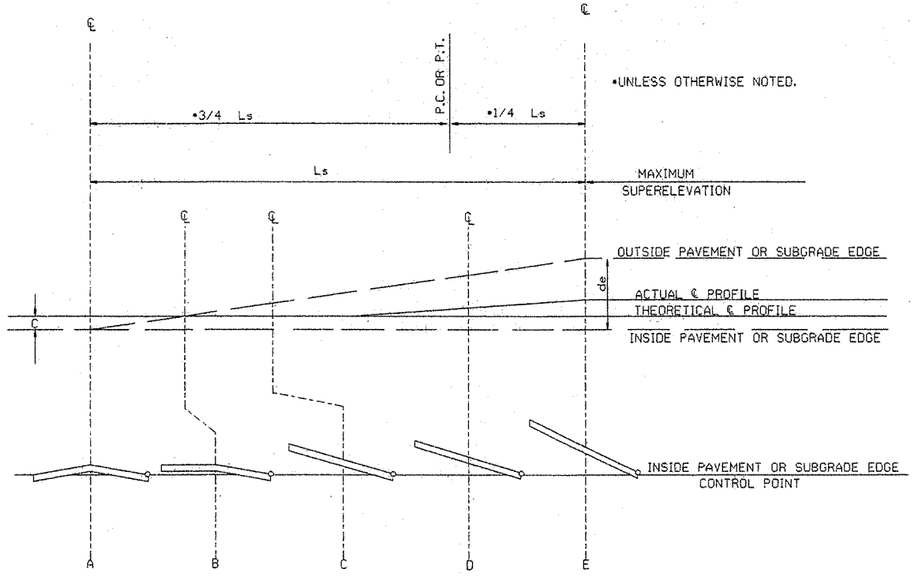
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

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	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037			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		200	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			0.049			0.069	215		0.080	265		0.090	295				
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305	350			
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		0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300	350						
6° 00′	0.046			0.070	190		0.092	270	300	0.096	305							
6° 30′	0.050			0.074	200		0.095	280		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	235													
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.)



•UNLESS OTHERWISE NOTED.

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

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

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

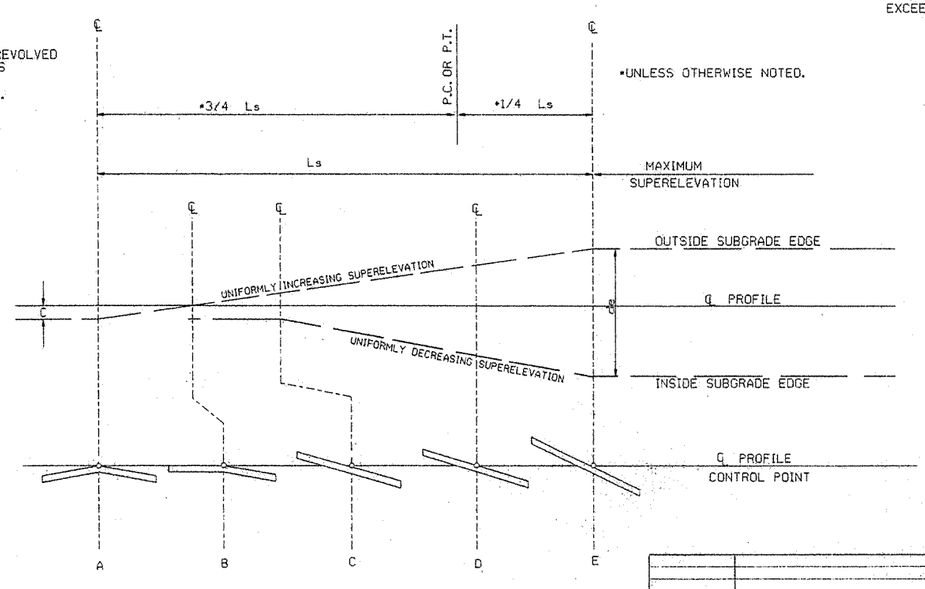
GENERAL NOTES

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.



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

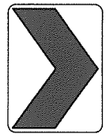
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

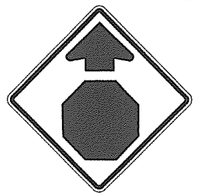
R1-1
30"X30"

W1-3
30"X30"
(LT. OR RT.)



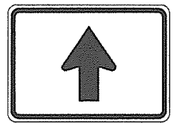
W1-8
18"X24"

W2-5
30"X30"



W3-1
36"X36"

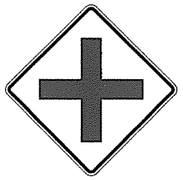
W5-1
36"X36"



M6-3
21"X15"

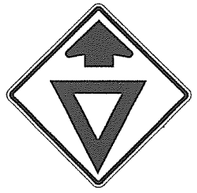
R1-2
36"X36"X36"

W1-4
30"X30"
(LT. or RT.)



W2-1
30"X30"

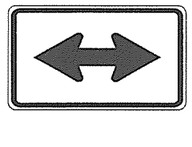
S1-1
36"X36"



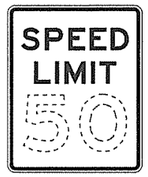
W3-2
36"X36"

County
Route Marker
M1-6
24"X24"

NOTE: REFLECTORIZED YELLOW LEGEND (COUNTY NAME, ROUTE LETTER & NUMBER) & BORDER ON A BLUE BACKGROUND.



M6-4
21"X15"



R2-1
24"X30"

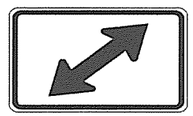
W1-5
30"X30"
(LT. or RT.)

W2-2
30"X30"

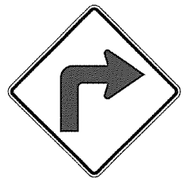
W5-2
36"X36"

W8-3
36"X36"

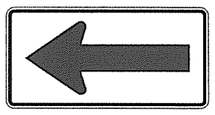
R1-3P
18"X6"



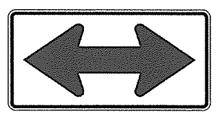
M6-5
21"X15"



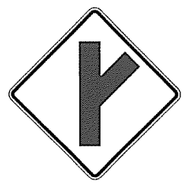
W1-1
30"X30"
(LT. or RT.)



W1-6
48"X24"

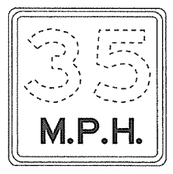


W1-7
48"X24"

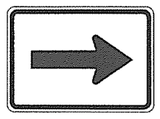


W2-3
30"X30"
(LT. or RT.)

W5-3
36"X36"

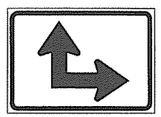


W13-1P
18"X18"



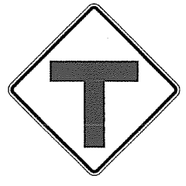
M6-1
21"X15"

NOTE: ALL M6 SIGNS TO BE MADE WITH REFLECTORIZED YELLOW ARROW & BORDER WITH BLUE BACKGROUND.



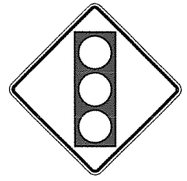
M6-6
21"X15"

W1-2
30"X30"
(LT. or RT.)



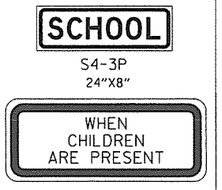
W2-4
30"X30"

W10-1
36" DIAMETER



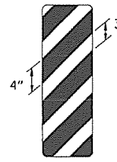
W3-3
36"X36"

M6-2
21"X15"

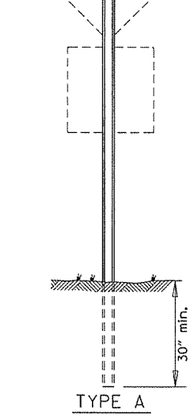


S4-3P
24"X8"

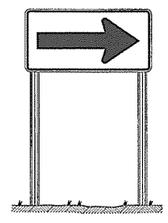
S4-2P
24"X10"



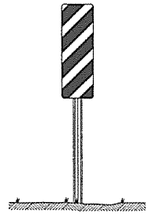
OM-3
12"X36"
(LT. or RT.)



NOTE: LENGTH OF SIGN POSTS SHALL BE DETERMINED SO AS TO PROVIDE FOR MINIMUM VERTICAL CLEARANCES AS CALLED FOR IN THE SPECIFICATIONS PLUS A MINIMUM VERTICAL PENETRATION OF 30" IN THE SOIL.



TYPE B



TYPE C

MINIMUM WEIGHT

TYPE A & B = 3 LBS./FT.
TYPE C = 2 LBS./FT.

STANDARD HIGHWAY SIGNS

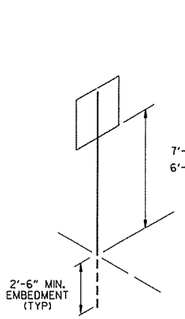
DATE	REVISION	DATE FILMED
9-12-13	DELETED JOB NO. BLOCK; REVISED RI-3 TO RI-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1 & W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3; ADDED W1-8	
1-5-81	REDRAWN	960-1-15-81
9-15-78	ADDED W14-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2#-3#; ADDED S4-2 & S4-3	504-5-3-76
8-12-74	REV. HT. TYPE "C" ASSEMBLY	500-8-21-74
12-21-72	ADDED M6-2,3,4,5,6	500-12-21-72
12-1-72	ISSUED	562-12-1-72

SUPPORT ASSEMBLIES

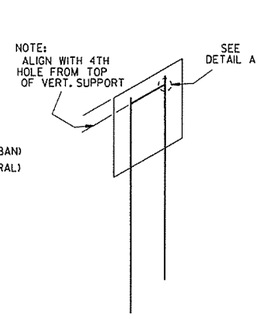
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

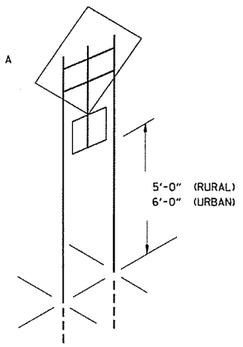
STANDARD DRAWING SHS-1



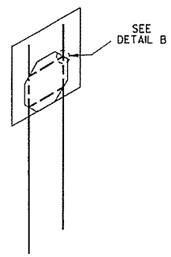
U-1



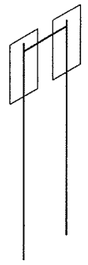
U-2

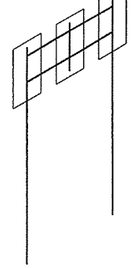


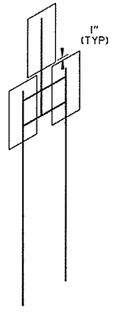
U-2 (A)



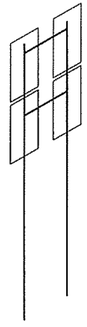
U-2 (B)

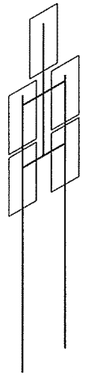

U-2 (1)

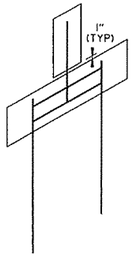

U-2 (2)



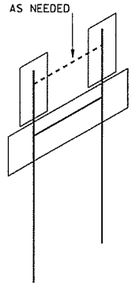
U-2 (3)


U-2 (4)

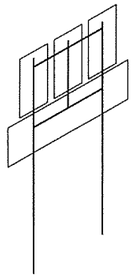

U-2 (5)

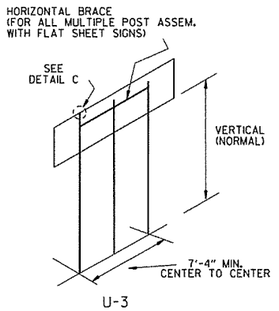


U-2 (6)

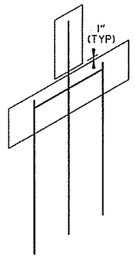


U-2 (7)

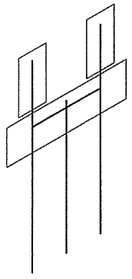

U-2 (8)

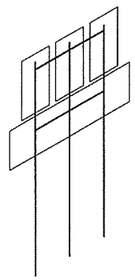


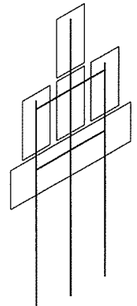
U-3

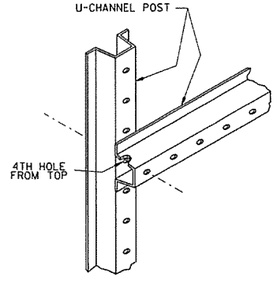


U-3 (1)

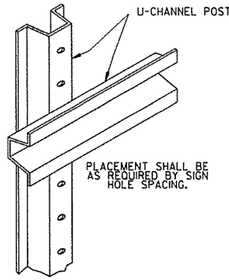

U-3 (2)


U-3 (3)

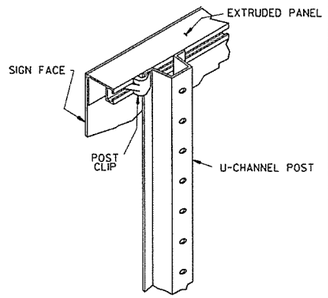

U-3 (4)



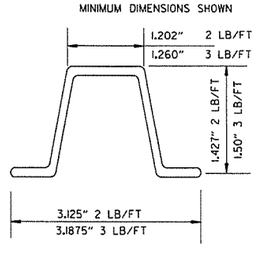
DETAIL A
SHOWING HORIZONTAL BRACE



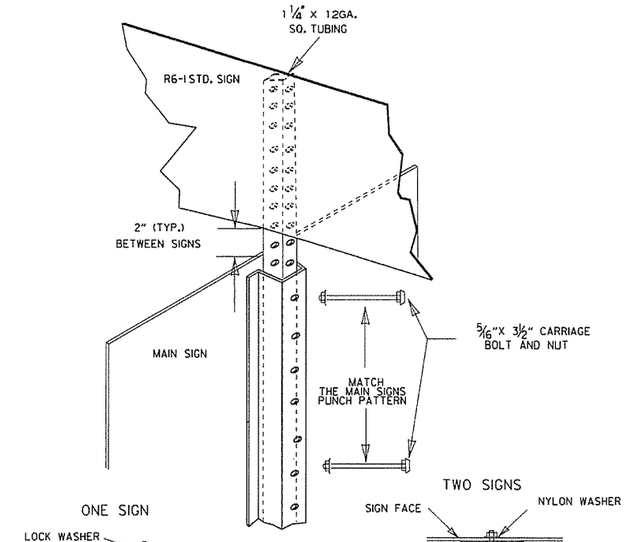
DETAIL B
SHOWING BACK-TO-BACK INSTALLATION



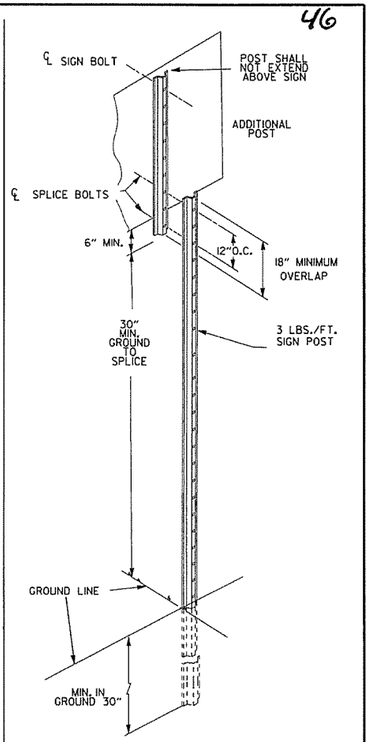
DETAIL C
SHOWING GUIDE SIGN MOUNTING WITH EXTRUDED PANELS



DETAIL C
U-CHANNEL POST



DETAIL E
R6-1 EXTENSION
FOR U-CHANNEL POST



DETAIL F
DETAIL OF SPLICES

NOTES:

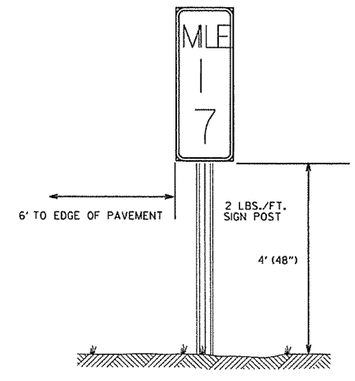
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (F).

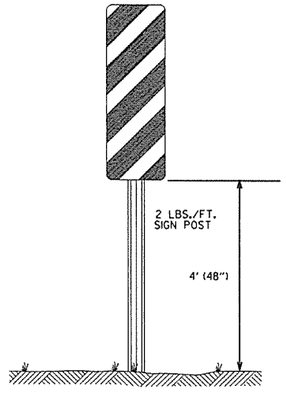
NORMAL INSTALLATIONS WILL REQUIRE $\frac{5}{16}$" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

THE POST FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.



TYPICAL MILE MARKER INSTALLATION



TYPICAL OM-3 INSTALLATION AT EDGE OF OBSTRUCTION

DATE	REVISION	FILMED
9-12-13	REVISED U-2(3), U-2(6), U-3(1), DETAIL D; ADDED DETAILS E & F; ADDED TYPICAL MARKERS	
10-9-03	REMOVED ROUND POST & REVISED SPACING	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL	6-8-95
2-2-95	REDRAWN	2-2-95

ARKANSAS STATE HIGHWAY COMMISSION

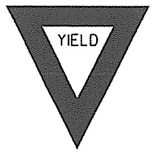
U-CHANNEL POST ASSEMBLIES

STANDARD DRAWING SHS-2

R1-1

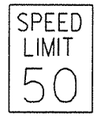
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



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

R2-1



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

W3-5

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

W3-5a

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

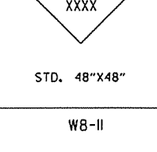
R4-1

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

R4-2

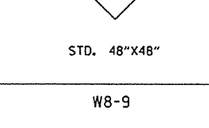
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



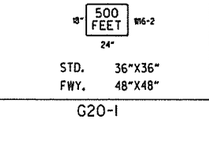
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



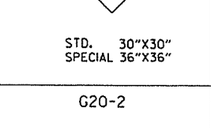
48"X30"

RII-3A



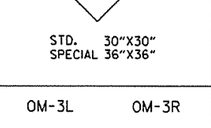
60"X30"

RII-4



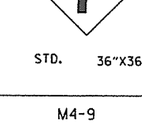
60"X30"

RSP-1



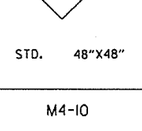
48"X30"

WI-1



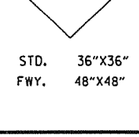
STD. 36"X36"
FWY. 48"X48"

WI-2



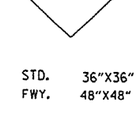
STD. 36"X36"
FWY. 48"X48"

WI-3



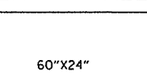
STD. 48"X48"

WI-4



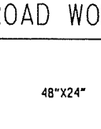
STD. 48"X48"

WI-6



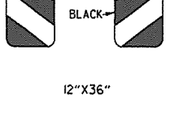
STD. 48"X24"
SPECIAL 60"X30"

WI-8



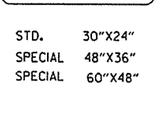
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



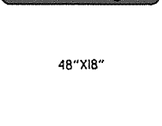
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

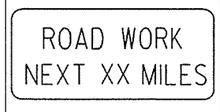
W8-11

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

W8-9

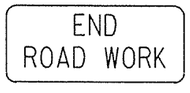
STD. 36"X36"
FWY. 48"X48"

G20-1



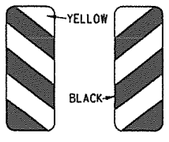
60"X24"

G20-2



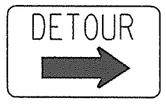
48"X24"

OM-3L OM-3R



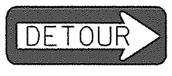
12"X36"

M4-9



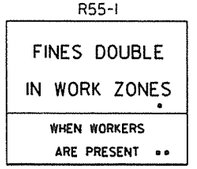
STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10



48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

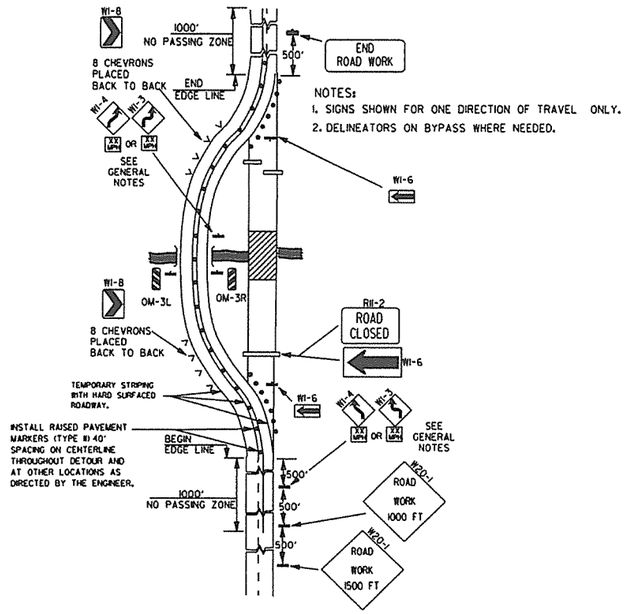
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
1-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

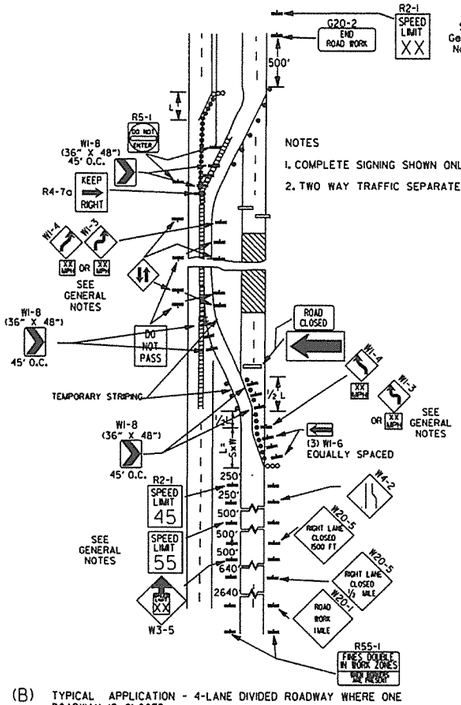
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



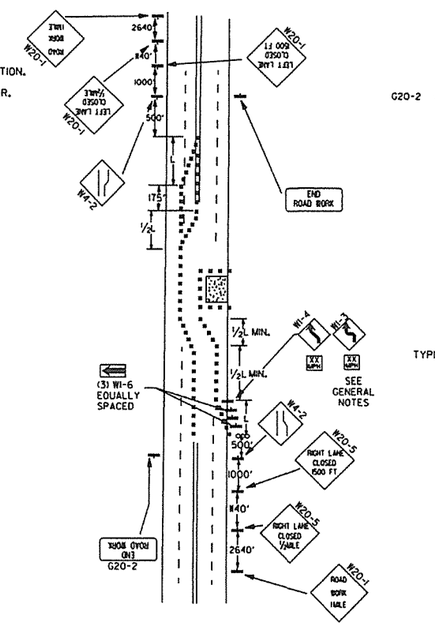
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

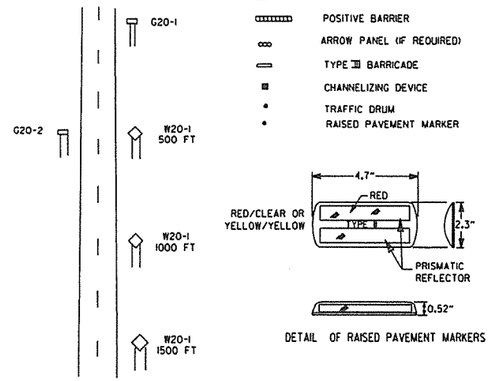


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

DETAIL OF RAISED PAVEMENT MARKERS

TAPER FORMULAE:

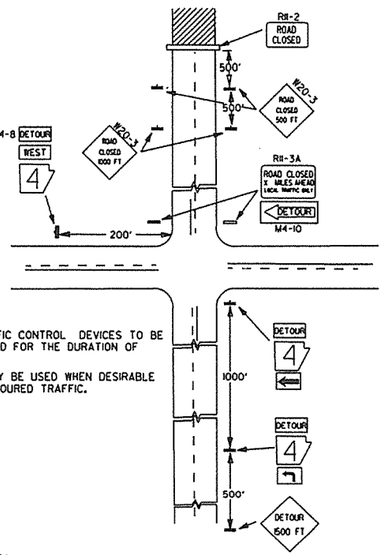
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

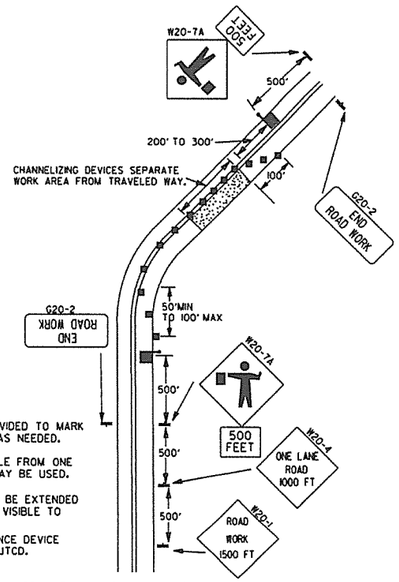
GENERAL NOTES:

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



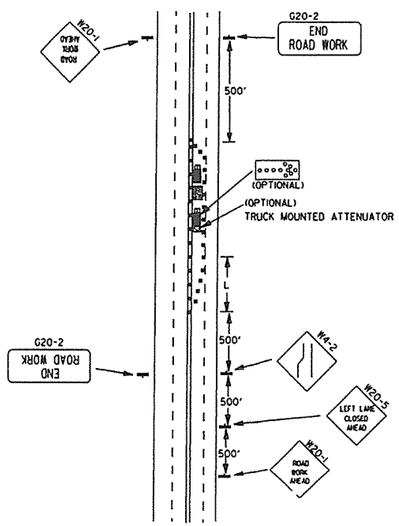
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



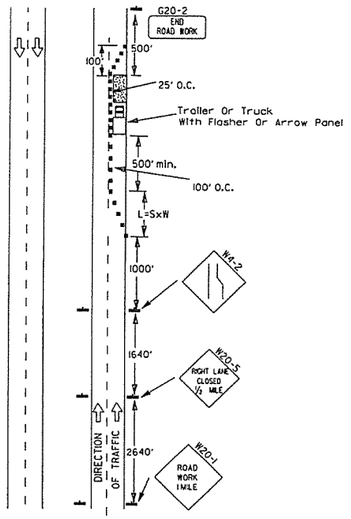
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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)	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

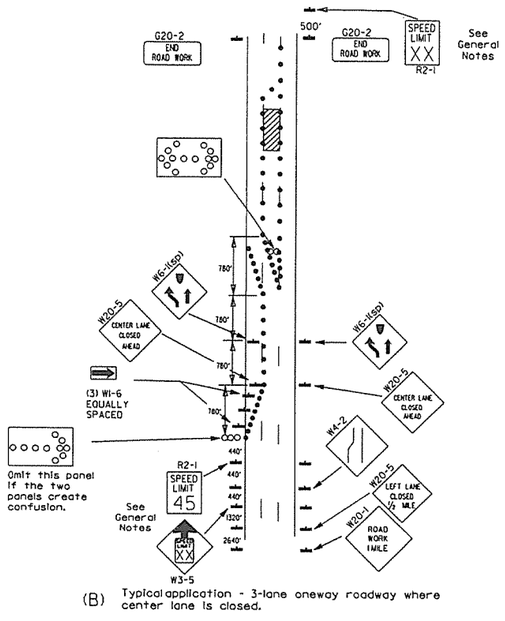
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

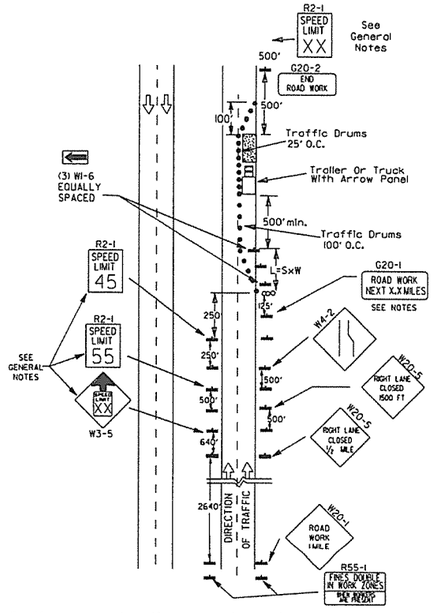
STANDARD DRAWING TC-2



(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.

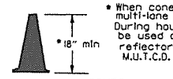
KEY:

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

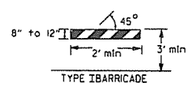
GENERAL NOTES:

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.

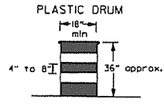
Channelizing devices



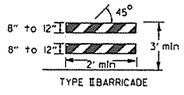
CONES



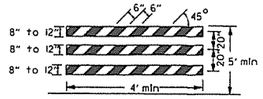
TYPE I BARRICADE



PLASTIC DRUM

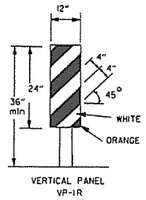


TYPE II BARRICADE



TYPE III BARRICADE

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



VERTICAL PANEL
VP-1R

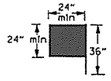
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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.

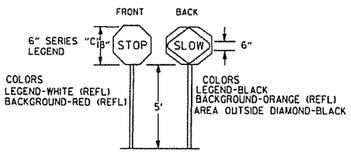
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG

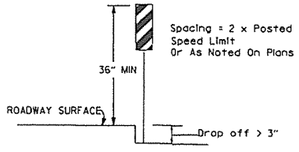


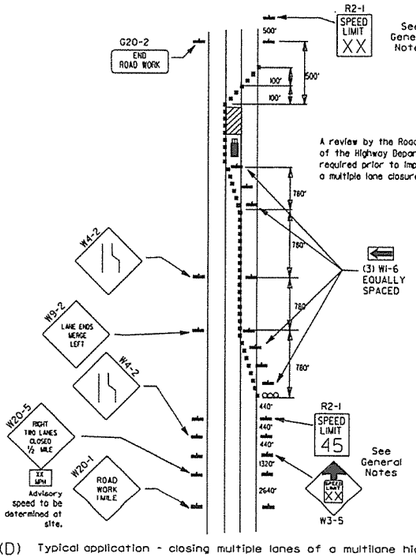
Flag shall be of good grade red material

STOP SLOW PADDLE



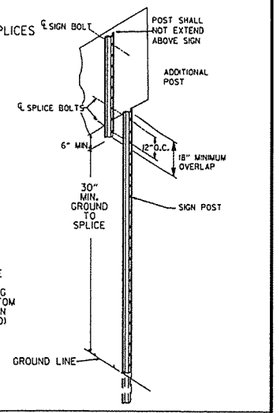
VERTICAL PANEL PLACEMENT





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

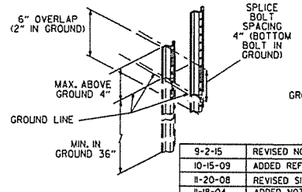
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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

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



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

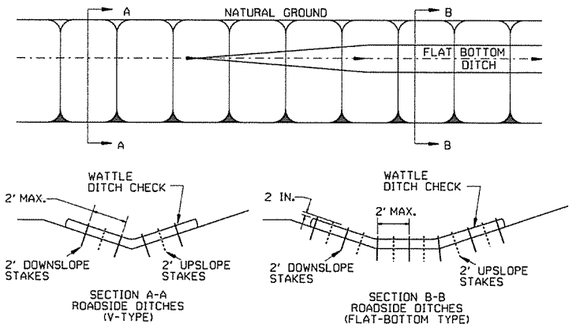
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

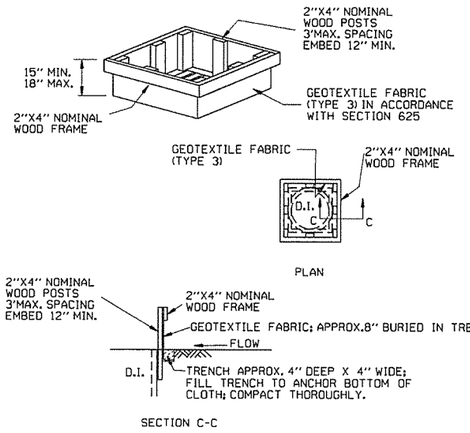
STANDARD DRAWING TC-3

GENERAL NOTES

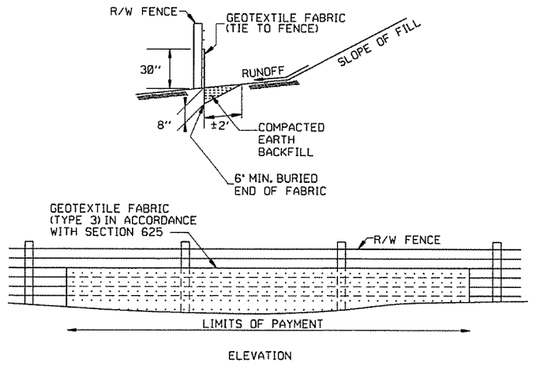
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



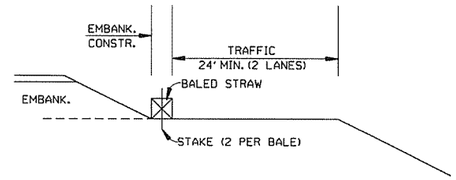
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

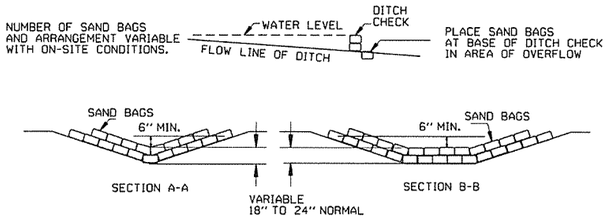
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

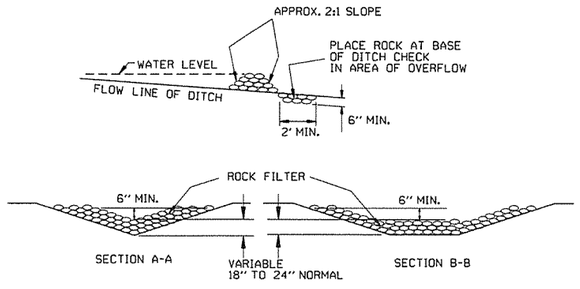
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED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



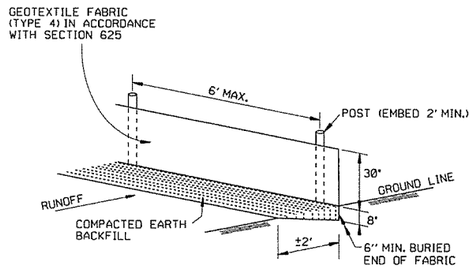
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

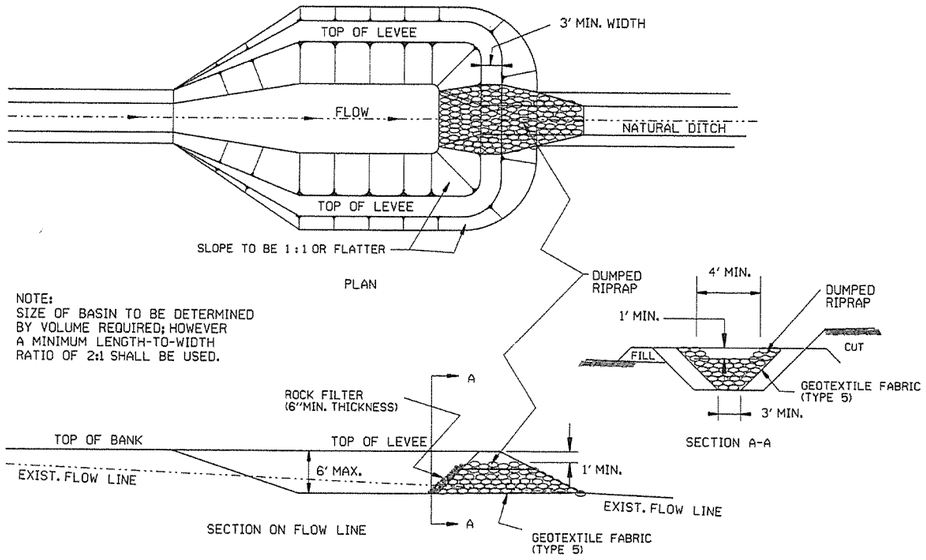
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

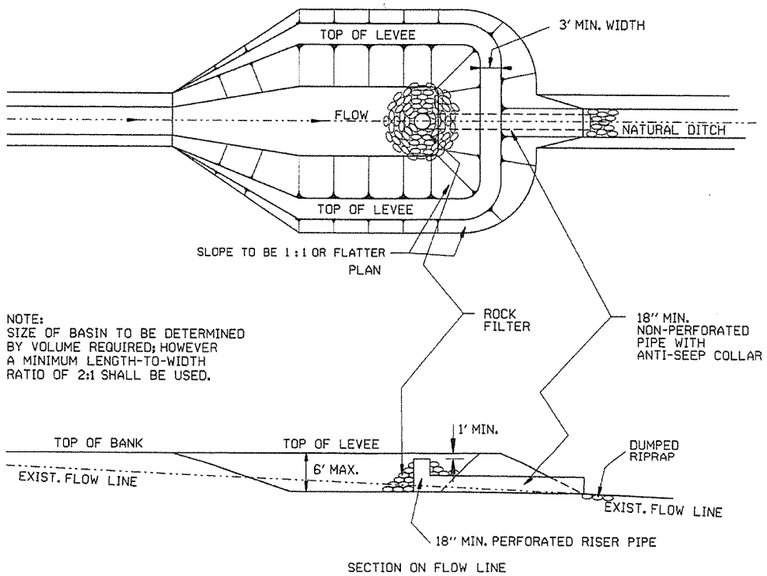
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

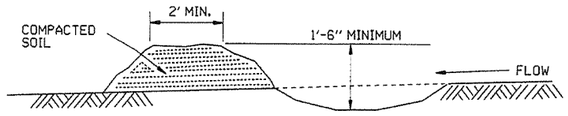
STANDARD DRAWING TEC-1



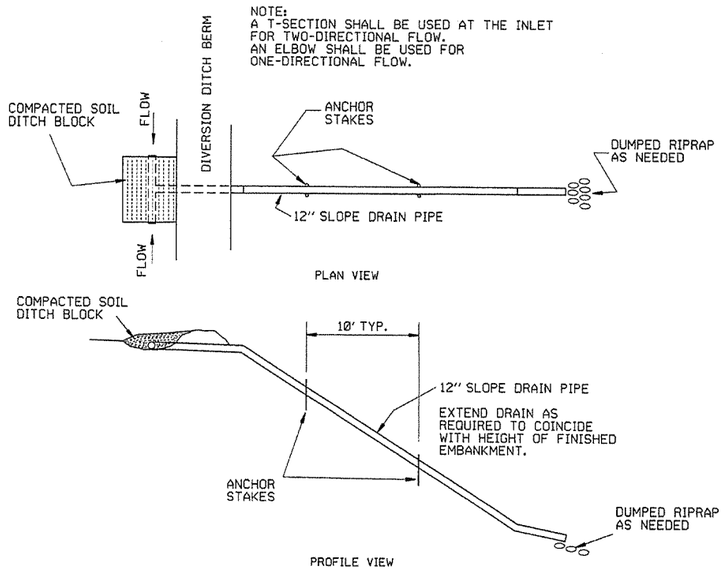
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



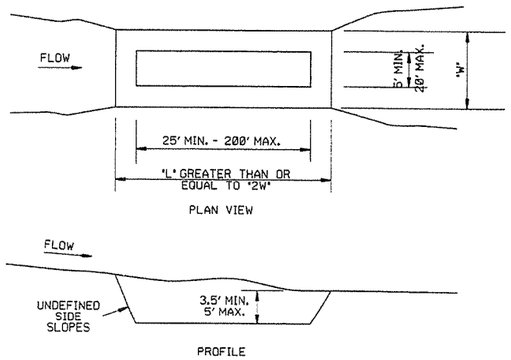
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

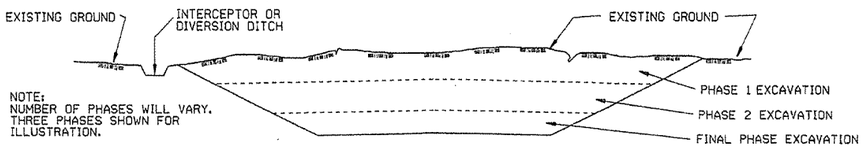
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



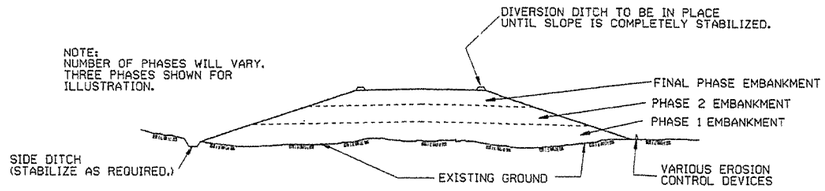
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

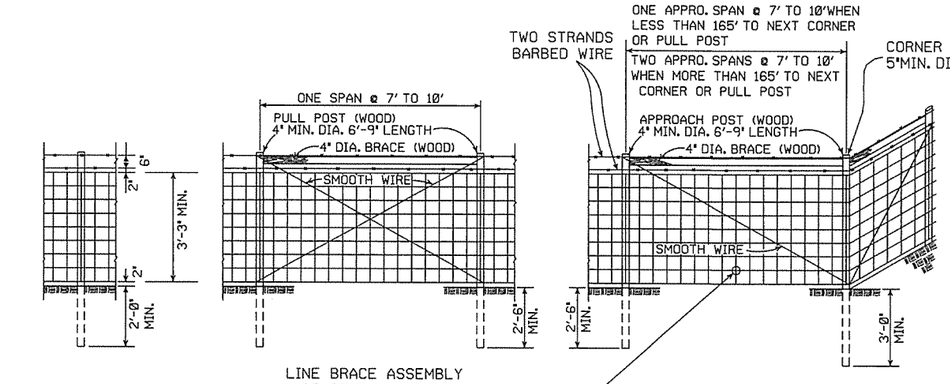
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

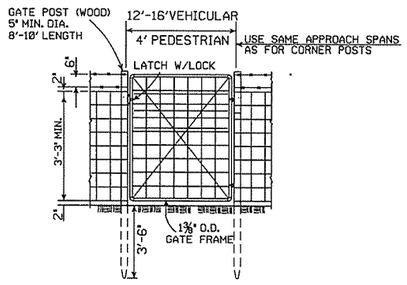
ARKANSAS STATE HIGHWAY COMMISSION

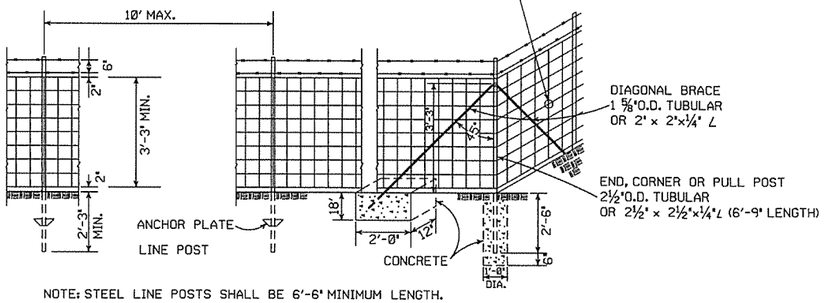
TEMPORARY EROSION CONTROL DEVICES

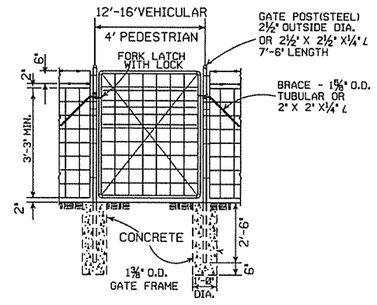
STANDARD DRAWING TEC-3

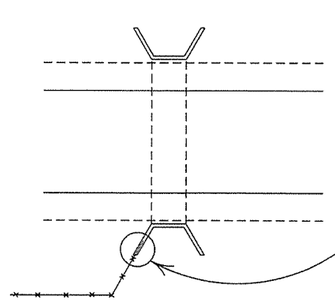
TYPE C FENCE (WOOD POSTS)

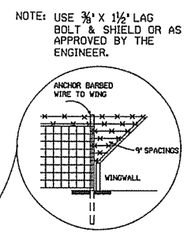












DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

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

GENERAL NOTES:

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

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

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

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

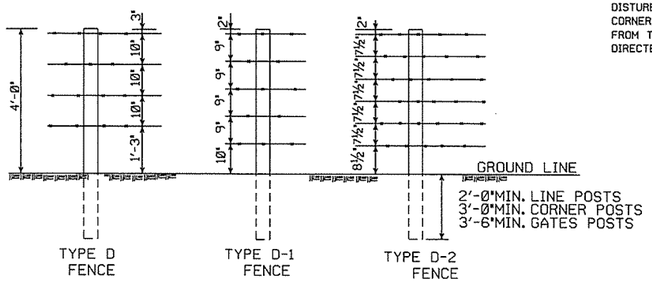
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

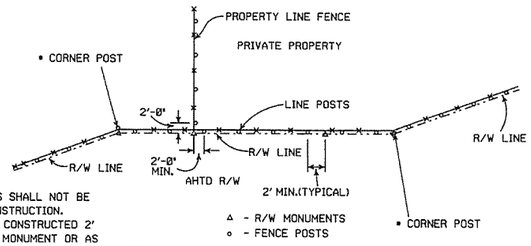
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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

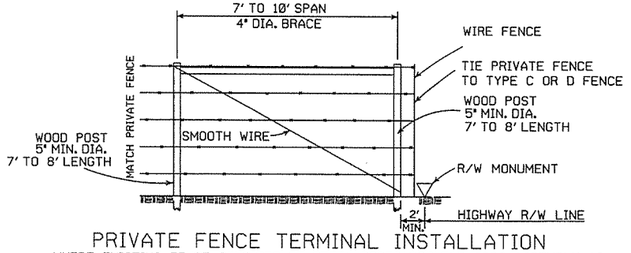


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

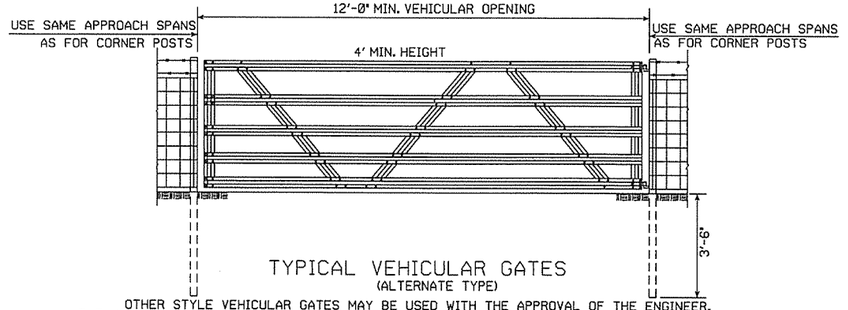


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



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



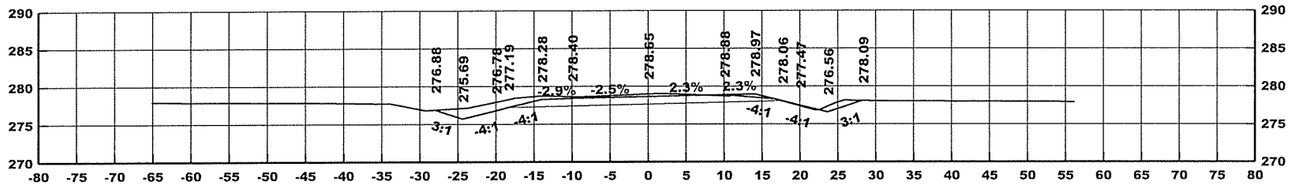
TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

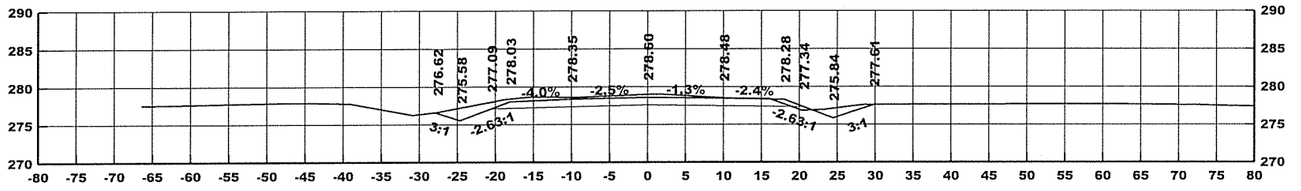
STANDARD DRAWING WF-4



AREA CUT 52.27
AREA FILL 0.37

CUT VOLUME 87.95
FILL VOLUME 1.40

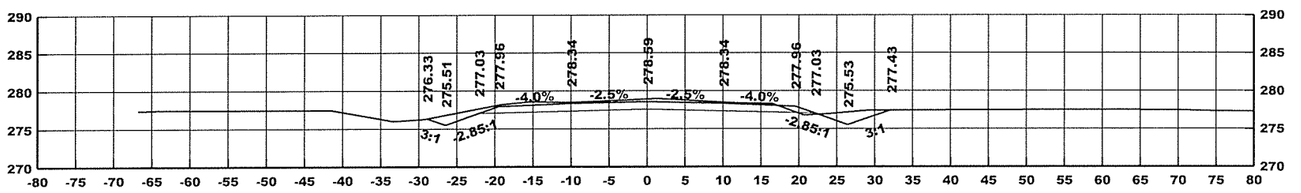
↓ 109+57 ↓
END TAPER



AREA CUT 60.81
AREA FILL 1.43

CUT VOLUME 34.33
FILL VOLUME 0.54

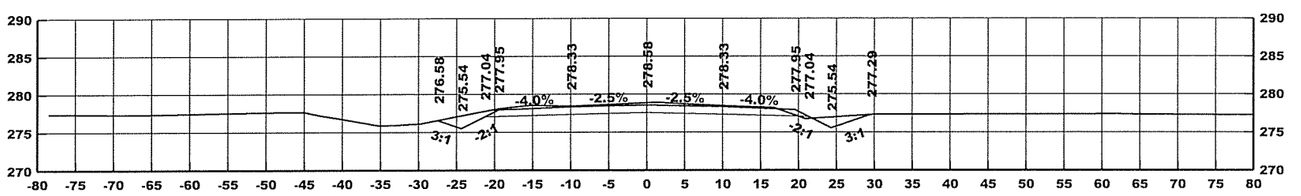
↓ 109+15 ↓
END DITCH GRADE ON LT.



AREA CUT 62.79
AREA FILL 0.53

CUT VOLUME 22.46
FILL VOLUME 0.16

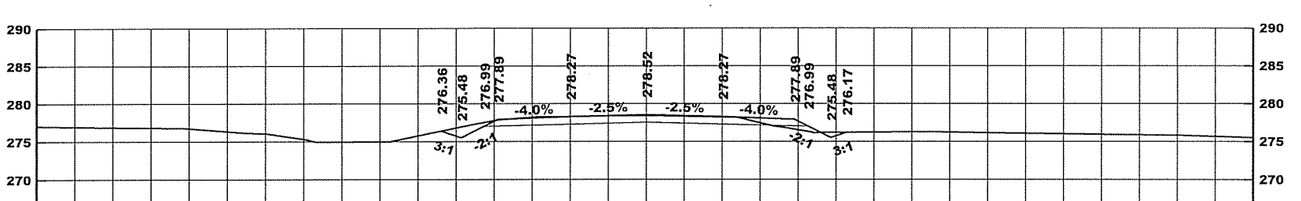
↓ 109+00 ↓
BEGIN TAPER



AREA CUT 58.52
AREA FILL 0.33

CUT VOLUME 90.03
FILL VOLUME 0.74

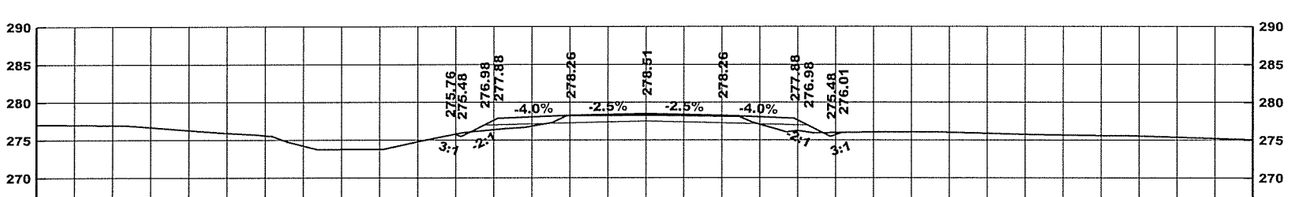
↓ 108+90 ↓
END GUARDRAIL



AREA CUT 38.72
AREA FILL 2.47

CUT VOLUME 11.28
FILL VOLUME 2.20

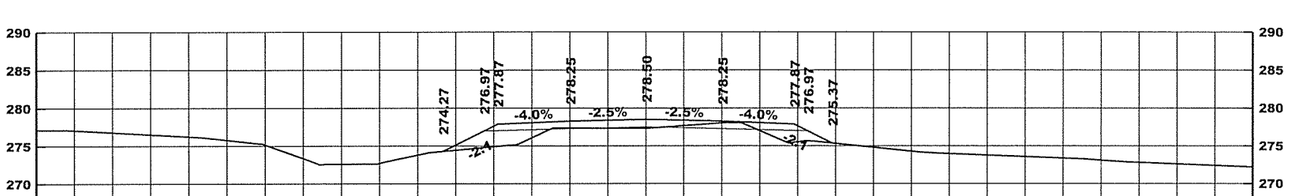
↓ 108+40 ↓
BEGIN GUARDRAIL



AREA CUT 22.17
AREA FILL 9.40

CUT VOLUME 4.77
FILL VOLUME 6.43

↓ 108+30 ↓
BEGIN DITCH GRADE ON LT.



AREA CUT 6.47
AREA FILL 29.17

CUT VOLUME 0.00
FILL VOLUME 0.00

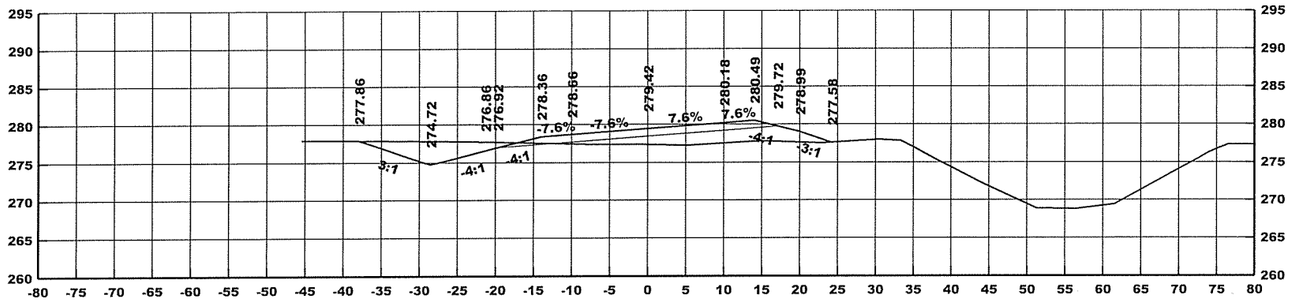
← 108+21 →
BEGIN PARTICIPATING SECTION
JOB FA1915

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		54	73

JOB NO. FA1915

CROSS SECTIONS

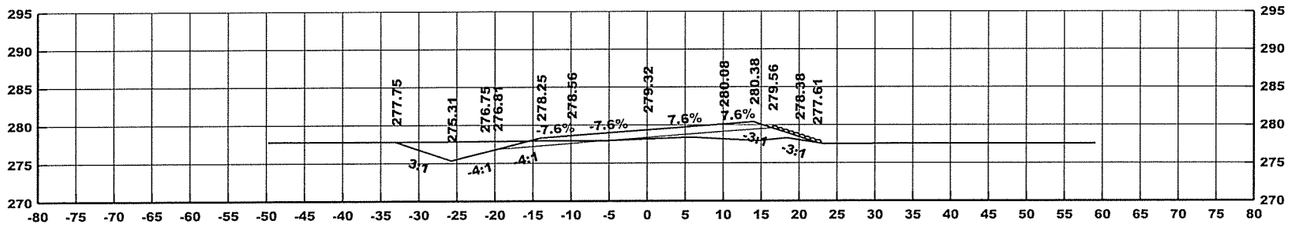
4



AREA CUT 34.02
AREA FILL 42.23

↑ **112+00** ↕

CUT VOLUME 113.20
FILL VOLUME 110.84

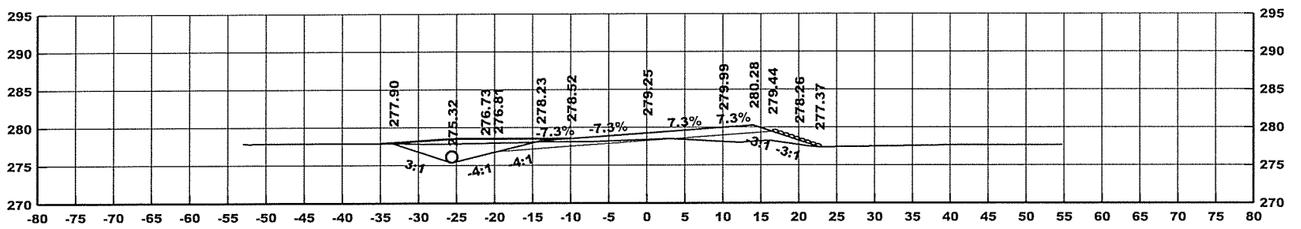


AREA CUT 27.10
AREA FILL 17.62

↑ **111+00** ↓

CUT VOLUME 33.44
FILL VOLUME 17.54

BEGIN DITCH GRADE ON LT.

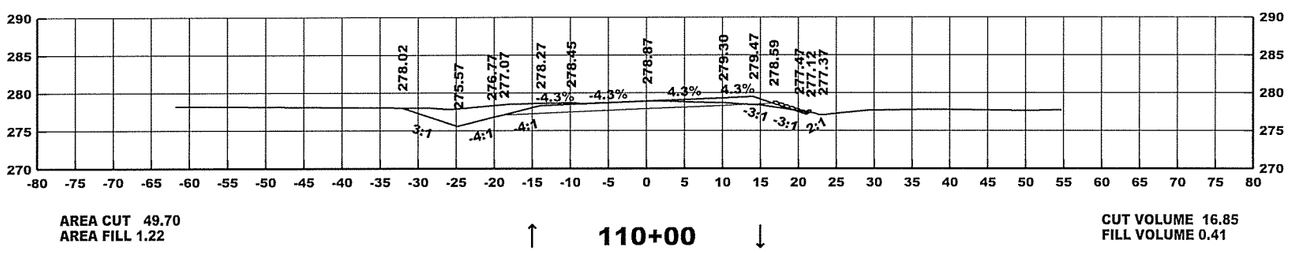


AREA CUT 33.08
AREA FILL 13.95

↑ **110+70** ↓

CUT VOLUME 107.31
FILL VOLUME 19.66

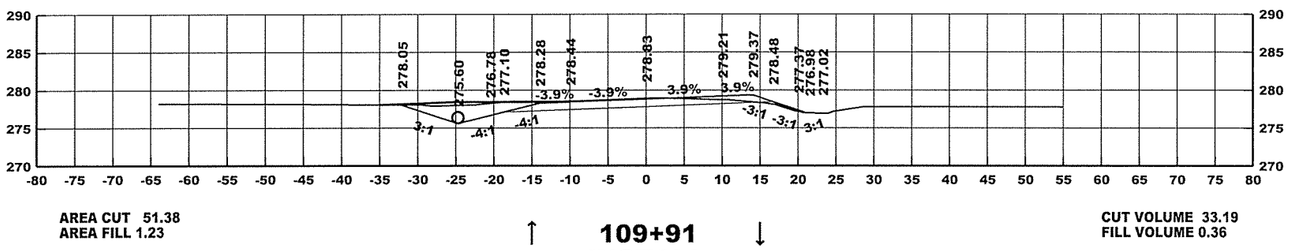
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.



AREA CUT 49.70
AREA FILL 1.22

↑ **110+00** ↓

CUT VOLUME 16.85
FILL VOLUME 0.41

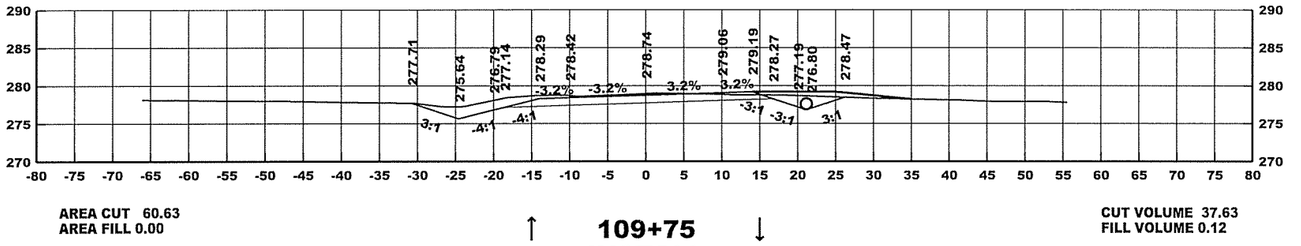


AREA CUT 51.38
AREA FILL 1.23

↑ **109+91** ↓

CUT VOLUME 33.19
FILL VOLUME 0.36

INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 60.63
AREA FILL 0.00

↑ **109+75** ↓

CUT VOLUME 37.63
FILL VOLUME 0.12

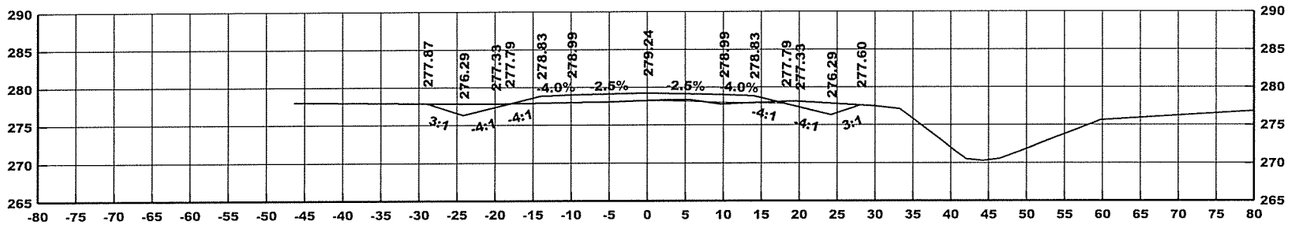
INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.

	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

(4)

CROSS SECTIONS

JOB NO.	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
	6	ARK.			
FA1915				55	73

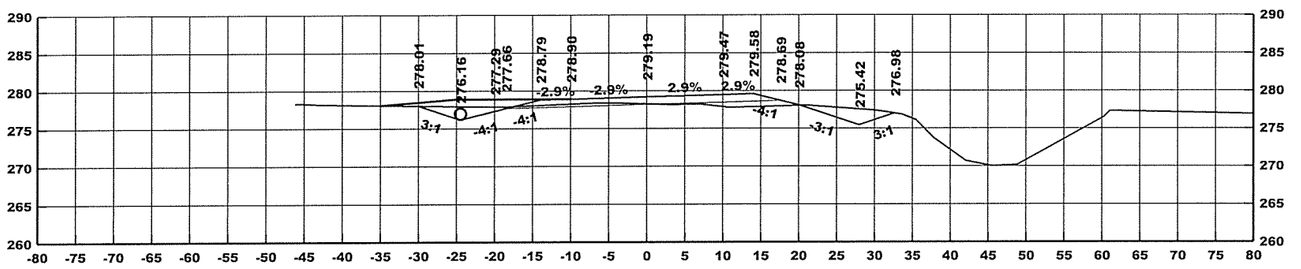


AREA CUT 18.99
AREA FILL 1.26

CUT VOLUME 76.93
FILL VOLUME 15.26

↓ 115+00 ↓

END DITCH GRADE ON RT.

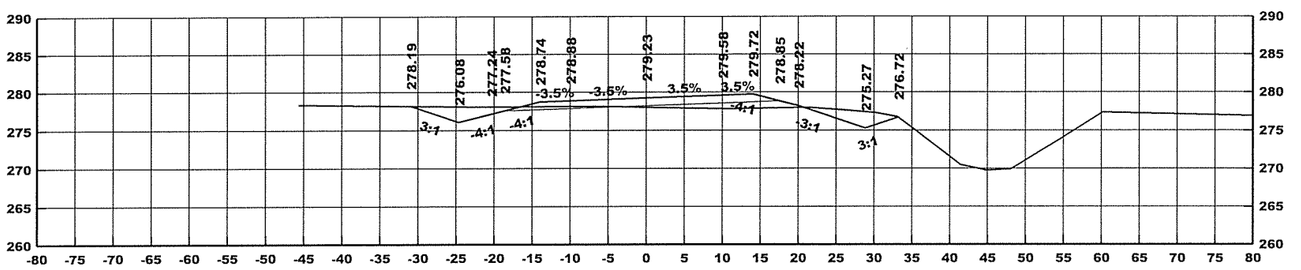


AREA CUT 29.88
AREA FILL 8.43

CUT VOLUME 17.27
FILL VOLUME 5.94

↓ 114+15 ↓

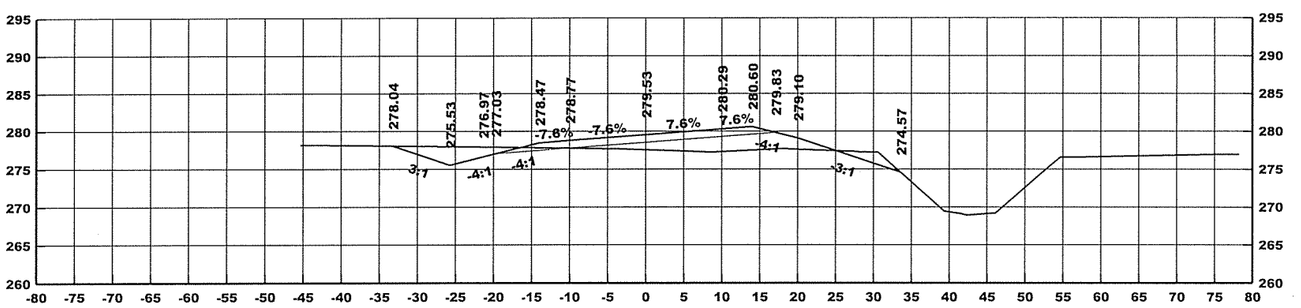
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 32.30
AREA FILL 12.96

CUT VOLUME 115.21
FILL VOLUME 106.06

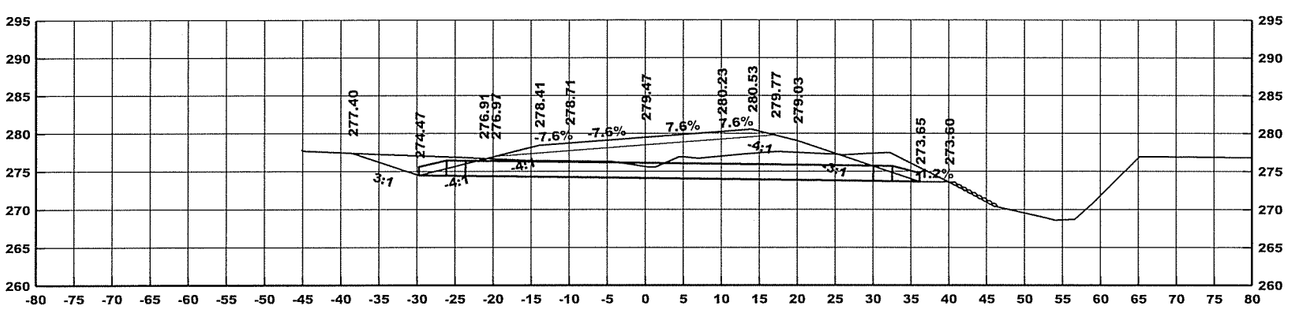
↓ 114+00 ↓



AREA CUT 29.92
AREA FILL 44.31

CUT VOLUME 78.54
FILL VOLUME 130.15

↓ 113+00 →



AREA CUT 43.21
AREA FILL 76.86

CUT VOLUME 60.07
FILL VOLUME 92.63

→ 112+42 →

CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN
D.A. = N/A Q25 = N/A
24" RCP(CL. III)(TYPE 3 BEDDING) = 54 LIN. FT.
24" CMP OR PLASTIC(TYPE 2 BEDDING) = 60 LIN. FT.
24" FES ON LT. AND RT. = 2 EACH
END DITCH GRADE ON LT.
BEGIN DITCH GRADE ON RT.

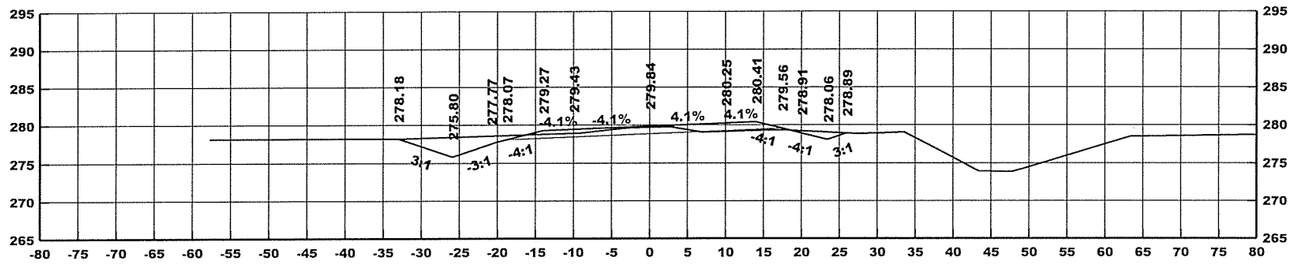
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED-AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	FA1915	56	73

JOB NO.

CROSS SECTIONS

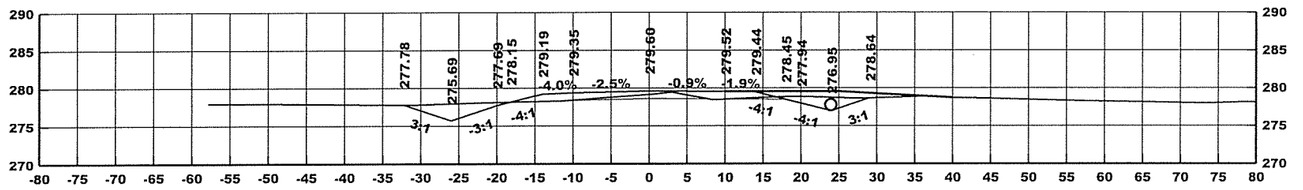
4



AREA CUT 38.62
AREA FILL 1.63

CUT VOLUME 97.76
FILL VOLUME 2.58

119+00

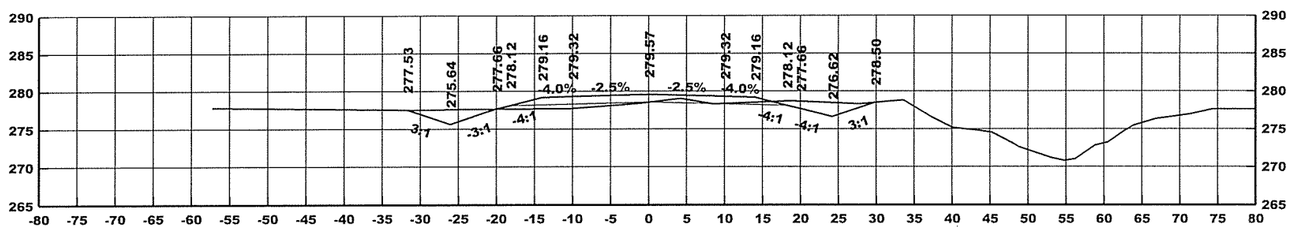


AREA CUT 34.70
AREA FILL 0.31

CUT VOLUME 32.64
FILL VOLUME 4.44

118+28

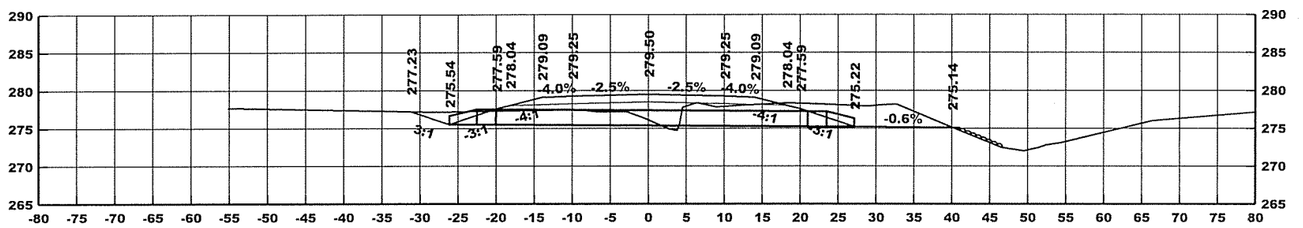
INSTALL
18" X 44' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.



AREA CUT 28.25
AREA FILL 8.25

CUT VOLUME 96.50
FILL VOLUME 54.82

118+00

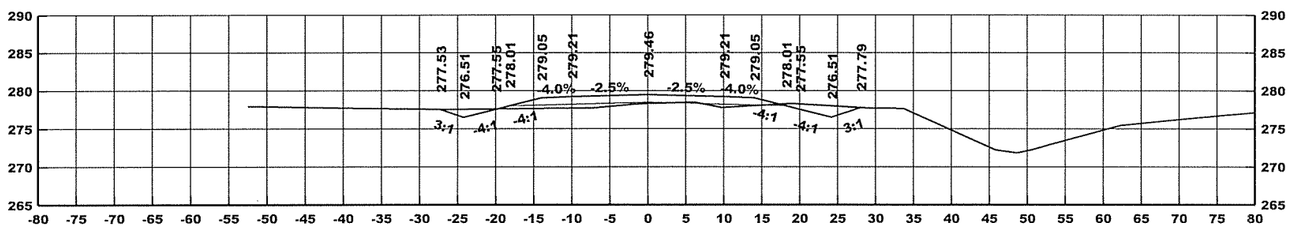


AREA CUT 49.53
AREA FILL 35.93

CUT VOLUME 38.31
FILL VOLUME 27.98

117+33

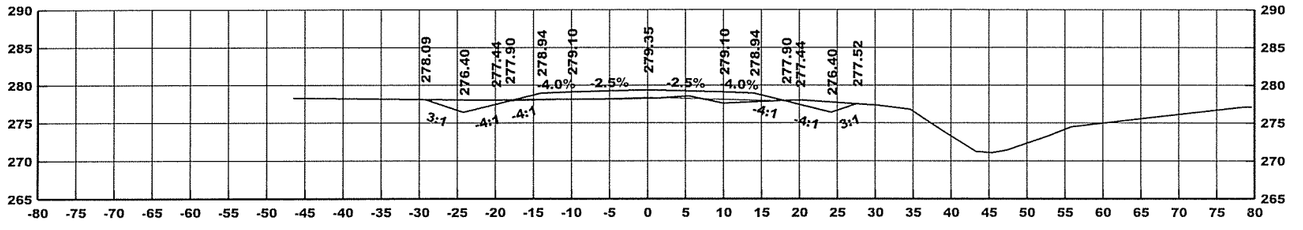
CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN
D.A. = N/A Q25 = N/A
24" RCP(CL. III)(TYPE 3 BEDDING) = 42 LIN. FT.
24" CMP OR PLASTIC(TYPE 2 BEDDING) = 48 LIN. FT.
24" FES ON LT. AND RT. = 2 EACH
BEGIN DITCH GRADE ON LT.



AREA CUT 13.16
AREA FILL 9.85

CUT VOLUME 57.59
FILL VOLUME 24.33

117+00

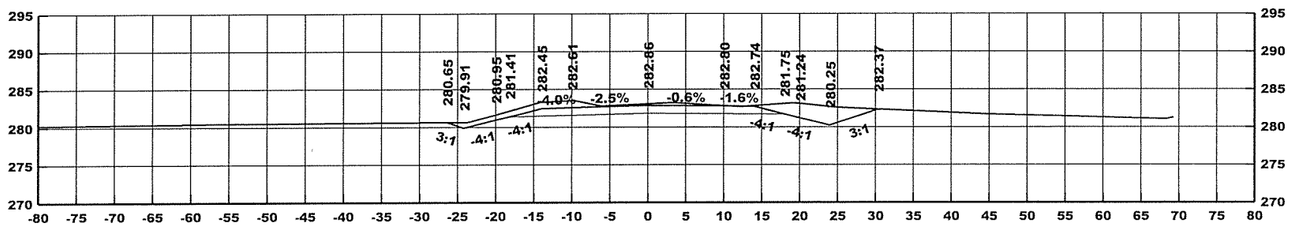


AREA CUT 17.94
AREA FILL 3.29

CUT VOLUME 68.39
FILL VOLUME 8.42

116+00

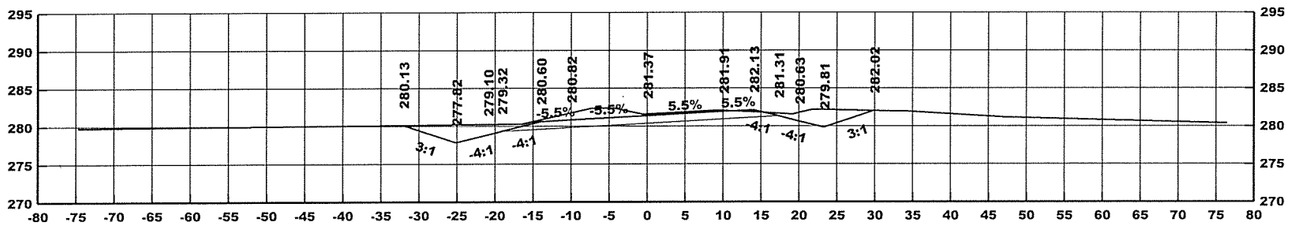
	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.				
					FA1915				
4					CROSS SECTIONS			57	73



AREA CUT 71.46
AREA FILL 0.00

124+00

CUT VOLUME 285.19
FILL VOLUME 0.00

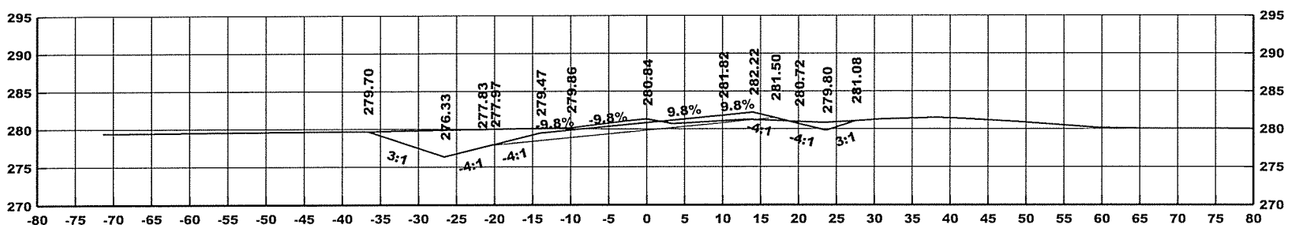


AREA CUT 82.54
AREA FILL 0.00

123+00

CUT VOLUME 299.30
FILL VOLUME 1.49

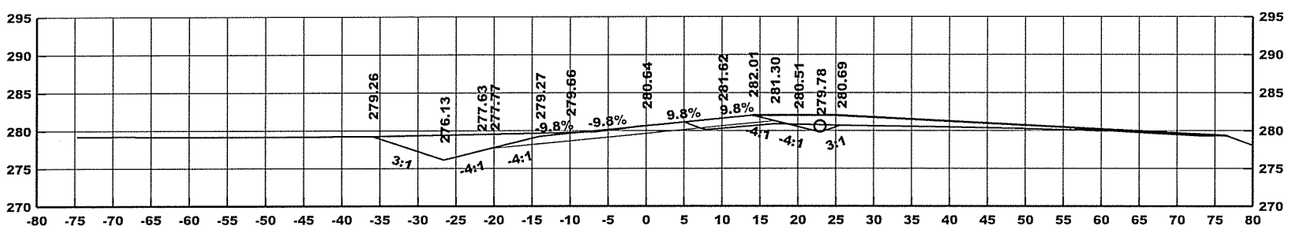
END DITCH GRADE ON RT.



AREA CUT 79.09
AREA FILL 0.80

122+00

CUT VOLUME 233.15
FILL VOLUME 7.16

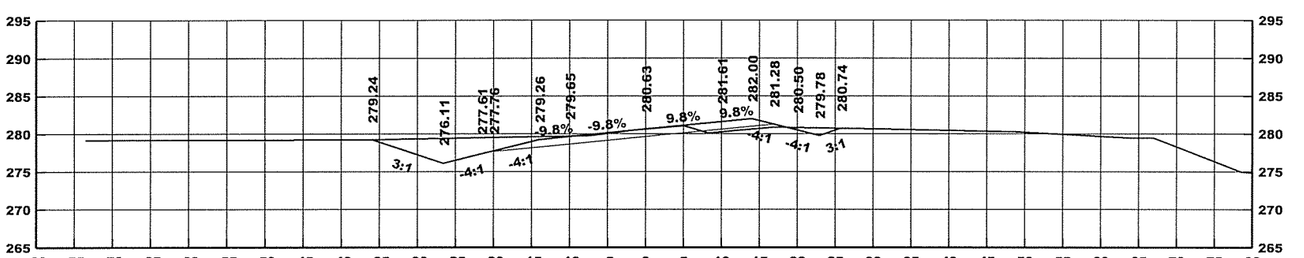


AREA CUT 65.63
AREA FILL 3.64

121+13

CUT VOLUME 31.61
FILL VOLUME 1.81

INSTALL
18" X 48' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 45 CU. YDS.

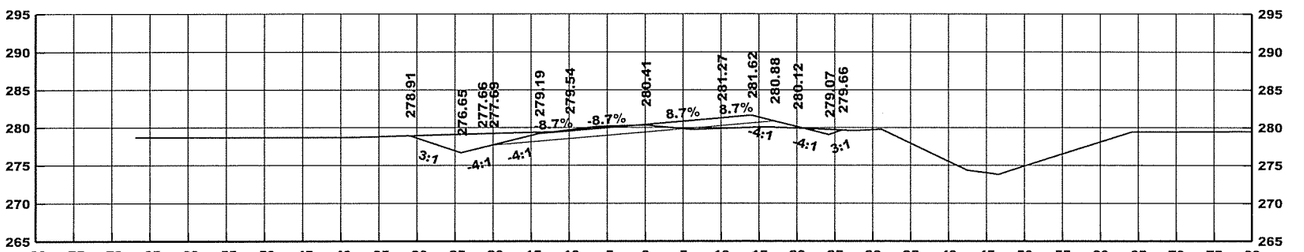


AREA CUT 65.67
AREA FILL 3.86

121+00

CUT VOLUME 204.18
FILL VOLUME 20.24

END DITCH GRADE ON LT.
BEGIN DITCH GRADE ON RT.



AREA CUT 44.59
AREA FILL 7.07

120+00

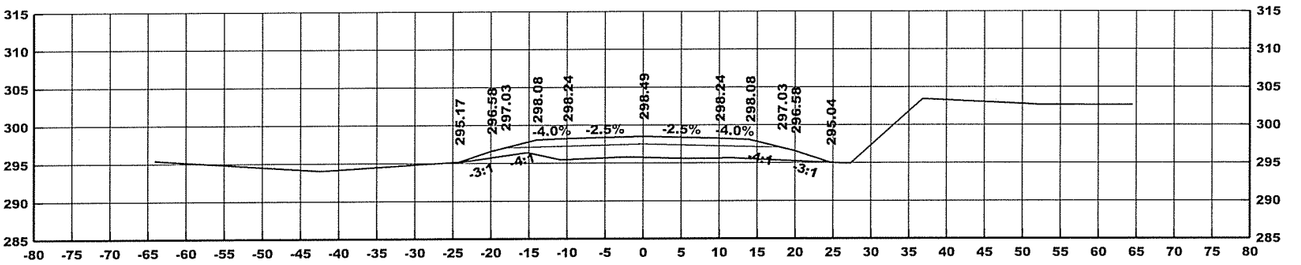
CUT VOLUME 154.09
FILL VOLUME 16.11

CROSS SECTIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	FA1915	58	73

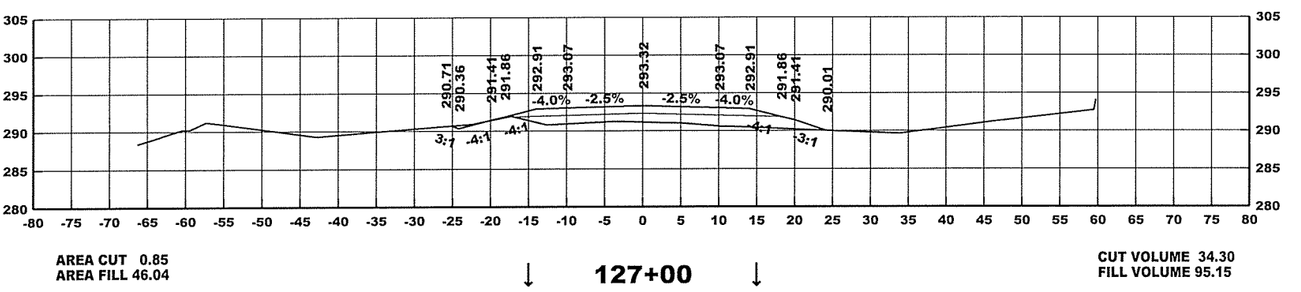
JOB NO.



AREA CUT 0.00
AREA FILL 66.58

← **128+00** ↓

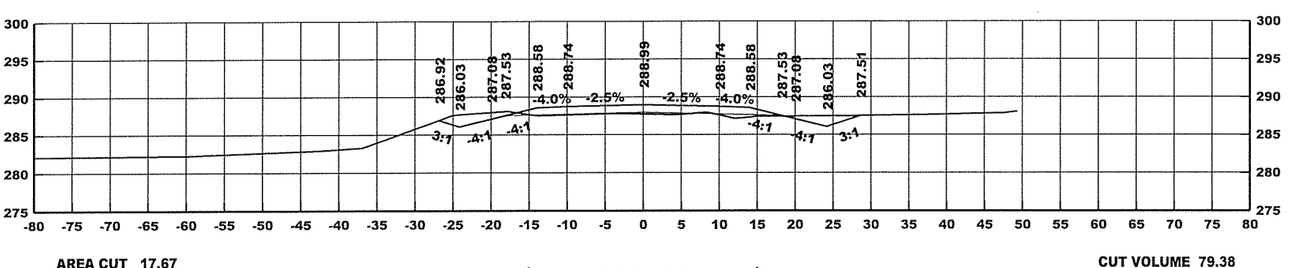
CUT VOLUME 1.58
FILL VOLUME 208.57



AREA CUT 0.85
AREA FILL 46.04

↓ **127+00** ↓

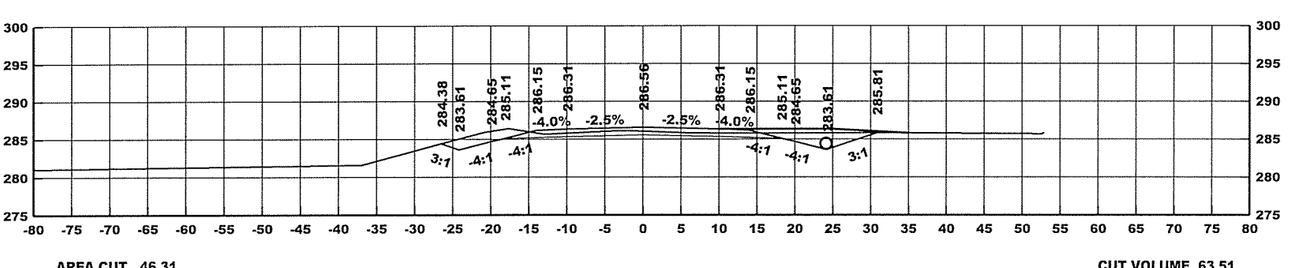
CUT VOLUME 34.30
FILL VOLUME 95.15



AREA CUT 17.67
AREA FILL 5.34

↓ **126+00** ↓

CUT VOLUME 79.38
FILL VOLUME 6.62

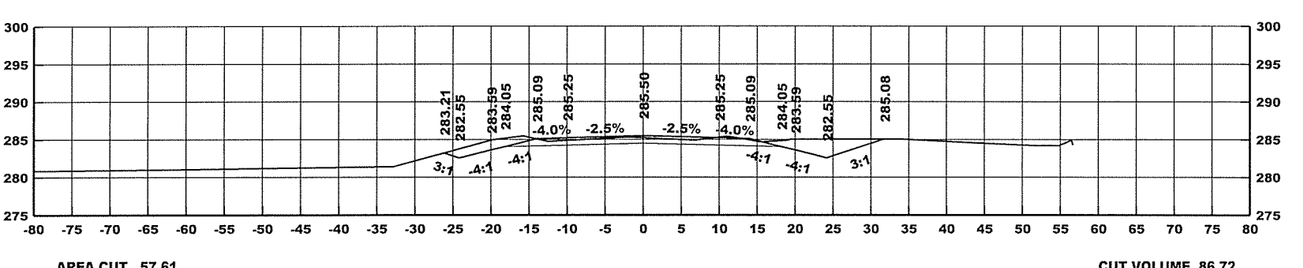


AREA CUT 46.31
AREA FILL 0.00

↓ **125+33** ↓

CUT VOLUME 63.51
FILL VOLUME 0.00

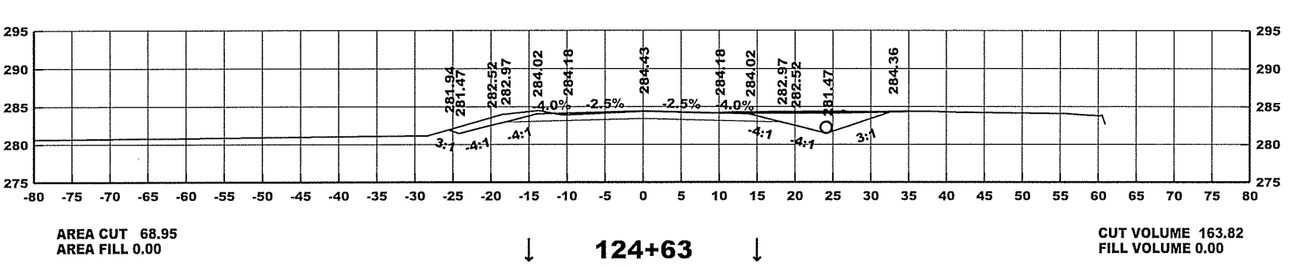
INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 57.61
AREA FILL 0.00

↓ **125+00** ↓

CUT VOLUME 86.72
FILL VOLUME 0.00



AREA CUT 68.95
AREA FILL 0.00

↓ **124+63** ↓

CUT VOLUME 163.82
FILL VOLUME 0.00

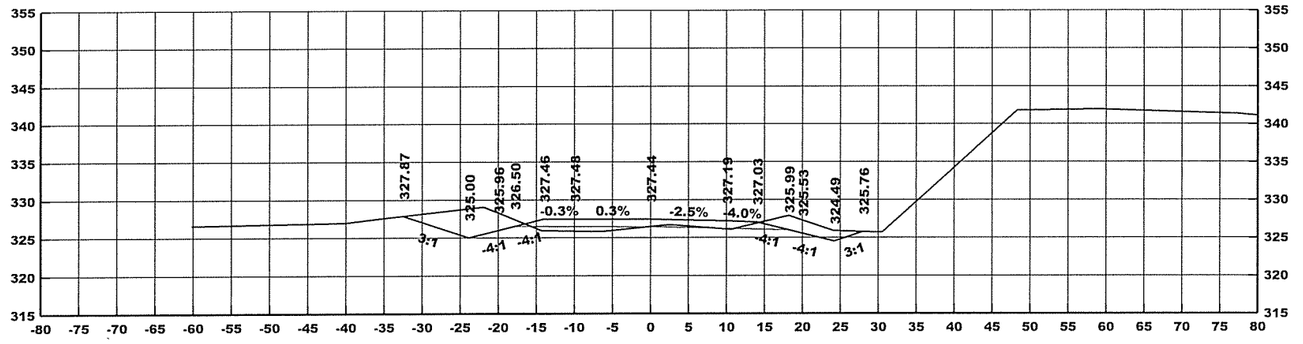
INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

4

CROSS SECTIONS

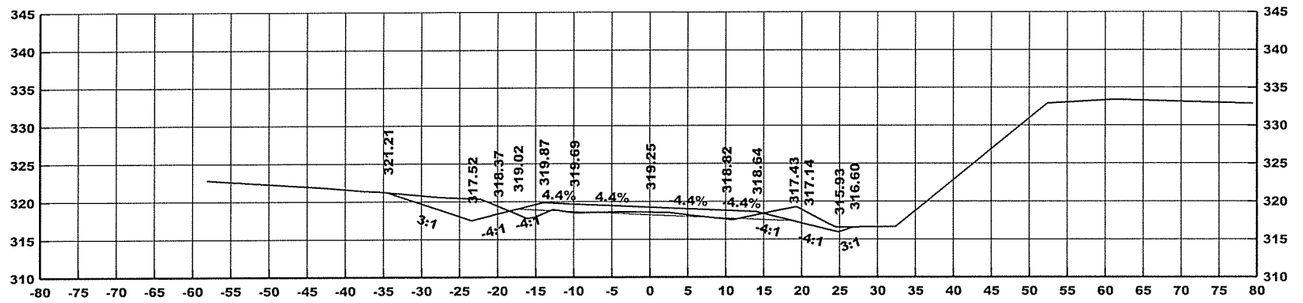
JOB NO.	FED.RD. DIST.NO.
	6
STATE	
ARK.	
FED.AID PROJ.NO.	SHEET NO.
FA1915	59
TOTAL SHEETS	
73	



AREA CUT 54.60
AREA FILL 7.35

↓ **132+00** ↓

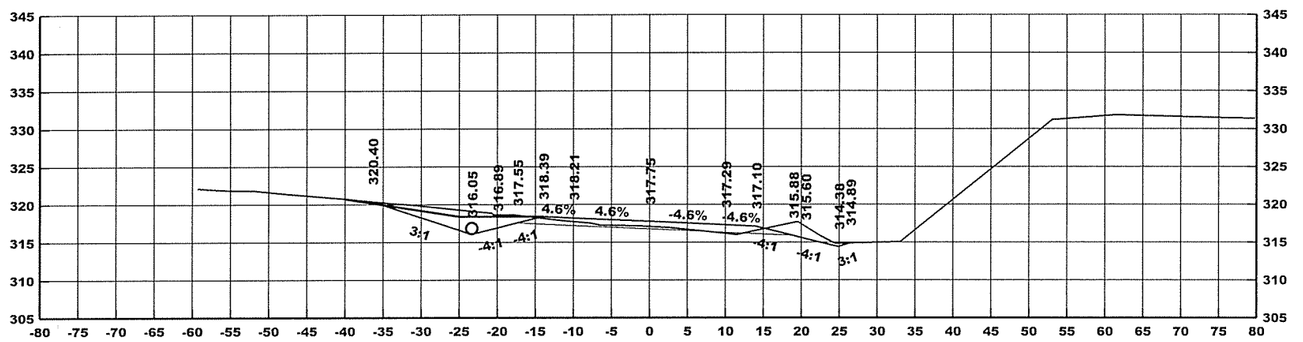
CUT VOLUME 173.98
FILL VOLUME 23.54



AREA CUT 39.35
AREA FILL 5.36

↓ **131+00** ↓

CUT VOLUME 32.27
FILL VOLUME 2.05

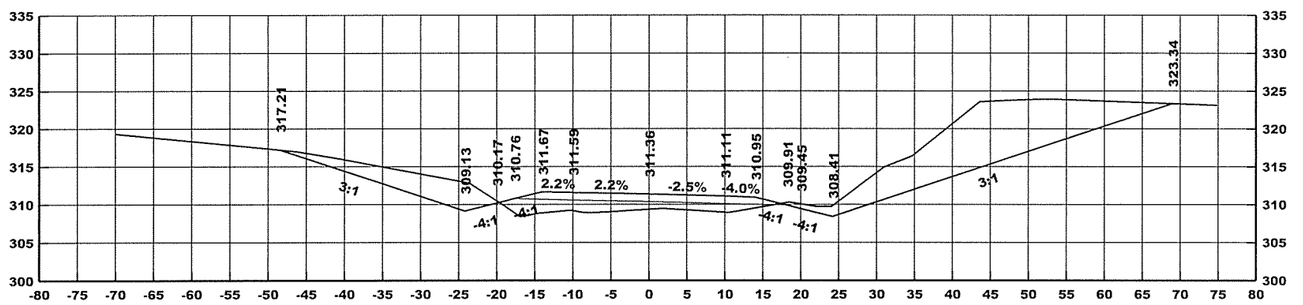


AREA CUT 52.35
AREA FILL 0.47

↓ **130+81** ↓

CUT VOLUME 488.62
FILL VOLUME 65.52

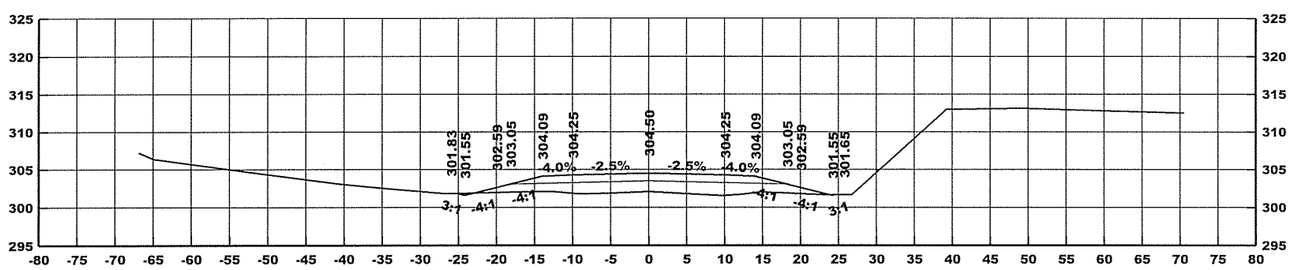
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 273.40
AREA FILL 43.21

↓ **130+00** ↓

CUT VOLUME 507.00
FILL VOLUME 184.92



AREA CUT 0.38
AREA FILL 56.65

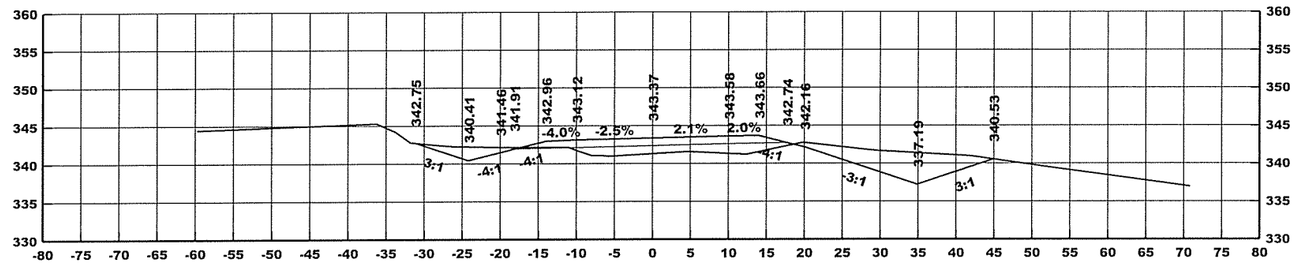
↓ **129+00** ↓

CUT VOLUME 0.71
FILL VOLUME 228.21

CROSS SECTIONS

JOB NO.	6
	ARK.
FA1915	
SHEET NO.	60
TOTAL SHEETS	73

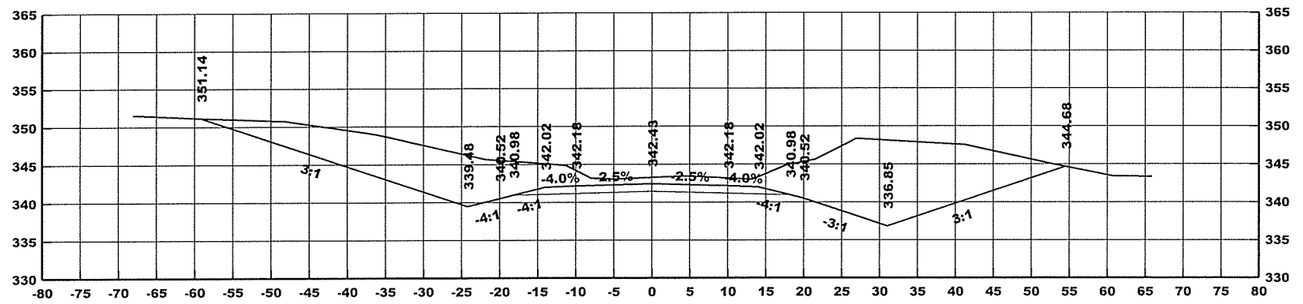
DATE REVISED
DATE FILMED
DATE REVISED
DATE FILMED
FED.RD. DIST.NO.
STATE
FED.AID PROJ.NO.



AREA CUT 69.43
AREA FILL 29.88

CUT VOLUME 1086.10
FILL VOLUME 55.33

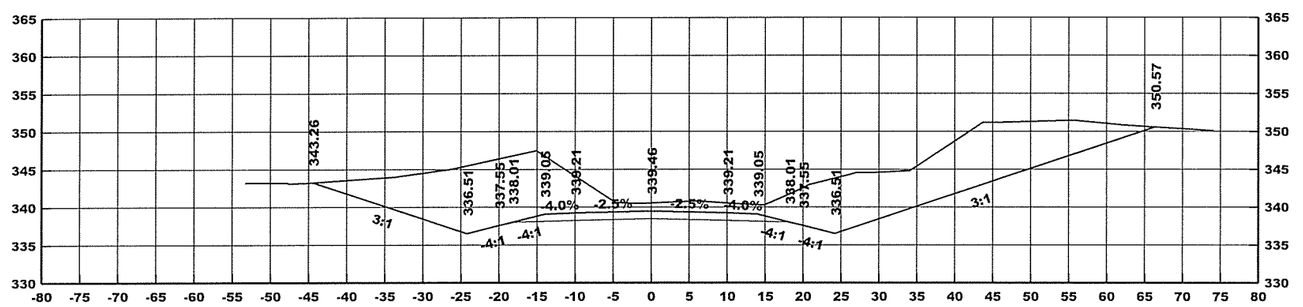
136+00



AREA CUT 517.07
AREA FILL 0.00

CUT VOLUME 1957.40
FILL VOLUME 0.00

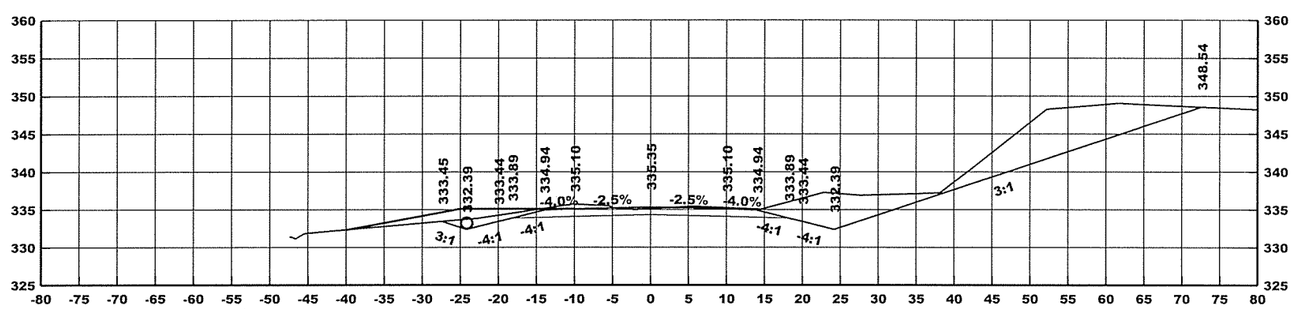
135+00



AREA CUT 539.93
AREA FILL 0.00

CUT VOLUME 1204.47
FILL VOLUME 0.00

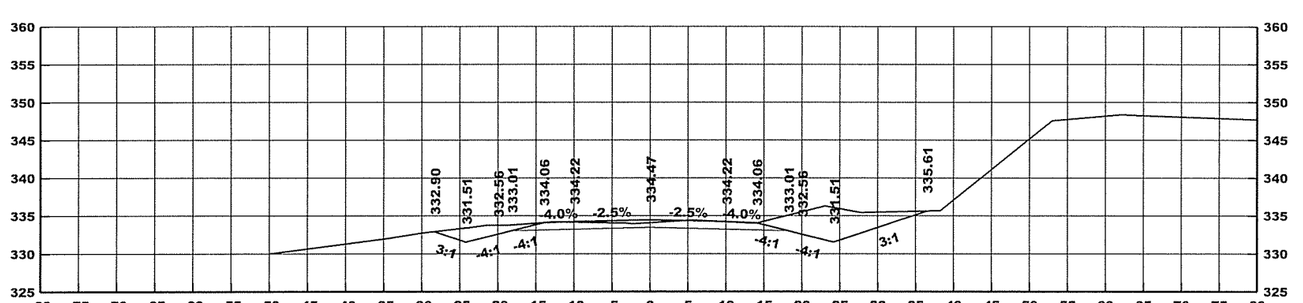
134+00
BEGIN DITCH GRADE ON RT.



AREA CUT 225.26
AREA FILL 0.00

CUT VOLUME 88.05
FILL VOLUME 0.00

133+15
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 91.72
AREA FILL 0.00

CUT VOLUME 270.97
FILL VOLUME 13.61

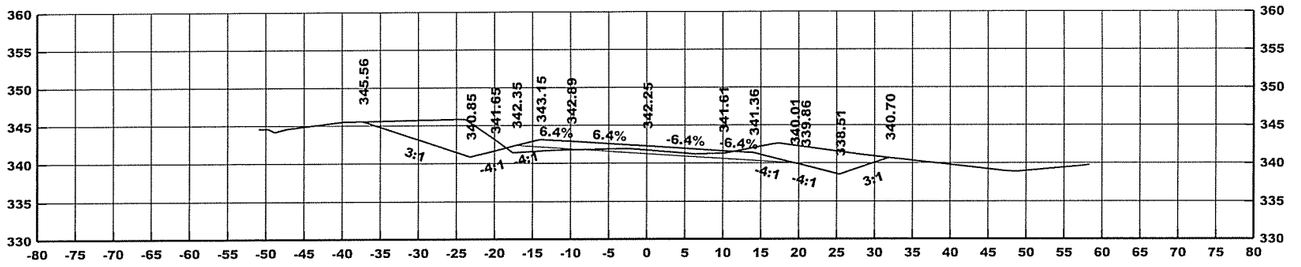
133+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	FA1915	61	73

JOB NO.

CROSS SECTIONS

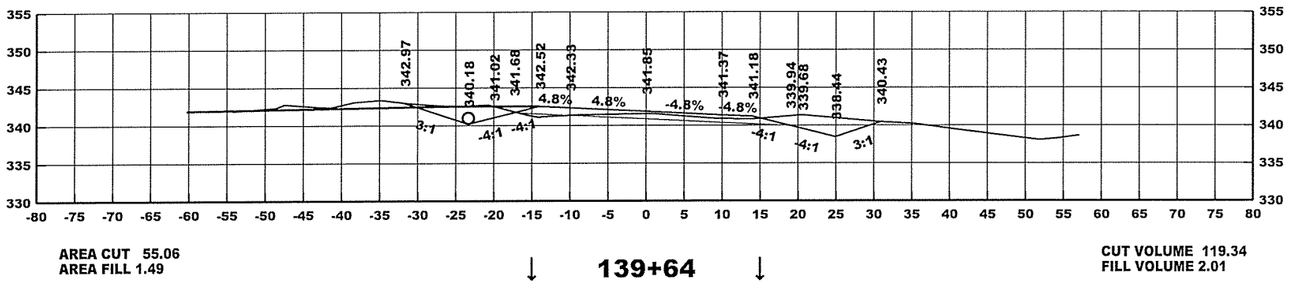
4



AREA CUT 95.30
AREA FILL 4.41

↓ **140+00** ↓

CUT VOLUME 100.24
FILL VOLUME 3.93

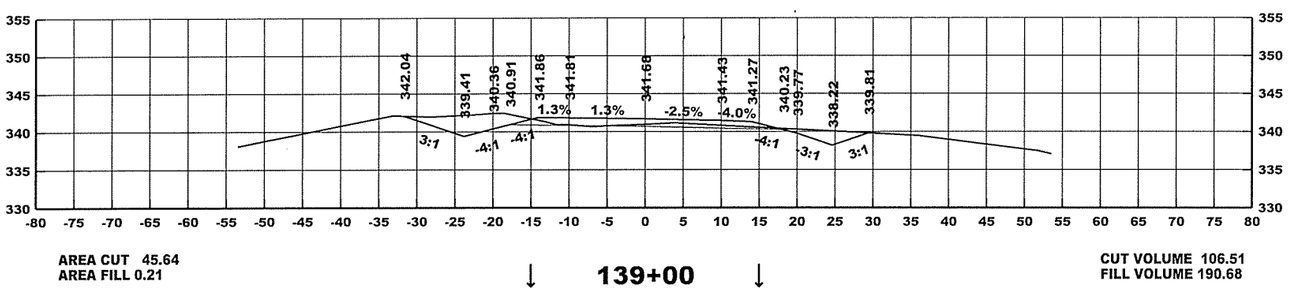


AREA CUT 55.06
AREA FILL 1.49

↓ **139+64** ↓

CUT VOLUME 119.34
FILL VOLUME 2.01

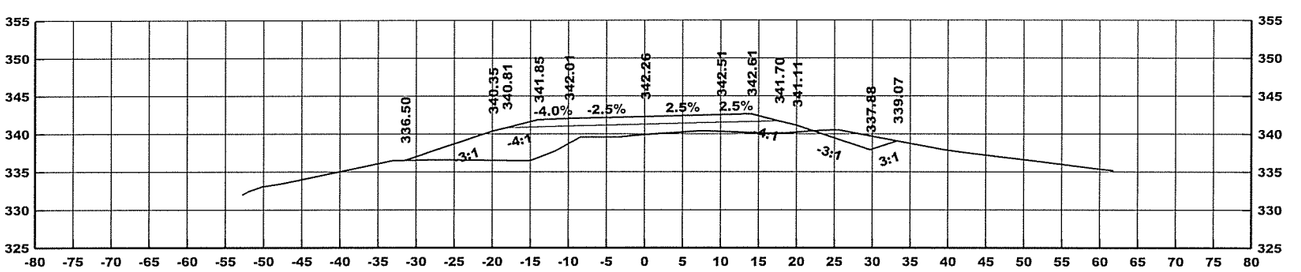
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 40 CU. YDS.
END DITCH GRADE ON RT.



AREA CUT 45.64
AREA FILL 0.21

↓ **139+00** ↓

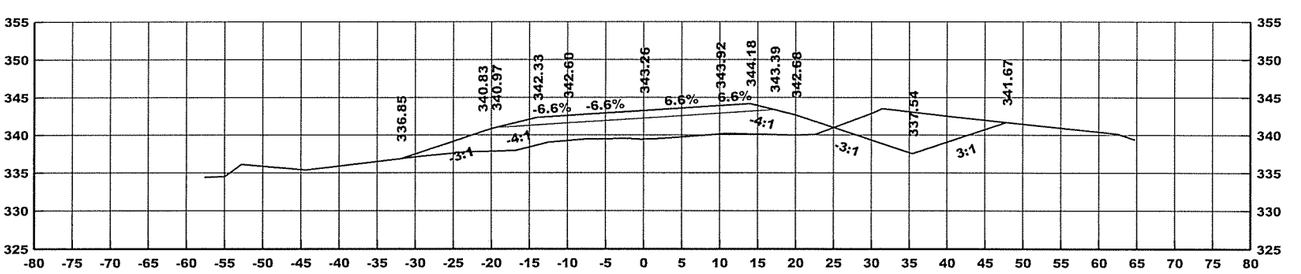
CUT VOLUME 106.51
FILL VOLUME 190.68



AREA CUT 11.88
AREA FILL 102.75

← **138+00** ↓

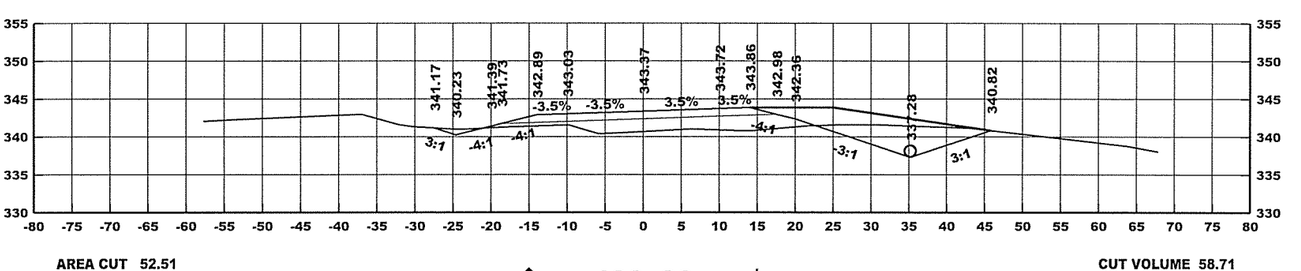
CUT VOLUME 149.79
FILL VOLUME 441.85



AREA CUT 69.01
AREA FILL 135.84

← **137+00** ↓

CUT VOLUME 166.52
FILL VOLUME 262.48



AREA CUT 52.51
AREA FILL 55.70

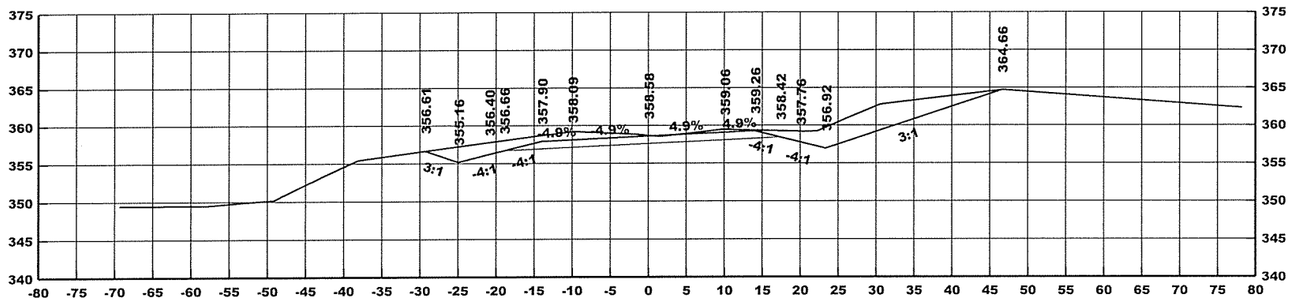
↑ **136+26** ↓

CUT VOLUME 58.71
FILL VOLUME 41.20

INSTALL
18" X 38' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 70 CU. YDS.

DATE REVISED	
DATE FILMED	
DATE REVISED	
DATE FILMED	
FED.RD. DIST.NO.	6
STATE	ARK.
FED.AID PROJ.NO.	FA1915
SHEET NO.	62
TOTAL SHEETS	73

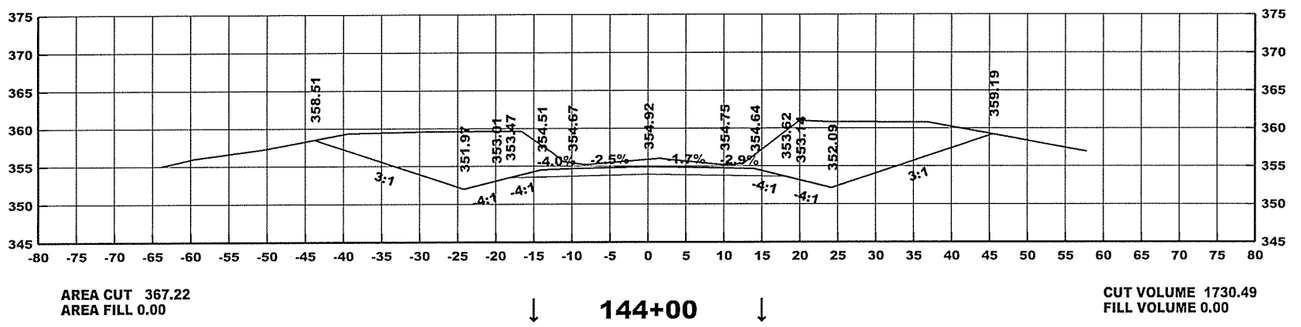
CROSS SECTIONS



AREA CUT 125.68
AREA FILL 0.00

145+00

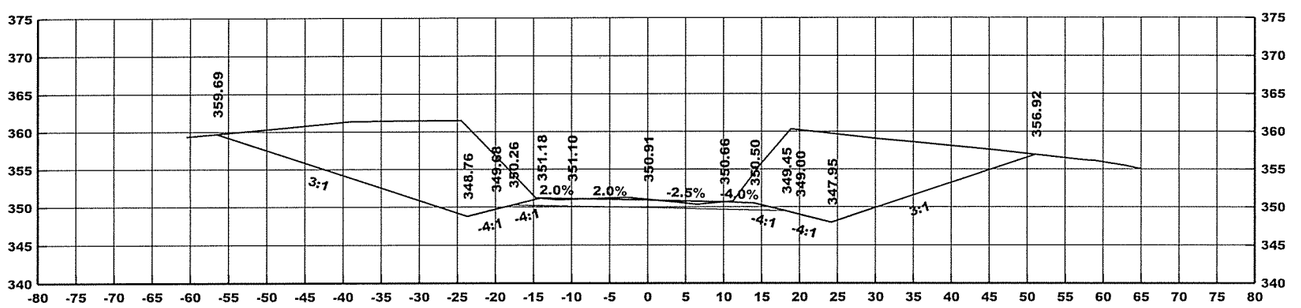
CUT VOLUME 912.79
FILL VOLUME 0.00



AREA CUT 367.22
AREA FILL 0.00

144+00

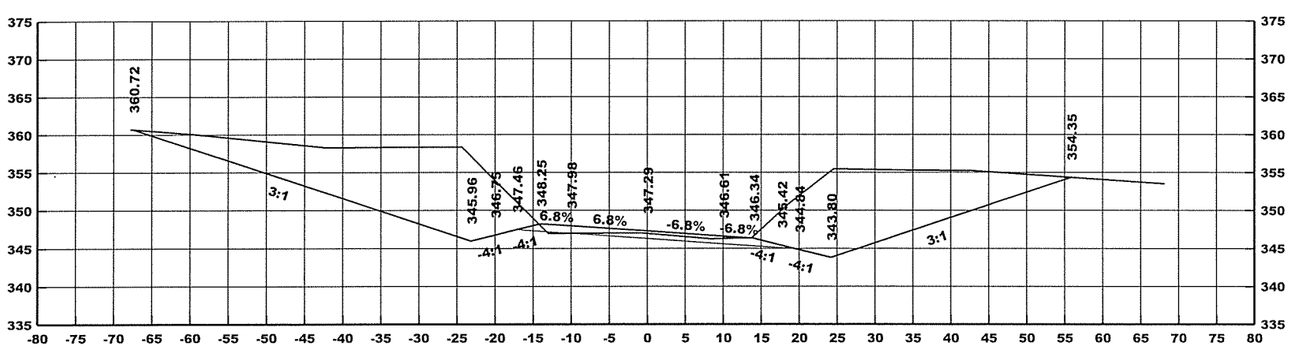
CUT VOLUME 1730.49
FILL VOLUME 0.00



AREA CUT 567.24
AREA FILL 0.00

143+00

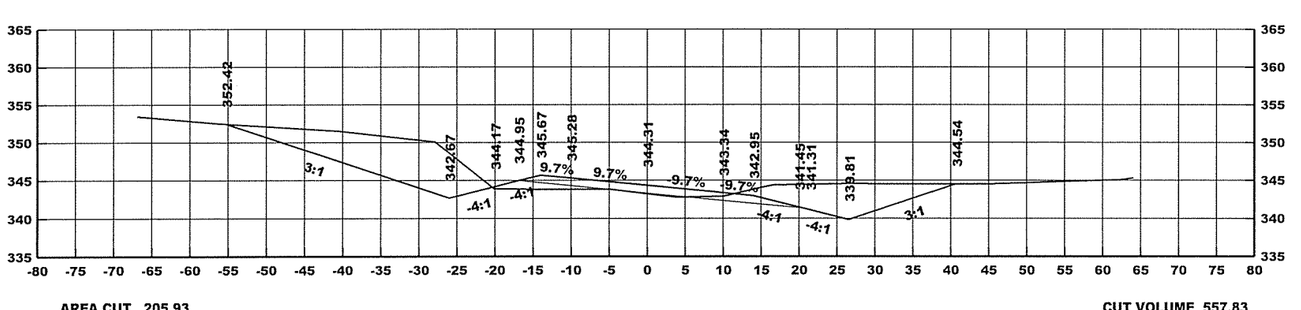
CUT VOLUME 2108.45
FILL VOLUME 0.62



AREA CUT 571.32
AREA FILL 0.34

142+00

CUT VOLUME 1439.36
FILL VOLUME 18.72



AREA CUT 205.93
AREA FILL 9.77

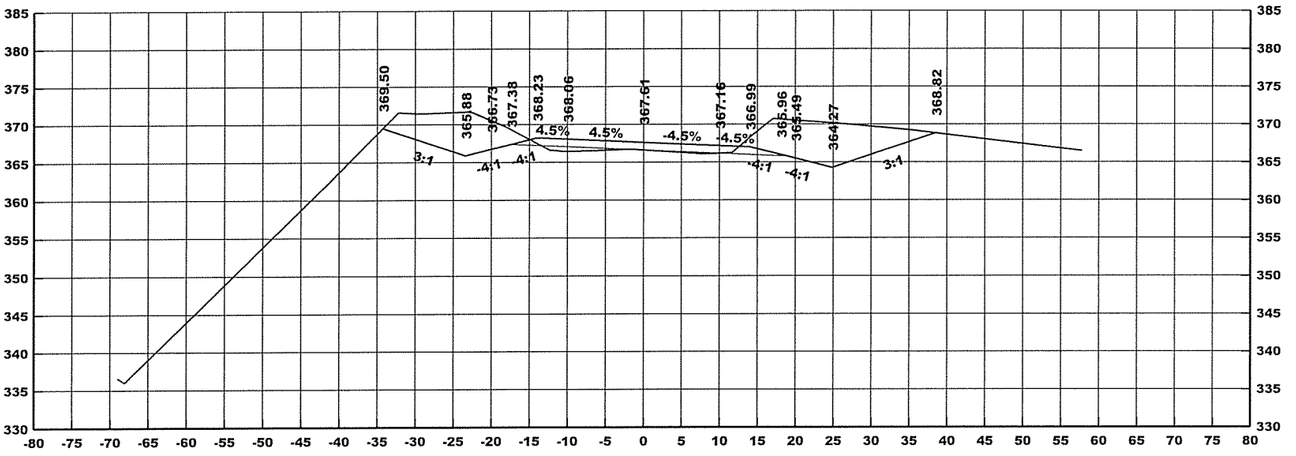
141+00

CUT VOLUME 557.83
FILL VOLUME 26.27

CROSS SECTIONS

JOB NO.	FED.RD. DIST.NO.	DATE REVISED	DATE FILMED
FA1915	6		
	STATE	DATE REVISED	DATE FILMED
	ARK.		
	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		63	73

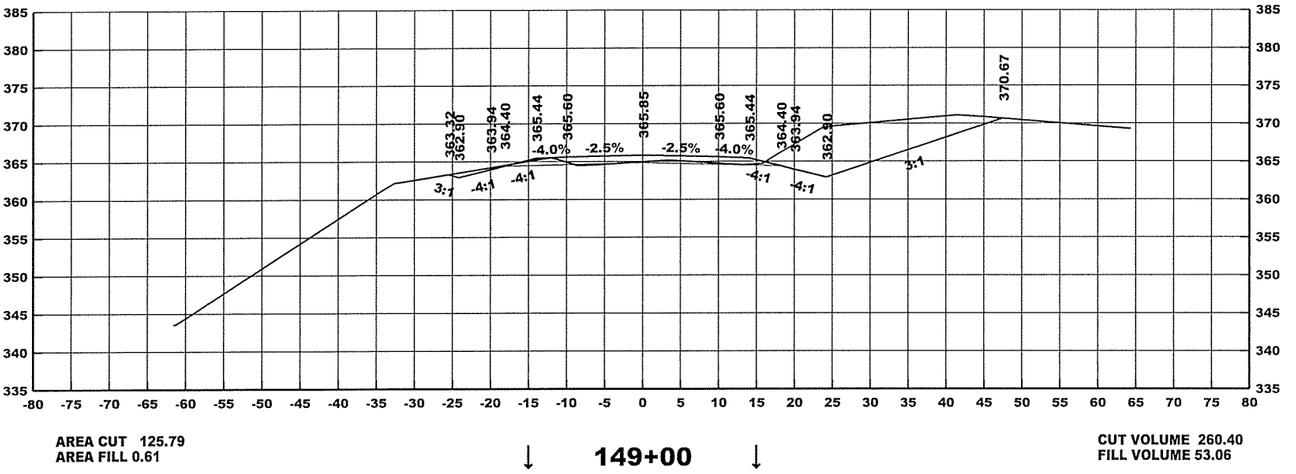
4



AREA CUT 163.85
AREA FILL 5.34

CUT VOLUME 536.37
FILL VOLUME 11.02

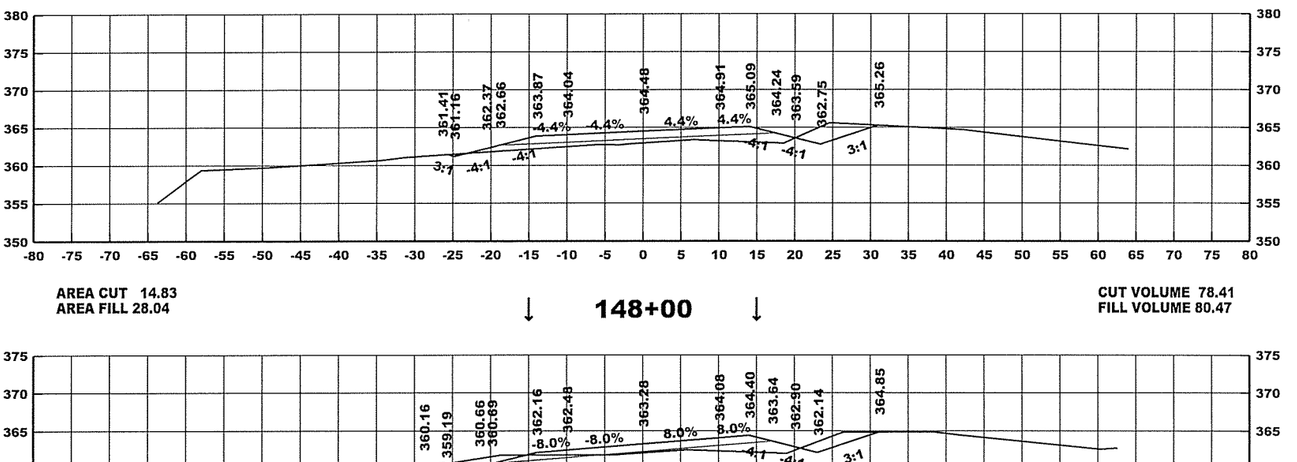
150+00



AREA CUT 125.79
AREA FILL 0.61

CUT VOLUME 260.40
FILL VOLUME 53.06

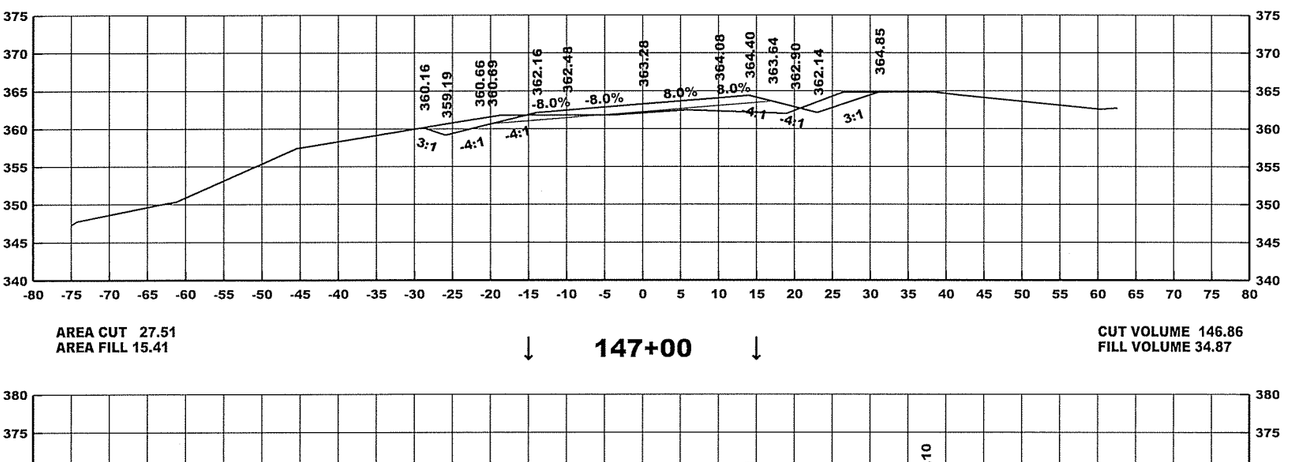
149+00



AREA CUT 14.83
AREA FILL 28.04

CUT VOLUME 78.41
FILL VOLUME 80.47

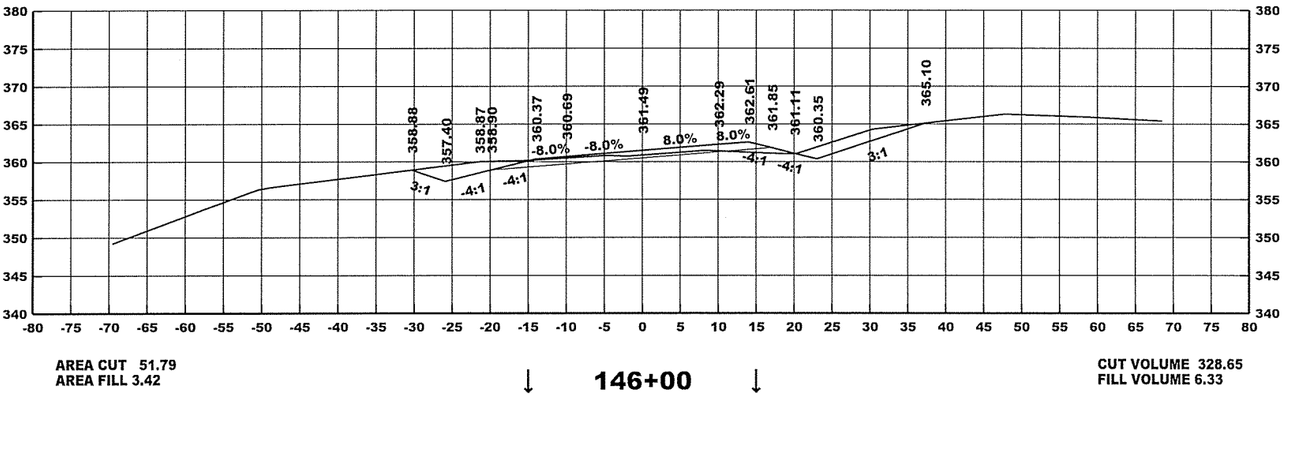
148+00



AREA CUT 27.51
AREA FILL 15.41

CUT VOLUME 146.86
FILL VOLUME 34.87

147+00



AREA CUT 51.79
AREA FILL 3.42

CUT VOLUME 328.65
FILL VOLUME 6.33

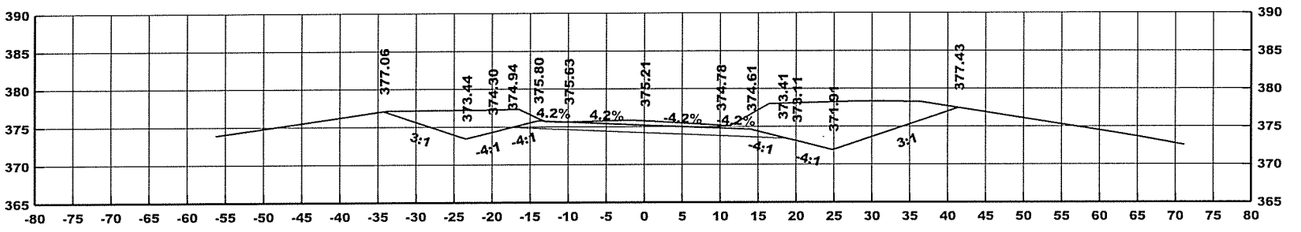
146+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		64	73

JOB NO. FA1915

CROSS SECTIONS

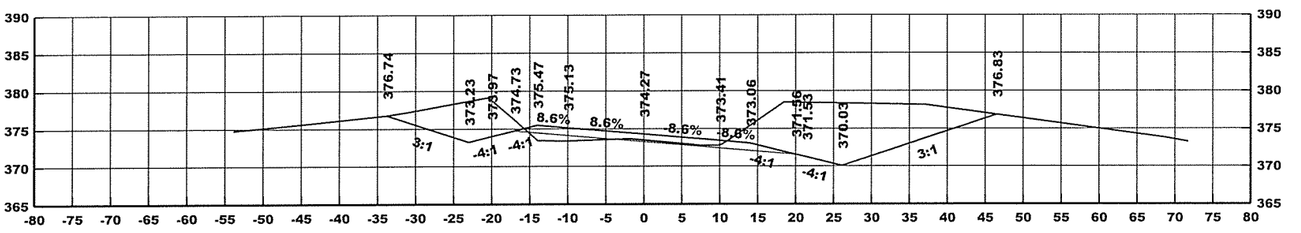
4



AREA CUT 195.95
AREA FILL 0.00

155+00

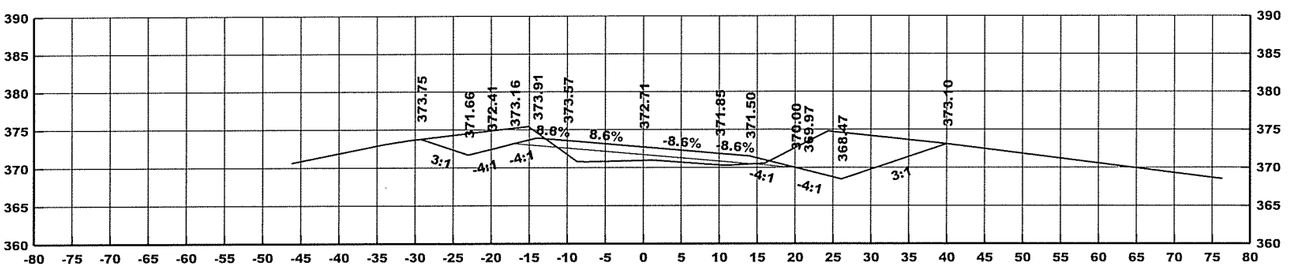
CUT VOLUME 798.99
FILL VOLUME 12.11



AREA CUT 235.50
AREA FILL 6.54

154+00

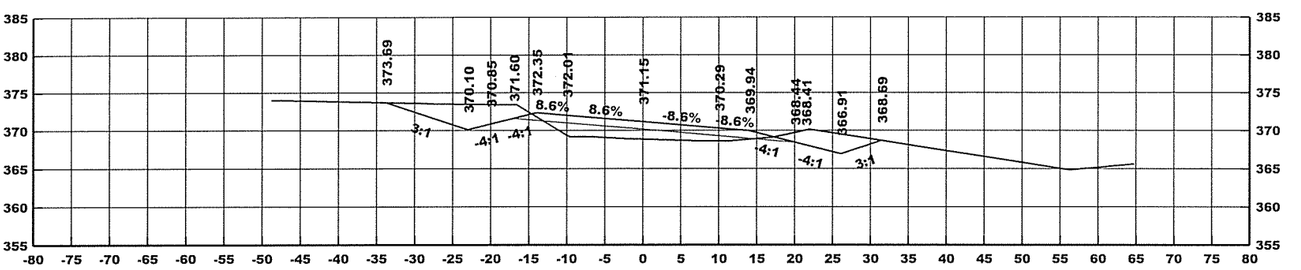
CUT VOLUME 639.58
FILL VOLUME 49.10



AREA CUT 109.87
AREA FILL 19.97

153+00

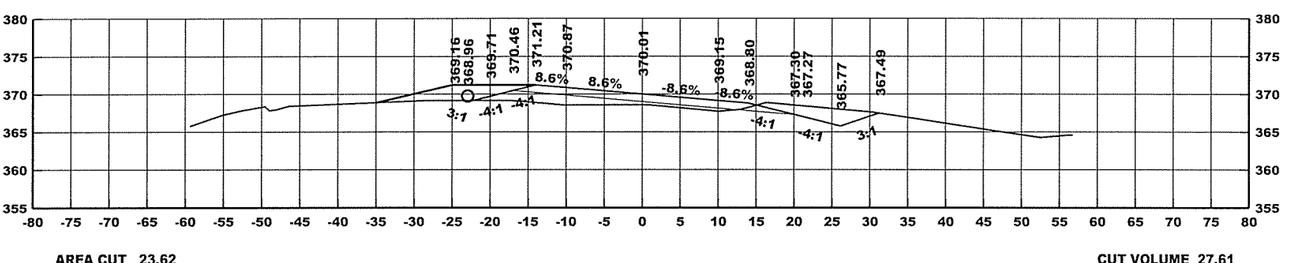
CUT VOLUME 315.66
FILL VOLUME 91.43



AREA CUT 60.59
AREA FILL 29.40

152+00

CUT VOLUME 113.84
FILL VOLUME 74.18

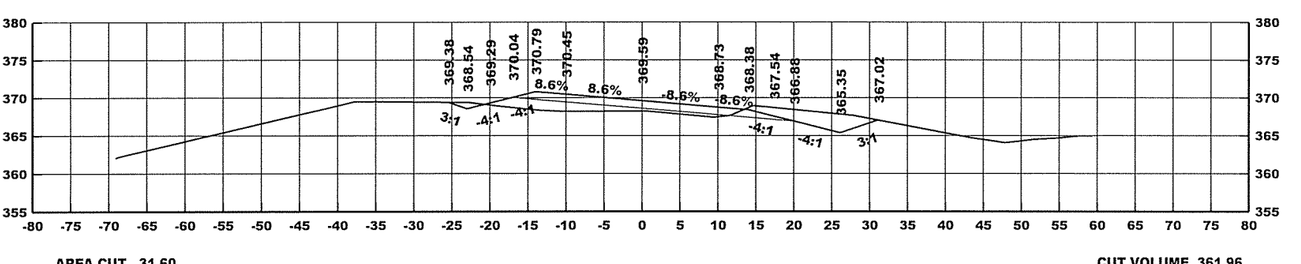


AREA CUT 23.62
AREA FILL 25.47

151+27

CUT VOLUME 27.61
FILL VOLUME 24.76

INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



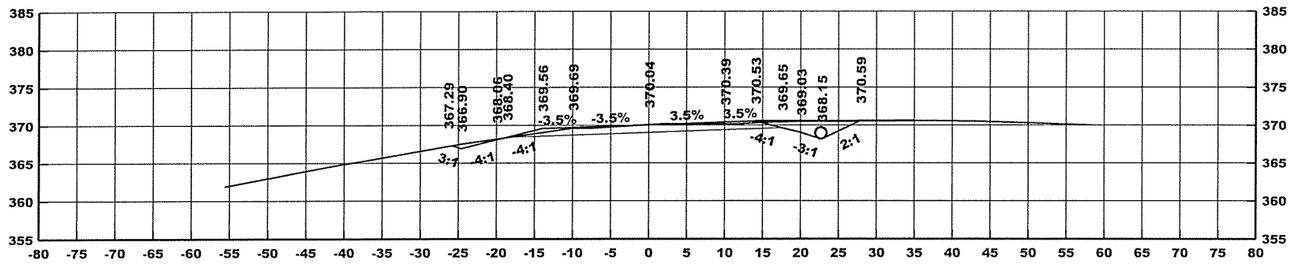
AREA CUT 31.60
AREA FILL 24.05

151+00

CUT VOLUME 361.96
FILL VOLUME 54.43

			DATE REVISED
			DATE FILMED
			DATE REVISED
			DATE FILMED
CROSS SECTIONS	JOB NO.	6	FED.RD. DIST.NO.
		ARK.	STATE
	FA1915		FED.AID PROJ.NO.
	65		SHEET NO.
	73		TOTAL SHEETS

4

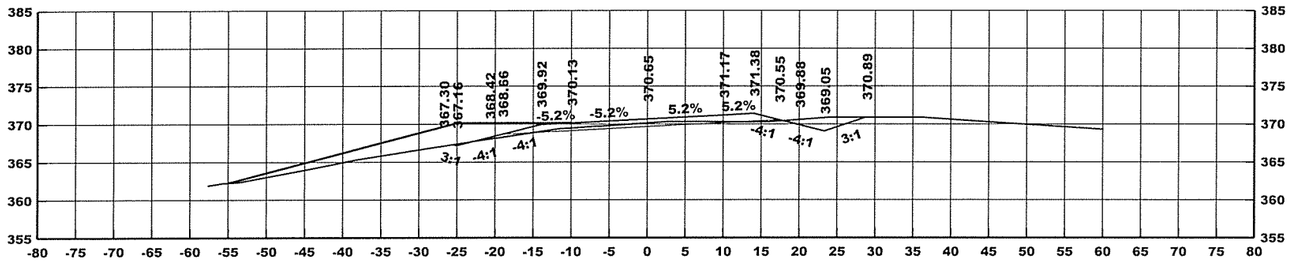


AREA CUT 43.96
AREA FILL 0.01

↑ **159+90** ↑

CUT VOLUME 45.44
FILL VOLUME 1.77

INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

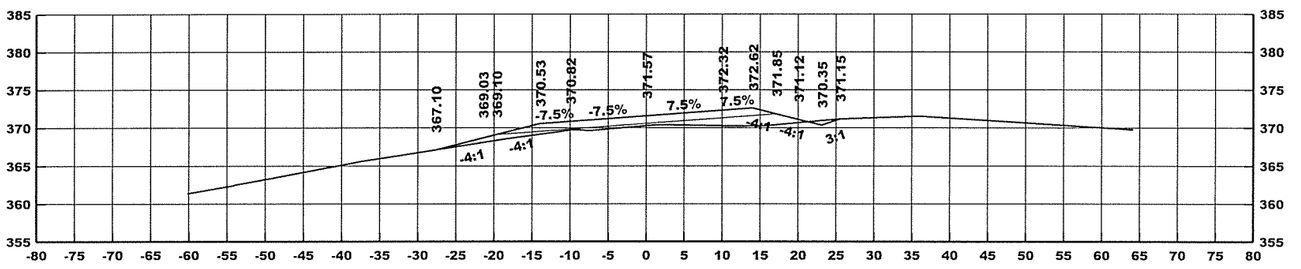


AREA CUT 18.96
AREA FILL 2.44

↕ **159+51** ↑

CUT VOLUME 19.12
FILL VOLUME 29.47

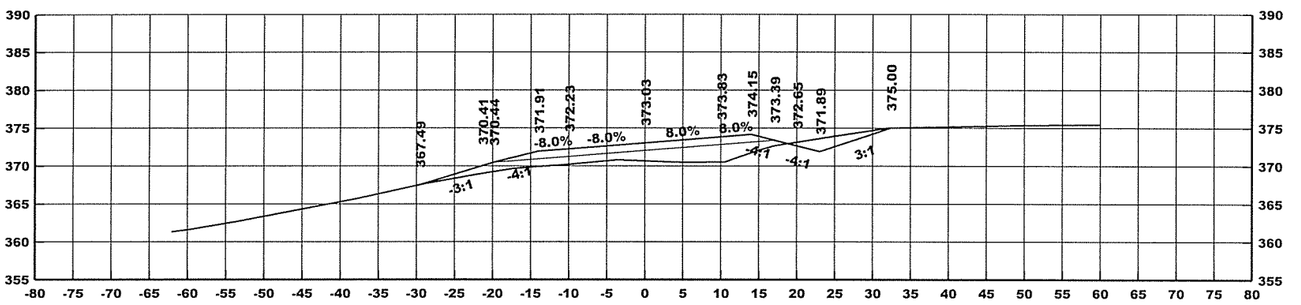
INSTALL
CONST. APPR.
ON LT. = 45 CU. YDS.



AREA CUT 1.29
AREA FILL 28.77

← **159+00** ↑

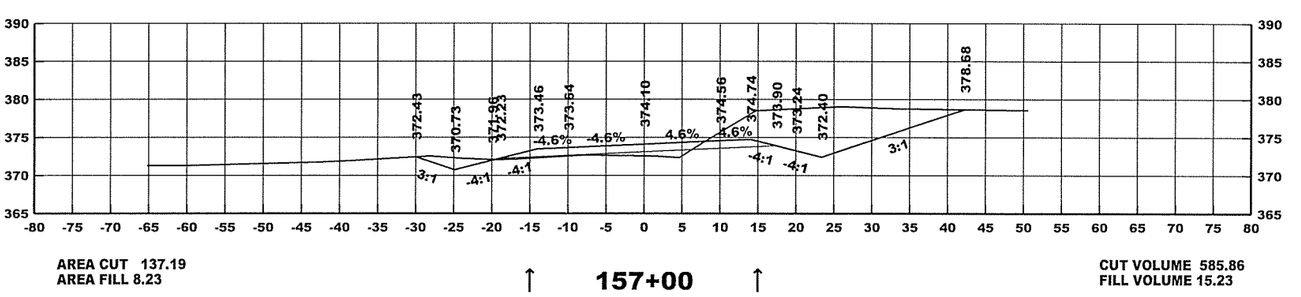
CUT VOLUME 24.09
FILL VOLUME 159.72



AREA CUT 11.72
AREA FILL 57.48

← **158+00** ↑

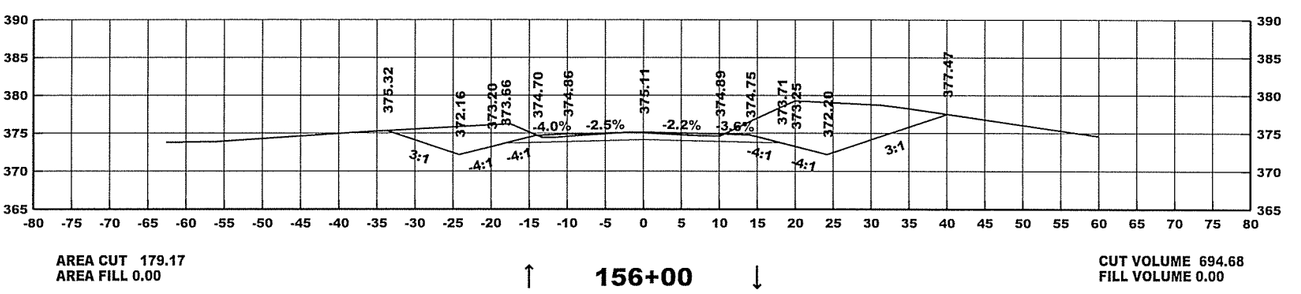
CUT VOLUME 275.76
FILL VOLUME 121.69



AREA CUT 137.19
AREA FILL 8.23

↑ **157+00** ↑

CUT VOLUME 585.86
FILL VOLUME 15.23



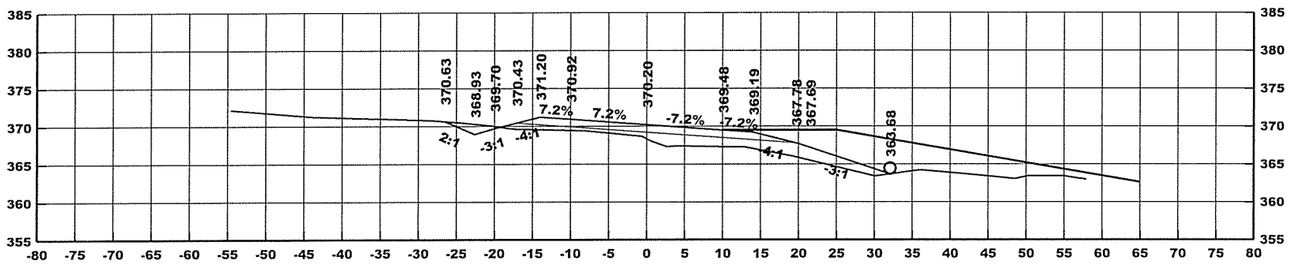
AREA CUT 179.17
AREA FILL 0.00

↑ **156+00** ↓

CUT VOLUME 694.68
FILL VOLUME 0.00

			DATE REVISED
			DATE FILMED
			DATE REVISED
			DATE FILMED
CROSS SECTIONS	JOB NO.	6	FED.RD. DIST.NO.
		ARK.	STATE
	FA1915		FED.AID PROJ.NO.
	66		SHEET NO.
	73		TOTAL SHEETS

4

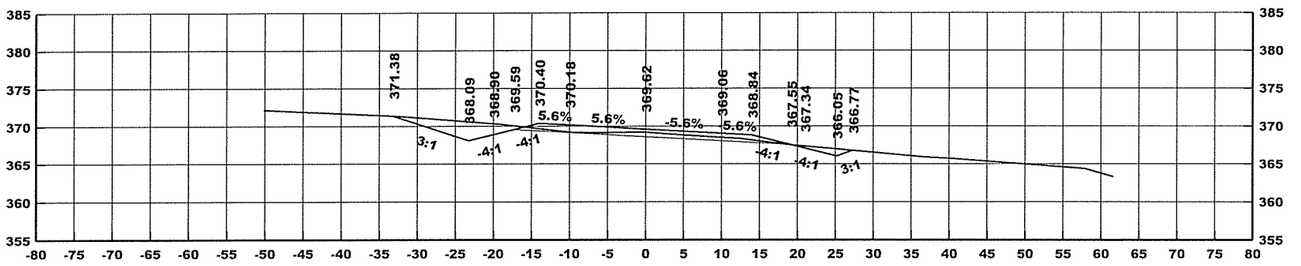


AREA CUT 4.97
AREA FILL 52.27

CUT VOLUME 54.05
FILL VOLUME 65.85

↓ **162+68** →

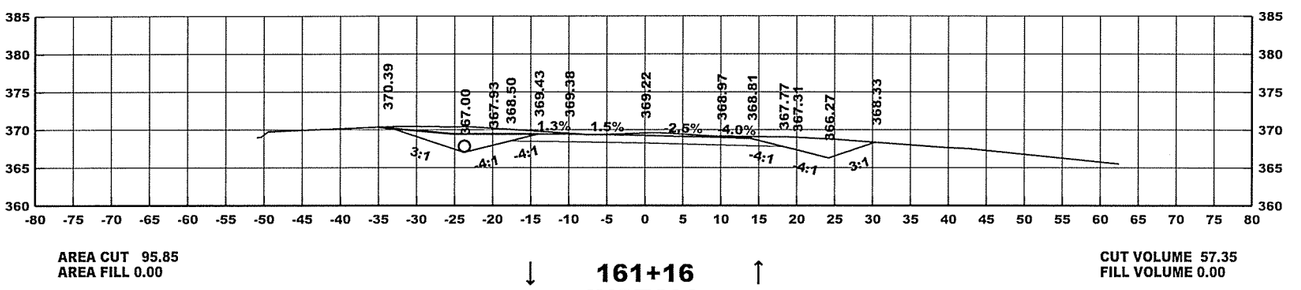
INSTALL
18" X 50' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 110 CU. YDS.



AREA CUT 37.94
AREA FILL 0.02

CUT VOLUME 208.13
FILL VOLUME 0.02

↓ **162+00** ↑

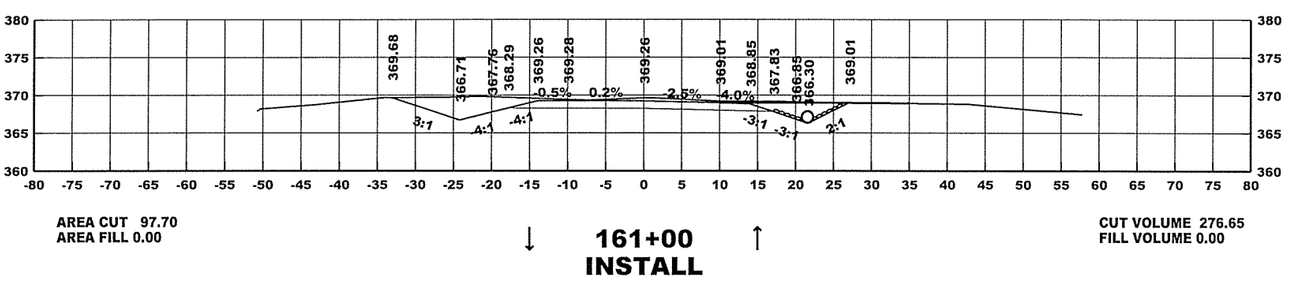


AREA CUT 95.85
AREA FILL 0.00

CUT VOLUME 57.35
FILL VOLUME 0.00

↓ **161+16** ↑

INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.

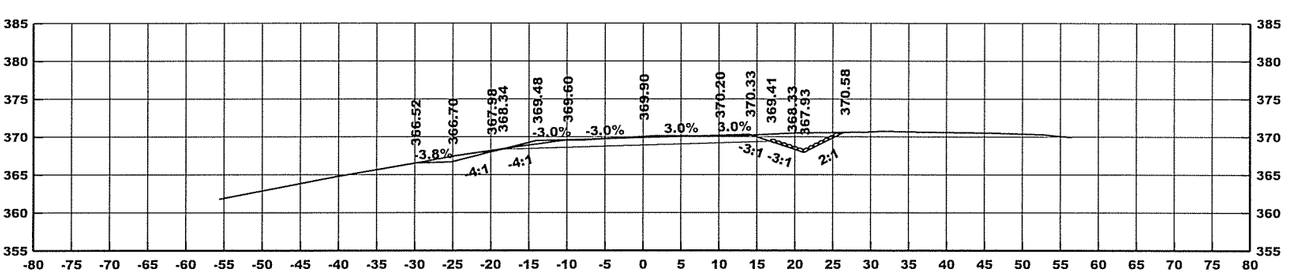


AREA CUT 97.70
AREA FILL 0.00

CUT VOLUME 276.65
FILL VOLUME 0.00

↓ **161+00** ↑

INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 51.69
AREA FILL 0.00

CUT VOLUME 17.71
FILL VOLUME 0.00

← **160+00** ↑

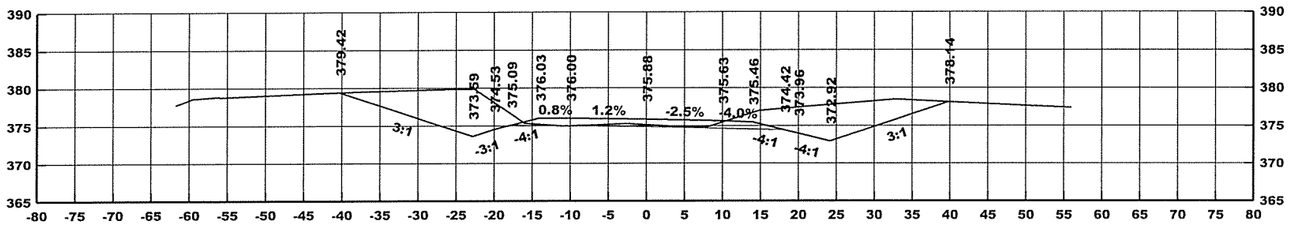
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	FA1915	67	73

JOB NO.

CROSS SECTIONS

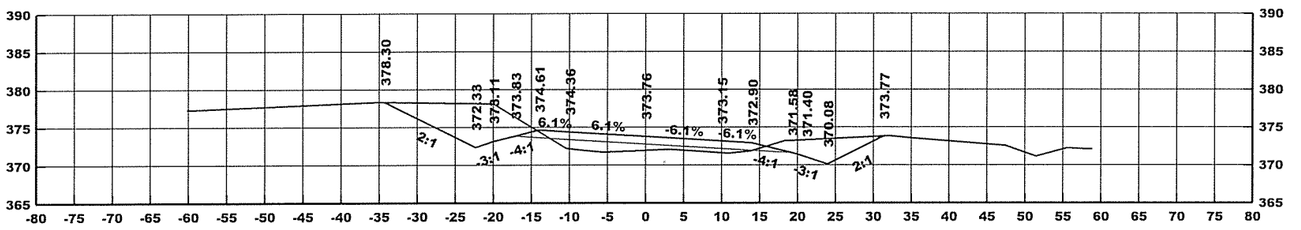
4



AREA CUT 181.45
AREA FILL 0.00

CUT VOLUME 516.48
FILL VOLUME 34.34

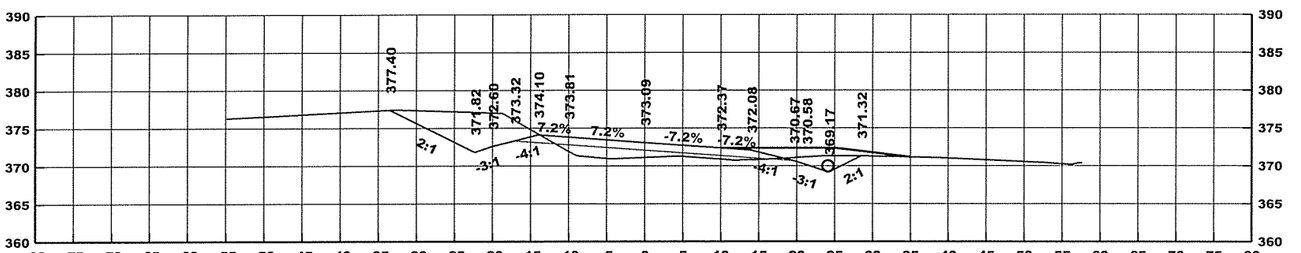
166+00



AREA CUT 97.45
AREA FILL 18.54

CUT VOLUME 110.73
FILL VOLUME 25.11

165+00

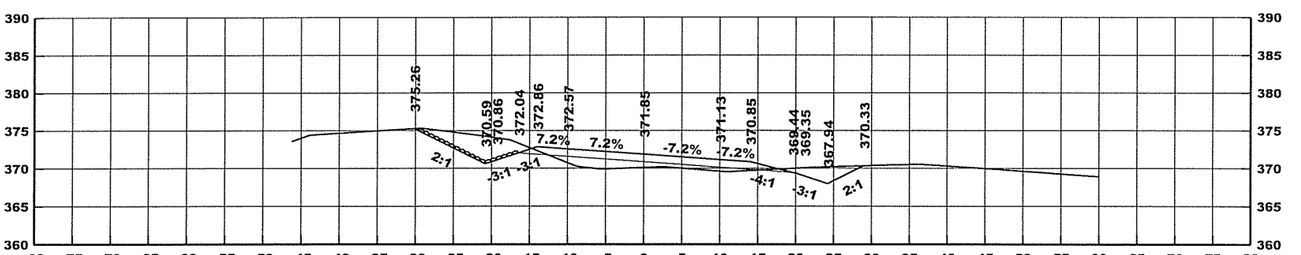


AREA CUT 73.38
AREA FILL 20.20

CUT VOLUME 147.84
FILL VOLUME 47.67

164+65

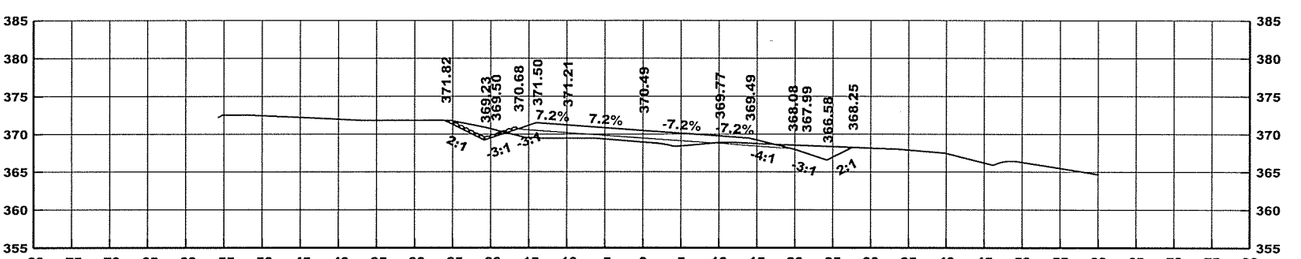
INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 49.44
AREA FILL 19.40

CUT VOLUME 130.52
FILL VOLUME 67.72

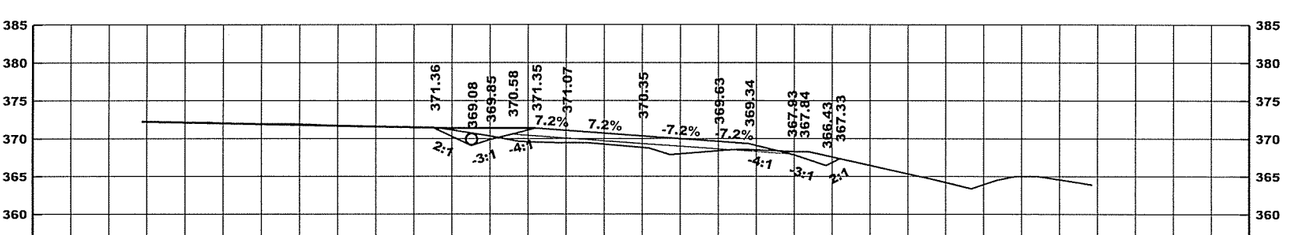
164+00



AREA CUT 21.04
AREA FILL 17.17

CUT VOLUME 9.83
FILL VOLUME 10.07

163+00



AREA CUT 14.35
AREA FILL 19.09

CUT VOLUME 6.08
FILL VOLUME 22.47

162+85

INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 35 CU. YDS.

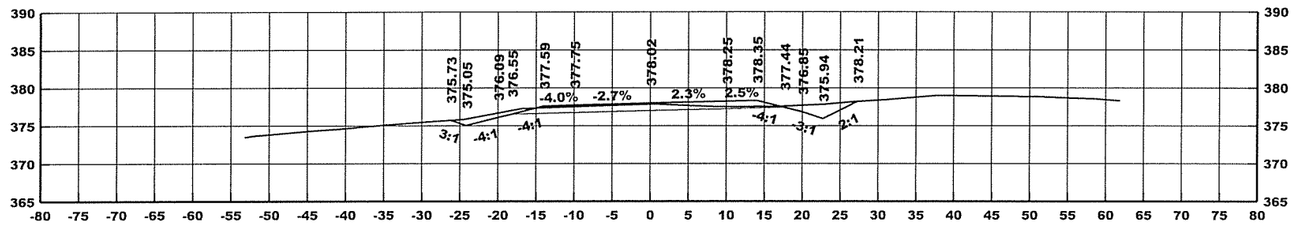
CROSS SECTIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	FA1915	68	73

JOB NO.

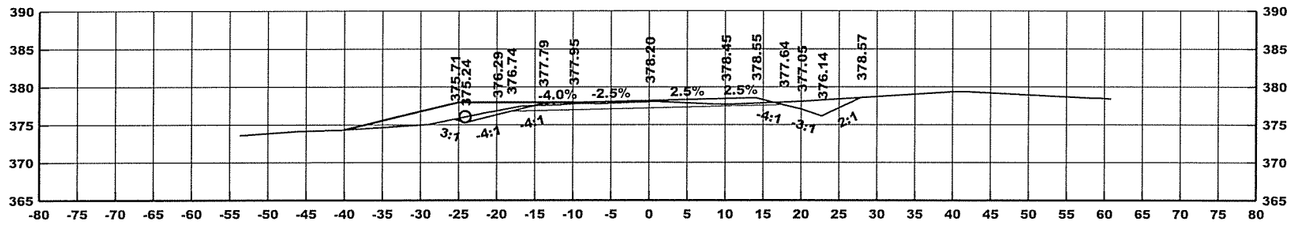
4



AREA CUT 34.03
AREA FILL 0.00

↑ 169+00 ↑

CUT VOLUME 14.22
FILL VOLUME 0.00

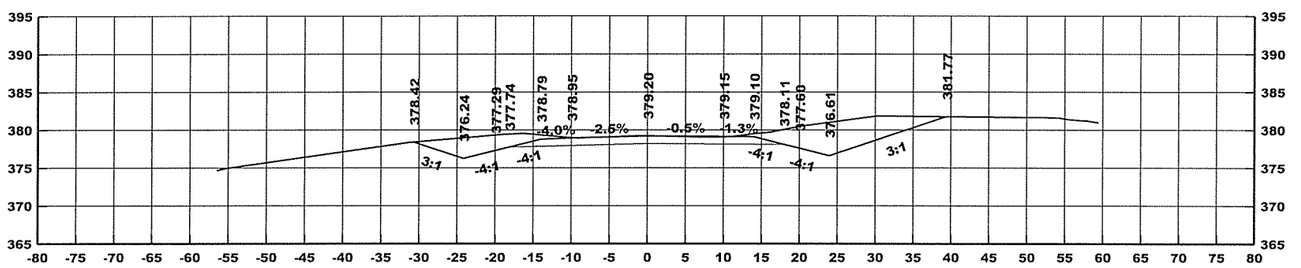


AREA CUT 35.78
AREA FILL 0.00

↑ 168+89 ↑

CUT VOLUME 238.55
FILL VOLUME 0.00

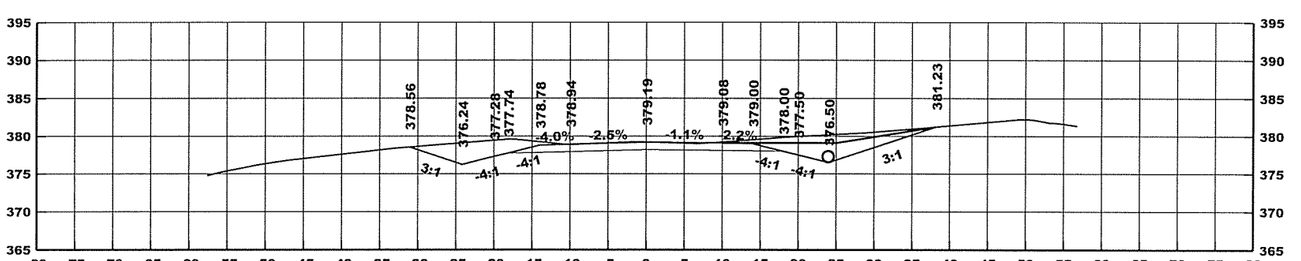
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.



AREA CUT 108.96
AREA FILL 0.00

↑ 168+00 ↑

CUT VOLUME 71.38
FILL VOLUME 0.00

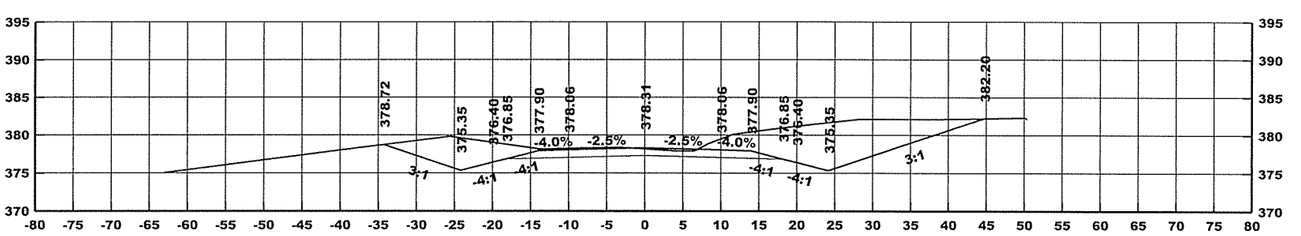


AREA CUT 93.91
AREA FILL 0.00

↓ 167+81 ↓

CUT VOLUME 419.21
FILL VOLUME 0.00

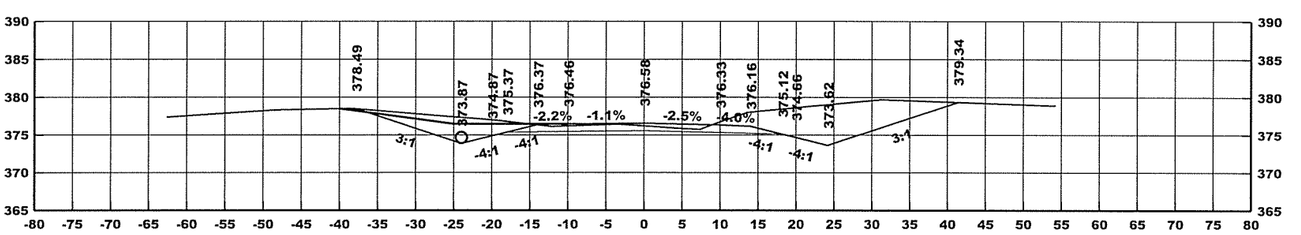
INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 185.56
AREA FILL 0.00

↓ 167+00 ↓

CUT VOLUME 467.83
FILL VOLUME 0.00



AREA CUT 165.31
AREA FILL 0.00

↓ 166+28 ↓

CUT VOLUME 179.80
FILL VOLUME 0.00

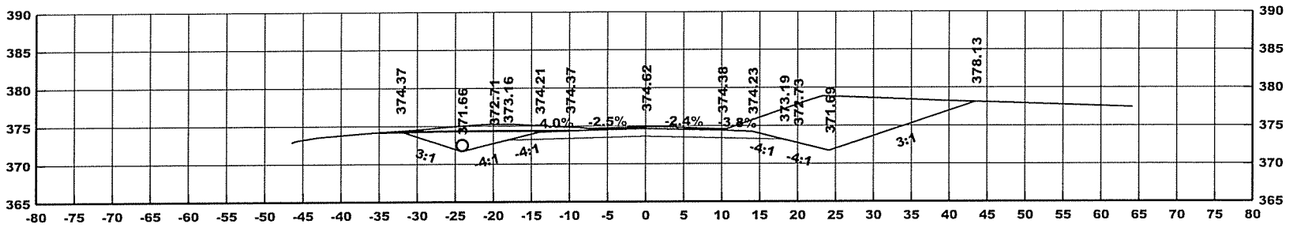
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 30 CU. YDS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

4

CROSS SECTIONS

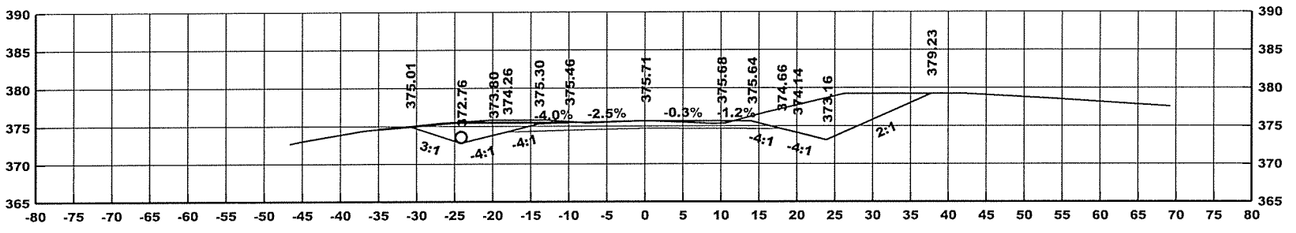
JOB NO.	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
FA1915	6	ARK.		69	73



AREA CUT 163.74
AREA FILL 0.00

CUT VOLUME 309.76
FILL VOLUME 0.00

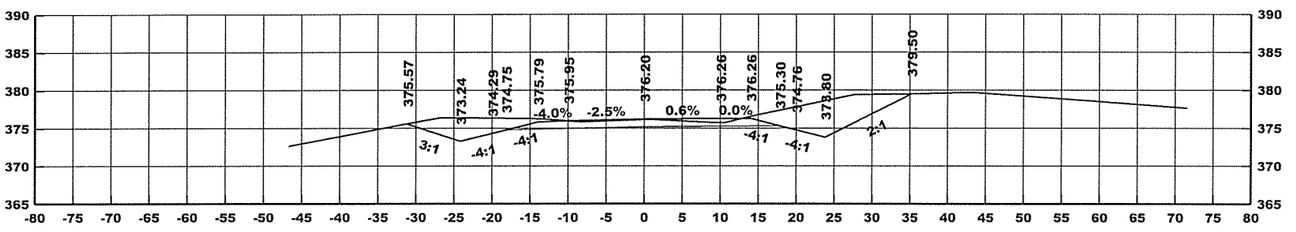
170+88
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 110.47
AREA FILL 0.00

CUT VOLUME 103.80
FILL VOLUME 0.00

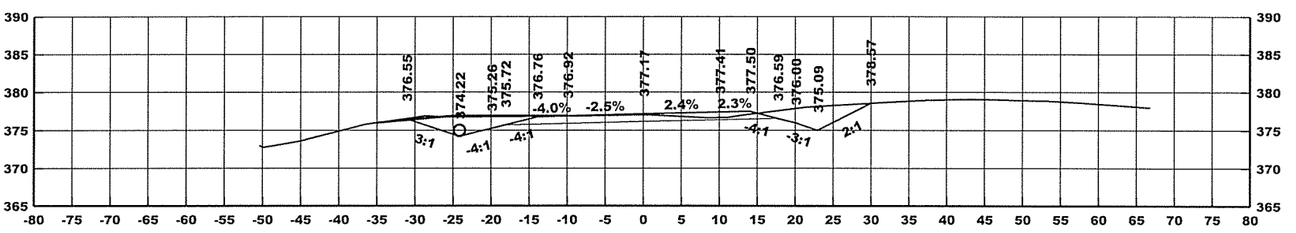
170+27
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 97.14
AREA FILL 0.00

CUT VOLUME 164.47
FILL VOLUME 0.00

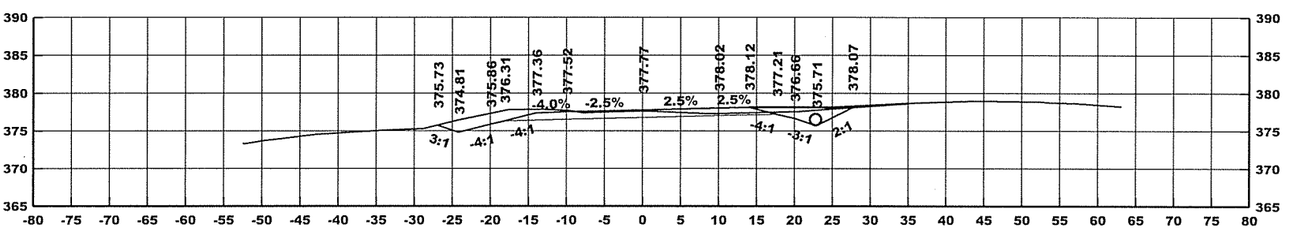
170+00



AREA CUT 67.33
AREA FILL 0.00

CUT VOLUME 70.55
FILL VOLUME 0.00

169+46
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 48.12
AREA FILL 0.00

CUT VOLUME 19.78
FILL VOLUME 0.00

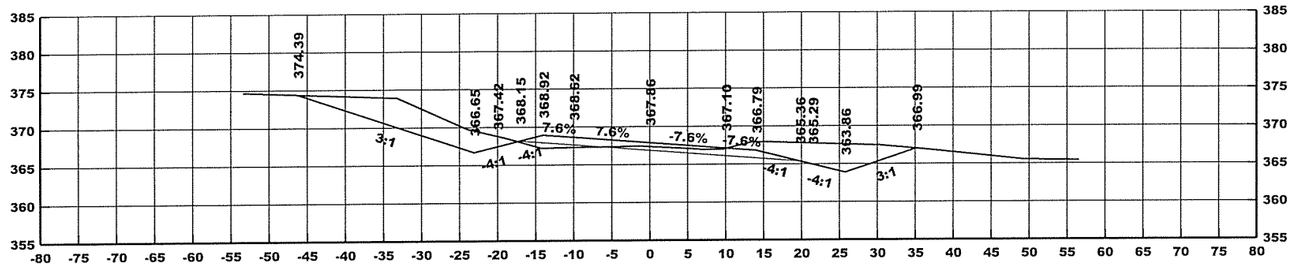
169+13
INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.

DATE REVISED	DATE PLOTTED	DATE REVISED	DATE PLOTTED	FED.RD. DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		70	73

JOB NO. FA1915

CROSS SECTIONS

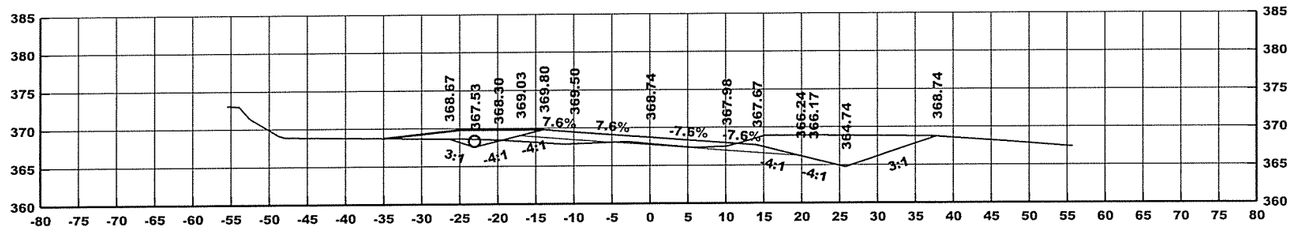
4



AREA CUT 131.02
AREA FILL 4.23

↑ **175+00** ↑

CUT VOLUME 213.44
FILL VOLUME 12.17

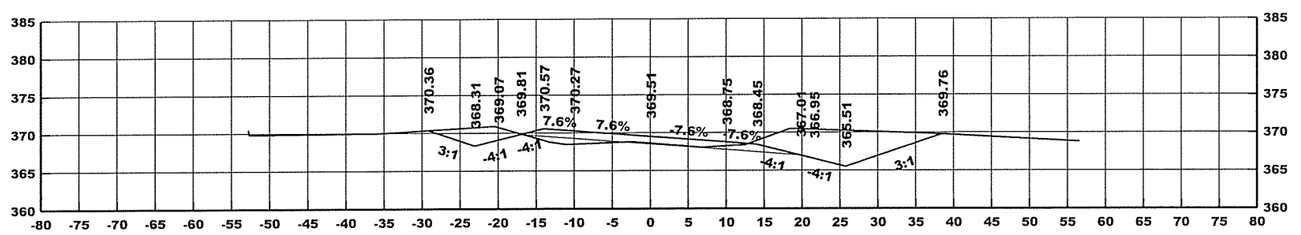


AREA CUT 71.19
AREA FILL 7.30

↑ **174+43** ↑

CUT VOLUME 129.58
FILL VOLUME 10.90

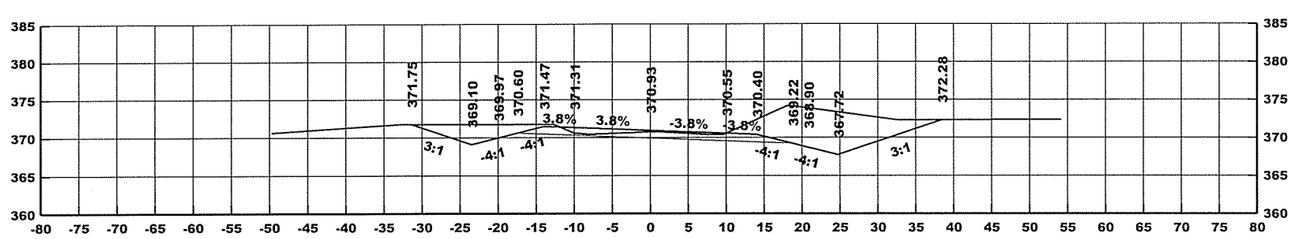
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 20 CU. YDS.



AREA CUT 91.54
AREA FILL 6.39

↑ **174+00** ↑

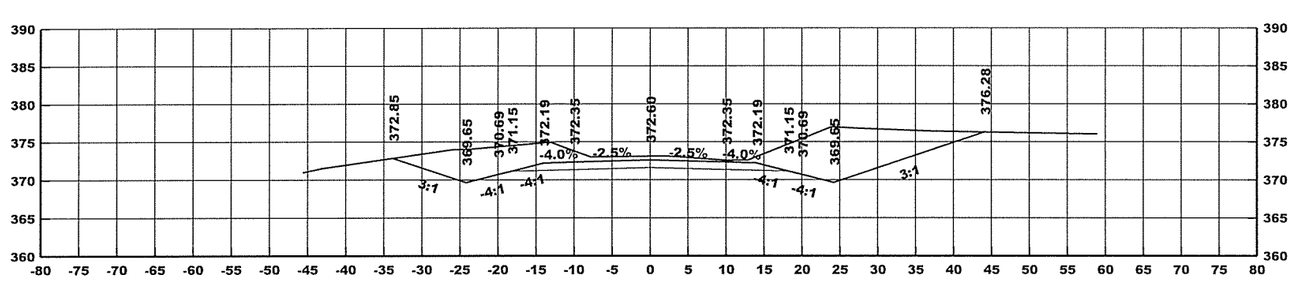
CUT VOLUME 421.45
FILL VOLUME 11.83



AREA CUT 136.04
AREA FILL 0.00

↑ **173+00** ↑

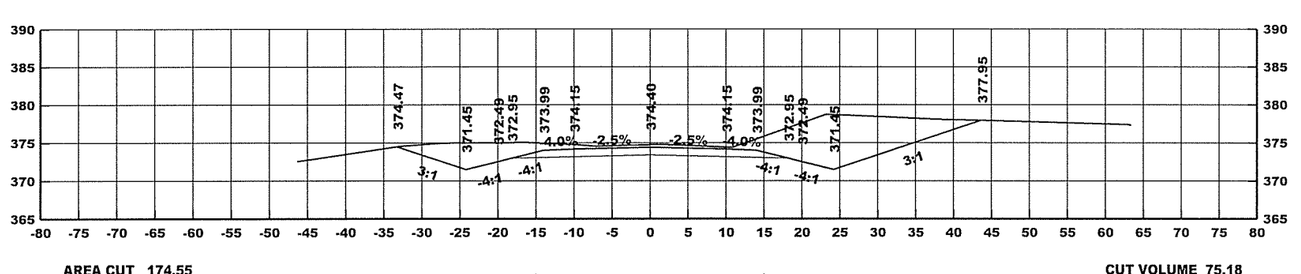
CUT VOLUME 661.32
FILL VOLUME 0.00



AREA CUT 221.07
AREA FILL 0.00

↑ **172+00** ↑

CUT VOLUME 732.65
FILL VOLUME 0.00

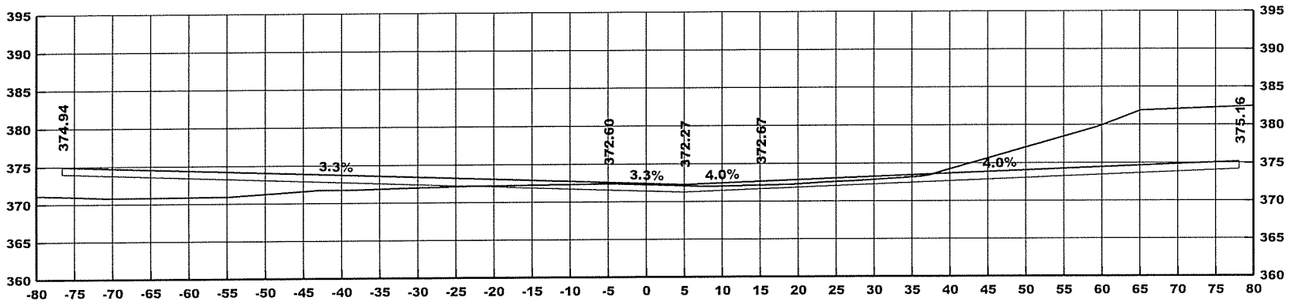


AREA CUT 174.55
AREA FILL 0.00

↑ **171+00** ↑

CUT VOLUME 75.18
FILL VOLUME 0.00

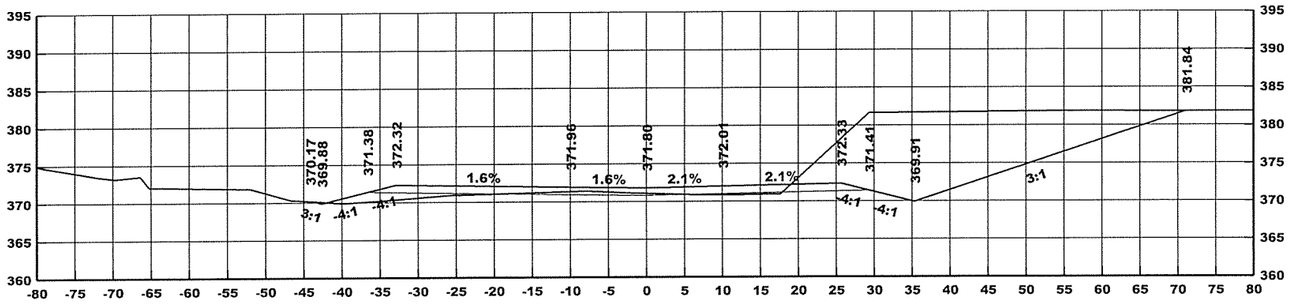
		DATE REVISED
		DATE PLOTED
		DATE REVISED
		DATE PLOTED
4	CROSS SECTIONS	FED.RD. DIST.NO. 6
	JOB NO.	STATE ARK.
		FED.AID PROJ.NO. FA1915
		SHEET NO. 71
		TOTAL SHEETS 73



AREA CUT 260.69
AREA FILL 93.04

↓ **179+16** ↓

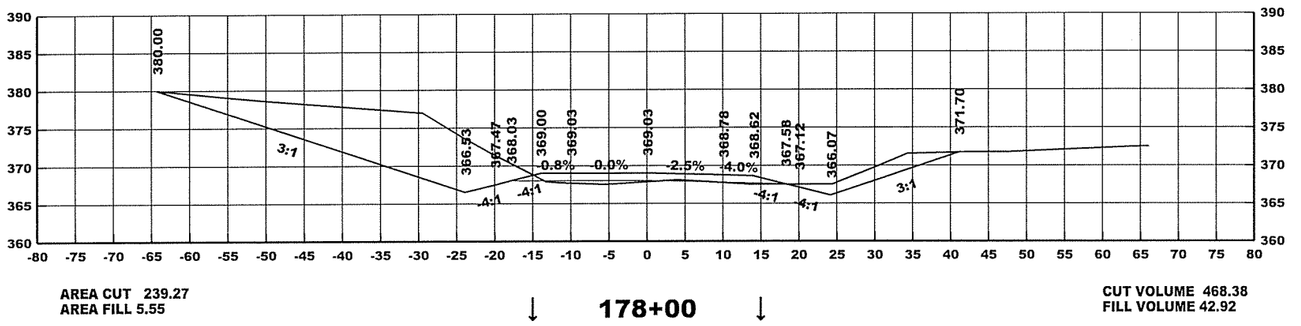
CUT VOLUME 179.08
FILL VOLUME 32.14



AREA CUT 343.70
AREA FILL 15.42

↓ **179+00** ↓

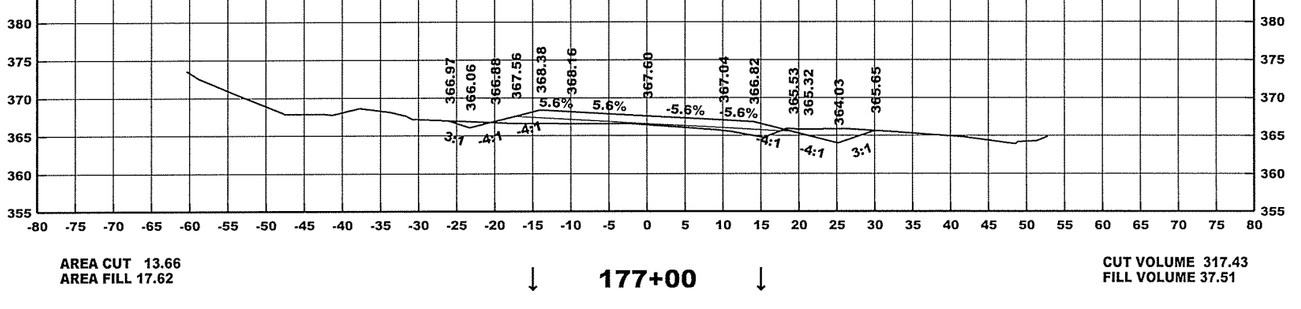
CUT VOLUME 1079.57
FILL VOLUME 38.83



AREA CUT 239.27
AREA FILL 5.55

↓ **178+00** ↓

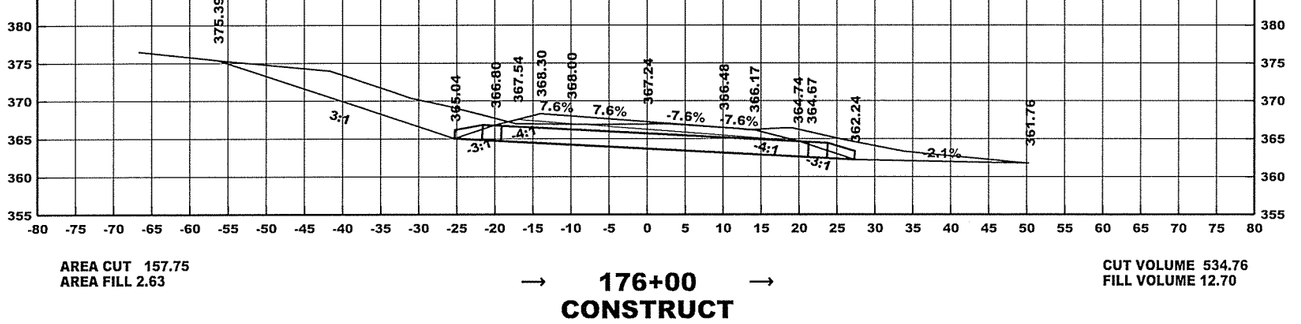
CUT VOLUME 468.38
FILL VOLUME 42.92



AREA CUT 13.66
AREA FILL 17.62

↓ **177+00** ↓

CUT VOLUME 317.43
FILL VOLUME 37.51



AREA CUT 157.75
AREA FILL 2.63

→ **176+00** →

CUT VOLUME 534.76
FILL VOLUME 12.70

CONSTRUCT
24" PIPE CULVERT
CROSS DRAIN
D.A. = N/A Q25 = N/A
24" RCP(CL. III)(TYPE 3 BEDDING) = 42 LIN. FT.
24" CMP OR PLASTIC(TYPE 2 BEDDING) = 48 LIN. FT.
24" FES ON LT. AND RT. = 2 EACH

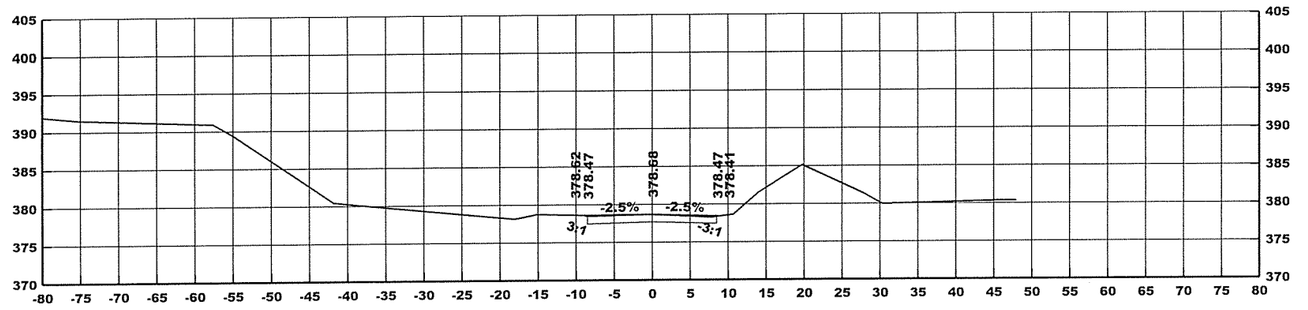
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.AID PROJ.NO.	STATE	SHEET NO.	TOTAL SHEETS
				6	ARK.	72	73

JOB NO. FA1915

CROSS SECTIONS

4

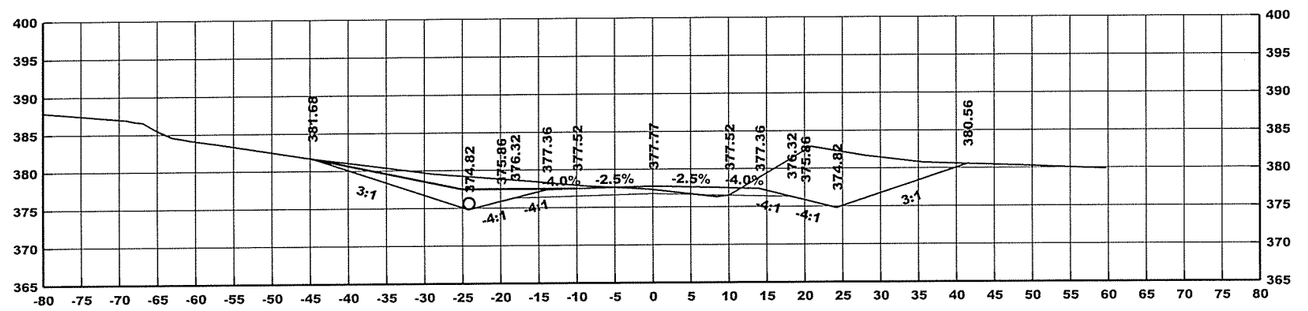
END JOB FA1915



AREA CUT 16.87
AREA FILL 0.01

CUT VOLUME 280.12
FILL VOLUME 0.61

↓ 182+00 ↓

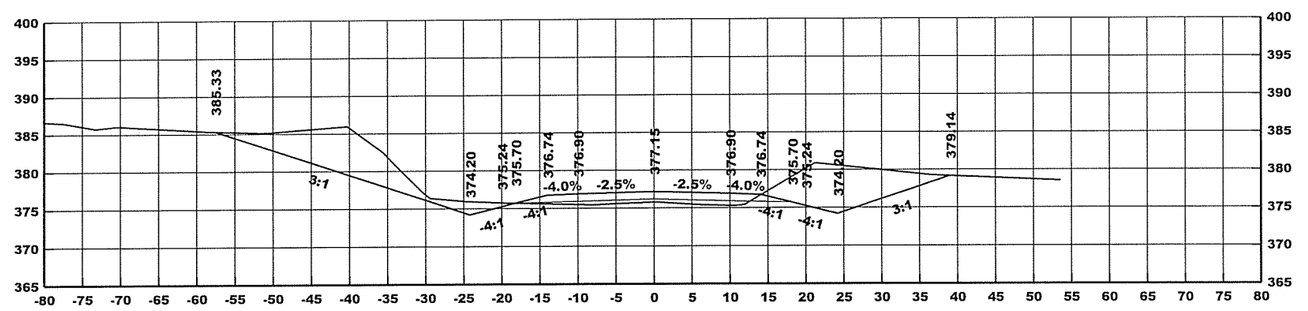


AREA CUT 212.33
AREA FILL 0.49

CUT VOLUME 253.76
FILL VOLUME 8.57

↓ 181+34 ↓

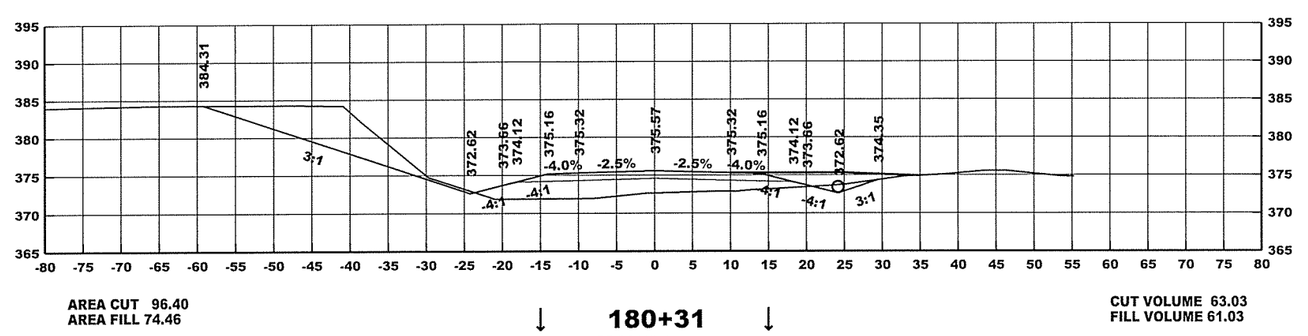
INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPR. = 50 CU. YDS.



AREA CUT 190.71
AREA FILL 13.13

CUT VOLUME 366.86
FILL VOLUME 111.92

↓ 181+00 ↓

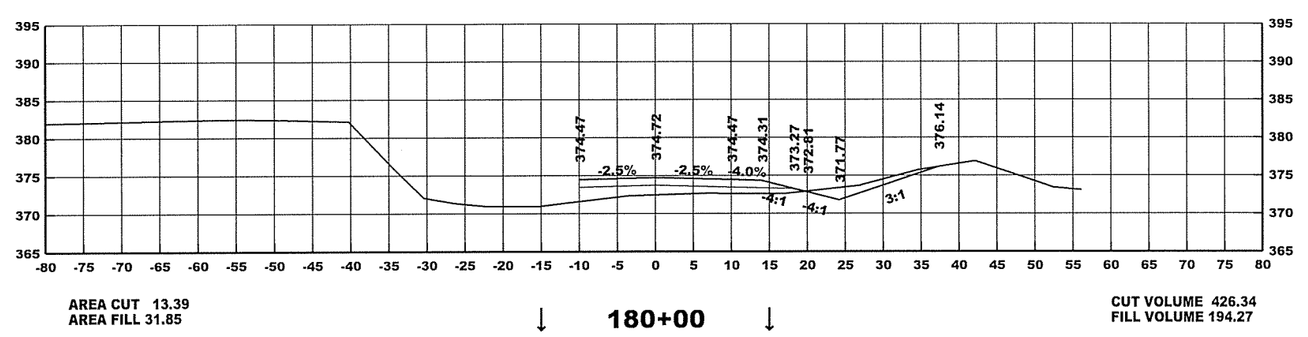


AREA CUT 96.40
AREA FILL 74.46

CUT VOLUME 63.03
FILL VOLUME 61.03

↓ 180+31 ↓

INSTALL
18" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPR. = 25 CU. YDS.



AREA CUT 13.39
AREA FILL 31.85

CUT VOLUME 426.34
FILL VOLUME 194.27

↓ 180+00 ↓

CROSS SECTIONS

JOB NO.	FA1915
FED.DIST.NO.	6
STATE	ARK.
FED.AID PROJ.NO.	
SHEET NO.	73
TOTAL SHEETS	73

DATE REVISED
DATE FILMED
DATE REVISED
DATE FILMED

4