DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	1	56

(2) WEIGH/INSPECTION PADS(FAYETTEVILLE SHALE)(PHASE II)(S)

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

WEIGH/ INSPECTION PADS
(FAYETTEVILLE SHALE) (PHASE II) (S)

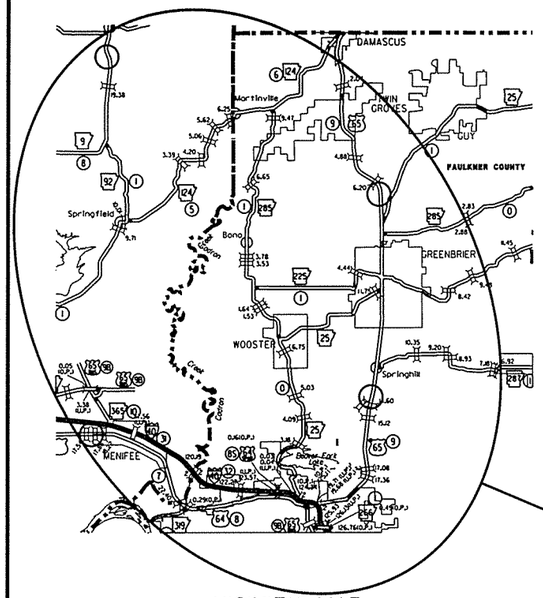
FAULKNER AND CONWAY COUNTIES

ROUTES 65, 9, & 64

SECTIONS 9, 8, & 7

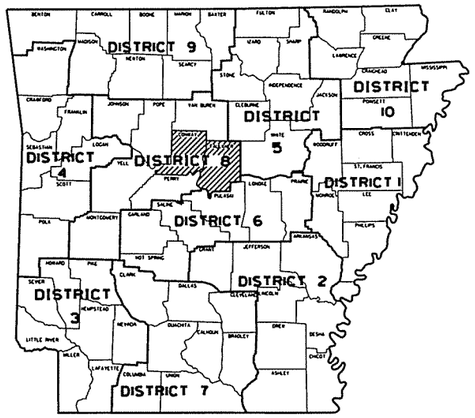
JOB 012184

NOT TO SCALE



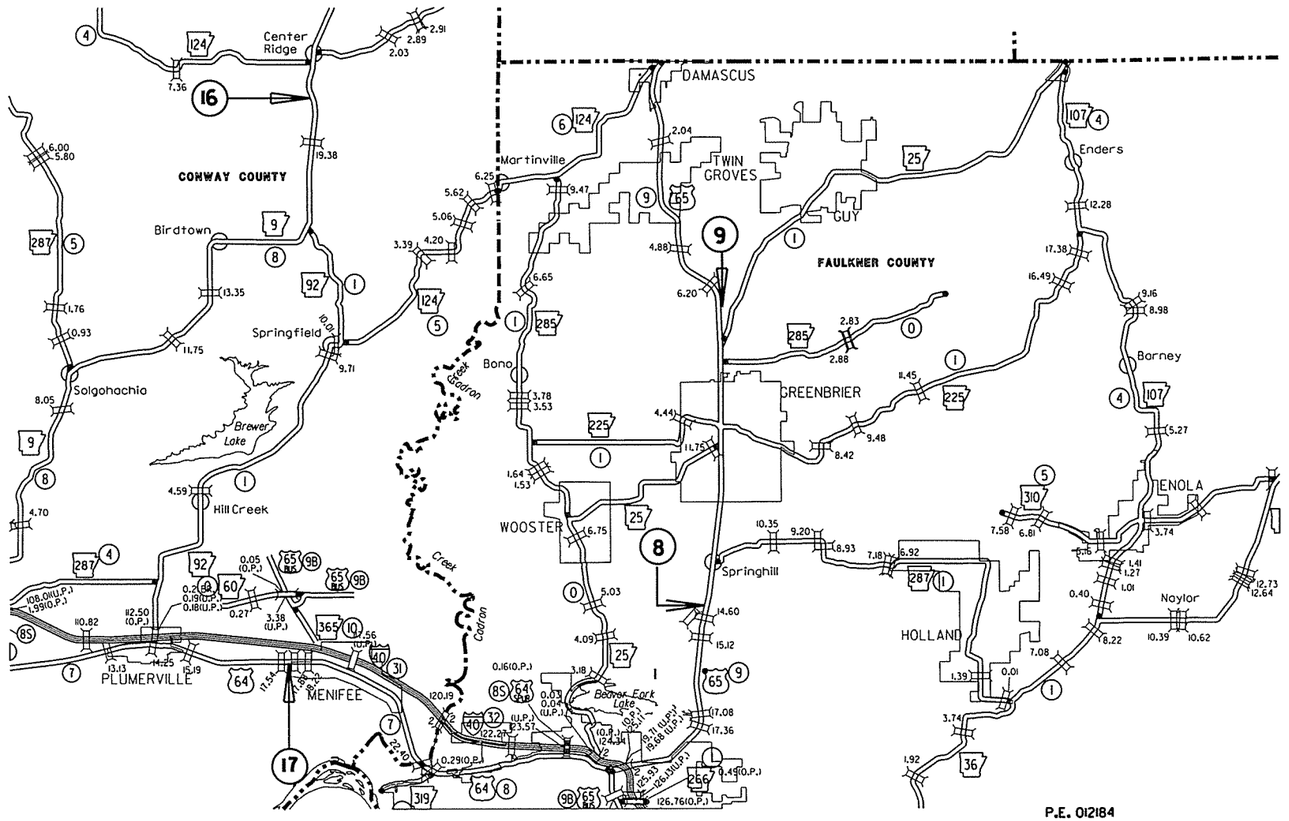
VICINITY MAP

PROJECT LOCATION



ARK. HWY. DIST. NO. 8

KEY	COUNTY	DIST.	RTE.	SEC.	LOG MILE
8	FAULKNER	8	U.S. 65	9	14.46
9	FAULKNER	8	U.S. 65	9	6.87
16	CONWAY	8	S.H. 9	8	20.49
17	CONWAY	8	U.S. 64	7	17.65



N

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4215
RALPH J. HALL

DEPUTY DIRECTOR
AND CHIEF ENGINEER

P.E. 012184

SITE 8	
BEGINNING:	
LAT:	N35° 10' 02"
LONG:	W92° 23' 50"
MID POINT:	
LAT:	N35° 10' 06"
LONG:	W92° 23' 49"
ENDING:	
LAT:	N35° 10' 10"
LONG:	W92° 23' 48"

SITE 16	
BEGINNING:	
LAT:	N35° 21' 24"
LONG:	W92° 33' 51"
MID POINT:	
LAT:	N35° 21' 28"
LONG:	W92° 33' 53"
ENDING:	
LAT:	N35° 21' 32"
LONG:	W92° 33' 55"

SITE 9	
BEGINNING:	
LAT:	N35° 16' 37"
LONG:	W92° 23' 15"
MID POINT:	
LAT:	N35° 16' 40"
LONG:	W92° 23' 15"
ENDING:	
LAT:	N35° 16' 44"
LONG:	W92° 23' 15"

SITE 17	
BEGINNING:	
LAT:	N35° 09' 11"
LONG:	W92° 34' 59"
MID POINT:	
LAT:	N35° 09' 11"
LONG:	W92° 34' 53"
ENDING:	
LAT:	N35° 09' 11"
LONG:	W92° 34' 48"

6/17/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	2	56

(2) INDEX OF SHEETS, GOV. SPECS., & GEN. NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

INDEX OF SHEETS

SHEET NO.	TITLE	DRWG.NO.	DATE
1	TITLE SHEET		
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES		
3-6	TYPICAL SECTIONS OF IMPROVEMENT		
7	SPECIAL DETAILS		
8-9	TEMPORARY EROSION CONTROL DETAILS		
10-14	MAINTENANCE OF TRAFFIC DETAILS		
15-16	PERMANENT PAVEMENT MARKING DETAILS		
17-19	QUANTITIES		
20	SUMMARY OF QUANTITIES AND REVISIONS		
21-26	SURVEY CONTROL DETAILS		
27-30	PLAN AND PROFILE SHEETS		
31	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1	2/27/14
32	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1	2/27/14
33	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1	2/27/14
34	PLASTIC PIPE CULVERT (PVC F949)	PCP-2	2/27/14
35	PAVEMENT MARKING DETAILS	PM-1	9/12/13
36	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	12/15/11
37	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	9/12/13
38	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	10/15/09
39	TEMPORARY EROSION CONTROL DEVICES	TEC-1	12/15/11
40	TEMPORARY EROSION CONTROL DEVICES	TEC-3	11/3/94
41	WIRE FENCE TYPE C AND D	WF-4	8/22/02
42-56	CROSS SECTIONS		

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

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
108-1	LIQUIDATED DAMAGES
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSE
620-1	MULCH COVER
JOB 012184	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 012184	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 012184	INTERNET BIDDING
JOB 012184	PLASTIC PIPE
JOB 012184	SOIL STABILIZATION
JOB 012184	STORM WATER POLLUTION PREVENTION PLAN
JOB 012184	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 012184	UTILITY ADJUSTMENTS
JOB 012184	WARM MIX ASPHALT

GENERAL NOTES

1. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
2. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERT OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
3. 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.
4. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.1 OF THE STANDARD SPECIFICATIONS.
5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTL AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PR TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
7. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE . AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 UNCLASSIFIED EXCAVA

6/11/2014

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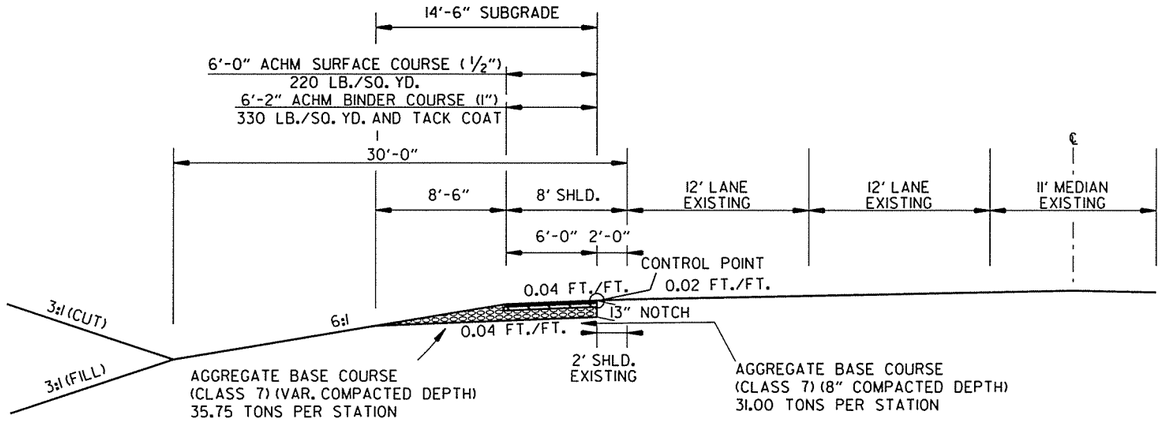
INDEX OF SHEETS, GOVERNING SPECIFICATIONS, & GENERAL NOTES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	3	56

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



TYPICAL SECTION OF IMPROVEMENT

MAIN LANE WIDENING

SITE 8 - HWY. 65

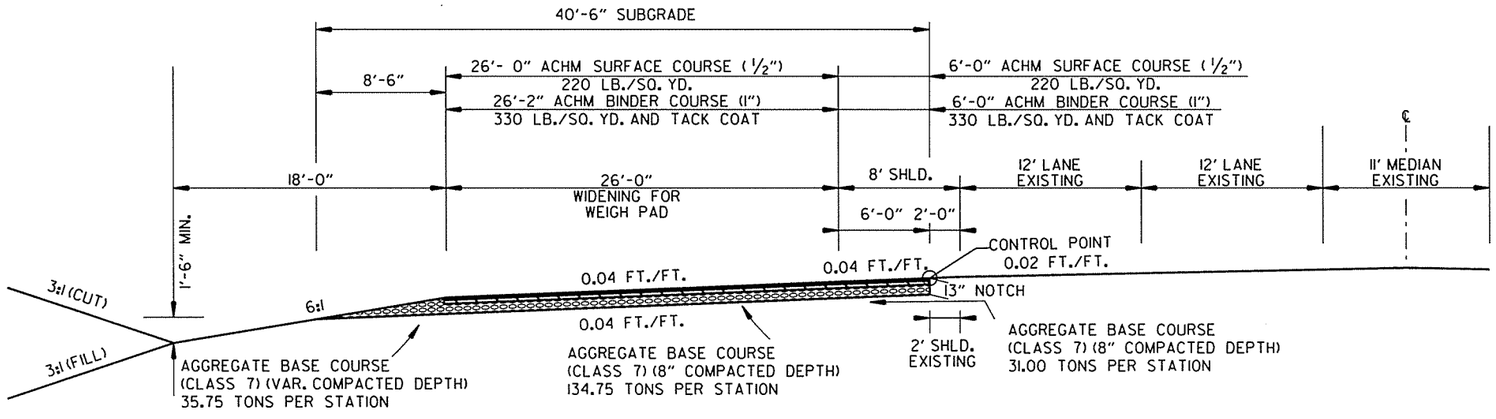
STA. 800+00

STA. 807+50

NOTES:

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

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



TYPICAL SECTION OF IMPROVEMENT

WEIGH PAD WIDENING

SITE 8 - HWY. 65

STA. 801+50 - STA. 806+00

7/8/2014

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TYPICAL SECTIONS OF IMPROVEMENT

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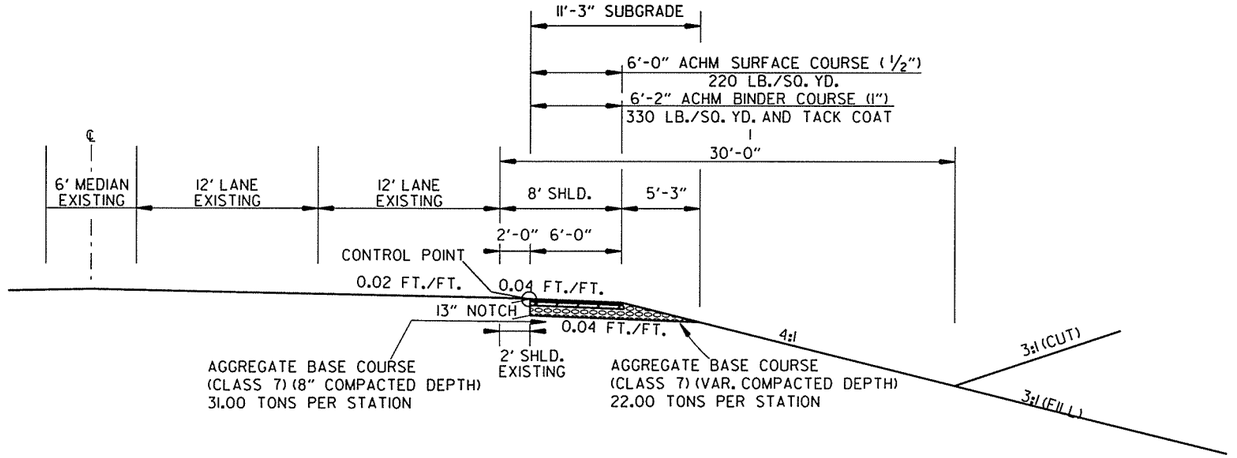
				6	ARK.			
				JOB NO.		012184	4	56

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



TYPICAL SECTION OF IMPROVEMENT
MAIN LANE WIDENING
SITE 9 - HWY. 65
STA. 900+00
STA. 907+50

NOTES:

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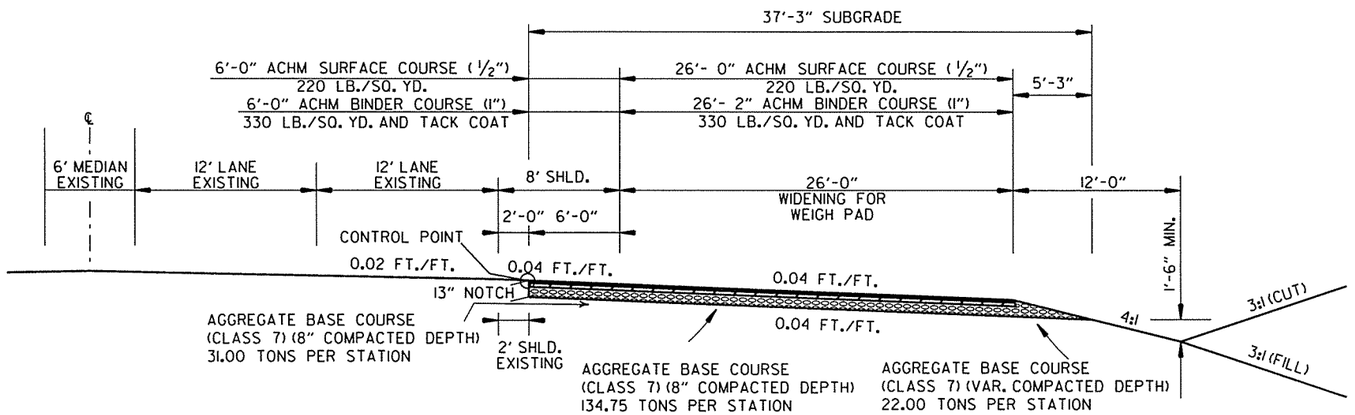

TYPICAL SECTION OF IMPROVEMENT
WEIGH PAD WIDENING
SITE 9 - HWY. 65
STA. 901+50 - STA. 906+00

TYPICAL SECTIONS OF IMPROVEMENT

7/8/2014

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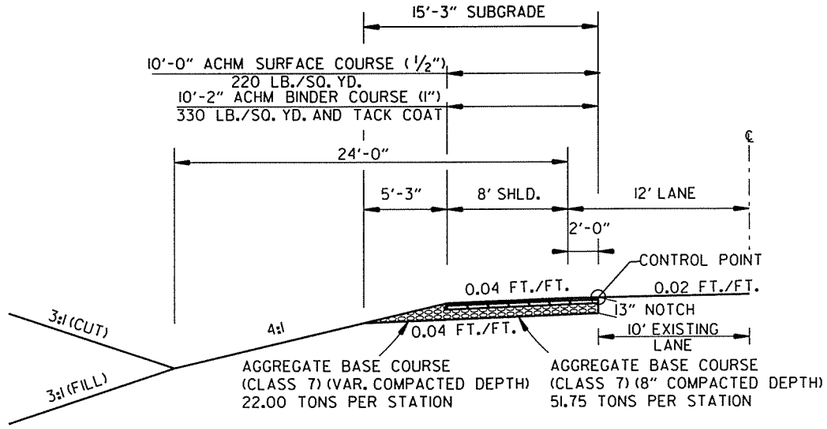
				6	ARK.			
				JOB NO.		012184	5	56

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



TYPICAL SECTION OF IMPROVEMENT

MAIN LANE WIDENING

SITE 16

STA. 1601+00

STA. 1608+50

NOTES:

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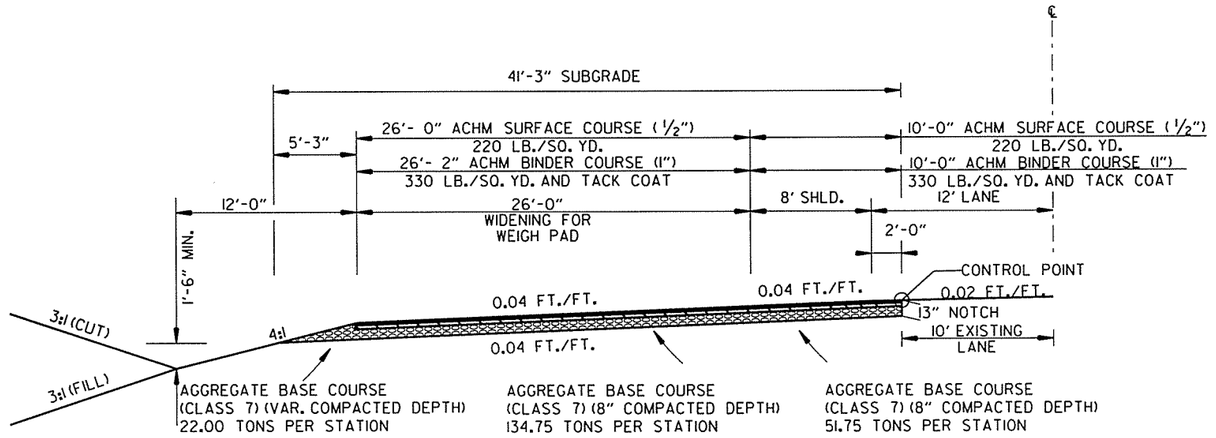

TYPICAL SECTION OF IMPROVEMENT

WEIGH PAD WIDENING

SITE 16

STA. 1602+50 - STA. 1607+00

TYPICAL SECTIONS OF IMPROVEMENT

7/8/2014

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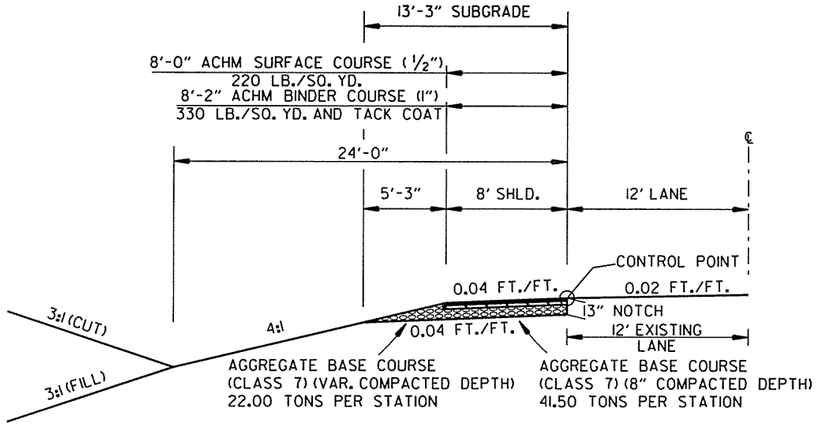
				6	ARK.			
				JOB NO.		012184	6	56

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



TYPICAL SECTION OF IMPROVEMENT
MAIN LANE WIDENING
SITE 17
STA. 1701+00
STA. 1708+50

NOTES:

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

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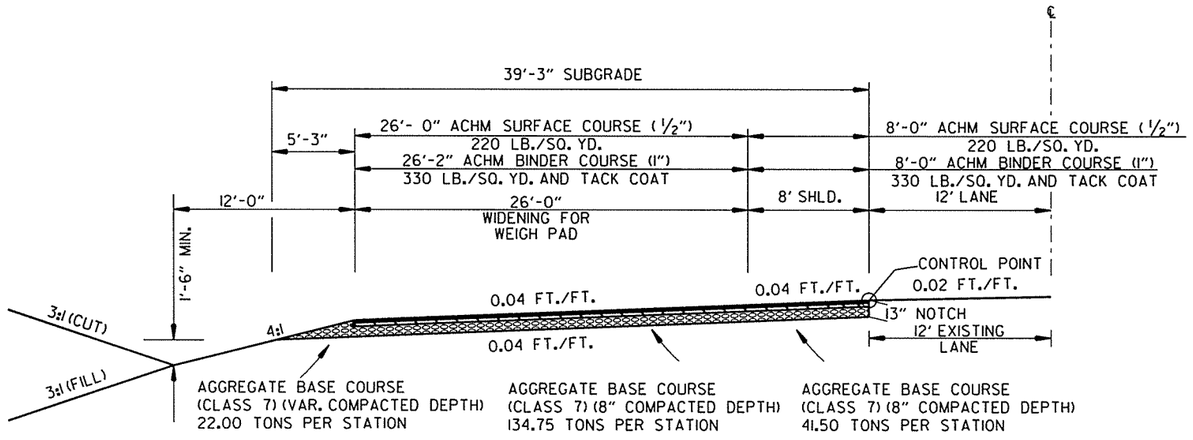


TYPICAL SECTION OF IMPROVEMENT
WEIGH PAD WIDENING
SITE 17
STA. 1702+50 - STA. 1707+00

7/9/2014

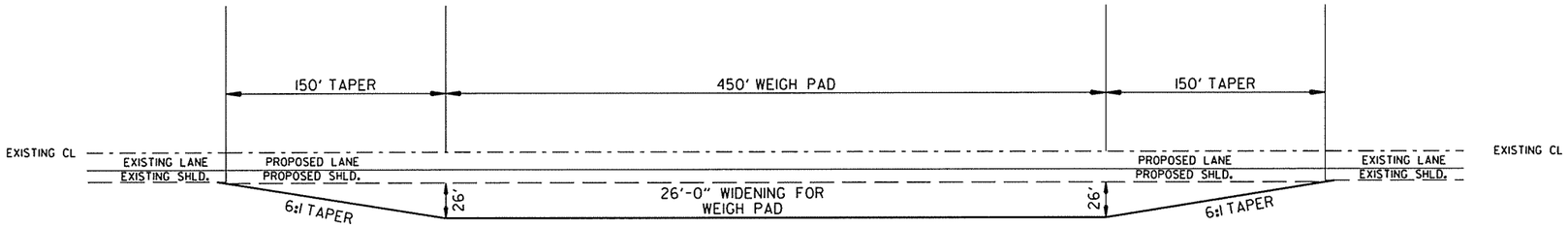
RD12184.DGN

TYPICAL SECTIONS OF IMPROVEMENT

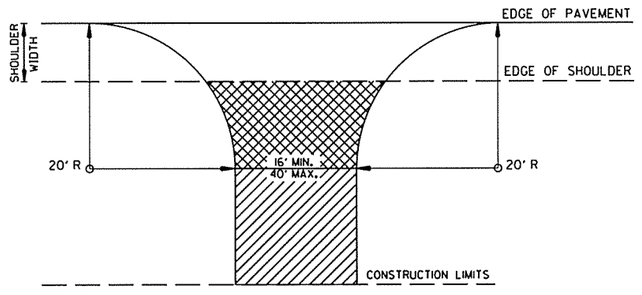
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	7	56

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



SPECIAL DETAIL OF WEIGH PAD WIDENING
(NOT TO SCALE)



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

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

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

DETAIL FOR DRIVEWAY TURNOUTS

6/11/2014

R012184.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	8	56

(2) TEMPORARY EROSION CONTROL DETAILS

CLEARING AND GRUBBING

STA. 800+00 - STA. 808+00 8 STA.

SAND BAG DITCH CHECKS (E-5)

STA. 800+00	LT.	1 INSTALLATION	20 BAG
STA. 801+50	LT.	1 INSTALLATION	20 BAG
STA. 804+00	LT.	1 INSTALLATION	20 BAG
STA. 806+00	LT.	1 INSTALLATION	20 BAG
STA. 807+50	LT.	1 INSTALLATION	20 BAG

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
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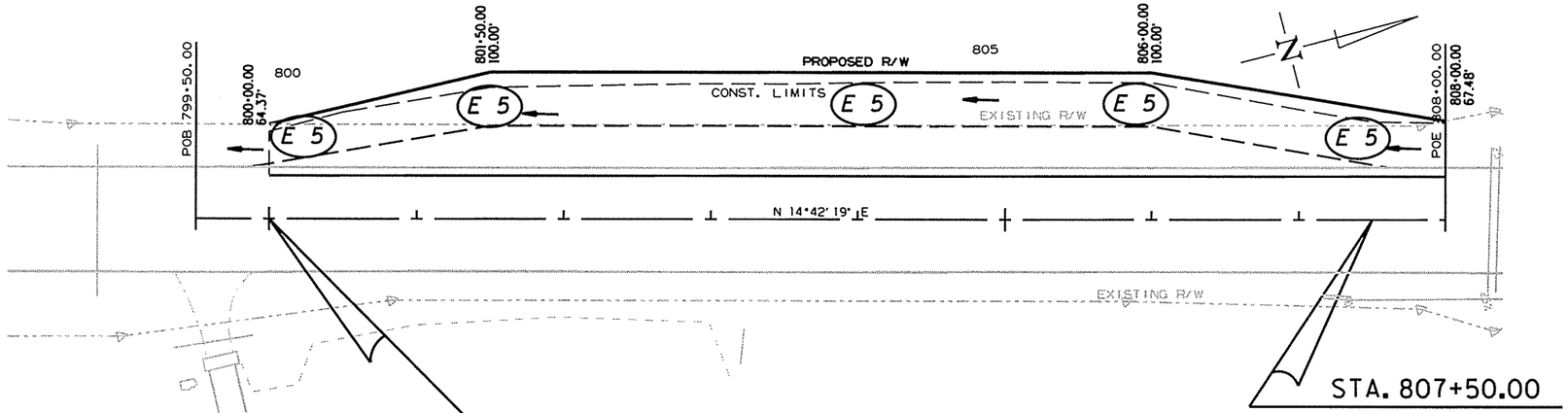
7-10-14



STA. 807+50.00

END SITE 8

STA. 800+00.00 BEGIN JOB 012184

BEGIN SITE 8 HWY. 65 LOG MILE 14.46

SITE 8

REVISIONS

DATE	REVISION

LEGEND

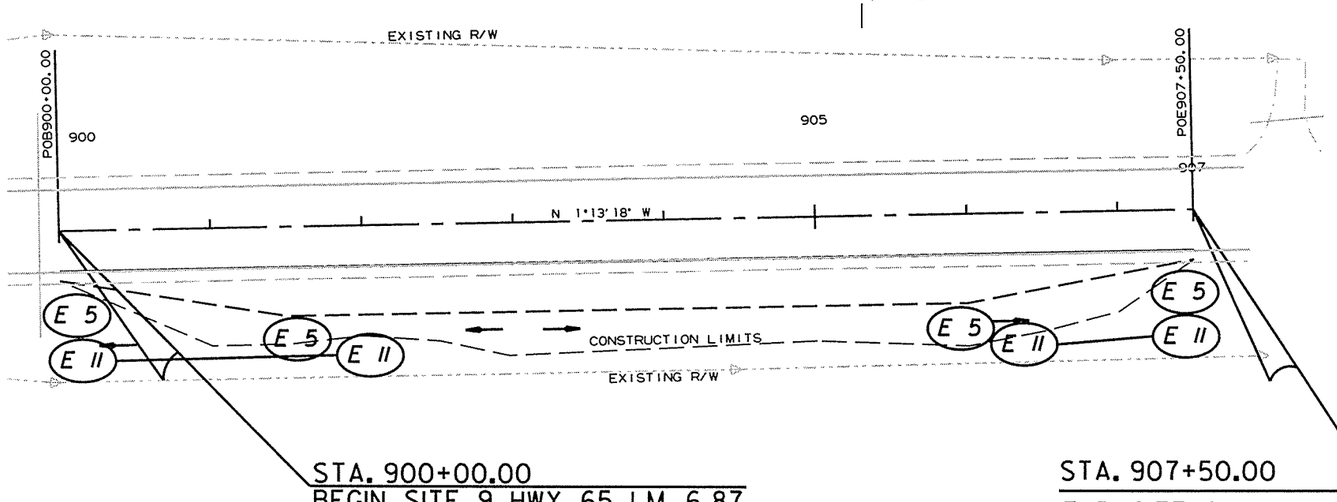
- E 5 — SAND BAG DITCH CHECK
- E 11 — SILT FENCE

SAND BAG DITCH CHECKS (E-5)

STA. 900+00	RT.	1 INSTALLATION	20 BAG
STA. 901+50	RT.	1 INSTALLATION	20 BAG
STA. 906+00	RT.	1 INSTALLATION	20 BAG
STA. 907+50	RT.	1 INSTALLATION	20 BAG

SILT FENCE (E-11)

STA. 900+00 - STA. 902+00	RT.	200 LIN. FT.
STA. 906+00 - STA. 907+50	RT.	150 LIN. FT.



STA. 900+00.00

BEGIN SITE 9 HWY. 65 LM 6.87

STA. 907+50.00

END SITE 9

SITE 9

TEMPORARY EROSION CONTROL DETAILS

7/10/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

CLEARING AND GRUBBING

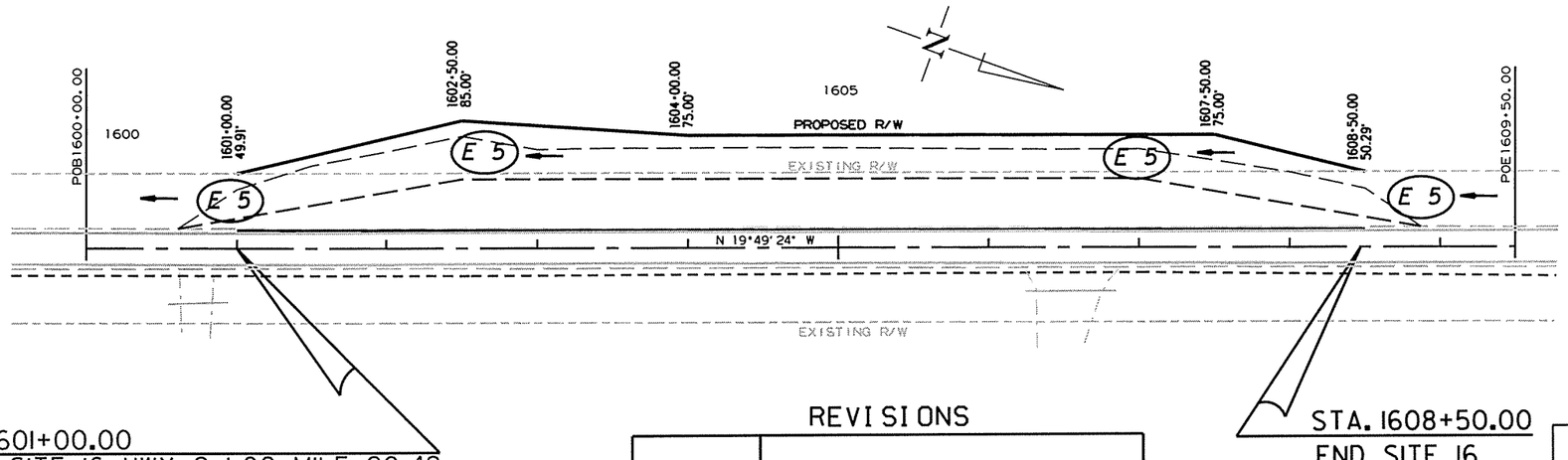
STA. 1601+00 - STA. 1608+50 8 STA.

SAND BAG DITCH CHECKS (E-5)

STA. 1601+00	LT.	1 INSTALLATION	20 BAG
STA. 1602+50	LT.	1 INSTALLATION	20 BAG
STA. 1607+00	LT.	1 INSTALLATION	20 BAG
STA. 1609+00	LT.	1 INSTALLATION	20 BAG

SILT FENCE (E-11)

STA. 1601+00 - STA. 1602+00 RT. 100 LIN. FT.



STA. 1601+00.00
BEGIN SITE 16 HWY. 9 LOG MILE 20.49

STA. 1608+50.00
END SITE 16

SITE 16

REVISIONS

DATE	REVISION

LEGEND

E 5 SAND BAG DITCH CHECK

E 11 SILT FENCE

CLEARING AND GRUBBING

STA. 1701+00 - STA. 1708+00 7 STA.

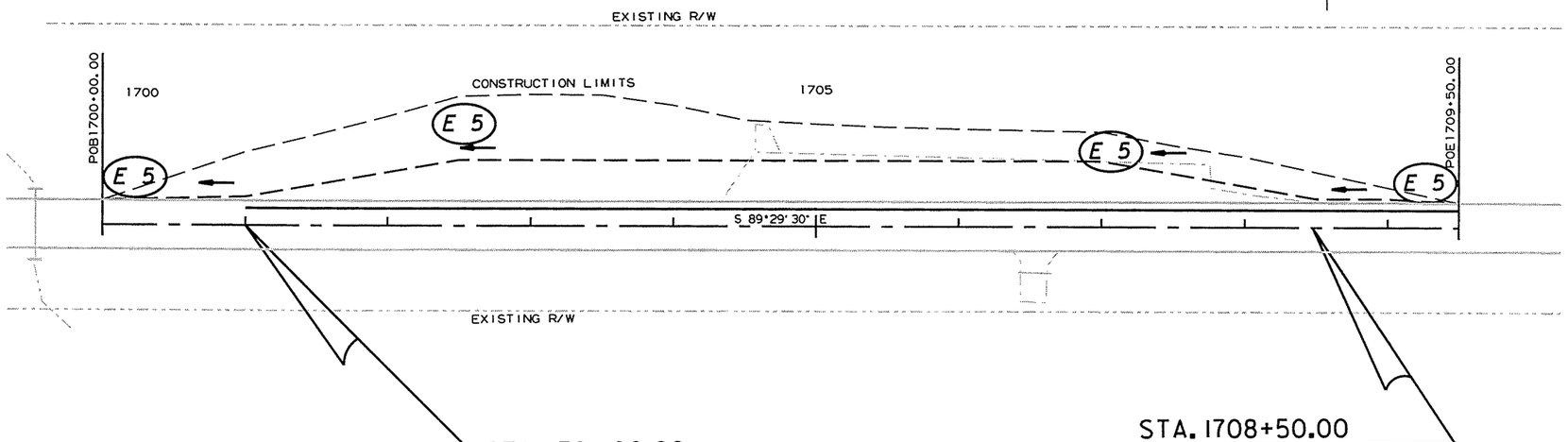
SAND BAG DITCH CHECKS (E-5)

STA. 1700+50	LT.	1 INSTALLATION	20 BAG
STA. 1702+50	LT.	1 INSTALLATION	20 BAG
STA. 1707+00	LT.	1 INSTALLATION	20 BAG
STA. 1709+50	LT.	1 INSTALLATION	20 BAG

SILT FENCE (E-11)

STA. 1708+00 - STA. 1708+50 RT. 150 LIN. FT.

N



STA. 1701+00.00
BEGIN SITE 17 HWY. 64 LM 17.65

STA. 1708+50.00
END SITE 17

SITE 17

TEMPORARY EROSION CONTROL DETAILS

7/10/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	10	56

(2) MAINTENANCE OF TRAFFIC DETAILS

MAINTENANCE OF TRAFFIC- STAGE 1 QUANTITIES
SIGNS = 716 SQ. FT.
VERTICAL PANELS = 80 EACH

MAINTENANCE OF TRAFFIC- STAGE 2 QUANTITIES
SIGNS = 716 SQ. FT.
TRAFFIC DRUMS = 80 EACH

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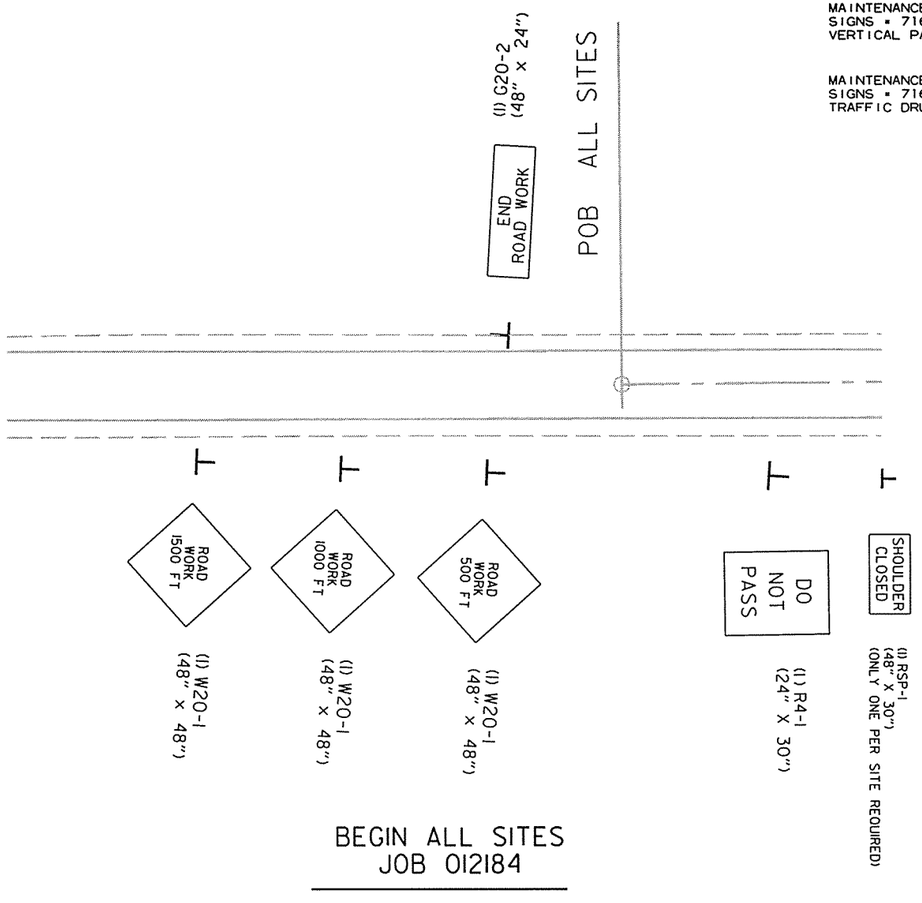
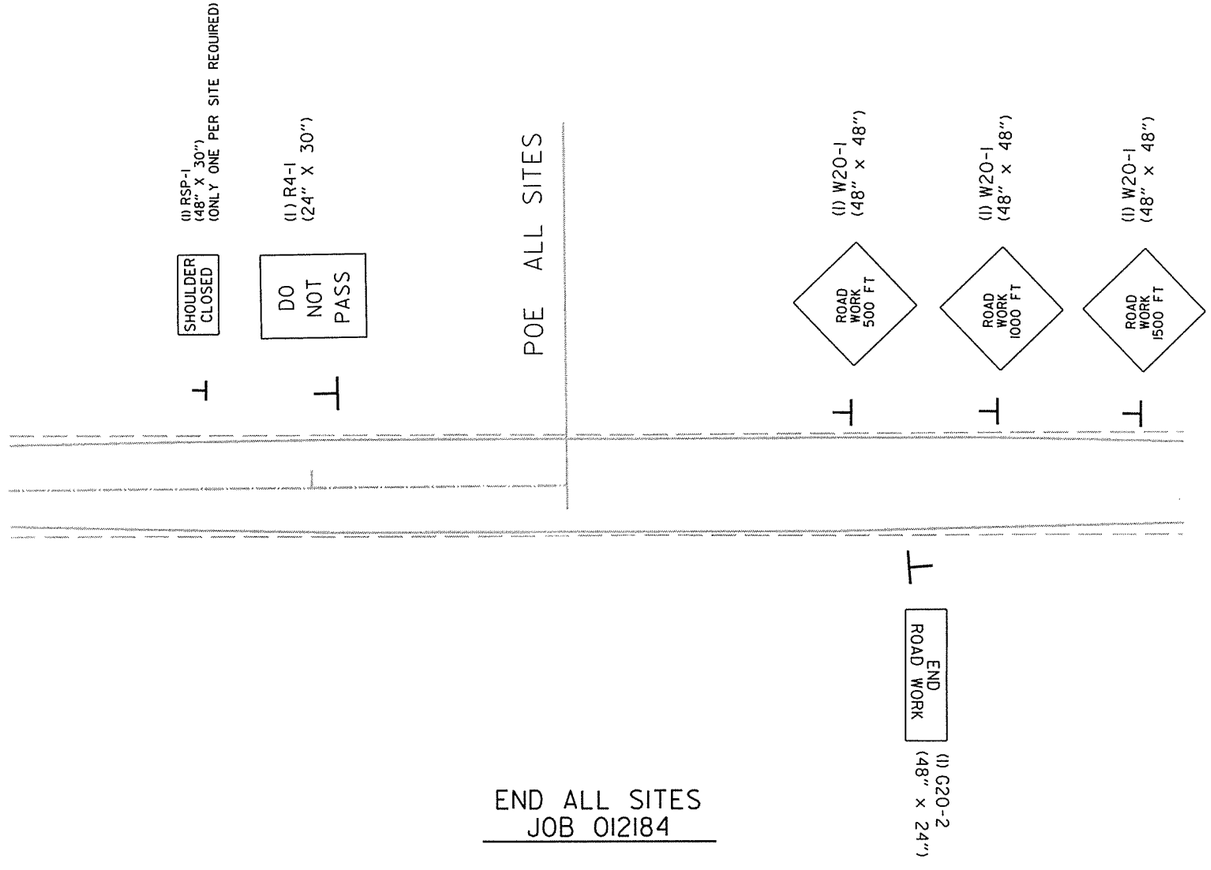
TRINITY D. SMITH
7-10-14



BEGIN ALL SITES
JOB 012184



END ALL SITES
JOB 012184

MAINTENANCE OF TRAFFIC DETAILS

R012184.DGN 5/15/2014

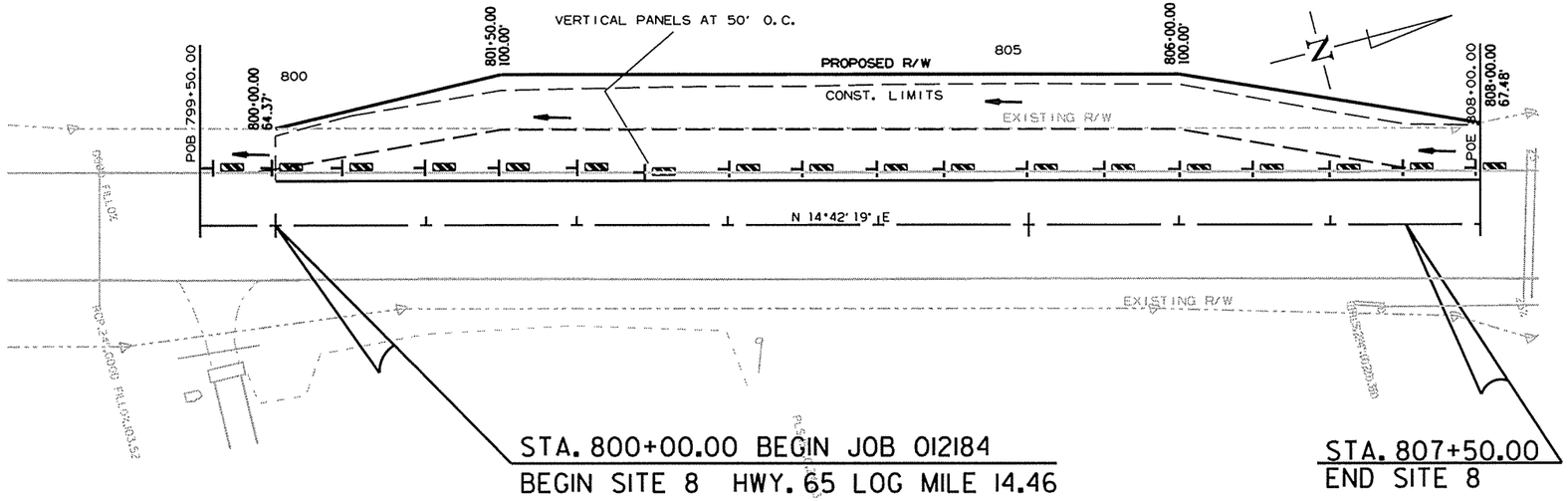
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	11	56

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION - ALL SITES
1. INSTALL ADVANCE WARNING SIGNS AS SHOWN ON SIGNING DETAILS.
2. MAINTAIN TRAFFIC IN EXISTING LANES UNDER TRAFFIC. NOTCH AND WIDEN EXISTING LANES TO LEFT OR RIGHT ACCORDING TO PLANS. DELINEATE WIDENING WITH VERTICAL PANELS @50' O.C.
3. CONSTRUCT WEIGH PADS TO LEFT OR RIGHT ACCORDING TO PLANS. DELINEATE WITH TRAFFIC DRUMS.

MAINTENANCE OF TRAFFIC- STAGE 1 QUANTITIES
SIGNS = 179 SQ. FT.
VERTICAL PANELS = 20 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

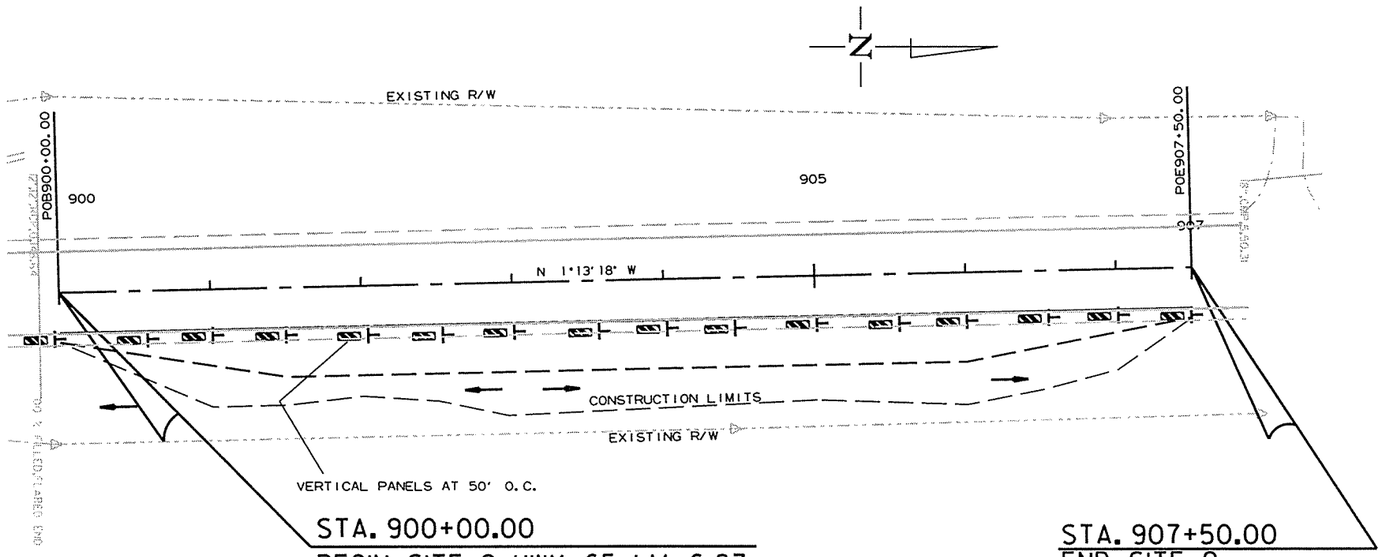


STA. 800+00.00 BEGIN JOB 012184
BEGIN SITE 8 HWY. 65 LOG MILE 14.46

STA. 807+50.00
END SITE 8

SITE 8 - STAGE 1

MAINTENANCE OF TRAFFIC- STAGE 1 QUANTITIES
SIGNS = 179 SQ. FT.
VERTICAL PANELS = 20 EACH



STA. 900+00.00
BEGIN SITE 9 HWY. 65 LM 6.87

STA. 907+50.00
END SITE 9

SITE 9 - STAGE 1

MAINTENANCE OF TRAFFIC DETAILS

5/15/2014

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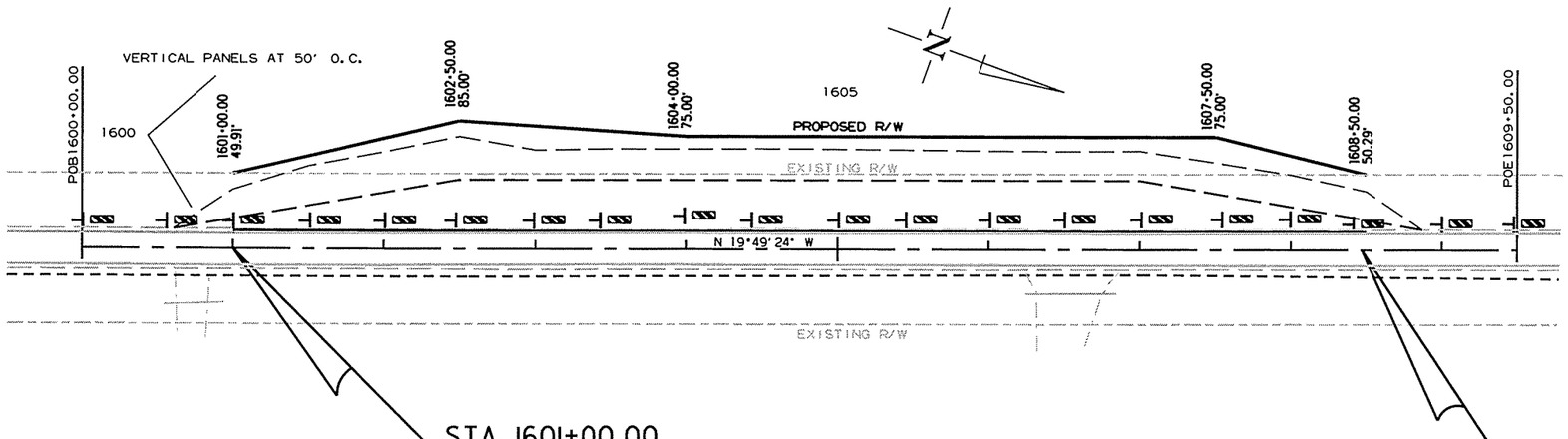
				6	ARK.			
				JOB NO.		012184	12	56

(2) MAINTENANCE OF TRAFFIC DETAILS

MAINTENANCE OF TRAFFIC- STAGE 1 QUANTITIES
SIGNS = 179 SQ. FT.
VERTICAL PANELS = 20 EACH

SEQUENCE OF CONSTRUCTION - ALL SITES
1. INSTALL ADVANCE WARNING SIGNS AS SHOWN ON SIGNING DETAILS.
2. MAINTAIN TRAFFIC IN EXISTING LANES UNDER TRAFFIC, NOTCH AND WIDEN EXISTING LANES TO LEFT OR RIGHT ACCORDING TO PLANS. DELINEATE WIDENING WITH VERTICAL PANELS @50' O.C.
3. CONSTRUCT WEIGH PADS TO LEFT OR RIGHT ACCORDING TO PLANS. DELINEATE WITH TRAFFIC DRUMS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

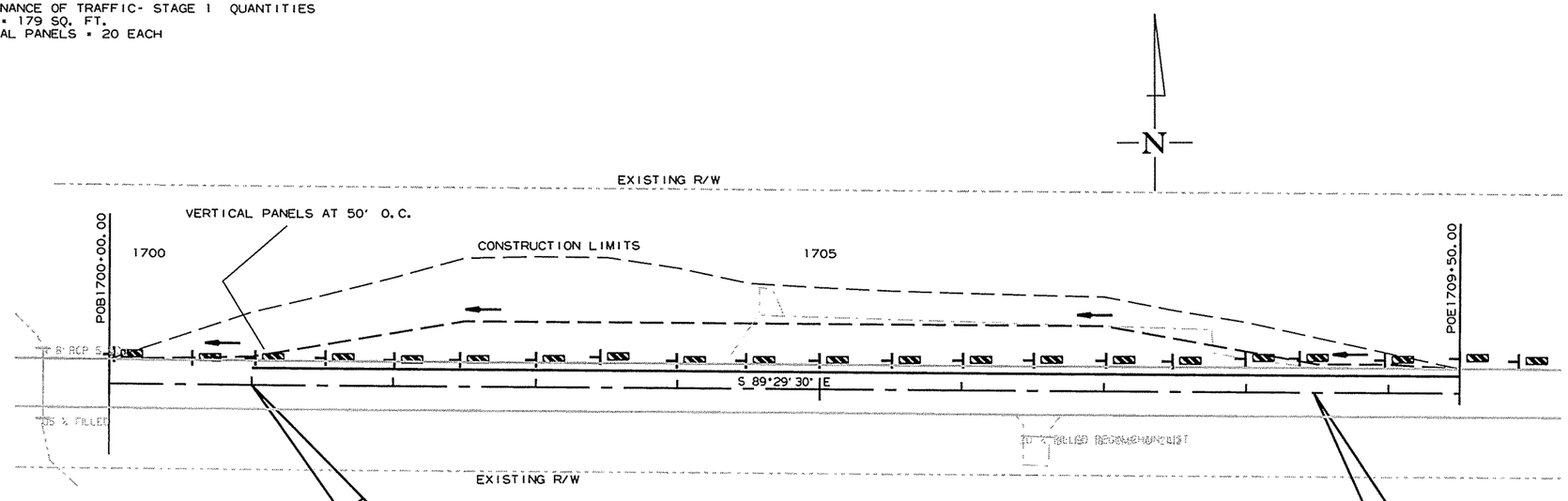


STA. 1601+00.00
BEGIN SITE 16 HWY. 9 LOG MILE 20.49

STA. 1608+50.00
END SITE 16

SITE 16 - STAGE 1

MAINTENANCE OF TRAFFIC- STAGE 1 QUANTITIES
SIGNS = 179 SQ. FT.
VERTICAL PANELS = 20 EACH



STA. 1701+00.00
BEGIN SITE 17 HWY. 64 LM 17.65

STA. 1708+50.00
END SITE 17

SITE 17 - STAGE 1

MAINTENANCE OF TRAFFIC DETAILS

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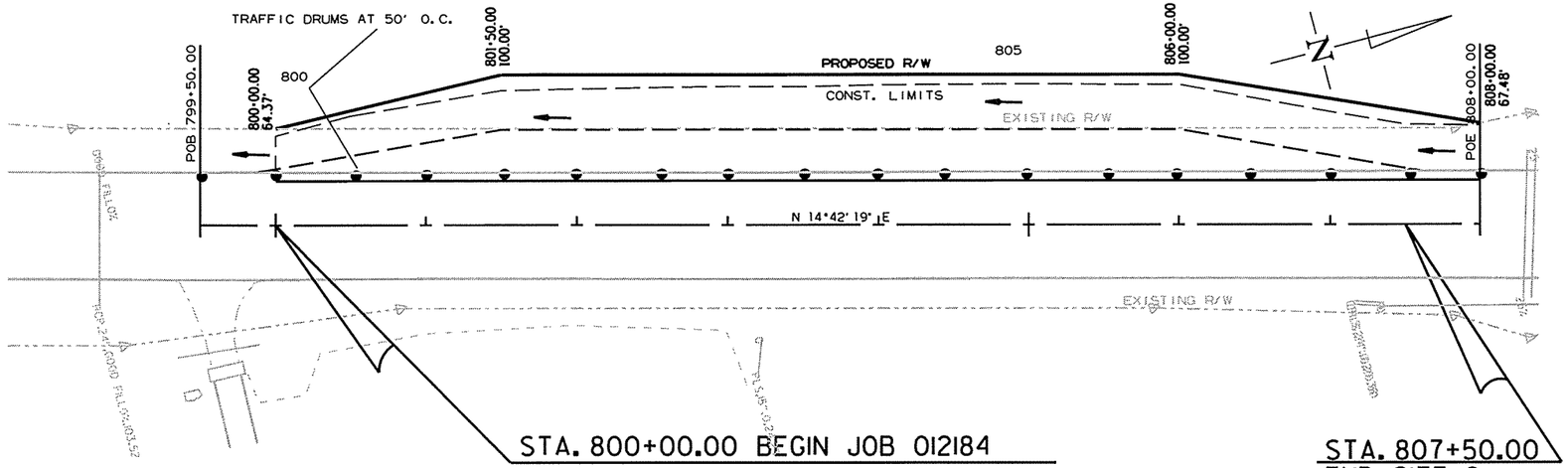
				6	ARK.			
				JOB NO.		012184	13	56

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION - ALL SITES
1. INSTALL ADVANCE WARNING SIGNS AS SHOWN ON SIGNING DETAILS.
2. MAINTAIN TRAFFIC IN EXISTING LANES UNDER TRAFFIC, NOTCH AND WIDEN EXISTING LANES TO LEFT OR RIGHT ACCORDING TO PLANS. DELINEATE WIDENING WITH VERTICAL PANELS @50' O.C.
3. CONSTRUCT WEIGH PADS TO LEFT OR RIGHT ACCORDING TO PLANS. DELINEATE WITH TRAFFIC DRUMS.

MAINTENANCE OF TRAFFIC- STAGE 2 QUANTITIES
SIGNS = 179 SQ. FT.
TRAFFIC DRUMS = 20 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

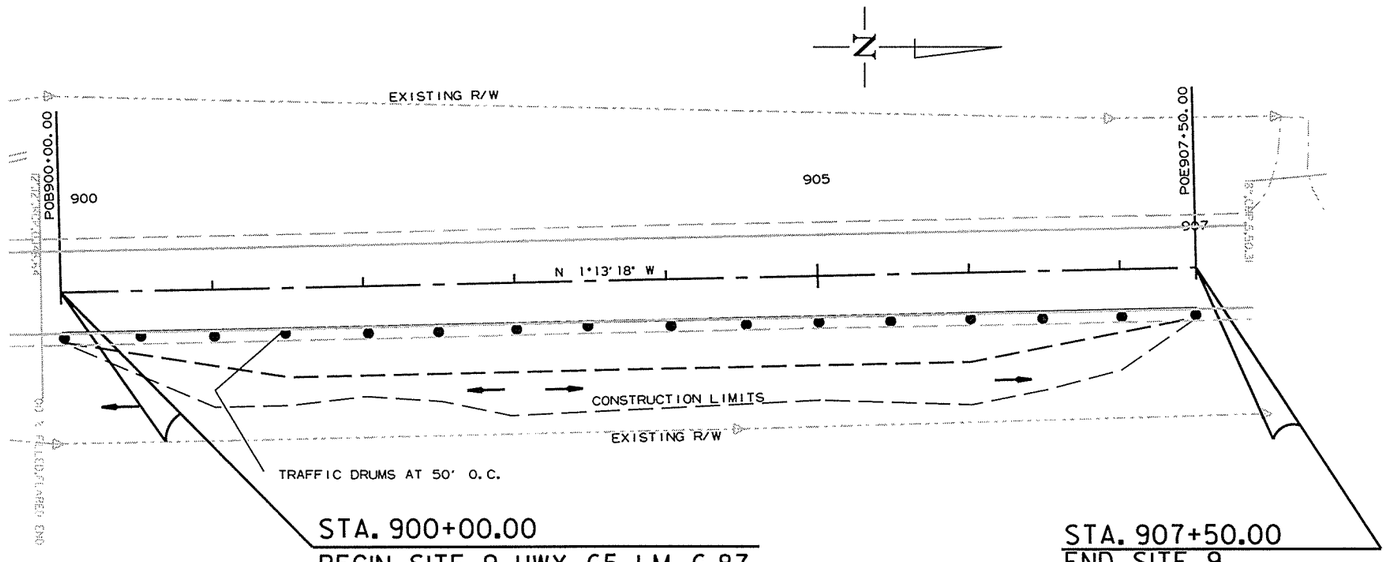


STA. 800+00.00 BEGIN JOB 012184
BEGIN SITE 8 HWY. 65 LOG MILE 14.46

STA. 807+50.00
END SITE 8

SITE 8 - STAGE 2

MAINTENANCE OF TRAFFIC- STAGE 2 QUANTITIES
SIGNS = 179 SQ. FT.
TRAFFIC DRUMS = 20 EACH



STA. 900+00.00
BEGIN SITE 9 HWY. 65 LM 6.87

STA. 907+50.00
END SITE 9

SITE 9 - STAGE 2

MAINTENANCE OF TRAFFIC DETAILS

5/15/2014

R012184.DGN

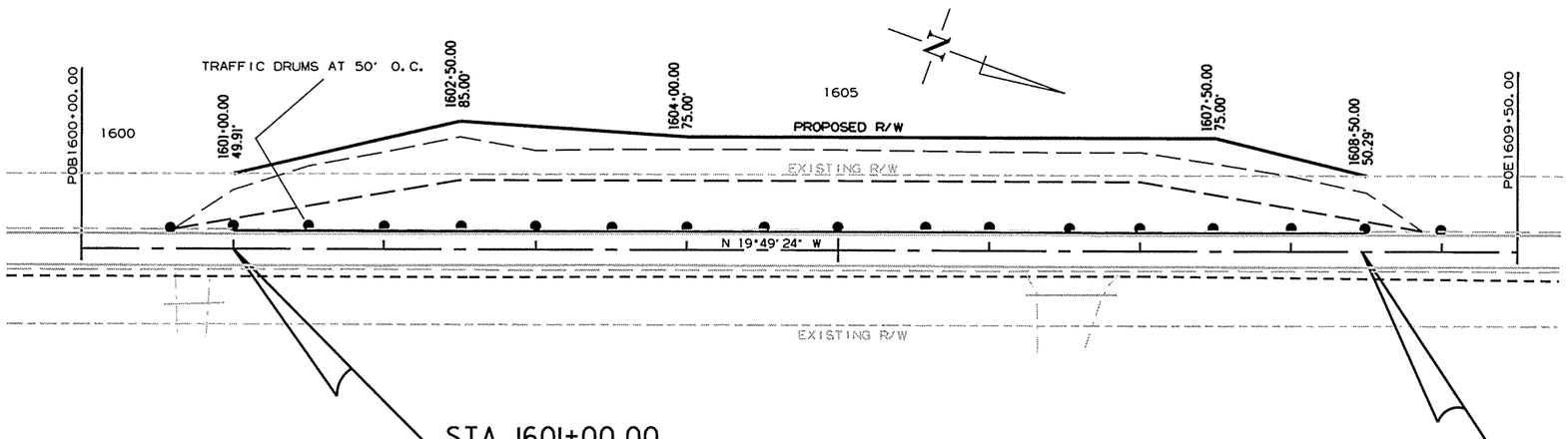
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	14	56

(2) MAINTENANCE OF TRAFFIC DETAILS

MAINTENANCE OF TRAFFIC- STAGE 2 QUANTITIES
SIGNS = 179 SQ. FT.
TRAFFIC DRUMS = 20 EACH

SEQUENCE OF CONSTRUCTION - ALL SITES
1. INSTALL ADVANCE WARNING SIGNS AS SHOWN ON SIGNING DETAILS.
2. MAINTAIN TRAFFIC IN EXISTING LANES UNDER TRAFFIC, NOTCH AND WIDEN EXISTING LANES TO LEFT OR RIGHT ACCORDING TO PLANS. DELINEATE WIDENING WITH VERTICAL PANELS @50' O.C.
3. CONSTRUCT WEIGH PADS TO LEFT OR RIGHT ACCORDING TO PLANS. DELINEATE WITH TRAFFIC DRUMS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

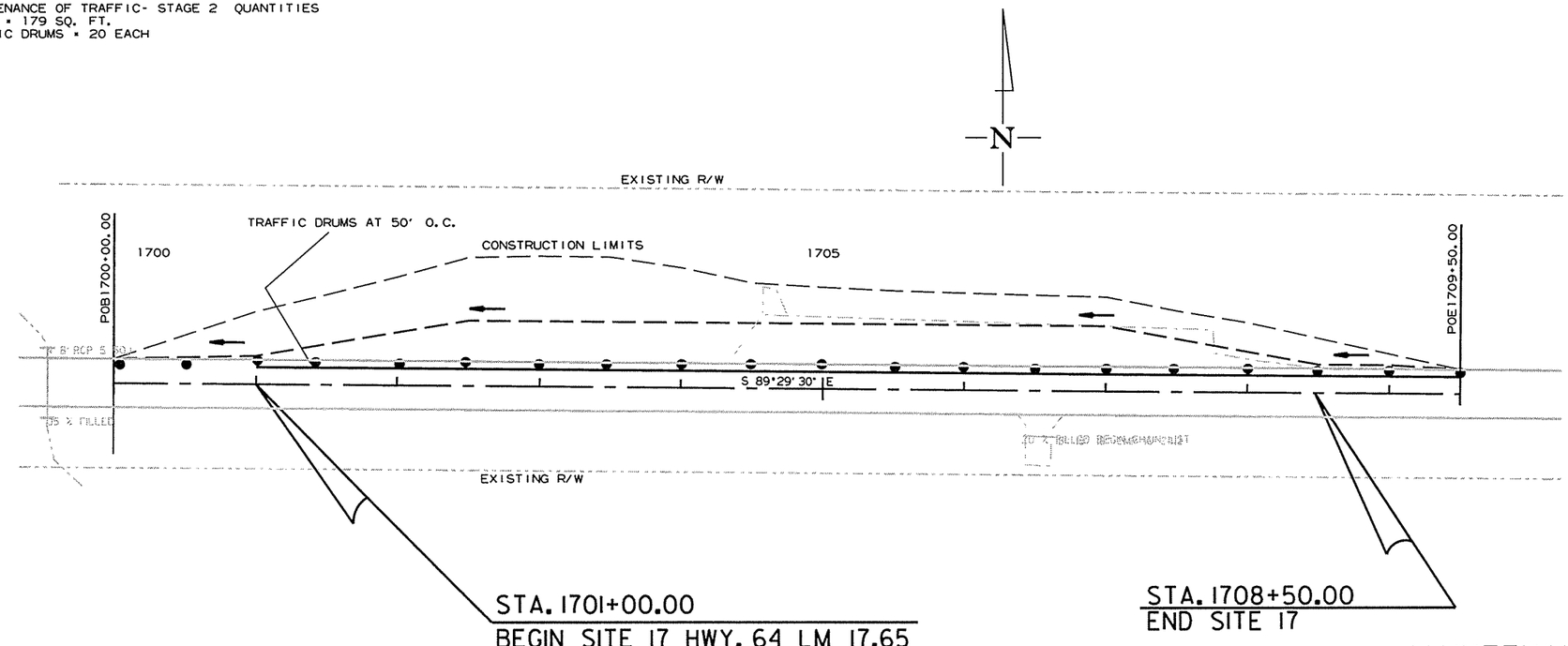


STA. 1601+00.00
BEGIN SITE 16 HWY. 9 LOG MILE 20.49

STA. 1608+50.00
END SITE 16

SITE 16 - STAGE 2

MAINTENANCE OF TRAFFIC- STAGE 2 QUANTITIES
SIGNS = 179 SQ. FT.
TRAFFIC DRUMS = 20 EACH



STA. 1701+00.00
BEGIN SITE 17 HWY. 64 LM 17.65

STA. 1708+50.00
END SITE 17

SITE 17 - STAGE 2

MAINTENANCE OF TRAFFIC DETAILS

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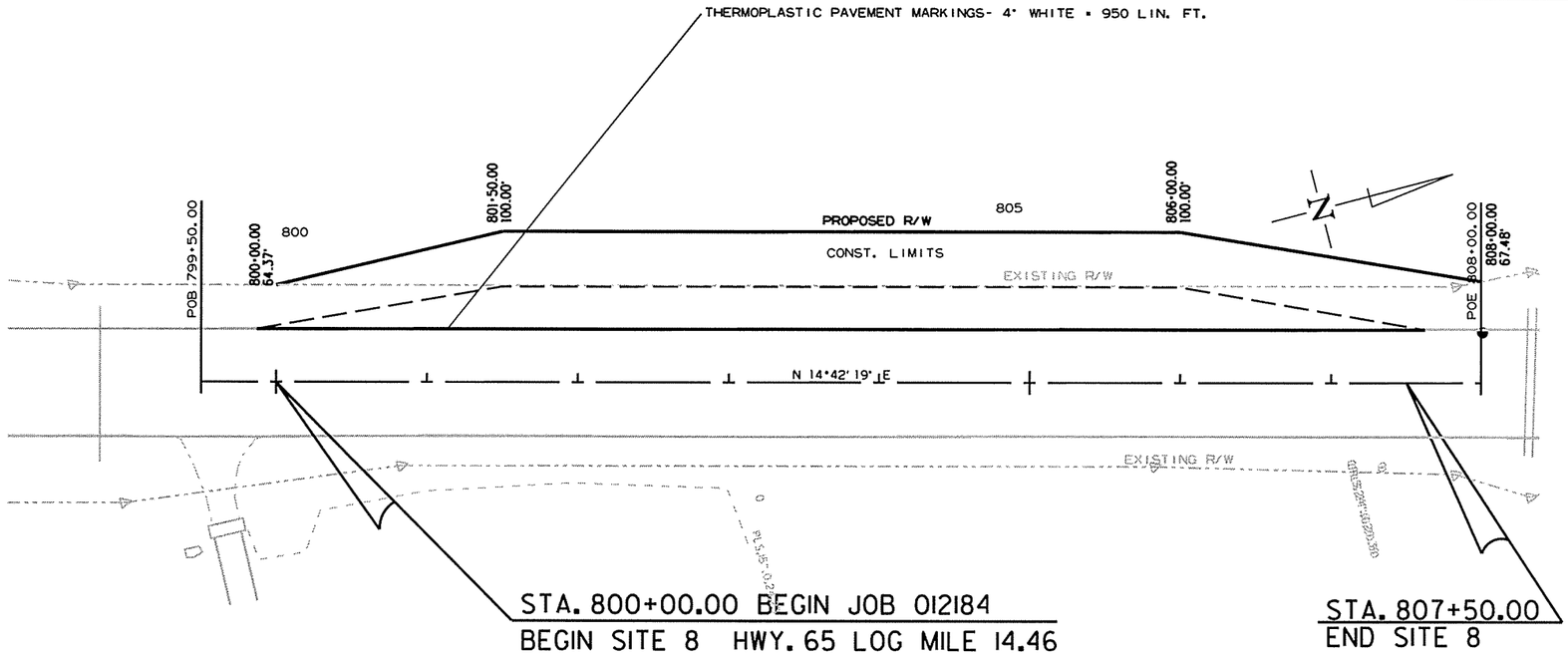
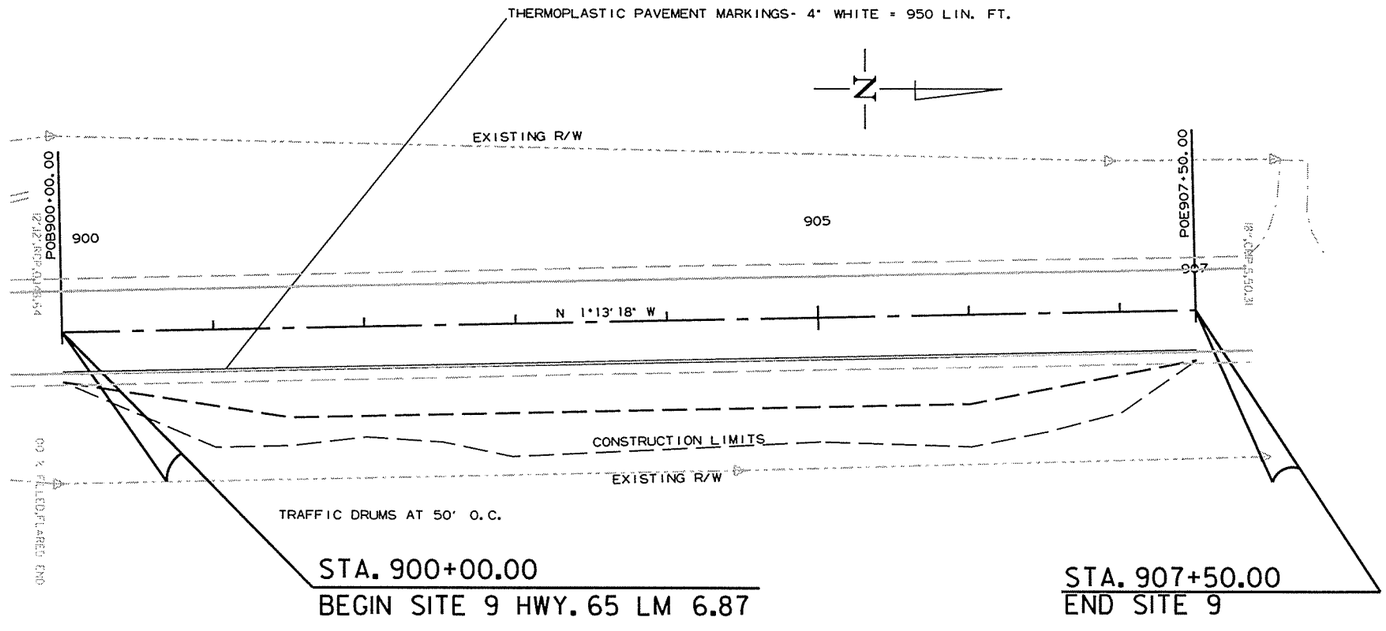
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	15	56

(2) PERMENANT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



SITE 8



SITE 9

PERMANENT PAVEMENT MARKING DETAILS DETAILS

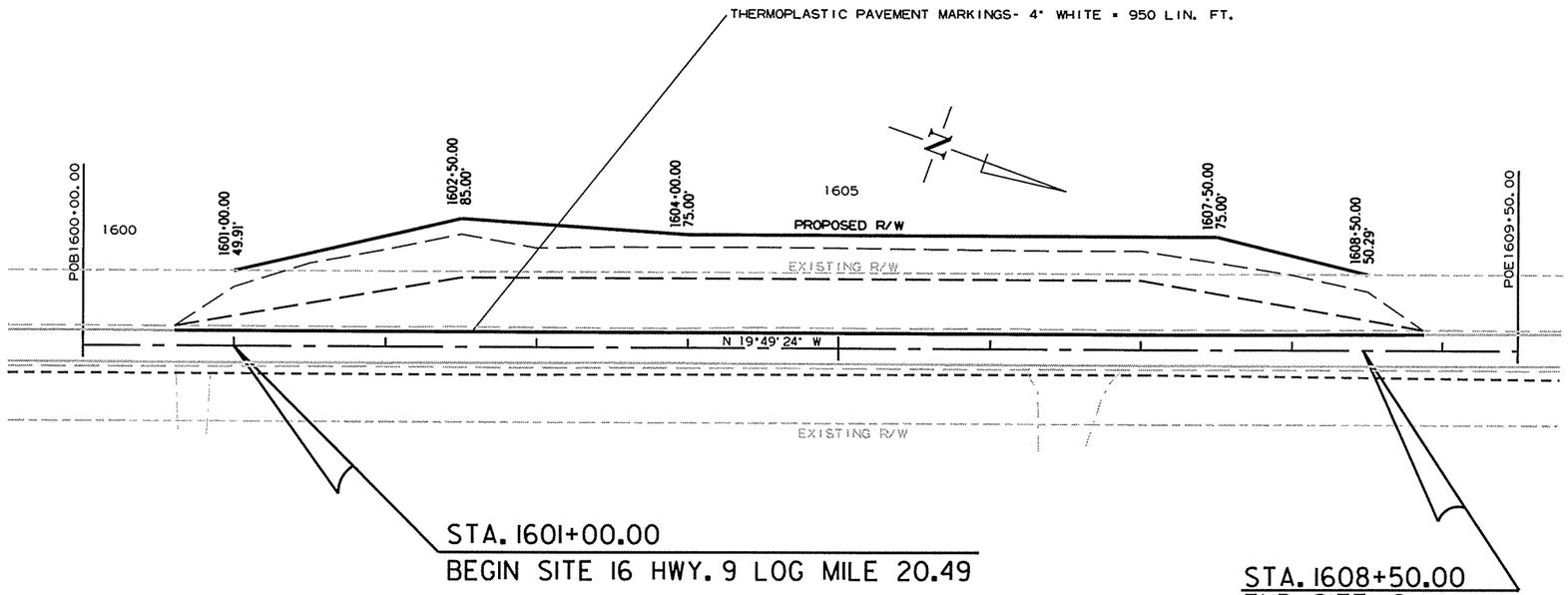
5/15/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	16	56

(2) PERMENANT PAVEMENT MARKING DETAILS

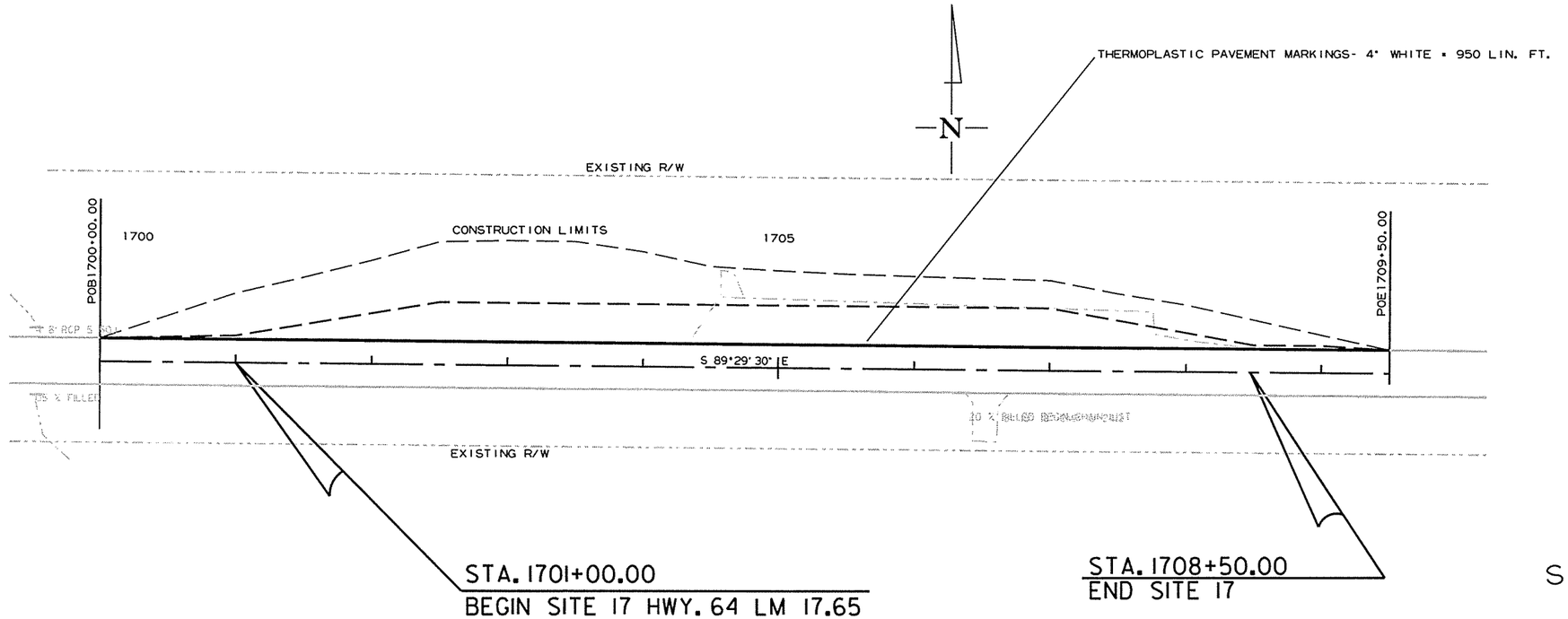
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



STA. 1601+00.00
BEGIN SITE 16 HWY. 9 LOG MILE 20.49

STA. 1608+50.00
END SITE 16

SITE 16



STA. 1701+00.00
BEGIN SITE 17 HWY. 64 LM 17.65

STA. 1708+50.00
END SITE 17

SITE 17

PERMANENT PAVEMENT MARKING DETAILS DETAILS

7/8/2014

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				6	ARK.			
				JOB NO.		012184	17	56

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

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

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	THERMOPLASTIC PAVEMENT MARKINGS 4" WHITE
			SQ.FT. - LIN.FT. - EACH				NO.	SQ. FT.	EACH	EACH	LIN.FT.
					SITE 8						
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	32.0			
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0			
R4-1	DO NOT PASS	24"x30"	1	1	1	1	1	5.0			
RSP-1	SHOULDER CLOSED	48"x30"	1	1	1	1	1	10.0			
	VERTICAL PANELS RT.		20			20			20		
	TRAFFIC DRUMS			20	20	20				20	
	THERMOPLASTIC PAVEMENT MARKINGS-WHITE (4")				950	950					950
SUBTOTALS SITE 8:								159.0	20	20	950
					SITE 9						
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	32.0			
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0			
R4-1	DO NOT PASS	24"x30"	1	1	1	1	1	5.0			
RSP-1	SHOULDER CLOSED	48"x30"	1	1	1	1	1	10.0			
	VERTICAL PANELS RT.		20			20			20		
	TRAFFIC DRUMS			20	20	20				20	
	THERMOPLASTIC PAVEMENT MARKINGS-WHITE (4")				950	950					950
SUBTOTALS SITE 9:								159.0	20	20	950
					SITE 16						
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	32.0			
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0			
R4-1	DO NOT PASS	24"x30"	1	1	1	1	1	5.0			
RSP-1	SHOULDER CLOSED	48"x30"	1	1	1	1	1	10.0			
	VERTICAL PANELS RT.		20			20			20		
	TRAFFIC DRUMS			20	20	20				20	
	THERMOPLASTIC PAVEMENT MARKINGS-WHITE (4")				950	950					950
SUBTOTALS SITE 16:								159.0	20	20	950
					SITE 17						
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	32.0			
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	32.0			
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	16.0			
R4-1	DO NOT PASS	24"x30"	1	1	1	1	1	5.0			
RSP-1	SHOULDER CLOSED	48"x30"	1	1	1	1	1	10.0			
	VERTICAL PANELS RT.		20			20			20		
	TRAFFIC DRUMS			20	20	20				20	
	THERMOPLASTIC PAVEMENT MARKINGS-WHITE (4")				950	950					950
SUBTOTALS SITE 17:								159.0	20	20	950
TOTALS:								636.0	80	80	3800

NOTE: ALL SITES ARE HIGH TRAFFIC VOLUME ROADWAYS AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014.

NOTE: NO TRAFFIC CONTROL PLAN HAVING A SIGNIFICANT IMPACT ON TRAFFIC (FOR EXAMPLE: DETOURS, LANE CLOSURES, LANE WIDTH REDUCTIONS, SHOULDER CLOSURES, ETC.) SHALL BE PLACED IN OPERATION MORE THAN 72 HOURS BEFORE THE WORK REQUIRING THE TRAFFIC CONTROL CHANGES BEGIN. IF A TRAFFIC CONTROL PLAN IS PLACED IN OPERATION AND WORK DOES NOT BEGIN WITHIN 72 HOURS OR WORK BEGINS BUT IS SUBSEQUENTLY HALTED, THE ORIGINAL TRAFFIC OPERATIONS MUST BE RESTORED IF CONDITIONS ALLOW. RESTORATION(S) OF THE ORIGINAL TRAFFIC OPERATIONS WILL BE AT NO COST TO THE DEPARTMENT.

6/11/2014

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				6	ARK.			
				JOB NO.		012184	18	56

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL					
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	LIN.FT.	CU. YD.
SITE 8													
99+00.00	108+50.00	WEIGH PAD	0.48	1	0.48	49.0	0.48	0.48	0.48	9.8	100		10
SUBTOTALS SITE 8:			0.48	1	0.48	49.0	0.48	0.48	0.48	9.8	100		10
SITE 9													
200+00.00	207+50.00	WEIGH PAD	0.45	1	0.45	45.9	0.45	0.45	0.45	9.2	80	350	10
SUBTOTALS SITE 9:			0.45	1	0.45	45.9	0.45	0.45	0.45	9.2	80	350	10
SITE 16													
399+75.00	408+00.00	WEIGH PAD	0.40	1	0.40	40.8	0.40	0.40	0.40	8.2	80	100	10
SUBTOTALS SITE 16:			0.40	1	0.40	40.8	0.40	0.40	0.40	8.2	80	100	10
SITE 17													
599+75.00	607+62.00	WEIGH PAD	0.60	1	0.60	61.2	0.60	0.60	0.60	12.2	80	150	10
SUBTOTALS SITE 17:			0.60	1	0.60	61.2	0.60	0.60	0.60	12.2	80	150	10
TOTALS:			1.93	4	1.93	196.9	1.93	1.93	1.93	39.4	340	600	40

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING.
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.
SAND BAG DITCH CHECKS.....20 BAGS / LOCATION

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

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

CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
		STATION	
SITE 8			
800+00	806+00	6	6
SUBTOTALS SITE 8:		6	6
SITE 16			
1061+00	1069+00	8	8
SUBTOTALS SITE 16:		8	8
SITE 17			
1701+39	1707+26	7	7
SUBTOTALS SITE 17:		7	7
TOTALS:		21	21

FENCING

STATION	STATION	SIDE	REMOVAL AND DISPOSAL OF FENCE	WIRE FENCE (TYPE D-1)
			LIN. FT.	
SITE 8				
800+00	808+00	LT.	800	800
SUBTOTALS SITE 8:			800	800
SITE 16				
1601+18	1608+00	LT.	682	682
SUBTOTALS SITE 16:			682	682
SITE 17				
1701+39	1707+40	LT.	601	761
SUBTOTALS SITE 17:			601	761
TOTALS:			2083	2243

EARTHWORK

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	*SOIL STABILIZATION
			CU. YD.		TON
SITE 8					
799+50	808+50	MAIN LANES	1888	189	10
SUBTOTALS SITE 8:			1888	189	10
SITE 9					
900+00	907+50	MAIN LANES	653	1070	10
SUBTOTALS SITE 9:			653	1070	10
SITE 16					
1600+00	1608+50	MAIN LANES	739	1390	10
SUBTOTALS SITE 16:			739	1390	10
SITE 17					
1700+00	1709+50	MAIN LANES	3449	90	10
		DRIVEWAY	10	10	
SUBTOTALS SITE 17:			3459	100	10
TOTALS:			6739	2749	40

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE TO BE PAID AS PLAN QUANTITY.
* NOTE: TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

6/11/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	19	56

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

DRIVEWAYS & TURNOUTS - BASE & SURFACING

STATION	SIDE	DESCRIPTION	WIDTH	ADD'L. LENGTH	ACHM		AGGREGATE BASE CRS. (CLASS 7)	18" SIDE DRAIN
					SQ.YD.	ACHM SURF. CRS. (1/2") (PG 64-22)		
			FEET			TON	TON	LIN. FT.
SITE 17								
1704+65	LT.	PRIVATE DRIVE	16	7	57	6	23	34
TOTALS:					57	6	23	34

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER (PG 64-22)
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU. YD.
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.	10
TOTALS:	10

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

MAIN LANE BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1") (PG 64-22)				ACHM SURFACE COURSE (1/2") (PG 64-22)			
				TON / STATION	TON	TOTAL WIDTH	SQ.YD.	GAL / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	TON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	TON
			FEET			FEET				FEET				FEET			
SITE 8																	
799+87.17	800+00.00	TRANSITION FROM EXISTING ROADWAY	12.83	15.63	2.01	3.04	4.33	0.03	1.00	3.07	4.38	330	1.00	3.04	4.33	220	1.00
800+00.00	801+50.00	150' TAPER FROM PROPOSED ROADWAY TO WEIGH PAD	150.00	134.13	201.20	19.04	317.33	0.03	9.52	19.07	317.83	330	52.44	19.08	318.00	220	34.98
801+50.00	806+00.00	450' WEIGH PAD	450.00	201.50	906.75	32.17	1608.50	0.03	48.26	32.15	1607.50	330	265.24	32.17	1608.50	220	176.94
806+00.00	807+50.00	150' TAPER FROM WEIGH PAD TO PROPOSED ROADWAY	150.00	134.13	201.20	19.04	317.33	0.03	9.52	19.07	317.83	330	52.44	19.08	318.00	220	34.98
807+50.00	807+61.13	TRANSITION TO EXISTING ROADWAY	11.13	15.63	1.74	3.04	3.76	0.03	1.00	3.07	3.80	330	1.00	3.04	3.76	220	1.00
SUBTOTALS SITE 8:					1312.90		2251.25		69.30		2251.34		372.12		2252.59		248.90
SITE 9																	
900+00.00	901+50.00	150' TAPER FROM PROPOSED ROADWAY TO WEIGH PAD	150.00	120.38	180.57	19.04	317.33	0.03	9.52	16.07	267.83	330	44.19	16.08	268.00	220	29.48
901+50.00	906+00.00	450' WEIGH PAD	450.00	187.75	844.88	32.17	1608.50	0.03	48.26	32.15	1607.50	330	265.24	32.17	1608.50	220	176.94
906+00.00	907+50.00	150' TAPER FROM WEIGH PAD TO PROPOSED ROADWAY	150.00	120.38	180.57	19.04	317.33	0.03	9.52	16.07	267.83	330	44.19	16.08	268.00	220	29.48
SUBTOTALS SITE 9:					1206.02		2243.16		67.30		2143.16		353.62		2144.50		235.90
SITE 16																	
1600+00.61	1601+00.00	TRANSITION FROM EXISTING ROADWAY	24.89	25.88	6.44	5.04	13.94	0.03	1.00	5.07	14.02	330	3.00	5.07	14.02	220	2.00
1601+00.00	1602+50.00	150' TAPER FROM PROPOSED ROADWAY TO WEIGH PAD	150.00	141.13	211.70	23.04	384.00	0.03	11.52	23.07	384.50	330	63.44	23.08	384.67	220	42.31
1602+50.00	1607+00.00	450' WEIGH PAD	450.00	208.50	938.25	36.17	1808.50	0.03	54.26	36.15	1807.50	330	298.24	34.17	1708.50	220	187.94
1607+00.00	1608+50.00	150' TAPER FROM WEIGH PAD TO PROPOSED ROADWAY	150.00	141.13	211.70	23.04	384.00	0.03	11.52	23.07	384.50	330	63.44	23.08	384.67	220	42.31
1608+50.00	1608+87.30	TRANSITION TO EXISTING ROADWAY	37.30	25.88	9.65	5.04	20.89	0.03	1.00	5.07	21.01	330	4.00	5.07	21.01	220	3.00
SUBTOTALS SITE 16:					1377.74		2611.33		79.30		2611.53		432.12		2512.87		277.56
SITE 17																	
1700+00.00	1701+00.00	TRANSITION FROM EXISTING ROADWAY	100.00	20.88	20.88	4.04	44.89	0.03	2.00	4.07	45.22	330	8.00	0.54	6.00	220	1.00
1701+00.00	1702+50.00	150' TAPER FROM PROPOSED ROADWAY TO WEIGH PAD	150.00	130.88	196.32	21.04	350.67	0.03	10.52	26.57	442.83	330	73.07	22.08	368.00	220	40.48
1702+50.00	1707+00.00	450' WEIGH PAD	450.00	198.25	892.13	34.17	1708.50	0.03	51.26	35.17	1758.50	330	290.15	36.17	1808.50	220	198.94
1707+00.00	1708+50.00	150' TAPER FROM WEIGH PAD TO PROPOSED ROADWAY	150.00	130.88	196.32	21.04	350.67	0.03	10.52	26.57	442.83	330	73.07	22.08	368.00	220	40.48
1708+50.00	1709+50.00	TRANSITION TO EXISTING ROADWAY	100.00	20.88	20.88	4.04	44.89	0.03	2.00	4.07	45.22	330	8.00	0.54	6.00	220	1.00
SUBTOTALS SITE 17:					1326.53		2499.62		76.30		2734.60		452.29		2556.50		281.90
TOTALS:					5223.19		9605.36		292.20		9740.63		1610.15		9466.46		1044.26

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER (PG 64-22)
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER (PG 64-22)
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

6/11/2014

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8-27-14				6	ARK.			
				JOB NO.		012184	20	56

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
8-27-14

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	21	STATION
201	GRUBBING	21	STATION
202	REMOVAL AND DISPOSAL OF FENCE	2083	LIN. FT.
210	UNCLASSIFIED EXCAVATION	6739	CU. YD.
210	COMPACTED EMBANKMENT	2749	CU. YD.
SP & 210	SOIL STABILIZATION	40	TON
303	AGGREGATE BASE COURSE (CLASS 7)	5246	TON
401	TACK COAT	292	GALLON
SP, SS & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1538	TON
SP, SS & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	72	TON
SP, SS & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	996	TON
SP, SS & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	54	TON
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
604	SIGNS	636	SQ.FT.
604	TRAFFIC DRUMS	80	EACH
604	VERTICAL PANELS	80	EACH
606	SELECTED PIPE BEDDING	10	CU. YD.
SP & 606	18" SIDE DRAIN	34	LIN. FT.
619	WIRE FENCE (TYPE D-1)	2243	LIN. FT.
620	LIME	4	TON
620	SEEDING	1.93	ACRE
SS & 620	MULCH COVER	3.86	ACRE
620	WATER	236.3	M.GAL.
621	TEMPORARY SEEDING	1.93	ACRE
621	SILT FENCE	600	LIN. FT.
621	SAND BAG DITCH CHECKS	340	BAG
621	SEDIMENT REMOVAL AND DISPOSAL	40	CU. YD.
623	SECOND SEEDING APPLICATION	1.93	ACRE
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	3800	LIN. FT.

REVISIONS

DATE	REVISION	SHEET NUMBER(S)
8/27/2014	REVISED SPECIAL PROVISION, SWPPP, PAGE 4, 303(d) LISTED WATERS TO STATEMENT 2.	20

8/27/2014

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SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	21	56

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s012184 8
Date: 3/11/2013
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON OPUS SOLUTION.
POINTS 1 AND 5 PROJECTED TO GRID.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	303559.2584	1193622.4550	297.824	CTL	•" Rebar with 2" Aluminum Cap stamped PN: 1
2	304176.3733	1193783.9010	300.843	CTL	•" Rebar with 2" Aluminum Cap stamped PN: 2
3	304777.8889	1193945.2700	313.937	CTL	•" Rebar with 2" Aluminum Cap stamped PN: 3
4	305388.8832	1194103.3680	337.263	CTL	•" Rebar with 2" Aluminum Cap stamped PN: 4
5	305886.6783	1194134.0290	363.464	CTL	•" Rebar with 2" Aluminum Cap stamped PN: 5

•Note - Rebar and Cap - Standard -•" Rebar with 2" Aluminum Cap stamped
•(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GRID.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999464779 HAS BEEN USED TO COMPUTE THE ABOVE LISTED GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GROUND COORDINATES ARE PROJECTED FROM AR. STATE PLANE GRID COORDINATES BY SCALING ALL X,Y
COORDINATE VALUES WITH THE INVERSE (1/X) OF THE COMBINED AJUSTMENT FACTOR (CAF) ABOUT X=0, Y=0.

GRID COORDINATES ARE STORED UNDER FILE NAME. s012184 8gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 ELEVATIONS FOR POINTS 1-5 WERE ESTABLISHED BY 3-WIRE LEVEL TECHNIQUES
FROM NGS BENCHMARKS.

POSITIONAL ACCURACY:

HORIZONTAL-GPS(POINTS): 1.0 CM 10 PPM, PRIMARY CONTROL(POINTS 1-5): 2.0 CM 20 PPM

VERTICAL-POSITIONAL ACCURACY IS THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS:
CONVERGENCE ANGLE: 00 13 49.81 LEFT AT PN: 3
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

LT: 35-10-12 LG: 092-23-46

GRID NORTHING: 304777.8889 GRID EASTING: 1193945.2700

GROUND NORTHING: 304794.2021 GROUND EASTING: 1194009.1758

SURVEY CONTROL COORDINATES

Project Name: s012184 9
Date: 5/22/2013
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS POINT 230001A, AND OLD PARCEL TIES
ALL COORDS ARE GRID. THIS JOB IS PRE HARN NAD 83 (1986)
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
86	342219.9400	1196785.4996	653.423	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 86
87	342743.3945	1196772.5885	643.641	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 87
88	343272.4744	1196760.8047	620.965	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 88
89	343925.9599	1196746.8160	602.903	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 89
90	344329.7833	1196738.8276	601.545	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 90
101	341600.4515	1196809.5493	663.317	GPS	AHTD CAP GPS 230001A
1506	344245.4030	1196588.8880	601.660	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 1506

•Note - Rebar and Cap - Standard -•" Rebar with 2" Aluminum Cap stamped
•(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GRID.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999604995 HAS BEEN USED TO COMPUTE THE ABOVE LISTED GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GROUND COORDINATES ARE PROJECTED FROM AR. STATE PLANE GRID COORDINATES BY SCALING ALL X,Y
COORDINATE VALUES WITH THE INVERSE (1/X) OF THE COMBINED AJUSTMENT FACTOR (CAF) ABOUT X=0, Y=0.

GRID COORDINATES ARE STORED UNDER FILE NAME. s012184 9gi.ctl
HORIZONTAL DATUM: NAD 83 (1986)
VERTICAL DATUM: NAVD 88 ELEVATIONS FOR POINTS 86-90, 101, WERE ESTABLISHED BY 3-WIRE LEVEL TECHNIQUES
FROM GPS POINT 230001A

POSITIONAL ACCURACY:

HORIZONTAL-GPS(POINTS 101): 1.0 CM 10 PPM, PRIMARY CONTROL(POINTS 86-90): 2.0 CM 20 PPM

VERTICAL-POSITIONAL ACCURACY IS THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 230001A
CONVERGENCE ANGLE:
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

Project Name: 012184
Description: WEIGH/INSPECTION PADS (FAYETTEVILLE SHALE) (PHASE II)
Horizontal Alignment Name: CONST 8
Description: SITE 8
Style: CO

		STATION	NORTHING	EASTING
Element: Linear				
POB (8000)		79950.00	303771.8571	1193635.3780
POE (8001)		80800.00	304594.0151	1193851.1471
Tangent Direction:	N 14°42'19" E			
Tangent Length:	850.00			

Project Name: 012184
Description: WEIGH/INSPECTION PADS (FAYETTEVILLE SHALE) (PHASE II)
Horizontal Alignment Name: CONST 9
Description: SITE 9
Style: CO

		STATION	NORTHING	EASTING
Element: Linear				
POB (8003)		90000.00	343661.7541	1196715.5270
POE (8004)		90750.00	344411.5836	1196699.5385
Tangent Direction:	N 1°13'18" W			
Tangent Length:	750.00			

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SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	22	56

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES
Project Name: 012184_16
Date: 8/30/2013
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *(List AHTD GPS points used)*
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	372669.9724	0	1144283.744	0	611.957	0	CTL	PD:5/8"X24" Rebar with 2" Aluminum Cap stamped: 1
2	373178.1546	0.0470	1144101.0430	0.0400	614.04	0.065	CTL	PD:5/8"X24" Rebar with 2" Aluminum Cap stamped:2
3	373595.3493	0.0410	1143948.7876	0.0320	616.40	0.070	CTL	PD:5/8"X24" Rebar with 2" Aluminum Cap stamped:3
4	374369.3802	0.0350	1143677.9437	0.0280	622.18	0.066	CTL	PD:5/8"X24" Rebar with 2" Aluminum Cap stamped:4
5	375055.1518	0.0000	1143582.4493	0.0000	631.88	0.000	CTL	PD:5/8"X24" Rebar with 2" Aluminum Cap stamped:5
1200	377078.8896	0.0560	1148308.9032	0.0590	659.78	0.062	TV	
1201	377252.3034	0.0580	1147847.0654	0.0650	678.14	0.078	TV	
1202	377406.9236	0.0580	1147479.2980	0.0590	682.74	0.075	TV	
1203	372403.8268	0.0730	1150352.6024	0.0720	612.85	0.075	TV	
1204	372440.6893	0.0720	1150116.6086	0.0740	620.51	0.070	TV	
1205	377953.9402	0.0540	1142398.5489	0.0460	714.42	0.081	TV	
1206	377991.4772	0.0580	1142205.5049	0.0460	714.92	0.086	TV	
1207	378000.8683	0.0650	1142016.1442	0.0560	719.98	0.090	TV	
1100	373019.7428	0.0092	1144185.8336	0.0123	612.46	0.005	TV	PD:8" SPIKE
1101	372815.3118	0.0078	1144228.1693	0.0068	613.26	0.003	TV	PD:8" SPIKE
1102	372715.3079	0.0111	1144458.0856	0.0111	605.45	0.000	TV	PD:8" SPIKE
1103	373920.9223	0.0141	1143796.1862	0.0167	619.81	0.009	TV	PD:8" SPIKE
1104	374185.4686	0.0118	1143507.4877	0.0186	622.82	0.008	TV	PD:8" SPIKE
1105	375252.7387	0.0104	1143491.5093	0.0111	637.43	0.005	TV	PD:8" SPIKE

*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: 1 - 5 (in the above example)*
- Horizontal - Primary (2.0cm± 20PPM): — *PN:1-5 (in the above example)*
- Horizontal - Secondary (3 cm ± 50PPM): — *PN:1100-1105 & 1200-1207 (in the above example)*
- Vertical - NGS 1st Order (±4mm x Vdist in km) — *PN:GPS DERIVED ELEV AT PNTS 1-5*
- Vertical - NGS 2nd Order (±6mm x Vdist in km) — *PN:*
- Vertical - NGS 3rd Order (±8mm x Vdist in km) — *PN:*

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: 0.999911799 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: 0.9999692593 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 642.68 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: From NGS BM:

Basis of Bearing: Grid Bearings based on AHTD GPS points: *(List AHTD GPS points used)*
Convergence Angle is: 00-19-44 LEFT at PN: 3
LT: 35-21-30 N LG: 92-33-54 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

Note: Information in Italics is for clarification only. It is not to be part of the actual Control Table or Control Detail Sheets.

6/11/2014

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SURVEY CONTROL COORDINATES

Project Name: s012184 17
Date: 2/5/2013
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL.
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	298886.1667	1140023.4678	281.80	CTL	•" Rebar with 2" Aluminum Cap
2	298891.4120	1139429.0406	276.77	CTL	•" Rebar with 2" Aluminum Cap
3	298855.8472	1138817.3505	276.78	CTL	•" Rebar with 2" Aluminum Cap
4	298900.8915	1138223.1043	275.74	CTL	•" Rebar with 2" Aluminum Cap
5	298906.1477	1137403.5349	277.35	CTL	•" Rebar with 2" Aluminum Cap

•Note - Rebar and Cap - Standard -•" Rebar with 2" Aluminum Cap stamped
•(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999507915 HAS BEEN USED TO COMPUTE THE ABOVE LISTED GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GROUND COORDINATES ARE PROJECTED FROM AR. STATE PLANE GRID COORDINATES BY SCALING ALL X,Y COORDINATE VALUES WITH THE INVERSE (1/X) OF THE COMBINED AJUSTMENT FACTOR (CAF) ABOUT X=0,Y=0.

GRID COORDINATES ARE STORED UNDER FILE NAME. s012184 17.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 ELEVATIONS FOR POINTS 1-5 WERE ESTABLISHED BY 3-WIRE LEVEL TECHNIQUES FROM NGS BENCHMARKS.

POSITIONAL ACCURACY:

HORIZONTAL-GPS: 1.0 CM 10 PPM, PRIMARY CONTROL: 2.0 CM 20 PPM

VERTICAL-POSITIONAL ACCURACY IS THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE

DETERMINED FROM GPS CONTROL POINTS:

CONVERGENCE ANGLE: 00 20 16.35 LEFT AT PN: 3
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

LT: 35-09-10.66 LG: 092-34-50.31

GRID NORTHING: 298841.1326 GRID EASTING: 1138761.2380

GROUND NORTHING: 298855.8472 GROUND EASTING: 1138817.3505

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

Project Name: 012184
Description: WEIGH/INSPECTION PADS (FAYETTEVILLE SHALE) (PHASE II)
Horizontal Alignment Name: CONST 16
Description: SITE 16
Style: CO

	STATION	NORTHING	EASTING
Element: Linear			
POB (8005)	160000.00	372930.9244	1144170.5439
POE (8006)	160950.00	373824.6251	1143848.3782
Tangent Direction:	N 19°49'24" W		
Tangent Length:	950.00		

Project Name: 012184
Description: WEIGH/INSPECTION PADS (FAYETTEVILLE SHALE) (PHASE II)
Horizontal Alignment Name: CONST 17
Description: SITE 17
Style: CO

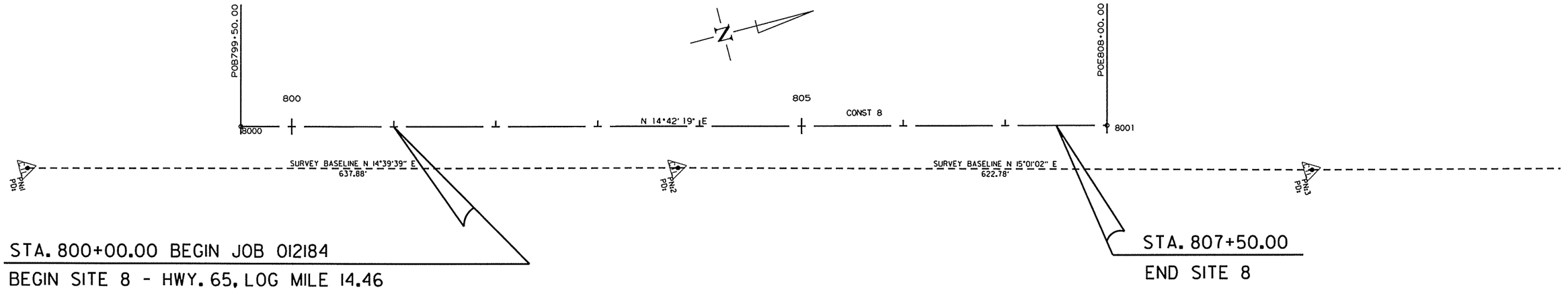
	STATION	NORTHING	EASTING
Element: Linear			
POB (8007)	170000.00	298880.7050	1138081.3360
POE (8008)	170950.00	298872.2763	1139031.2987
Tangent Direction:	N 89°29'30" W		
Tangent Length:	950.00		

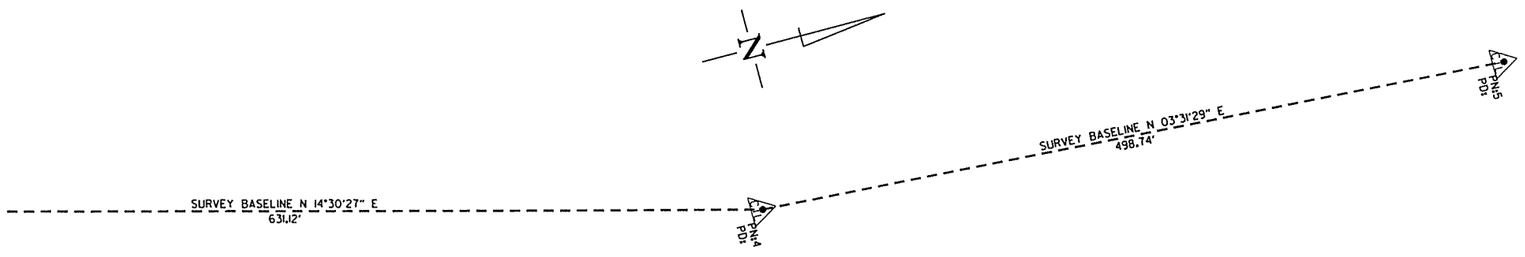
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	23	56

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14





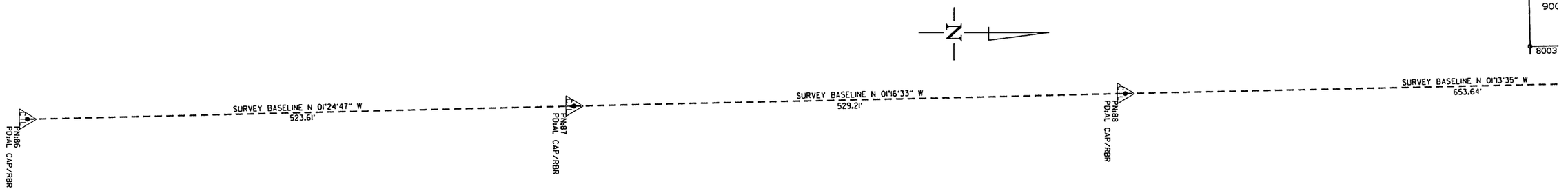
SITE 8
SURVEY CONTROL DETAILS

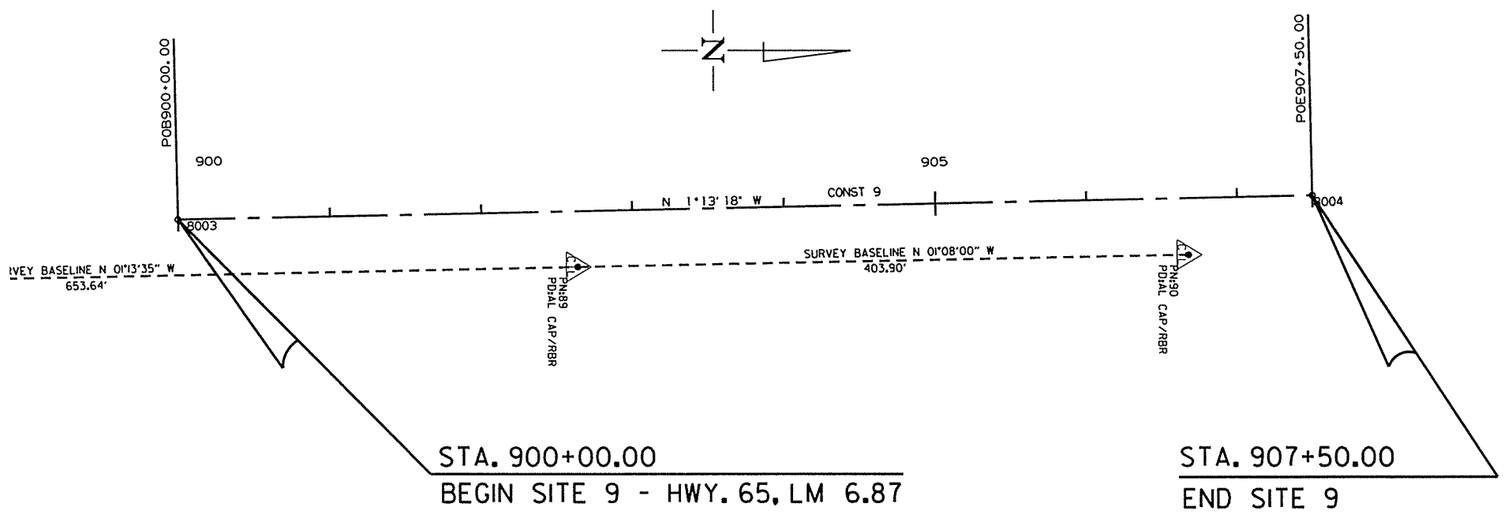
7/8/2014
R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	24	56

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14





SITE 9

SURVEY CONTROL DETAILS

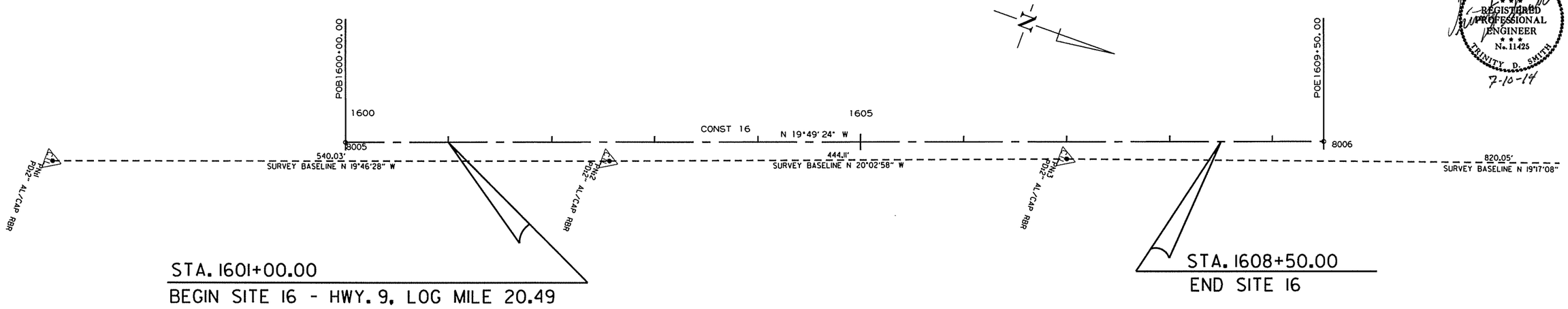
7/8/2014

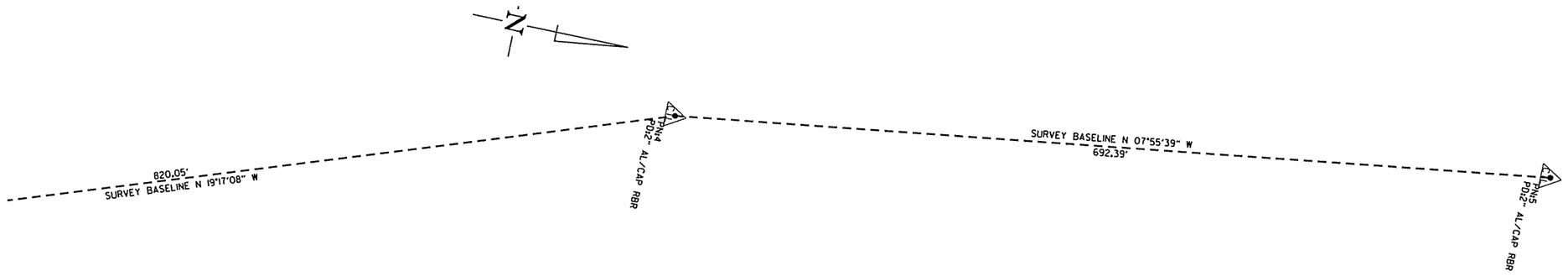
R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	25	56

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14





SITE 16

SURVEY CONTROL DETAILS

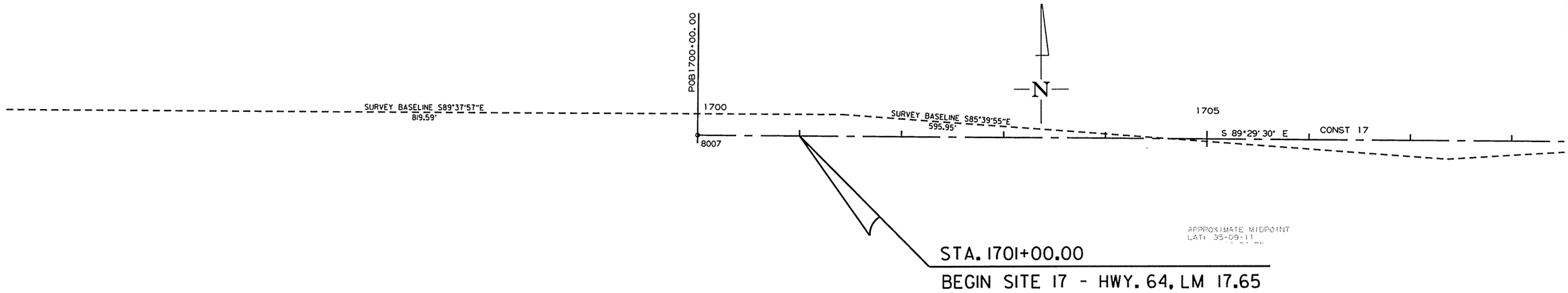
7/8/2014

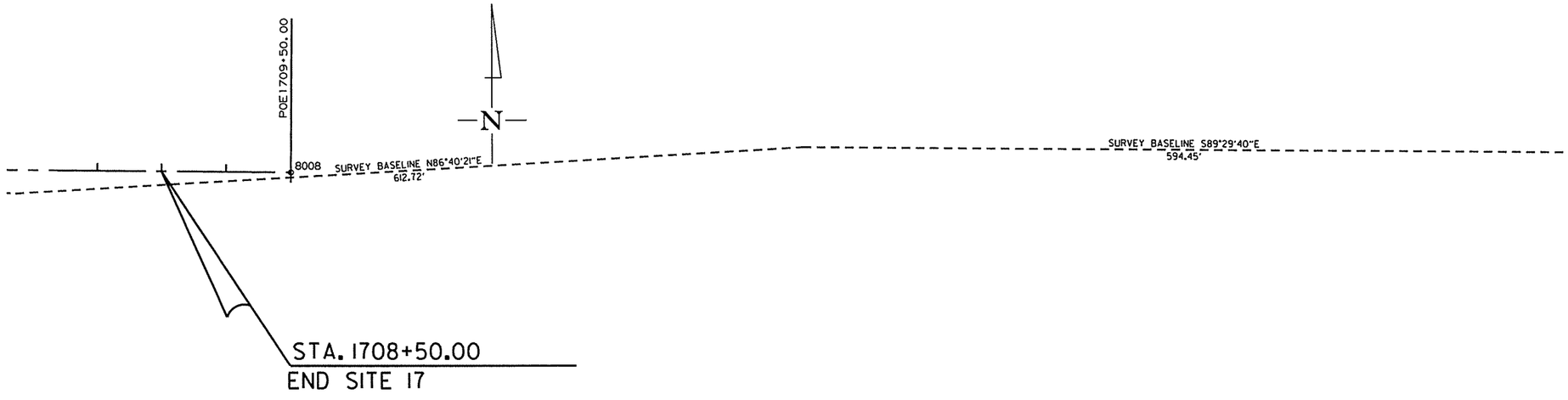
R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	26	56

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14





SITE 17

SURVEY CONTROL DETAILS

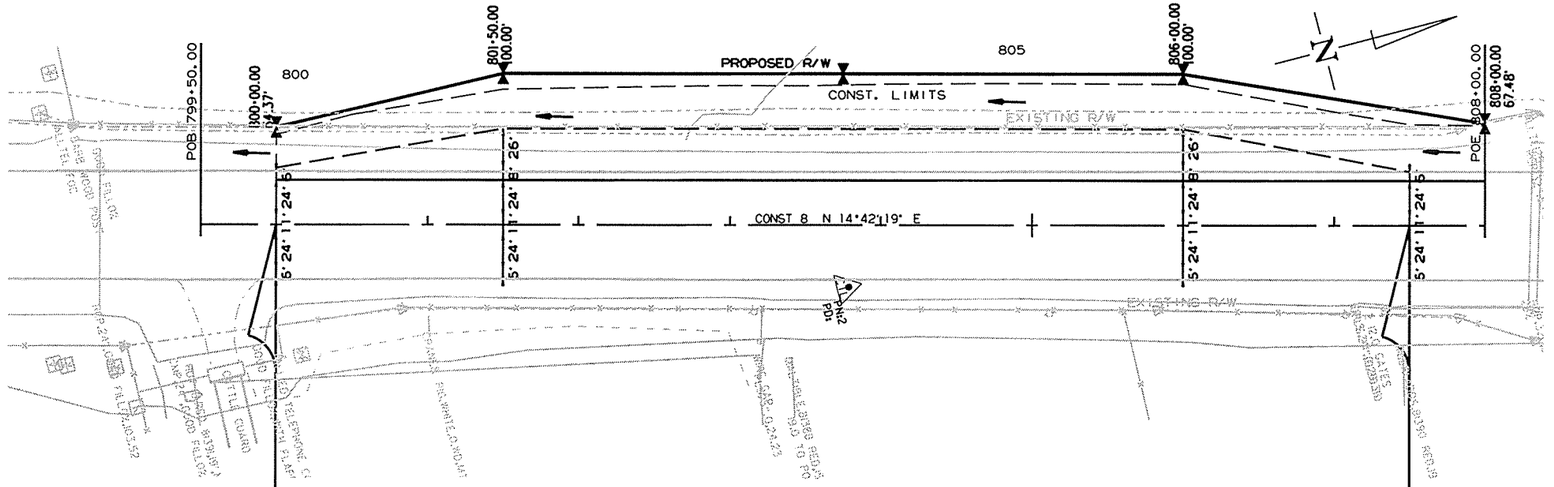
7/8/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	27	56

(2) PLAN AND PROFILE SHEETS - SITE 8

STATION	STATION	SIDE	WIRE FENCE	LIN. FT.
800+00	- 808+00	LT.	(TYPE D-1)	800

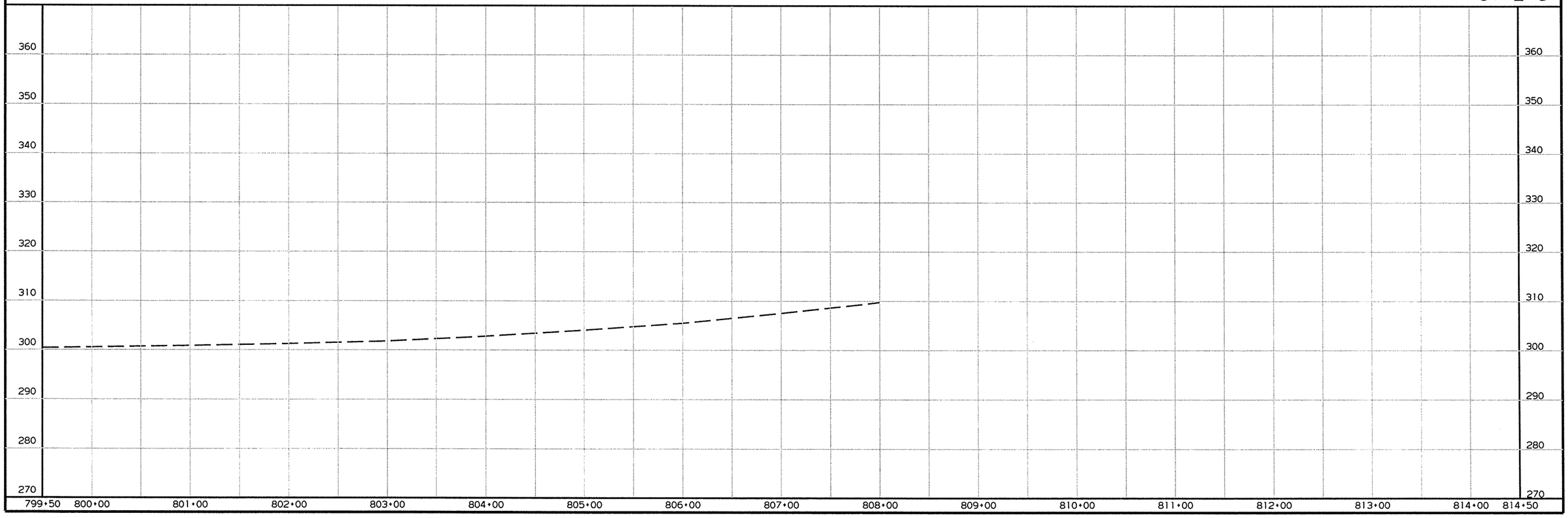


STA 800+00.00 - BEGIN JOB 012184
BEGIN SITE 8 HWY. 65 L.M. 14.46

STA 807+50.00 - END SITE 8

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

SITE 8

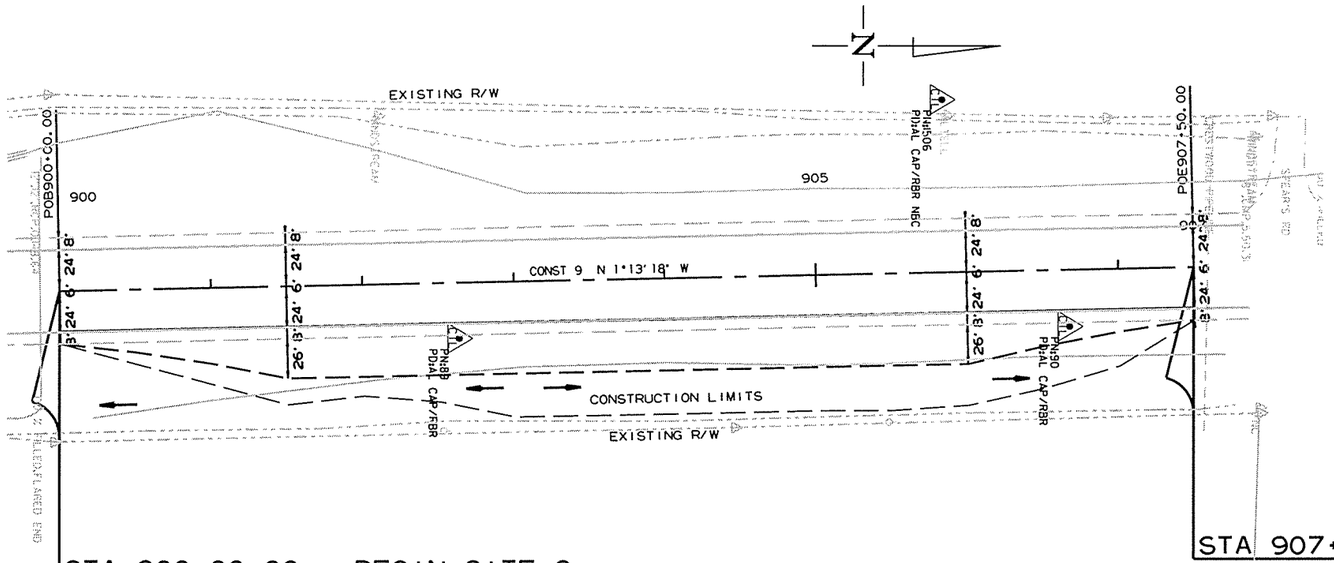


6/4/2014
R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	28	56

(2) PLAN AND PROFILE SHEETS - SITE 9

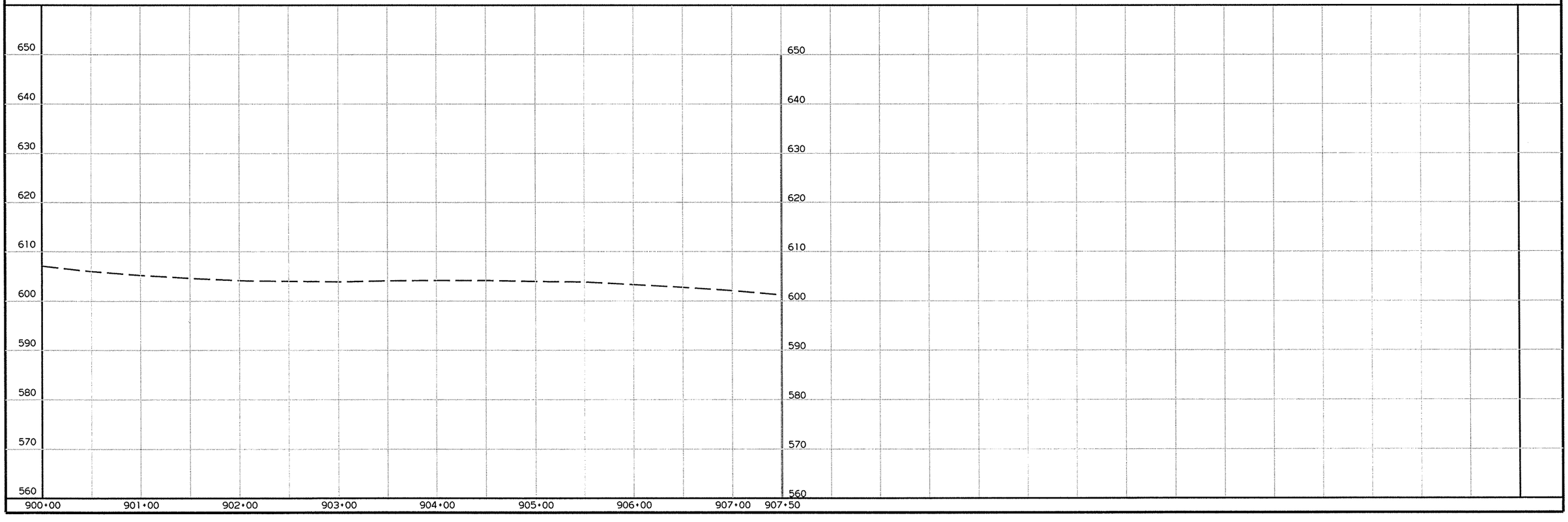
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



STA 900+00.00 - BEGIN SITE 9
HWY. 65 L.M. 6.87

STA 907+50.00 - END SITE 9

SITE 9



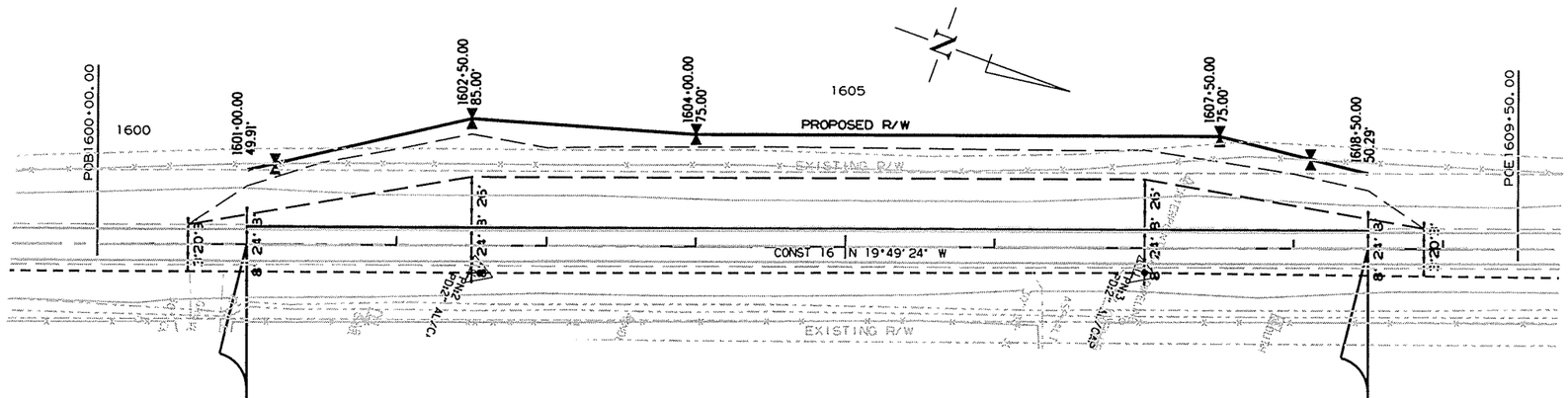
R012184.DGN 6/4/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	29	56

(2) PLAN AND PROFILE SHEETS - SITE 16

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14

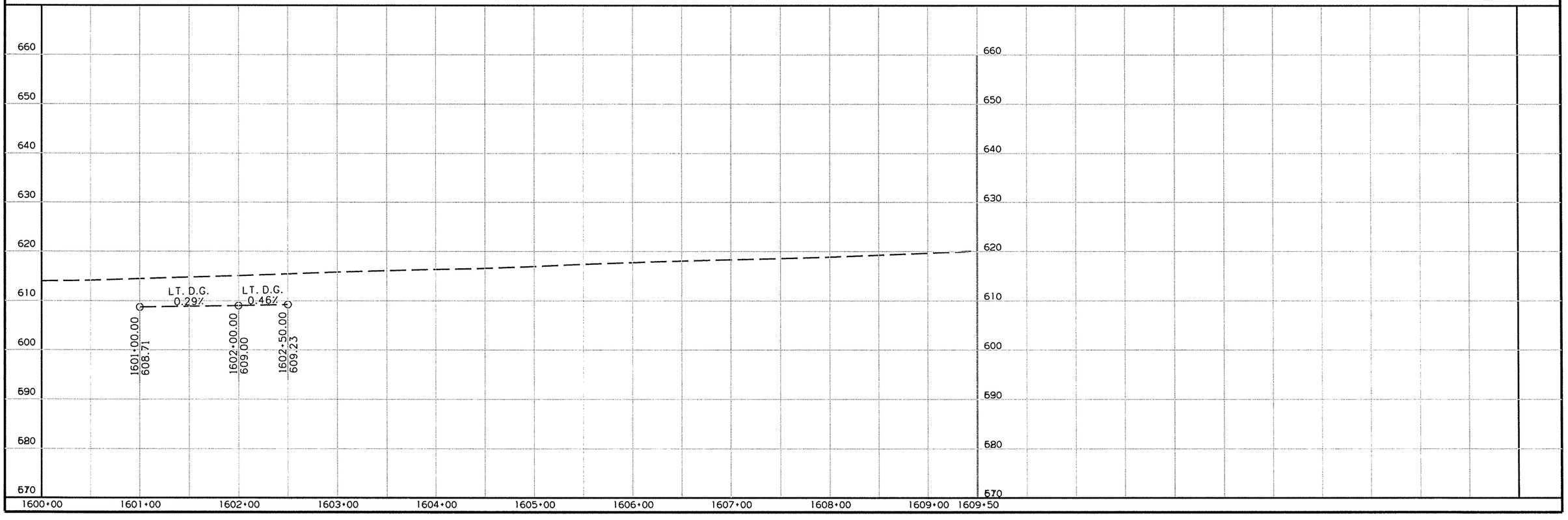
STATION	STATION	SIDE	WIRE FENCE	LIN. FT.
1601+18 -	1608+00	LT.	(TYPE D-1)	682



STA 1601+00.00 - BEGIN SITE 16
HWY. 9 L.M. 20.49

STA 1608+50.00 - END SITE 16

SITE 16



R012184.DGN 6/4/2014

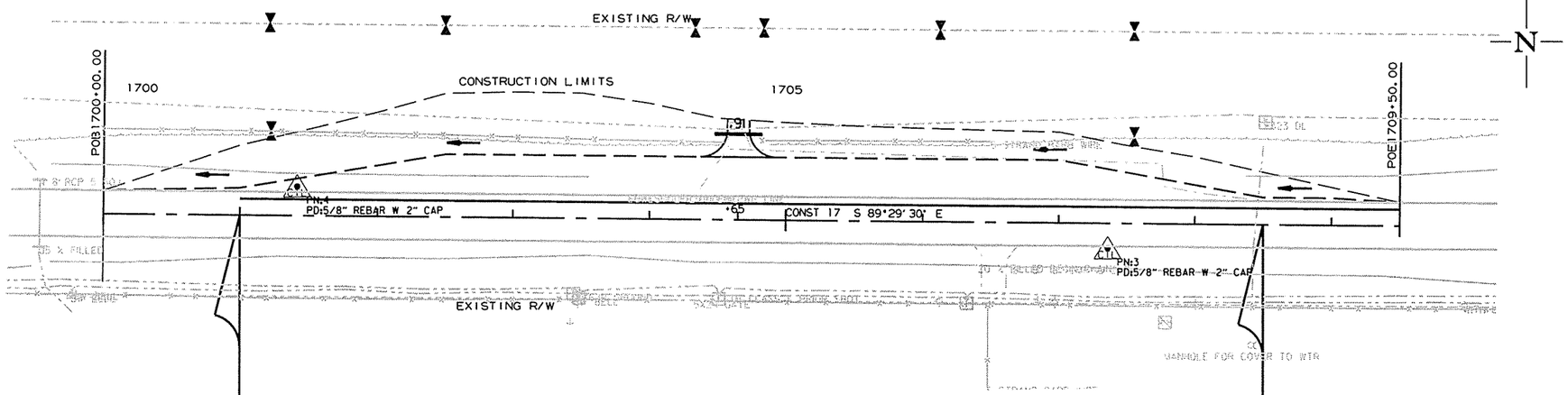
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	30	56

(2) PLAN AND PROFILE SHEETS - SITE 17

STA. 1704+65 INSTALL
24" X 34" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.

STATION	STATION	SIDE	WIRE FENCE	LIN. FT.
1701+39 -	1707+40	LT.	(TYPE D-1)	761

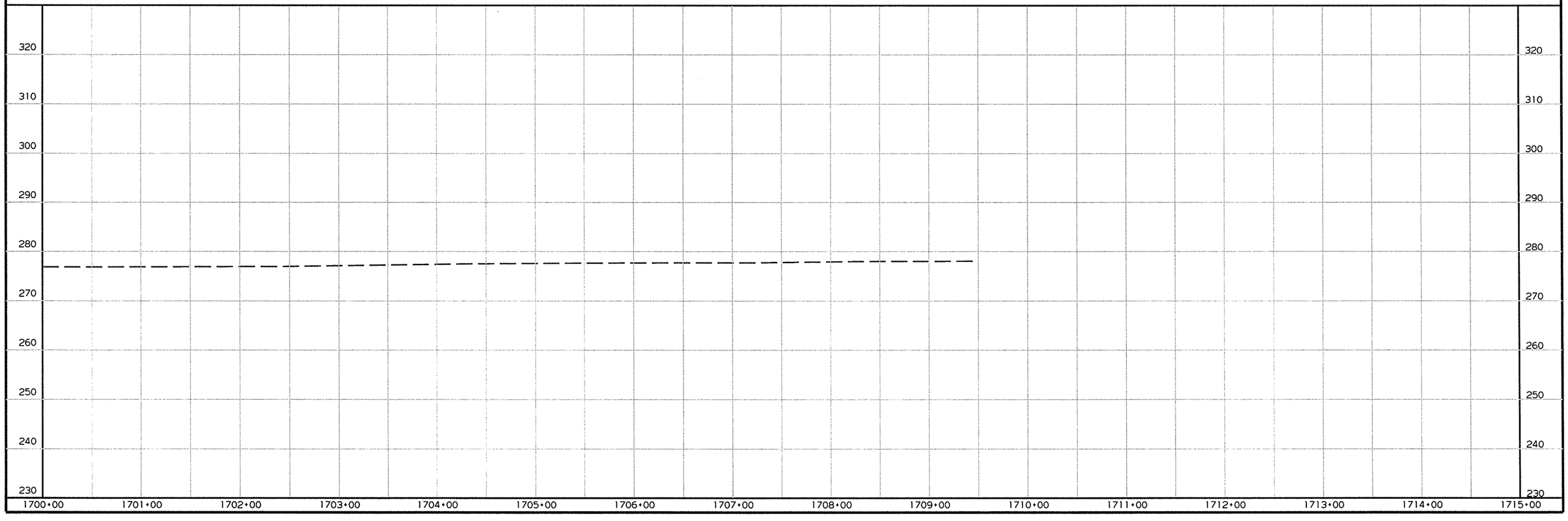
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-10-14



STA 1701+00.00 - BEGIN SITE 17
HWY. 64 L.M. 17.65

STA 1708+50.00 - END SITE 17
END JOB 012184

SITE 17



R012184.DGN 6/4/2014

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

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

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

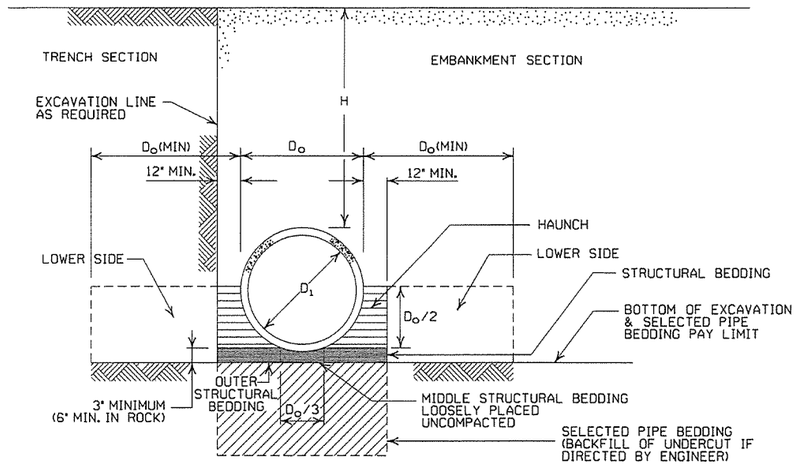
- LEGEND -

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

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

*SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

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.

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."

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

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

CORRUGATED METAL PIPE ARCHES

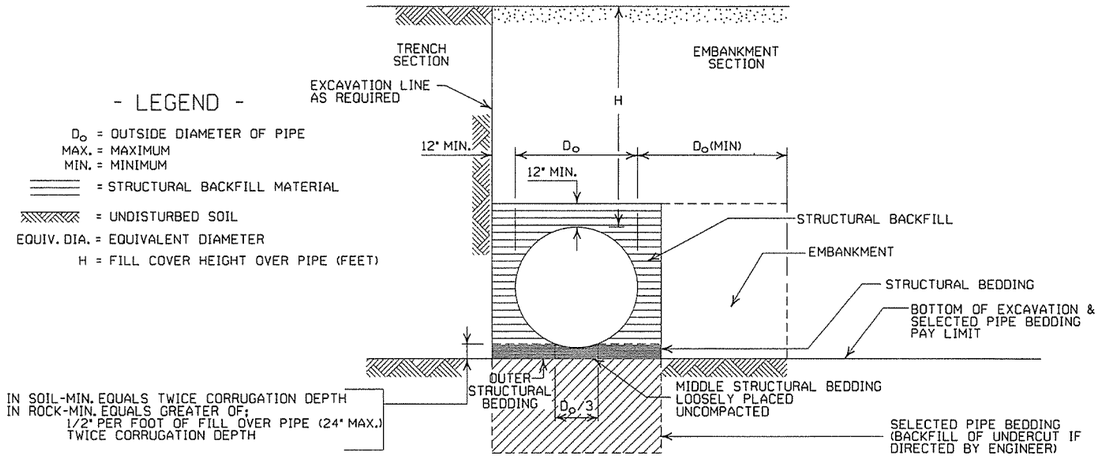
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)
				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			

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.

- 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."

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.

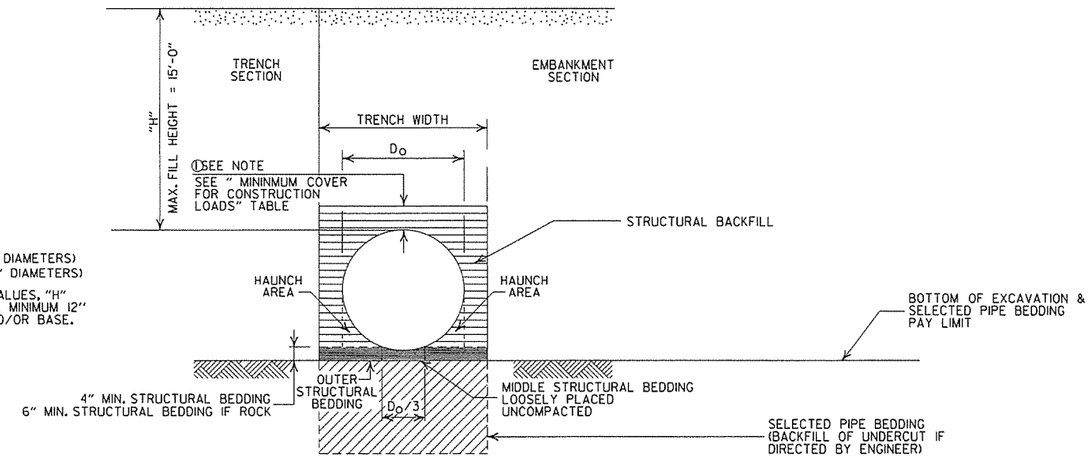
MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 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

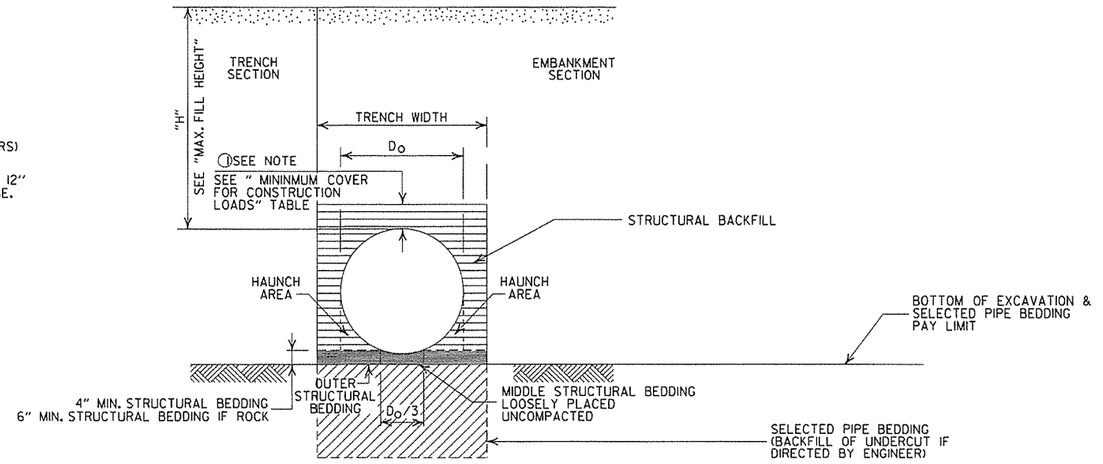
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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	

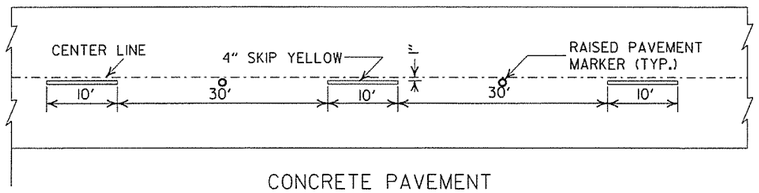
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

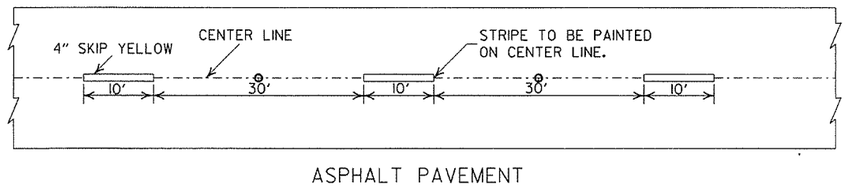
STANDARD DRAWING PCP-2

NOTES:

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

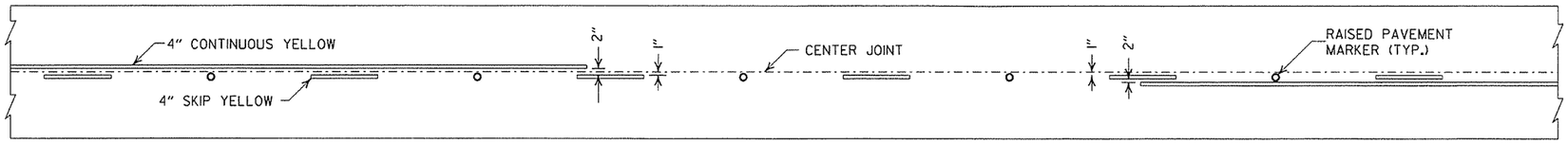


CONCRETE PAVEMENT

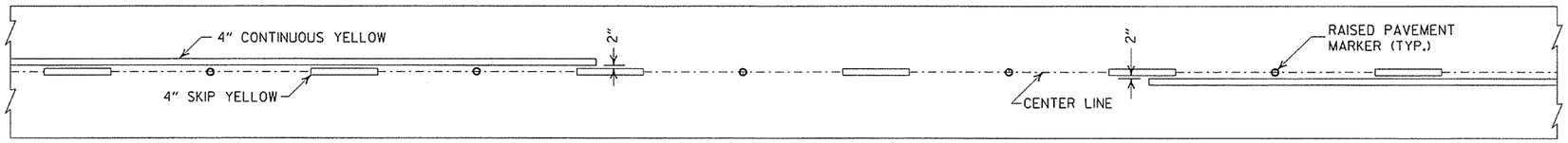


ASPHALT PAVEMENT

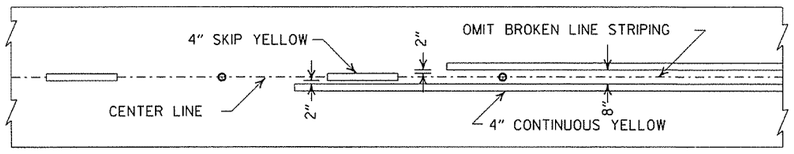
BROKEN LINE STRIPING



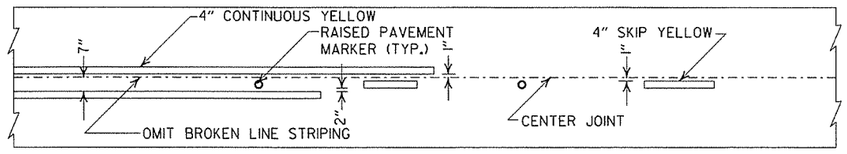
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

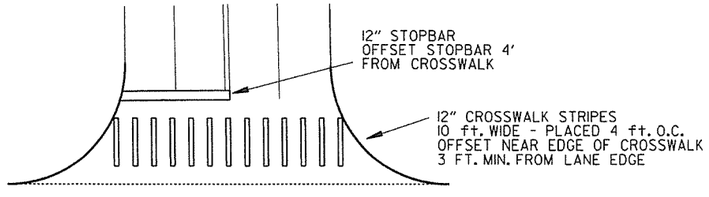


ASPHALT PAVEMENT



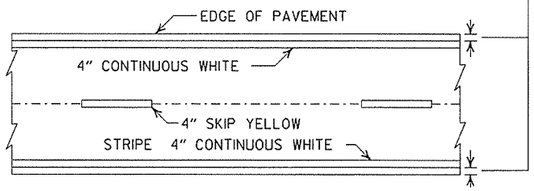
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

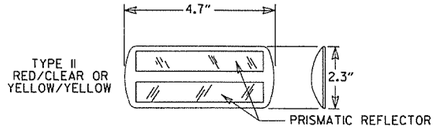


CROSSWALK AND STOPBAR DETAILS

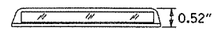
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



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

GENERAL NOTES:

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

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

NOTE:

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

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

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

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"

R2-5A

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

R2-5C

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

R4-1

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

R4-2

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

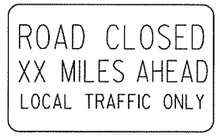
R5-1

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

RII-2

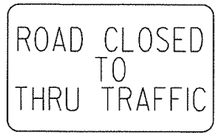
48"X30"

RII-3A



60"X30"

RII-4

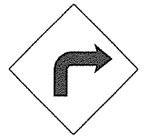


60"X30"

RSP-1

48"X30"

WI-1



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

WI-2

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

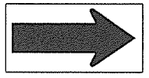
WI-3

STD. 48"X48"

WI-4

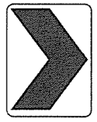
STD. 48"X48"

WI-6



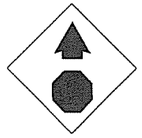
STD. 48"X24"
SPECIAL 60"X30"

WI-8



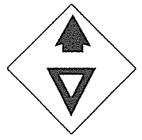
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



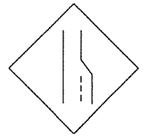
STD. 36"X36"
SPECIAL 48"X48"

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"

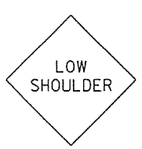
R56-1

STD. 18"X18"

W8-11

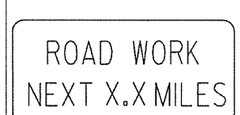
STD. 36"X36"
FWY. 48"X48"

W8-9



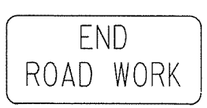
STD. 36"X36"
FWY. 48"X48"

G20-1



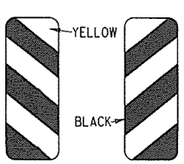
60"X24"

G20-2



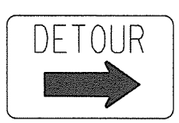
48"X24"

OM-3L OM-3R



12"X36"

M4-9

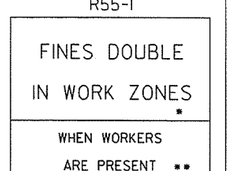


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 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.

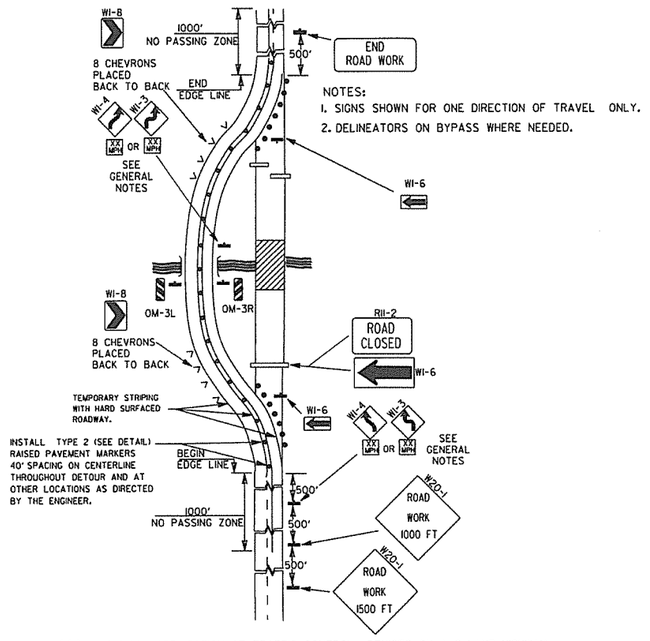
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

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

ARKANSAS STATE HIGHWAY COMMISSION

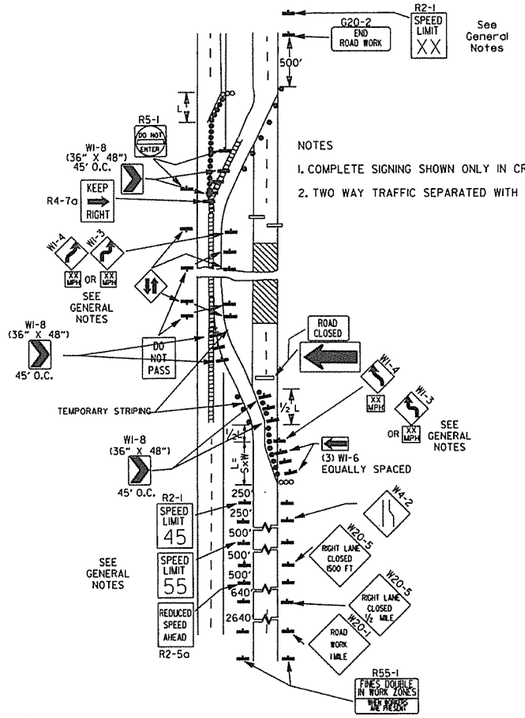
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



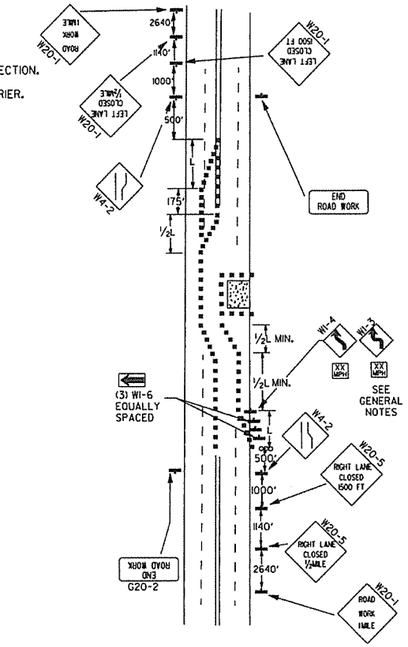
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

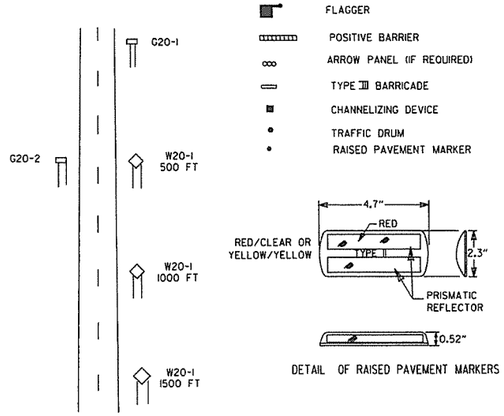


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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.



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

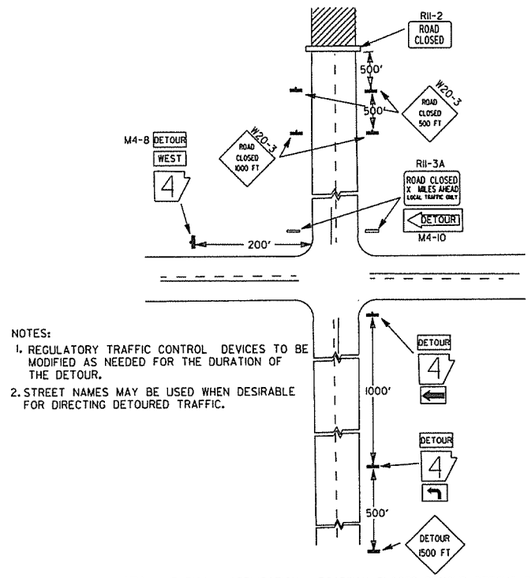
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

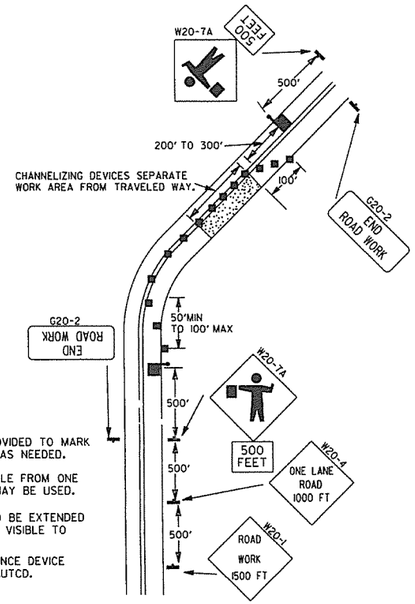
GENERAL NOTES:

1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A 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. 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.



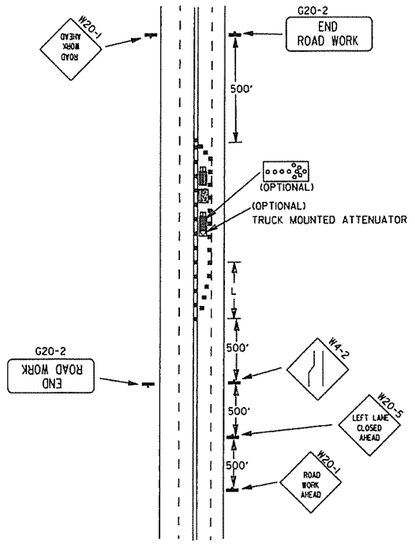
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



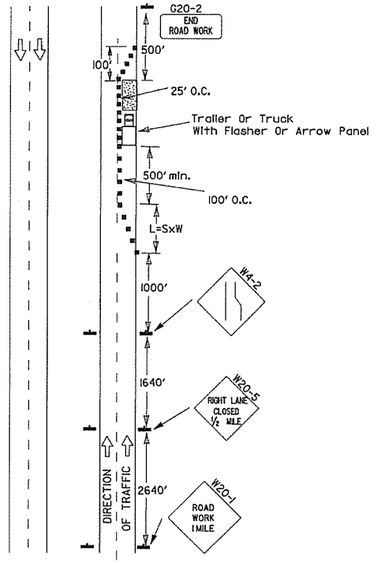
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

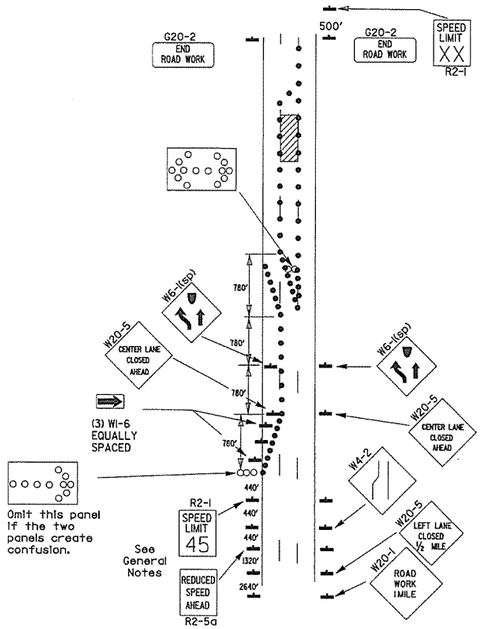
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

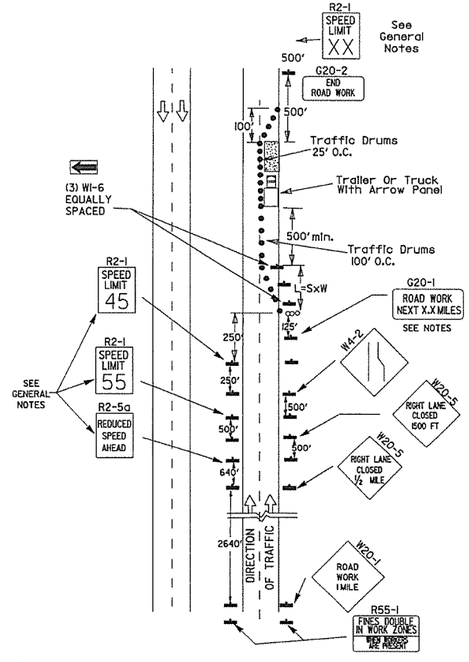
STANDARD DRAWING TC-2



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



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



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

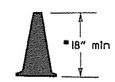
KEY:

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

GENERAL NOTES:

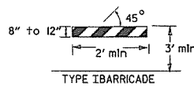
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional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

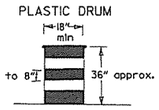


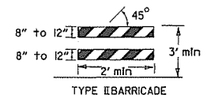
CONES

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

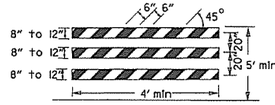


TYPE I BARRICADE



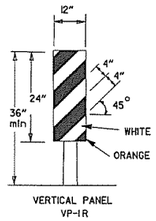


TYPE II BARRICADE

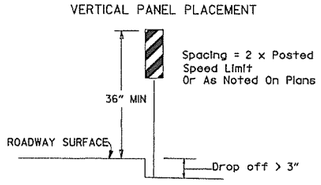


TYPE III BARRICADE

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



VERTICAL PANEL
VP-1R



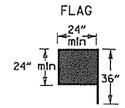
VERTICAL PANEL PLACEMENT

TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

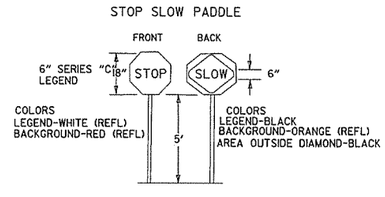
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical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

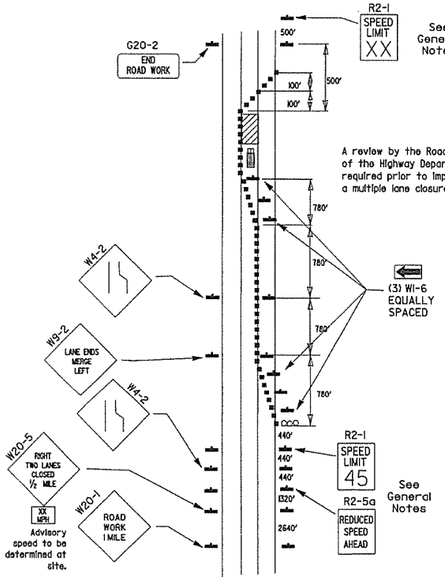
* When shown on the plans concrete barrier will be used.

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 shall be of good grade red material





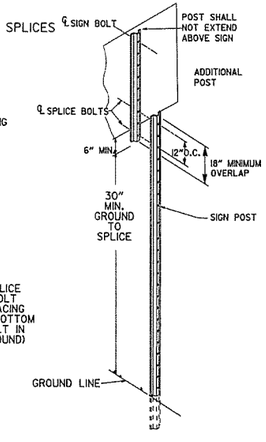
(D) Typical application - closing multiple lanes of a multilane highway.

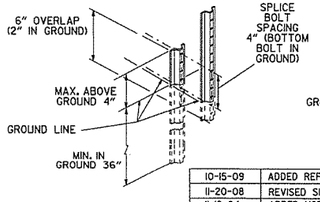
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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.

DETAIL OF SPLICES





DATE	REVISION	FILMED
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	

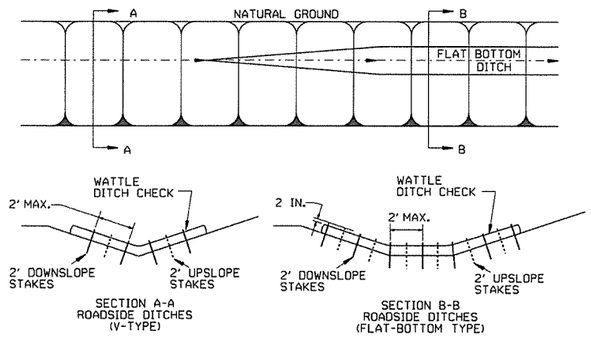
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

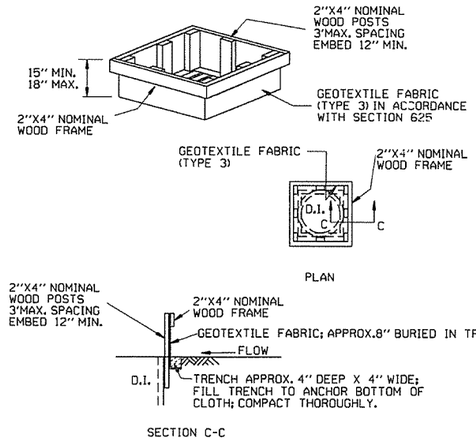
STANDARD DRAWING TC-3

GENERAL NOTES

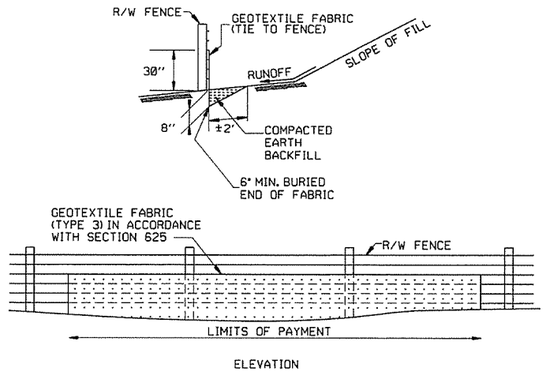
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

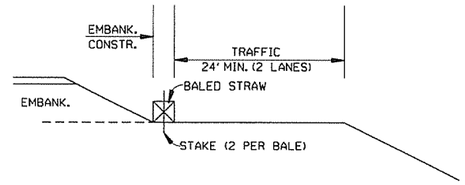
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

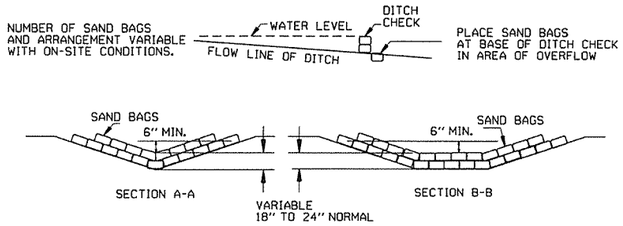
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

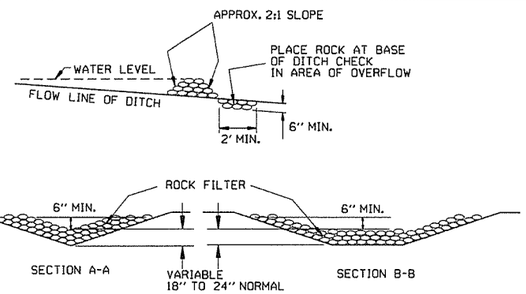
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



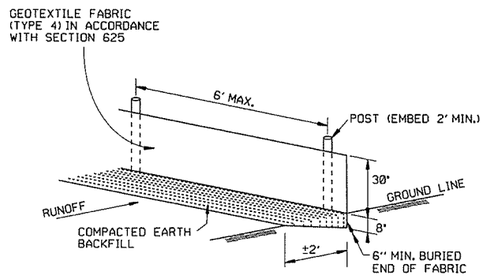
BALED STRAW FILTER BARRIER (E-2)



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

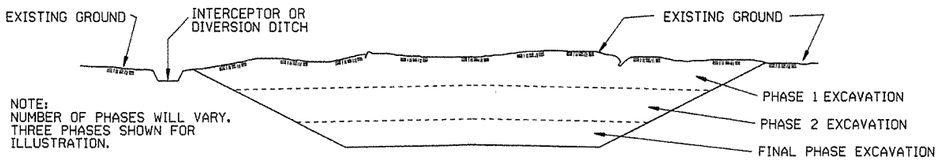
STANDARD DRAWING TEC-1

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



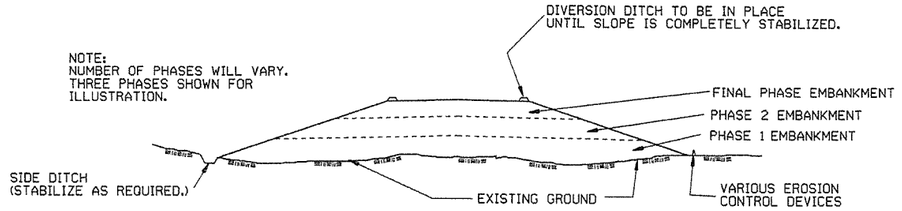
GENERAL NOTE

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.

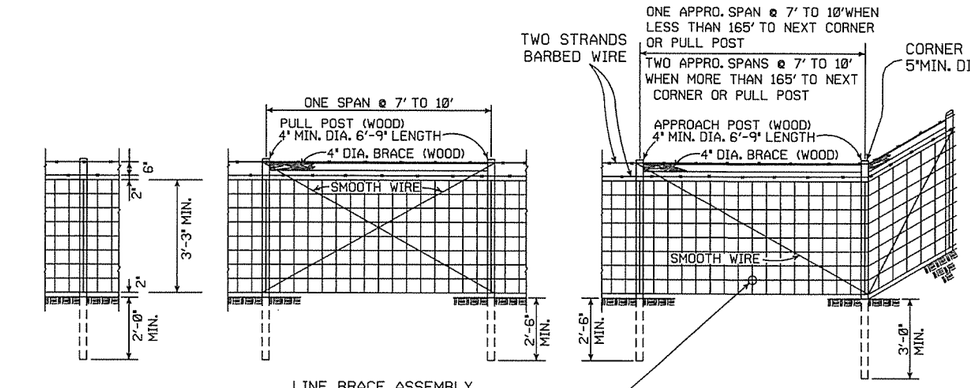
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

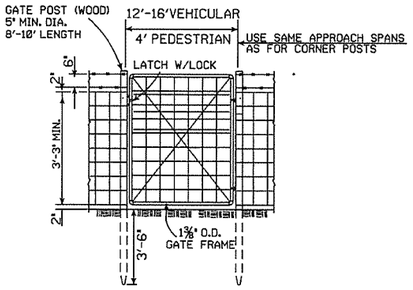
STANDARD DRAWING TEC-3

TYPE C FENCE (WOOD POSTS)

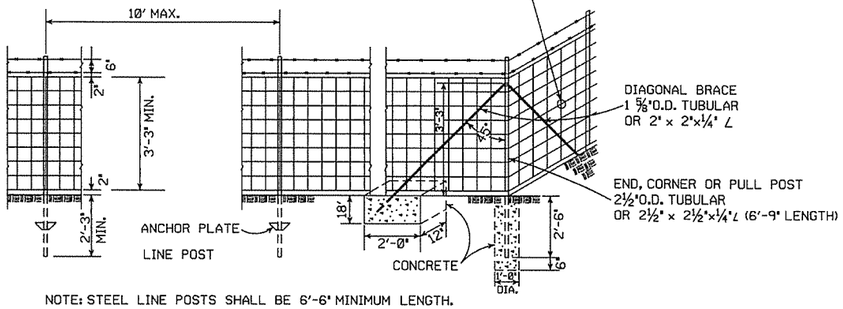


LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

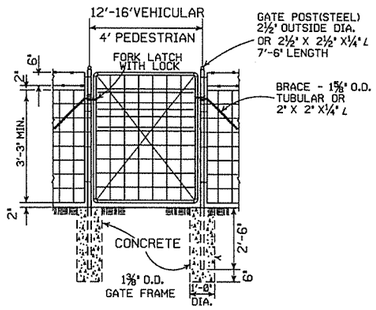
LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

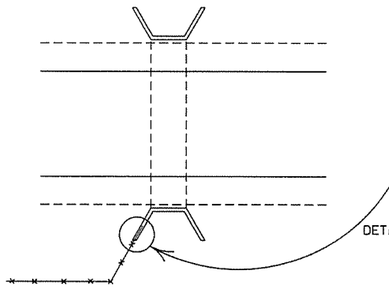


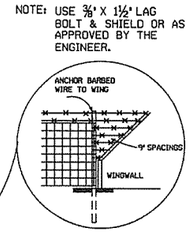
OTHER APPROVED TIES WILL BE PERMITTED



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







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

GENERAL NOTES:

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

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

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

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

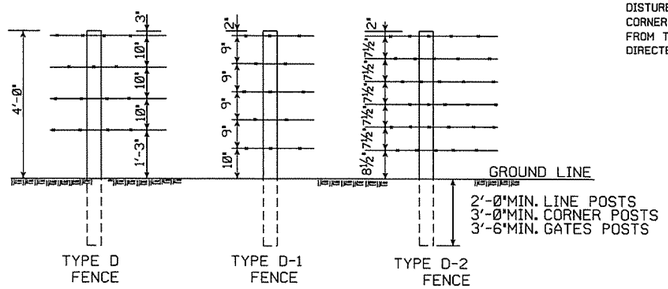
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

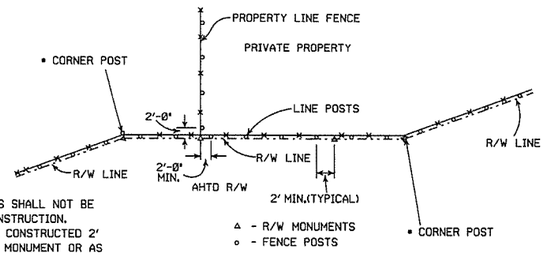
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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

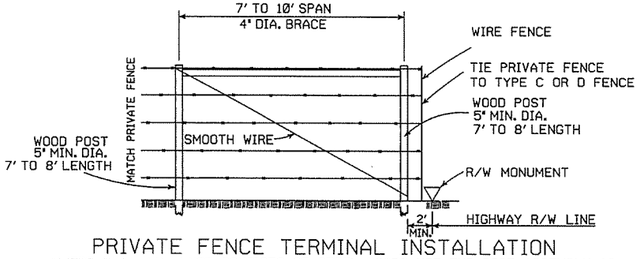


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

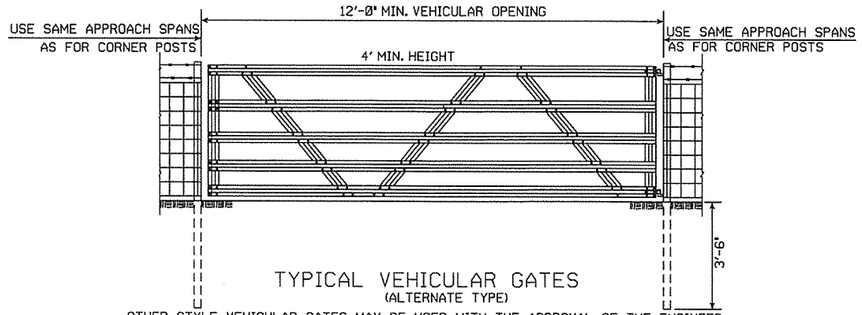


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



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



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

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

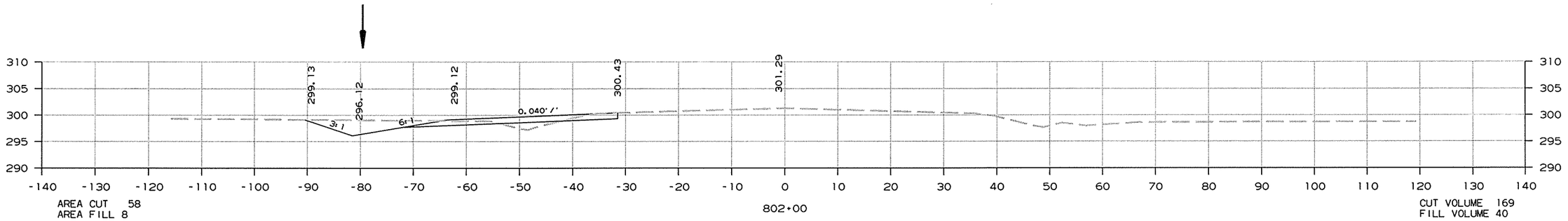
ARKANSAS STATE HIGHWAY COMMISSION

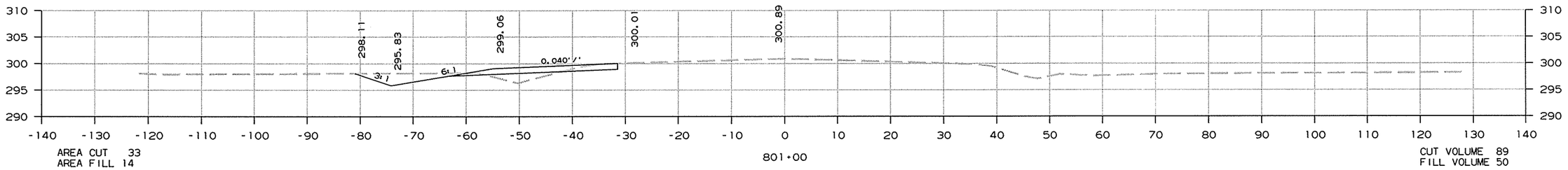
WIRE FENCE
TYPE C AND D

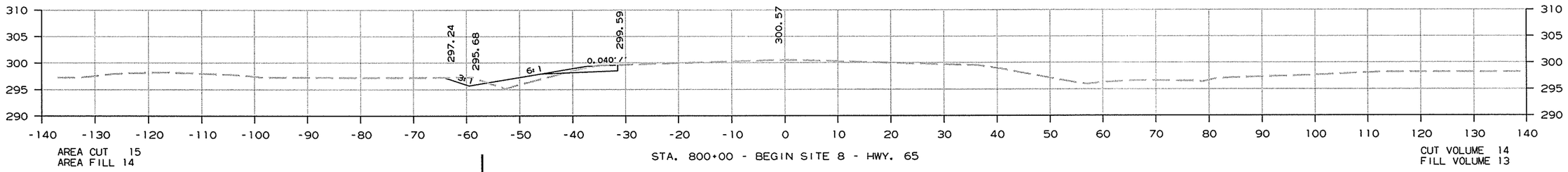
STANDARD DRAWING WF-4

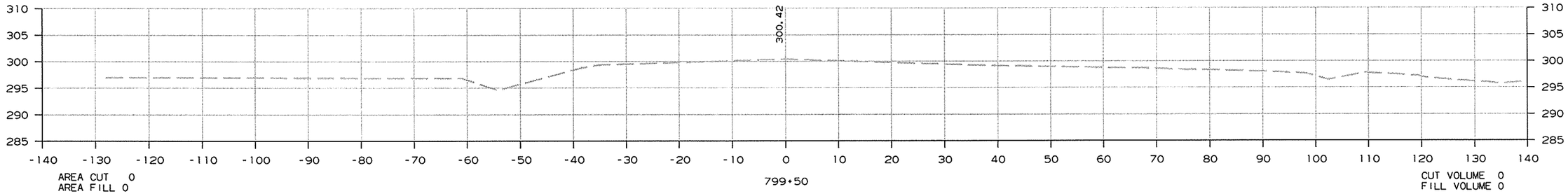
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	42	56

(2) CROSS SECTIONS - SITE 8









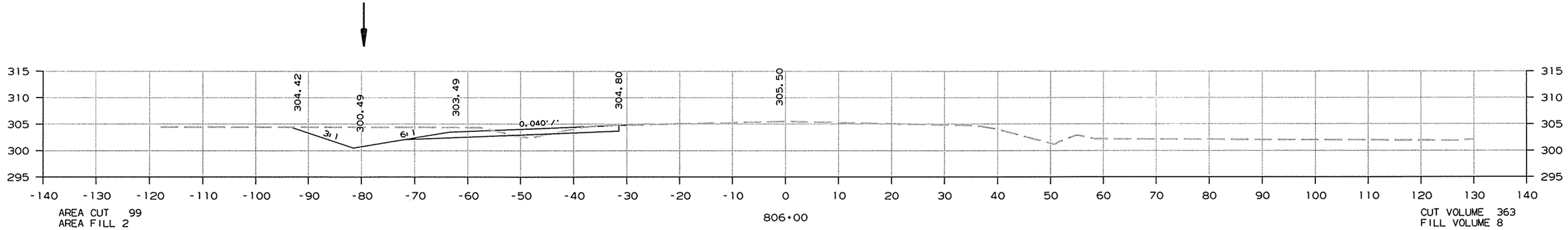
CROSS SECTION STA. 799+50 TO STA. 802+00

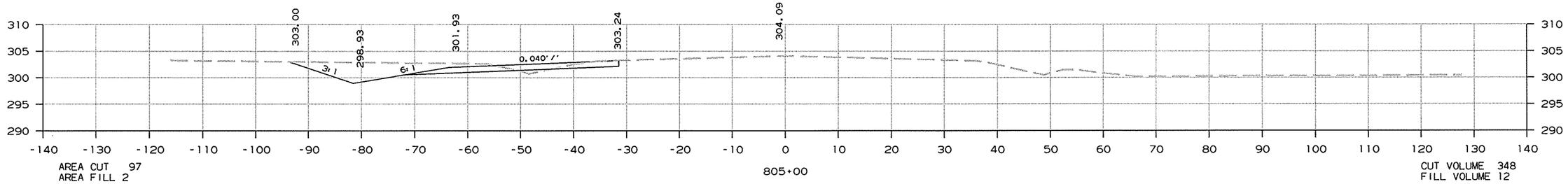
7/8/2014

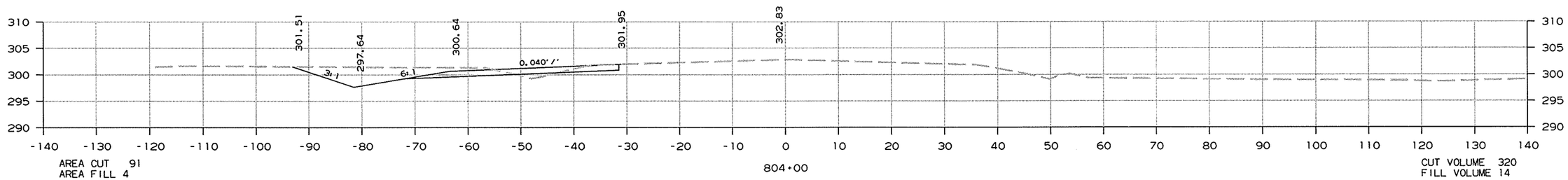
R012184.DGN

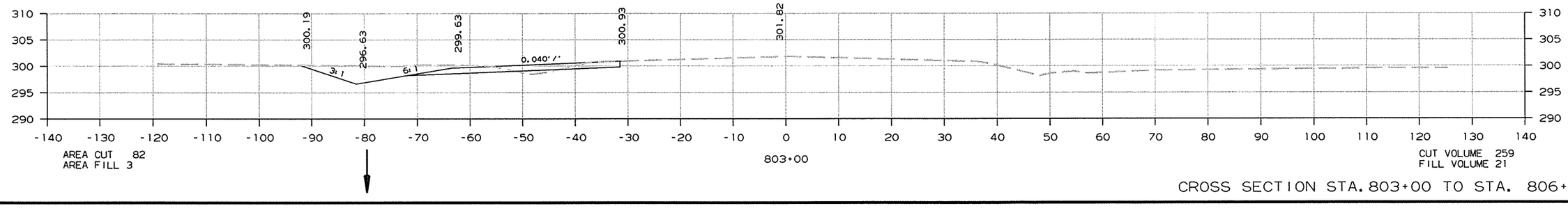
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	43	56

(2) CROSS SECTIONS - SITE 8









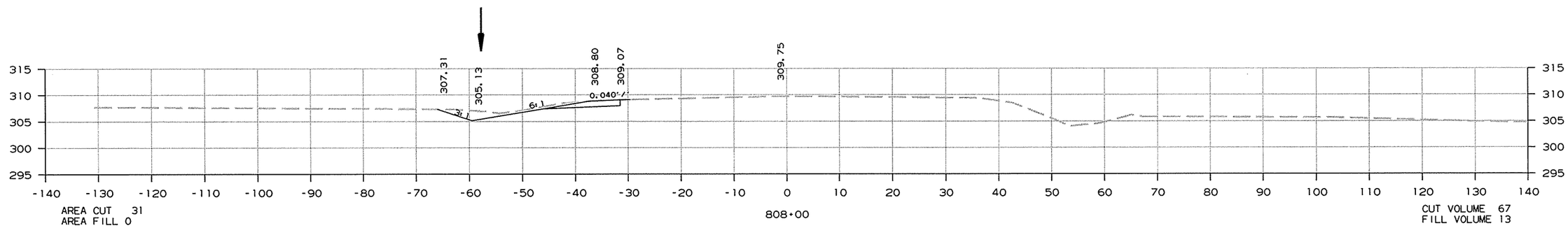
CROSS SECTION STA. 803+00 TO STA. 806+00

7/8/2014

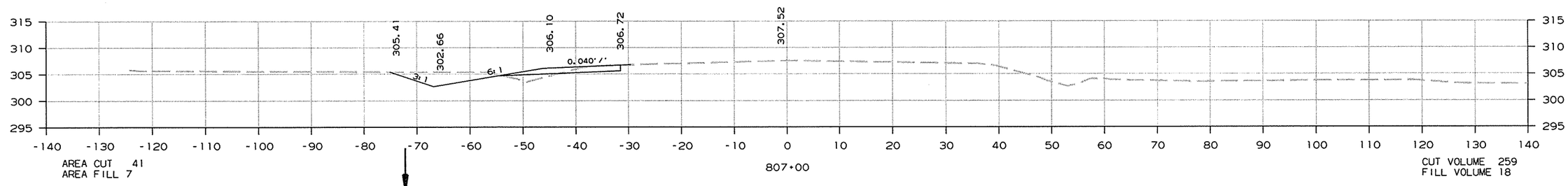
R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	44	56

(2) CROSS SECTIONS - SITE 8



STA. 807+50 - END SITE 8



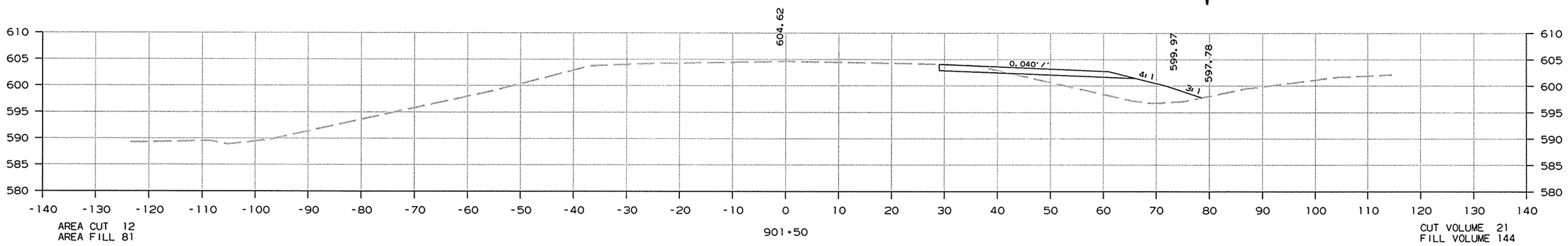
CROSS SECTION STA. 807+00 TO STA. 808+00

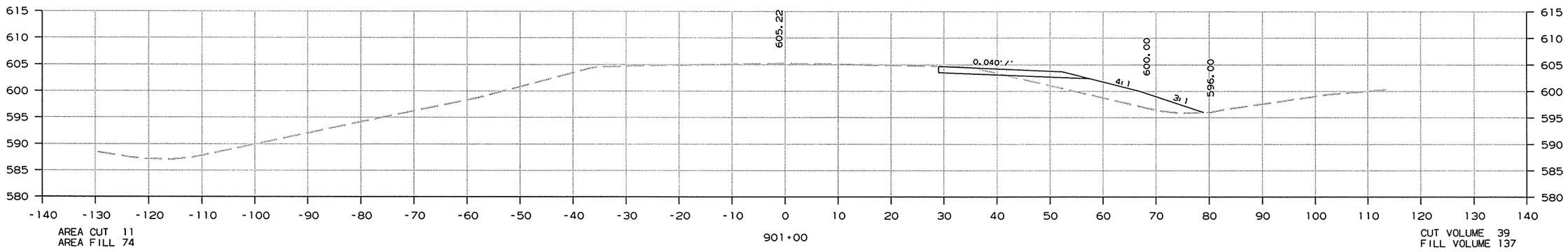
7/8/2014

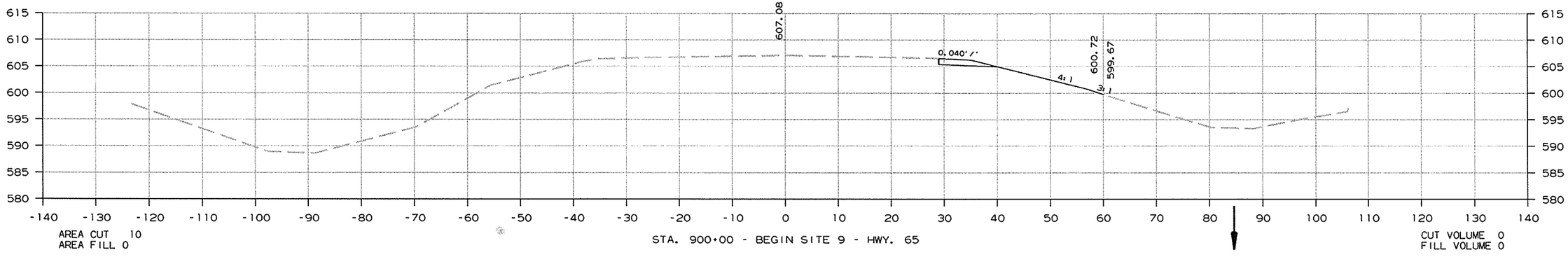
R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	45	56

(2) CROSS SECTIONS - SITE 9







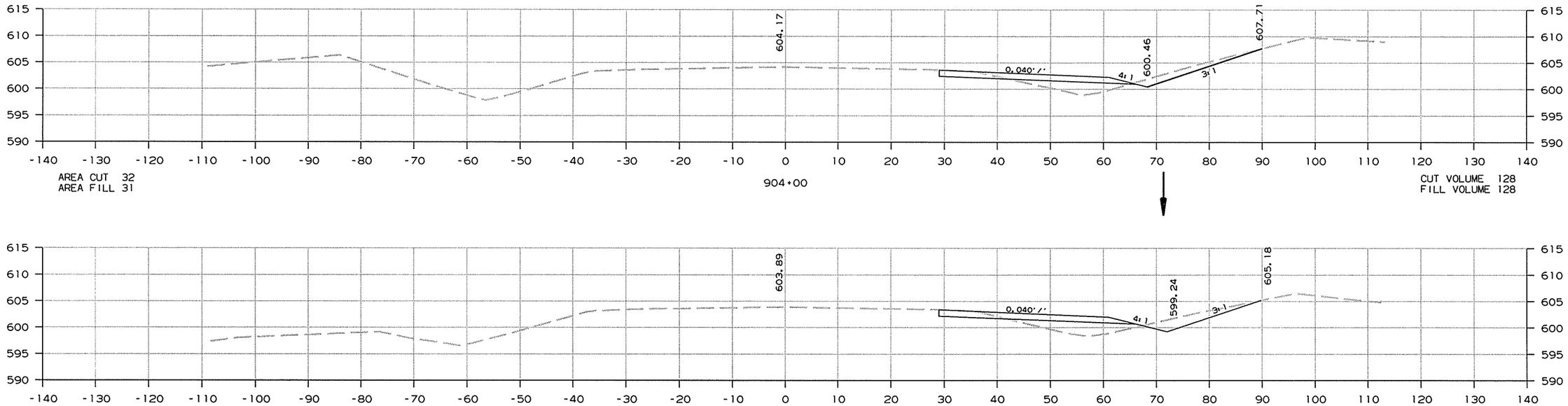
CROSS SECTION STA. 900+00 TO STA. 901+50

7/8/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	46	56

(2) CROSS SECTIONS - SITE 9



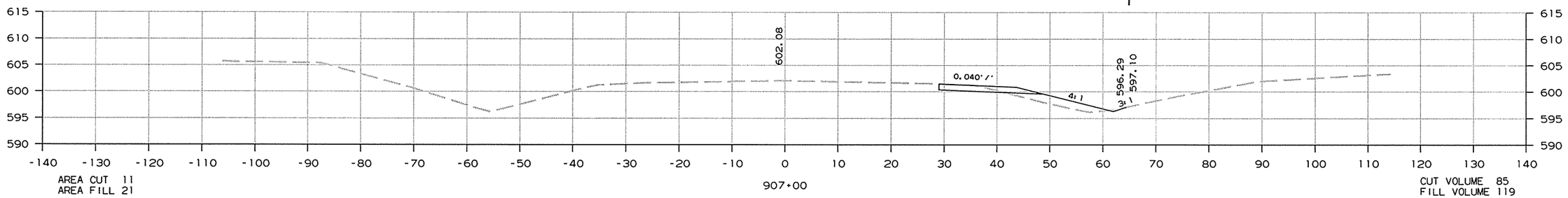
CROSS SECTION STA. 902+00 TO STA. 904+00

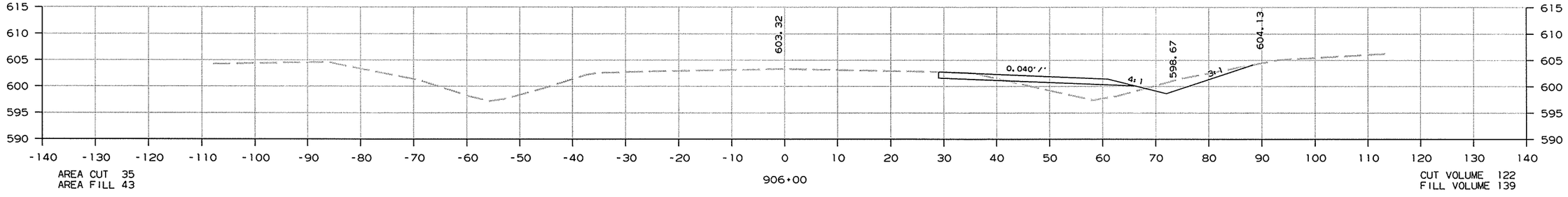
7/8/2014

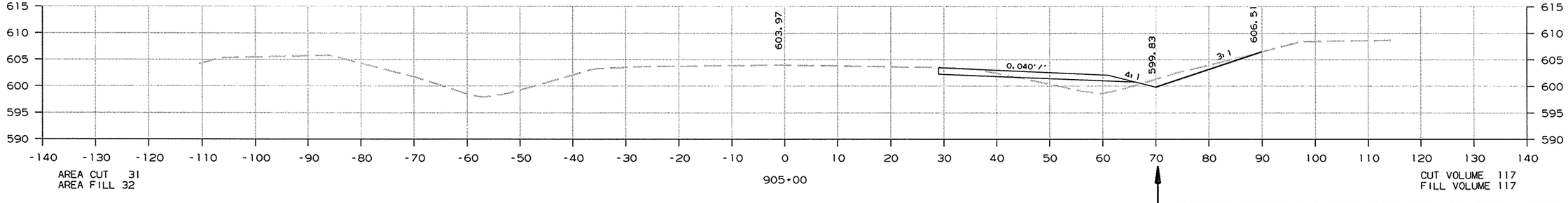
R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	47	56

(2) CROSS SECTIONS - SITE 9







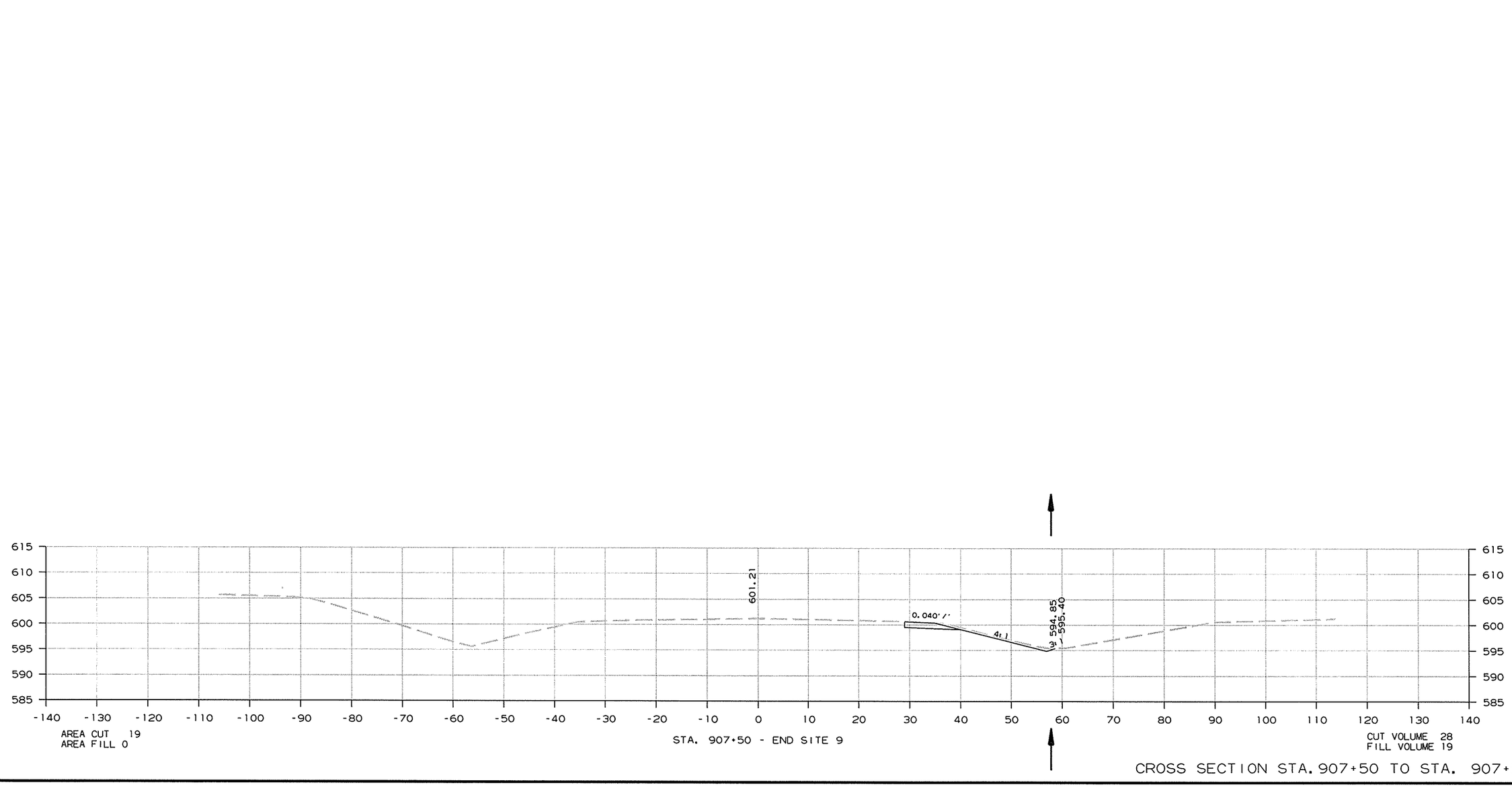
CROSS SECTION STA. 905+00 TO STA. 907+00

7/8/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	48	56

(2) CROSS SECTIONS - SITE 9



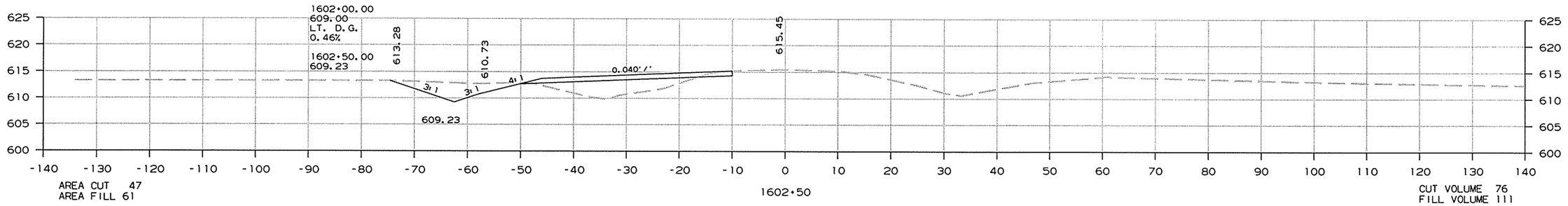
CROSS SECTION STA. 907+50 TO STA. 907+50

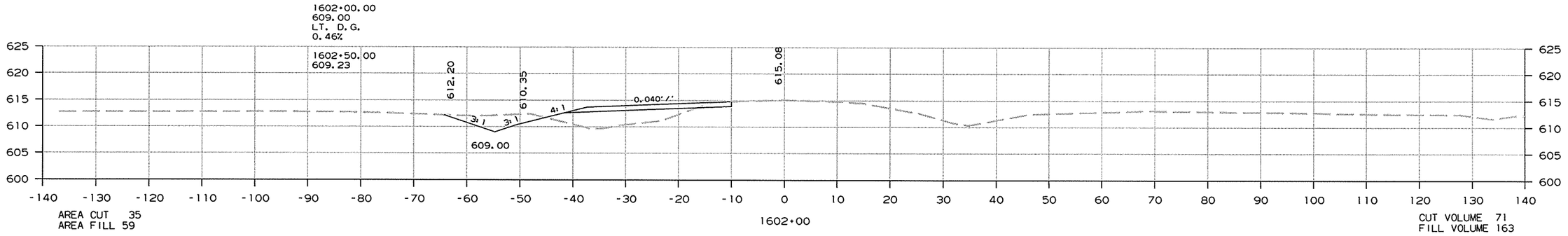
7/8/2014

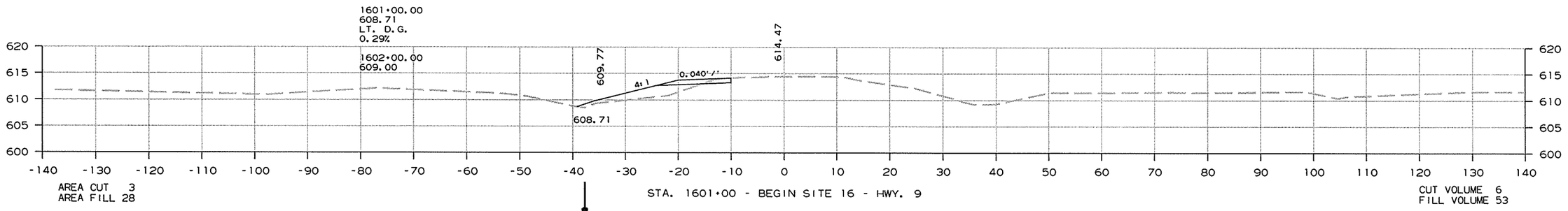
R012184.DGN

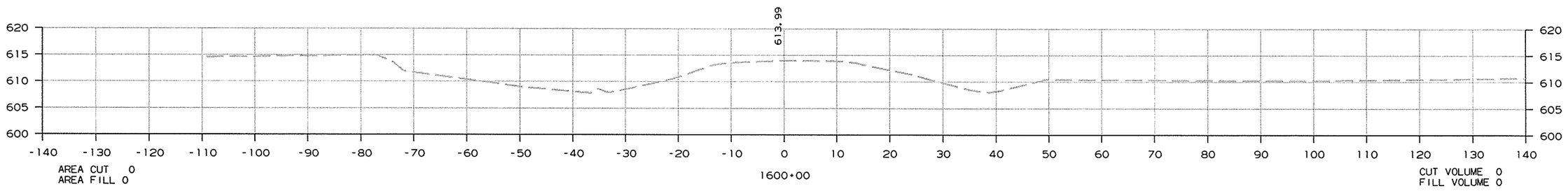
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	49	56

(2) CROSS SECTIONS - SITE 16









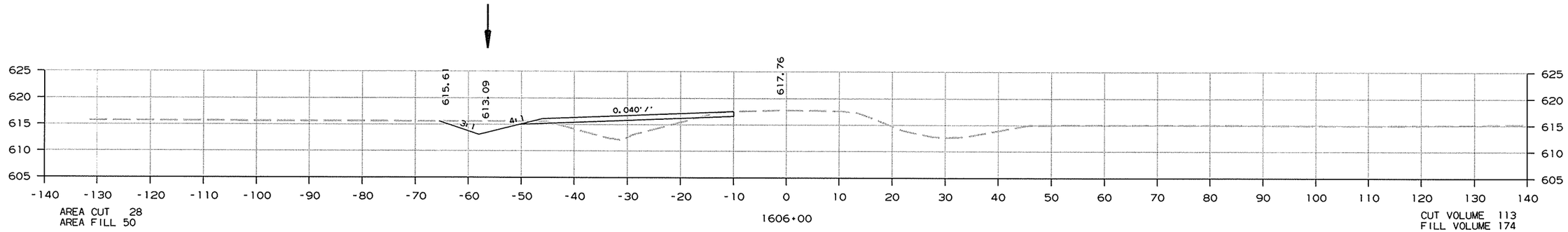
CROSS SECTION STA. 1600+00 TO STA. 1602+50

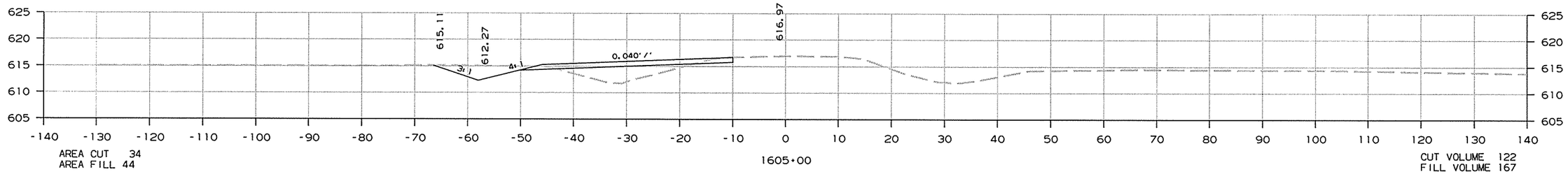
7/8/2014

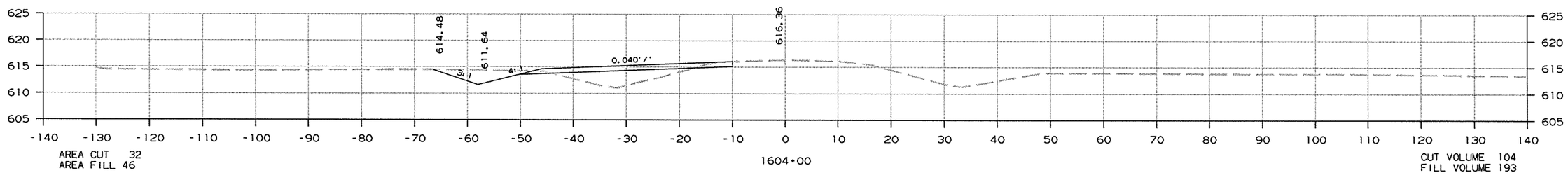
R012184.DGN

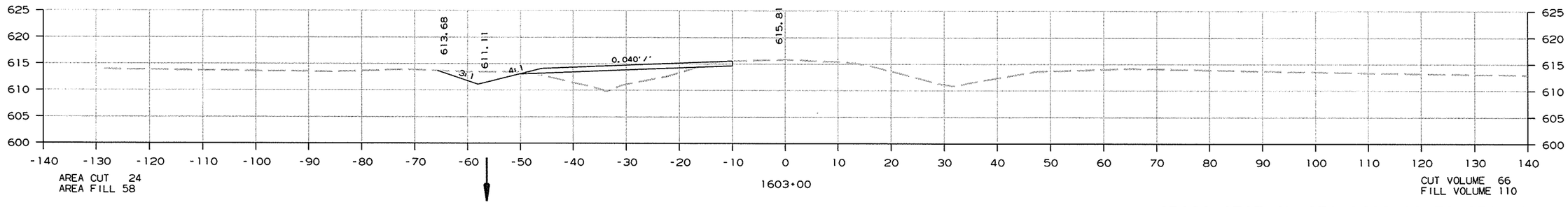
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	50	56

(2) CROSS SECTIONS - SITE 16









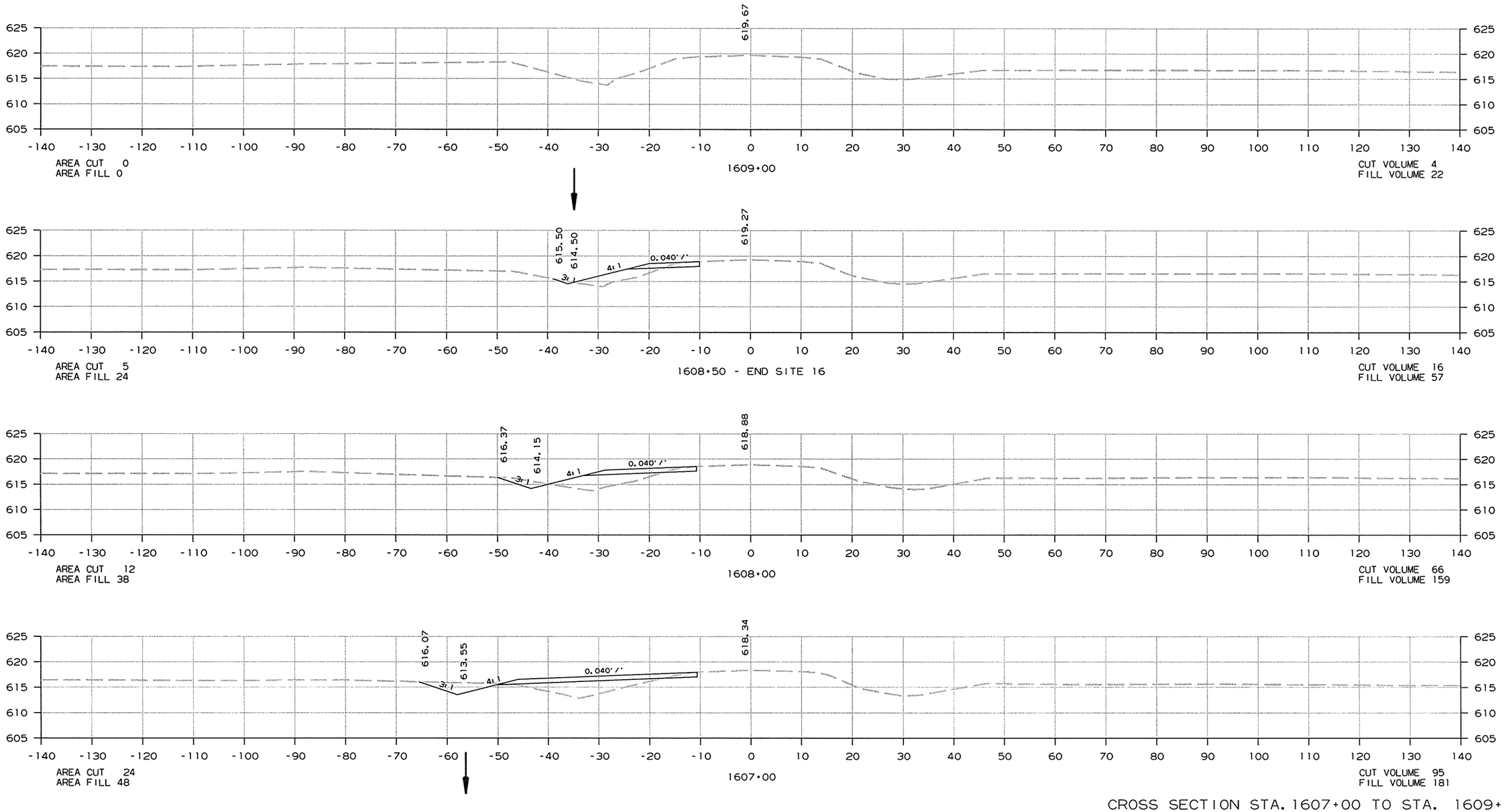
CROSS SECTION STA. 1603+00 TO STA. 1606+00

7/8/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	51	56

(2) CROSS SECTIONS - SITE 16



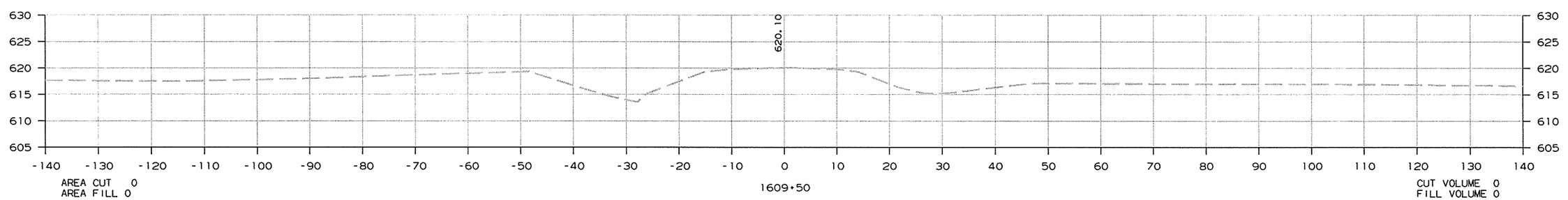
CROSS SECTION STA. 1607+00 TO STA. 1609+00

7/8/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	52	56

(2) CROSS SECTIONS - SITE 16



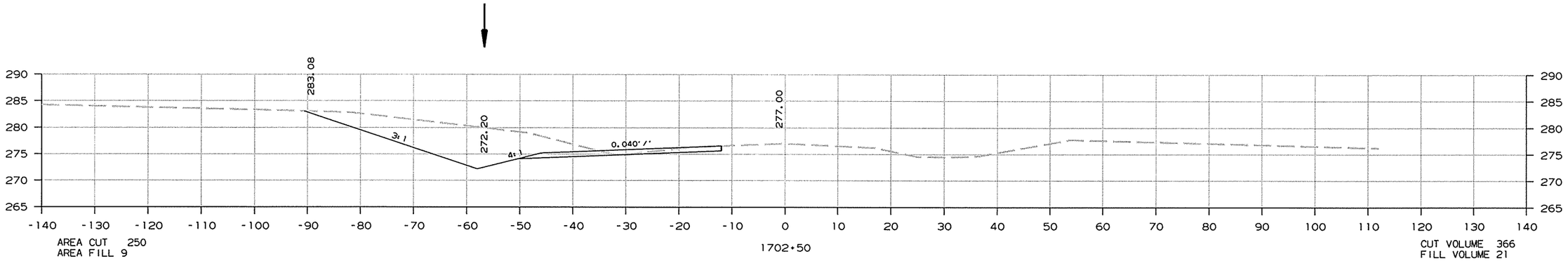
CROSS SECTION STA. 1609+50 TO STA. 1609+50

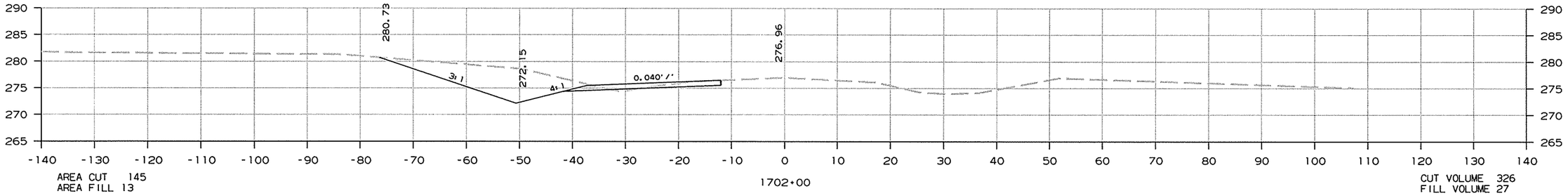
7/8/2014

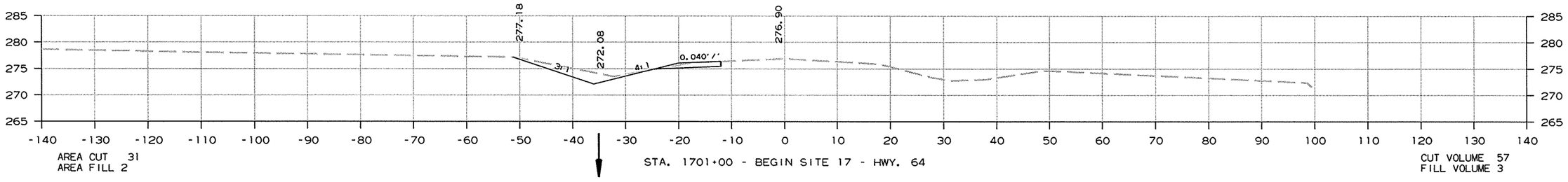
R012184.DGN

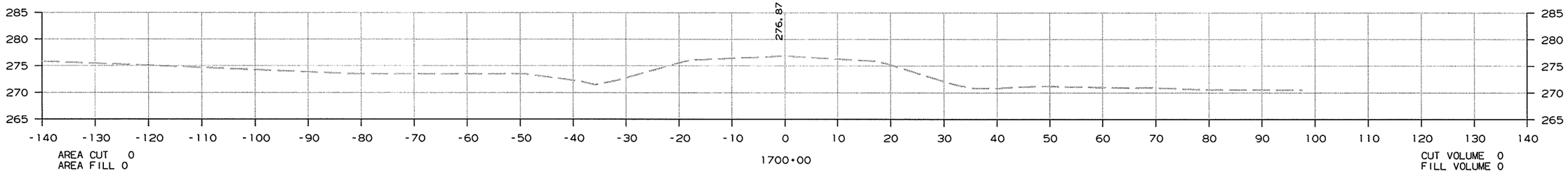
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	53	56

(2) CROSS SECTIONS - SITE 17









CROSS SECTION STA. 1700+00 TO STA. 1702+50

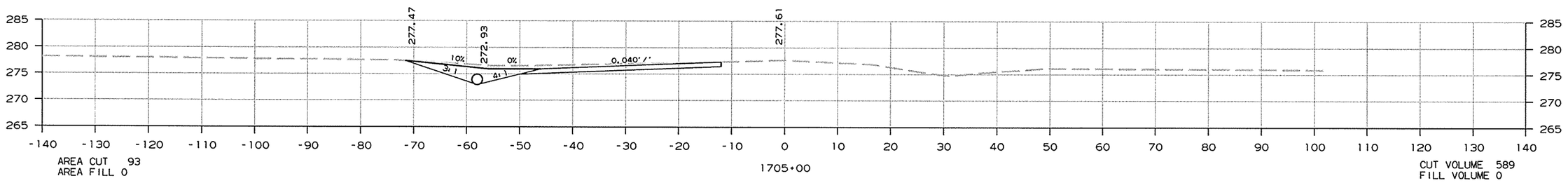
7/9/2014

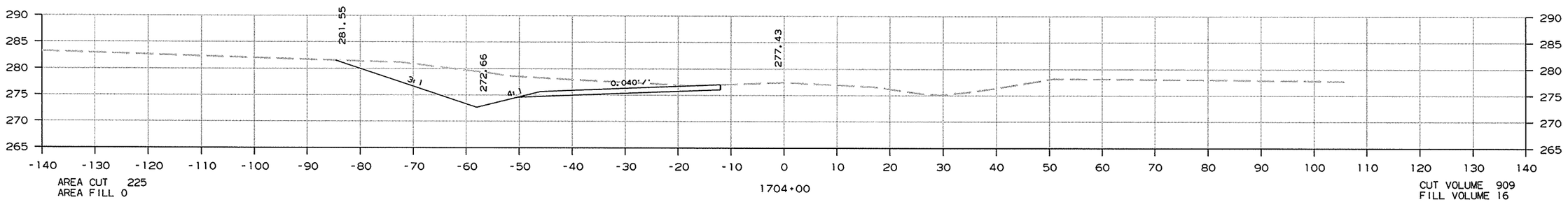
R012184.DGN

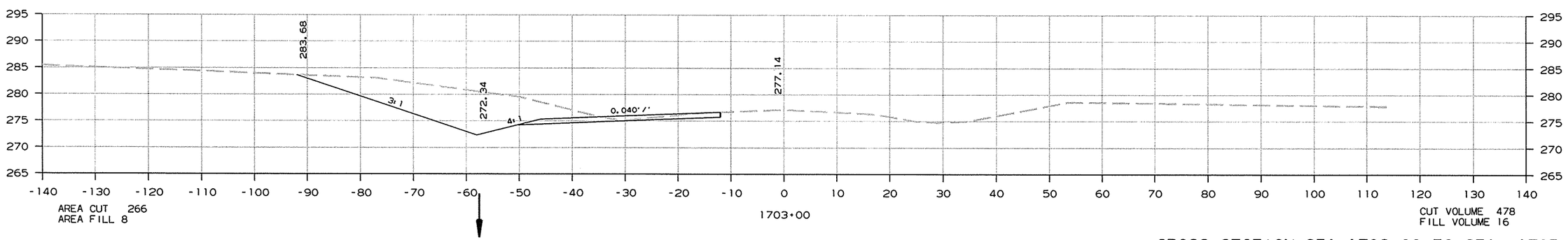
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	54	56

(2) CROSS SECTIONS - SITE 17

STA. 1704+65 INSTALL
24' X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.







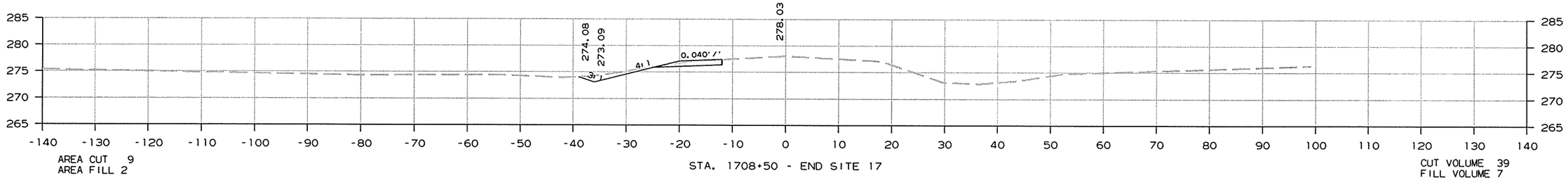
CROSS SECTION STA. 1703+00 TO STA. 1705+00

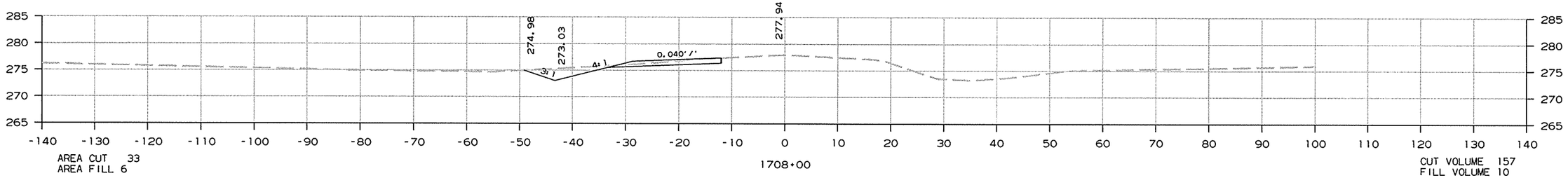
7/9/2014

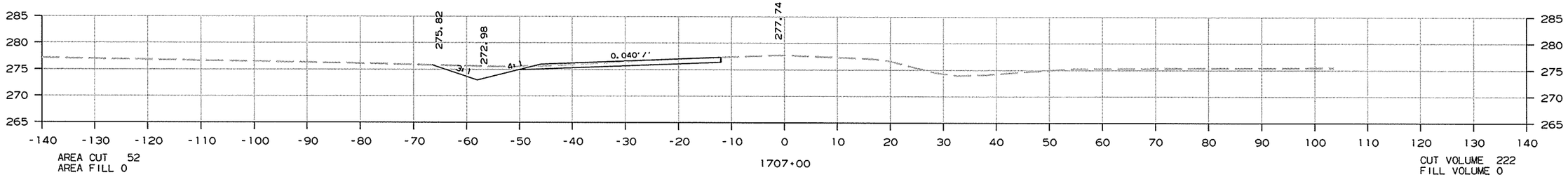
R012184.DGN

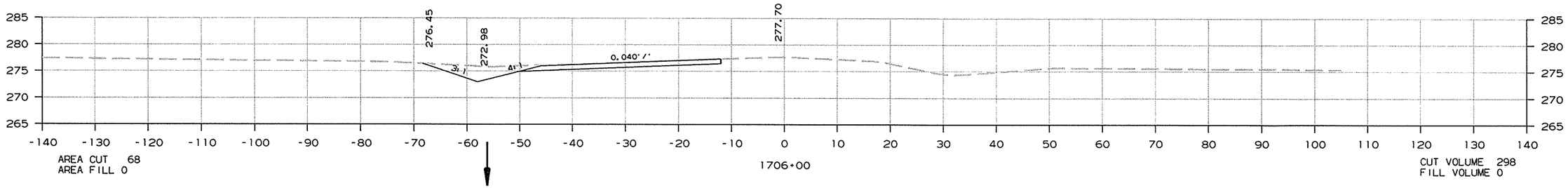
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	55	56

(2) CROSS SECTIONS - SITE 17









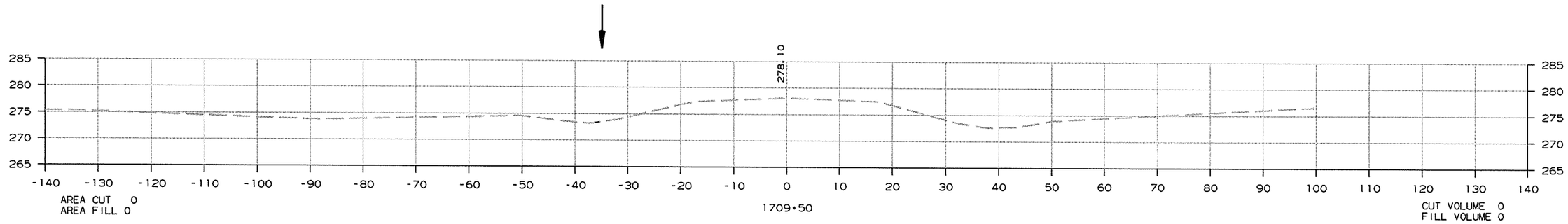
CROSS SECTION STA. 1706+00 TO STA. 1708+50

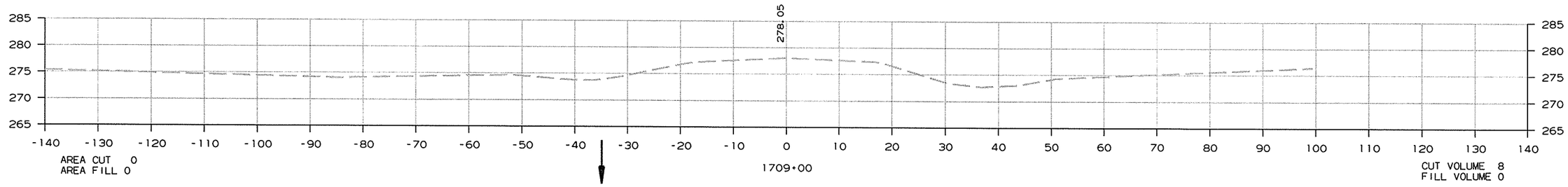
7/9/2014

R012184.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		012184	56	56

(2) CROSS SECTIONS - SITE 17





CROSS SECTION STA. 1709+00 TO STA. 1709+50

7/9/2014

R012184.DGN