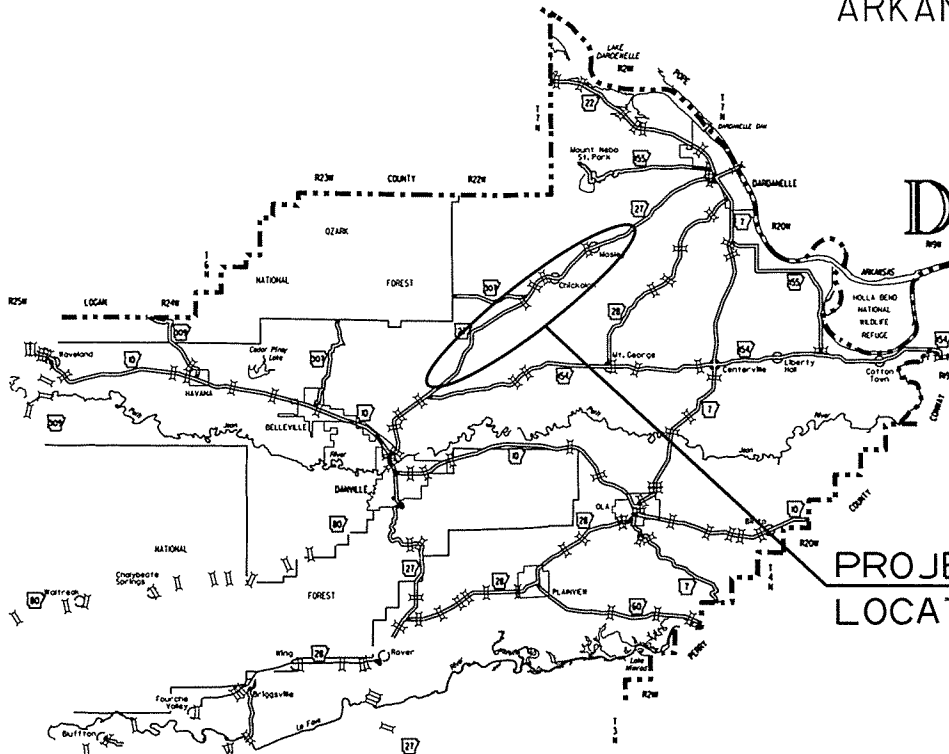


ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	134
② DANVILLE - DARDANELLE (PASSING LANES) (S)								



VICINITY MAP

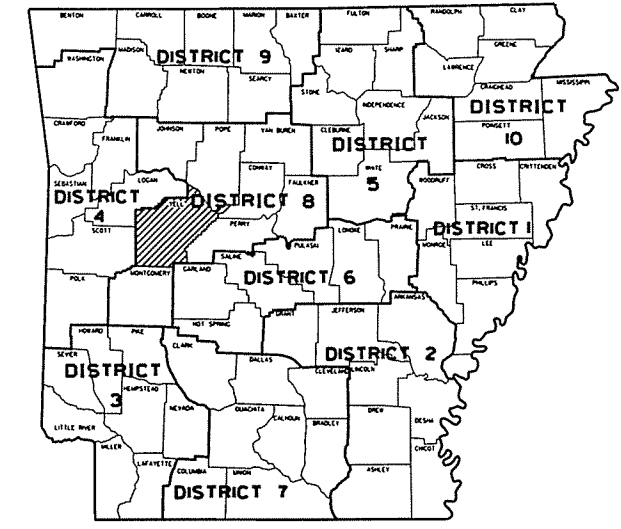
DANVILLE - DARDANELLE (PASSING LANES) (S)

YELL COUNTY

ROUTE 27 SECTION 10

JOB 080428

FED. AID PROJ. STP-0075(33)



ARK. HWY. DIST. NO. 8

NOT TO SCALE

STA. 170+20.00 - END SITE 1
LOG MILE 8.51

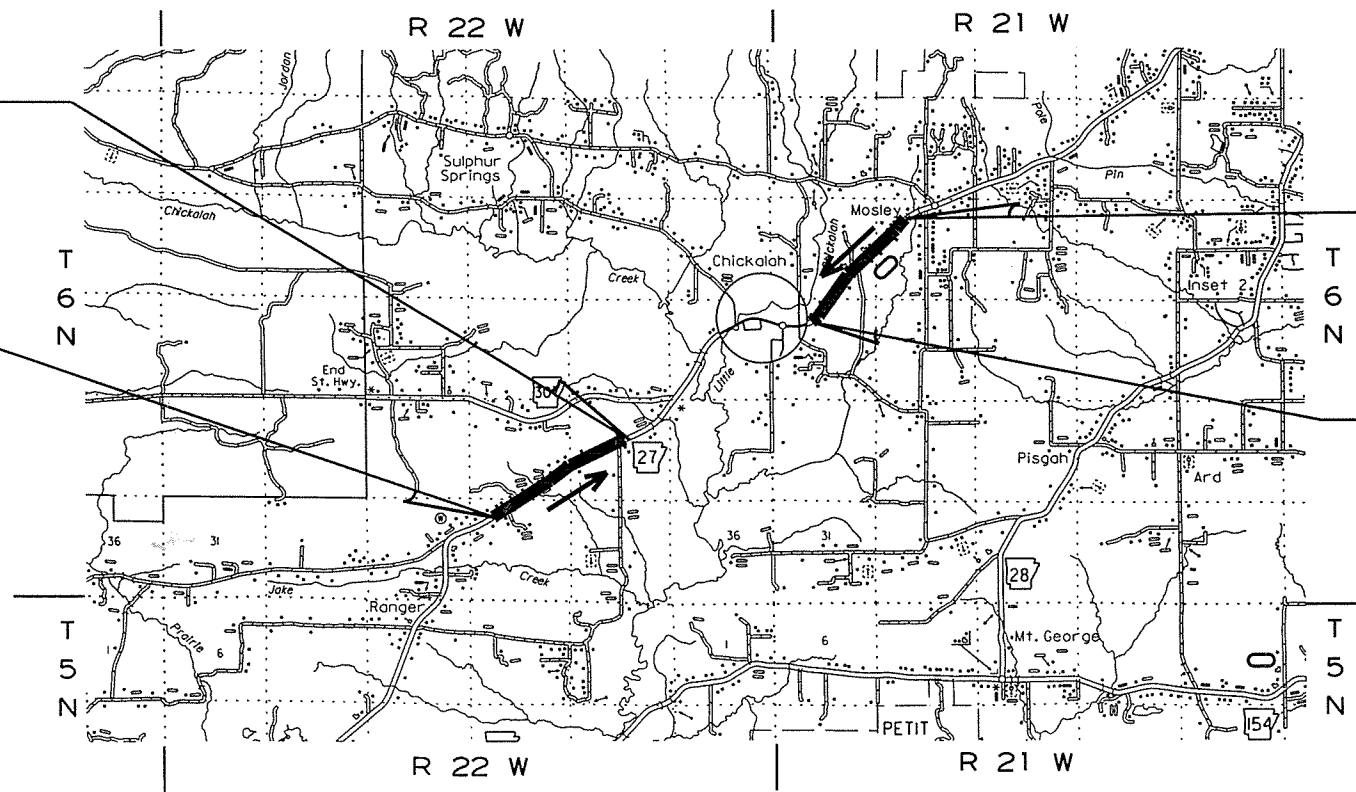
STA. 101+00.00 - BEGIN SITE 1
BEGIN JOB 080428
NORTHBOUND PASSING LANE
LOG MILE 7.20

• DESIGN TRAFFIC DATA •

DESIGN YEAR	-----	2034
2014 ADT	-----	4400
2034 ADT	-----	5900
2034 DHV	-----	649
DIRECTIONAL DISTRIBUTION	-----	60%
TRUCKS	-----	8%
AVERAGE RUNNING SPEED	-----	55 MPH

STA. 285+00.96 - END SITE 2
END JOB 080428
LOG MILE 12.04

STA. 224+00.00 - BEGIN SITE 2
SOUTHBOUND PASSING LANE
LOG MILE 10.88



BEGINNING OF SITE 1	BEGINNING OF SITE 2
LAT. = N 35° 08' 22"	LAT. = N 35° 10' 03"
LONG. = W 93° 19' 37"	LONG. = W 93° 16' 15"
MID-POINT OF SITE 1	MID-POINT OF SITE 2
LAT. = N 35° 08' 40"	LAT. = N 35° 10' 26"
LONG. = W 93° 19' 01"	LONG. = W 93° 15' 51"
END OF SITE 1	END OF SITE 2
LAT. = N 35° 08' 54"	LAT. = N 35° 10' 46"
LONG. = W 93° 18' 23"	LONG. = W 93° 15' 24"

GROSS LENGTH OF PROJECT	13020.96	FEET OR	2.466	MILES
NET " " ROADWAY	13020.96	" "	2.466	"
NET " " BRIDGES	0.00	" "	0.000	"
NET " " PROJECT	13020.96	" "	2.466	"



P.E. 080428
NON-PART.

05/31/2013
r080428.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.	080428		2	134

2 INDEX, GOVERN. SPEC., AND GENERAL NOTES



INDEX OF SHEETS

SHEET NO.	TITLE	DRWG. NO.	DATE
1	TITLE SHEET		
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES		
3-4	TYPICAL SECTIONS OF IMPROVEMENT		
5-6	SPECIAL DETAILS		
7-18	TEMPORARY EROSION CONTROL DETAILS		
19-31	MAINTENANCE OF TRAFFIC DETAILS		
32-33	PERMANENT PAVEMENT MARKING DETAILS		
34-39	QUANTITIES		
40	SUMMARY OF QUANTITIES AND REVISIONS		
41-47	SURVEY CONTROL DETAILS		
48-57	PLAN AND PROFILE SHEETS		
58	CONCRETE DITCH PAVING	CDP-1	11-17-10
59	FLARED END SECTION	FES-1	10-18-96
60	FLARED END SECTION	FES-2	10-18-96
61	MAILBOX DETAILS	MB-1	11-18-04
62	PRECAST CONCRETE BOX CULVERTS	PBC-1	12-15-11
63	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1	12-15-11
64	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1	12-15-11
65	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1	12-15-11
66	PLASTIC PIPE CULVERT (PVC F949)	PCP-2	12-15-11
67	PAVEMENT MARKING DETAILS	PM-1	9-12-13
68	DETAILS OF PIPE UNDERDRAIN	PU-1	4-10-03
69	REINFORCED CONCRETE BOX CULVERT DETAILS	RCB-1	7-26-12
70	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	RCB-2	11-20-03
71	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	RCB-3	10-12-95
72	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2	10-18-96
73	DETAILS OF SPECIAL ITEMS	SI-1	9-12-13
74	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	12-15-11
75	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	9-12-13
76	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	10-15-09
77	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	TC-4	10-15-09
78	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER	TC-5	10-15-09
79	TEMPORARY EROSION CONTROL DEVICES	TEC-1	12-15-11
80	TEMPORARY EROSION CONTROL DEVICES	TEC-2	6-02-94
81	TEMPORARY EROSION CONTROL DEVICES	TEC-3	11-03-94
82	WIRE FENCE WATER GAPS	WF-2	4-20-79
83	WIRE FENCE TYPE C & D	WF-4	8-22-02
84	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	W-X003-1	5-10-66
85	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	W-X30	7-15-63
86	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	W-X303-1	5-10-66
87	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	W-X45	6-15-64
88	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	W-X453-1	5-10-66
89	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	R-100X-0	2-08-63
89A	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	R-200X-0	2-15-63
90	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	R-230X-01	2-26-64
91	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	R-245X-01	7-14-64
92-134	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 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
102-1	BIDDING REQUIREMENTS AND CONDITIONS
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
105-3	CONTROL OF WORK
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
404-2	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-3	ASPHALT CONCRETE COLD PLANT MIX
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-2	INSPECTION OF TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
620-1	MULCH COVER
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2	THERMOPLASTIC PAVEMENT MARKING MATERIAL
804-1	INSTALLATION OF DOWEL BARS AND TIE BARS
JOB 080428	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 080428	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 080428	CONSTRUCTION DELAY DUE TO GRAVE RELOCATION
JOB 080428	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
JOB 080428	EXTENSION FOR PIPE CULVERTS
JOB 080428	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 080428	INTERNET BIDDING
JOB 080428	PARTNERING REQUIREMENTS
JOB 080428	PLASTIC PIPE
JOB 080428	SOIL STABILIZATION
JOB 080428	STORM WATER POLLUTION PREVENTION PLAN
JOB 080428	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 080428	TEMPORARY IMPACT ATTENUATION BARRIER
JOB 080428	UTILITY ADJUSTMENTS
JOB 080428	VALUE ENGINEERING
JOB 080428	WARM MIX ASPHALT

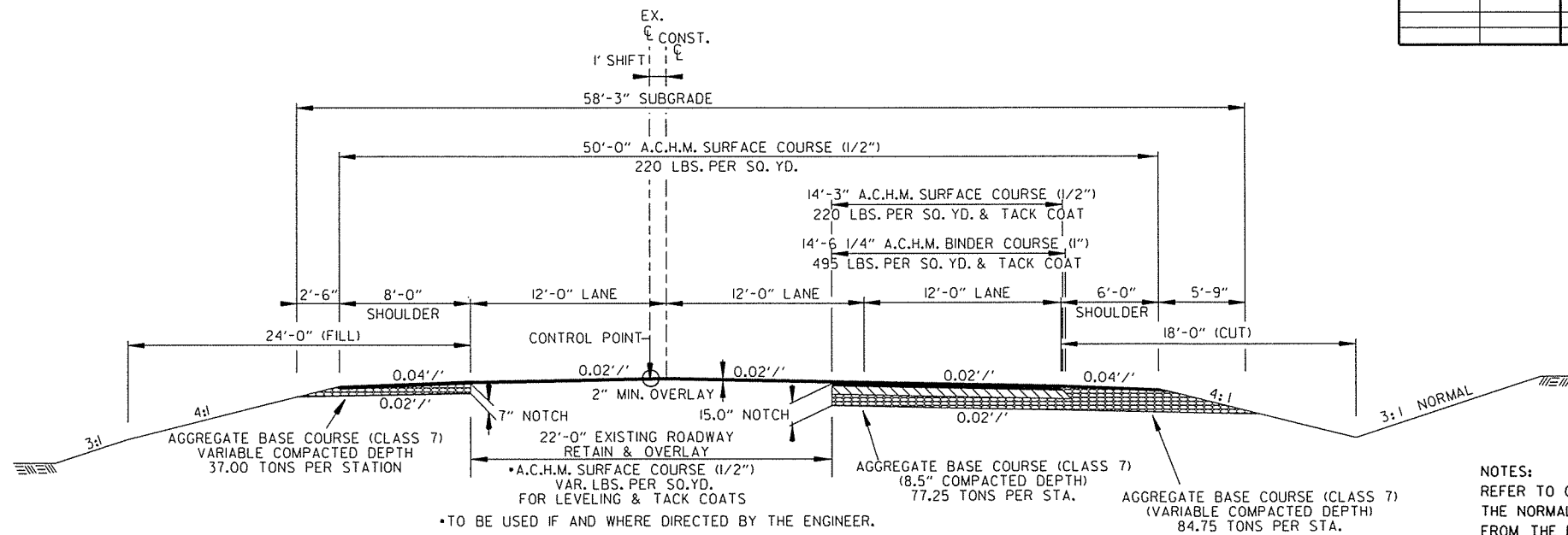
GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- 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.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR, AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.
- 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.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 UNCLASSIFIED EXCAVATION.

INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							3	134

2 TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT
SITE 1
NOTCH AND WIDENING
TANGENT SECTION - NORTHBOUND PASSING LANE

STA. 101+00.00 - STA. 170+20.00

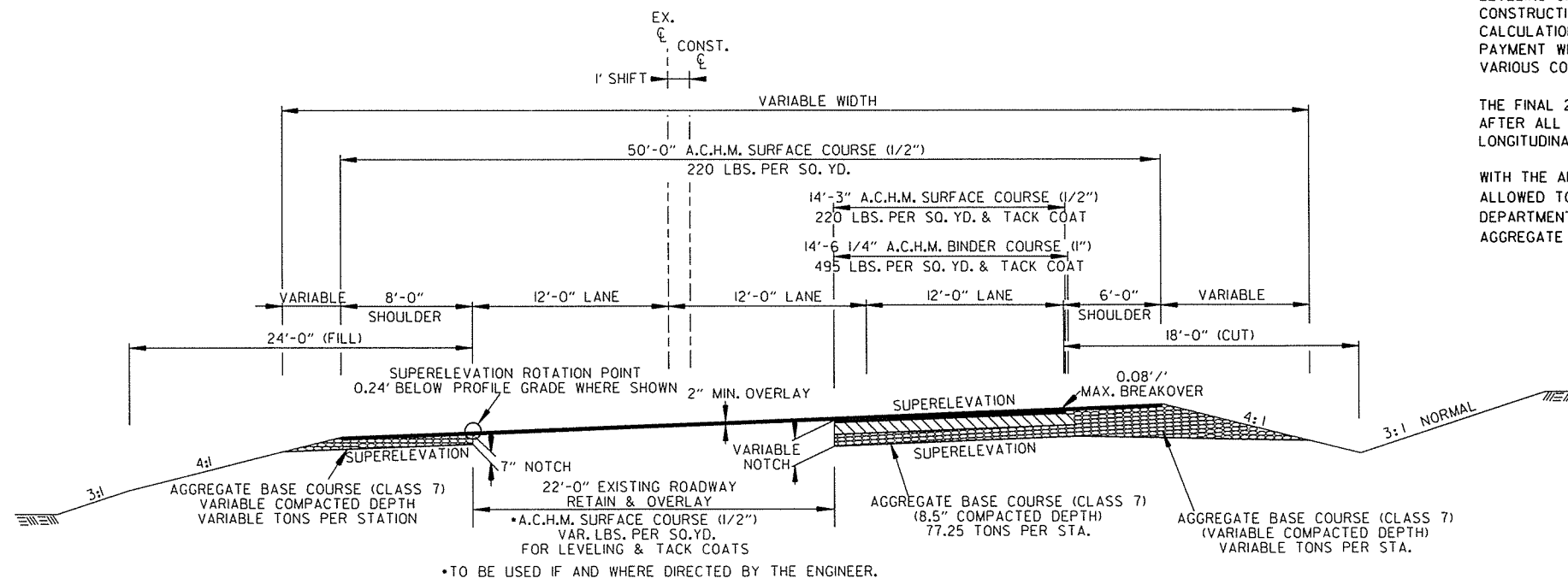
NOTES:
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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

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

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



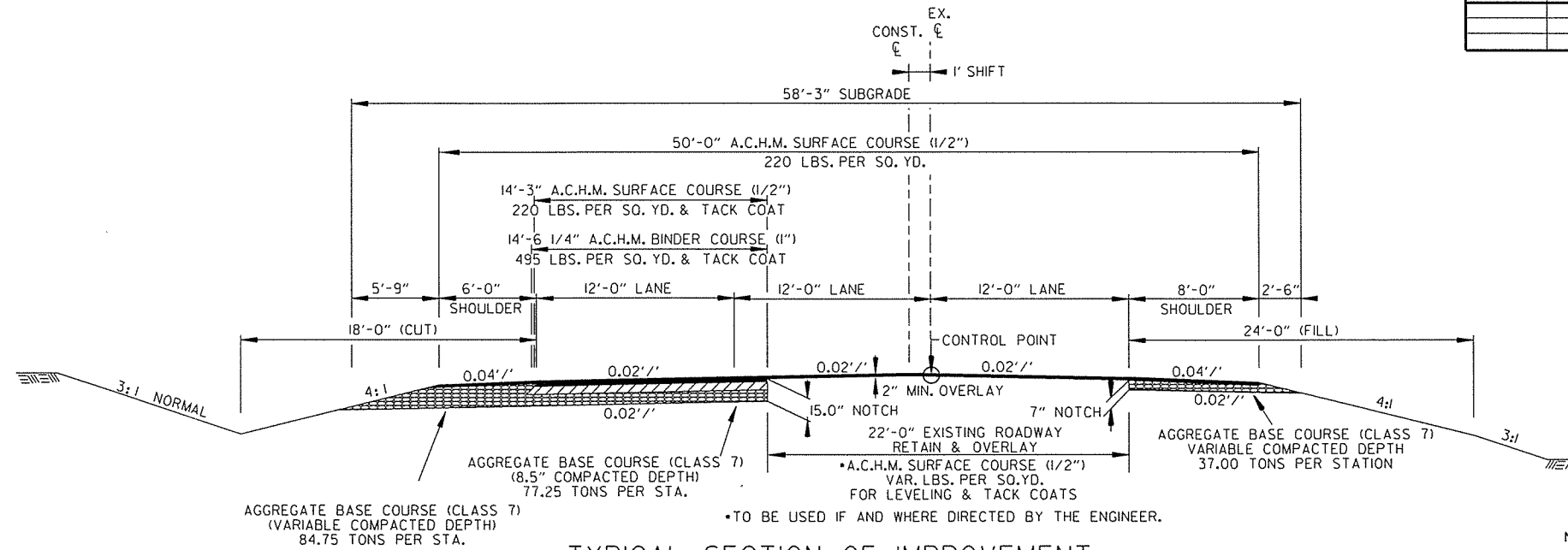
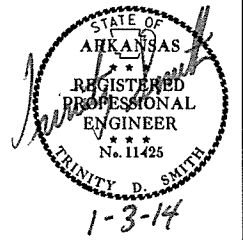
TYPICAL SECTION OF IMPROVEMENT
SITE 1
NOTCH AND WIDENING
SUPERELEVATION SECTION - NORTHBOUND PASSING LANE

STA. 101+00.00 - STA. 170+20.00

TYPICAL SECTIONS OF IMPROVEMENT

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						JOB NO.	080428	4 134

2 TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT
 SITE 2
 NOTCH AND WIDENING
 TANGENT SECTION - SOUTHBOUND PASSING LANE
 STA. 224+00.00 - STA. 284+00.96

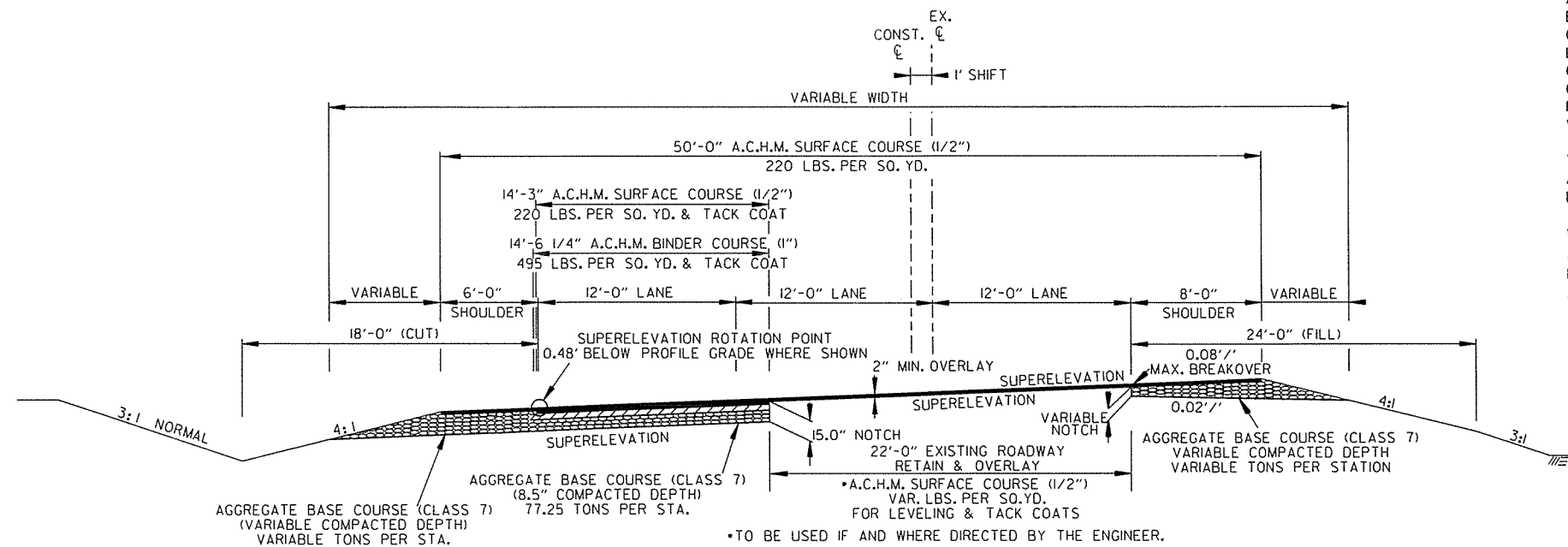
NOTES:
 REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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TYPICAL SECTION OF IMPROVEMENT
 SITE 2
 NOTCH AND WIDENING
 SUPERELEVATION SECTION - SOUTHBOUND PASSING LANE
 STA. 224+00.00 - STA. 284+00.96

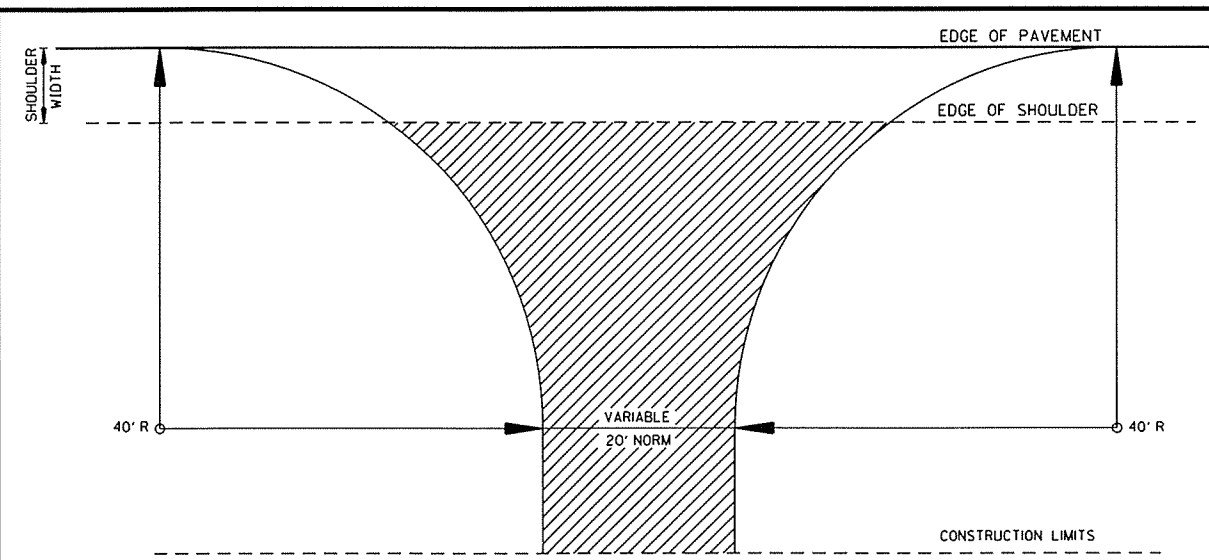
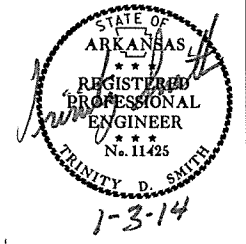
TYPICAL SECTIONS OF IMPROVEMENT

12/19/2013

R080428.DGN

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				6	ARK.			
						JOB NO. 080428	5	134

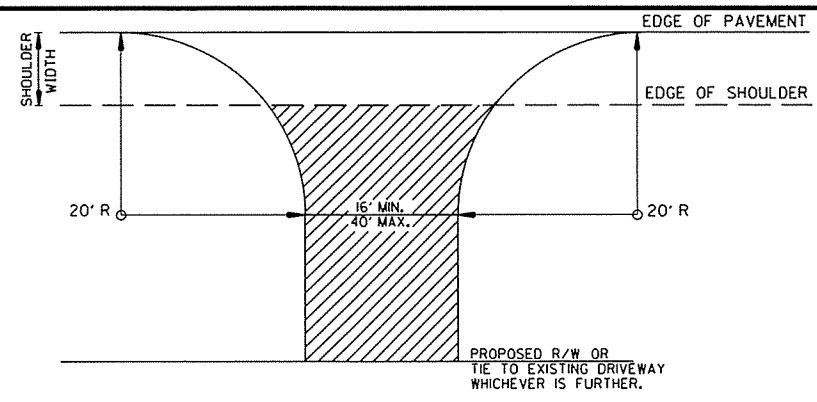
2 SPECIAL DETAILS



ASPHALT CONCRETE HOT MIX SURFACE COURSE (1/2") (220 LBS./SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH)

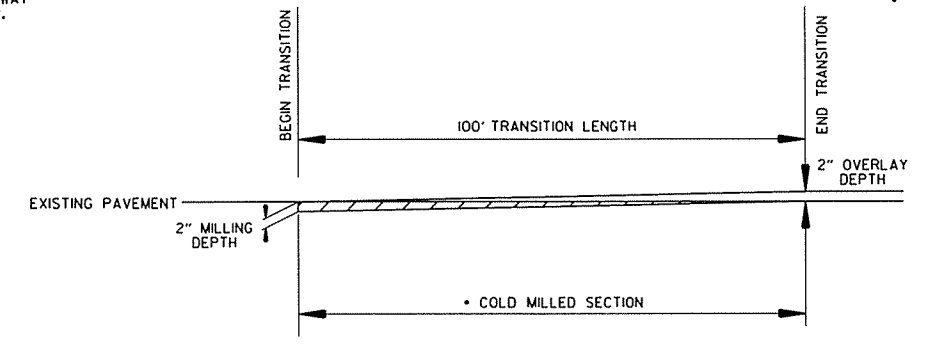
NOTE: REFER TO PLAN SHEETS FOR WIDTHS OF COUNTY ROADS.

DETAIL FOR COUNTY ROAD TURNOUT



A.C.H.M. SURFACE COURSE (1/2") (220 LBS./SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH) IF ASPHALT DRIVE EXISTS OR 6" CONCRETE IF CONCRETE DRIVE EXISTS.

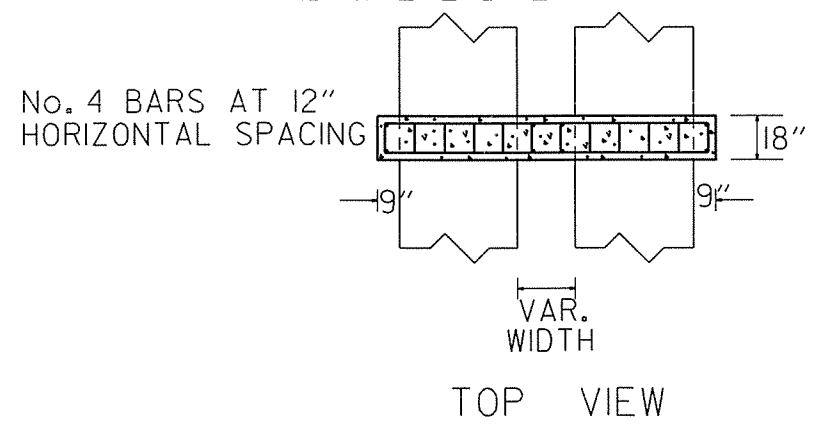
DETAIL FOR DRIVEWAY TURNOUTS



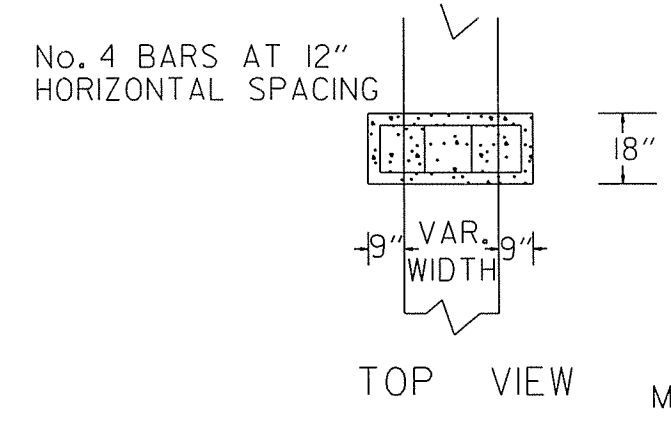
DETAIL SHOWING TRANSITION TO EXISTING PAVEMENT

TO BE USED AS DIRECTED BY THE ENGINEER

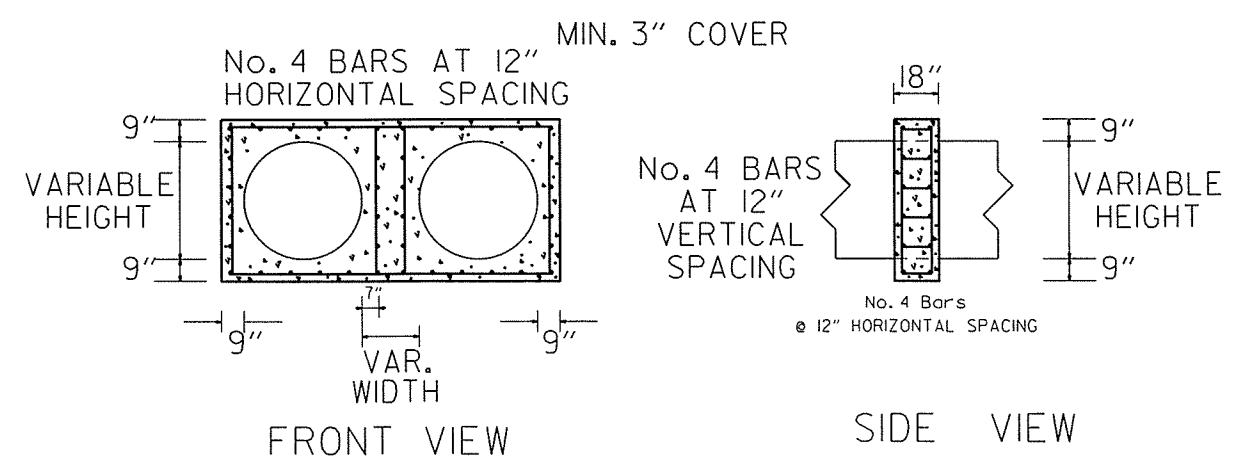
NOTE: PIPE COLLAR TO BE UTILIZED IF AND WHERE DIRECTED BY THE ENGINEER.



TOP VIEW



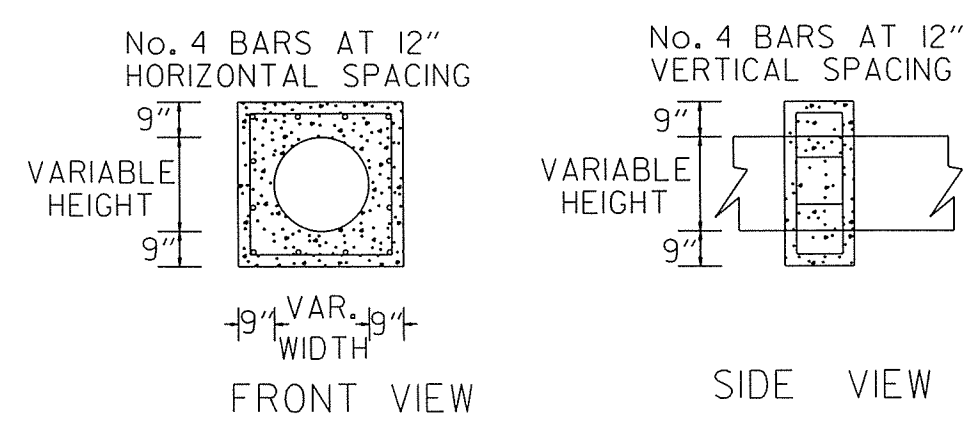
TOP VIEW



FRONT VIEW

SIDE VIEW

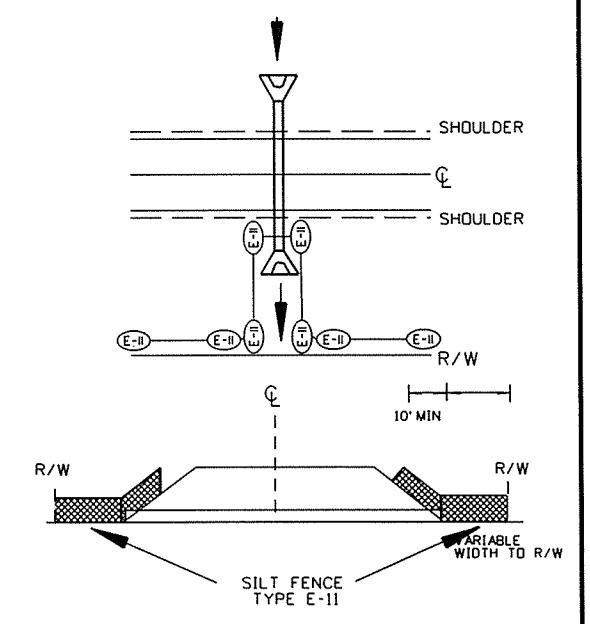
PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL



FRONT VIEW

SIDE VIEW

PIPE EXTENSION REINFORCED CONCRETE COLLAR DETAIL



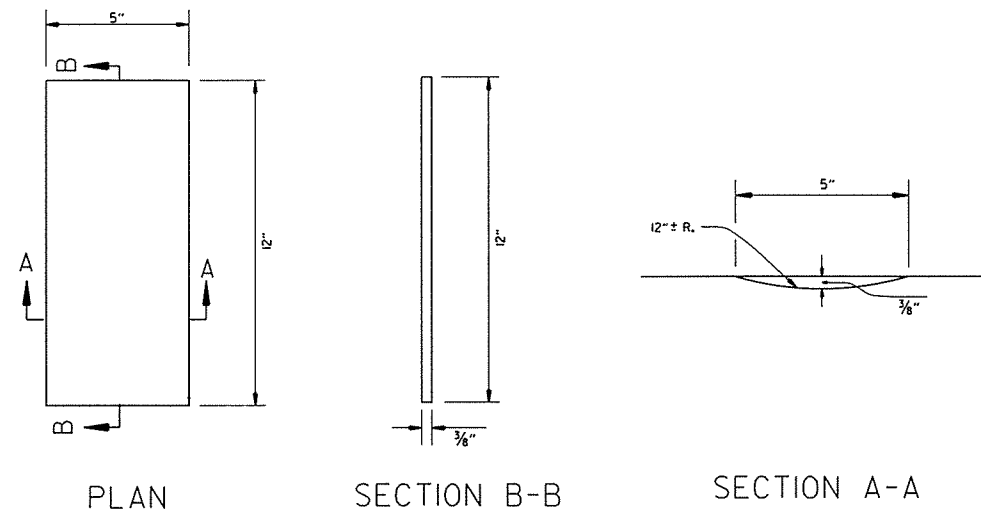
DETAILS OF SILT FENCE AT CROSS DRAINS

SPECIAL DETAILS

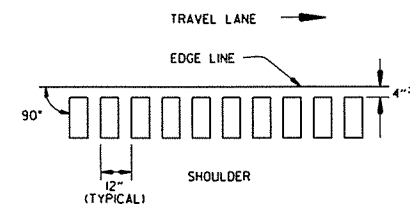
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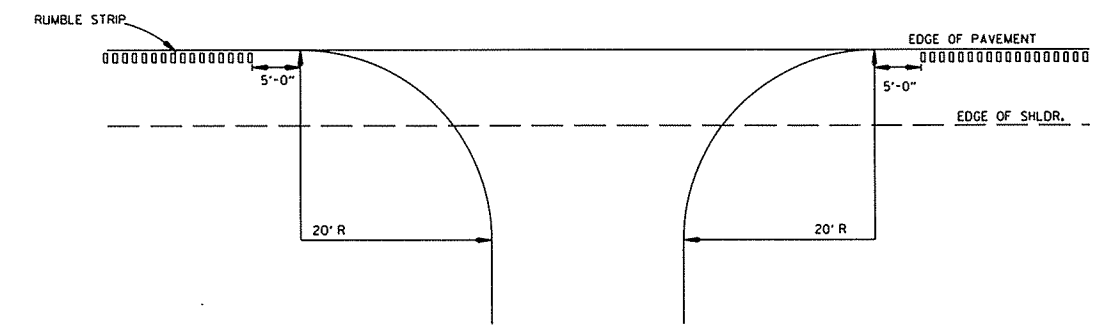
2 SPECIAL DETAILS



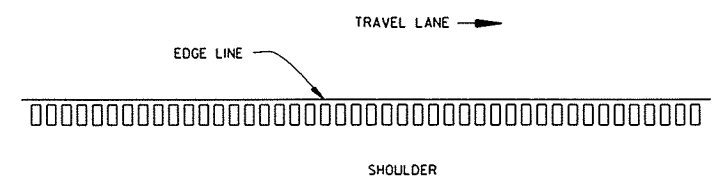
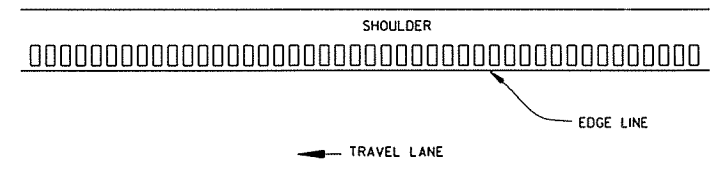
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



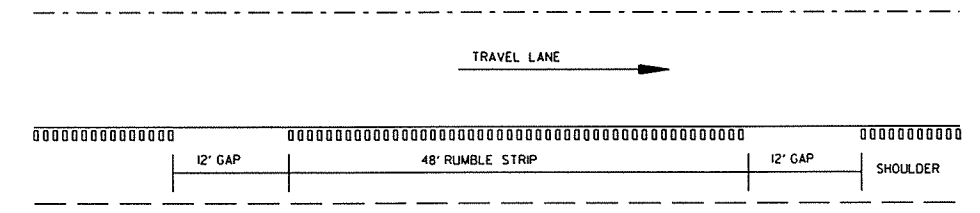
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



DETAIL FOR GAP PATTERN RUMBLE STRIP

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

SPECIAL DETAILS

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SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

CLEARING AND GRUBBING

STA. 100+00.00 - STA. 115+00.00 LT. & RT. 15 STA.

SILT FENCE (E-11)

STA. 103+00.00 - STA. 105+00.00 LT. 200 LIN. FT.

SAND BAG DITCH CHECKS (E-5)

STA.	LT. & RT.	INSTALLATIONS	BAG
STA. 101+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 108+00	LT. & RT.	2 INSTALLATIONS	40 BAG

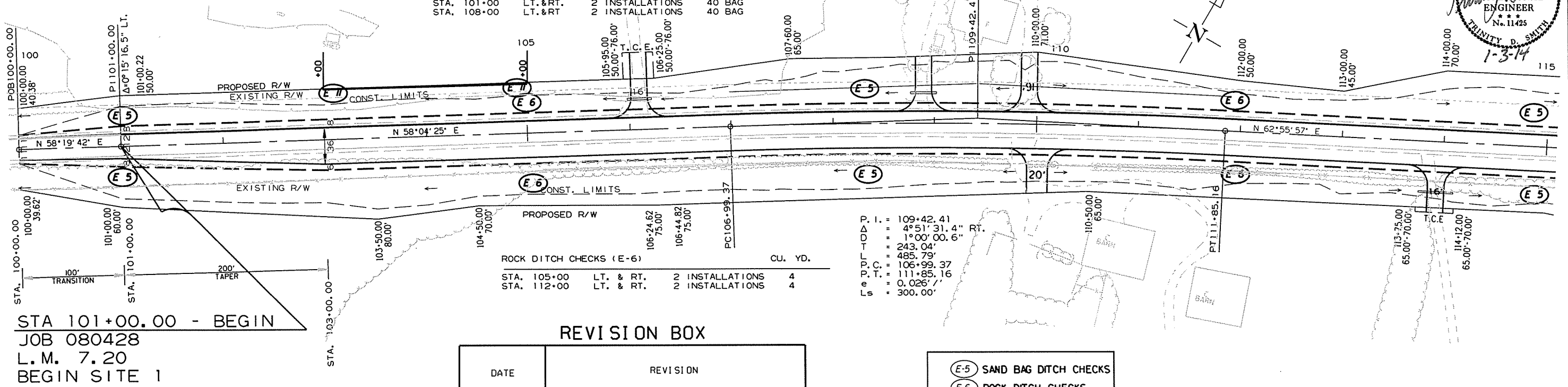
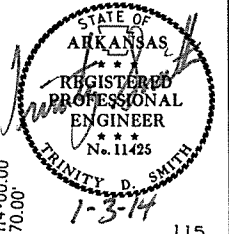
ROCK DITCH CHECKS (E-6)

STA.	LT. & RT.	INSTALLATIONS	CU. YD.
STA. 105+00	LT. & RT.	2 INSTALLATIONS	4
STA. 112+00	LT. & RT.	2 INSTALLATIONS	4

P. I. = 109+42.41
 Δ = 4°51'31.4" RT.
 Δ = 1°00'00.6"
 T = 243.04'
 L = 485.79'
 P. C. = 106+99.37
 P. T. = 111+85.16
 e = 0.025' /'
 Ls = 300.00'

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							7	134

2 TEMPORARY EROSION CONTROL DETAILS

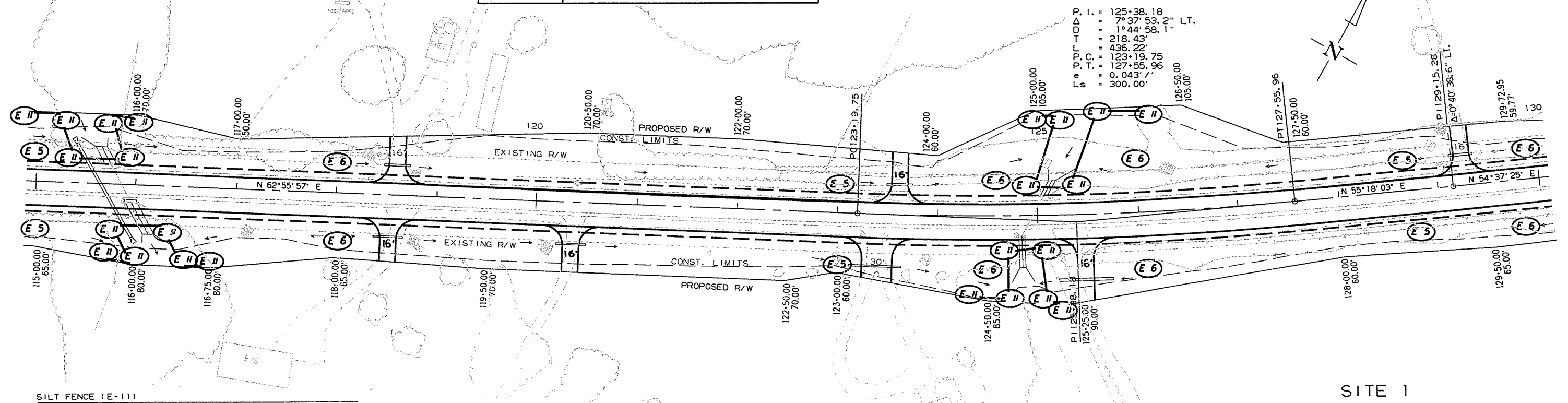


STA 101+00.00 - BEGIN
 JOB 080428
 L.M. 7.20
 BEGIN SITE 1

DATE	REVISION

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) SILT FENCE
- (E-1A) SEDIMENT BASIN

CLEARING AND GRUBBING
 STA. 115+00.00 - STA. 130+00.00 LT. & RT. 15 STA.



SILT FENCE (E-11)

STA. 115+00.00 - STA. 116+00.00	LT.	196 LIN. FT.
STA. 115+50.00 - STA. 116+75.00	RT.	192 LIN. FT.
STA. 125+00.00 - STA. 126+10.00	LT.	393 LIN. FT.
STA. 124+41.00 - STA. 125+31.00	RT.	350 LIN. FT.

SITE 1
 TEMPORARY EROSION CONTROL DETAILS
 STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							8	134

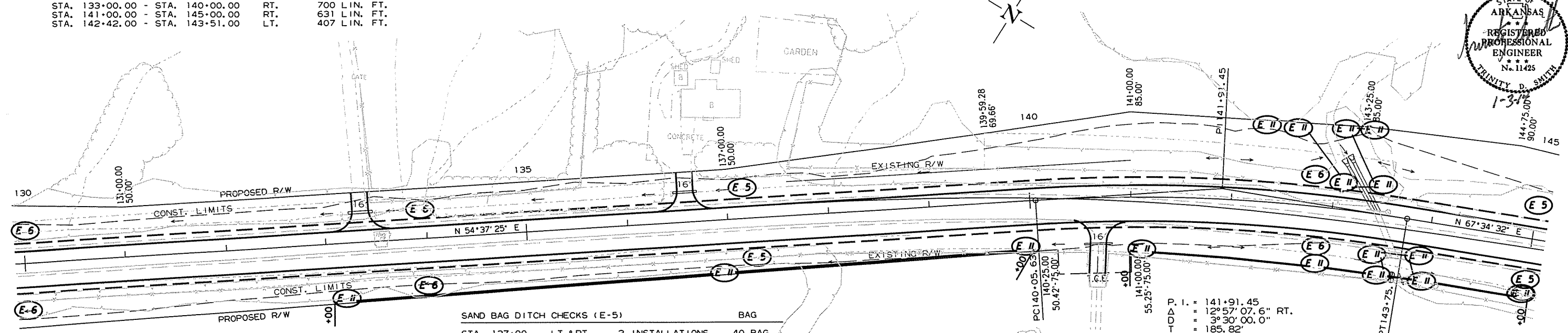
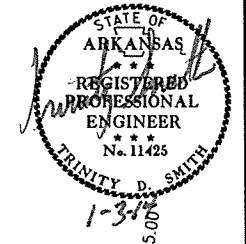
CLEARING AND GRUBBING

STA. 130+00.00 - STA. 145+00.00	LT. & RT.	15 STA.
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SILT FENCE (E-11)

STA. 133+00.00 - STA. 140+00.00	RT.	700 LIN. FT.
STA. 141+00.00 - STA. 145+00.00	RT.	631 LIN. FT.
STA. 142+42.00 - STA. 143+51.00	LT.	407 LIN. FT.

2 TEMPORARY EROSION CONTROL DETAILS



SAND BAG DITCH CHECKS (E-5)

STA.	LT. & RT.	INSTALLATIONS	BAG
137+00	LT. & RT.	2	40
145+00	LT. & RT.	2	40

P. I. = 141+91.45
 Δ = 12°57'07.6" RT.
 D = 3°30'00.0"
 T = 185.82'
 P. C. = 140+05.63
 P. T. = 143+75.69
 e = 0.076'
 Ls = 300.00'

ROCK DITCH CHECKS (E-6)

STA.	LT. & RT.	INSTALLATIONS	CU. YD.
134+00	LT. & RT.	2	4
143+00	LT. & RT.	2	4

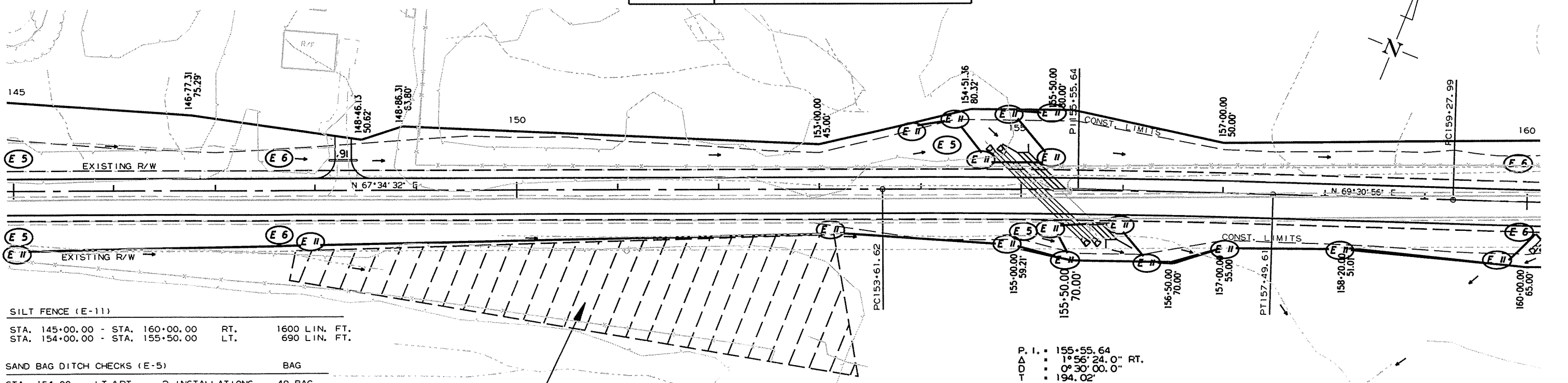
REVISION BOX

DATE	REVISION

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

CLEARING AND GRUBBING

STA. 145+00.00 - STA. 160+00.00	LT. & RT.	15 STA.
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SILT FENCE (E-11)

STA. 145+00.00 - STA. 160+00.00	RT.	1600 LIN. FT.
STA. 154+00.00 - STA. 155+50.00	LT.	690 LIN. FT.

SAND BAG DITCH CHECKS (E-5)

STA.	LT. & RT.	INSTALLATIONS	BAG
154+00	LT. & RT.	2	40

ROCK DITCH CHECKS (E-6)

STA.	LT. & RT.	INSTALLATIONS	CU. YD.
148+00	LT. & RT.	2	4
160+00	LT. & RT.	2	4

P. I. = 153+55.64
 Δ = 0°56'24.0" RT.
 D = 3°30'00.0"
 T = 194.02'
 P. C. = 153+61.62
 P. T. = 157+49.61
 NO SUPER

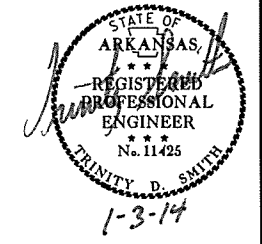
NOTE: ENVIRONMENTAL RESTRAINING CONDITION. AREA DELINEATED SHALL NOT BE DISTURBED.

SITE 1
 TEMPORARY EROSION CONTROL DETAILS
 STAGE 1

10/22/2013 R080428.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. 080428	9 134

2 TEMPORARY EROSION CONTROL DETAILS



CLEARING AND GRUBBING

STA. 160+00.00 - STA. 164+00	LT. & RT.	4 STA.
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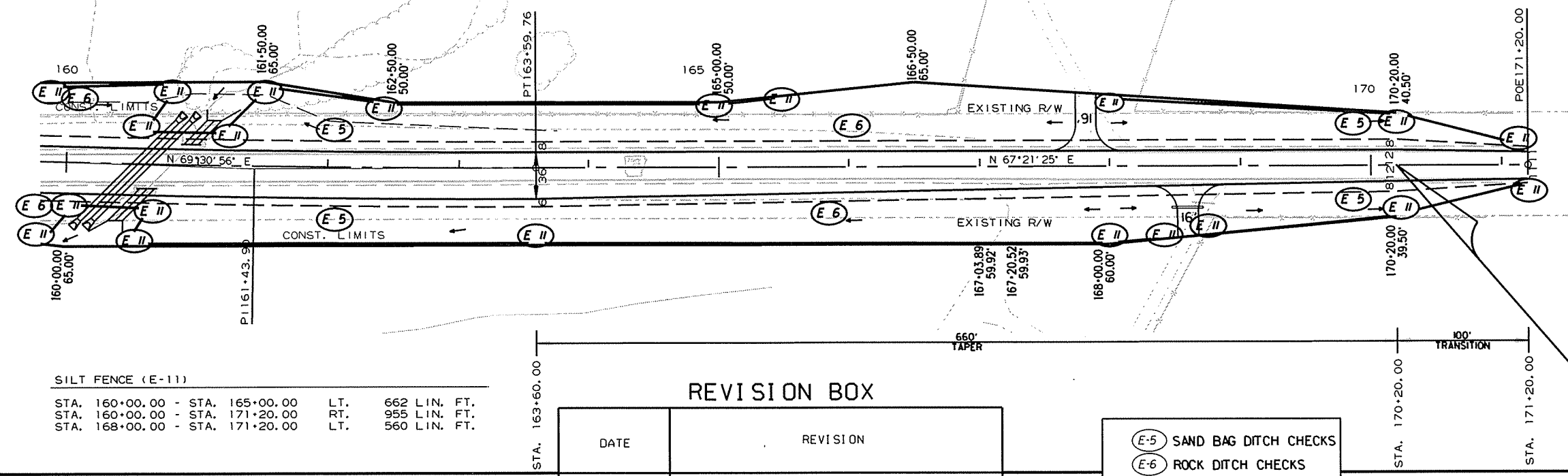
SAND BAG DITCH CHECKS (E-5) BAG

STA. 162+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 170+00	LT. & RT.	2 INSTALLATIONS	40 BAG

ROCK DITCH CHECKS (E-6) CU. YD.

STA. 166+00	LT. & RT.	2 INSTALLATIONS	4
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P. I. = 161+43.90
 Δ = 2° 09' 31.9" LT.
 D = 0° 30' 00.0"
 T = 215.91'
 P. C. = 431.77'
 P. T. = 159+27.99
 T. = 163+59.76
 NO SUPER



SILT FENCE (E-11)

STA. 160+00.00 - STA. 165+00.00	LT.	662 LIN. FT.
STA. 160+00.00 - STA. 171+20.00	RT.	955 LIN. FT.
STA. 168+00.00 - STA. 171+20.00	LT.	560 LIN. FT.

REVISION BOX

DATE	REVISION

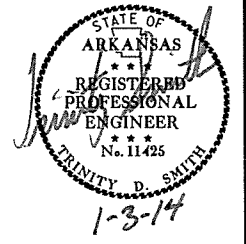
- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN

STA 170+20.00 - END
 JOB 080428
 L.M. 8.51
 END SITE 1

SITE 1
 TEMPORARY EROSION CONTROL DETAILS
 STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		10	134

② TEMPORARY EROSION CONTROL DETAILS



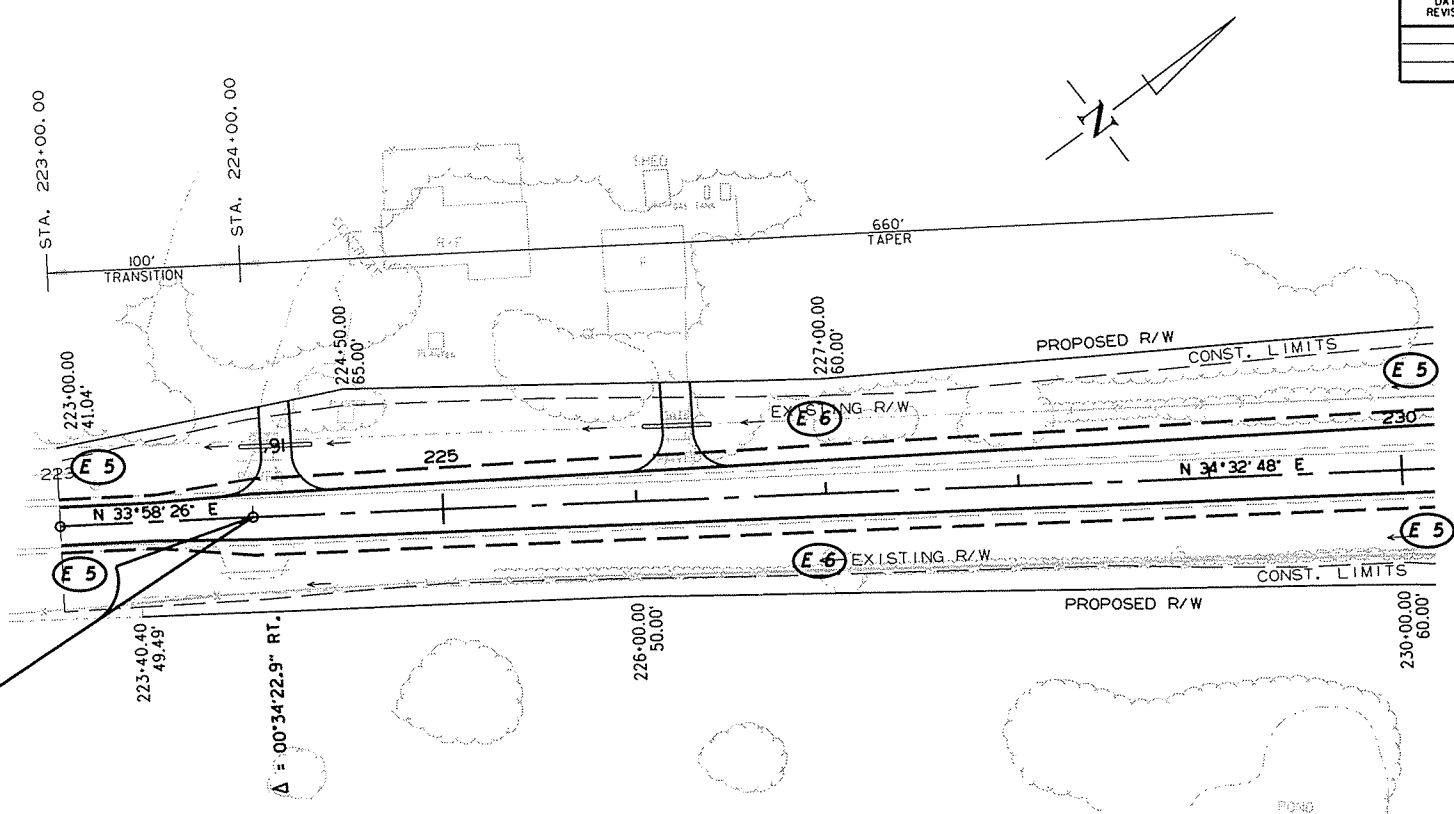
SEQUENCING:
 STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.
 STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.
 STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

CLEARING AND GRUBBING

STA.	LT. & RT.	INSTALLATIONS	BAG
STA. 223+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 230+00	LT. & RT.	2 INSTALLATIONS	40 BAG

ROCK DITCH CHECKS (E-6)

STA.	LT. & RT.	INSTALLATIONS	CU. YD.
STA. 227+00	LT. & RT.	2 INSTALLATIONS	4

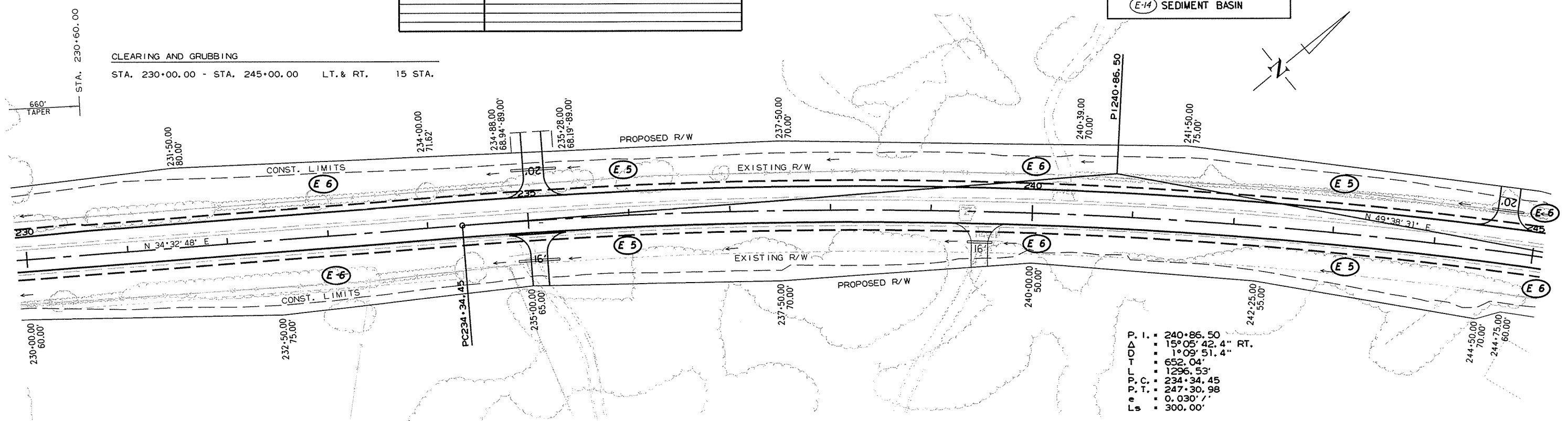


STA 224+00.00 - BEGIN
 JOB 080428
 L.M. 10.88
 BEGIN SITE 2

REVISION BOX

DATE	REVISION

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



P. I. = 240+86.50
 Δ = 15°05'42.4" RT.
 D = 1°09'51.4"
 T = 652.04'
 L = 1296.53'
 P. C. = 234+34.45
 P. T. = 247+30.98
 e = 0.030' / '
 Ls = 300.00'

SAND BAG DITCH CHECKS (E-5)				ROCK DITCH CHECKS (E-6)			
STA.	LT. & RT.	INSTALLATIONS	BAG	STA.	LT. & RT.	INSTALLATIONS	CU. YD.
STA. 236+00	LT. & RT.	2 INSTALLATIONS	40 BAG	STA. 233+00	LT. & RT.	2 INSTALLATIONS	4.2
STA. 243+00	LT. & RT.	2 INSTALLATIONS	40 BAG	STA. 240+00	LT. & RT.	2 INSTALLATIONS	4.2

SITE 2
 TEMPORARY EROSION CONTROL DETAILS
 STAGE 1

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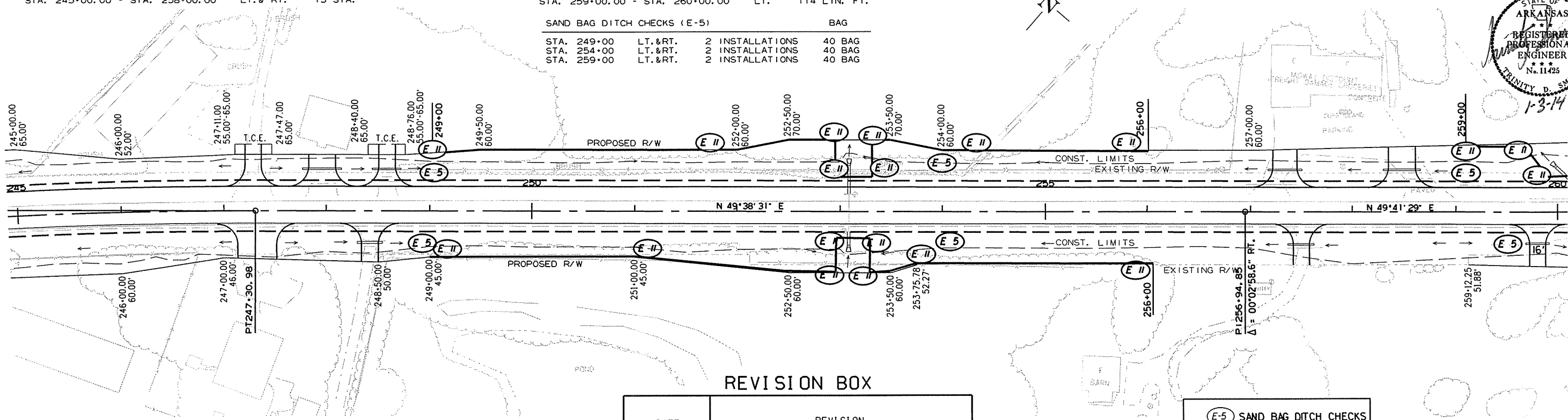
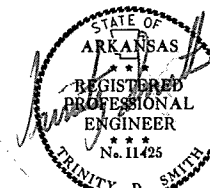
ROCK DITCH CHECKS (E-6)		CU. YD.	
STA. 252+50	LT. & RT.	2 INSTALLATIONS	4
STA. 257+00	LT. & RT.	2 INSTALLATIONS	4
CLEARING AND GRUBBING			
STA. 245+00.00 - STA. 258+00.00		LT. & RT.	13 STA.

SILT FENCE (E-11)			
STA. 249+00.00 - STA. 256+00.00	LT.	787 LIN. FT.	
STA. 249+00.00 - STA. 256+00.00	RT.	780 LIN. FT.	
STA. 259+00.00 - STA. 260+00.00	LT.	114 LIN. FT.	

SAND BAG DITCH CHECKS (E-5)				BAG
STA. 249+00	LT. & RT.	2 INSTALLATIONS		40 BAG
STA. 254+00	LT. & RT.	2 INSTALLATIONS		40 BAG
STA. 259+00	LT. & RT.	2 INSTALLATIONS		40 BAG

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		11	134
						JOB NO.	080428	

2 TEMPORARY EROSION CONTROL DETAILS

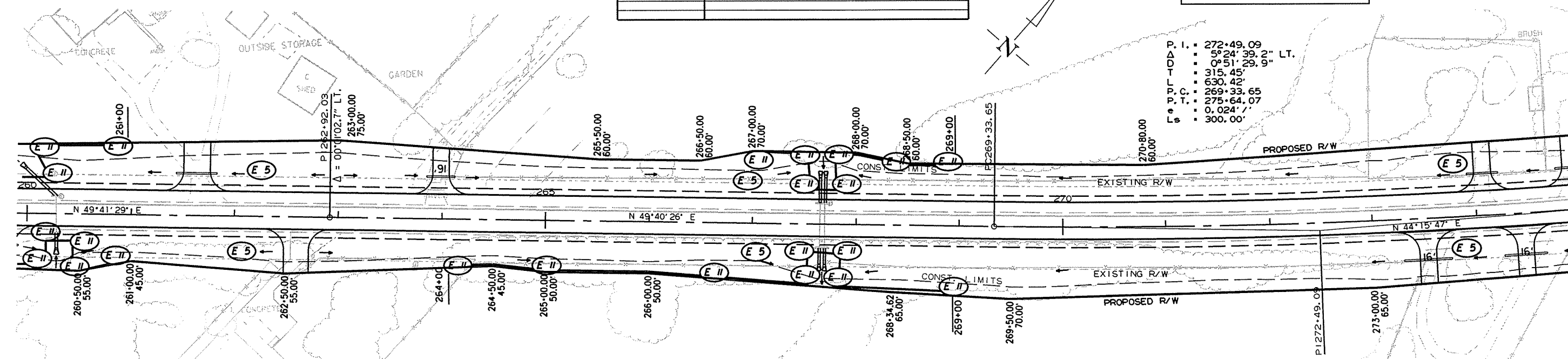


REVISION BOX

DATE	REVISION

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

CLEARING AND GRUBBING		STA.	
STA. 260+00.00 - STA. 275+00.00		LT. & RT.	15 STA.



P. I. = 272+49.09
 Δ = 59°24'39.2" LT.
 D = 0°51'29.9"
 T = 315.45'
 L = 630.42'
 P. C. = 269+33.65
 P. T. = 275+64.07
 e = 0.024'
 Ls = 300.00'

SAND BAG DITCH CHECKS (E-5)				BAG
STA. 262+00	LT. & RT.	2 INSTALLATIONS		40 BAG
STA. 267+00	LT. & RT.	2 INSTALLATIONS		40 BAG
STA. 273+00	LT. & RT.	2 INSTALLATIONS		40 BAG

SILT FENCE (E-11)			
STA. 260+00.00 - STA. 261+00.00	LT.	171 LIN. FT.	
STA. 260+00.00 - STA. 261+00.00	RT.	188 LIN. FT.	
STA. 264+00.00 - STA. 268+50.00	RT.	560 LIN. FT.	
STA. 267+00.00 - STA. 268+50.00	LT.	226 LIN. FT.	

ROCK DITCH CHECKS (E-6)				CU. YD.
STA. 261+00	LT. & RT.	2 INSTALLATIONS		4
STA. 265+00	LT. & RT.	2 INSTALLATIONS		4
STA. 268+50	LT. & RT.	2 INSTALLATIONS		4
STA. 275+00	LT. & RT.	2 INSTALLATIONS		4

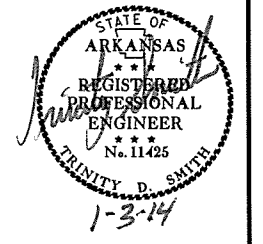
SITE 2
 TEMPORARY EROSION CONTROL DETAILS
 STAGE 1

10/22/2013

RO80428.DGN

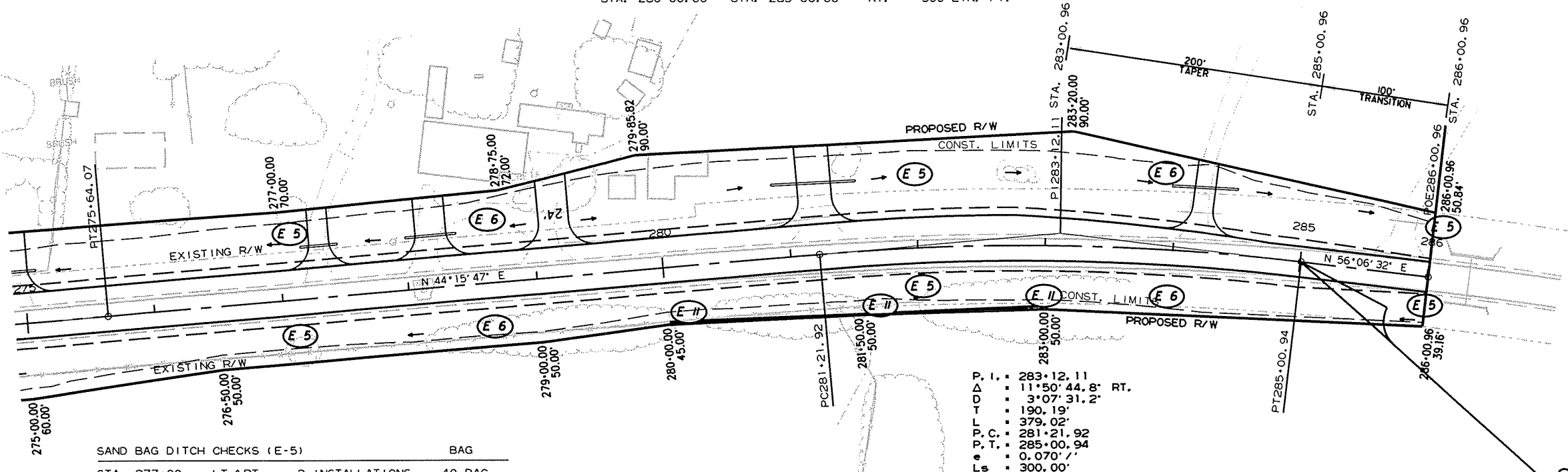
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		12	134

② TEMPORARY EROSION CONTROL DETAILS



CLEARING AND GRUBBING
 STA. 275+00.00 - STA. 284+00.00 LT. & RT. 9 STA.

SILT FENCE (E-11)
 STA. 280+00.00 - STA. 283+00.00 RT. 300 LIN. FT.



SAND BAG DITCH CHECKS (E-5)		BAG	
STA. 277+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 282+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 286+00	LT. & RT.	2 INSTALLATIONS	40 BAG

ROCK DITCH CHECKS (E-6)		CU. YD.	
STA. 278+50	LT. & RT.	2 INSTALLATIONS	4
STA. 284+00	LT. & RT.	2 INSTALLATIONS	4

P. I. : 283+12.11
 Δ : 11°50'44.8" RT.
 D : 3°07'31.2"
 T : 190.19'
 L : 379.02'
 P. C. : 281+21.92
 P. T. : 285+00.94
 e : 0.070'
 Ls : 300.00'

REVISION BOX

DATE	REVISION

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) SILT FENCE
- (E-1A) SEDIMENT BASIN

STA 285+00.96 - END
 JOB 080428
 L.M. 12.04
 END SITE 2

SITE 2
 TEMPORARY EROSION CONTROL DETAILS
 STAGE I

SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

SILT FENCE (E-11)

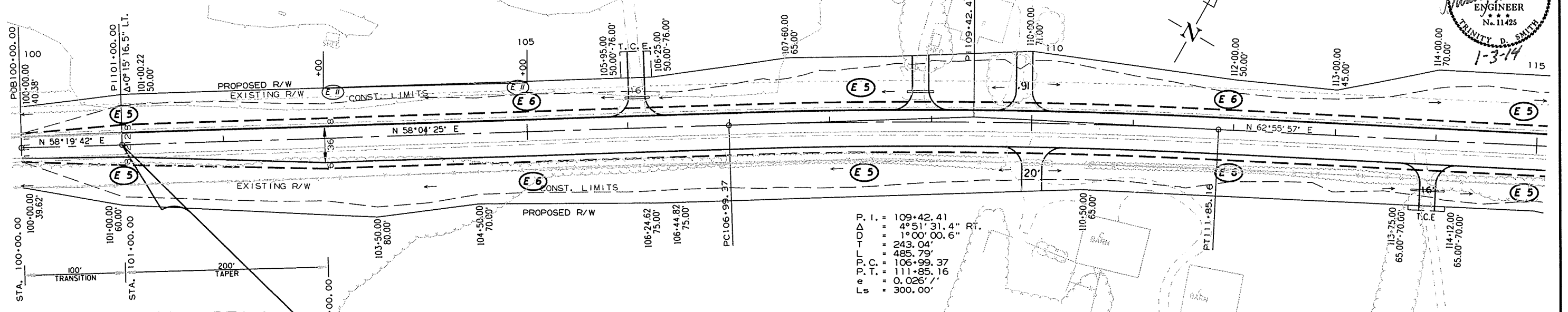
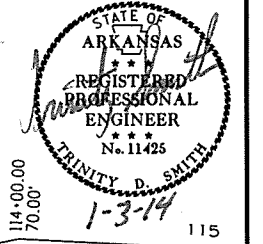
STA. 103+00.00 - STA. 105+00.00 LT. RETAIN

ROCK DITCH CHECKS (E-6)

CU. YD.
 STA. 105+00 LT. & RT. 2 INSTALLATIONS 4
 STA. 112+00 LT. & RT. 2 INSTALLATIONS 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. 080428	13	134

TEMPORARY EROSION CONTROL DETAILS



STA 101+00.00 - BEGIN
 JOB 080428
 L.M. 7.20
 BEGIN SITE 1

REVISION BOX

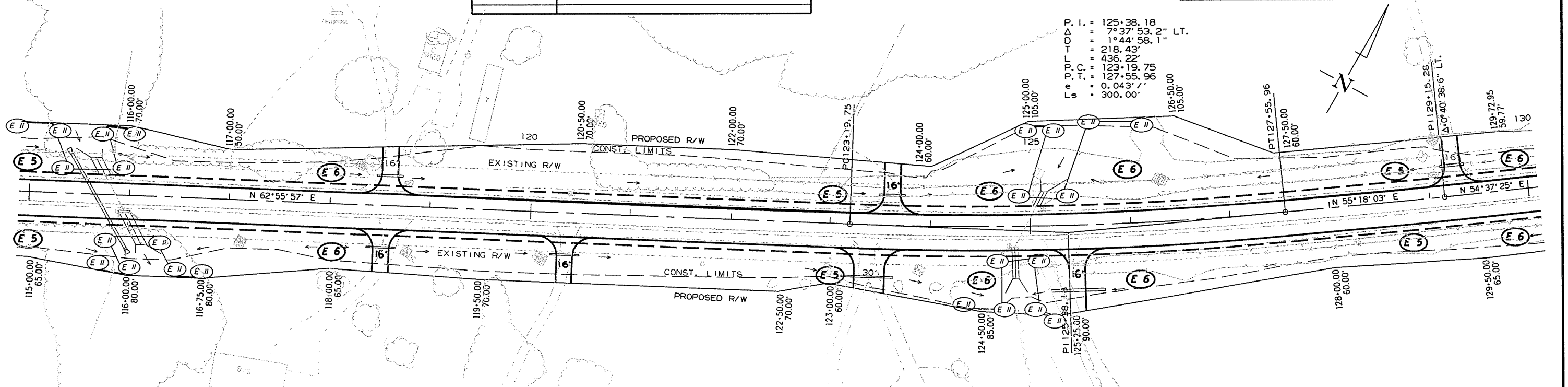
DATE	REVISION

SAND BAG DITCH CHECKS (E-5)

BAG
 STA. 101+00 LT. & RT. 2 INSTALLATIONS 40 BAG
 STA. 108+00 LT. & RT. 2 INSTALLATIONS 40 BAG

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

P. I. = 125+38.18
 Δ = 7°37'53.2" LT.
 D = 1°44'58.1"
 T = 218.43'
 L = 436.22'
 P. C. = 123+19.75
 P. T. = 127+55.96
 e = 0.043' /'
 Ls = 300.00'



ROCK DITCH CHECKS (E-6)

CU. YD.
 STA. 118+00 LT. & RT. 2 INSTALLATIONS 4
 STA. 124+50 LT. & RT. 2 INSTALLATIONS 4
 STA. 125+00 LT. & RT. 2 INSTALLATIONS 4
 STA. 130+00 LT. & RT. 2 INSTALLATIONS 4

SAND BAG DITCH CHECKS (E-5)

BAG
 STA. 115+00 LT. & RT. 2 INSTALLATIONS 40 BAG
 STA. 123+00 LT. & RT. 2 INSTALLATIONS 40 BAG
 STA. 129+00 LT. & RT. 2 INSTALLATIONS 40 BAG

SILT FENCE (E-11)

STA. 115+00.00 - STA. 116+00.00 LT. RETAIN
 STA. 115+50.00 - STA. 116+75.00 RT. RETAIN
 STA. 125+00.00 - STA. 126+10.00 LT. RETAIN
 STA. 124+41.00 - STA. 125+31.00 RT. RETAIN

SITE 1
 TEMPORARY EROSION CONTROL DETAILS
 STAGES 2 & 3

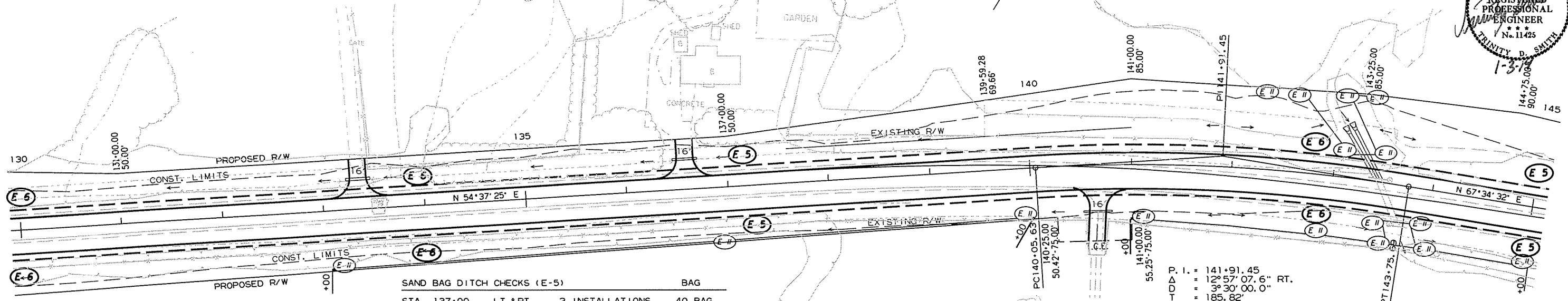
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							14	134

2 TEMPORARY EROSION CONTROL DETAILS



SILT FENCE (E-11)

STA. 133+00.00 - STA. 140+00.00	RT.	RETAIN
STA. 141+00.00 - STA. 145+00.00	RT.	RETAIN
STA. 142+42.00 - STA. 143+51.00	LT.	RETAIN



SAND BAG DITCH CHECKS (E-5)

STA.	LT.&RT.	INSTALLATIONS	BAG
137+00	LT.&RT.	2 INSTALLATIONS	40 BAG
145+00	LT.&RT.	2 INSTALLATIONS	40 BAG

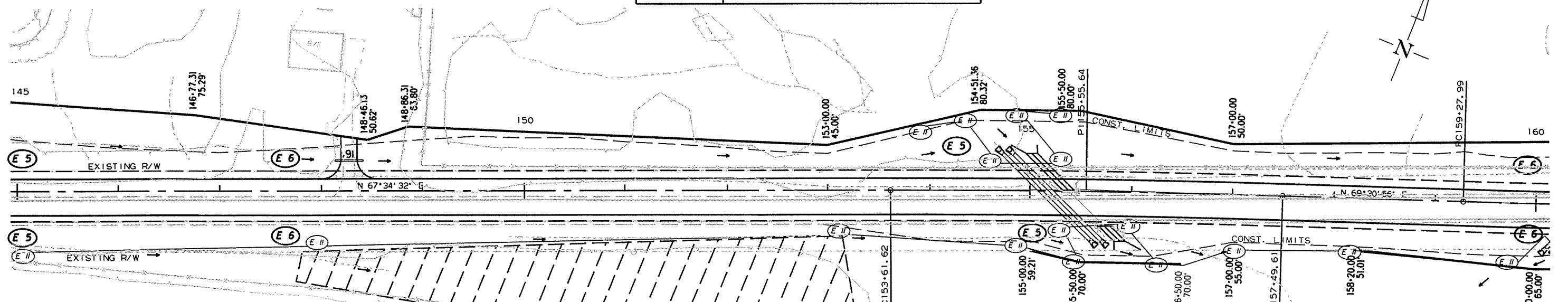
ROCK DITCH CHECKS (E-6)

STA.	LT. & RT.	INSTALLATIONS	CU. YD.
134+00	LT. & RT.	2 INSTALLATIONS	4
143+00	LT. & RT.	2 INSTALLATIONS	4

REVISION BOX

DATE	REVISION

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



SILT FENCE (E-11)

STA. 145+00.00 - STA. 160+00.00	RT.	RETAIN
STA. 154+00.00 - STA. 155+50.00	LT.	RETAIN

SAND BAG DITCH CHECKS (E-5)

STA.	LT.&RT.	INSTALLATIONS	BAG
154+00	LT.&RT.	2 INSTALLATIONS	40 BAG

ROCK DITCH CHECKS (E-6)

STA.	LT. & RT.	INSTALLATIONS	CU. YD.
148+00	LT. & RT.	2 INSTALLATIONS	4
160+00	LT. & RT.	2 INSTALLATIONS	4

NOTE: ENVIRONMENTAL RESTRAINING CONDITION. AREA DELINEATED SHALL NOT BE DISTURBED.

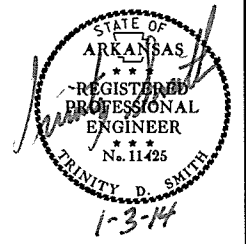
P. I. = 155+55.64
 Δ = 156°24.0" RT.
 D = 0°30'00.0"
 T = 194.00'
 L = 388.00'
 P. C. = 153+61.62
 P. T. = 157+49.61
 NO SUPER

SITE 1
 TEMPORARY EROSION CONTROL DETAILS
 STAGES 2 & 3

10/22/2013 080428.DGN

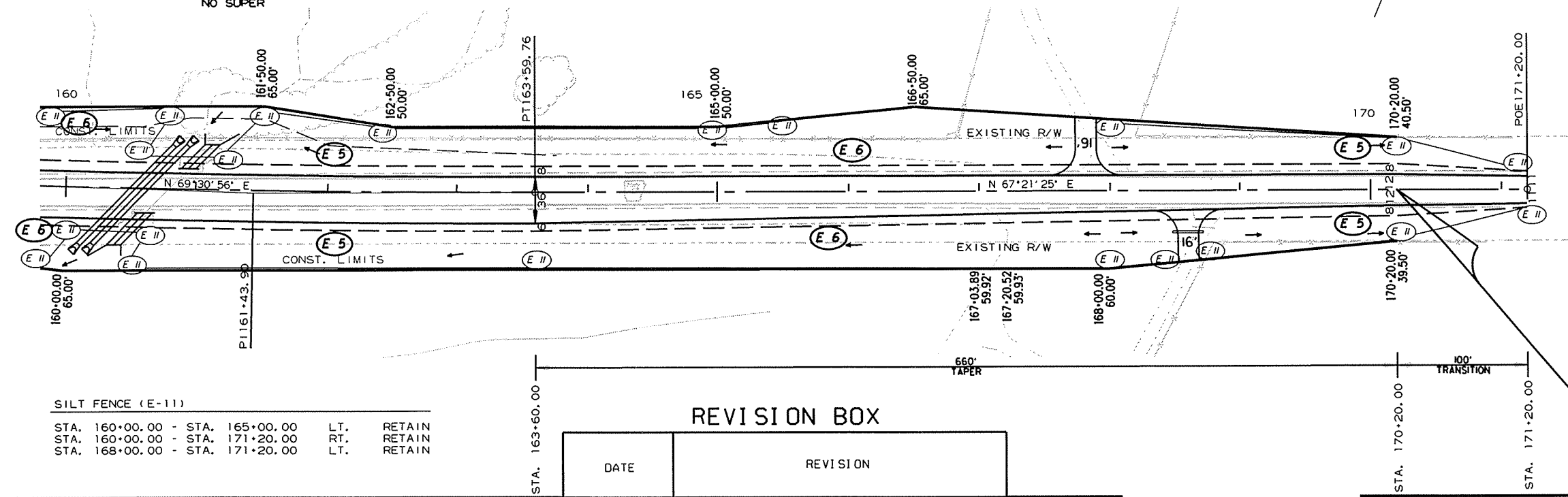
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							15	134

② TEMPORARY EROSION CONTROL DETAILS



P. I. = 161+43.90
 Δ = 2° 09' 31.9" LT.
 D = 0° 30' 00.0"
 T = 215.91'
 L = 431.77'
 P. C. = 159+27.99
 P. T. = 163+59.76
 NO SUPER

SAND BAG DITCH CHECKS (E-5)				BAG
STA. 162+00	LT. & RT.	2 INSTALLATIONS		40 BAG
STA. 170+00	LT. & RT.	2 INSTALLATIONS		40 BAG
ROCK DITCH CHECKS (E-6)				CU. YD.
STA. 166+00	LT. & RT.	2 INSTALLATIONS		4



SILT FENCE (E-11)

STA. 160+00.00 - STA. 165+00.00	LT.	RETAIN
STA. 160+00.00 - STA. 171+20.00	RT.	RETAIN
STA. 168+00.00 - STA. 171+20.00	LT.	RETAIN

REVISION BOX

DATE	REVISION

STA 170+20.00 - END
 JOB 080428
 L.M. 8.51
 END SITE 1

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SITE 1
 TEMPORARY EROSION CONTROL DETAILS
 STAGES 2 & 3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		16	134

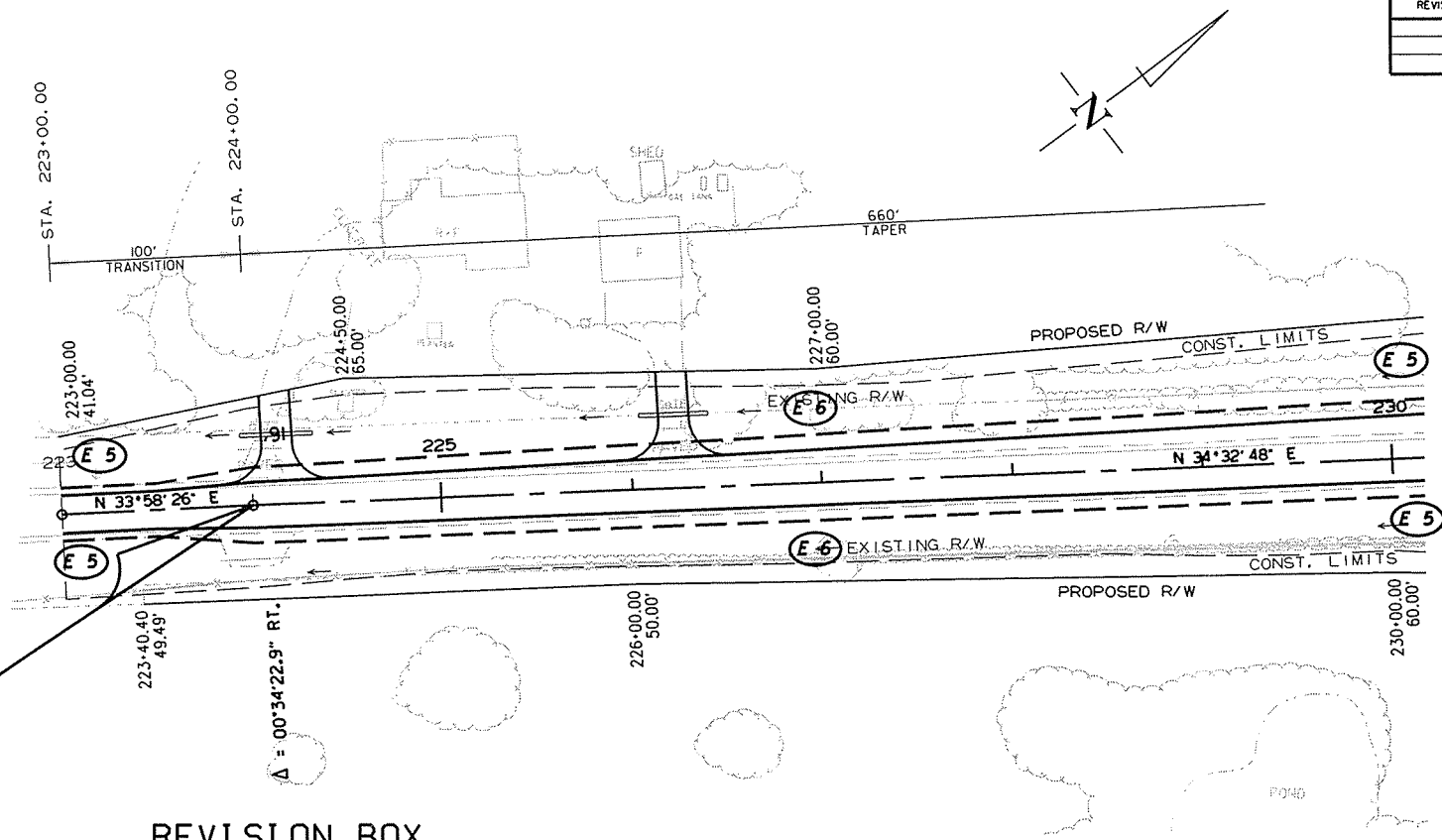
② TEMPORARY EROSION CONTROL DETAILS



SEQUENCING:
 STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.
 STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.
 STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

SAND BAG DITCH CHECKS (E-5)			BAG
STA. 223+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 230+00	LT. & RT.	2 INSTALLATIONS	40 BAG

ROCK DITCH CHECKS (E-6)			CU. YD.
STA. 227+00	LT. & RT.	2 INSTALLATIONS	4

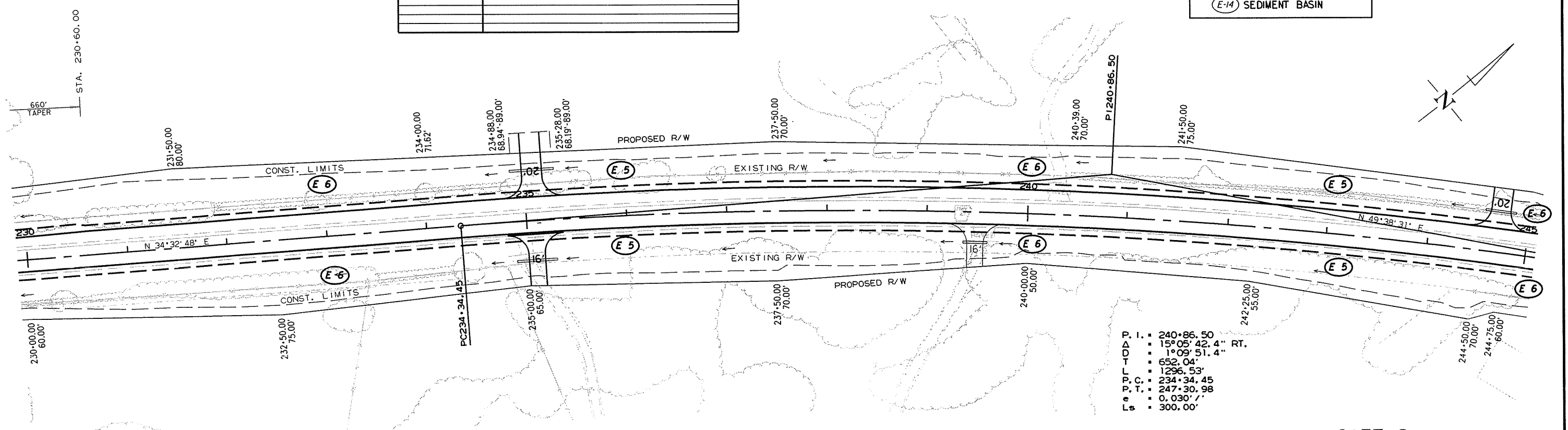


STA 224+00.00 - BEGIN
 JOB 080428
 L.M. 10.88
 BEGIN SITE 2

REVISION BOX

DATE	REVISION

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



P. I. = 240+86.50
 Δ = 15° 05' 42.4" RT.
 D = 1° 09' 51.4"
 T = 652.04'
 L = 1296.53'
 P. C. = 234+34.45
 P. T. = 247+30.98
 e = 0.030' /'
 Ls = 300.00'

SAND BAG DITCH CHECKS (E-5)			BAG
STA. 236+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 243+00	LT. & RT.	2 INSTALLATIONS	40 BAG

ROCK DITCH CHECKS (E-6)			CU. YD.
STA. 233+00	LT. & RT.	2 INSTALLATIONS	4.2
STA. 240+00	LT. & RT.	2 INSTALLATIONS	4.2

SITE 2
 TEMPORARY EROSION CONTROL DETAILS
 STAGES 2 & 3

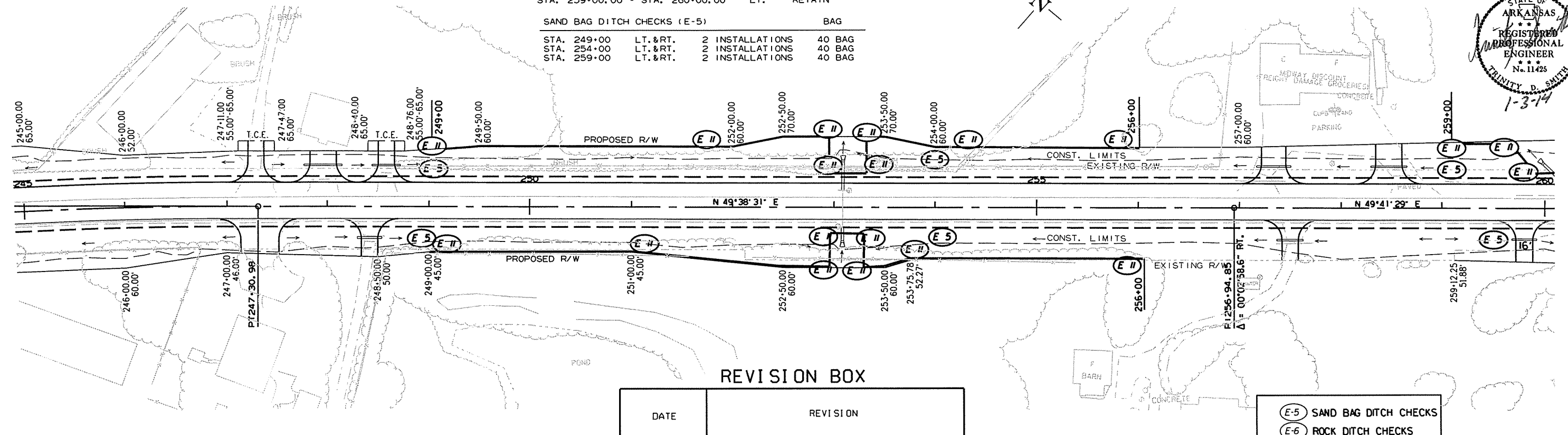
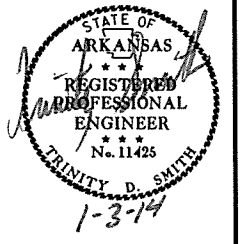
ROCK DITCH CHECKS (E-6)		CU. YD.	
STA. 252+50	LT. & RT.	2 INSTALLATIONS	4
STA. 257+00	LT. & RT.	2 INSTALLATIONS	4

SILT FENCE (E-11)			
STA. 249+00.00	- STA. 256+00.00	LT.	RETAIN
STA. 249+00.00	- STA. 256+00.00	RT.	RETAIN
STA. 259+00.00	- STA. 260+00.00	LT.	RETAIN

SAND BAG DITCH CHECKS (E-5)				BAG	
STA. 249+00	LT. & RT.	2 INSTALLATIONS	40 BAG		
STA. 254+00	LT. & RT.	2 INSTALLATIONS	40 BAG		
STA. 259+00	LT. & RT.	2 INSTALLATIONS	40 BAG		

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				6	ARK.			
						JOB NO. 080428	17	134

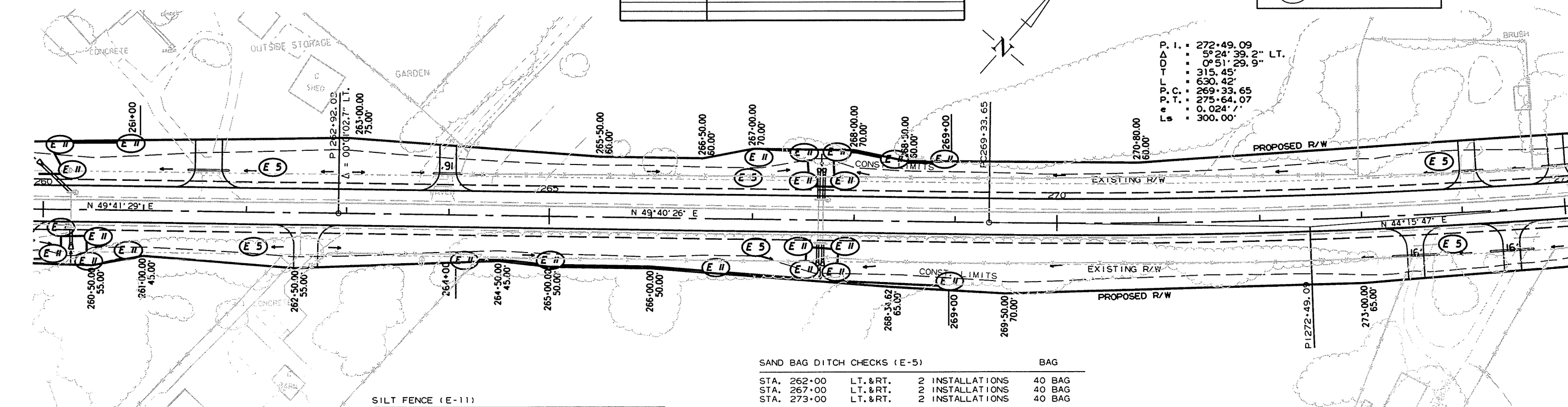
2 TEMPORARY EROSION CONTROL DETAILS



REVISION BOX

DATE	REVISION

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



SILT FENCE (E-11)			
STA. 260+00.00	- STA. 261+00.00	LT.	RETAIN
STA. 260+00.00	- STA. 261+00.00	RT.	RETAIN
STA. 264+00.00	- STA. 268+50.00	RT.	RETAIN
STA. 267+00.00	- STA. 268+50.00	LT.	RETAIN

SAND BAG DITCH CHECKS (E-5)				BAG	
STA. 262+00	LT. & RT.	2 INSTALLATIONS	40 BAG		
STA. 267+00	LT. & RT.	2 INSTALLATIONS	40 BAG		
STA. 273+00	LT. & RT.	2 INSTALLATIONS	40 BAG		

ROCK DITCH CHECKS (E-6)				CU. YD.	
STA. 261+00	LT. & RT.	2 INSTALLATIONS	4		
STA. 265+00	LT. & RT.	2 INSTALLATIONS	4		
STA. 268+50	LT. & RT.	2 INSTALLATIONS	4		
STA. 275+00	LT. & RT.	2 INSTALLATIONS	4		

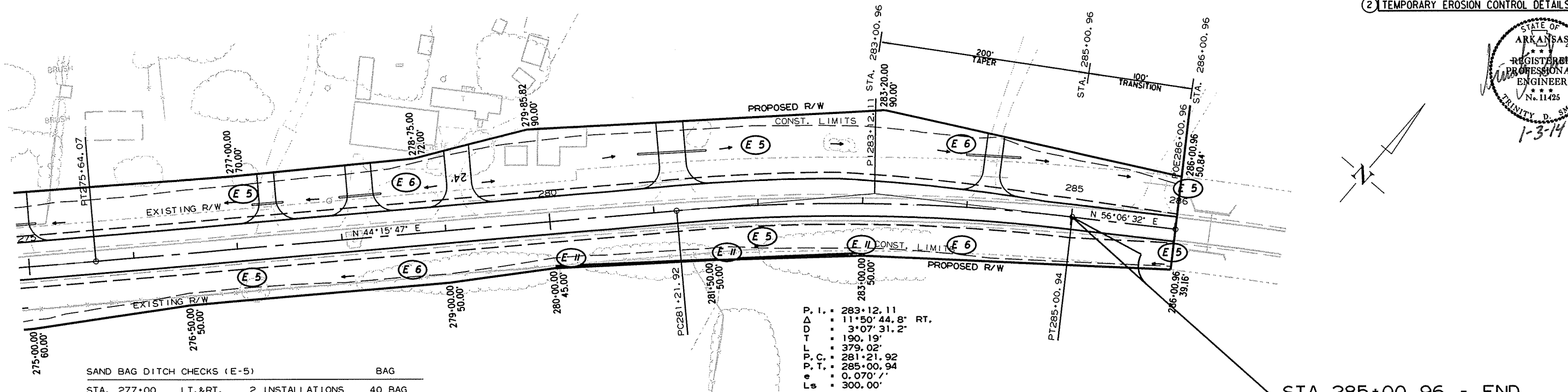
**SITE 2
TEMPORARY EROSION CONTROL DETAILS
STAGES 2 & 3**

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SILT FENCE (E-11)
 STA. 280+00.00 - STA. 283+00.00 RT. RETAIN

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				6	ARK.			
JOB NO. 080428							18	134

② TEMPORARY EROSION CONTROL DETAILS



SAND BAG DITCH CHECKS (E-5)			BAG
STA. 277+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 282+00	LT. & RT.	2 INSTALLATIONS	40 BAG
STA. 286+00	LT. & RT.	2 INSTALLATIONS	40 BAG

ROCK DITCH CHECKS (E-6)			CU. YD.
STA. 278+50	LT. & RT.	2 INSTALLATIONS	4
STA. 284+00	LT. & RT.	2 INSTALLATIONS	4

P. I. = 283+12.11
 Δ = 11°50'44.8" RT.
 D = 3°07'31.2"
 T = 190.19'
 L = 379.02'
 P. C. = 281+21.92
 P. T. = 285+00.94
 e = 0.070'
 Ls = 300.00'

REVISION BOX

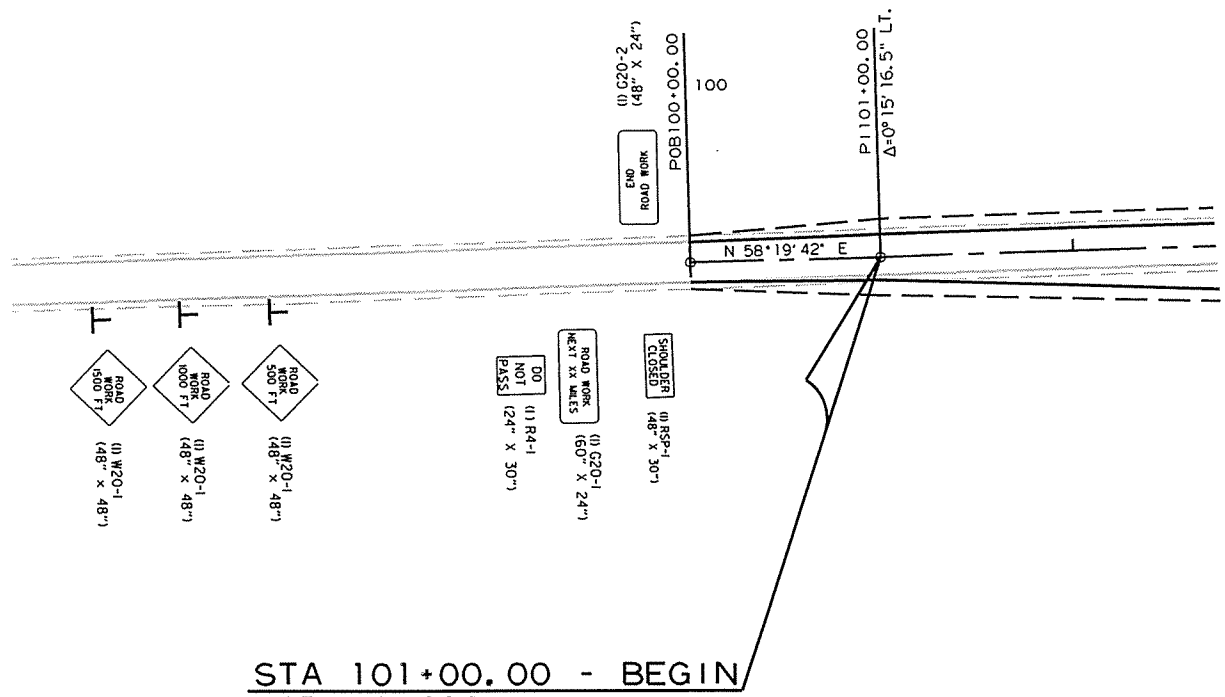
DATE	REVISION

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

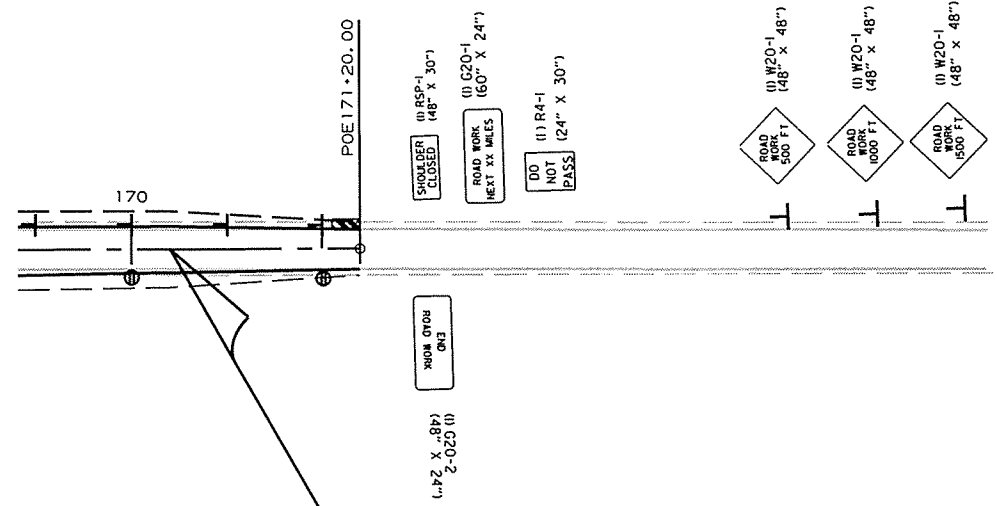
STA 285+00.96 - END
 JOB 080428
 L.M. 12.04
 END SITE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. NO. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080428	19	134

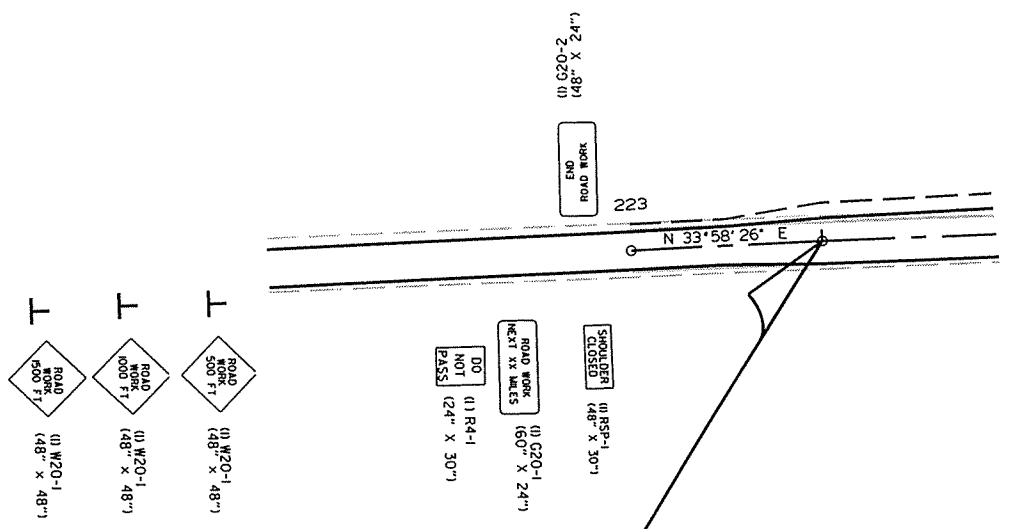
2 MAINTENANCE OF TRAFFIC DETAILS



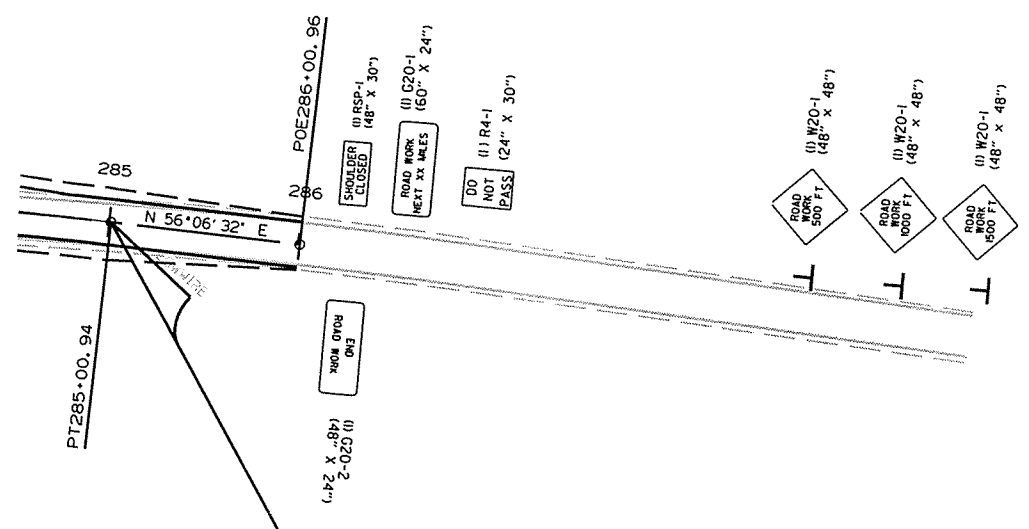
STA 101+00.00 - BEGIN
 JOB 080428
 L.M. 7.20
 BEGIN SITE 1



STA 170+20.00 - END
 JOB 080428
 L.M. 8.51
 END SITE 1



STA 224+00.00 - BEGIN
 JOB 080428
 L.M. 10.88
 BEGIN SITE 2



STA 285+00.96 - END
 JOB 080428
 L.M. 12.04
 END SITE 2

MAINTENANCE OF TRAFFIC DETAILS
 ADVANCE WARNING SIGNS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
JOB NO.							080428	20	134

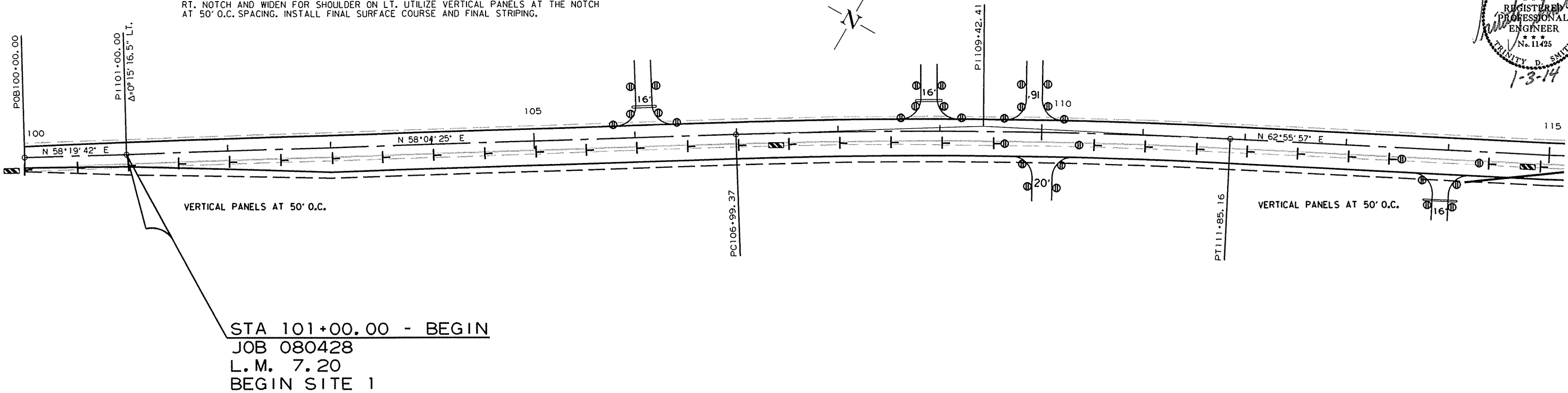
SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

② MAINTENANCE OF TRAFFIC DETAILS



RELOCATING PRECAST CONCRETE BARRIER

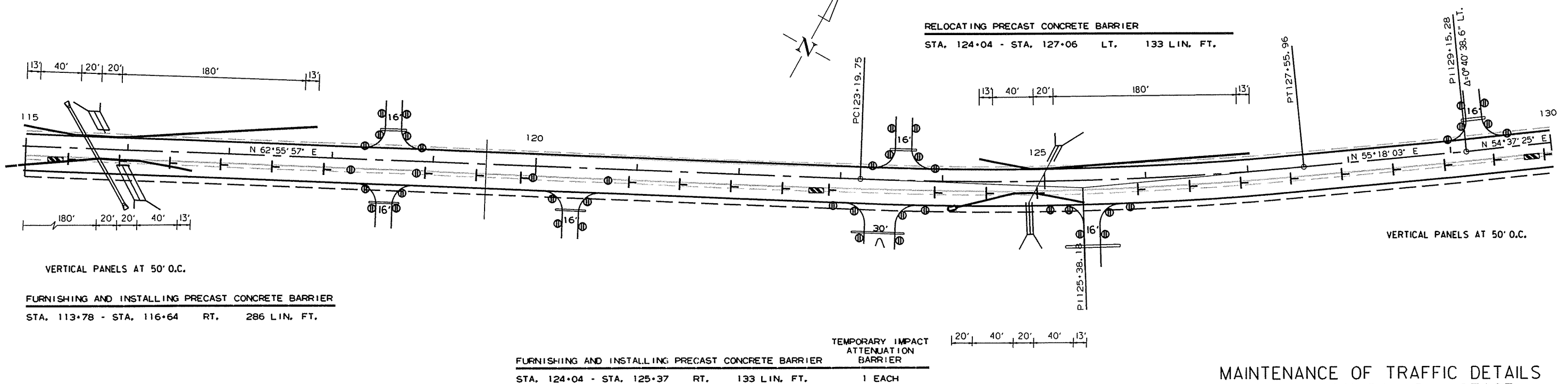
STA. 115+00 - STA. 117+86 LT. 286 LIN. FT.

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER

STA. 124+04 - STA. 127+06 LT. 133 LIN. FT.

RELOCATING PRECAST CONCRETE BARRIER

STA. 124+04 - STA. 127+06 LT. 133 LIN. FT.



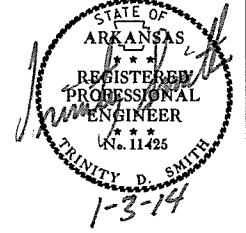
MAINTENANCE OF TRAFFIC DETAILS
SITE 1 - NORTHBOUND - STAGE 1

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. RD. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	21

② MAINTENANCE OF TRAFFIC DETAILS

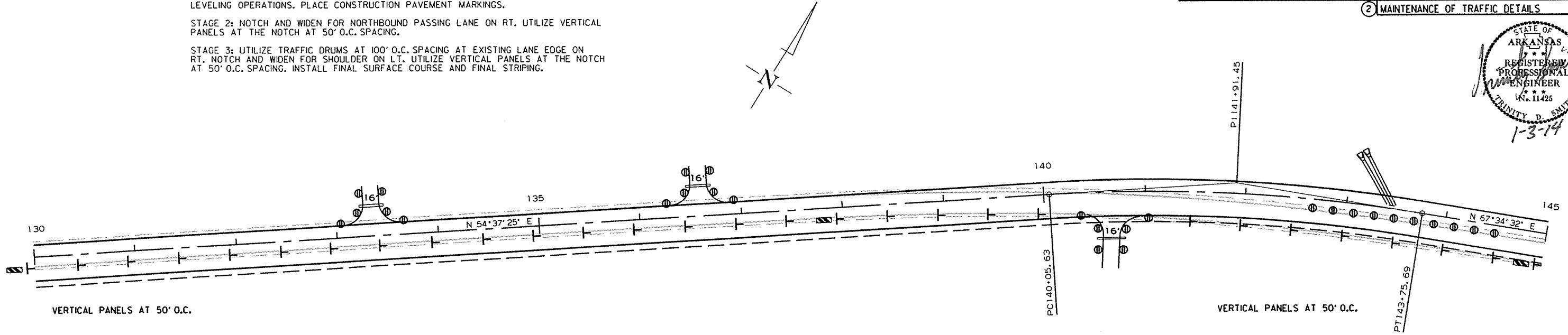


SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

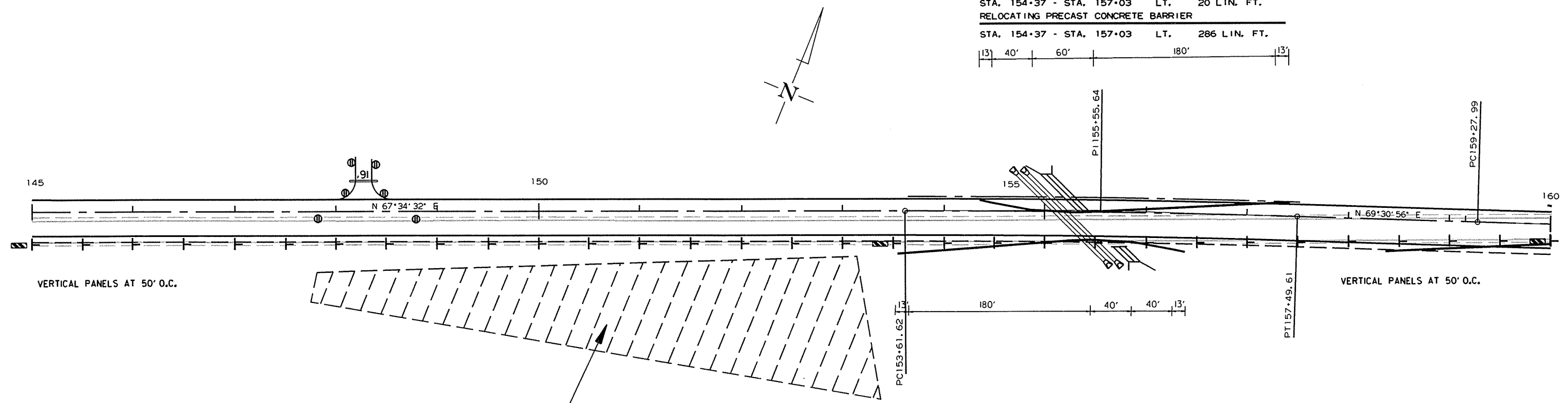
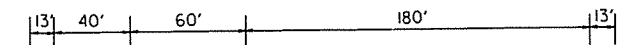


FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER

STA. 154+37 - STA. 157+03 LT. 20 LIN. FT.

RELOCATING PRECAST CONCRETE BARRIER

STA. 154+37 - STA. 157+03 LT. 286 LIN. FT.



FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER

STA. 153+53 - STA. 156+39 RT. 286 LIN. FT.

NOTE: ENVIRONMENTAL RESTRAINING CONDITION. AREA DELINEATED SHALL NOT BE DISTURBED.

MAINTENANCE OF TRAFFIC DETAILS
SITE I - NORTHBOUND - STAGE I

12/19/2013

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				6	ARK.			
				JOB NO.	080428		22	134

② MAINTENANCE OF TRAFFIC DETAILS

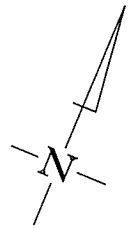


SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

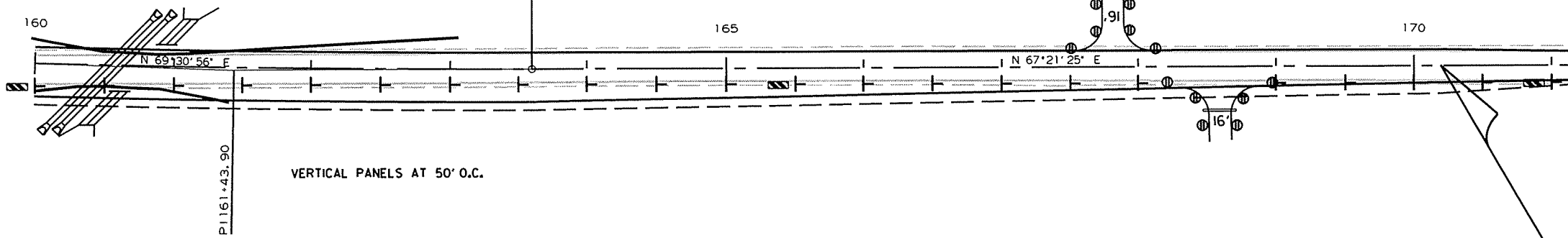
STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



RELOCATING PRECAST CONCRETE BARRIER

STA. 159+16 - STA. 163+06 LT. 306 LIN. FT.



STA 170+20.00 - END
 JOB 080428
 L.M. 8.51
 END SITE 1

FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER

STA. 158+37 - STA. 161+43 RT. 306 LIN. FT.

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SEQUENCING:

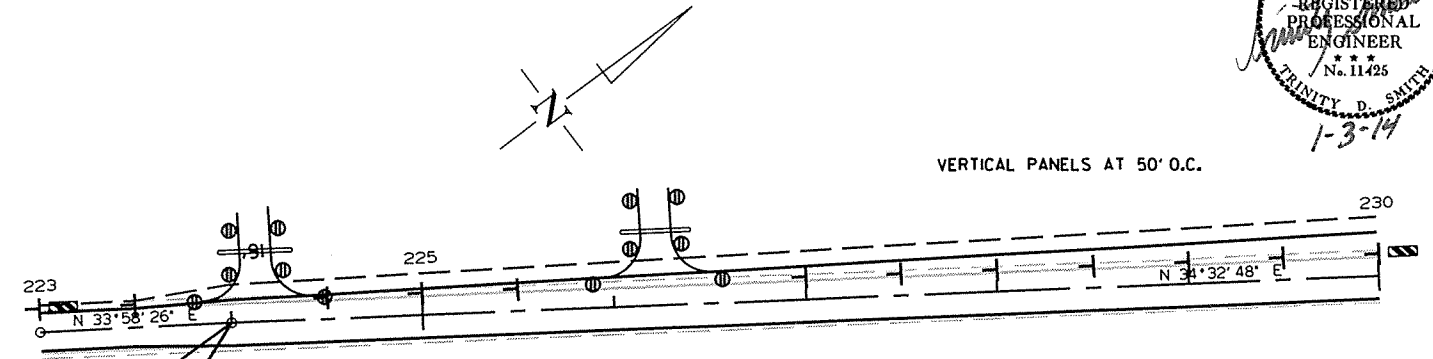
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

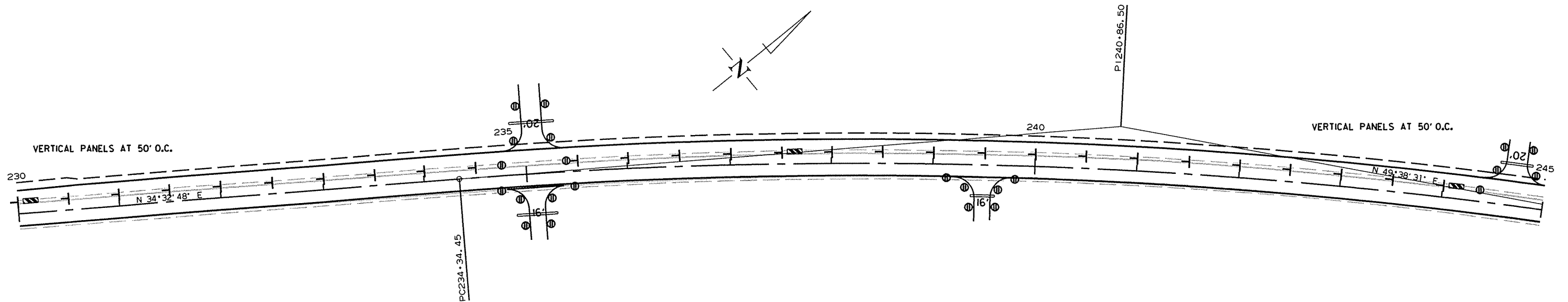
STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	080428

② MAINTENANCE OF TRAFFIC DETAILS



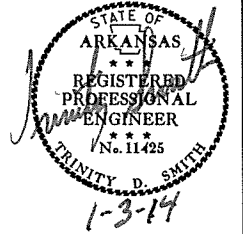
STA 224+00.00 - BEGIN
 JOB 080428
 L.M. 10.88
 BEGIN SITE 2



MAINTENANCE OF TRAFFIC DETAILS
 SITE 2 - SOUTHBOUND - STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		24	134

② MAINTENANCE OF TRAFFIC DETAILS

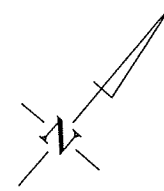


SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

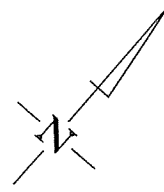
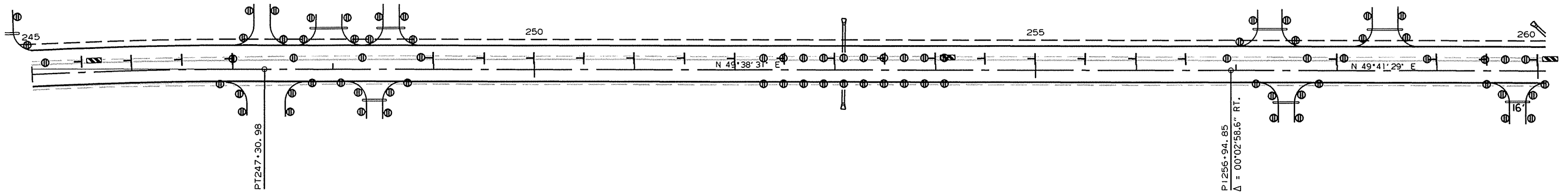
STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



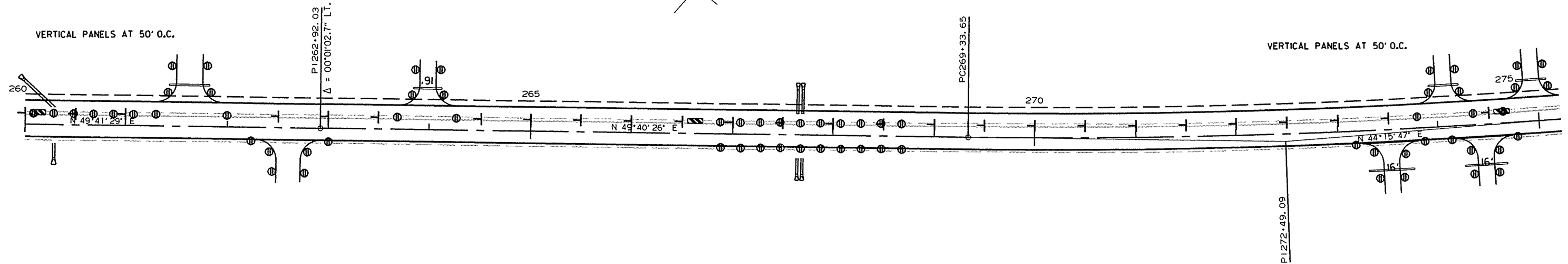
VERTICAL PANELS AT 50' O.C.

VERTICAL PANELS AT 50' O.C.



VERTICAL PANELS AT 50' O.C.

VERTICAL PANELS AT 50' O.C.



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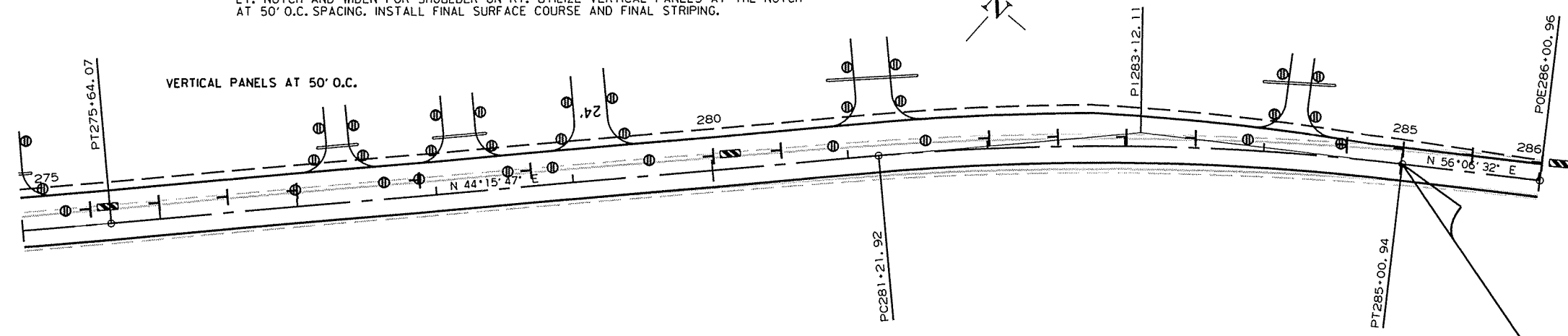
MAINTENANCE OF TRAFFIC DETAILS
SITE 2 - SOUTHBOUND - STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		25	134

② MAINTENANCE OF TRAFFIC DETAILS



SEQUENCING:
 STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.
 STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.
 STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



STA 285+00.96 - END
 JOB 080428
 L.M. 12.04
 END SITE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	26

② MAINTENANCE OF TRAFFIC DETAILS

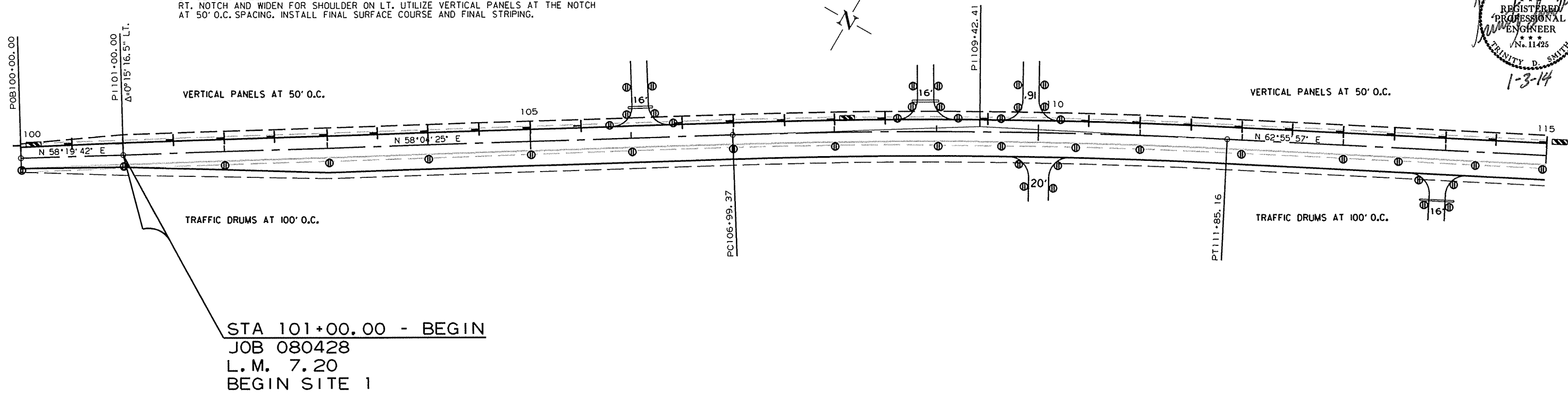


SEQUENCING:

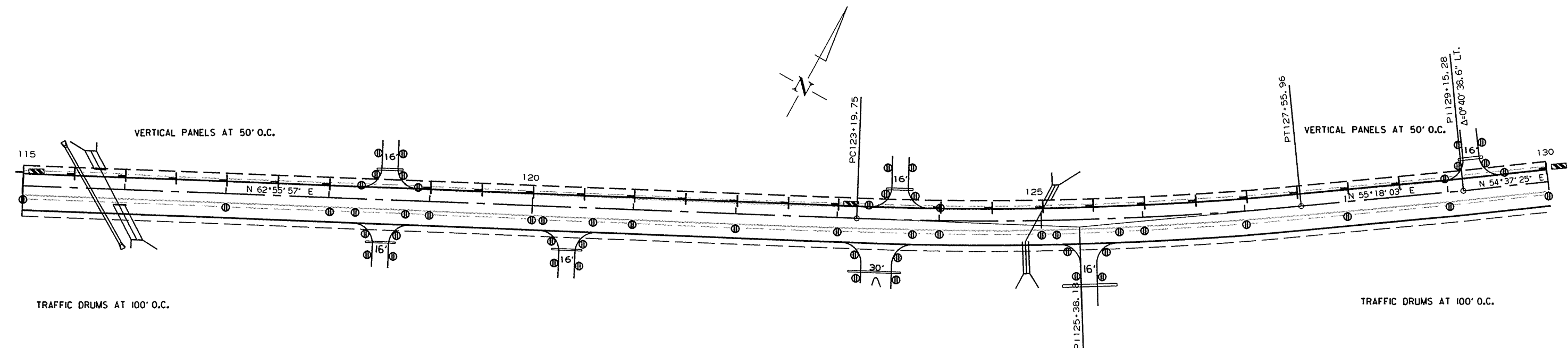
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



STA 101+00.00 - BEGIN
 JOB 080428
 L.M. 7.20
 BEGIN SITE 1



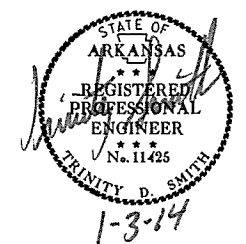
MAINTENANCE OF TRAFFIC DETAILS
 SITE 1 - NORTHBOUND - STAGES 2 & 3

12/19/2013

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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.	080428	27

② MAINTENANCE OF TRAFFIC DETAILS

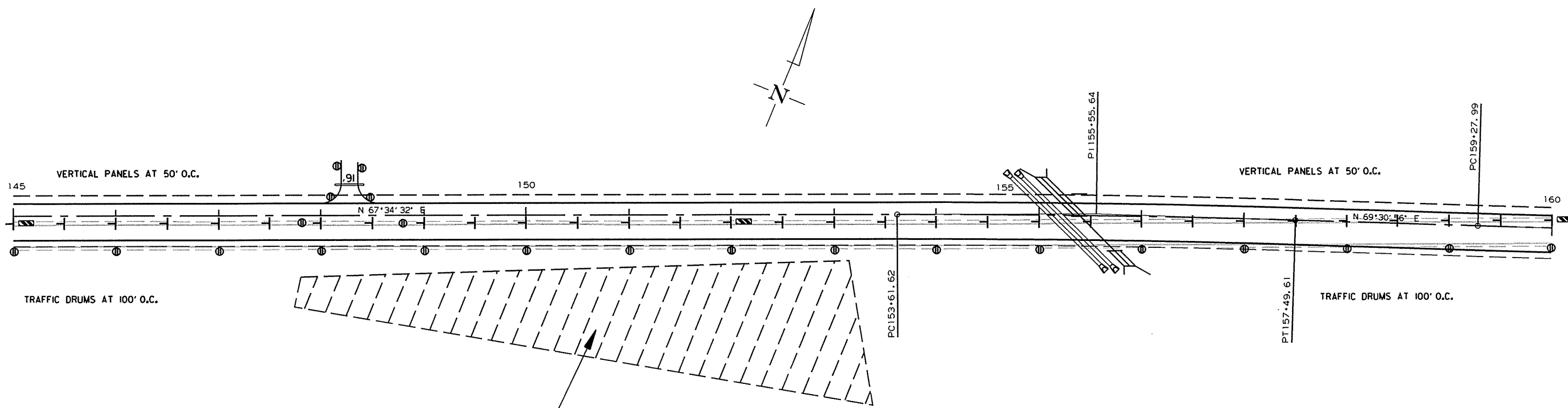
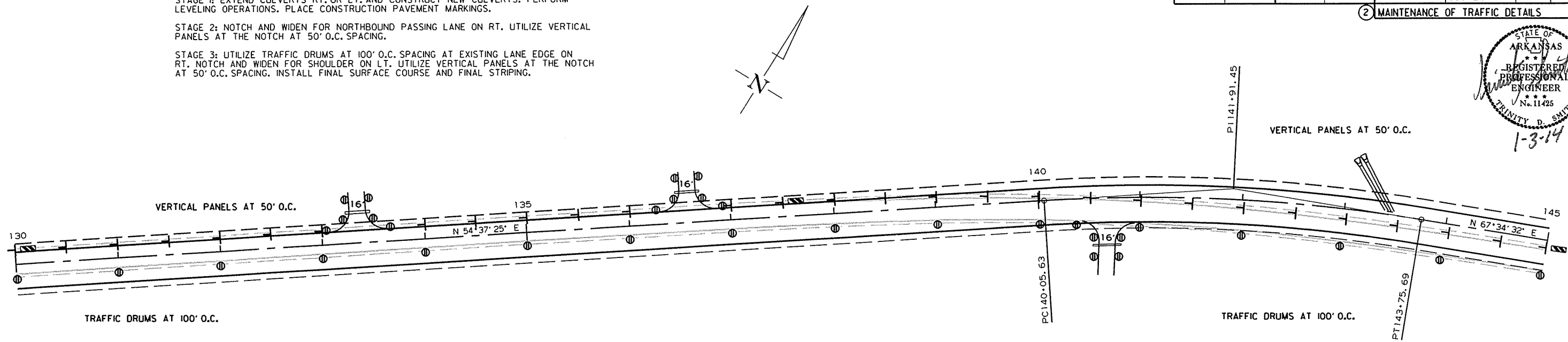


SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



NOTE: ENVIRONMENTAL RESTRAINING CONDITION. AREA DELINEATED SHALL NOT BE DISTURBED.

MAINTENANCE OF TRAFFIC DETAILS
SITE 1- NORTHBOUND - STAGES 2 & 3

12/19/2013

R080428.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.	080428	28 134

② MAINTENANCE OF TRAFFIC DETAILS

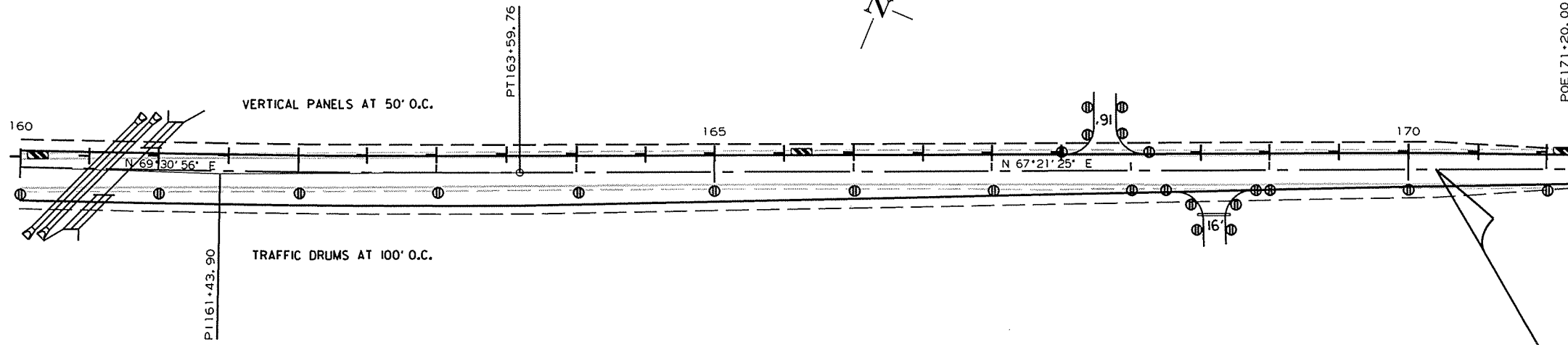
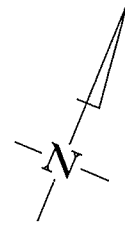


SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



STA 170+20.00 - END
 JOB 080428
 L.M. 8.51
 END SITE 1

12/19/2013

R080428.DGN

SEQUENCING:

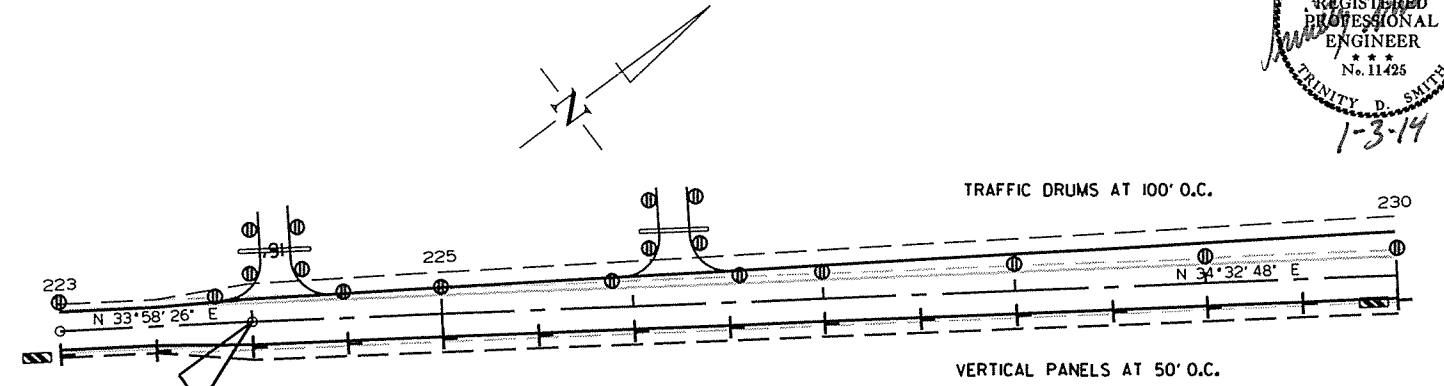
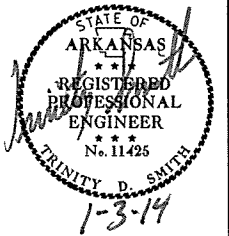
STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

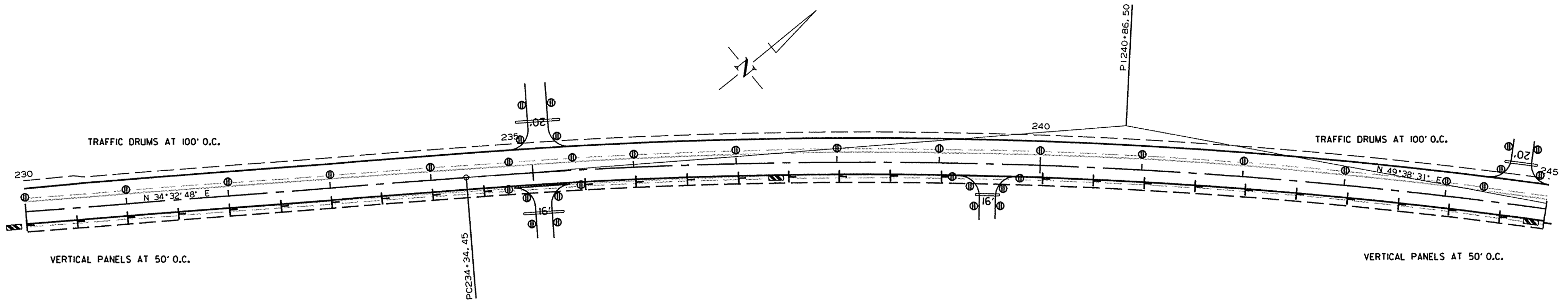
STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							29	134

② MAINTENANCE OF TRAFFIC DETAILS



STA 224+00.00 - BEGIN
 JOB 080428
 L.M. 10.88
 BEGIN SITE 2



MAINTENANCE OF TRAFFIC DETAILS
 SITE 2 - SOUTHBOUND - STAGES 2 & 3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							30	134

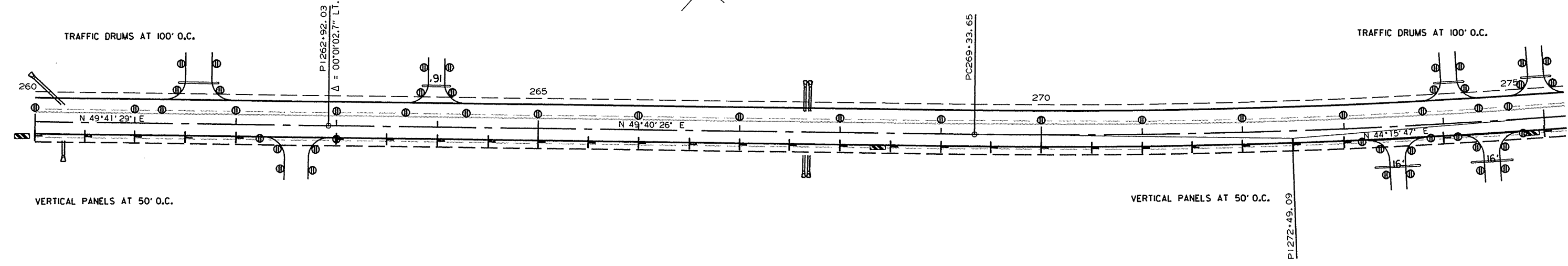
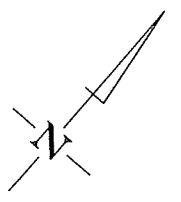
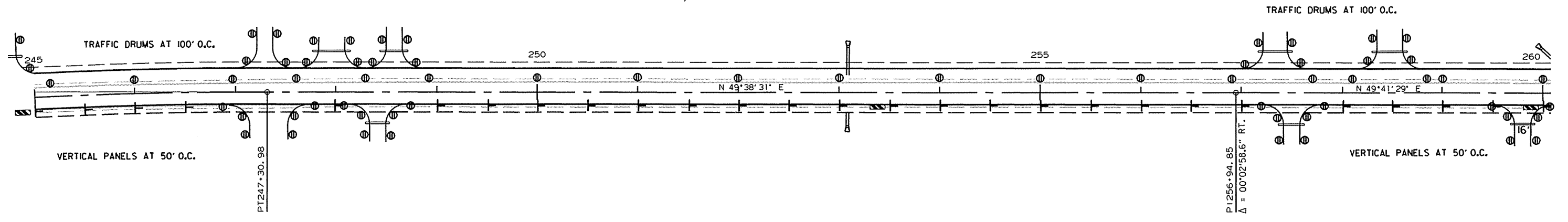
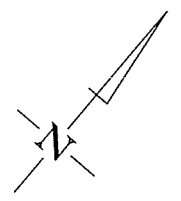
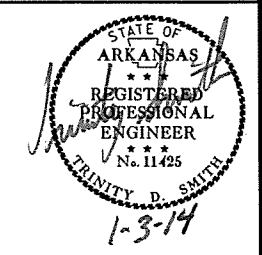
SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

② MAINTENANCE OF TRAFFIC DETAILS



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	31

② MAINTENANCE OF TRAFFIC DETAILS

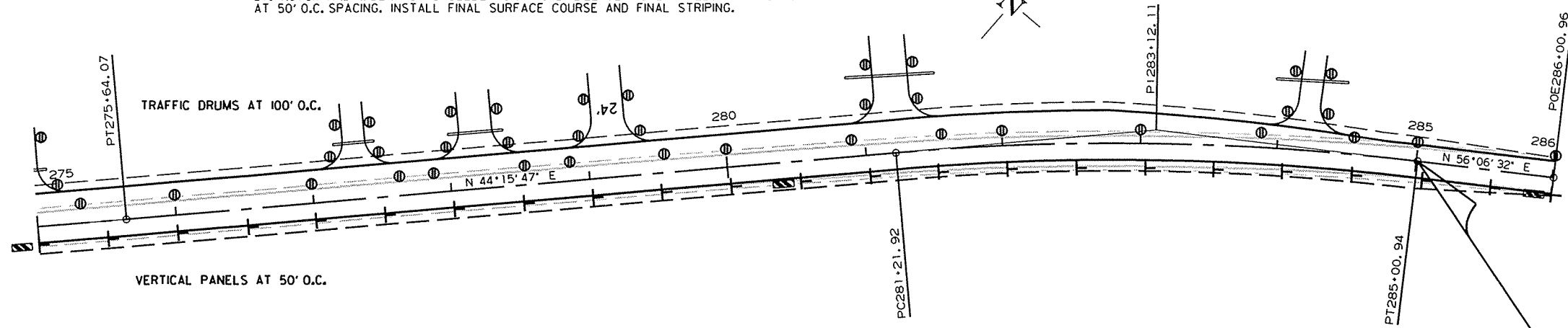


SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.



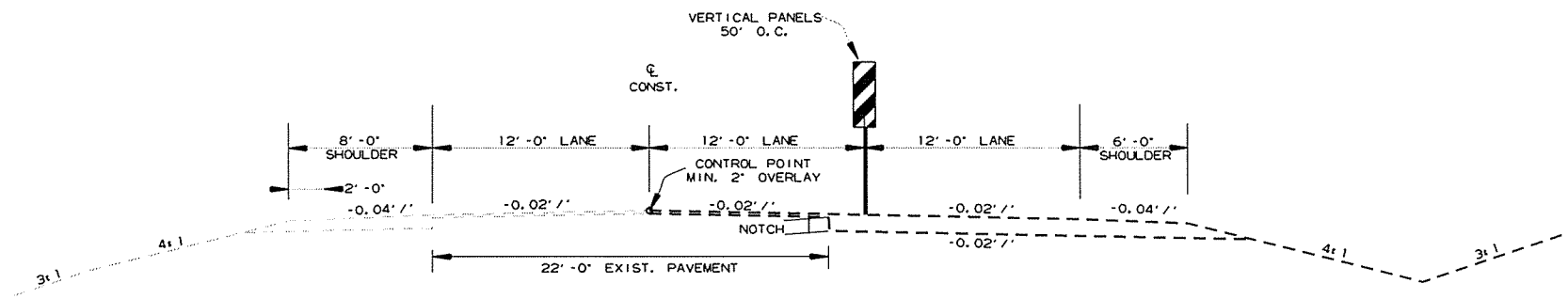
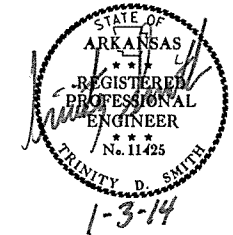
STA 285+00.96 - END
 JOB 080428
 L.M. 12.04
 END SITE 2

12/19/2013

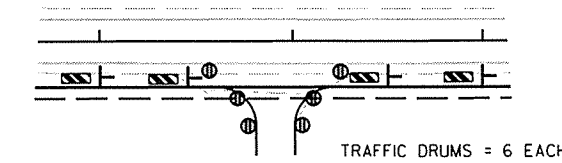
R080428.DGN

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. 080428	32	134

2 PERMANENT PAVEMENT MARKING DETAILS



OVERLAY TANGENT - NORTHBOUND (RIGHT SIDE) WIDENING
STA. 101+00.00 - STA. 170+20.00



DRIVEWAY/TRAFFIC DRUM DETAIL

SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR NORTHBOUND PASSING LANE ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON RT. NOTCH AND WIDEN FOR SHOULDER ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

CONSTRUCTION PAVEMENT MARKINGS & RAISED PAVEMENT MARKERS - SITE 1

AS DIRECTED BY THE ENGINEER OVER LEVELING COURSE:

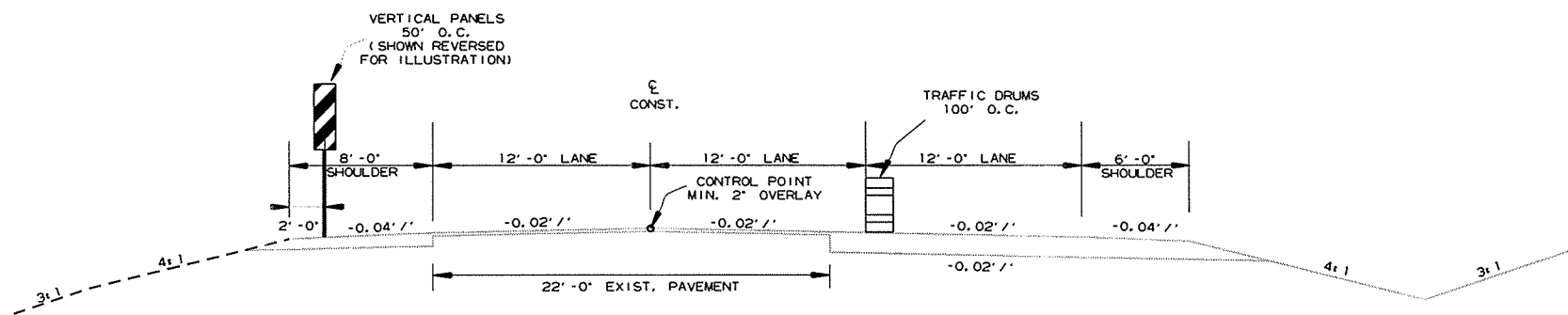
RT. AND LT. EDGE LINES = 13840 LIN. FT.
DBL. CENTERLINE = 13840 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE = 173 EACH

FINAL STRIPING - SITE 1:

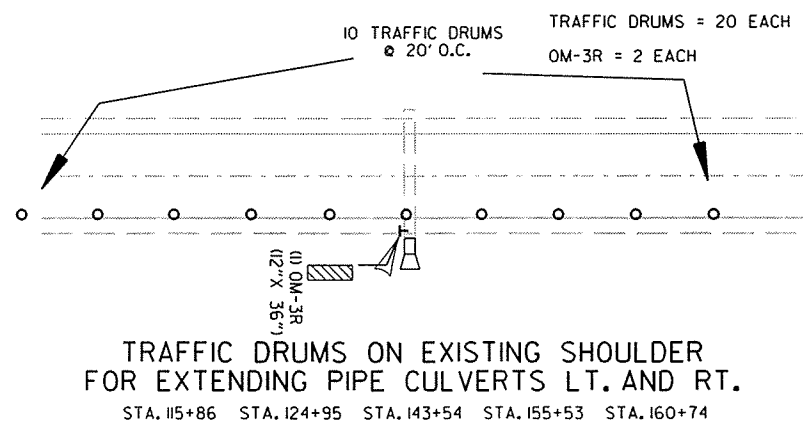
THERMOPLASTIC PAVEMENT MARKINGS:
RT. AND LT. EDGE LINES = 14240 LIN. FT. WHITE
DBL. CENTERLINE = 14240 LIN. FT. YELLOW
SKIP LINE = 1330 LIN. FT. WHITE

RAISED PAVEMENT MARKERS:
TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE = 178 EACH
TYPE II (WHITE/RED) 40' O.C. ON SKIP LINE = 133 EACH

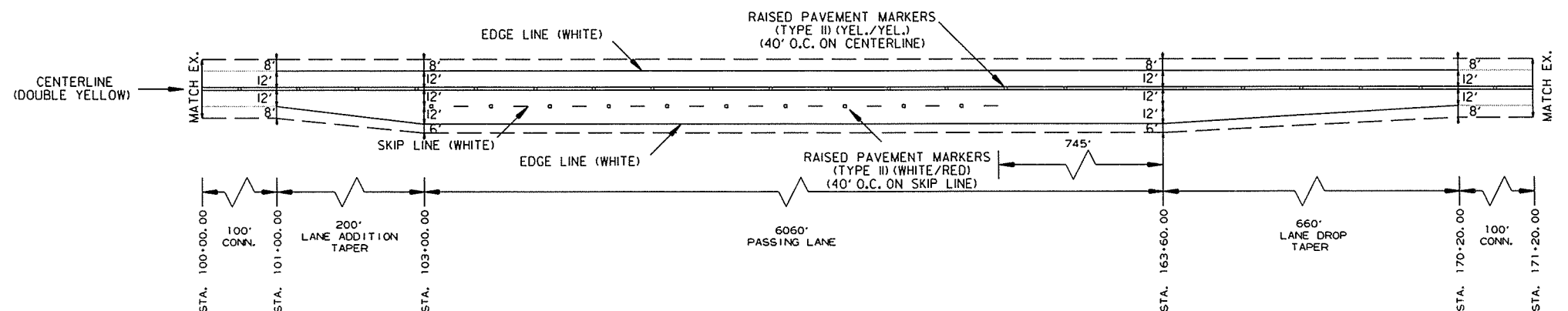
THE THERMOPLASTIC PAVEMENT MARKING YELLOW (4") QUANTITY IS ESTIMATED AND BASED ON THE PLACEMENT OF A DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT. THE CONTRACTOR SHALL NOT PLACE ANY PERMANENT PAVEMENT MARKINGS UNTIL THE PASSING/NO PASSING ZONES HAVE BEEN ESTABLISHED BY THE MAINTENANCE DIVISION.



OVERLAY TANGENT - NORTHBOUND FINAL SURFACING
STA. 101+00.00 - STA. 170+20.00



TRAFFIC DRUMS ON EXISTING SHOULDER FOR EXTENDING PIPE CULVERTS LT. AND RT.
STA. 115+86 STA. 124+95 STA. 143+54 STA. 155+53 STA. 160+74



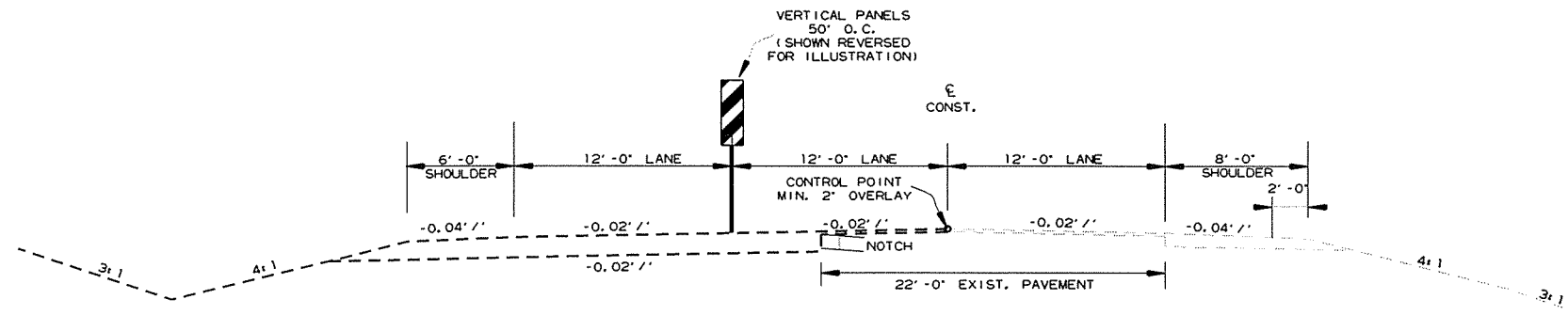
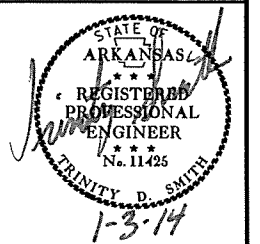
PERMANENT PAVEMENT MARKING DETAILS
SITE 1 - NORTHBOUND

12/19/2013

R080428.DGN

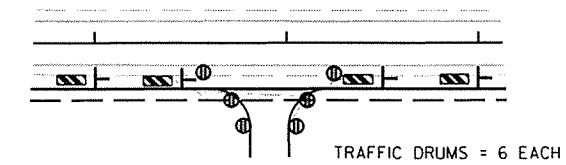
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	33 134

② PERMANENT PAVEMENT MARKING DETAILS



OVERLAY TANGENT - SOUTHBOUND (LEFT SIDE) WIDENING

STA. 224+00.00 - STA. 285+00.96



TRAFFIC DRUMS = 6 EACH

DRIVEWAY/TRAFFIC DRUM DETAIL

SEQUENCING:

STAGE 1: EXTEND CULVERTS RT. OR LT. AND CONSTRUCT NEW CULVERTS. PERFORM LEVELING OPERATIONS. PLACE CONSTRUCTION PAVEMENT MARKINGS.

STAGE 2: NOTCH AND WIDEN FOR SOUTHBOUND PASSING LANE ON LT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING.

STAGE 3: UTILIZE TRAFFIC DRUMS AT 100' O.C. SPACING AT EXISTING LANE EDGE ON LT. NOTCH AND WIDEN FOR SHOULDER ON RT. UTILIZE VERTICAL PANELS AT THE NOTCH AT 50' O.C. SPACING. INSTALL FINAL SURFACE COURSE AND FINAL STRIPING.

CONSTRUCTION PAVEMENT MARKINGS & RAISED PAVEMENT MARKERS - SITE 2

AS DIRECTED BY THE ENGINEER OVER LEVELING COURSE:

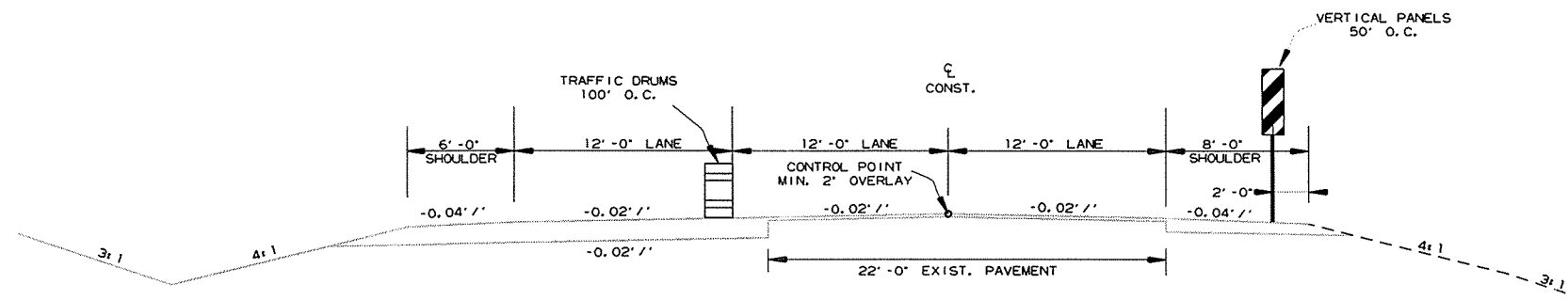
RT. AND LT. EDGE LINES = 12202 LIN. FT.
 DBL. CENTERLINE = 12202 LIN. FT.
 RAISED PAVEMENT MARKERS TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE = 153 EACH

FINAL STRIPING - SITE 2:

THERMOPLASTIC PAVEMENT MARKINGS:
 RT. AND LT. EDGE LINES = 12602 LIN. FT. WHITE
 DBL. CENTERLINE = 12602 LIN. FT. YELLOW
 SKIP LINE = 1130 LIN. FT. WHITE

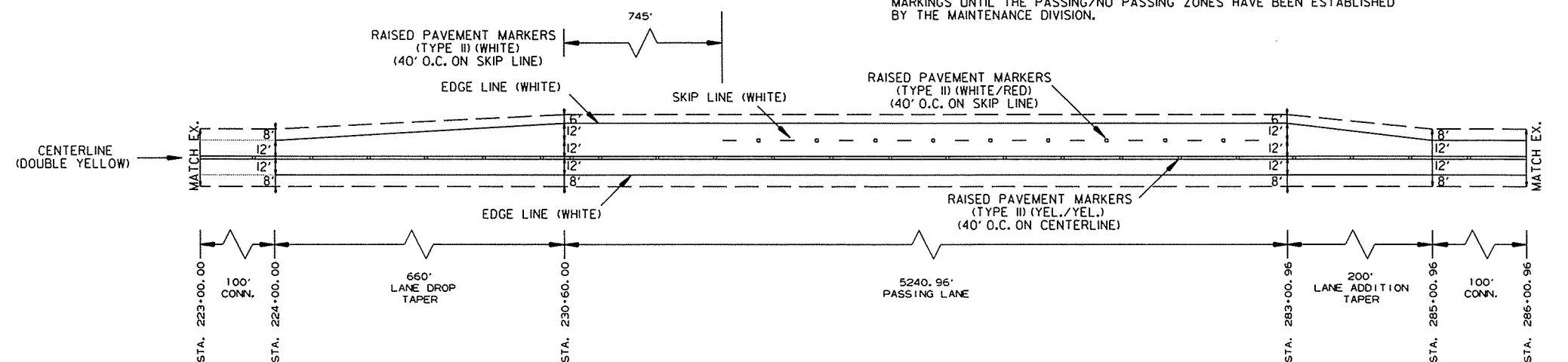
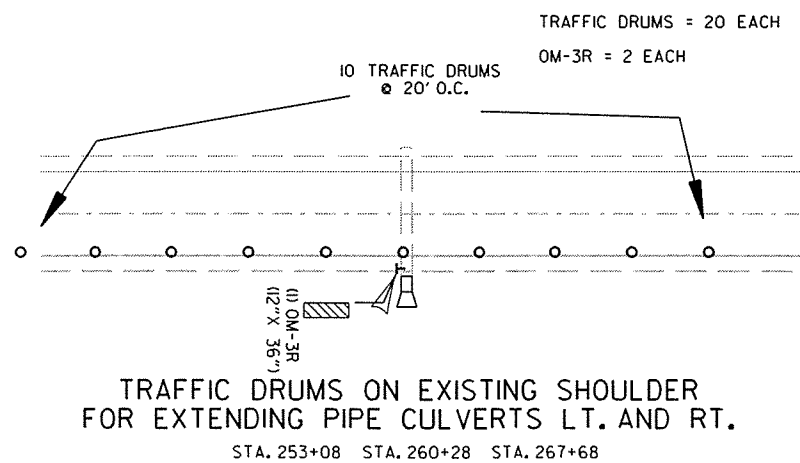
RAISED PAVEMENT MARKERS:
 TYPE II (YEL./YEL.) 40' O.C. ON CENTERLINE = 158 EACH
 TYPE II (WHITE/RED) 40' O.C. ON SKIP LINE = 113 EACH

THE THERMOPLASTIC PAVEMENT MARKING YELLOW (4") QUANTITY IS ESTIMATED AND BASED ON THE PLACEMENT OF A DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT. THE CONTRACTOR SHALL NOT PLACE ANY PERMANENT PAVEMENT MARKINGS UNTIL THE PASSING/NO PASSING ZONES HAVE BEEN ESTABLISHED BY THE MAINTENANCE DIVISION.



OVERLAY TANGENT - SOUTHBOUND FINAL SURFACING

STA. 224+00.00 - STA. 285+00.96



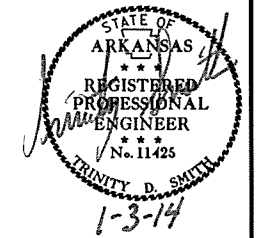
PERMANENT PAVEMENT MARKING DETAILS
 SITE 2 - SOUTHBOUND

12/19/2013

R080428.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	34	134

2 QUANTITIES



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

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS EACH	TRAFFIC DRUMS EACH	CONSTRUCTION PAVEMENT MARKINGS LIN. FT.	RAISED PAVEMENT MARKERS		* THERMOPLASTIC PAVEMENT MARKINGS 4"		FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER LIN. FT.	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) EACH	
								NO.	SQ. FT.				TY. II (WHITE/RED)	TYPE II (YEL/YEL)	WHITE	YELLOW					
								SQ. FT. - LIN. FT. - EACH													
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4		4	4													
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4		4	4													
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4		4	4													
W20-1	ROAD WORK AHEAD	48"x48"	4	4	4		4	4													
G20-2	END ROAD WORK	48"x24"	4	4	4		4	4													
G20-1	ROAD WORK NEXT xx MILES	60"x24"	4	4	4		4	4													
OM-3L	OBJECT MARKER	12"x36"	8	8	8	8	8	8													
OM-3R	OBJECT MARKER	12"x36"	8	8	8	8	8	8													
R2-1	SPEED LIMIT 45	24"x30"	4	4	4		4	4													
R2-1	SPEED LIMIT 55	24"x30"	2	2	2		2	2													
R4-1	DO NOT PASS	24"x30"	4	4	4		4	4													
RSP-1	SHOULDER CLOSED	48"x30"	4	4	4		4	4													
	VERTICAL PANELS RT.			260			260			260											
	TRAFFIC DRUMS				440		440				440										
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1164				1164										1164				
	RELOCATING PRECAST CONCRETE BARRIER		1011				1011											1011			
	CONSTRUCTION PAVEMENT MARKINGS										52084										
	TEMPORARY IMPACT ATTENUATION BARRIER		1				1												1		
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1				1														1
	RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)					246	246					246									
	RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)					662	662						662								
	THERMOPLASTIC PAVEMENT MARKINGS-WHITE (4")					29302	29302							29302							
	THERMOPLASTIC PAVEMENT MARKINGS-YELLOW (4")					26842	26842								26842						
TOTALS:								466.0	260	440	52084	246	662	29302	26842	1164	1011	1		1	

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003.

NOTE: THE THERMOPLASTIC PAVEMENT MARKING YELLOW (4") QUANTITY IS ESTIMATED AND IS BASED ON THE PLACEMENT OF A DOUBLE YELLOW CENTERLINE FOR THE ENTIRE PROJECT. THE CONTRACTOR SHALL NOT PLACE ANY PERMANENT PAVEMENT MARKINGS UNTIL THE PASSING/NO PASSING ZONES HAVE BEEN ESTABLISHED BY THE MAINTENANCE DIVISION.

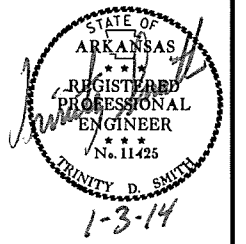
12/27/2013

R080428.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		35	134

2 QUANTITIES



CLEARING AND GRUBBING

STATION	STATION	CLEARING	GRUBBING
STATION			
SITE 1 - NORTHBOUND			
100+00	155+00	55	55
160+00	161+20	2	2
SUBTOTALS SITE 1-NB:		57	57
SITE 2 - SOUTHBOUND			
223+00	286+00	63	63
SUBTOTALS SITE 2-SB:		63	63
TOTALS:		120	120

REMOVAL AND DISPOSAL OF STRUCTURES

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
SECTION 1 - NORTHBOUND		
106+06	REMOVE 18"x36' C.M. PIPE CULVERT LT. SIDE DRAIN	1
108+86	REMOVE 20"x16"x24' ARCH C.M. PIPE CULVERT LT. SIDE DRAIN	1
120+38	REMOVE 18"x24' C.M. PIPE CULVERT RT. SIDE DRAIN	1
123+37	REMOVE 18"x22' C.M. PIPE CULVERT RT. SIDE DRAIN	1
123+61	REMOVE 24"x24' C.P. PIPE CULVERT LT. SIDE DRAIN	1
129+26	REMOVE 30"x36' C.P. PIPE CULVERT LT. SIDE DRAIN	1
133+34	REMOVE 30"x36' C.P. PIPE CULVERT LT. SIDE DRAIN	1
136+59	REMOVE 27"x20"x22' ARCH. C.M. PIPE CULVERT LT. SIDE DRAIN	1
148+26	REMOVE 18"x24' C.P. PIPE CULVERT LT. SIDE DRAIN	1
168+59	REMOVE 15"x18' C.M. PIPE CULVERT RT. SIDE DRAIN	1
SUBTOTALS SECT. 1-NB:		10
SECTION 2 - SOUTHBOUND		
224+00	REMOVE 24"x30' C.P. PIPE CULVERT RT. SIDE DRAIN	1
224+05	REMOVE 24"x24' C.P. PIPE CULVERT LT. SIDE DRAIN	1
226+23	REMOVE 24"x36' C.P. PIPE CULVERT LT. SIDE DRAIN	1
235+08	REMOVE 24"x36' C.P. PIPE CULVERT RT. SIDE DRAIN	1
239+54	REMOVE 24"x36' C.P. PIPE CULVERT RT. SIDE DRAIN	1
240+31	REMOVE 21"x12"x24' ARCH. C.M. PIPE CULVERT LT. SIDE DRAIN	1
248+45	REMOVE 24"x18"x24' ARCH. R.C. PIPE CULVERT RT. SIDE DRAIN	1
248+58	REMOVE 20"x14"x24' ARCH. C.M. PIPE CULVERT LT. SIDE DRAIN	1
257+21	REMOVE 18"x60' C.M. PIPE CULVERT LT. SIDE DRAIN	1
257+54	REMOVE 18"x36' C.P. PIPE CULVERT RT. SIDE DRAIN	1
263+91	REMOVE 19"x14"x24' ARCH. C.M. PIPE CULVERT LT. SIDE DRAIN	1
273+62	REMOVE 18"x24' C.P. PIPE CULVERT RT. SIDE DRAIN	1
274+06	REMOVE 18"x24' C.P. PIPE CULVERT LT. SIDE DRAIN	1
274+94	REMOVE 18"x24' R.C. PIPE CULVERT LT. SIDE DRAIN	1
274+61	REMOVE 18"x24' C.P. PIPE CULVERT RT. SIDE DRAIN	1
277+29	REMOVE 18"x27' C.M. PIPE CULVERT LT. SIDE DRAIN	1
278+15	REMOVE 18"x24' C.M. PIPE CULVERT LT. SIDE DRAIN	1
281+24	REMOVE 18"x46' R.C. PIPE CULVERT LT. SIDE DRAIN	1
284+20	REMOVE 18"x36' R.C. PIPE CULVERT LT. SIDE DRAIN	1
SUBTOTALS SECT. 2-SB:		19
TOTALS:		29

NOTE: QUANTITIES SHOWN ABOVE INCLUDE THE REMOVAL AND DISPOSAL OF ANY HEADWALLS AND FLARED END SECTIONS.

EARTHWORK

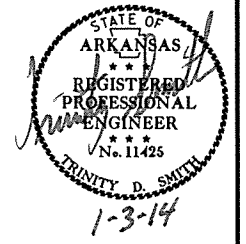
STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
SITE 1					
100+00	170+20	MAIN LANES	17619	26666	50
ENTIRE PROJECT DRIVEWAYS LT. & RT.				1065	
ENTIRE PROJECT UNDERCUT EXISTING DITCHES BELOW EMB.			5000	5000	
SUBTOTALS SITE 1-NB:			22619	32731	50
SITE 2					
223+00	283+00		13495	10728	50
ENTIRE PROJECT DRIVEWAYS LT. & RT.				1770	
ENTIRE PROJECT UNDERCUT EXISTING DITCHES BELOW EMB.			4500	4500	
SUBTOTALS SITE 2-SB:			17995	16998	50
TOTALS:			40614	49729	100

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

QUANTITIES

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
JOB NO.							080428	36	134

2 QUANTITIES



MAIN LANE BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1") (PG 64-22)				ACHM SURFACE COURSE (1/2") (PG 64-22)				ACHM SURFACE COURSE (1/2") (PG 64-22)			
				TON / STATION	TON	TOTAL WID FEET	SQ. YD.	GALLONS / SQ. YD.	GALLON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	TON
SITE 1																					
100+00.00	101+00.00	100' TRANSITION FROM EXISTING TO TWO LANE	100.00	37.00	37	22.00	244	0.10	24	1.25	14	495.00	3	1.13	13	220.00	1	31.00	344	220.00	38
101+00.00	103+00.00	200' TAPER FROM TWO LANE TO NORTHBOUND PASSING LANE	200.00	99.50	199	39.40	876	0.03	26	8.52	189	495.00	47	8.25	183	220.00	20	45.00	1000	220.00	110
103+00.00	163+60.00	MAIN LANES NOTCH & WIDEN - NORTHBOUND PASSING LANE	6060.00	199.00	12059	78.80	53059	0.03	1592	14.52	9777	495.00	2420	14.25	9595	220.00	1055	50.00	33667	220.00	3703
163+60.00	170+20.00	660' TAPER FROM NORTHBOUND PASSING LANE TO TWO LANE	660.00	99.50	657	39.40	2889	0.03	87	8.52	625	495.00	155	8.25	605	220.00	67	45.00	3300	220.00	363
170+20.00	171+20.00	100' TRANSITION FROM TWO LANE TO EXISTING	100.00	37.00	37	22.00	244	0.10	24	1.25	14	495.00	3	1.13	13	220.00	1	31.00	344	220.00	38
* 101+00.00	170+20.00	ADDITIONAL FOR LEVELING	6920.00			22.00	16916	0.10	1692					22.00	16916	220.00	1861				
* 104+74.37	114+10.16	ADDITIONAL FOR SUPERELEVATION			251				31								114				
* 120+94.75	129+80.96	ADDITIONAL FOR SUPERELEVATION			274				30								108				
* 137+80.63	146+00.69	ADDITIONAL FOR SUPERELEVATION			363				27								100				
SUBTOTALS SITE 1-NB:					13877		74228		3533		10619		2628		27325		3327		38655		4252
SITE 2																					
223+00.00	224+00.00	100' TRANSITION FROM EXISTING TO TWO LANE	100.00	37.00	37	22.00	244	0.10	24	1.25	14	495.00	3	1.13	13	220.00	1	31.00	344	220.00	38
224+00.00	230+60.00	660' TAPER FROM TWO LANE TO SOUTHBOUND PASSING LANE	660.00	99.50	657	39.40	2889	0.03	87	8.52	625	495.00	155	8.25	605	220.00	67	45.00	3300	220.00	363
230+60.00	283+00.96	MAIN LANES NOTCH & WIDEN - SOUTHBOUND PASSING LANE	5240.96	199.00	10430	78.80	45888	0.03	1377	14.52	8455	495.00	2093	14.25	8298	220.00	913	50.00	29116	220.00	3203
283+00.96	285+00.96	200' TAPER FROM SOUTHBOUND PASSING LANE TO TWO LANE	200.00	99.50	199	39.40	876	0.03	26	8.52	189	495.00	47	8.25	183	220.00	20	45.00	1000	220.00	110
285+00.96	286+00.96	100' TRANSITION FROM TWO LANE TO EXISTING	100.00	37.00	37	22.00	244	0.10	24	1.25	14	495.00	3	1.13	13	220.00	1	31.00	344	220.00	38
* 224+00.00	285+00.96	ADDITIONAL FOR LEVELING	6100.96			22.00	14913	0.10	1491					22.00	14913	220.00	1640				
* 232+09.45	249+55.98	ADDITIONAL FOR SUPERELEVATION			583				58								213				
* 267+08.65	277+89.07	ADDITIONAL FOR SUPERELEVATION			226				36								132				
* 278+96.92	286+00.00	ADDITIONAL FOR SUPERELEVATION			253				23								86				
SUBTOTALS SITE 2-SB:					12422		65054		3146		9297		2301		24025		3073		34104		3752
TOTALS:					26299		139282		6679		19916		4929		51350		6400		72759		8004

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
 ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
 * QUANTITIES ESTIMATED. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

A.C.H.M. PATCHING OF EXISTING ROADWAY

DESCRIPTION	ACHM PATCHING OF EXISTING	TACK COAT
	TON	GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100	200
TOTALS:	100	200

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

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN. FT.
SITE 1			
100+00	170+20	LT.	10026
SUBTOTAL SITE 1-NB:			10026
SITE 2			
223+00	286+01	LT.	8288
SUBTOTAL SITE 2-SB:			8288
TOTAL:			18314

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	ASPH. CONC. PATCHING FOR M.O.T.	TACK COAT
	TON	GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	125	250
TOTALS:	125	250

NOTE: QUANTITIES ARE ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS. BASIS OF ESTIMATE: ASPH. CONC. PATCHING FOR MOT - 25 TONS/MILE TACK COAT- 50 GAL./MILE

COLD MILLING

STATION	STATION	LOCATION	COLD MILLING ASPHALT PAVEMENT
			SQ. YD.
SITE 1			
100+00.00	101+00.00	BEGIN SITE 1	244
170+20.00	171+20.00	END SITE 1	244
SUBTOTAL SITE 1-NB:			488
SITE 2			
223+00.00	224+00.00	BEGIN SITE 2	244
285+00.96	286+00.96	END SITE 2	244
SUBTOTAL SITE 2-SB:			488
TOTAL:			976

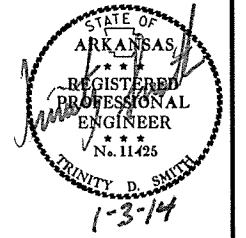
AVG. 1" DEPTH

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS	
		(SINGLE)	(DOUBLE)
EACH			
SITE 1			
ENTIRE PROJECT	10	8	1
SUBTOTALS SITE 1-NB:	10	8	1
SITE 2			
ENTIRE PROJECT	12	8	2
SUBTOTALS SITE 2-SB:	12	8	2
TOTALS:	22	16	3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	38

2 QUANTITIES



PAVEMENT REPAIR OVER CULVERTS

STATION	LOCATION	CONCRETE CU. YD.
SITE 1		
115+86	CENTER LINE	5.8
155+53	CENTER LINE	9.5
180+74	CENTER LINE	9.5
SUBTOTAL SITE 1-NB:		24.8
SITE 2		
260+28		20.8
SUBTOTAL SITE 2-SB:		20.8
TOTAL:		45.6

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING CU. YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.	125
TOTAL:	125

NOTE: QUANTITY ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

CONCRETE DITCH PAVING or DITCH LINING

STATION	STATION	LOCATION	CONC. DIT. PAVING (TYPE B) (W=6'-0")	SOLID SODDING	*WATER	EROSION CONTROL MATTING (CLASS 2)
			SQ. YD.		M. GAL.	SQ. YD.
101+00	104+00	RT.	200	133	1.7	
ENTIRE PROJECT		IF AND WHERE DIRECTED BY THE ENGINEER	200	133	1.7	
ENTIRE PROJECT		IF AND WHERE DIRECTED BY THE ENGINEER				300.0
TOTALS:			400	266	3.4	300.0

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

FENCING

STATION	STATION	SIDE	REMOVAL AND DISPOSAL OF FENCE	WIRE FENCE		16'-0" GATES	20'-0" GATES	24'-0" GATES
				(TYPE D)	(TYPE D-1)			
				LIN. FT.		EACH		
SITE 1 - NORTHBOUND								
100+00	115+00	RT.			1000		1	
110+00	115+85	RT.		585		1		
121+00	128+80	LT.		780		1		
133+50	135+57	LT.		207				
137+60	145+00	LT.			740			
149+00	160+00	LT.		1100				
160+00	167+00	LT.			700			
168+19	171+20	LT.			301			
168+78	171+20	RT.			300			
100+00	115+00	RT.	1500					
115+00	115+85	RT.	115					
115+85		LT.	30					
121+20	123+50	LT.	260					
123+25	129+00	LT.	507					
125+00		RT.	65					
127+30	130+00	RT.	270					
130+00	140+56	RT.	1075					
133+50	135+56	LT.	235					
137+60	145+00	LT.	760					
140+78	141+00	RT.	42					
149+00	160+00	RT.	1138					
160+00	167+00	LT.	700					
168+19	171+20	LT.	301					
168+78	171+20	RT.	263					
SUBTOTALS SITE 1-NB:			7261	2672	3041	2	1	
SITE 2 - SOUTHBOUND								
223+00	234+80	RT.		1180				
228+00	245+00	RT.			1700		2	
244+00	247+00	RT.		300				
254+30	257+00	LT.		270				
248+75	254+30	LT.			555			
262+25	273+45	RT.		1120				1
264+00	275+00	LT.		1100			2	
275+00	283+00	RT.		800				
223+00	230+00	RT.	700					
228+00	230+00	LT.	200					
230+00	245+00	LT.	1500					
230+00	234+80	RT.	528					
244+05	245+00	RT.	109					
245+00	247+00	RT.	200					
245+00	245+30	LT.	42					
248+56	249+00	RT.	46					
248+75	254+30	LT.	588					
252+20	254+00	RT.	205					
262+25	273+45	RT.	1120					
264+00	275+00	LT.	1160					
274+75	275+00	RT.	43					
275+00	275+20	LT.	60					
275+00	283+00	LT.	800					
SUBTOTALS SITE 2-SB:			7301	4770	2255		4	1
TOTALS:			14562	7442	5296	2	5	1

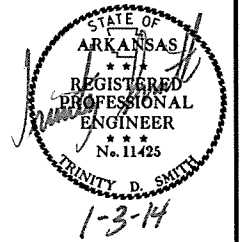
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QUANTITIES

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
							JOB NO. 080428	39	134

2 QUANTITIES



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)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU. YD.	LN. FT.	CU. YD.	CU. YD.	CU. YD.
SITE 1																
101+00	115+00	LT. & RT.	2.64	5	2.64	269.3	2.64	1.82	1.82	37.1	80	8	200			34
115+00	130+00	LT. & RT.	3.17	6	3.17	323.3	3.17	2.38	2.38	48.6	120	16	1131			145
130+00	145+00	LT. & RT.	2.47	5	2.47	251.9	2.47	0.97	0.97	19.8	80	8	1738			203
145+00	160+00	LT. & RT.	2.39	5	2.39	243.8	2.39	1.45	1.45	29.6	40	8	2290			258
160+00	170+20	LT. & RT.	1.48	3	1.48	151.0	1.48	0.45	0.45	9.2	80	4	2177			248
*ENTIRE PROJECT		TO BE USED USED IF AND WHERE DIRECTED BY THE ENGINEER.												3600	3600	7200
SUBTOTALS SITE 1-NB:			12.15	24	12.15	1239.3	12.15	7.07	7.07	144.2	400	44	7536	3600	3600	8088
SITE 2																
223+00	230+00	LT. & RT.	1.10	2	1.10	112.2	1.10	0.85	0.85	17.3	80	4				9
230+00	245+00	LT. & RT.	2.97	6	2.97	302.9	2.97	2.20	2.20	44.9	80	8				12
245+00	260+00	LT. & RT.	2.17	4	2.17	221.3	2.17	1.37	1.37	27.9	120	8	1795			212
260+00	275+00	LT. & RT.	2.56	5	2.56	261.1	2.56	1.83	1.83	37.3	120	16	1145			147
275+00	286+01	LT. & RT.	2.00	4	2.00	204.0	2.00	2.38	2.38	48.6	120	8	300			48
*ENTIRE PROJECT		TO BE USED USED IF AND WHERE DIRECTED BY THE ENGINEER.												3600	3600	7200
SUBTOTALS SITE 2-SB:			10.80	21	10.80	1101.5	10.80	8.63	8.63	176.0	520	44	3240	3600	3600	7628
TOTALS:			22.95	45	22.95	2340.8	22.95	15.70	15.70	320.2	920	88	10776	7200	7200	15716

BASIS OF ESTIMATE:

- LIME 2 TONS / ACRE OF SEEDING
- WATER 102.0 M.G. / ACRE OF SEEDING.
- WATER 20.4 M.G. / ACRE OF TEMPORARY SEEDING.
- WATER 12.6 GAL. / SQ. YD. OF SOLID SODDING.
- SAND BAG DITCH CHECKS 22 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.

*QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

STRUCTURES

STATION	DESCRIPTION	R.C. PIPE CROSS DRAINS			F.E.S.				SPAN	HEIGHT	LENGTH	CLASS S CONCRETE (ROADWAY)	REINF. STEEL-ROADWAY (GRADE 60)	UNC. EXC. FOR STR. (ROADWAY)	SOLID SODDING	WATER	STD. DWG. NOS.
		CLASS															
		III	IV	V	24"	30"	36"	42"									
SITE 1 - NORTHBOUND																	
115+86	EXTEND DBL. 5'x3'x37' R.C. BOX CULV'T. 21' LT. & 41' RT. @ 30° RT. FWD. SKEW								5	3	67	81.29	9864	37	22	0.3	R-230X-01, W-X30, W-X303-1, RCB-1, RCB-2, RCB-3
115+86	CONST. 30"x105" PIPE CULV'T. @ 30° RT. FWD. SKEW W/ F.E.S. LT. & RT.			105				2							26	0.3	PCC-1, FES-1, FES-2
124+95	EXTEND DBL. 6'x5'x40' R.C. BOX CULV'T. 19' LT. @ 30° LT. FWD. SKEW & 31' RT.								6	5	56	54.63	8695	30	17	0.2	R-200X-0, R-230X-01, W-X003-1, W-X30, W-X303-1, RCB-1, RCB-2, RCB-3
143+54	EXTEND DBL. 36"x50' R.C. PIPE CULV'T. 44' LT. @ 30° SKEW W/ F.E.S. LT.							2							17	0.2	PCC-1, FES-1, FES-2
155+53	EXTEND DBL. 4'x3'x34' R.C. BOX CULV'T. 52' LT. & 21' RT. @ 45° RT. FWD. SKEW								4	3	78	53.31	7640	29	16	0.2	R-245X-01, W-X45, W-X453-1, RCB-1, RCB-2, RCB-3
155+53	CONST. DBL 42"x116" PIPE CULV'T. @ 45° RT. FWD. SKEW W/ F.E.S. LT. & RT.			190				4							50	0.6	PCC-1, FES-1, FES-2
160+74	EXTEND DBL. 4'x3'x37' R.C. BOX CULV'T. 26' LT. & 34' RT. @ 45° LT. FWD. SKEW								4	3	47	36.02	4742	22	16	0.2	R-245X-01, W-X45, W-X453-1, RCB-1, RCB-2, RCB-3
160+74	CONST. DBL 42"x104" PIPE CULV'T. @ 45° LT. FWD. SKEW W/ F.E.S. LT. & RT.			208				4							50	0.6	PCC-1, FES-1, FES-2
TOTALS FOR SITE 1-NB:		96	105	398				2	2	8		225.25	30941	118	214	2.6	
SITE 2 - SOUTHBOUND																	
253+08	EXTEND 30"x38' R.C. PIPE CULV'T. 30' LT. & 12' RT. W/ F.E.S. LT. & RT.			50				2							26	0.3	PCC-1, FES-1, FES-2
260+28	CONSTRUCT 30"x77' R.C. PIPE CULV'T. W/ F.E.S. LT. & RT.						77	2							16	0.2	PCC-1, FES-1, FES-2
267+68	EXTEND DBL. 24"x24' R.C. PIPE CULV'T. 24' LT. & 16' RT. W/ F.E.S. LT. & RT.			96				4							18	0.2	PCC-1, FES-1, FES-2
TOTALS FOR SITE 2-SB:		96	50	77	4	4									60	0.7	
TOTALS:		96	96	155	398	77	4	6	2	8		225.25	30941	118	274	3.3	

BASIS OF ESTIMATE:

- WATER 12.6 GAL. / SQ. YD. OF SOLID SODDING.

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

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

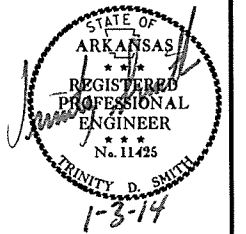
SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	120	STATION
201	GRUBBING	120	STATION
202	REMOVAL AND DISPOSAL OF FENCE	14562	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	29	EACH
210	UNCLASSIFIED EXCAVATION	40614	CU. YD.
210	COMPACTED EMBANKMENT	49729	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	27261	TON
401	TACK COAT	7129	GALLON
SP, SS & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	4707	TON
SP, SS & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	222	TON
SP, SS & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	13824	TON
SP, SS & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	789	TON
412	COLD MILLING ASPHALT PAVEMENT	976	SQ. YD.
SP, SS & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	125	TON
SP, SS & 415	ACHM PATCHING OF EXISTING ROADWAY	100	TON
505	PORTLAND CEMENT CONCRET DRIVEWAY	84.80	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	466	SQ. FT.
SS & 604	TRAFFIC DRUMS	440	EACH
SS & 604	VERTICAL PANELS	260	EACH
SS & 604	CONSTRUCTION PAVEMENT MARKINGS	52084	LIN. FT.
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	1164	LIN. FT.
SS & 604	RELOCATING PRECAST CONCRETE BARRIER	1011	LIN. FT.
605	CONCRETE DITCH PAVING (TYPE B)	400	SQ. YD.
SS & 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	96	LIN. FT.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	96	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	155	LIN. FT.
SS & 606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	398	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	77	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	4	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	6	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	8	EACH
SP, SS & 606	18" SIDE DRAIN	908	LIN. FT.
SP, SS & 606	24" SIDE DRAIN	298	LIN. FT.
SP, SS & 606	30" SIDE DRAIN	110	LIN. FT.
606	SELECTED PIPE BEDDING	125	CU. YD.
611	4" PIPE UNDERDRAINS	1000	LIN. FT.
611	UNDERDRAIN OUTLET PROTECTORS	8	EACH
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)	45.6	CU. YD.
619	WIRE FENCE (TYPE D)	7442	LIN. FT.
619	WIRE FENCE (TYPE D-1)	5296	LIN. FT.
* 619	16' STEEL GATES (ALTERNATE NO.1)	2	EACH
* 619	16' ALUMINUM GATES (ALTERNATE NO.2)	2	EACH
* 619	20' STEEL GATES (ALTERNATE NO.1)	5	EACH
* 619	20' ALUMINUM GATES (ALTERNATE NO.2)	5	EACH
* 619	24' STEEL GATES (ALTERNATE NO.1)	1	EACH
* 619	24' ALUMINUM GATES (ALTERNATE NO.2)	1	EACH
620	LIME	45	TON
620	SEEDING	22.95	ACRE
SS & 620	MULCH COVER	38.65	ACRE
SS & 620	WATER	2667.7	M. GAL.
621	TEMPORARY SEEDING	15.70	ACRE
621	SILT FENCE	10776	LIN. FT.
621	SAND BAG DITCH CHECKS	920	BAG
621	ROCK DITCH CHECKS	88	CU. YD.
621	SEDIMENT BASIN	7200	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	7200	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	15716	CU. YD.
623	SECOND SEEDING APPLICATION	22.95	ACRE
624	SOLID SODDING	540	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 2)	300	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	22	EACH
637	MAILBOX SUPPORTS (SINGLE)	16	EACH
637	MAILBOX SUPPORTS (DOUBLE)	3	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	18314	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	29302	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	26842	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	908	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	118	CU. YD.
802	CLASS S CONCRETE-ROADWAY	225.25	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	30941	POUND
SP	TEMPORARY IMPACT ATTENUATION BARRIER	1	EACH
SP	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	1	EACH

*DENOTES ALTERNATE BID ITEMS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						080428	40	134

2 SUMMARY OF QUANTITIES AND REVISIONS



REVISIONS

DATE	REVISION	SHEET NUMBER

SURVEY CONTROL COORDINATES

Project Name: s080428
 Date: 5/30/2012
 Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL,
 PROJECTED TO GROUND.
 Units: U.S. SURVEY FOOT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	41
						2 SURVEY CONTROL DETAILS		



Point Name	Northing	Easting	Elev	Feature	Description
1	295367.3784	914570.0475	392.93	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 1
2	295759.0903	915178.8556	392.31	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 2
3	296158.7757	915818.6474	402.29	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 3
4	296541.8861	916452.5569	423.94	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 4
5	296878.3369	917118.6982	409.33	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 5
6	297199.5799	917723.5660	403.02	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 6
7	297586.5866	918320.1974	404.03	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 7
8	298010.0353	918922.9001	412.03	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 8
9	298334.8445	919540.0667	411.96	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 9
10	298609.5428	920206.6160	395.56	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 10
11	298877.3658	920854.8553	385.79	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 11
12	299137.9284	921536.8034	398.04	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 12
13	299444.7136	922221.7398	394.76	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 13
14	299678.7767	922813.7549	391.42	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 14
15	305426.0894	928907.8620	392.51	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 15
16	305185.2079	929552.9451	398.44	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 16
17	304960.2303	930206.8707	407.30	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 17
18	304919.9060	930954.3956	414.91	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 18
19	305110.9707	931655.9028	391.74	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 19
20	305571.8325	932223.6186	390.02	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 20
21	306150.6119	932639.1249	393.54	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 21
22	306762.6532	933057.6843	405.55	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 22
23	307323.6316	933477.1428	417.77	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 23
24	307889.2412	933986.6233	432.10	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 24
25	308334.6212	934574.4182	424.97	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 25
26	308856.5124	935125.2980	436.24	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 26
27	309320.0873	935673.8027	436.62	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 27
28	309793.6528	936234.3221	442.39	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 28
29	310370.1651	936764.4478	449.03	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 29
30	310685.6418	937379.9632	448.81	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 30
31	310859.9165	937918.0613	454.99	CTL	*5/8" Rebar with 2" Aluminum Cap STAMPED PN: 31
100	295048.5145	913936.6050	401.22	GPS	*AHTD GPS 750020
101	294687.1763	912792.3950	401.56	GPS	*AHTD GPS 750020A
102	305377.9857	928422.3778	378.37	GPS	*AHTD GPS 750019
103	304592.2257	926795.9698	359.94	GPS	*AHTD GPS 750019A
104	311629.2336	940105.4618	475.63	GPS	*AHTD GPS 750018
105	311029.4280	938375.3399	456.55	GPS	*AHTD GPS 750018A
900	298912.5548	920938.7210	385.69	TBM	*SE SIDE OF HWY. 27, 90' NE OF CTL 11
901	298725.0233	920486.0706	388.19	TBM	*SE SIDE OF HWY. 27, 300' NE OF CTL 10
902	298262.8034	919379.9127	414.36	TBM	*SE SIDE OF HWY. 27, 180' SW OF CTL 9
903	297283.8036	917802.6624	401.37	TBM	*CHISELED SQ. ON TOP OF HW
904	296850.6354	916966.5976	411.89	TBM	*CHISELED SQ. ON TOP OF HW
905	296051.5887	915581.7031	396.81	TBM	*CHISELED SQ. ON TOP OF HW
906	295592.8190	914917.9910	391.56	TBM	*CHISELED SQ. ON TOP OF HW
907	295214.9218	914308.6779	394.08	TBM	*CHISELED SQ. ON TOP OF HW
908	300169.8452	923533.1602	361.07	TBM	*CHISELED SQ. ON TOP OF HW
909	300665.9179	923980.3362	355.17	TBM	*CHISELED SQ. ON TOP OF HW
910	302474.6202	925324.1374	352.84	TBM	*CHISELED SQ. ON TOP OF HW
911	305314.2871	929212.1871	388.47	TBM	*CHISELED SQ. ON TOP OF HW
912	305271.1347	931904.2417	389.63	TBM	*CHISELED SQ. ON TOP OF HW
913	305634.4770	932288.4552	386.03	TBM	*CHISELED SQ. ON TOP OF HW
914	308747.0723	934995.4608	436.10	TBM	*CHISELED SQ. ON TOP CENTER OF H
915	309227.7422	935557.1202	435.00	TBM	*CHISELED SQ. ON TOP CENTER OF H
916	310442.7152	936946.7020	446.92	TBM	*CHISELED SQ. ON TOP OF HW
917	310643.8524	937293.9044	447.62	TBM	*CHISELED SQ. ON TOP OF HW
918	310912.9745	938131.0753	454.56	TBM	*CHISELED SQ. ON TOP OF HW
990	299534.4576	922439.8180	394.09	BM	*USGS 3RD ORDER BM UE 4B
991	303630.5759	926000.6003	353.95	BM	*USGS 3RD ORDER BM UE 4D
992	301974.7532	924947.4333	346.87	BM	*USGS 3RD ORDER BM UE 4C
993	-99999.0000	-99999.0000	425.90	BM	*USGS 3RD ORDER BM UE 5A
1500	298675.8305	921511.8890	386.33	CTL	*5/8" Rebar with 2" Aluminum Cap
1501	297523.4240	921484.7885	374.67	CTL	*5/8" Rebar with 2" Aluminum Cap
1502	310414.4486	937883.8144	449.70	CTL	*5/8" Rebar with 2" Aluminum Cap
1503	309136.1880	937804.0360	439.94	CTL	*5/8" Rebar with 2" Aluminum Cap

Alignment Name: CONST 1

Point Name	Type	Station	Northing	Easting
8000	POB	100+00.00	296050.64	915617.32
8001	P.I.	101+00.00	296103.14	915702.43
8002	P.C.	106+99.37	296420.11	916211.13
8004	P.T.	111+85.16	296659.23	916633.83
8005	P.C.	123+19.73	297175.51	917644.14
8007	P.T.	127+55.96	297399.25	918018.20
8008	P.I.	129+15.20	297489.94	918149.94
8018	P.C.	140+05.60	298121.20	919036.00
8034	P.T.	143+75.60	298299.66	919351.00
8035	P.I.	153+51.62	298675.76	920272.91
8037	P.T.	157+49.60	298817.66	920634.00
8038	P.C.	159+27.99	298880.08	920801.10
8040	P.T.	163+59.76	299038.77	921202.60
8041	POE	171+20.00	299331.45	921904.27

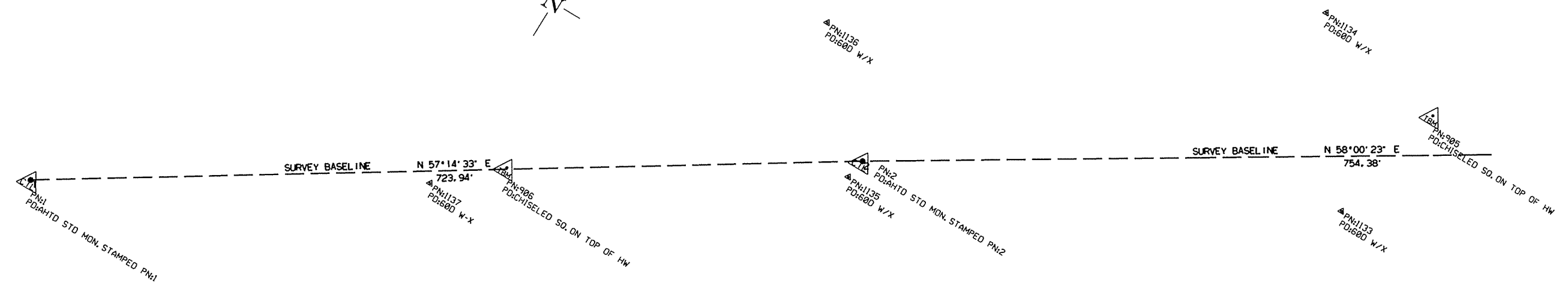
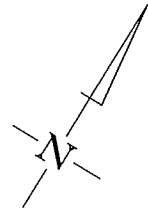
Alignment Name: CONST 2

Point Name	Type	Station	Northing	Easting
8020	POB	223+00.00	306000.16	932509.51
8021	P.I.	224+00.00	306083.09	932565.39
8022	P.C.	234+34.45	306935.13	933152.01
8024	P.T.	247+30.98	307894.43	934018.62
8025	P.I.	256+94.85	308518.59	934753.10
8027	P.C.	269+33.65	309320.13	935697.65
8029	P.T.	275+64.07	309750.17	936158.30
8030	P.C.	281+21.92	310149.66	936547.65
8032	P.T.	285+00.94	310391.92	936838.27
8033	POE	286+00.96	310447.69	936921.30

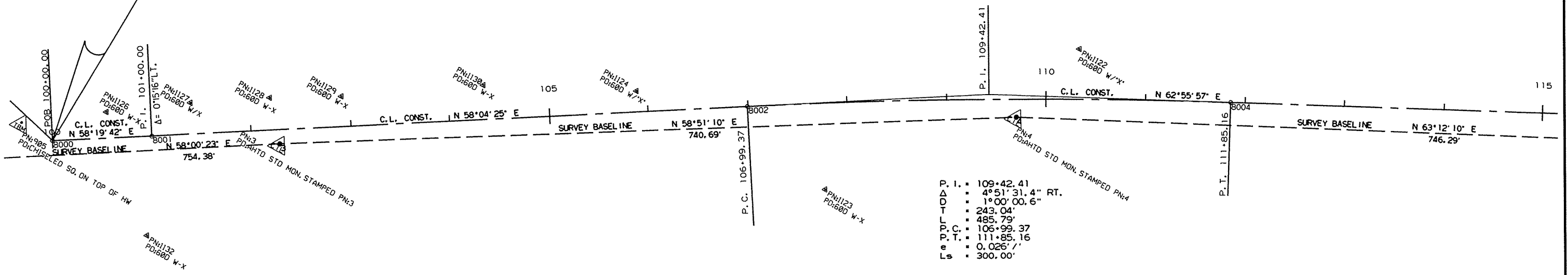
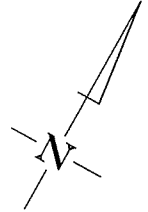
*Note - Rebar and Cap - Standard - * Rebar with 2" Aluminum Cap stamped
 *(standard markings common to all caps), or as indicated
 (other markings indicated in the point description of the individual point).
 USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
 A PROJECT CAF OF 0.9999440278 HAS BEEN USED TO COMPUTE THE GROUND COORDINATES LISTED ABOVE.
 THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
 GRID DISTANCE = GROUND DISTANCE X CAF.
 GRID COORDINATES ARE STORED UNDER FILE NAME s080428gi.ct1
 HORIZONTAL DATUM: NAD 83 (1997)
 VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
 AT A SPECIFIC POINT.
 REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL
 IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
 REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL
 BASIS OF BEARING:
 ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
 DETERMINED FROM GPS CONTROL POINTS: 750018-750018A, 750019-750019A, 750020-750020A
 CONVERGENCE ANGLE: 0-45-03 LEFT AT LT: 35-09-47.5 LG: 093-17-24.3
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	42	134

2 SURVEY CONTROL DETAILS



STA. 101+00.00 - BEGIN SITE 1
 BEGIN JOB 080428
 NORTHBOUND PASSING LANE
 LOG MILE 7.20



10-5-2012

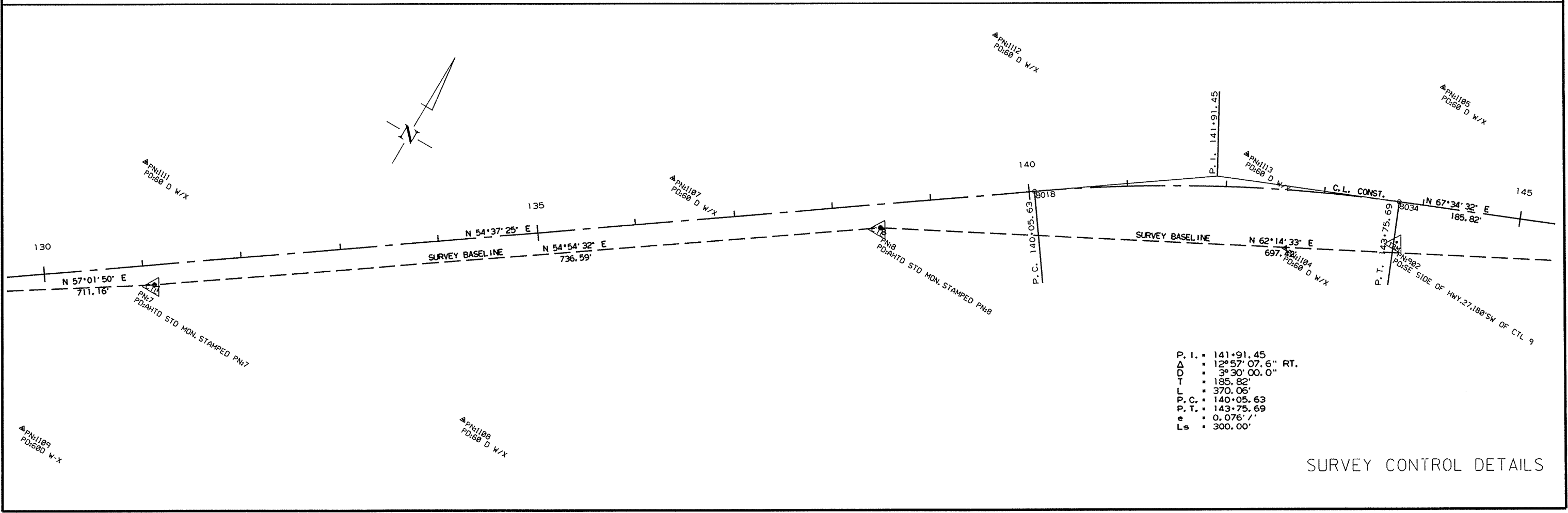
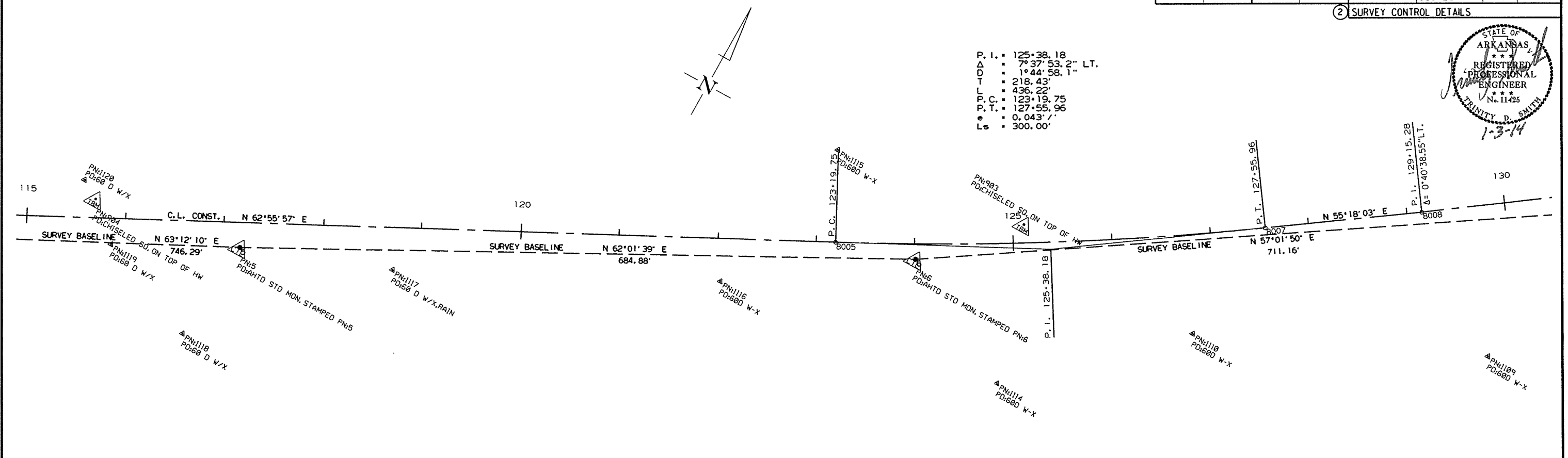
R080428.DGN

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.	080428	43
						JOB NO.	080428	134

2 SURVEY CONTROL DETAILS



P. I. = 125.38.18
 Δ = 7°37'53.2" LT.
 D = 1°44'58.1"
 T = 218.43'
 L = 436.22'
 P. C. = 123.19.75
 P. T. = 127.55.96
 e = 0.043' /'
 Ls = 300.00'



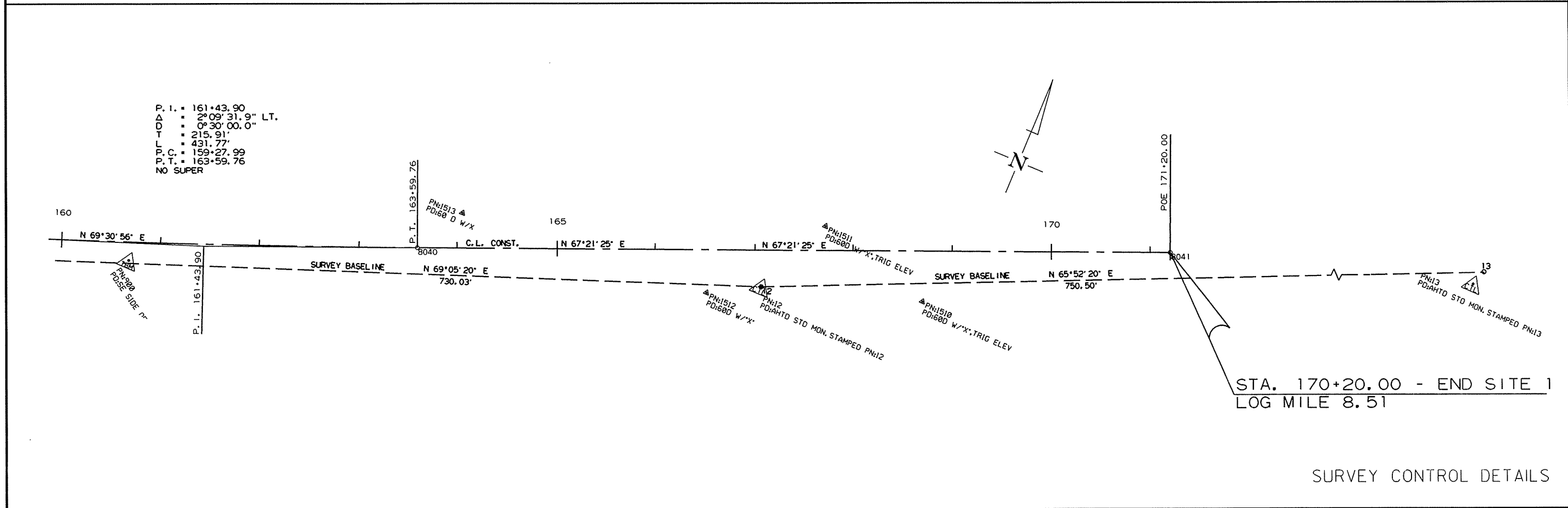
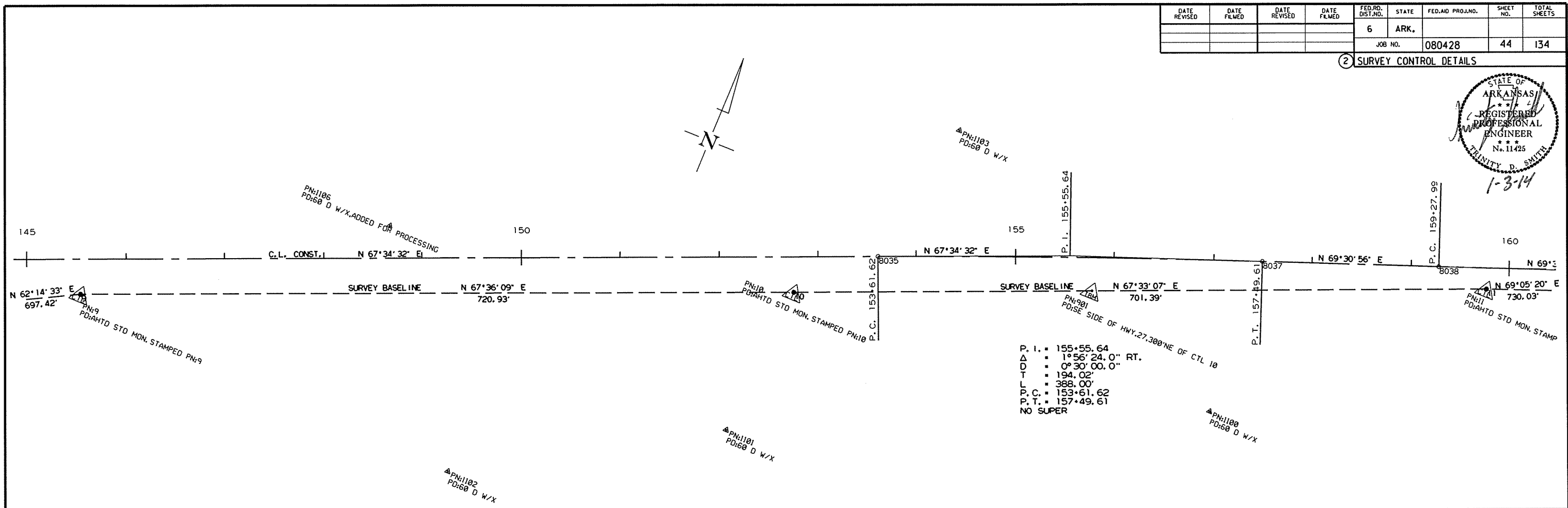
P. I. = 141.91.45
 Δ = 12°57'07.6" RT.
 D = 3°30'00.0"
 T = 185.82'
 L = 370.06'
 P. C. = 140.05.63
 P. T. = 143.75.69
 e = 0.076' /'
 Ls = 300.00'

SURVEY CONTROL DETAILS

10-5-2012
 R080428.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.							080428	44	134

2 SURVEY CONTROL DETAILS



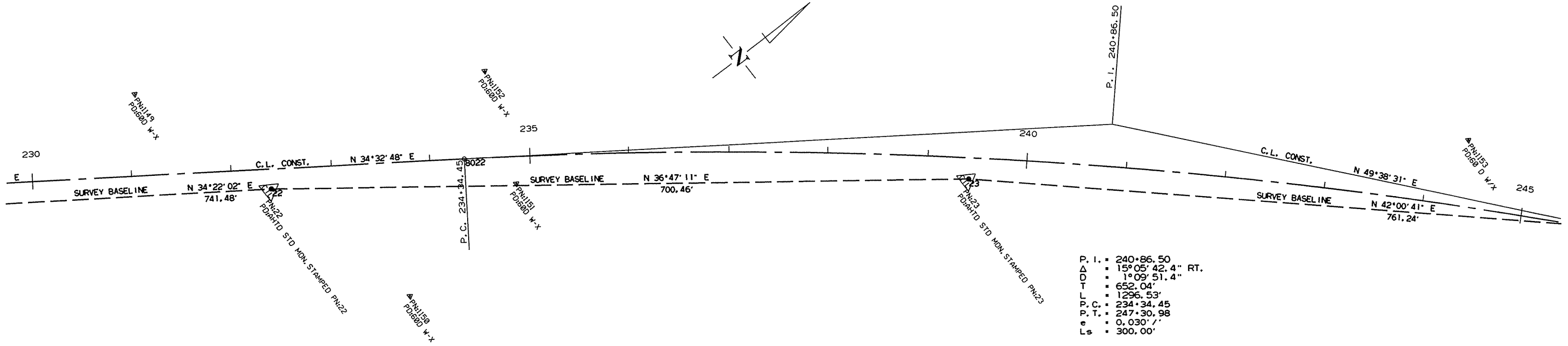
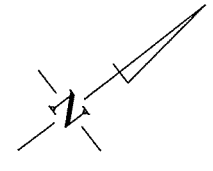
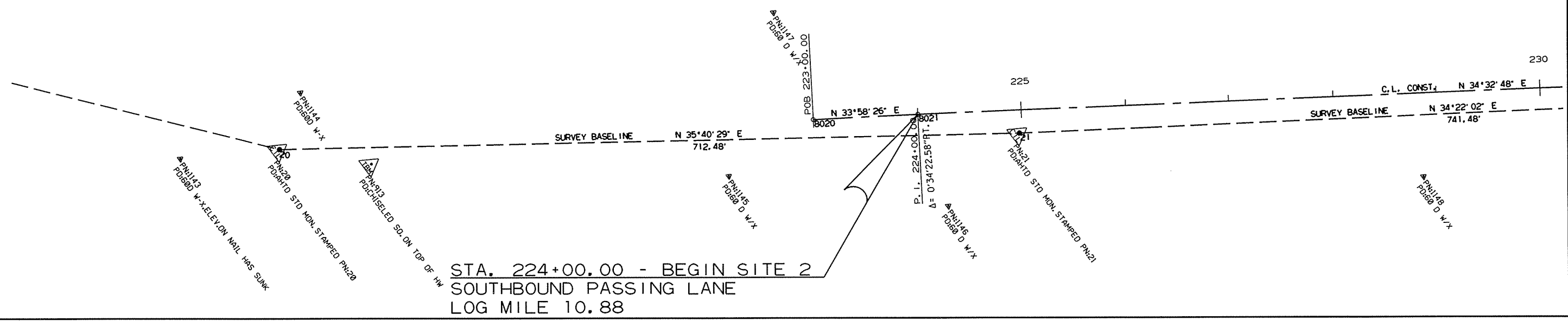
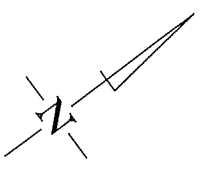
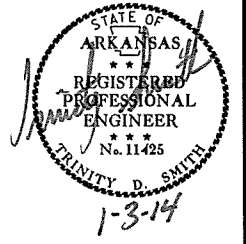
STA. 170+20.00 - END SITE 1
LOG MILE 8.51

SURVEY CONTROL DETAILS

10-5-2012
R080428.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
JOB NO.							080428	45	134

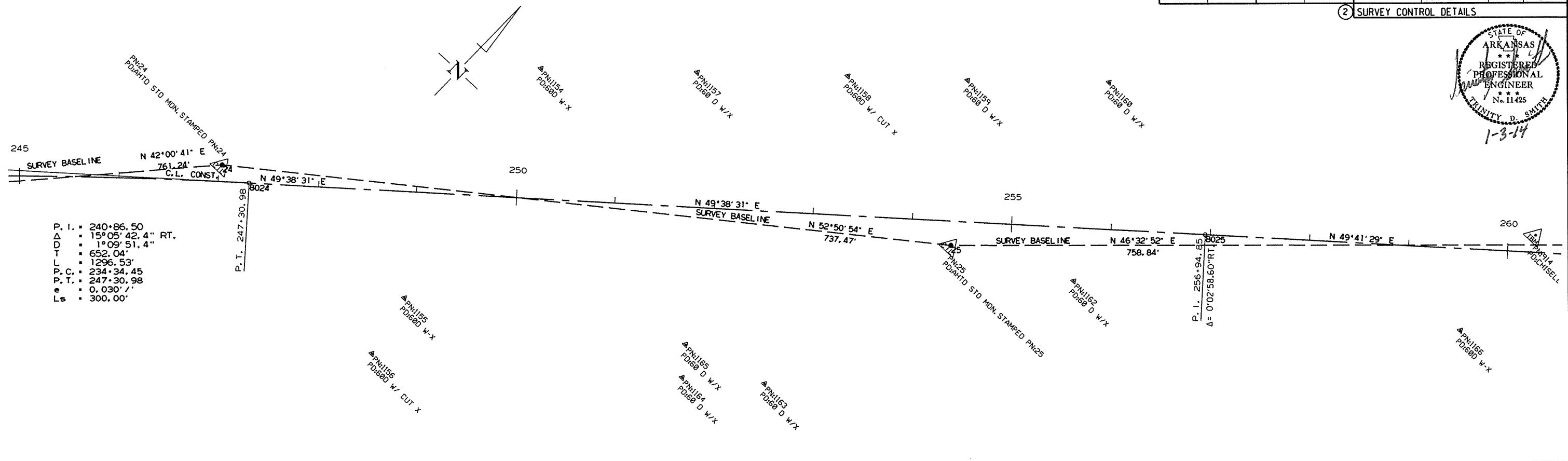
2 SURVEY CONTROL DETAILS



SURVEY CONTROL DETAILS

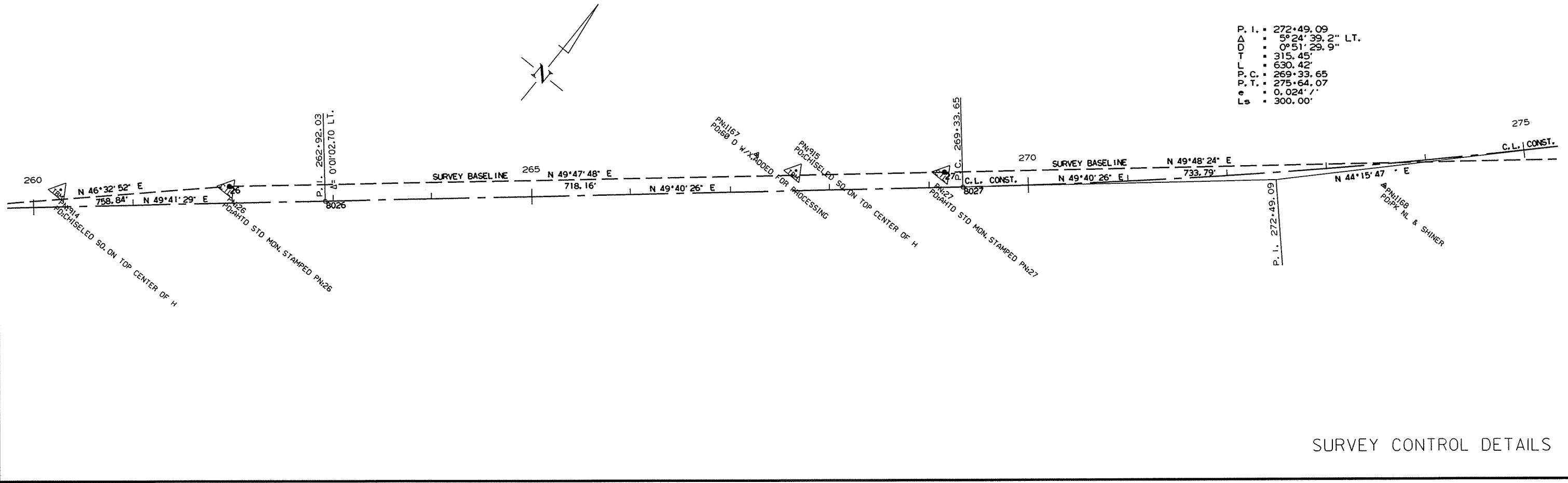
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	080428
								46
								134

2 SURVEY CONTROL DETAILS



P. I. = 240+86.50
 Δ = 15°05'42.4" RT.
 D = 1°09'51.4"
 T = 652.04'
 L = 1296.53'
 P. C. = 234+34.45
 P. T. = 247+30.98
 e = 0.030' /'
 Ls = 300.00'

P. I. = 272+49.09
 Δ = 5°24'39.2" LT.
 D = 0°51'29.9"
 T = 315.45'
 L = 630.42'
 P. C. = 269+33.65
 P. T. = 275+64.07
 e = 0.024' /'
 Ls = 300.00'

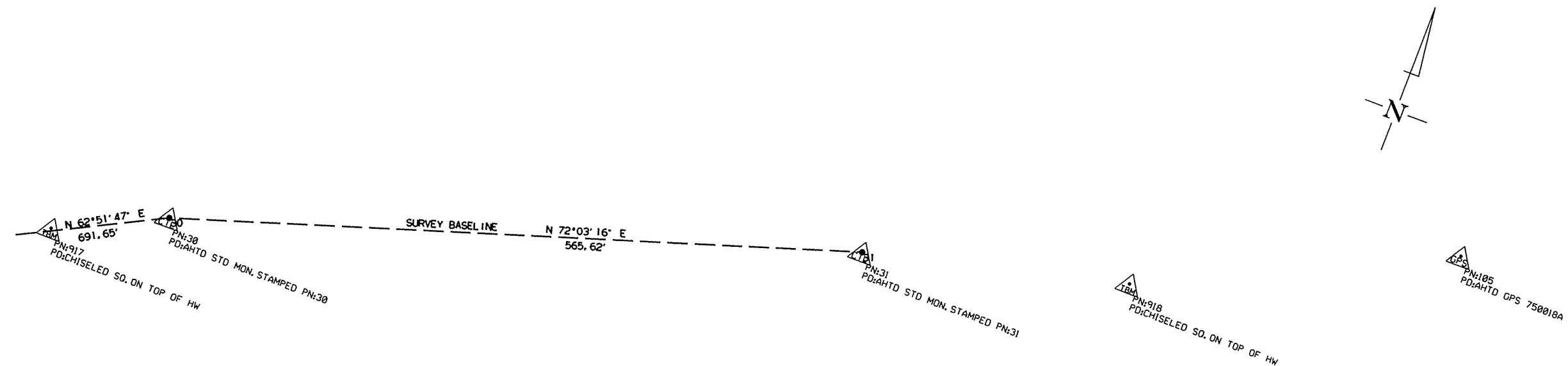
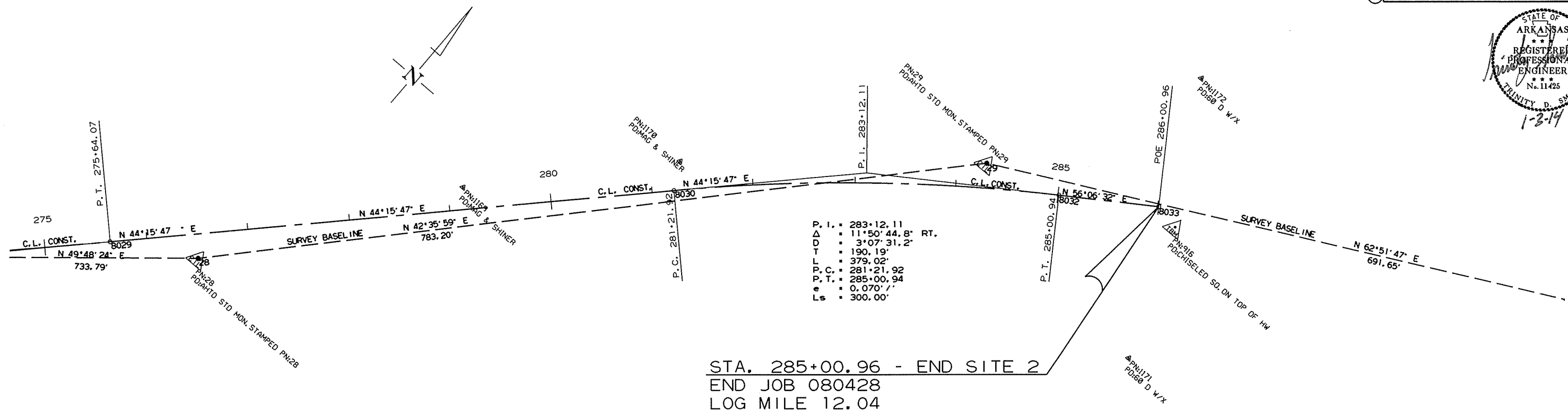


10-5-2012
 R080428.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	47 134

2 SURVEY CONTROL DETAILS



10-5-2012

R080426.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	48 134

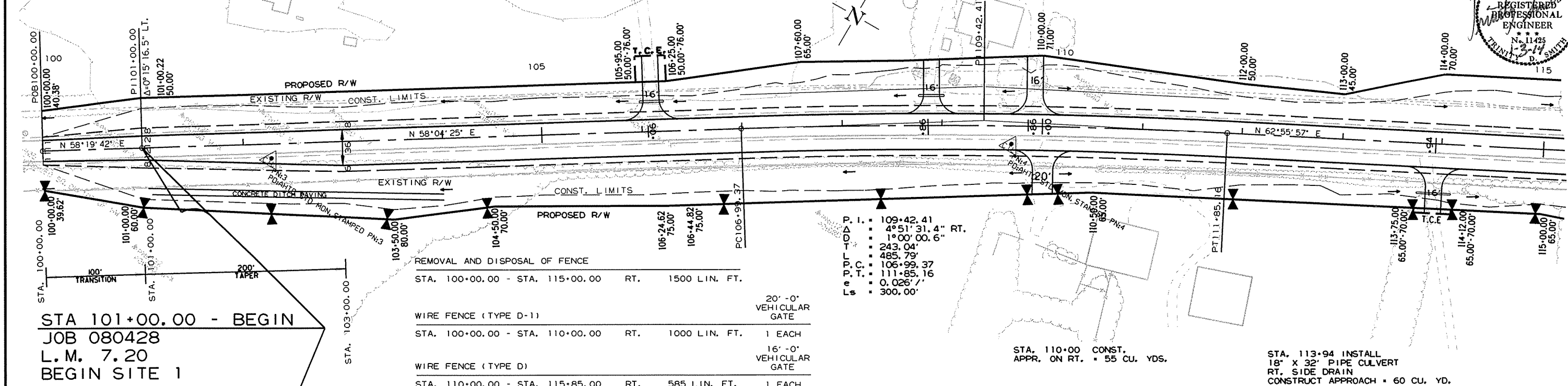
2 PLAN AND PROFILE STA. 100+00-STA. 115+00



STA. 106+02 IN PLACE
18" X 36" CMP CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
24" X 28" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

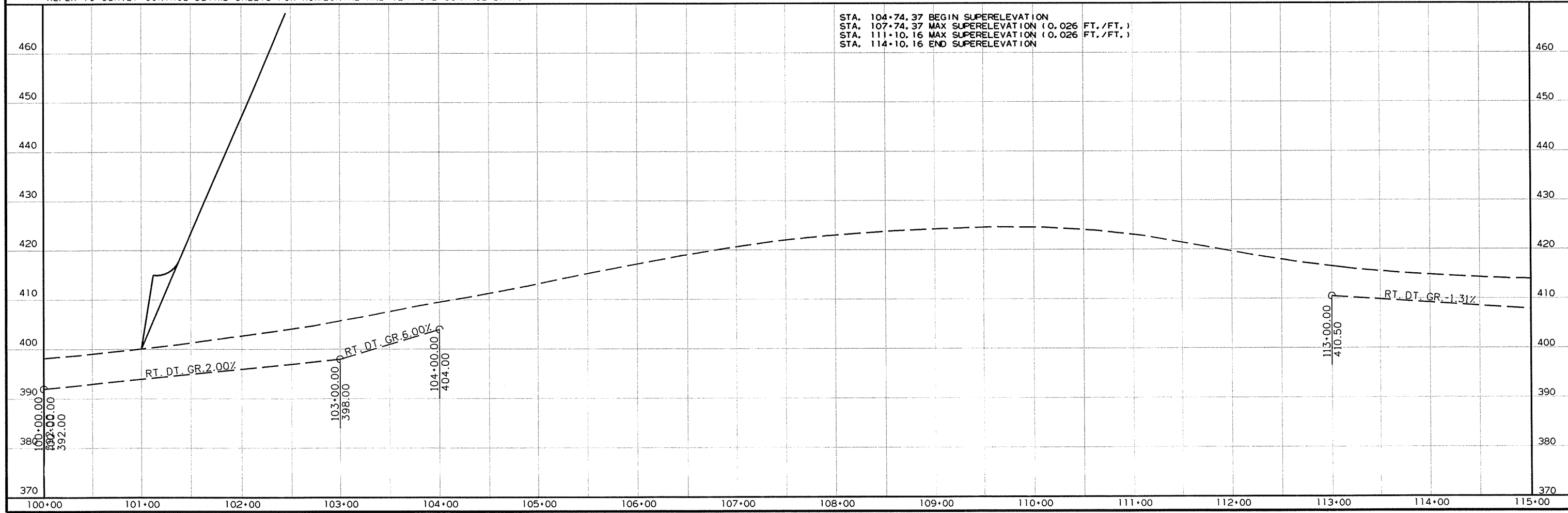
STA. 108+86 IN PLACE
20" X 16" X 24" ACMP CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
24" X 28" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 30 CU. YD.

STA. 109+86 CONST.
APPR. ON LT. = 25 CU. YDS.



STA 101+00.00 - BEGIN
JOB 080428
L.M. 7.20
BEGIN SITE 1

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



ZBORDER.CEL 11/3/2010

REMOVAL AND DISPOSAL OF FENCE

STA. 115+00.00 - STA. 115+85.00	RT.	115 LIN. FT.
STA. 115+85.00	LT.	30 LIN. FT.
STA. 121+20.00 - STA. 123+50.00	LT.	260 LIN. FT.
STA. 123+25.00 - STA. 129+00.00	LT.	507 LIN. FT.
STA. 125+00.00	RT.	65 LIN. FT.
STA. 127+30.00 - STA. 130+00.00	RT.	270 LIN. FT.

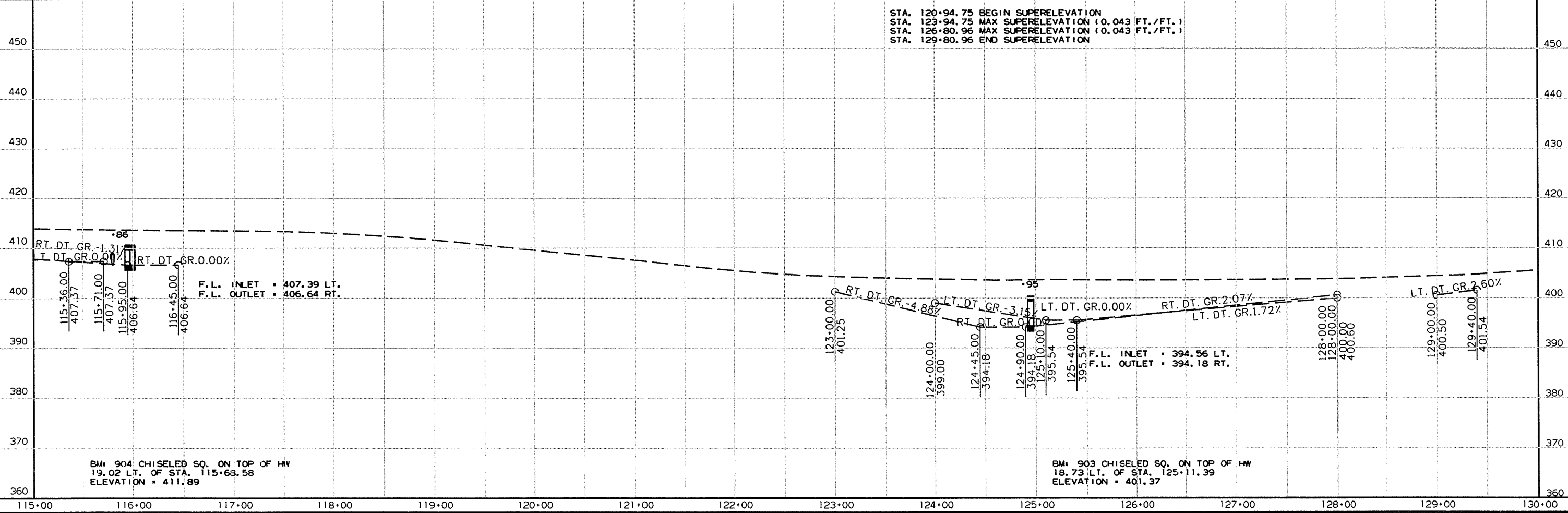
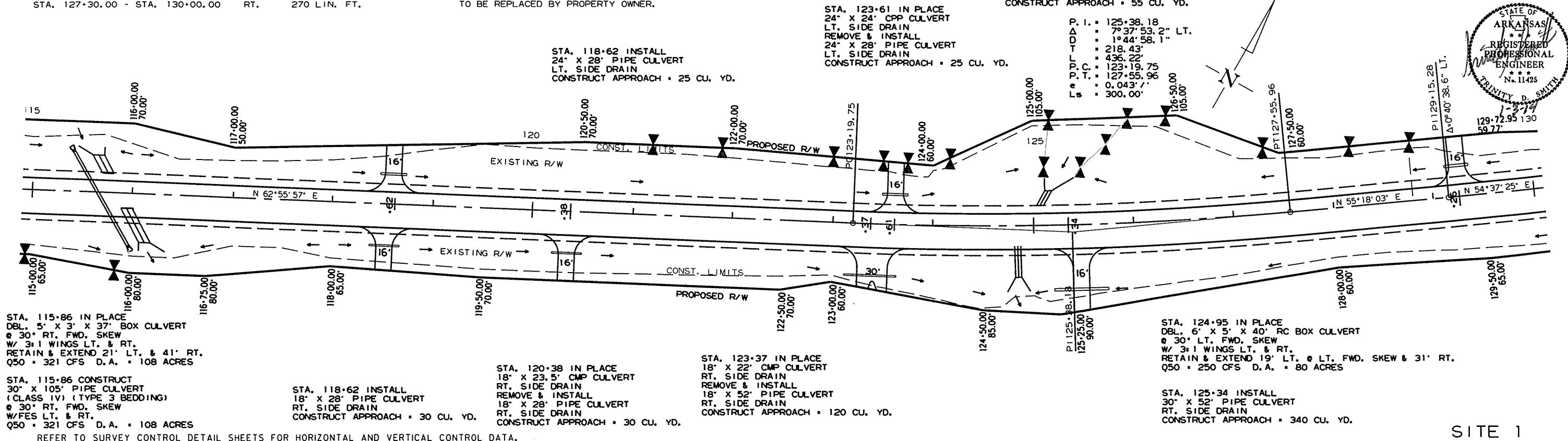
16'-0" VEHICULAR GATE	
STA. 121+00.00 - STA. 128+80.00	LT. 780 LIN. FT. 1 EACH
STA. 125+00 - STA. 138+00	RT. WIRE FENCE TO BE REPLACED BY PROPERTY OWNER.

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED

STA. 129+26 IN PLACE
30" X 36" CPP CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
30" X 30" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YD.

FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	080428	49	134

PLAN AND PROFILE STA. 115+00-STA. 130+00

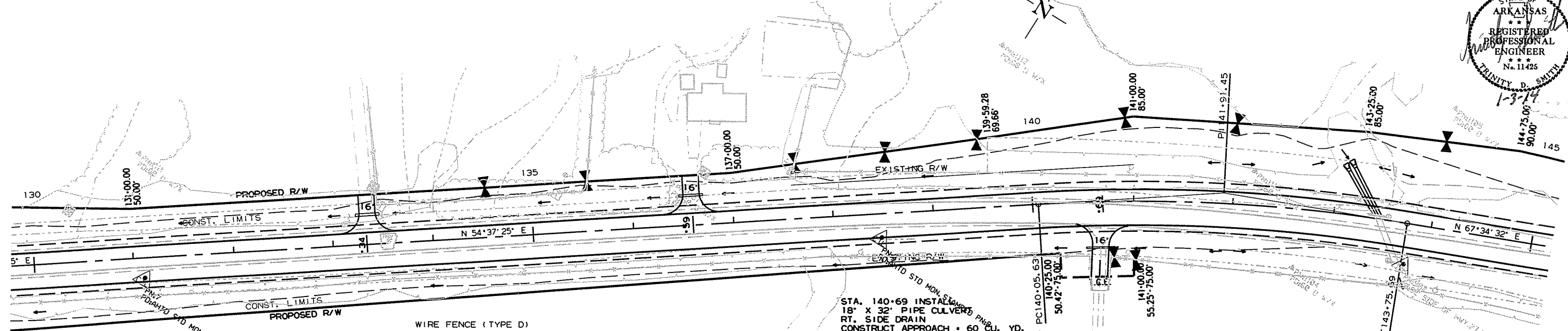
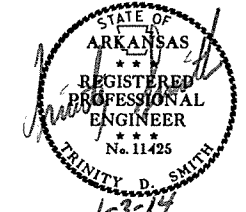


ZBORDER.CEL 11/3/2010

STA. 133+34 IN PLACE
 30" X 36" CPP CULVERT
 LT. SIDE DRAIN
 REMOVE & INSTALL
 30" X 28" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 35 CU. YD.

STA. 136+59 IN PLACE
 27" X 20" X 22" ACMP CULVERT
 LT. SIDE DRAIN
 REMOVE & INSTALL
 24" X 28" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 25 CU. YD.

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	50	134
(2) PLAN AND PROFILE STA. 130+00-STA. 145+00								



REMOVAL AND DISPOSAL OF FENCE

STA.	RT.	LT.	FT.
130+00.00 - 140+56.00	1075		
133+50.00 - 135+56.00		235	
137+60.00 - 145+00.00		760	
140+78.00 - 141+00.00	42		

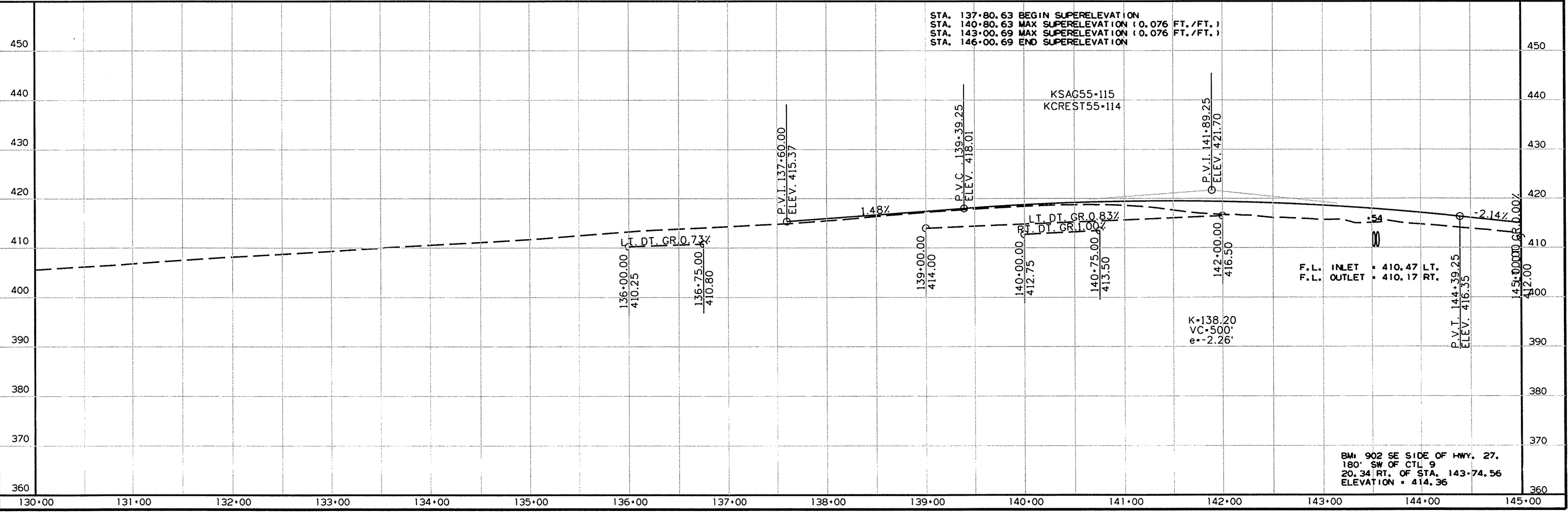
WIRE FENCE (TYPE D)
 STA. 133+50.00 - STA. 135+57.00 LT. 207 LIN. FT.

WIRE FENCE (TYPE D-1)
 STA. 137+60.00 - STA. 145+00.00 LT. 740 LIN. FT.

STA. 125+00 - STA. 138+00 RT. WIRE FENCE
 TO BE REPLACED BY PROPERTY OWNER.
 EXISTING TO BE REMOVED AND DISPOSED OF BY CONTRACTOR.

P.I. = 141+91.45
 Δ = 12°57'07.6" RT.
 D = 3°30'00.0"
 T = 185.82'
 L = 370.06'
 P.C. = 140+05.63
 P.T. = 143+75.69
 Ls = 300.00'

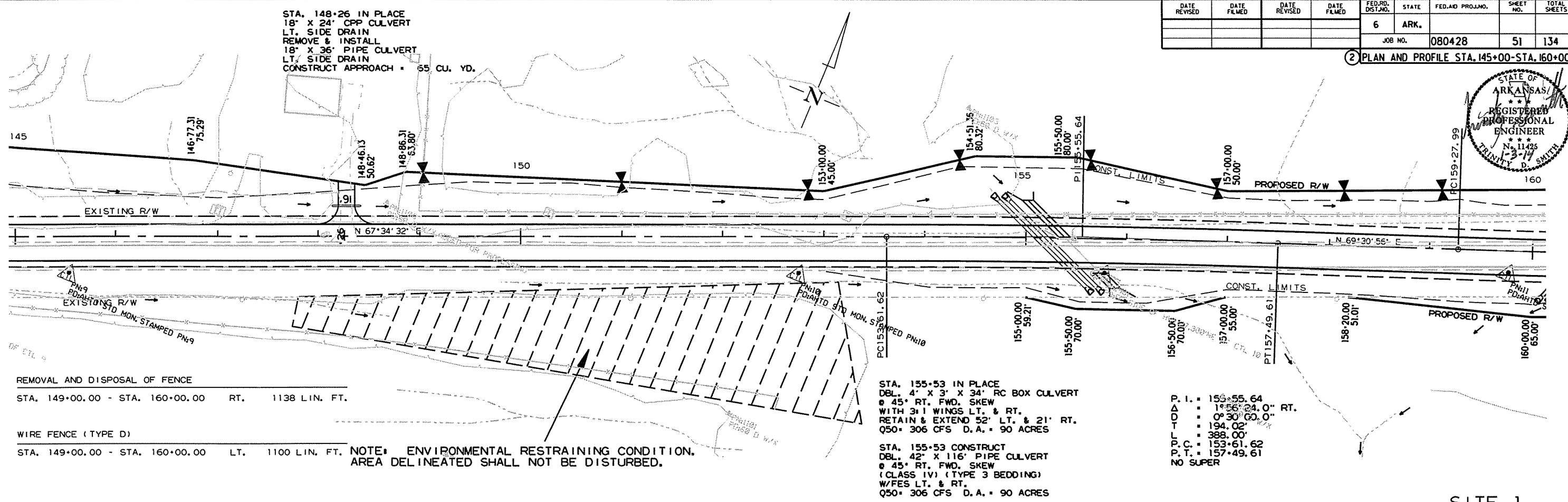
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.



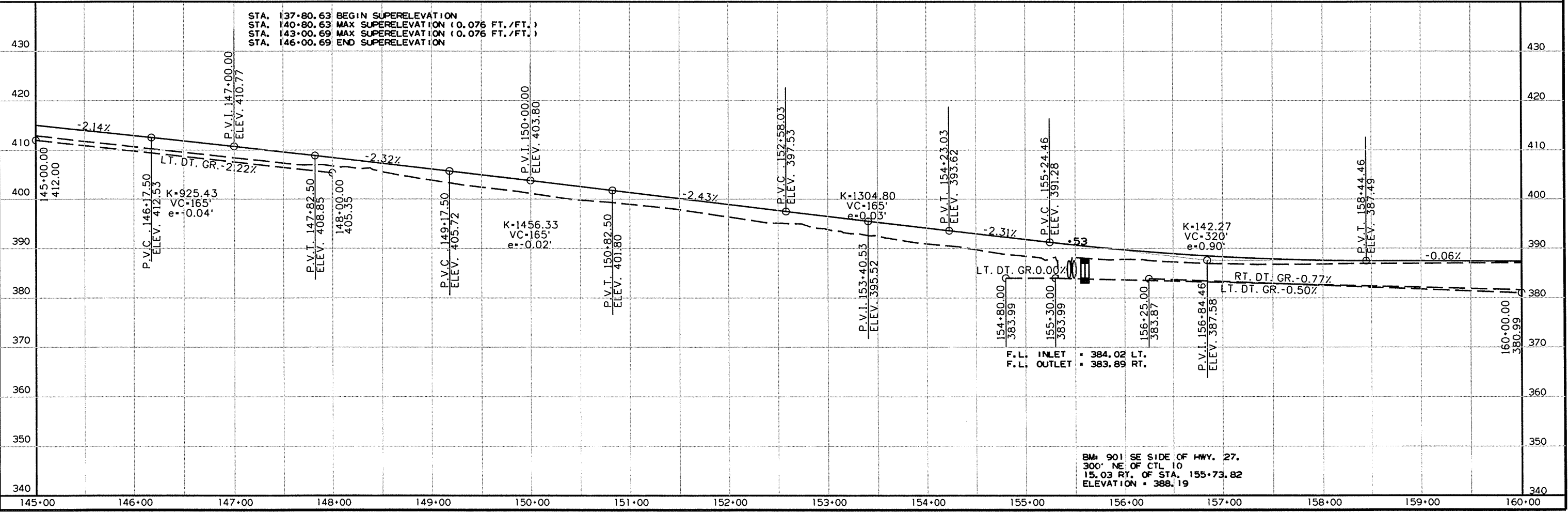
ZBORDER.CEL 11/3/2010

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		51	134

② PLAN AND PROFILE STA. 145+00-STA. 160+00



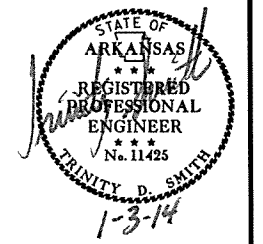
SITE 1



ZBORDER.CEL 11/3/2010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
JOB NO.							080428	52	134

② PLAN AND PROFILE STA. 160+00-STA. 170+20



P.I. = 161+43.90
 Δ = 2°09'31.9" LT.
 D.T. = 0°30'00.0"
 215.91'
 431.77'
 P.T.C. = 159+27.99
 P.T. = 163+59.76
 NO SUPER

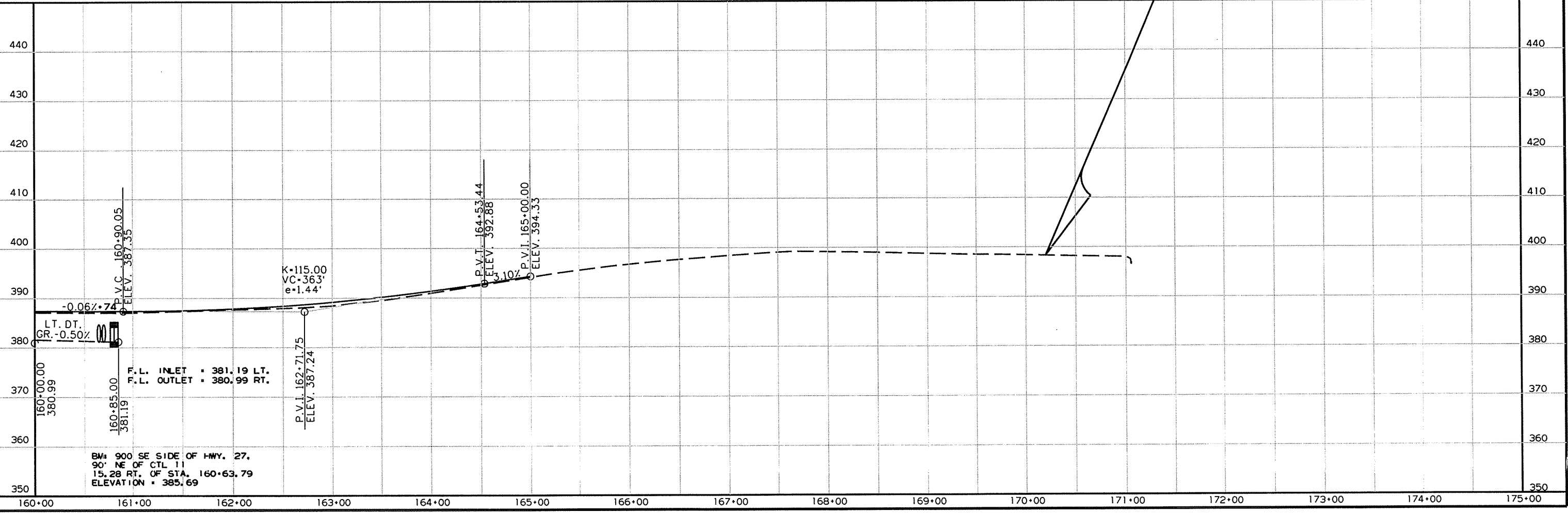
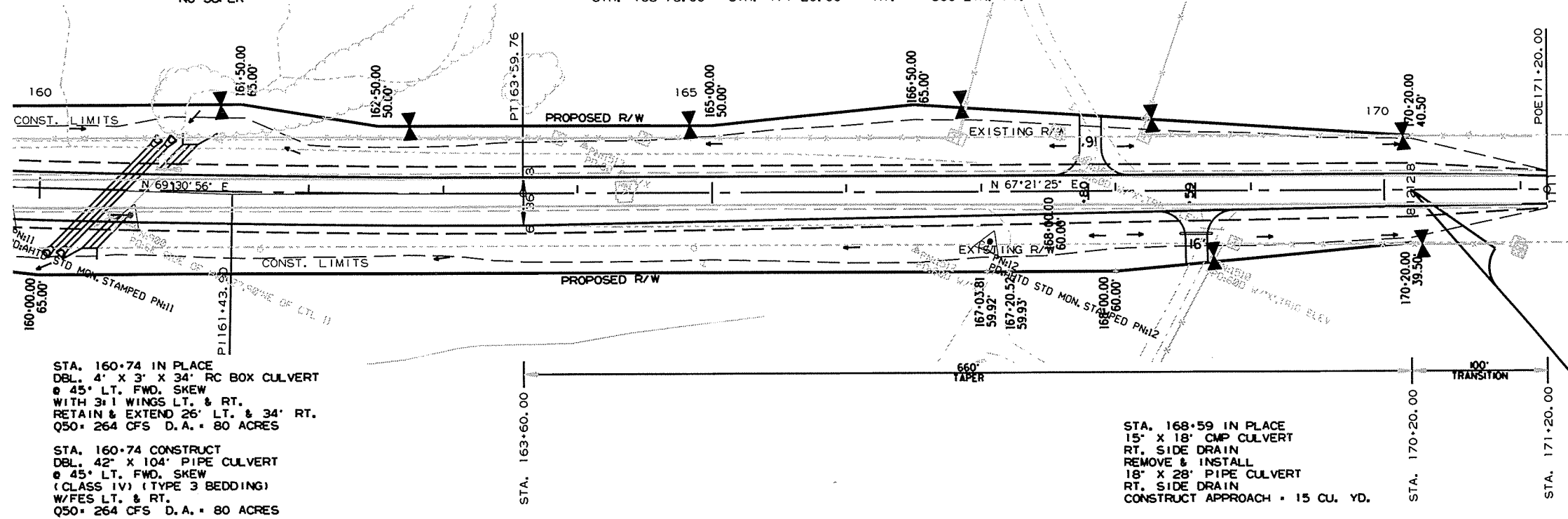
REMOVAL AND DISPOSAL OF FENCE

STA. 160+00.00 - STA. 167+00.00 LT. 700 LIN. FT.
 STA. 168+19.00 - STA. 171+20.00 LT. 301 LIN. FT.
 STA. 168+78.00 - STA. 171+20.00 RT. 263 LIN. FT.

WIRE FENCE (TYPE D-1)

STA. 160+00.00 - STA. 167+00.00 LT. 700 LIN. FT.
 STA. 168+19.00 - STA. 171+20.00 LT. 301 LIN. FT.
 STA. 168+78.00 - STA. 171+20.00 RT. 300 LIN. FT.

STA. 167+80 CONST.
 APPROACH ON LT. = 20 CU. YD.



ZBORDER.CEL 11/3/2010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. 080428	53
							2 PLAN AND PROFILE STA. 224+00-STA. 230+00	134

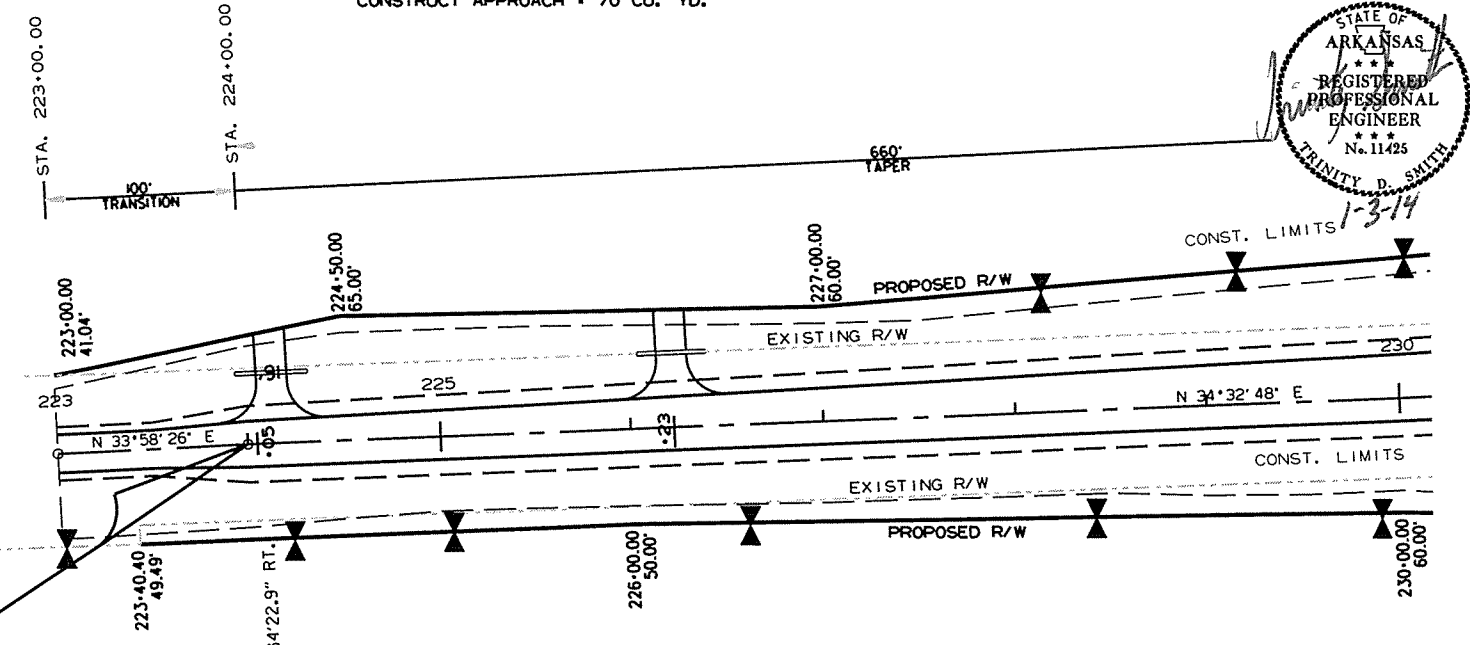
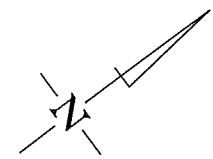
REMOVAL AND DISPOSAL OF FENCE
 STA. 223+00.00 - STA. 230+00.00 RT. 700 LIN. FT.
 STA. 228+00.00 - STA. 230+00.00 LT. 200 LIN. FT.

WIRE FENCE (TYPE D)
 STA. 223+00.00 - STA. 234+80.00 RT. 1180 LIN. FT.

WIRE FENCE (TYPE D-1) 20' - 0" VEHICULAR GATE
 STA. 228+00.00 - STA. 245+00.00 RT. 1700 LIN. FT. 2 EACH

STA. 224+05 IN PLACE
 24" X 24" CPP CULVERT
 LT. SIDE DRAIN
 REMOVE & INSTALL
 24" X 38" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 80 CU. YD.

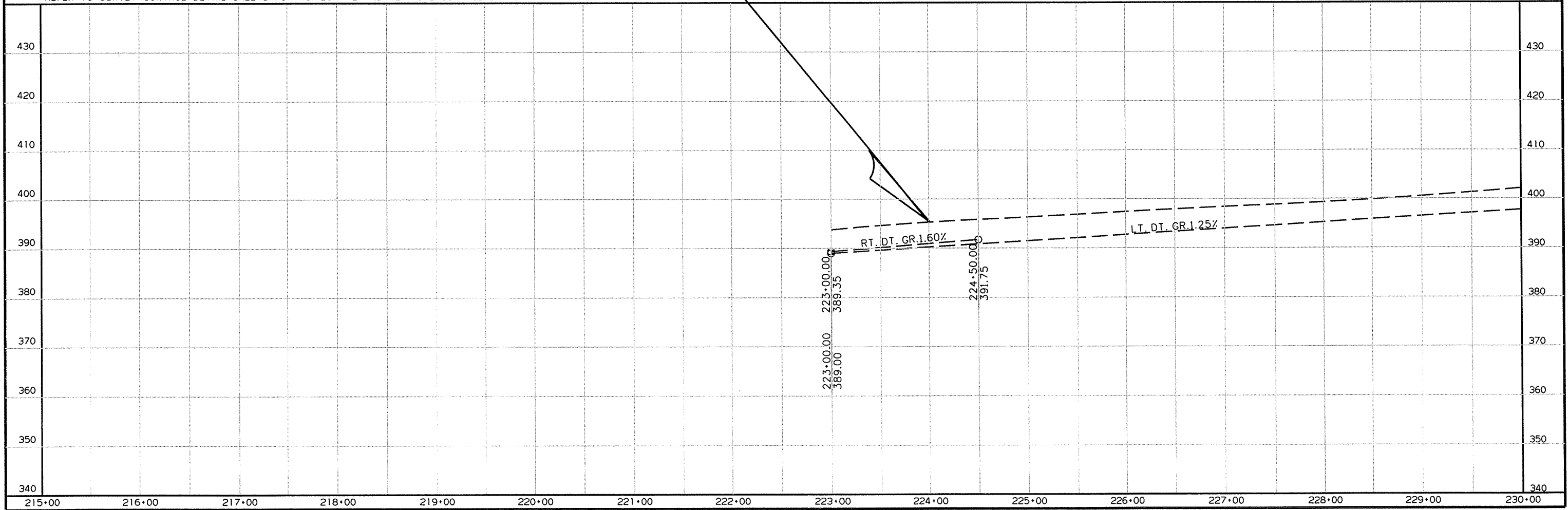
STA. 226+23 IN PLACE
 24" X 20" CMP CULVERT
 LT. SIDE DRAIN
 REMOVE & INSTALL
 24" X 36" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 70 CU. YD.



STA 224+00.00 - BEGIN
 JOB 080428
 L.M. 10.88
 BEGIN SITE 2

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

SITE 2



ZBOROER.CEL 11/3/2010

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		54	134

② PLAN AND PROFILE STA. 230+00-STA. 245+00

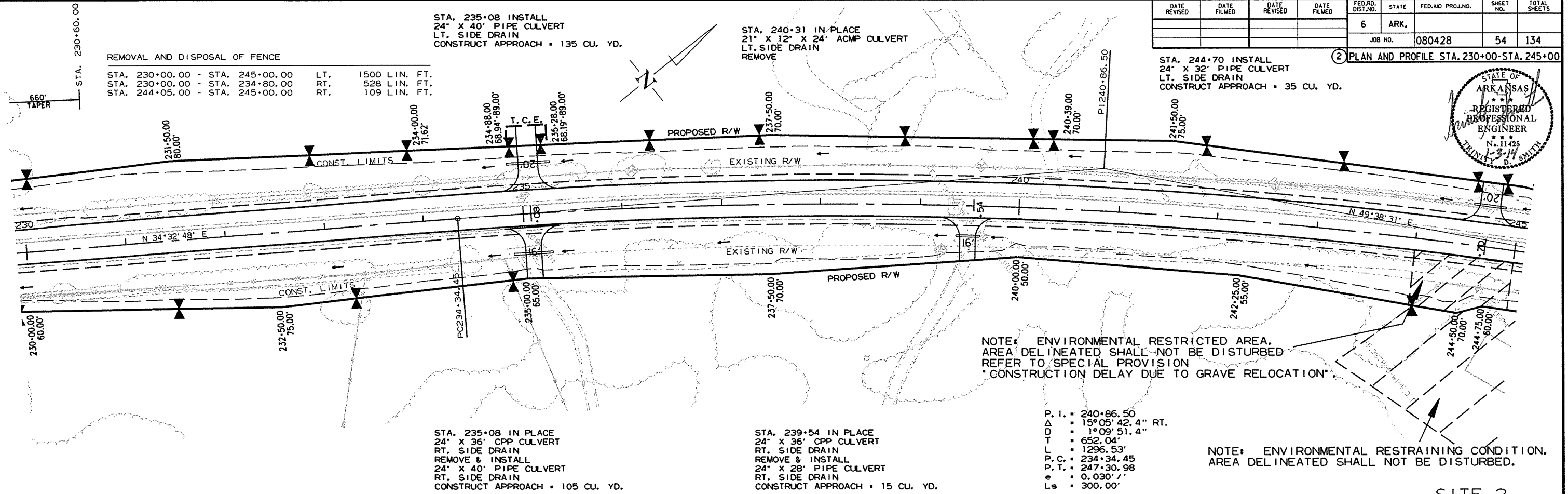


REMOVAL AND DISPOSAL OF FENCE
 STA. 230+00.00 - STA. 245+00.00 LT. 1500 LIN. FT.
 STA. 230+00.00 - STA. 234+80.00 RT. 528 LIN. FT.
 STA. 244+05.00 - STA. 245+00.00 RT. 109 LIN. FT.

STA. 235+08 INSTALL
 24" X 40" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 135 CU. YD.

STA. 240+31 IN PLACE
 21" X 12" X 24" ACMP CULVERT
 LT. SIDE DRAIN
 REMOVE

STA. 244+70 INSTALL
 24" X 32" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 35 CU. YD.



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

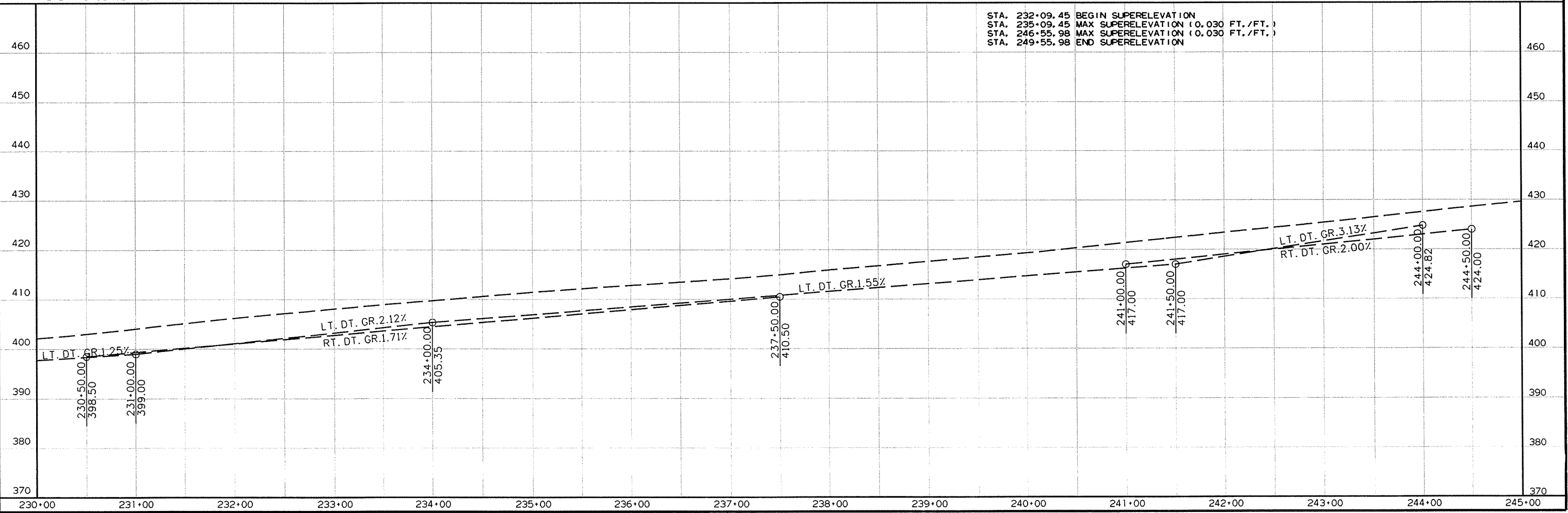
STA. 235+08 IN PLACE
 24" X 36" CPP CULVERT
 RT. SIDE DRAIN
 REMOVE & INSTALL
 24" X 40" PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH = 105 CU. YD.

STA. 239+54 IN PLACE
 24" X 36" CPP CULVERT
 RT. SIDE DRAIN
 REMOVE & INSTALL
 24" X 28" PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH = 15 CU. YD.

P. I. = 240+86.50
 Δ = 15° 05' 42.4" RT.
 D = 1° 09' 51.4"
 T = 652.04'
 L = 1296.53'
 P. C. = 234+34.45
 P. T. = 247+30.98
 e = 0.030' /'
 Ls = 300.00'

NOTE: ENVIRONMENTAL RESTRAINING CONDITION. AREA DELINEATED SHALL NOT BE DISTURBED.

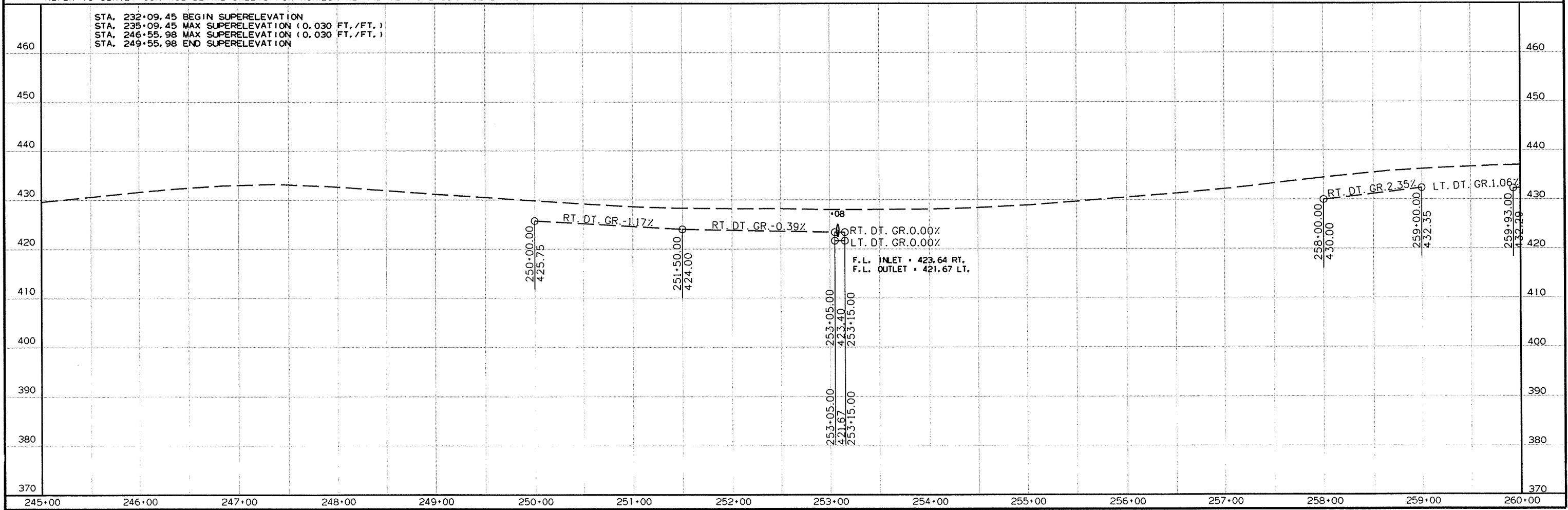
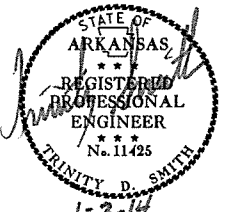
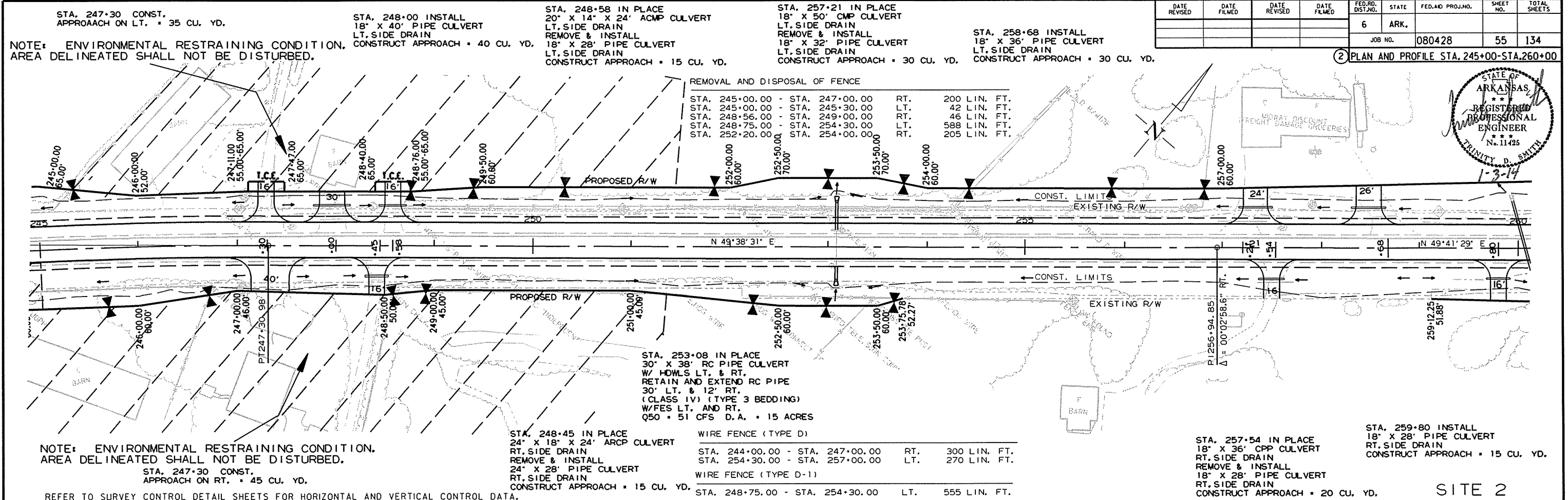
SITE 2



R080428.DGN 12/31/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	55 134

② PLAN AND PROFILE STA. 245+00-STA. 260+00



SITE 2

R080428.DGN 12/31/2013

STA. 261+69 INSTALL
18" X 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YD.

STA. 263+91 IN PLACE
19" X 14" X 24' ACMP CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YD.

STA. 274+06 IN PLACE
18" X 24' CPP CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 65 CU. YD.

STA. 274+94 IN PLACE
18" X 24' RCP CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 30 CU. YD.

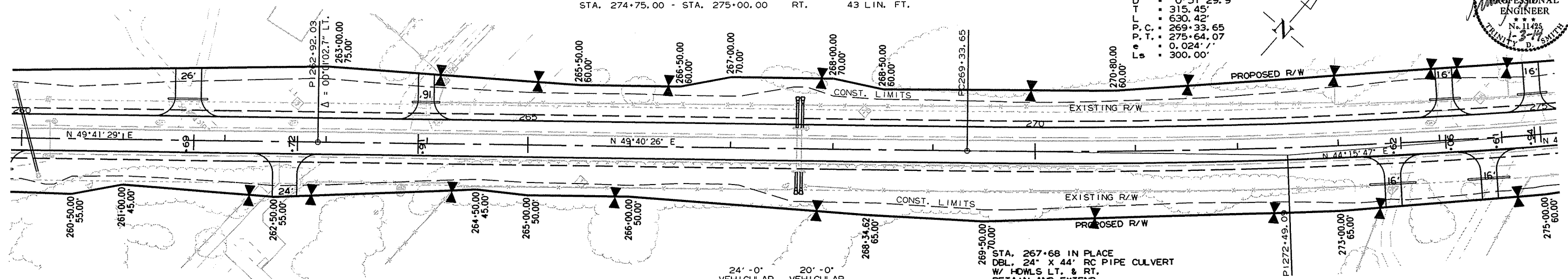
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							56	134

2 PLAN AND PROFILE STA. 260+00-STA. 275+00



REMOVAL AND DISPOSAL OF FENCE
STA. 262+25.00 - STA. 273+45.00 RT. 1120 LIN. FT.
STA. 264+00.00 - STA. 275+00.00 LT. 1160 LIN. FT.
STA. 274+75.00 - STA. 275+00.00 RT. 43 LIN. FT.

P. I. = 272+49.09
Δ = 5° 24' 39.2" LT.
D = 0° 51' 29.9" LT.
T = 315.45'
L = 630.42'
P.C. = 269+33.65
P.T. = 275+64.07
e = 0.0247
Ls = 300.00'



STA. 260+28 IN PLACE
24" X 36" RC PIPE CULVERT
W/ HOWLS LT. & RT.
REMOVE

STA. 260+07 CONSTRUCT
30" X 77" RC PIPE CULVERT
(CLASS V) (TYPE 3 BEDDING)
@ 15° RT. FWD. SKEW
W/FES LT. & RT.
Q50 = 23 CFS D.A. = 5 ACRES

STA. 262+72 CONST.
APPROACH ON RT. = 20 CU. YD.

WIRE FENCE (TYPE D)
STA. 264+11.00 - STA. 272+98.00 RT. 1120 LIN. FT. 1 EACH
STA. 264+00.00 - STA. 275+00.00 LT. 1100 LIN. FT. 2 EACH

STA. 264+11 - STA. 272+98 RT. WIRE FENCE
TO BE REPLACE BY PROPERTY OWNER.
EXISTING TO BE REMOVED BY CONTRACTOR.

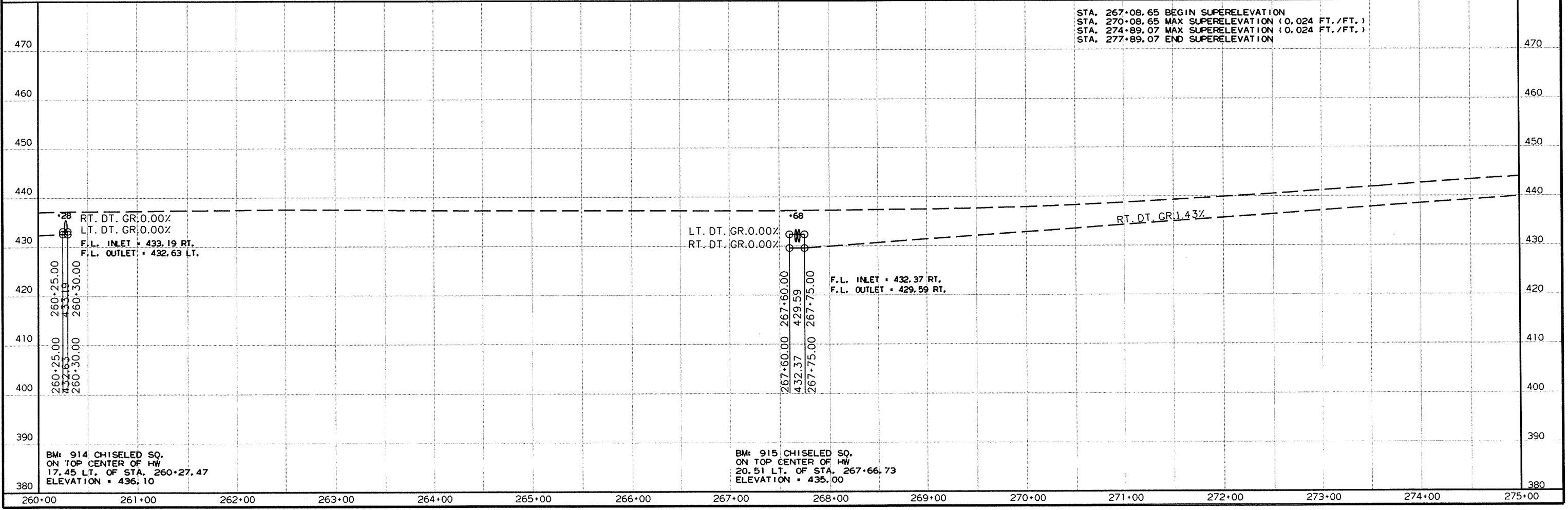
STA. 267+68 IN PLACE
DBL. 24" X 44" RC PIPE CULVERT
W/ HOWLS LT. & RT.
RETAIN AND EXTEND
24' LT. & 16' RT.
(CLASS IV) (TYPE 3 BEDDING)
W/FES LT. & RT.
Q50 = 60 CFS D.A. = 25 ACRES

STA. 273+62 IN PLACE
18" X 24' CPP CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" X 46' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YD.

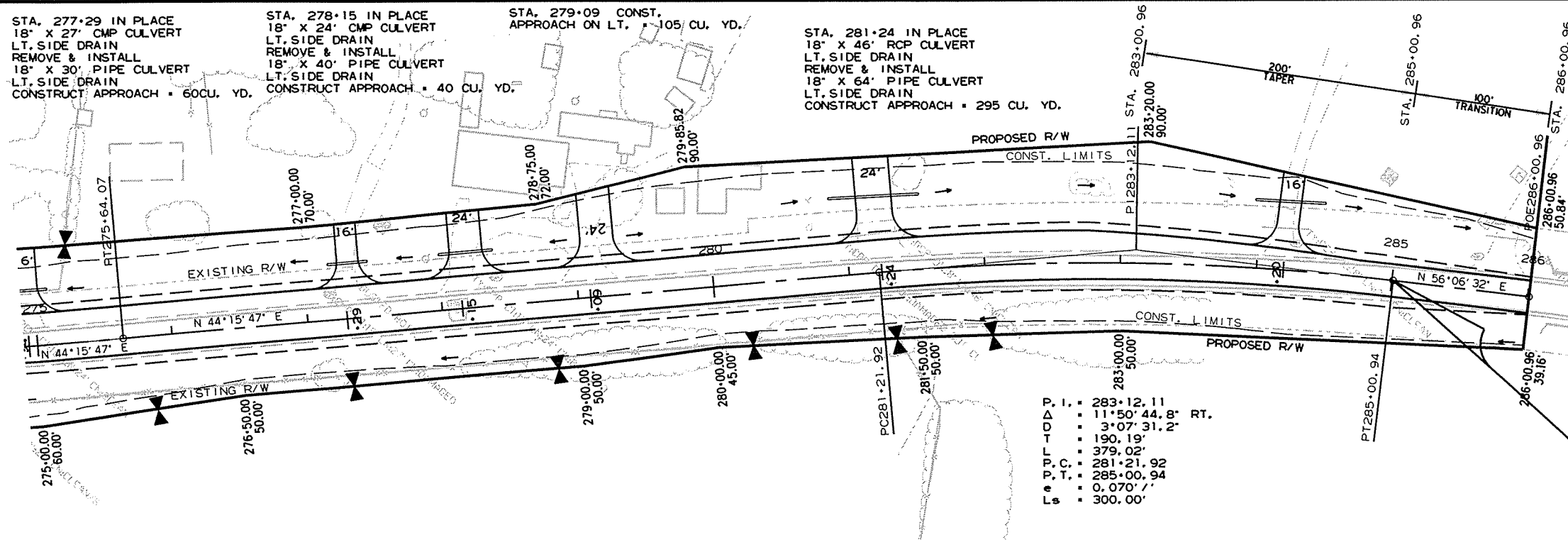
STA. 274+61 IN PLACE
18" X 24' CPP CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YD.

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

SITE 2



11/3/2010 ZBORNER.CEL



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		57	134

2 PLAN AND PROFILE STA. 275+00-STA. 286+01



STA. 284+20 IN PLACE
18' x 36' RCP CULVERT
LT. SIDE DRAIN
REMOVE & INSTALL
18' x 48' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 165 CU. YD.

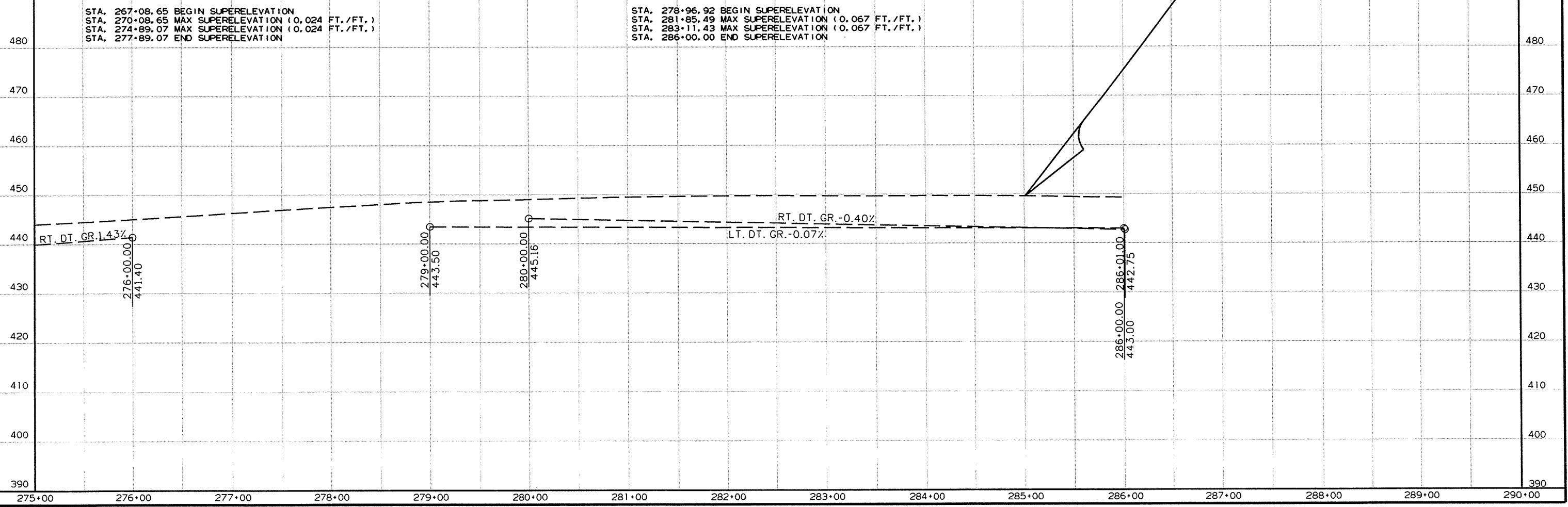
P. I. = 283+12.11
Δ = 11°50'44.8" RT.
D = 3°07'31.2"
T = 190.19'
L = 379.02'
P. C. = 281+21.92
P. T. = 285+00.94
e = 0.070'/'
Ls = 300.00'

REMOVAL AND DISPOSAL OF FENCE
STA. 275+00.00 - STA. 275+20.00 LT. 60 LIN. FT.
STA. 275+00.00 - STA. 283+00.00 RT. 800 LIN. FT.

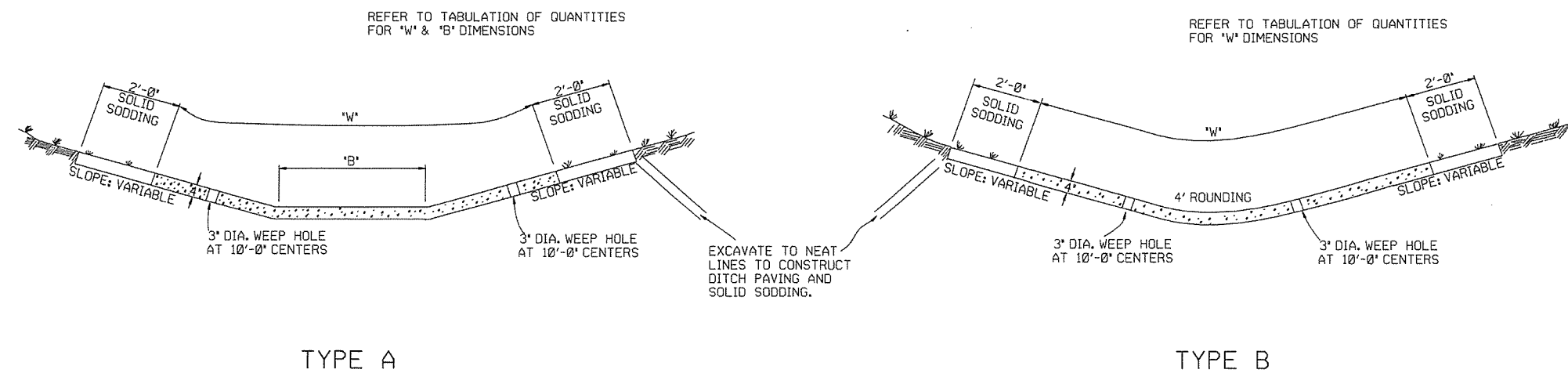
WIRE FENCE (TYPE D)
STA. 275+00.00 - STA. 283+00.00 RT. 800 LIN. FT.

STA 285+00.96 - END
JOB 080428
L.M. 12.04
END SITE 2

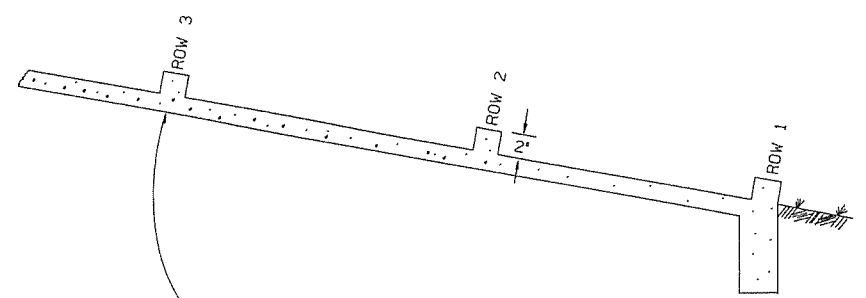
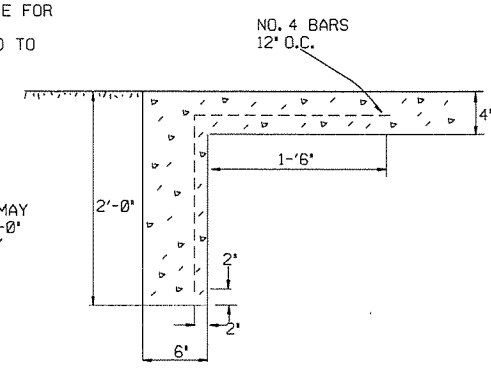
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.



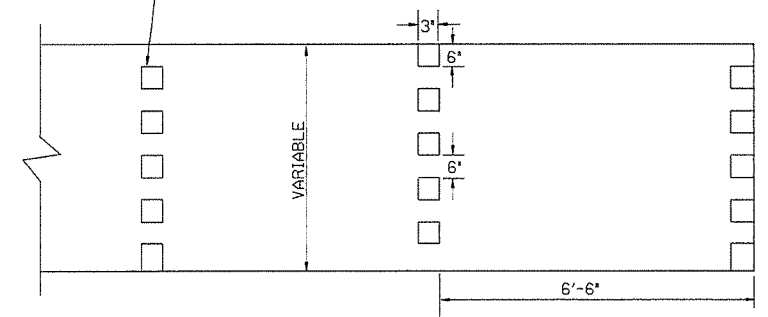
ZBORDER.CEL 11/3/2010



THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR 'CONCRETE DITCH PAVING.'



ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY. TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

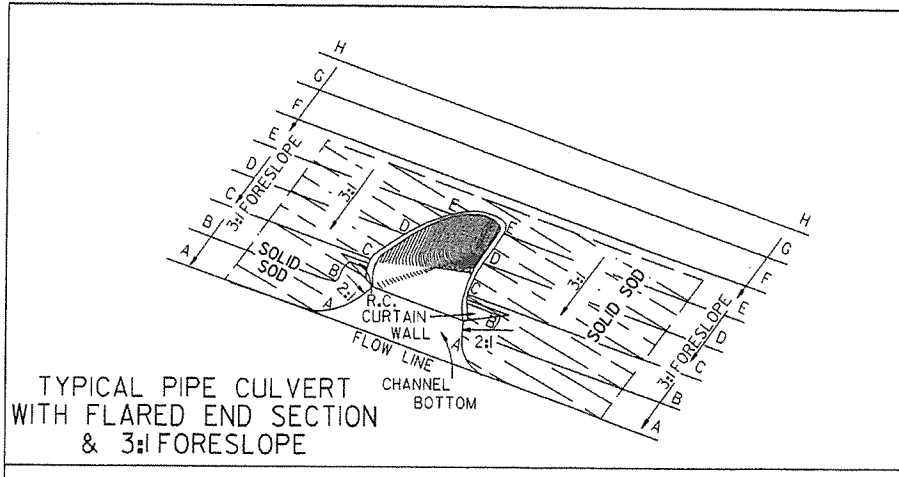
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

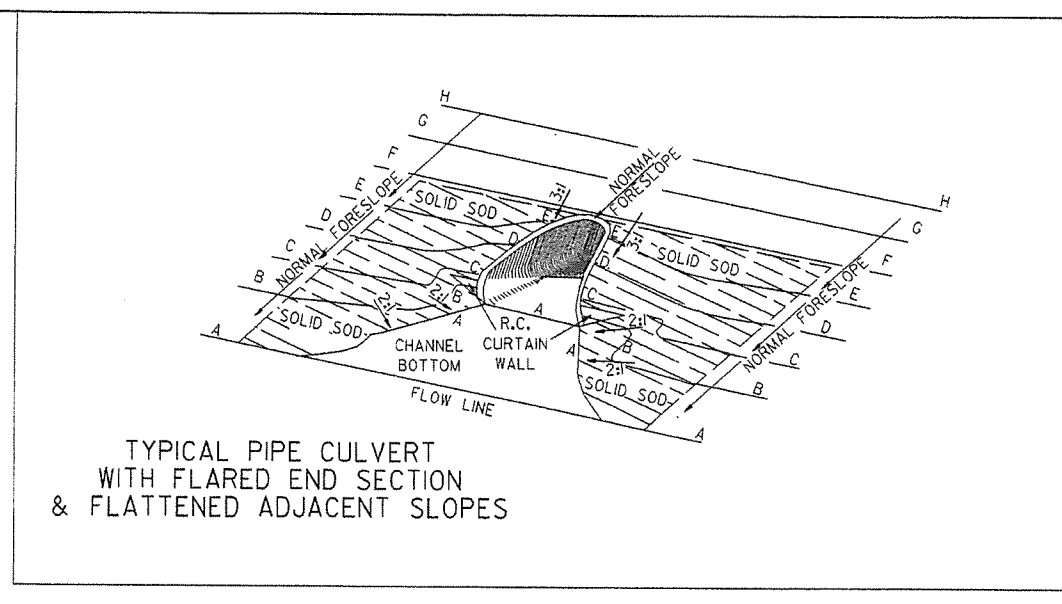
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

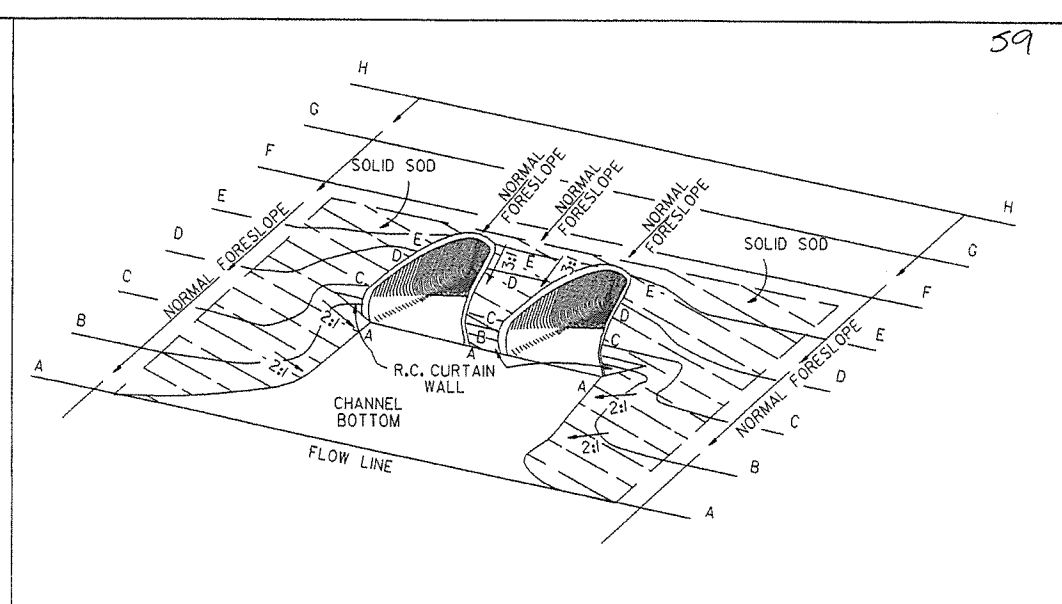
STANDARD DRAWING CDP-1



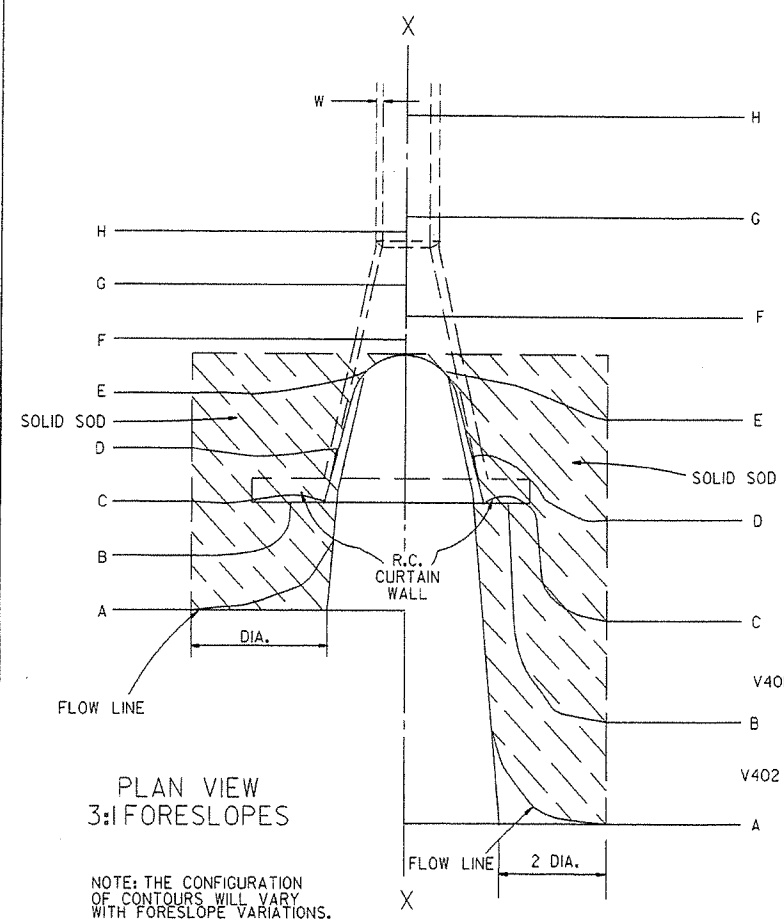
TYPICAL PIPE CULVERT WITH FLARED END SECTION & 3:1 FORESLOPE



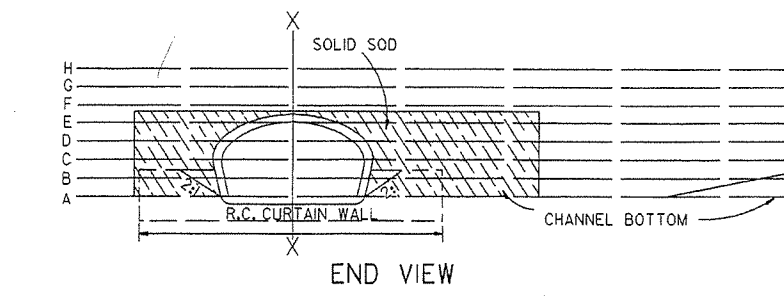
TYPICAL PIPE CULVERT WITH FLARED END SECTION & FLATTENED ADJACENT SLOPES



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



PLAN VIEW 3:1 FORESLOPES

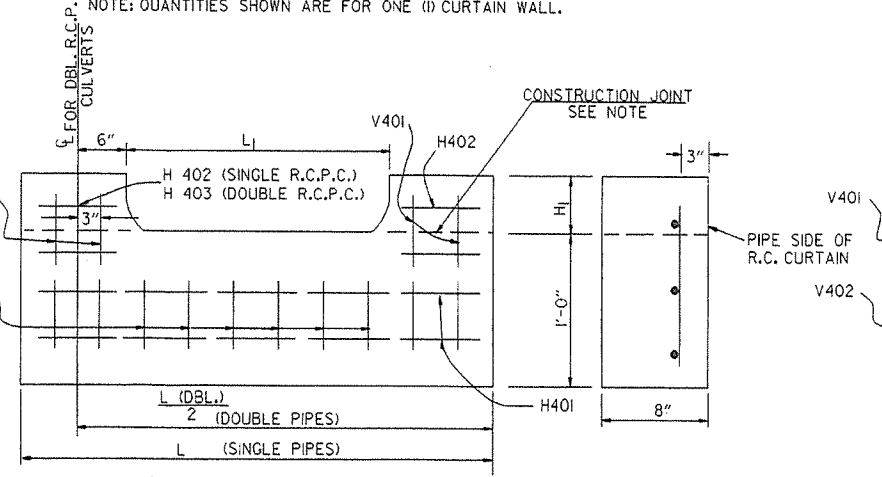


PLAN VIEW FLATTENED FORESLOPES

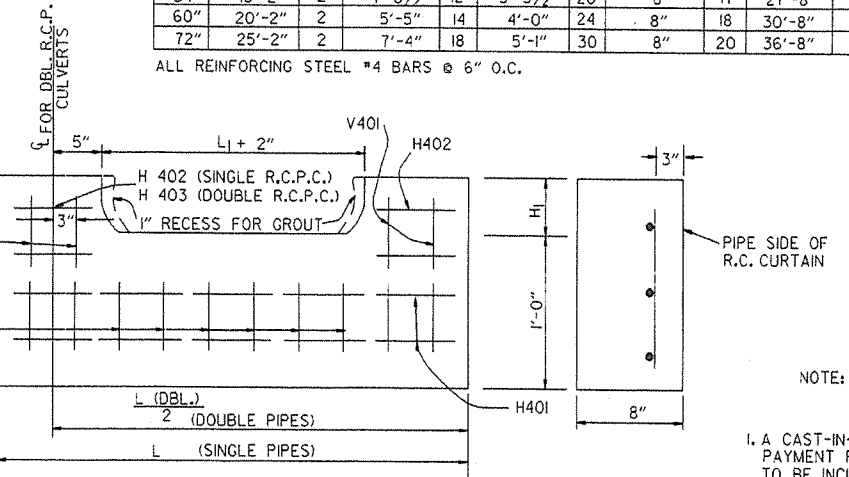
R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

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

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



R.C. CURTAIN WALL DETAILS



PRECAST

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT						DOUBLE R.C. PIPE CULVERT											
	H401		H402		V401		V402		H401		H403		V401		V402			
L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.			
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

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

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

- GENERAL NOTES
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
 2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
 3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
 4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96	ARKANSAS STATE HIGHWAY COMMISSION
10-12-95	CORRECTED SPELLING		
11-3-94	ADDED GENERAL NOTE NO. 4		
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.		
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES		
5-15-80	ADDED PRECAST WALL & GENERAL NOTES		
10-2-72	REVISED AND REDRAWN		
DATE	REVISION	FILMED	STANDARD DRAWING FES-1

FLARED END SECTION

STANDARD DRAWING FES-1

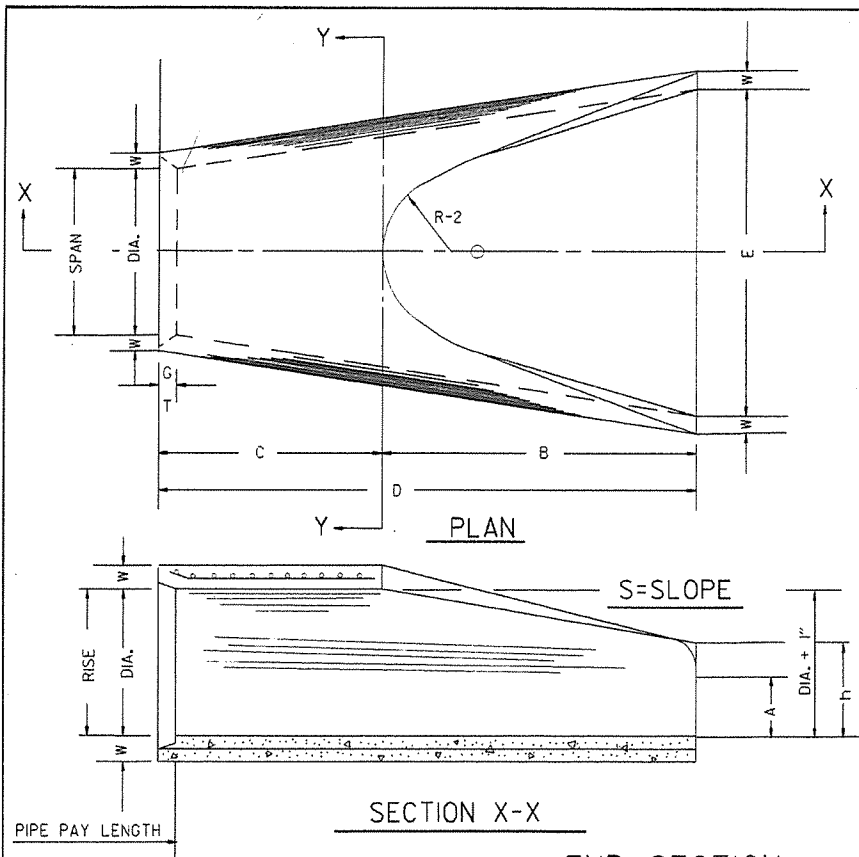


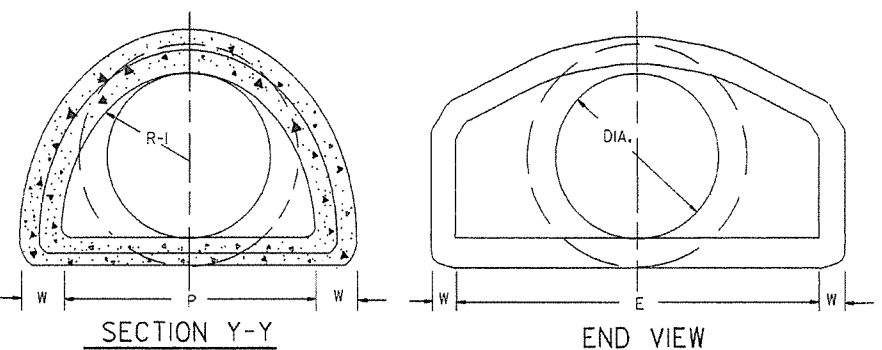
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3H	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3H	25"	33 3/8"	16 1/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3H	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 3/4"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3H	37"	47 1/8"	24 5/8"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3H	43"	53 7/8"	27 1/2"	22"	3 1/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3H	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3H	55"	65 1/2"	33 3/8"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3H	61"	72 1/2"	36 1/8"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3H	73"	77 3/8"	38 5/8"	24"	5"	13250	4'-6"

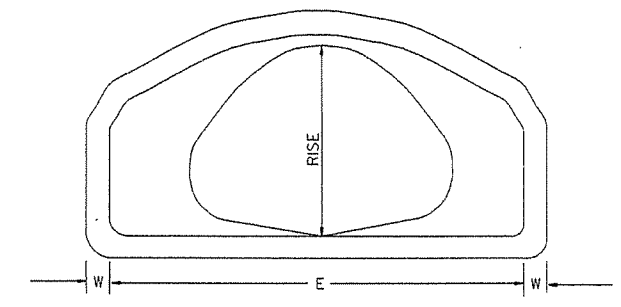
ARCH PIPE

EQUIV. DIA.	SPAN		RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2H
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2H
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2 1/2"	2 1/2H
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/8"	15"	2 1/2"	2 1/2H
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 1/8"	20"	3"	2 1/2H
36	43 3/4	44	26 5/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 1/8"	22"	3 1/2"	2 1/2H
42	51 1/8	51	31 5/8	31	4 1/2"	11 1/2"	4'-7"	1'-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2H
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 5/8"	24"	4 1/4"	2 1/2H
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/8"	24"	4 3/4"	2 1/2H
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 3/8"	24"	5"	2 1/2H

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

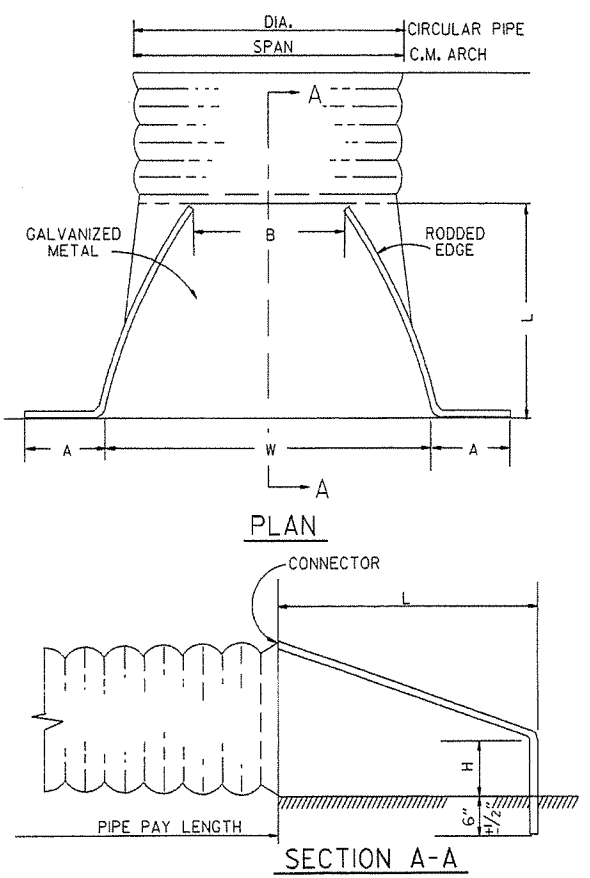


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION



END VIEW
CONCRETE ARCH PIPE

END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

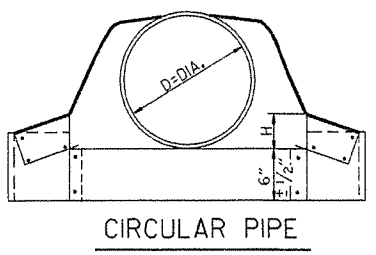


NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

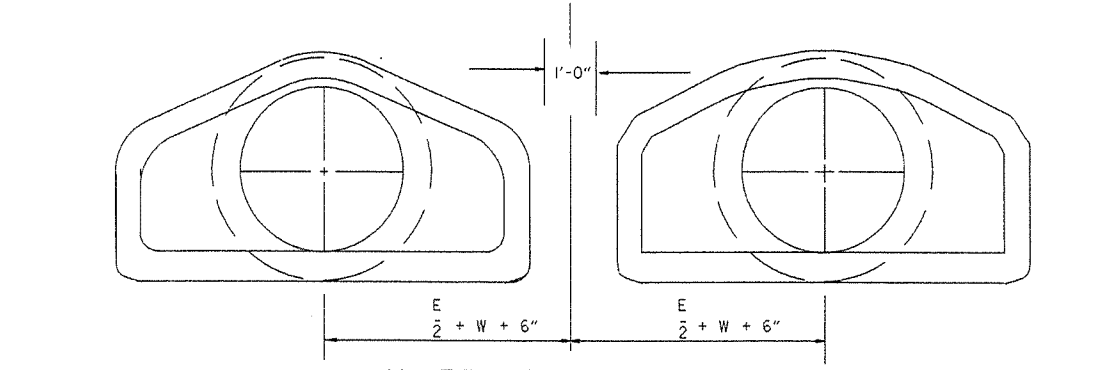
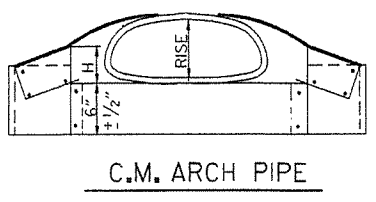
CIRCULAR PIPE

D. DIA.	GAUGE	A 1" ±	B. MAX. 1" ±	H 1" ±	L 1 1/2" ±	W ± 2" ±	S
12	16	6	6	6	21	24	2 1/2H
15	16	7	8	6	26	30	2 1/2H
18	16	8	10	6	31	36	2 1/2H
21	16	9	12	6	36	42	2 1/2H
24	16	10	13	6	41	48	2 1/2H
30	14	12	16	8	51	60	2 1/2H
36	14	14	19	9	60	72	2 1/2H
42	12	16	22	11	69	84	2 1/2H
48	12	18	27	12	78	90	2 1/2H
54	12	18	30	12	84	102	2H
60	12	18	33	12	87	114	1 3/4H
66	12	18	36	12	87	120	1 1/2H
72	12	18	39	12	87	126	1 1/3H

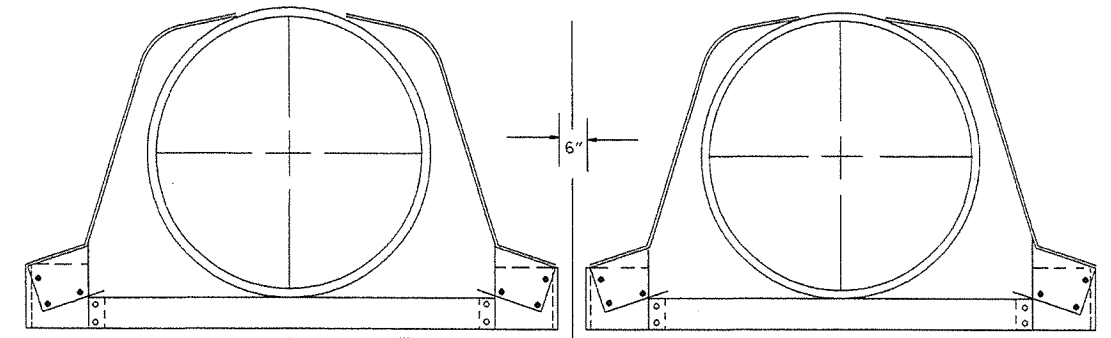


C.M. ARCH PIPE

EQUIV. DIA.	SPAN	RISE	A 1" ±	B. MAX. 1" ±	H 1" ±	L 1 1/2" ±	W ± 2" ±	S	GAUGE
15"	17	13	7	9	6	19	30	2 1/2H	16
18"	21	15	7	10	6	23	36	2 1/2H	16
21"	24	18	8	12	6	28	42	2 1/2H	16
24"	28	20	9	14	6	32	48	2 1/2H	16
30"	35	24	10	16	6	39	60	2 1/2H	14
36"	42	29	12	18	8	46	75	2 1/2H	14
42"	49	33	13	21	9	53	85	2 1/2H	12
48"	57	38	18	26	12	63	90	2 1/2H	12
54"	64	43	18	30	12	70	102	2 1/2H	12
60"	71	47	18	33	12	77	114	2 1/2H	12



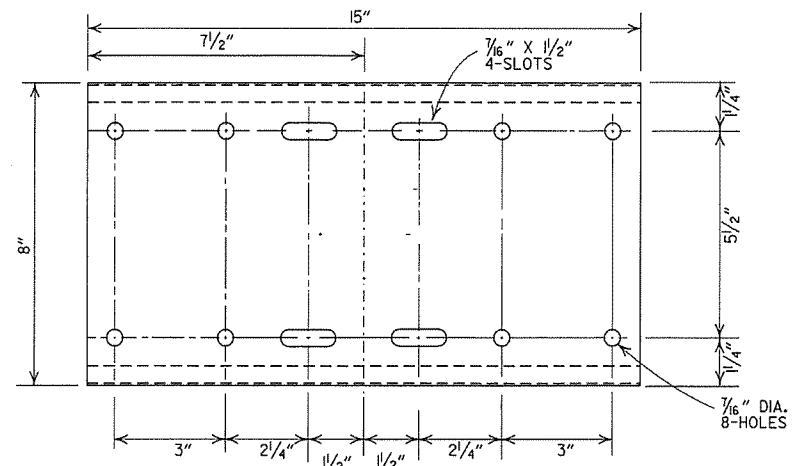
MULTIPLE R.C. PIPE CULVERTS



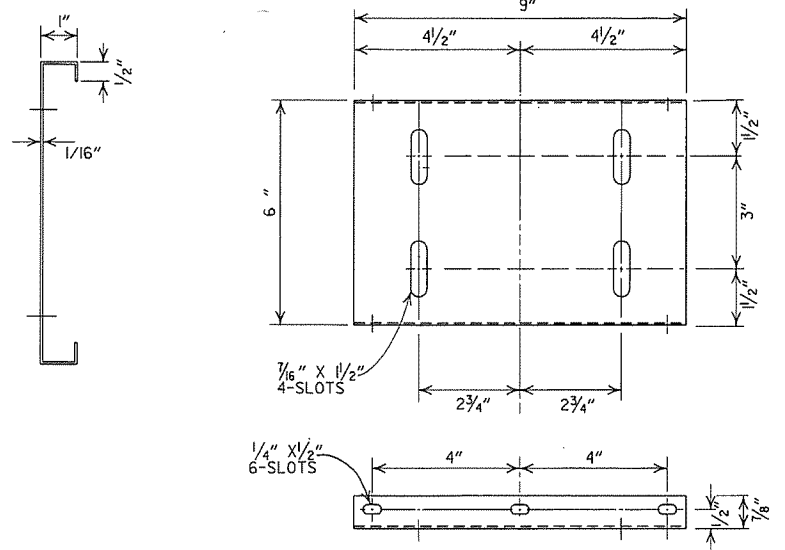
MULTIPLE C.M. PIPE CULVERTS

10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96	ARKANSAS STATE HIGHWAY COMMISSION
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80	
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78	
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75	
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74	
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73	
10-2-72	REVISED AND REDRAWN	760-10-2-72	
DATE	REVISION	FILED	

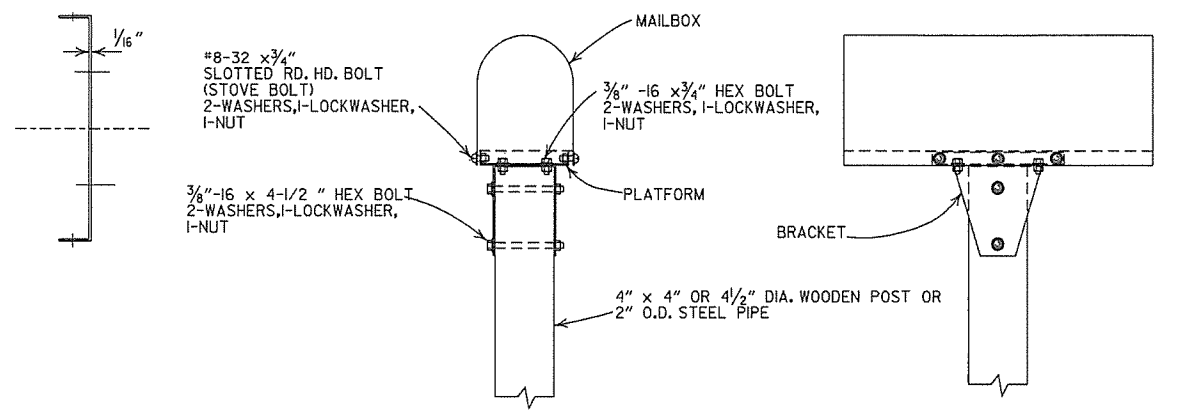
FLARED END SECTION
STANDARD DRAWING FES-2



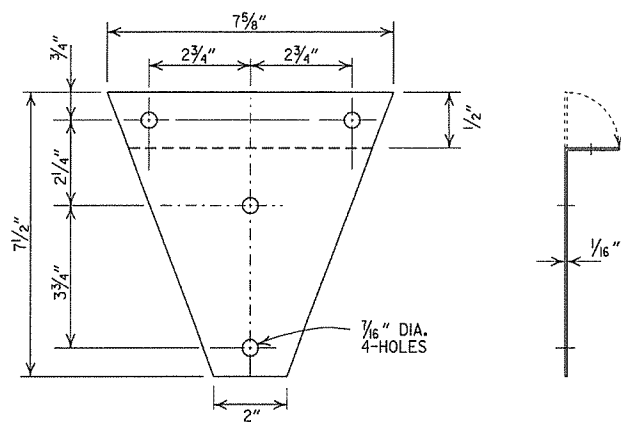
SHELF



PLATFORM

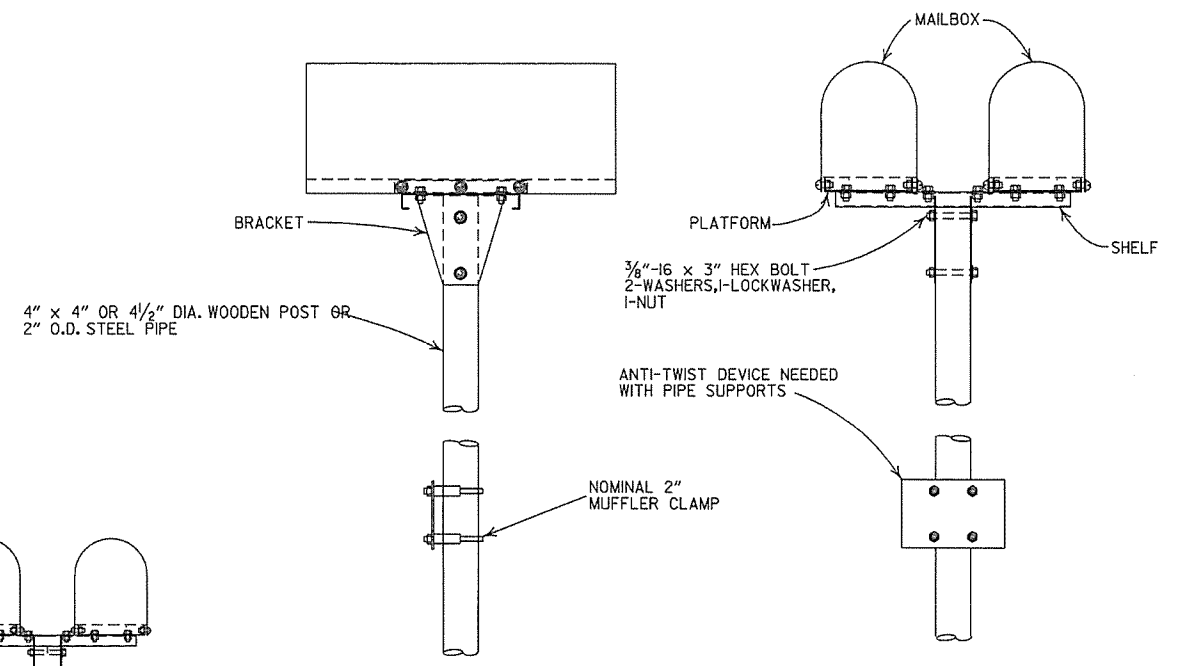


SINGLE INSTALLATION

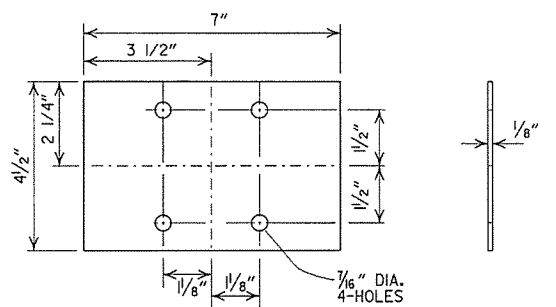


BRACKET

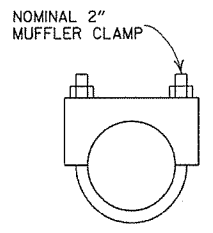
- GENERAL NOTES
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
 2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
 3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED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



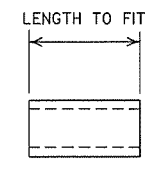
DOUBLE INSTALLATION



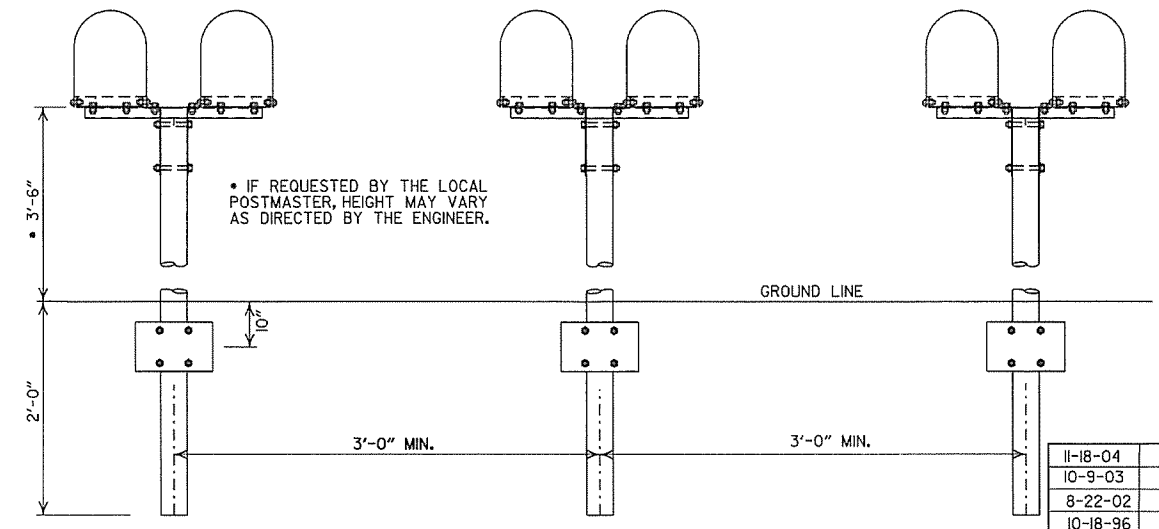
ANTI-TWIST PLATE



CLAMP



SPACER

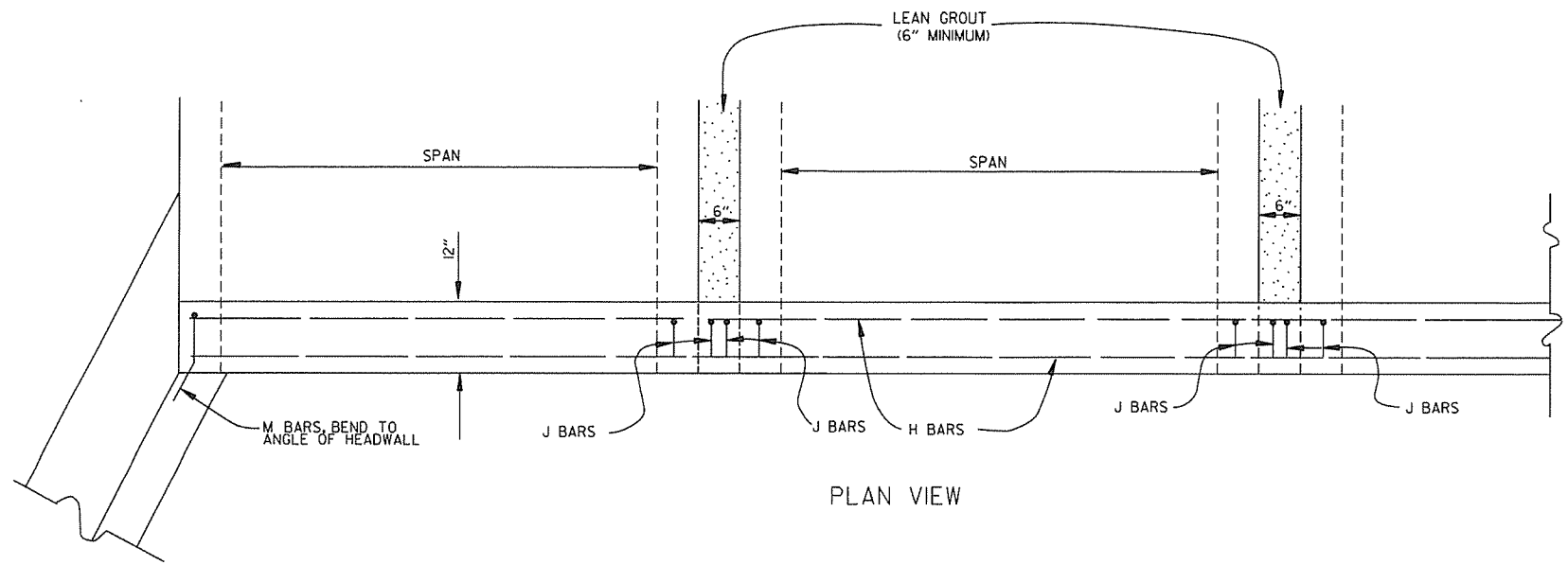


SPACING FOR MULTIPLE POST INSTALLATION

11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	120-7-15-88	ISSUED
DATE	FILMED	REVISION

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	

• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

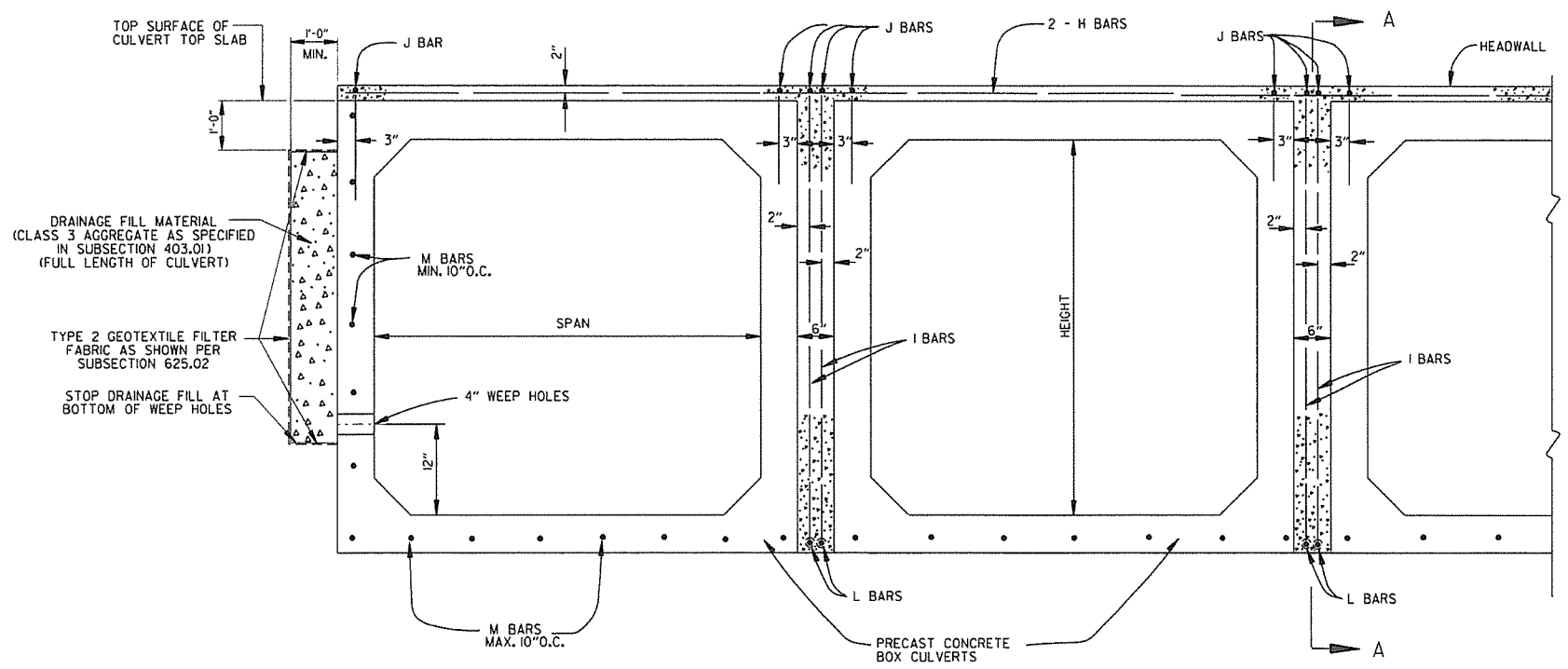
WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING, STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

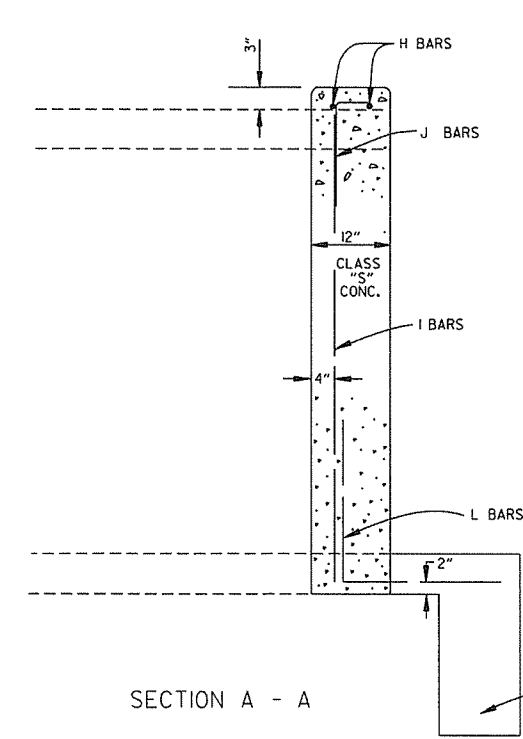
ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.



END VIEW



SECTION A - A

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS: PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85. SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS. THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE. THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION B15 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

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

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

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

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.

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

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13 1/2	14
21	26	26	15 1/2	16
24	28 1/2	29	18	18
30	36 1/4	36	22 1/2	23
36	43 3/8	44	26 3/8	27
42	51 1/8	51	31 1/8	31
48	58 1/2	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	77 1/2	77
108	138	138	87 1/8	87
120	154	154	96 3/8	97
132	168 3/4	169	106 1/2	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.

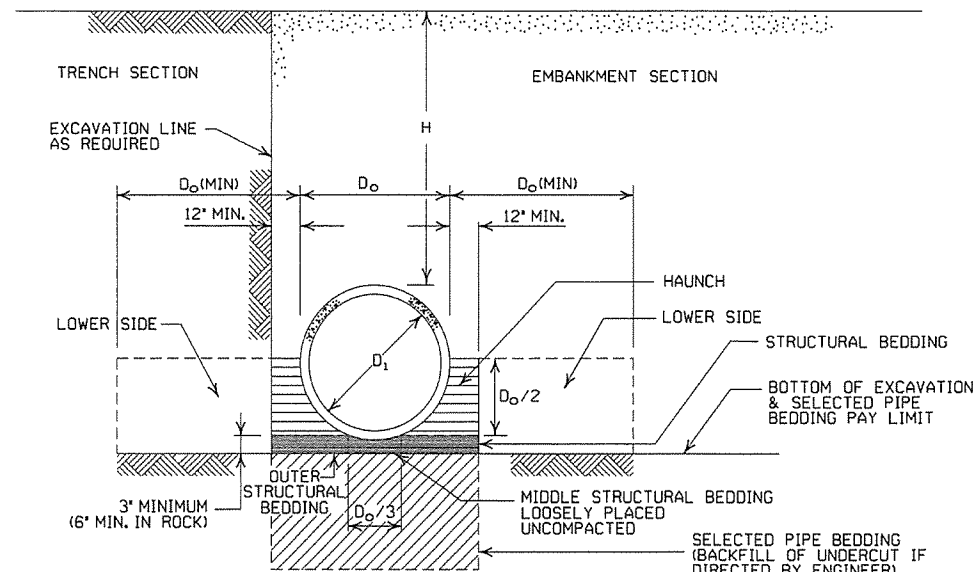
- LEGEND -

- D₁ = NORMAL INSIDE DIAMETER OF PIPE
- D_o = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- UNDISTURBED SOIL

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2003 EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS, UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

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

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

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

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

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

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

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

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

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

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

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

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

DATE	REVISION	DATE FILMED
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 MINIMUM 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
2 1/2 INCH BY 1/2 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

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.

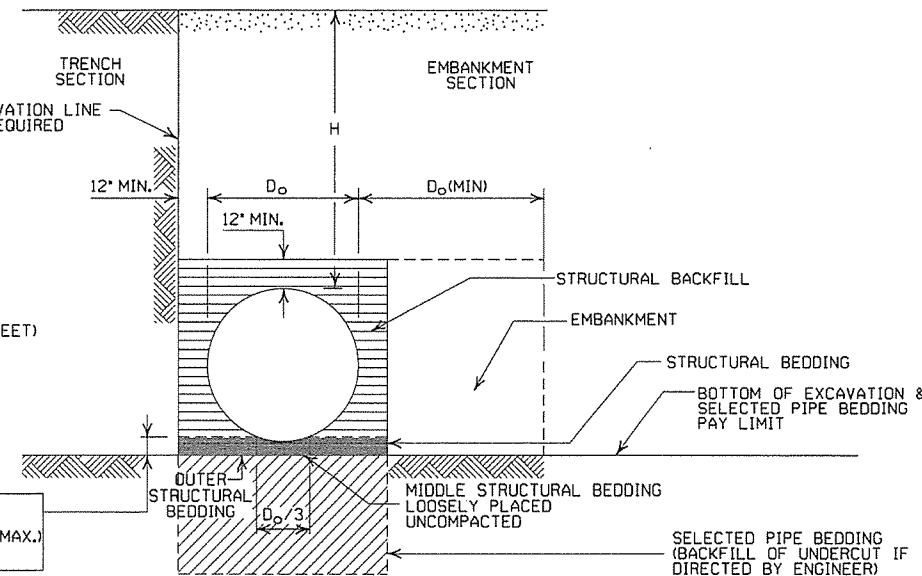
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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.

- 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)

IN SOIL-MIN. EQUALS TWICE CORRUGATION DEPTH
IN ROCK-MIN. EQUALS GREATER OF:
1/2" PER FOOT OF FILL OVER PIPE (24" MAX.)
TWICE CORRUGATION DEPTH



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. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 1/2" x 1/2" 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 (2003 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."

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM 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 1/2 INCH BY 1/2 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

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

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

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

DATE	REVISION	DATE FILMED
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

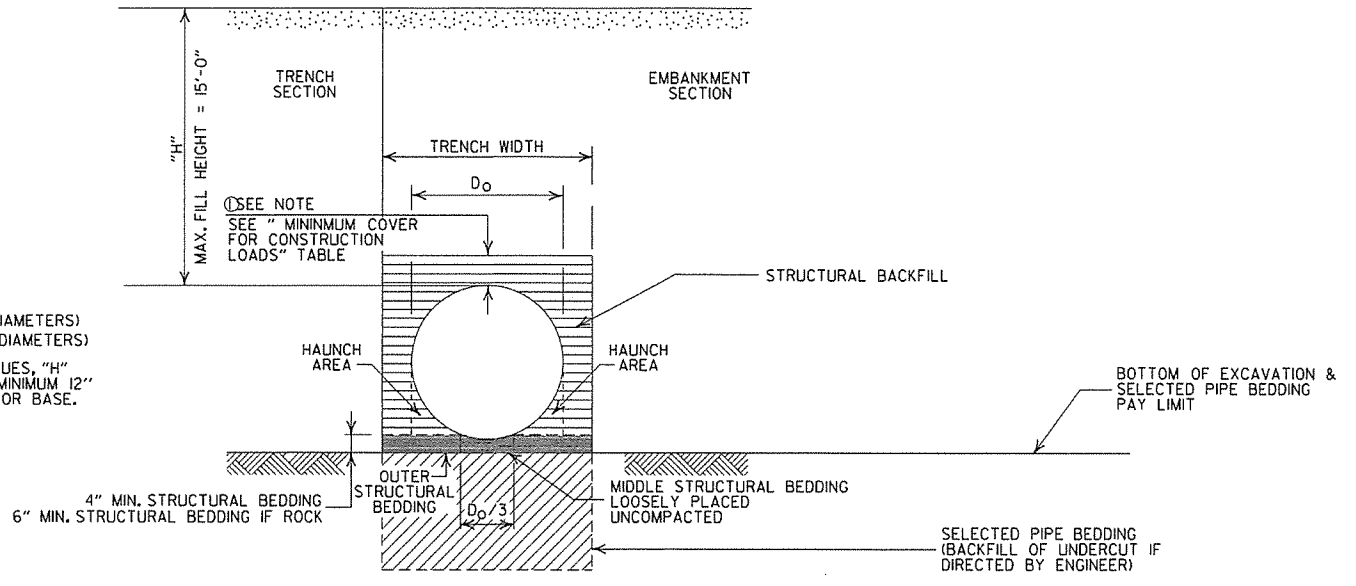
INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

- AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
 - SM3 WILL NOT BE ALLOWED.
 - STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.
- STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	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"

MINIMUM 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.

- LEGEND -

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

==== = STRUCTURAL BACKFILL MATERIAL
 // // // // = UNDISTURBED SOIL

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 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.

DATE	REVISION	DATE FILMED
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.
SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

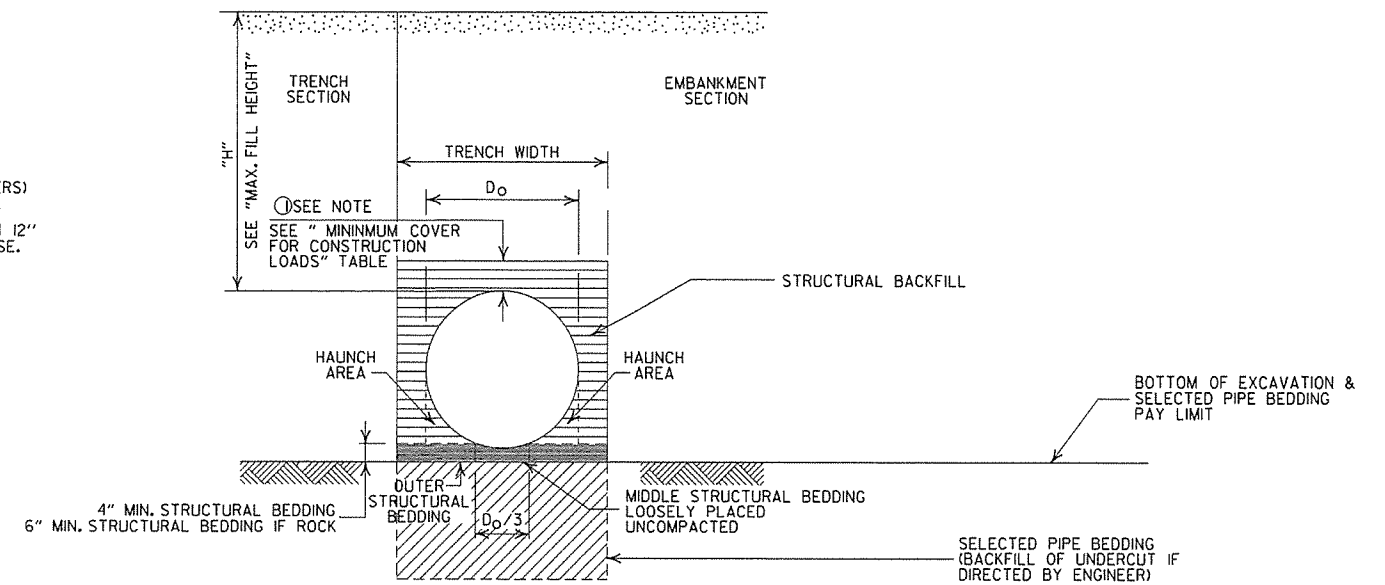
MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

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

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



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)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

② MINIMUM 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.

- LEGEND -

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

==== = STRUCTURAL BACKFILL MATERIAL
===== = UNDISTURBED SOIL

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454, INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 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.

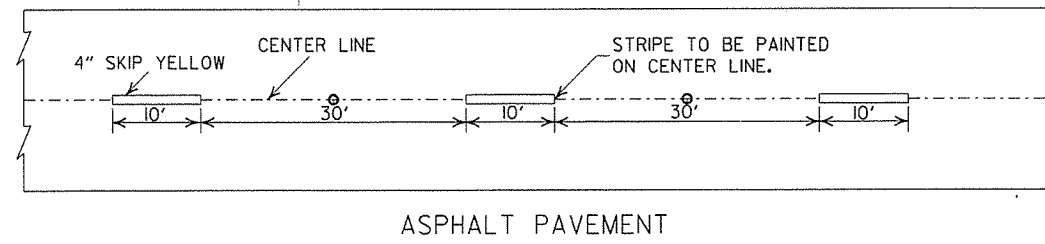
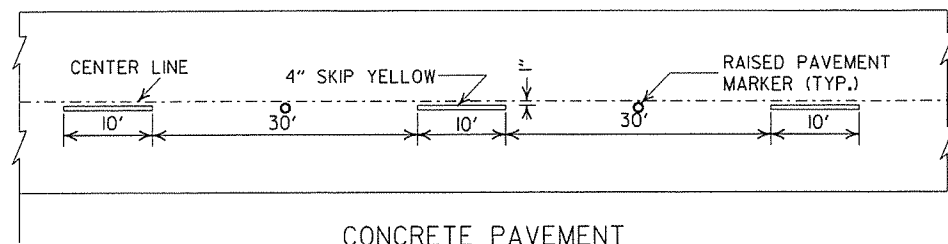
DATE	REVISION	DATE FILMED
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

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PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2

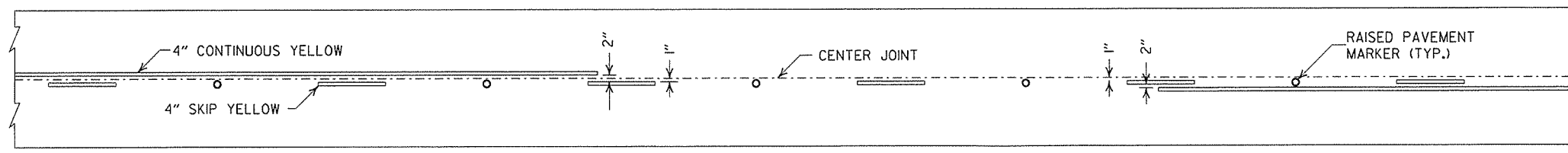




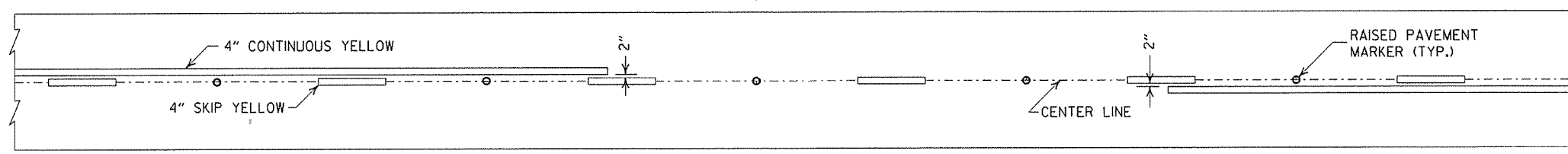
CONCRETE PAVEMENT

ASPHALT PAVEMENT

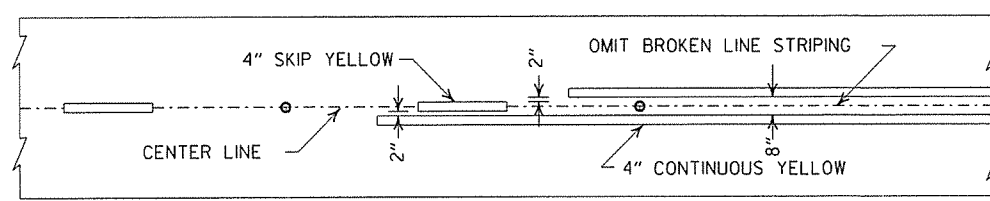
BROKEN LINE STRIPING



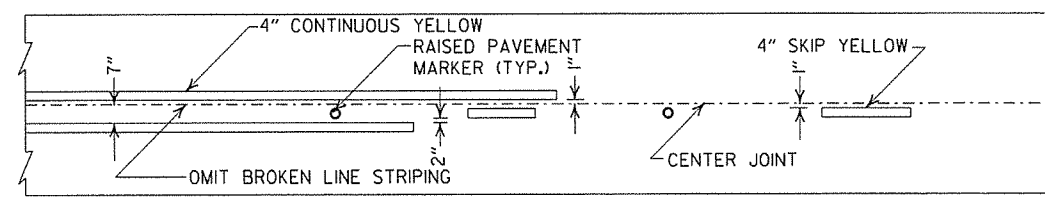
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



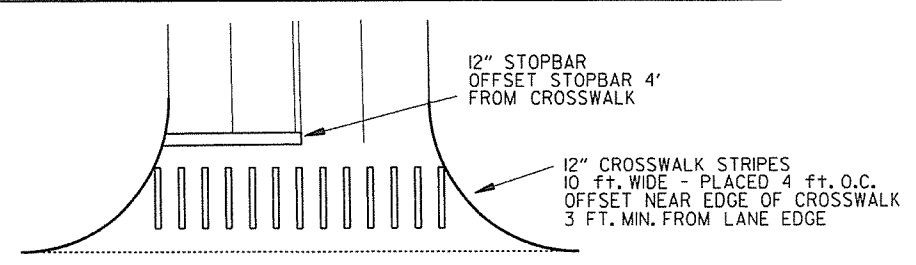
ASPHALT PAVEMENT



CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

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.

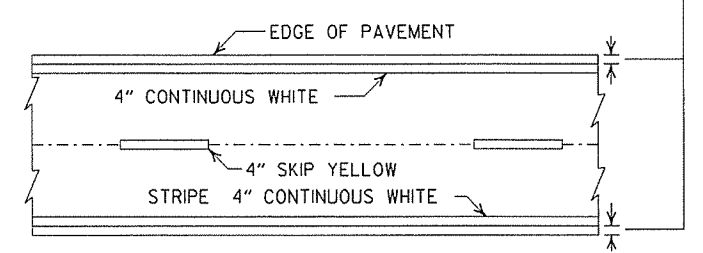


CROSSWALK AND STOPBAR DETAILS

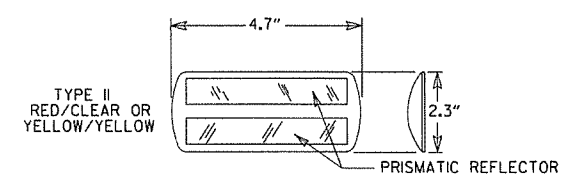
NOTES:

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

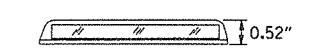
2" FOR ASPHALT OR CONCRETE PAVEMENT
 6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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

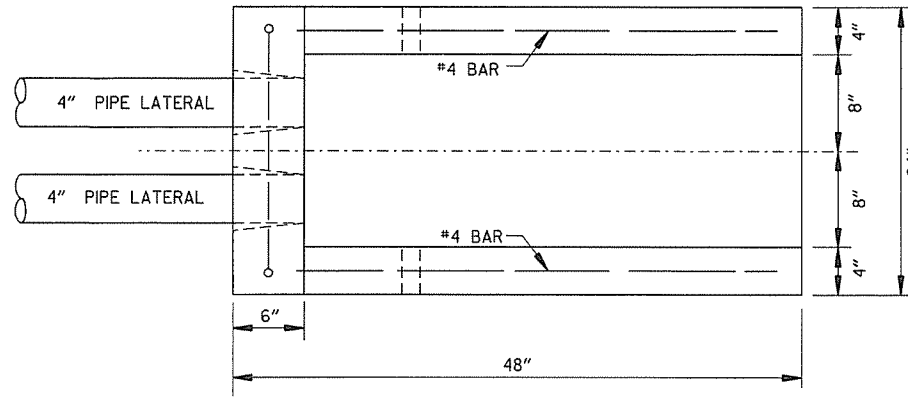


DETAIL OF STANDARD RAISED PAVEMENT MARKERS

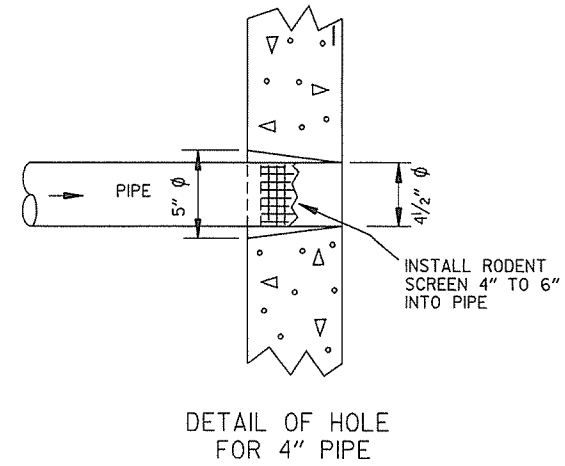
DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4;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

ARKANSAS STATE HIGHWAY COMMISSION	
PAVEMENT MARKING DETAILS	
STANDARD DRAWING PM-1	

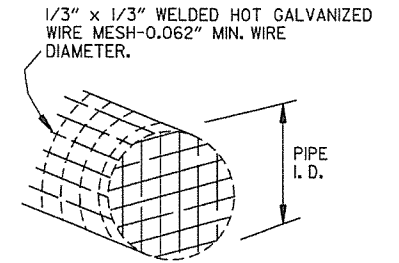
NOTE:
 1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



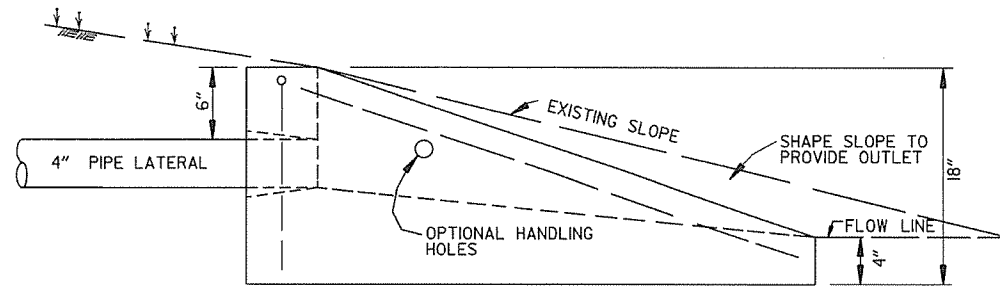
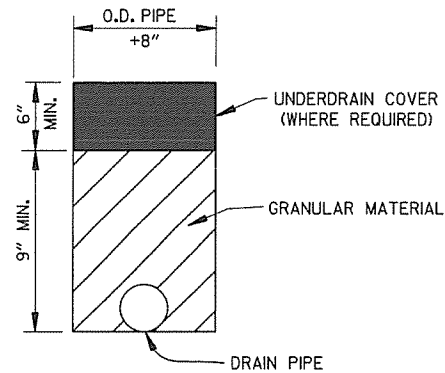
PLAN VIEW



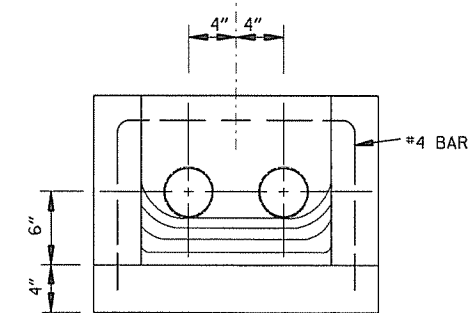
DETAIL OF HOLE FOR 4" PIPE



DETAIL OF RODENT SCREEN



SIDE VIEW

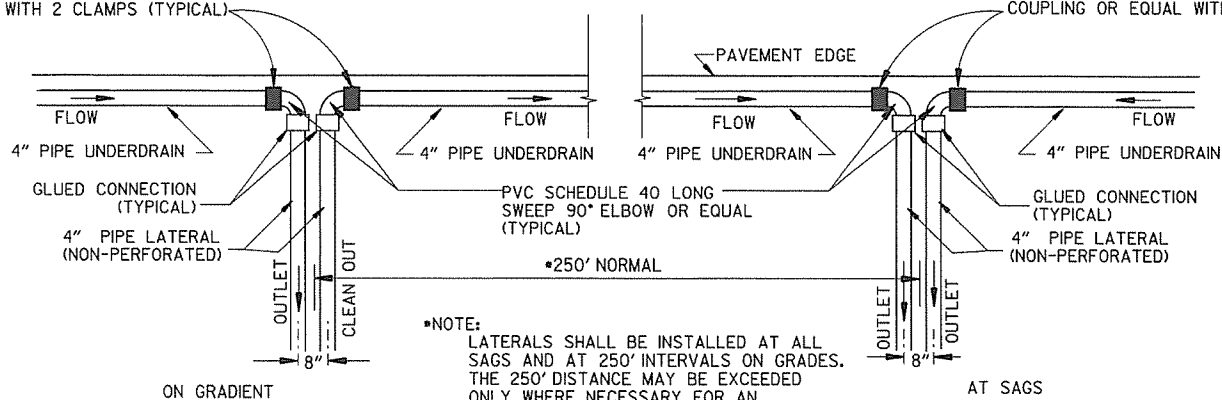


FRONT VIEW

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

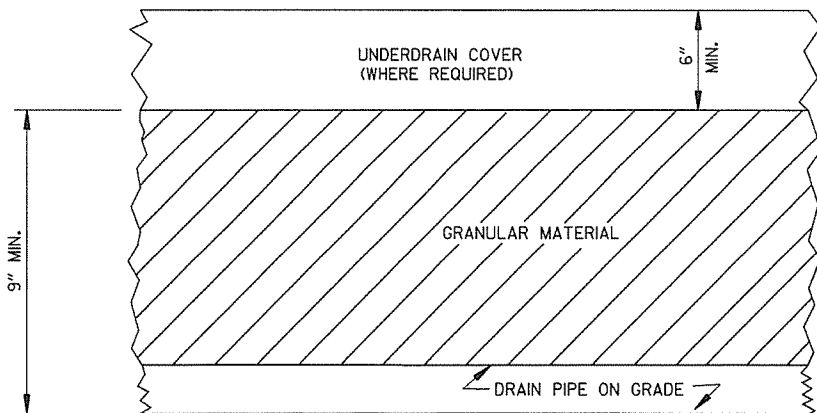
FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DI OR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



NOTE:
 LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.



DETAILS OF PIPE UNDERDRAIN

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5 1/2" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11-3-94	REVISED FOR DUAL LATERALS	11-3-94
10-1-92	SUBSTITUTED GEOTEXTILE	10-1-92
8-15-91	ADDED POLYETHYLENE PIPE	8-15-91
11-8-90	DELETED ALTERNATE NOTE	11-8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

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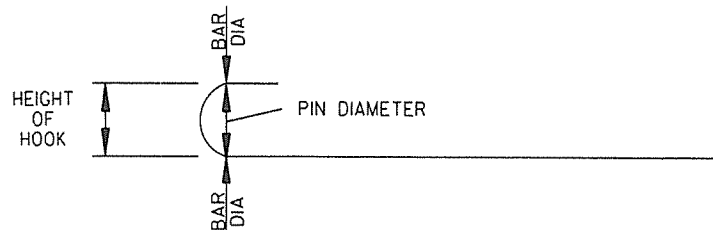
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2 1/4"	4"
4	3"	4 1/2"
5	3 3/4"	5"
6	4 1/2"	6"
7	5 1/4"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2 3/4 INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

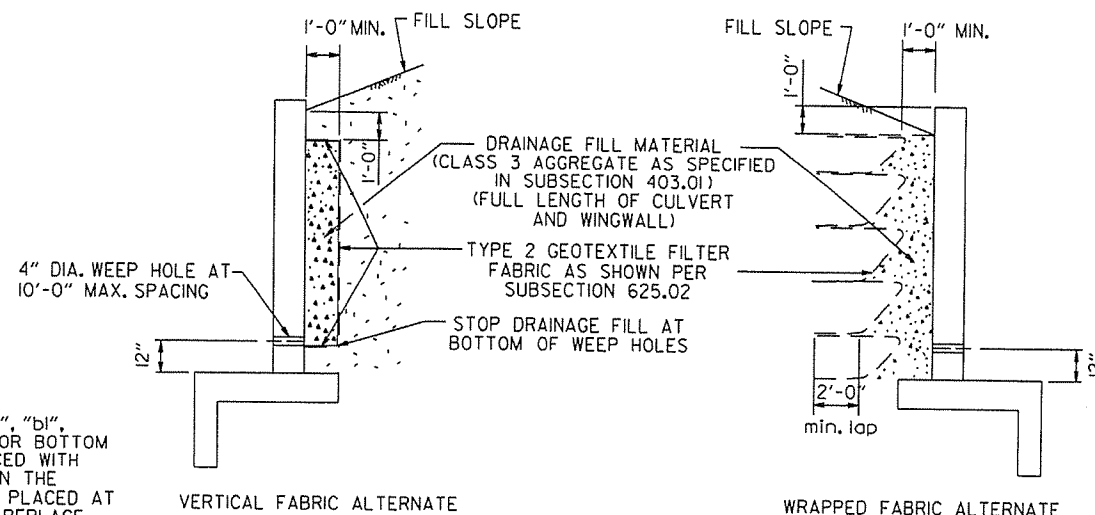
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI. REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

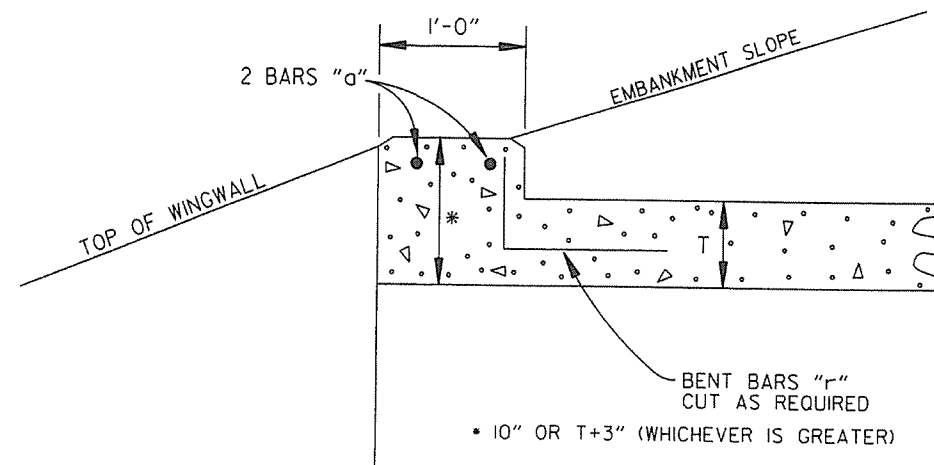
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS 1/2 INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

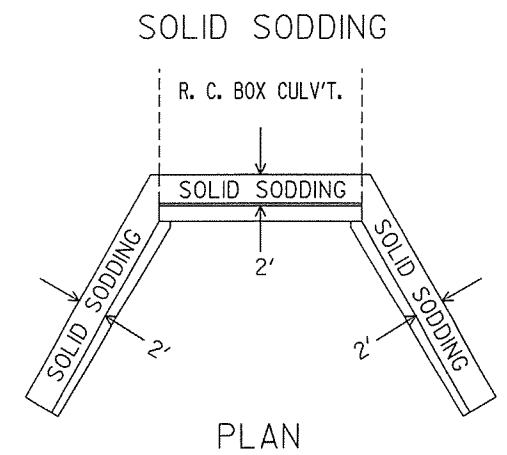
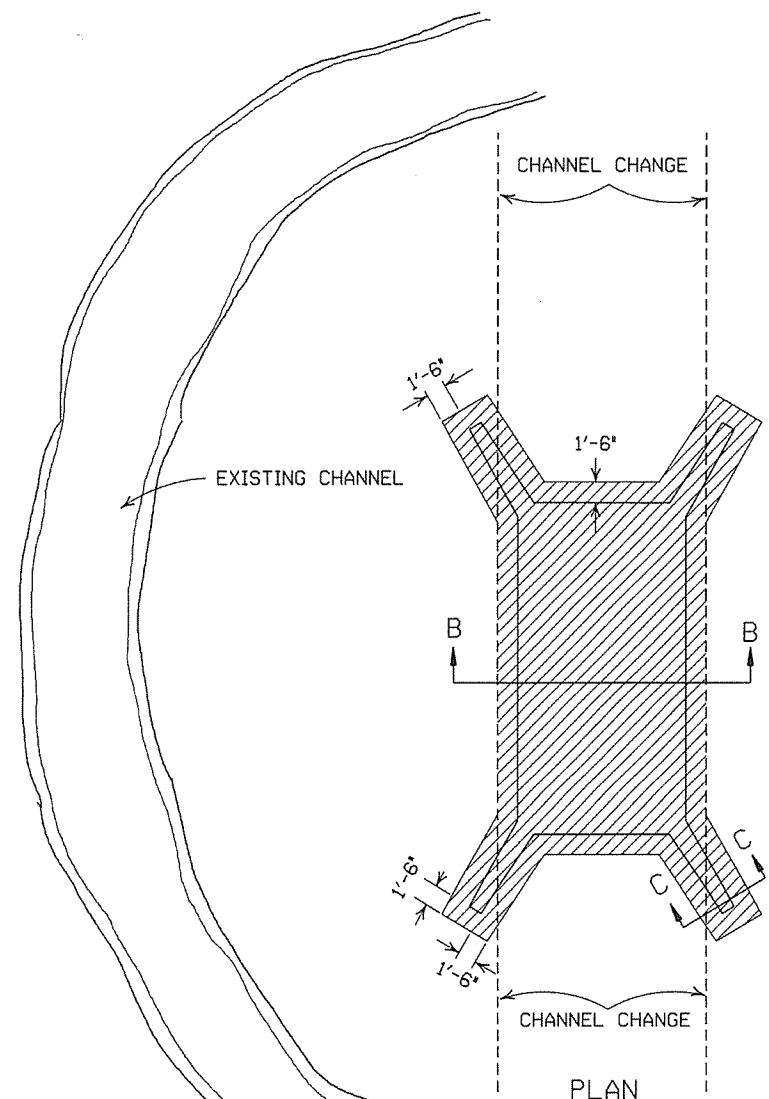
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

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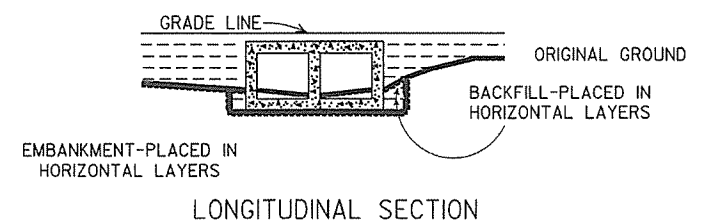
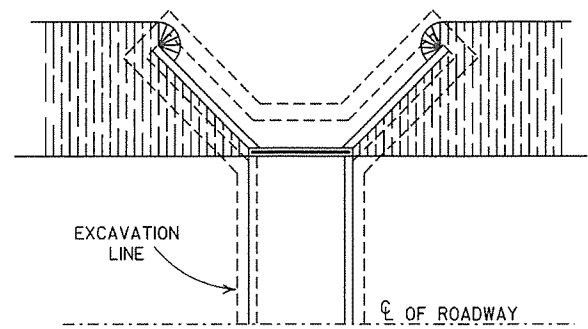
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1

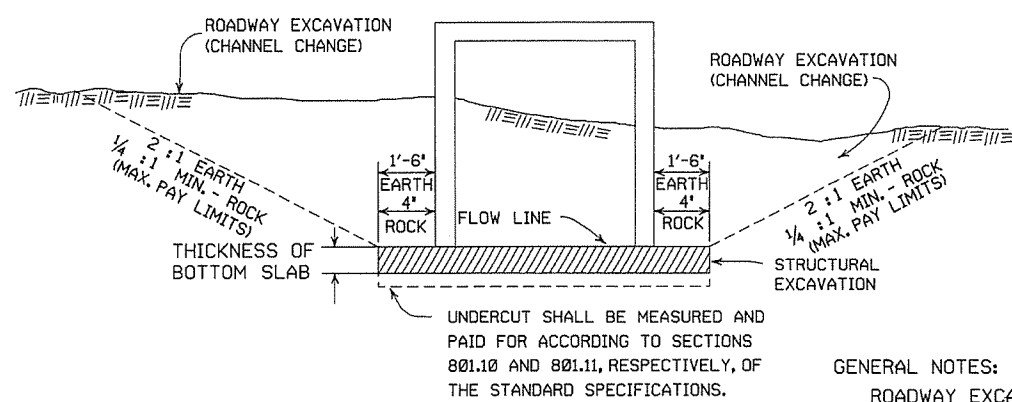
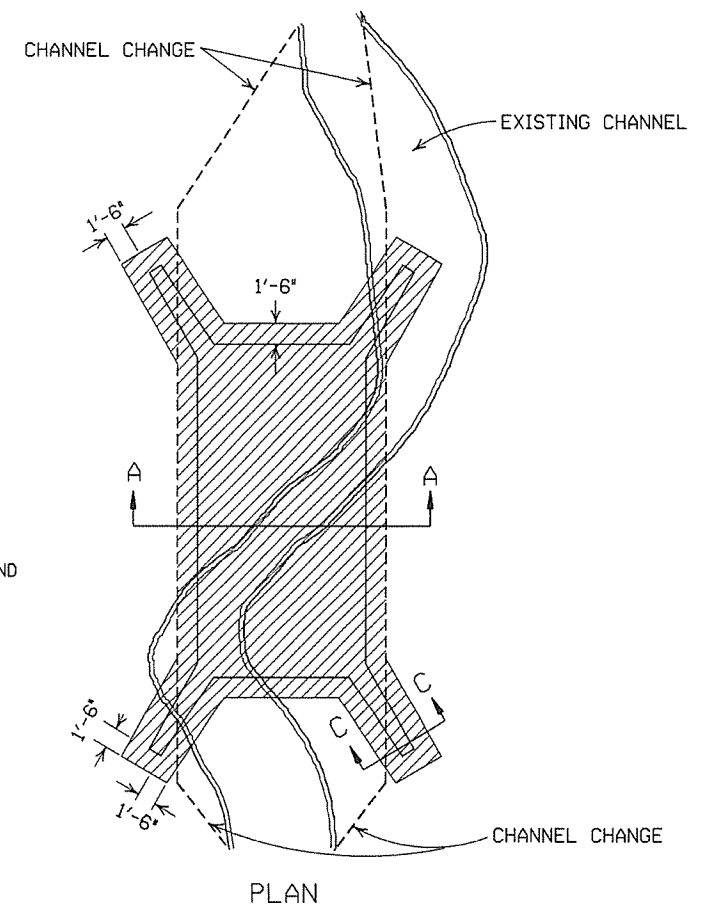


PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

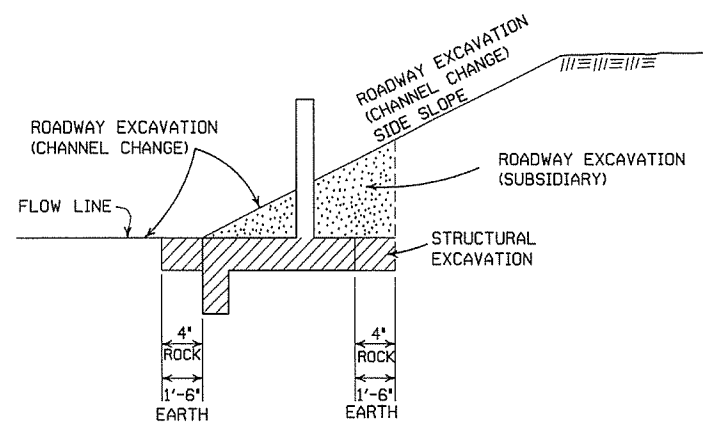
NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.



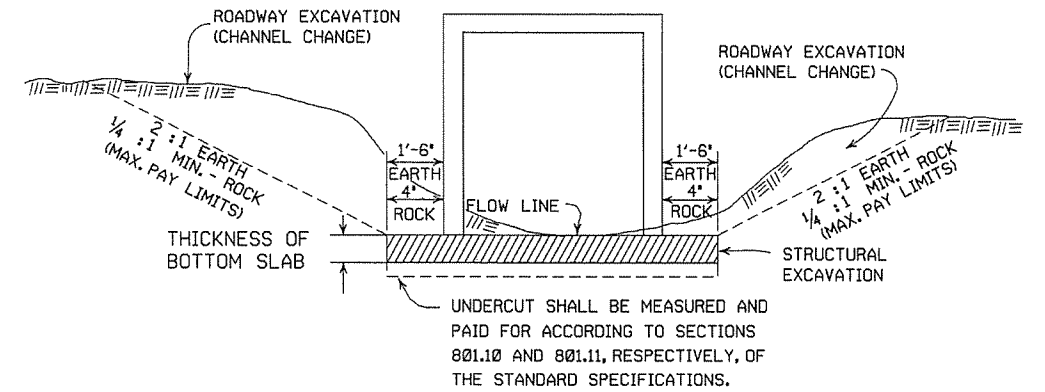
BACKFILL DETAILS FOR BOX CULVERT



SECTION B-B
DETAILS FOR NEW CHANNELS



SECTION C-C



DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

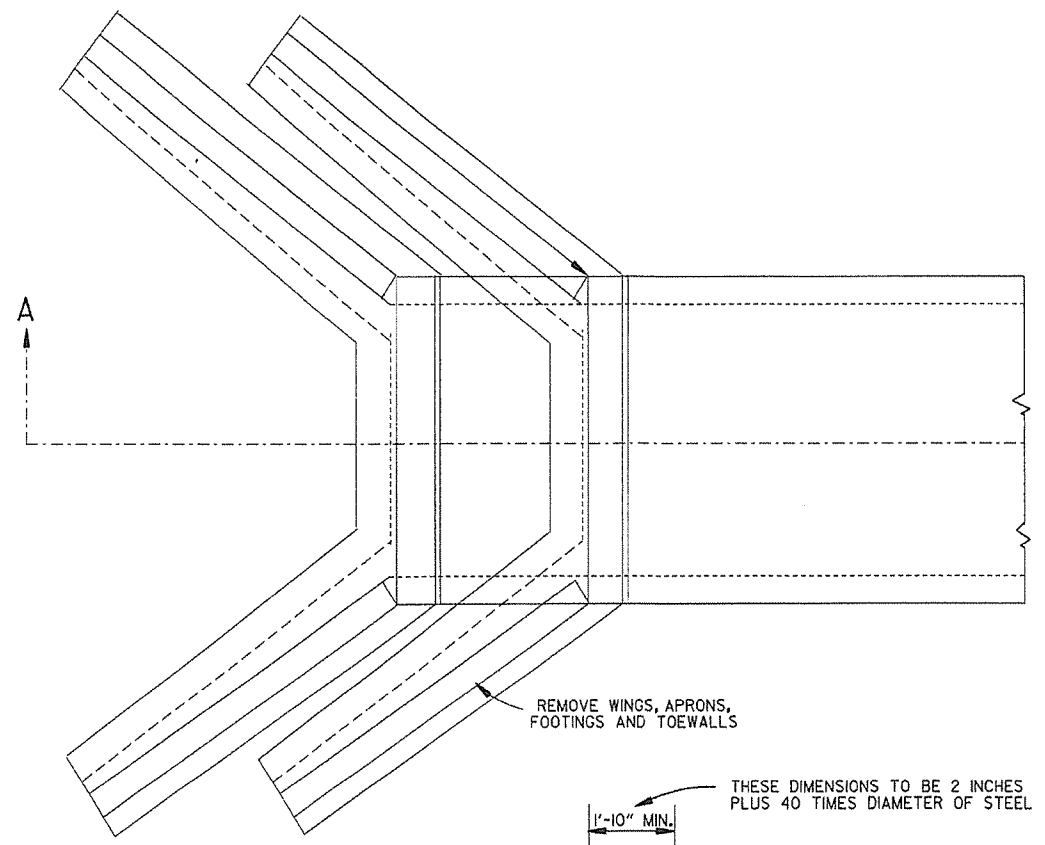
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

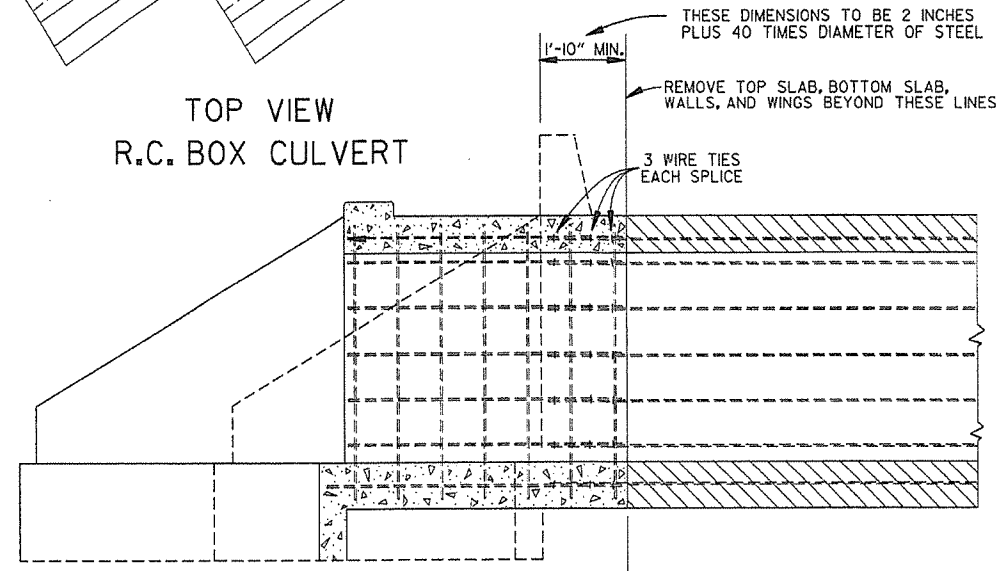
ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

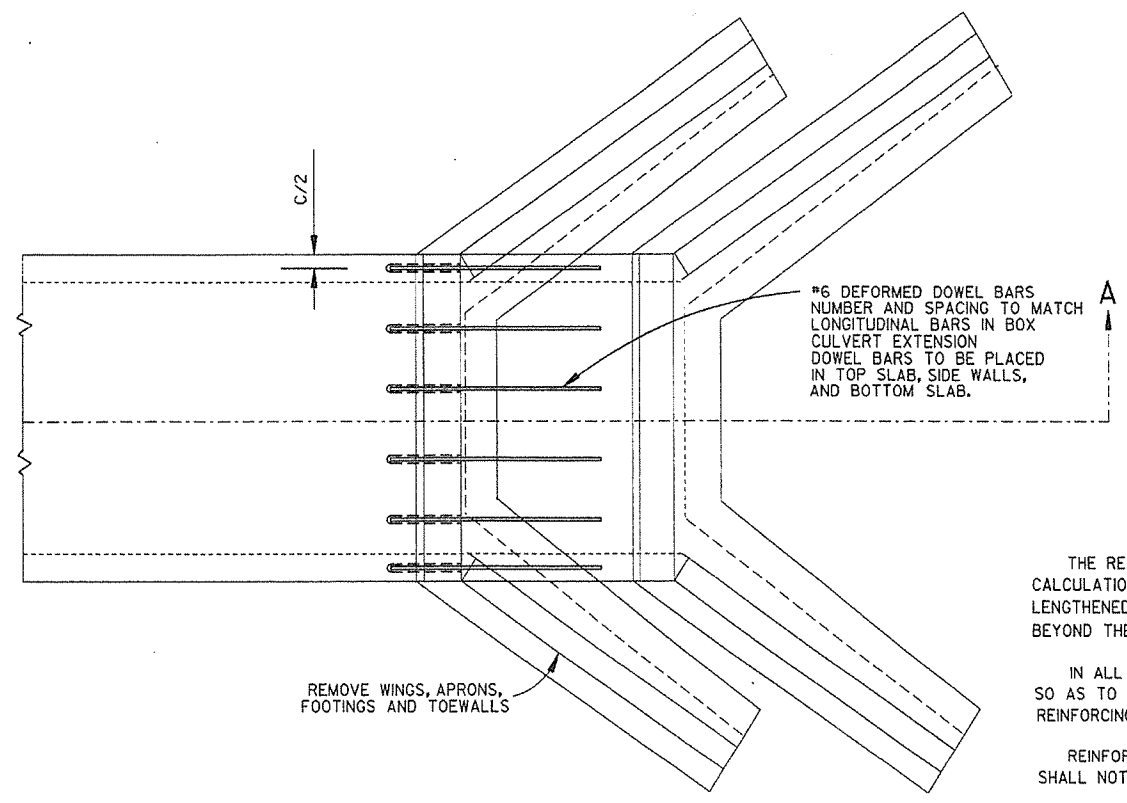


TOP VIEW
R.C. BOX CULVERT

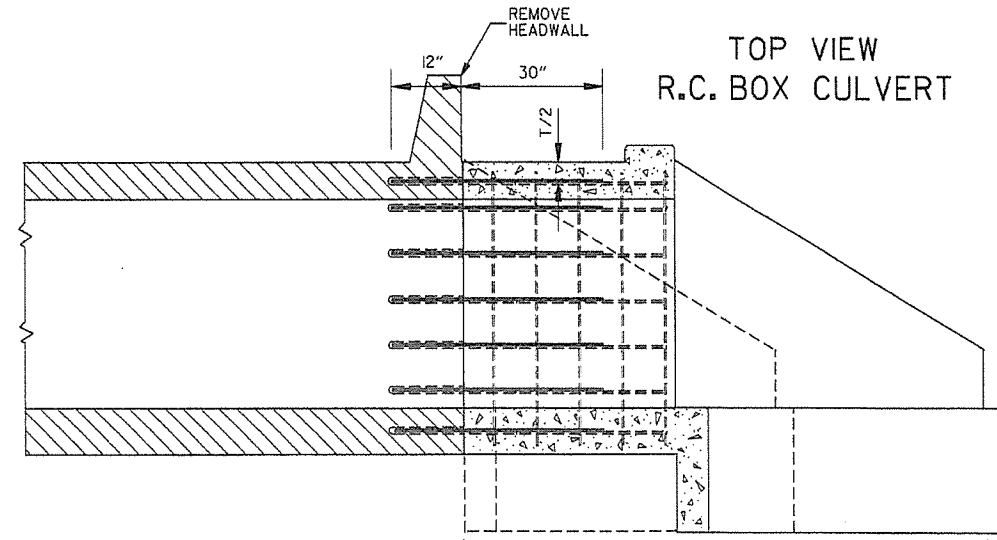


REINFORCING DETAILS AND CULVERT DIMENSIONS
SAME AS STANDARD CULVERT DRAWINGS

SECTION A-A
METHOD 1



TOP VIEW
R.C. BOX CULVERT



REINFORCING DETAILS AND CULVERT DIMENSIONS
SAME AS STANDARD CULVERT DRAWINGS

SECTION A-A
METHOD 2

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

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.
SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

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

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING
EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH		40 MPH		50 MPH		55 MPH		60 MPH		70 MPH	
	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)	e	Ls (FT)
0° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
0° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 00'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 15'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 30'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
1° 45'	N.C.		N.C.		N.C.		N.C.		N.C.		N.C.	
2° 00'	R.C.		R.C.		R.C.		R.C.		R.C.		R.C.	
2° 15'	R.C.		R.C.		R.C.		R.C.		R.C.		R.C.	
2° 30'	0.021		0.021		0.021		0.021		0.021		0.021	
2° 45'	0.023		0.023		0.023		0.023		0.023		0.023	
3° 00'	0.025		0.025		0.025		0.025		0.025		0.025	
3° 15'	0.027		0.027		0.027		0.027		0.027		0.027	
3° 30'	0.029		0.029		0.029		0.029		0.029		0.029	
3° 45'	0.031		0.031		0.031		0.031		0.031		0.031	
4° 00'	0.033		0.033		0.033		0.033		0.033		0.033	
4° 30'	0.037		0.037		0.037		0.037		0.037		0.037	
5° 00'	0.040		0.040		0.040		0.040		0.040		0.040	
5° 30'	0.043		0.043		0.043		0.043		0.043		0.043	
6° 00'	0.046		0.046		0.046		0.046		0.046		0.046	
6° 30'	0.050		0.050		0.050		0.050		0.050		0.050	
7° 00'	0.053		0.053		0.053		0.053		0.053		0.053	
7° 30'	0.056		0.056		0.056		0.056		0.056		0.056	
8° 00'	0.058		0.058		0.058		0.058		0.058		0.058	
8° 30'	0.061		0.061		0.061		0.061		0.061		0.061	
9° 00'	0.063		0.063		0.063		0.063		0.063		0.063	
10° 00'	0.066	160	0.066		0.066		0.066		0.066		0.066	
11° 00'	0.072	175	0.072		0.072		0.072		0.072		0.072	
12° 00'	0.076	180	0.076		0.076		0.076		0.076		0.076	
13° 00'	0.080	185	0.080		0.080		0.080		0.080		0.080	
14° 00'	0.083	190	0.083		0.083		0.083		0.083		0.083	
15° 00'	0.086	195	0.086		0.086		0.086		0.086		0.086	
16° 00'	0.089	200	0.089		0.089		0.089		0.089		0.089	
17° 00'	0.091	205	0.091		0.091		0.091		0.091		0.091	
18° 00'	0.093	210	0.093		0.093		0.093		0.093		0.093	
19° 00'	0.095	215	0.095		0.095		0.095		0.095		0.095	
20° 00'	0.097	220	0.097		0.097		0.097		0.097		0.097	
21° 00'	0.099	225	0.099		0.099		0.099		0.099		0.099	
22° 00'	0.099	230	0.099		0.099		0.099		0.099		0.099	
23° 00'	0.099	235	0.099		0.099		0.099		0.099		0.099	
24° 00'	0.100	240	0.100		0.100		0.100		0.100		0.100	

D MAX = 24° 45'

ABBREVIATIONS

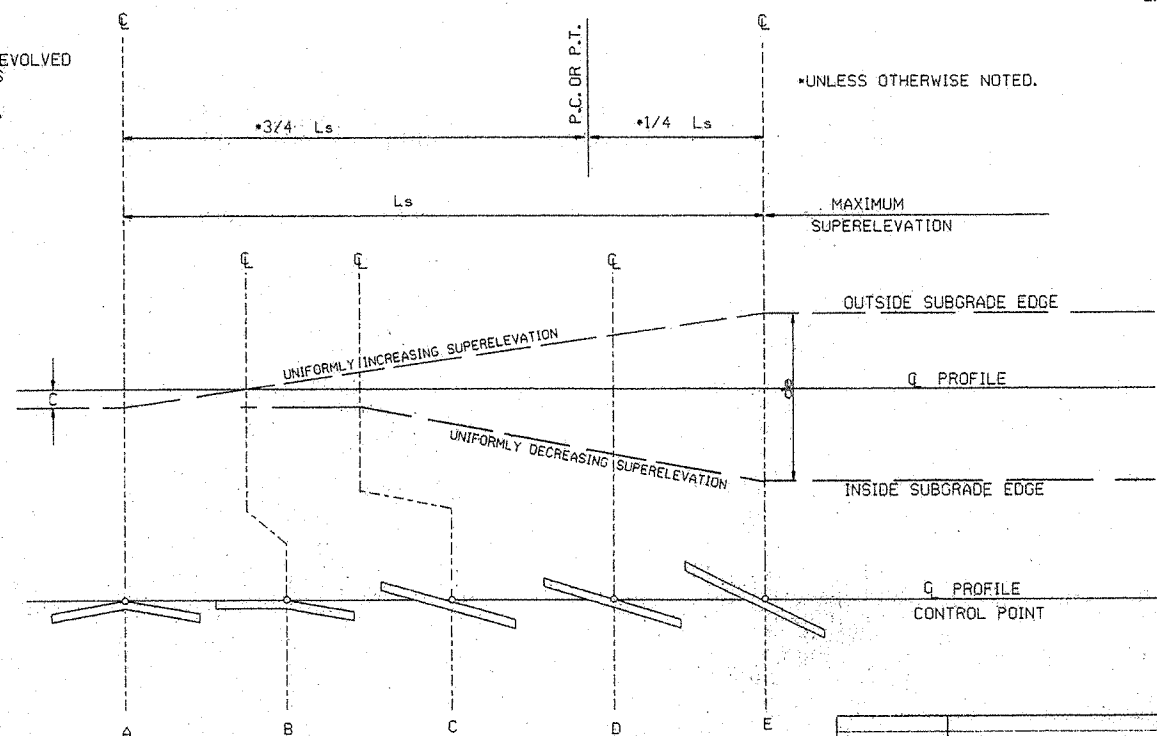
- NC - NORMAL CROWN
- RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
- e - RATE OF SUPERELEVATION (FT. PER FT.)
- Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
- L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
- d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
- C - NORMAL CROWN (FT.)

GENERAL NOTES

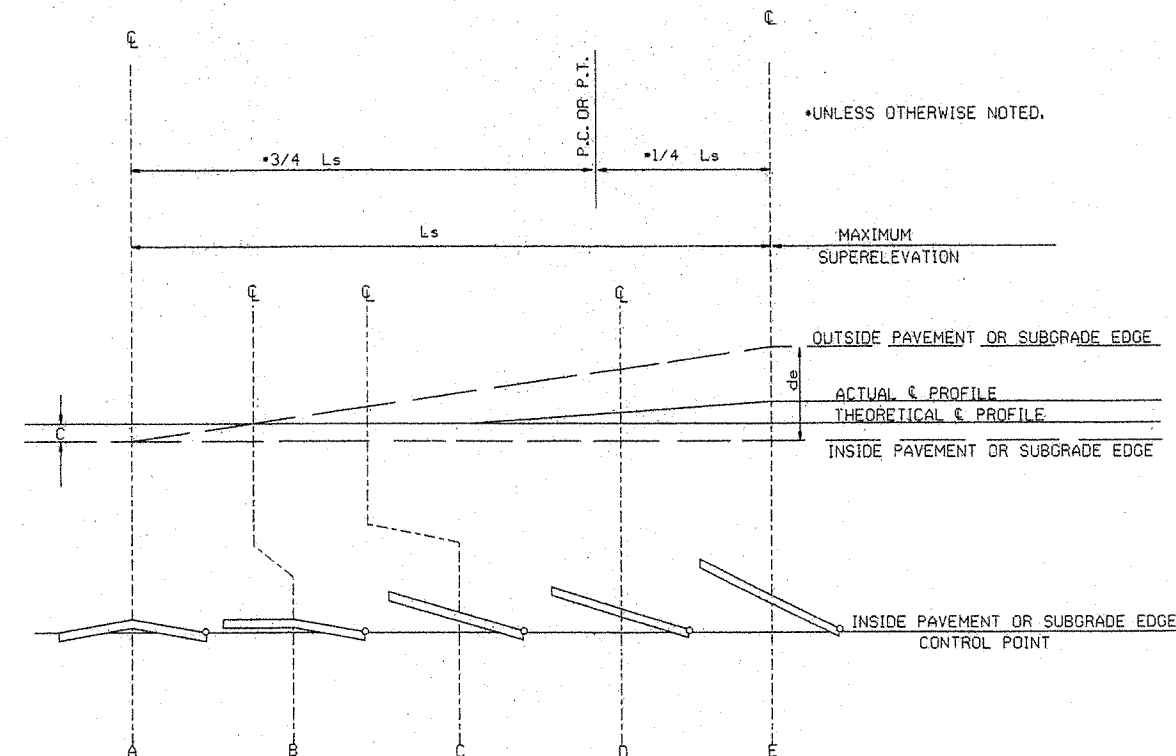
1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS, AS FOLLOWS:

- 3 LANE UNDIVIDED - - - - +20%
- 4 LANE UNDIVIDED - - - - +50%
- 5 LANE UNDIVIDED - - - - +80%
- 6 LANE UNDIVIDED - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

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

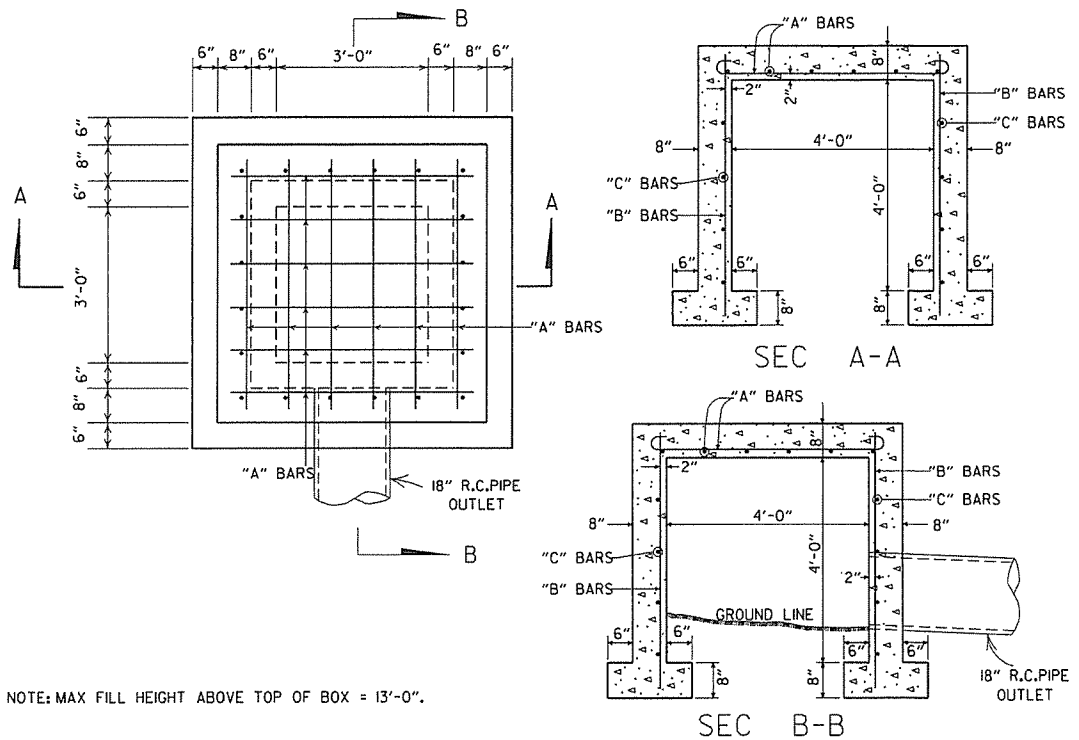
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

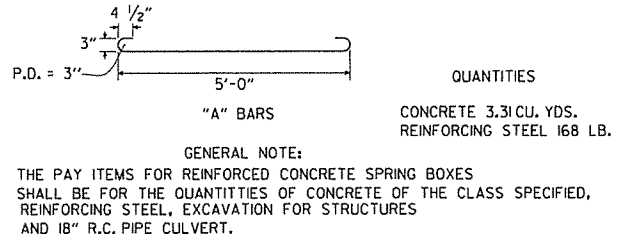
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87
DATE	REVISION	DATE FILLED



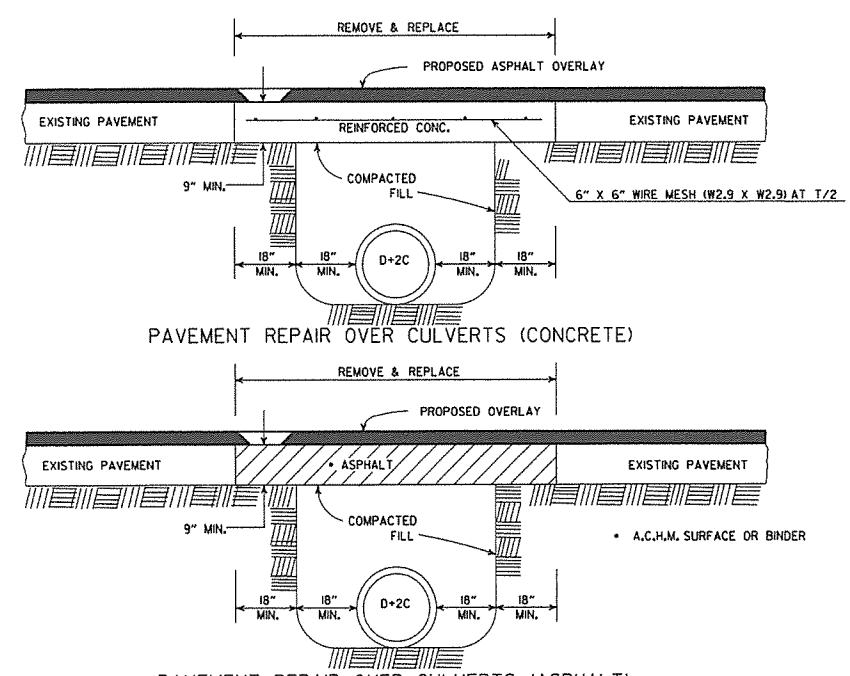
NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

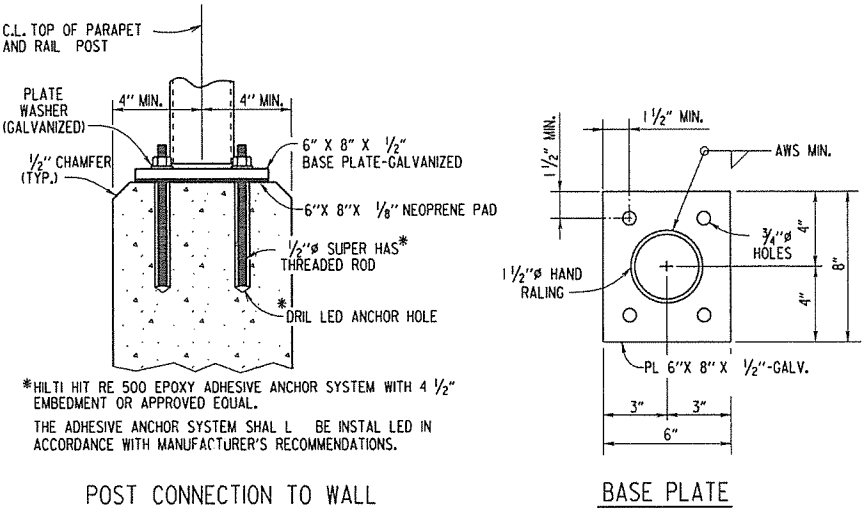
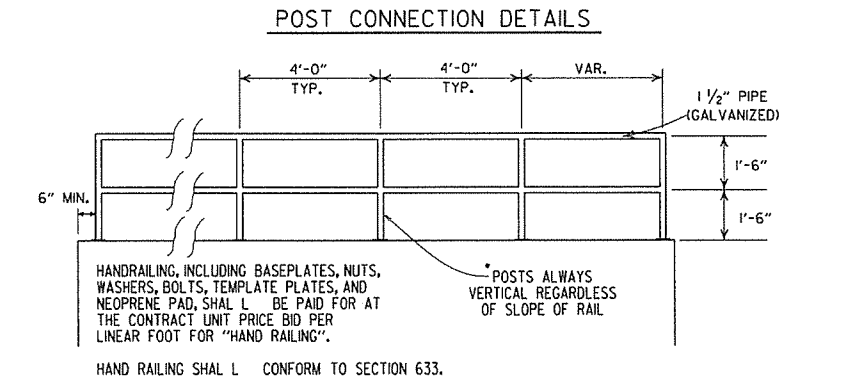
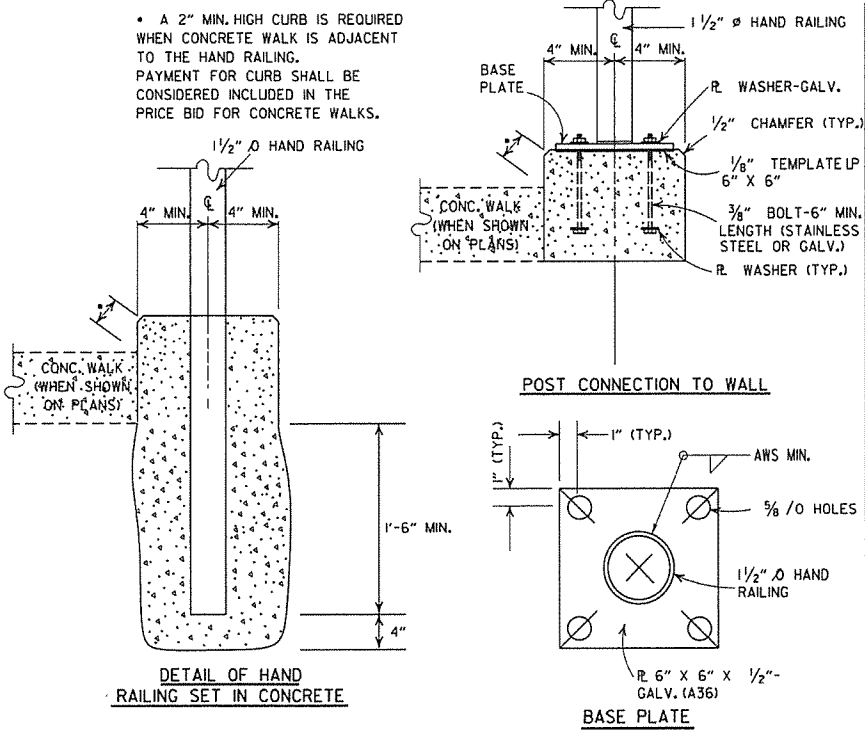
BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 1/2"
"C"	16	5'-0"	12"



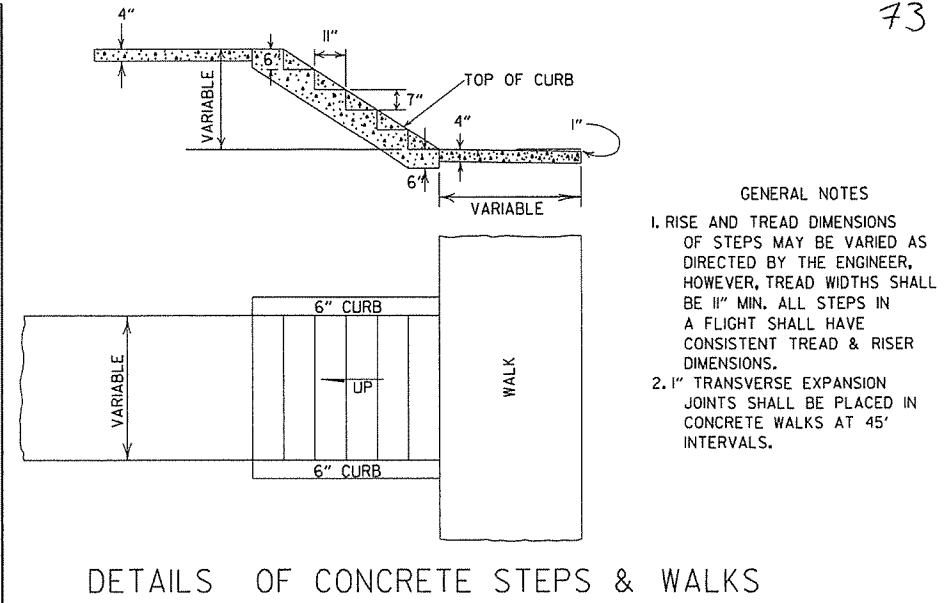
REINFORCED CONCRETE SPRING BOX



DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS



DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)
HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE; REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS. DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET & PAVEMENT REPAIR	674-4-20-79
2-2-76	12" MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

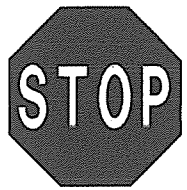
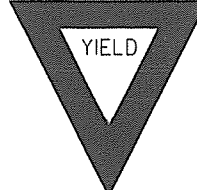
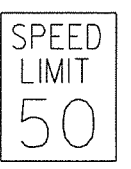
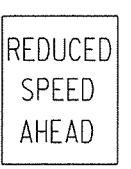

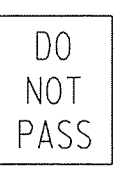



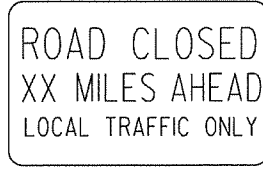
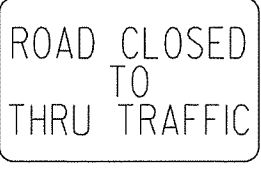

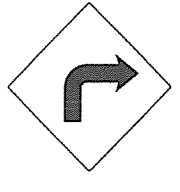
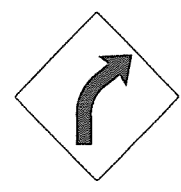
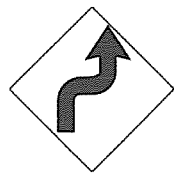
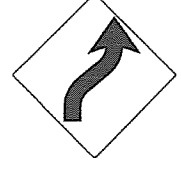
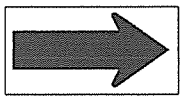
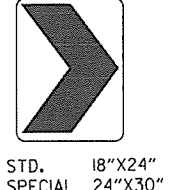
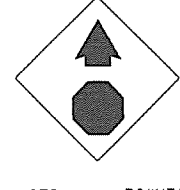
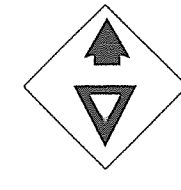
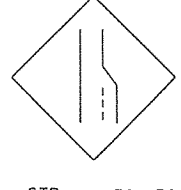

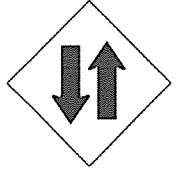

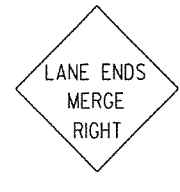
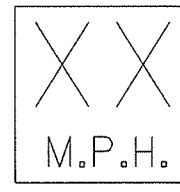

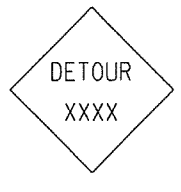



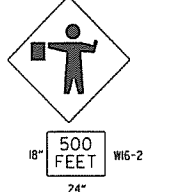


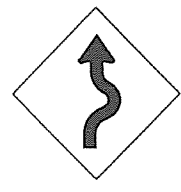
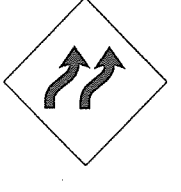


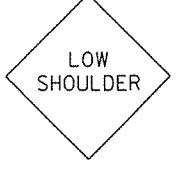
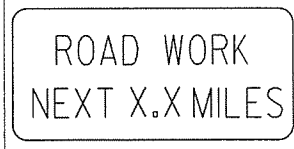
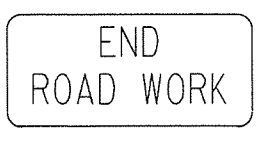
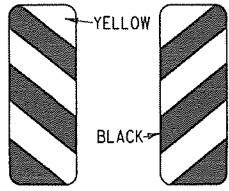
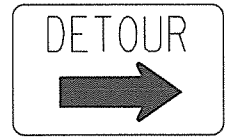
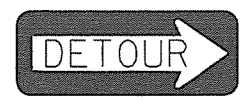
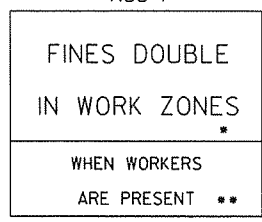
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE AHEAD

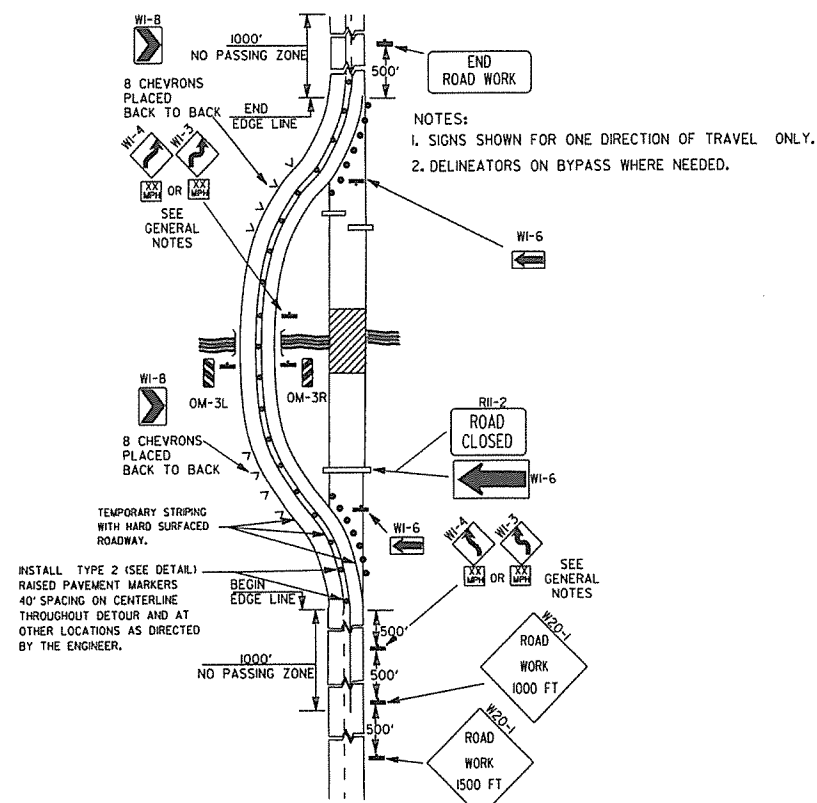
- GENERAL NOTES:
- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
 - TRAFFIC CONTROL DEVICES SHALL BE SET UP 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.

<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5A</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R2-5C</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>RSP-1</p>  <p>48"x30"</p>	<p>WI-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>WI-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>WI-3</p>  <p>STD. 48"x48"</p>	<p>WI-4</p>  <p>STD. 48"x48"</p>	<p>WI-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>WI-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>	<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>18" 500 FEET 24" W16-2</p> <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>WI-4b</p>  <p>STD. 48"x48"</p>	<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>	<p>R55-1</p>  <p>36"x60" * USE 6" C LETTERS ** USE 4" D LETTERS</p>

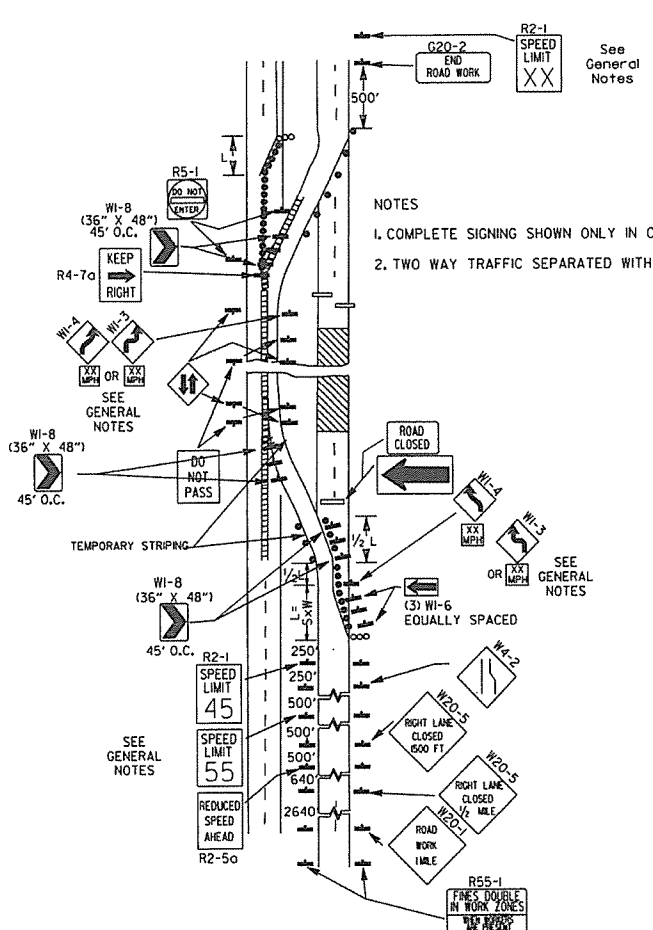
- FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
- 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.

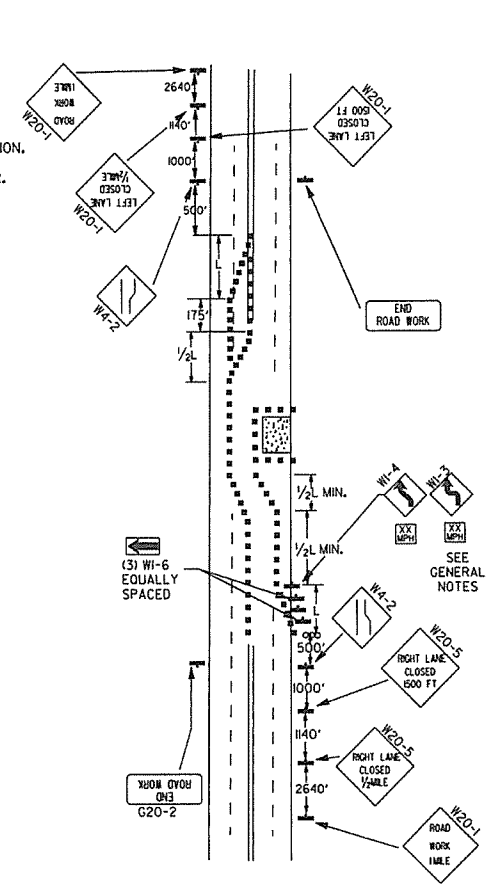
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED 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	
DATE	REVISION	FILMED



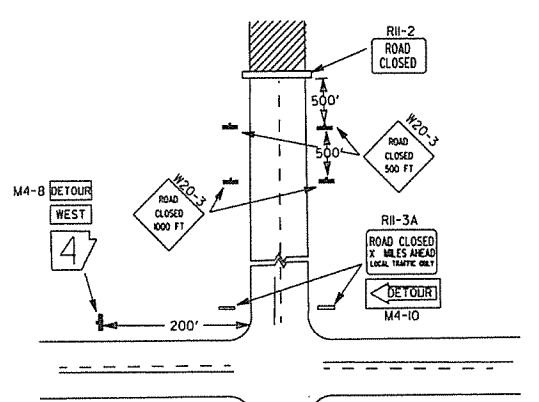
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



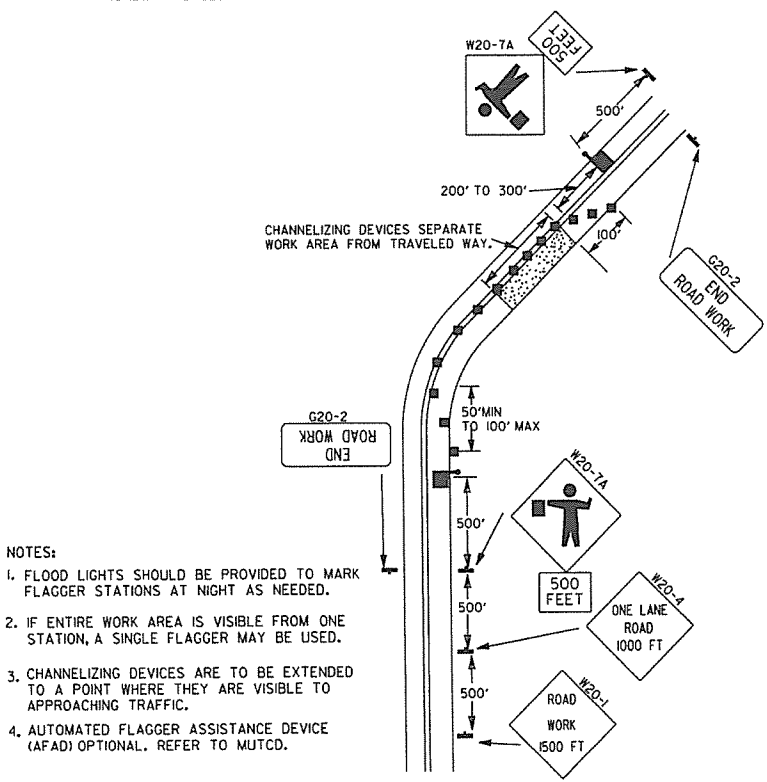
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



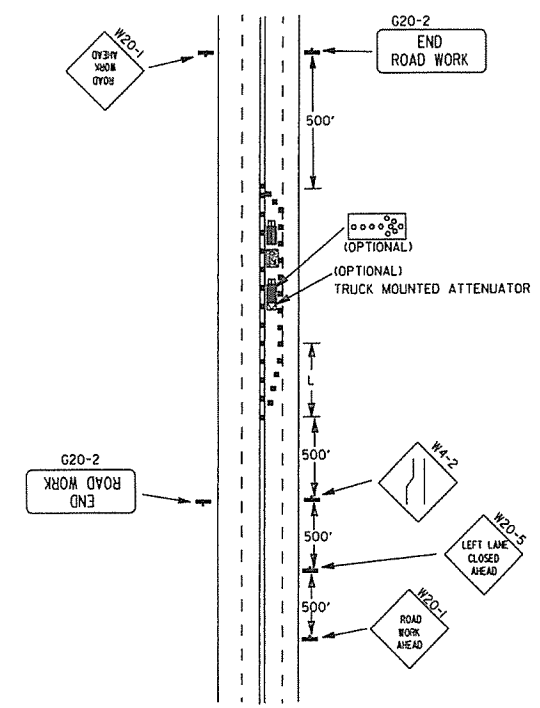
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



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

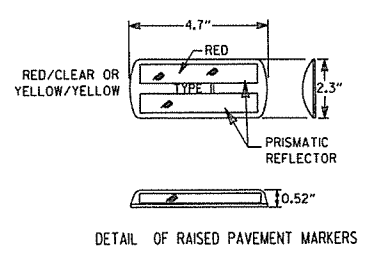


(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



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

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



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

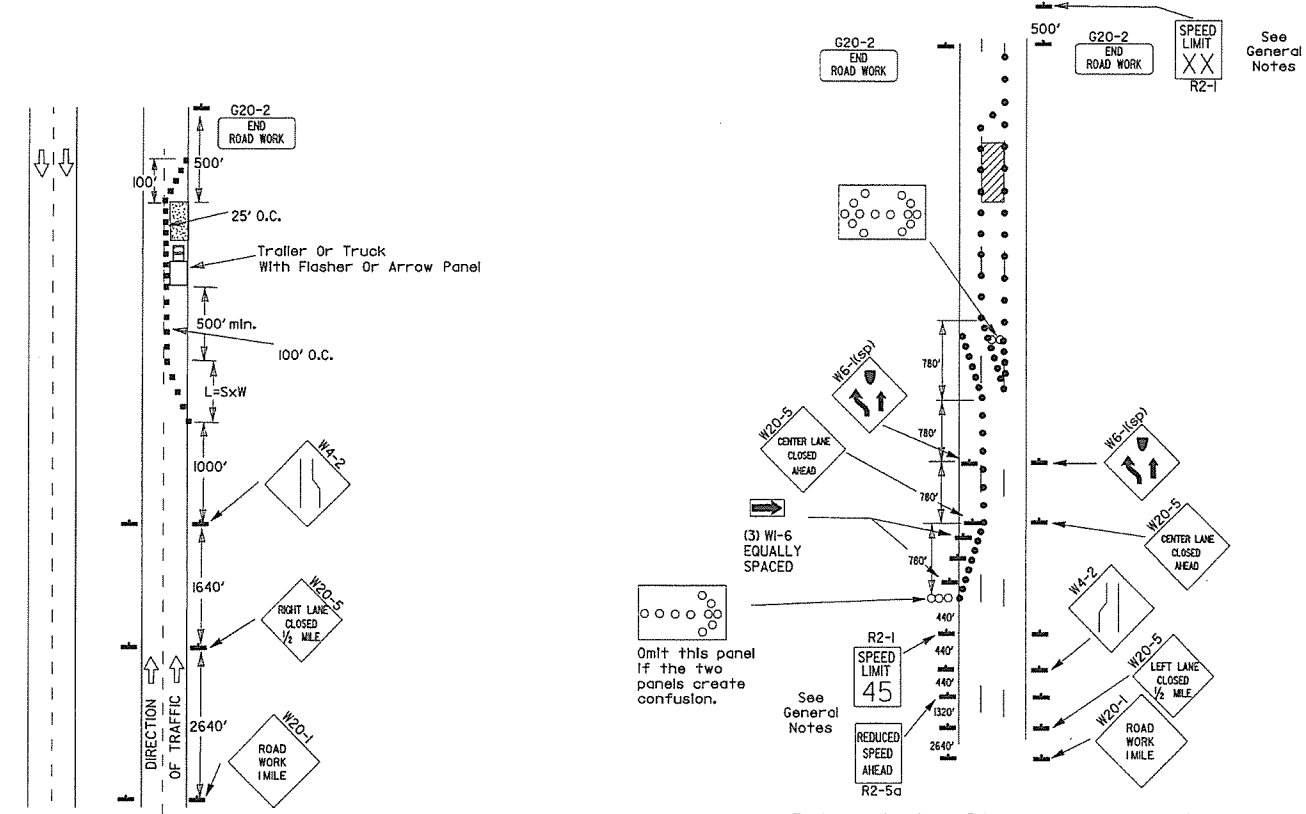
- L = SXW FOR SPEEDS OF 45MPH OR MORE.
 - L = $\frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.
- WHERE:
L = MINIMUM LENGTH OF TAPER.
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W = WIDTH OF OFFSET.

GENERAL NOTES:

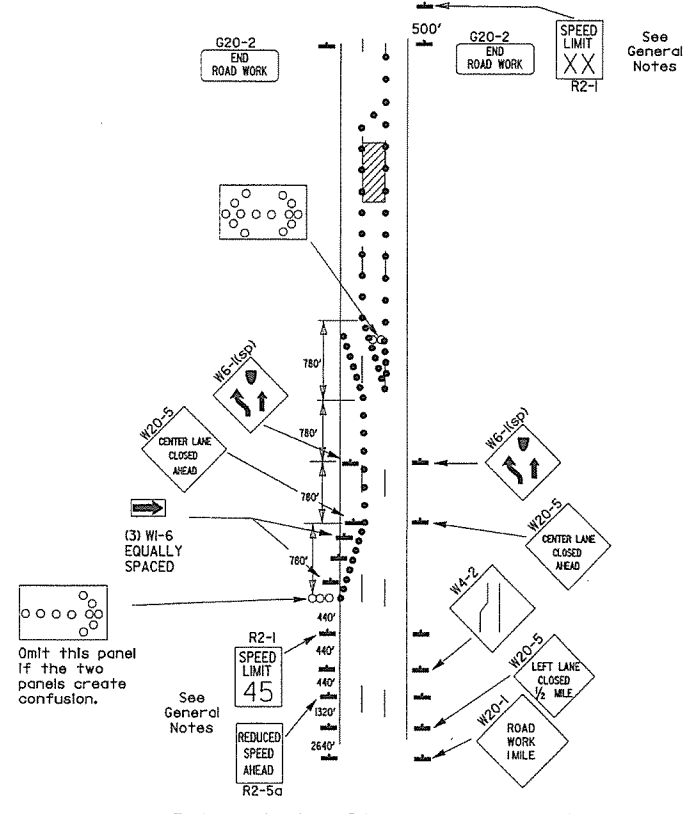
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-(H55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(HXX) 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-(H45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-(HXX) 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.

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

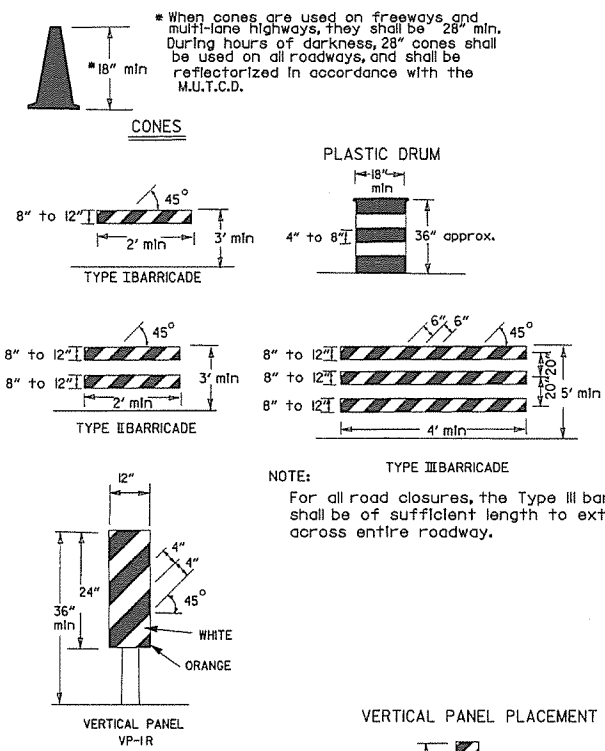
Channelizing devices



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



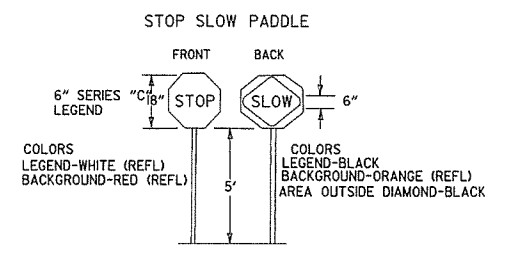
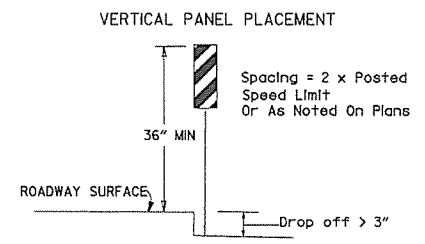
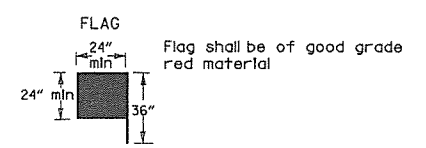
(B) Typical application - 3-lane oneway roadway where center lane is closed.



TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

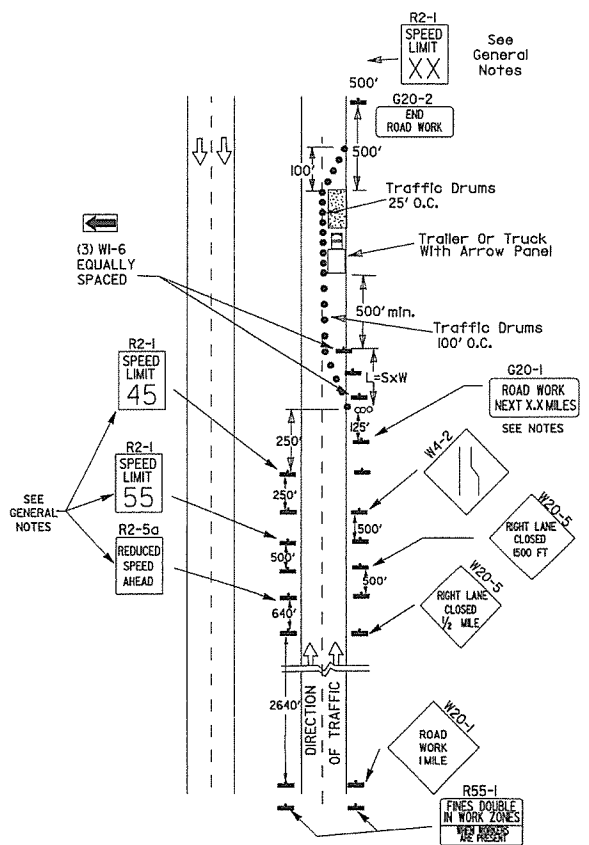
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-land vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical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

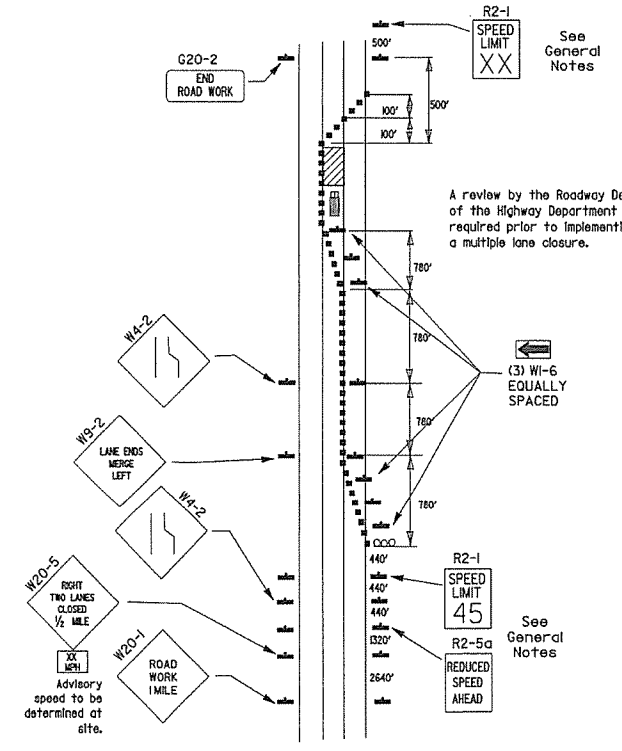


- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

- GENERAL NOTES:
- A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
 - 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 R2-145mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
 - When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
 - 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.
 - Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
 - Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
 - 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 (1/2 MILE) signs are not required in advance of lane closures that begin inside the project limits.
 - Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
 - All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
 - 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.



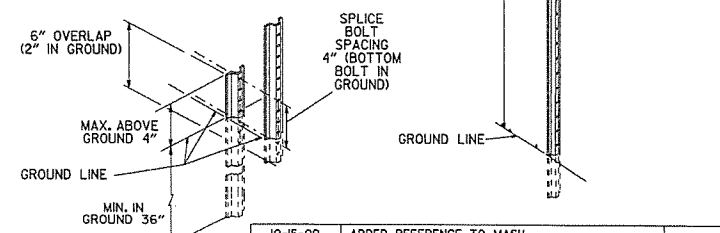
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.



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

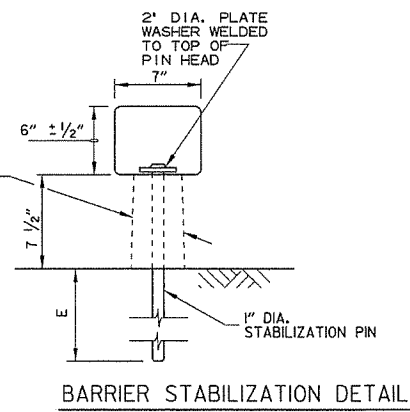
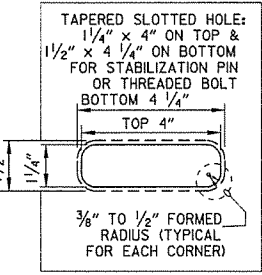
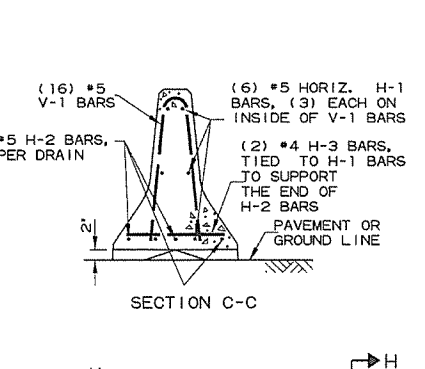
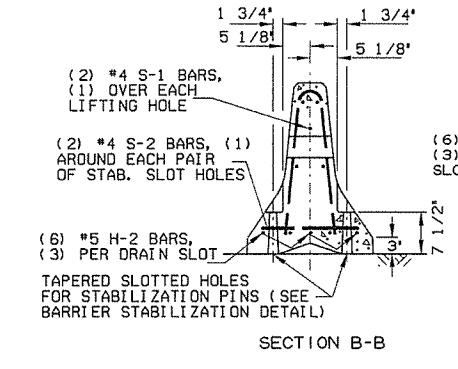
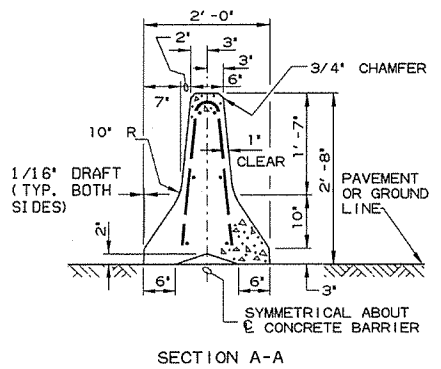
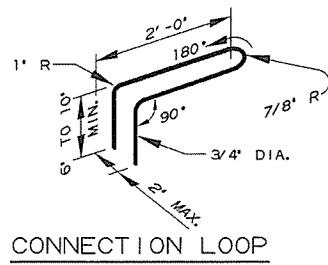
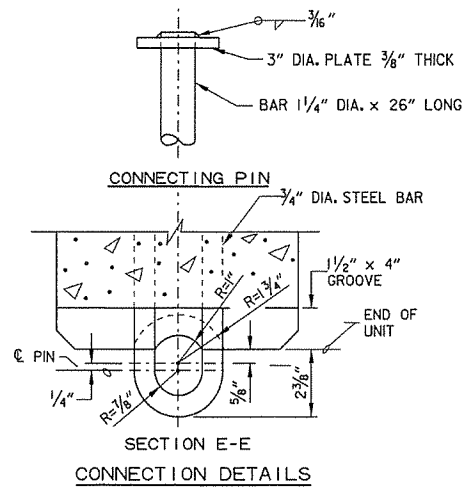
NOTES:

- USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)
- NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.
- SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

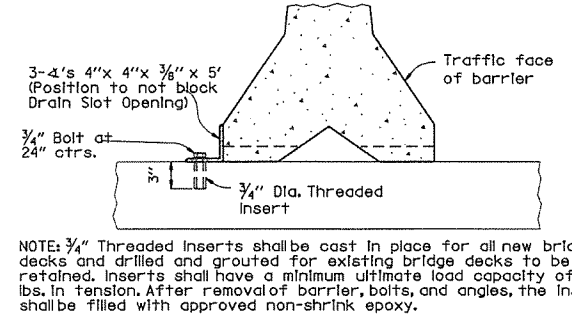
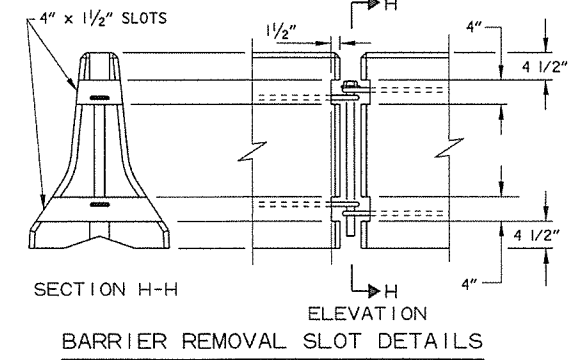
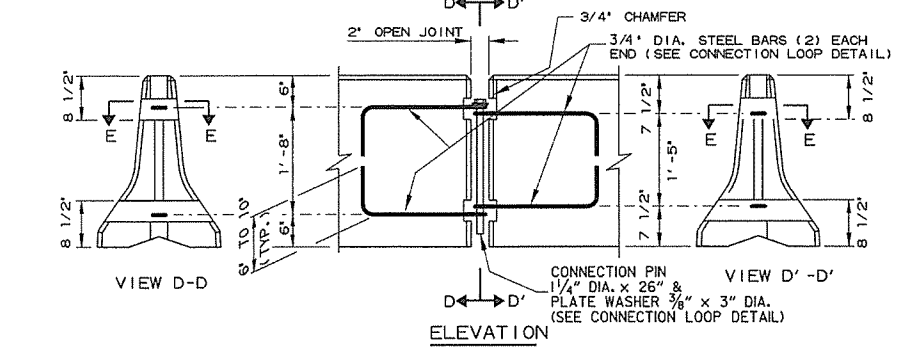


DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED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

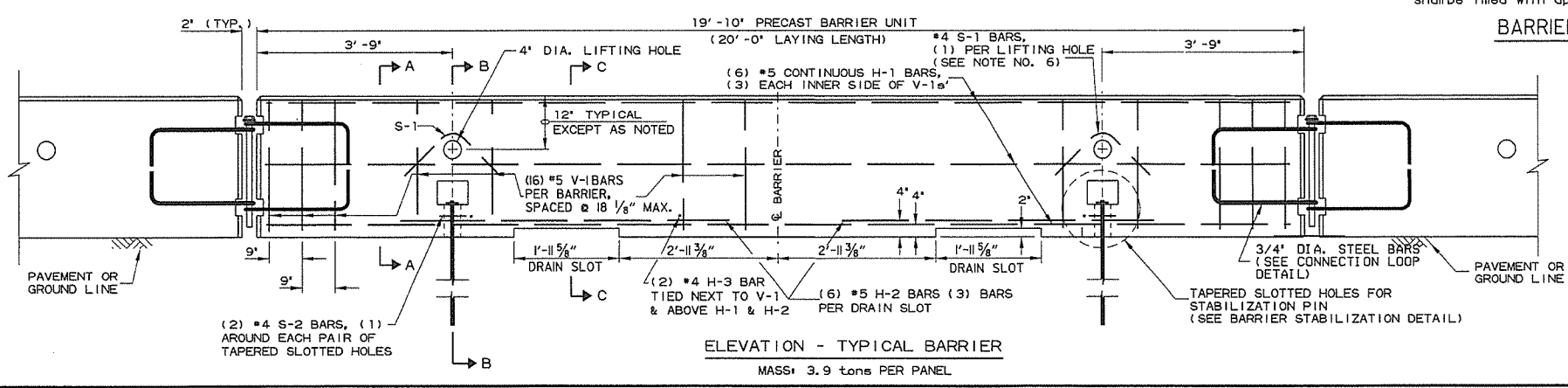
REINFORCING BAR TABLE PER BARRIER UNIT			
MARK	LOCATION	BAR SIZE	(NO. BARS)
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)
S-1	OVER LIFT HOLES	#4	(2)
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)
V-1	VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)



BARRIER STABILIZATION DETAIL
ROADWAY SECTION
E 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



BARRIER STABILIZATION DETAIL
BRIDGE DECKS



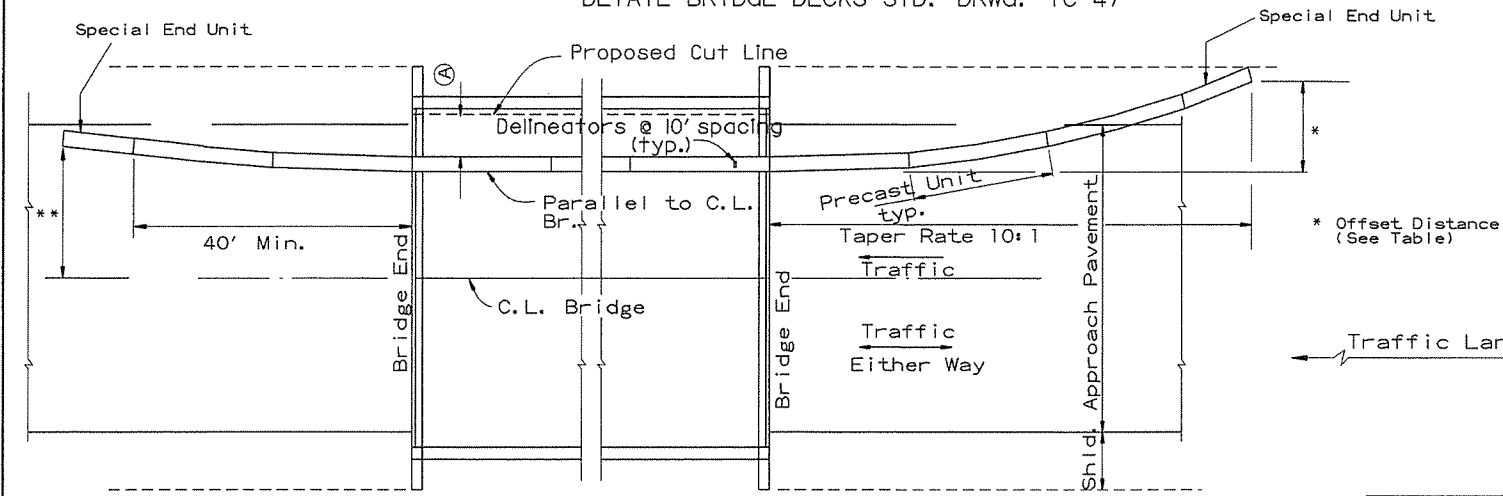
- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers. Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.
 - Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.
 - Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.
 - Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
 - A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

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

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER
STANDARD DRAWING TC-4

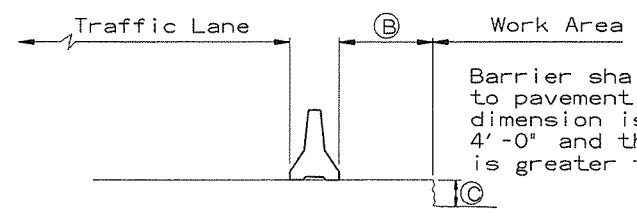
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

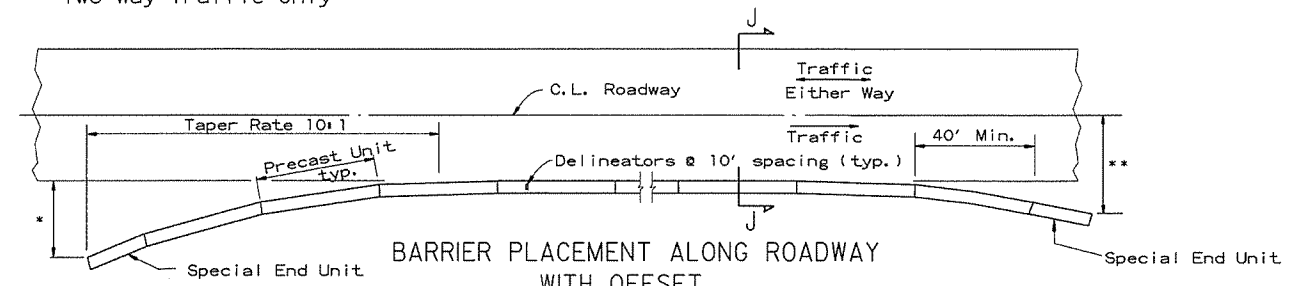
No Scale

** Offset Distance for Two Way Traffic Only



SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

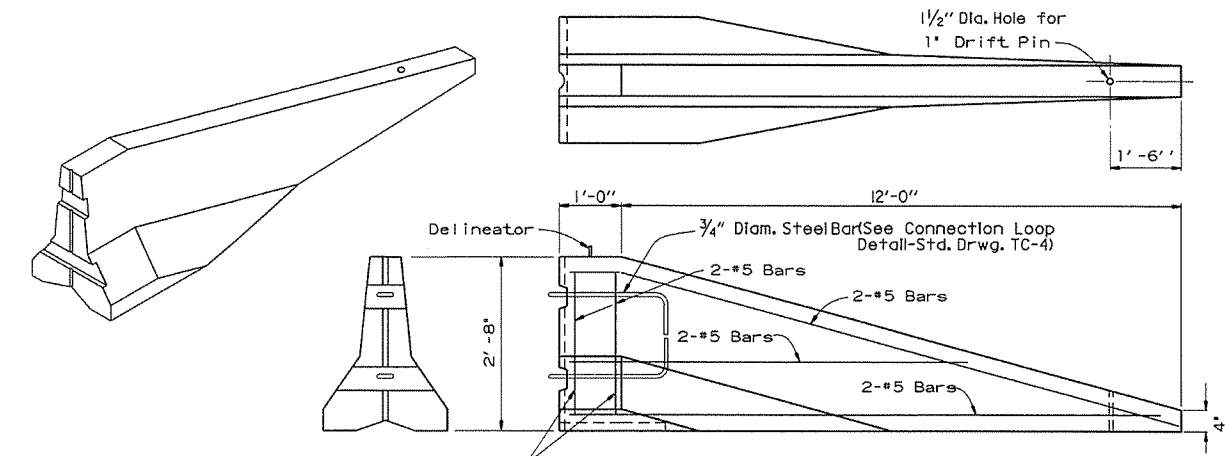
No Scale

** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

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

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

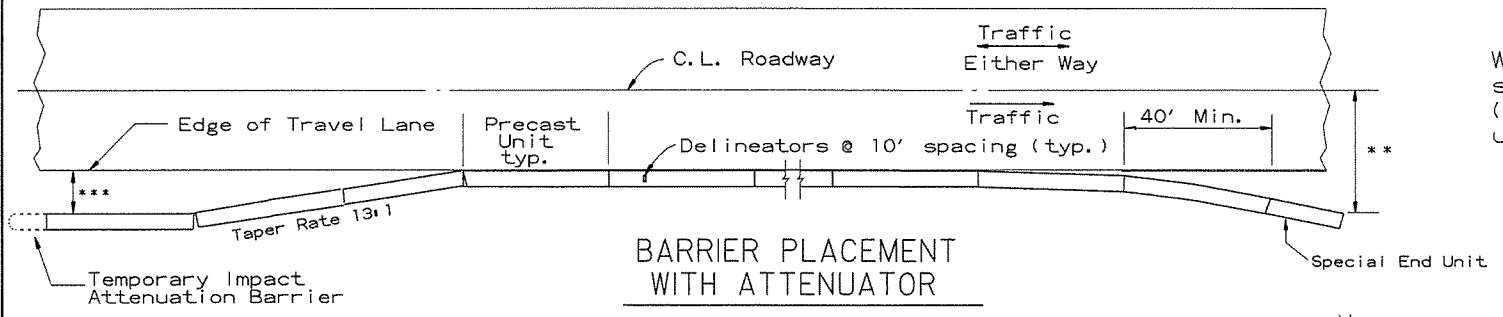


SPECIAL END UNIT

No Scale

General Notes

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



BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

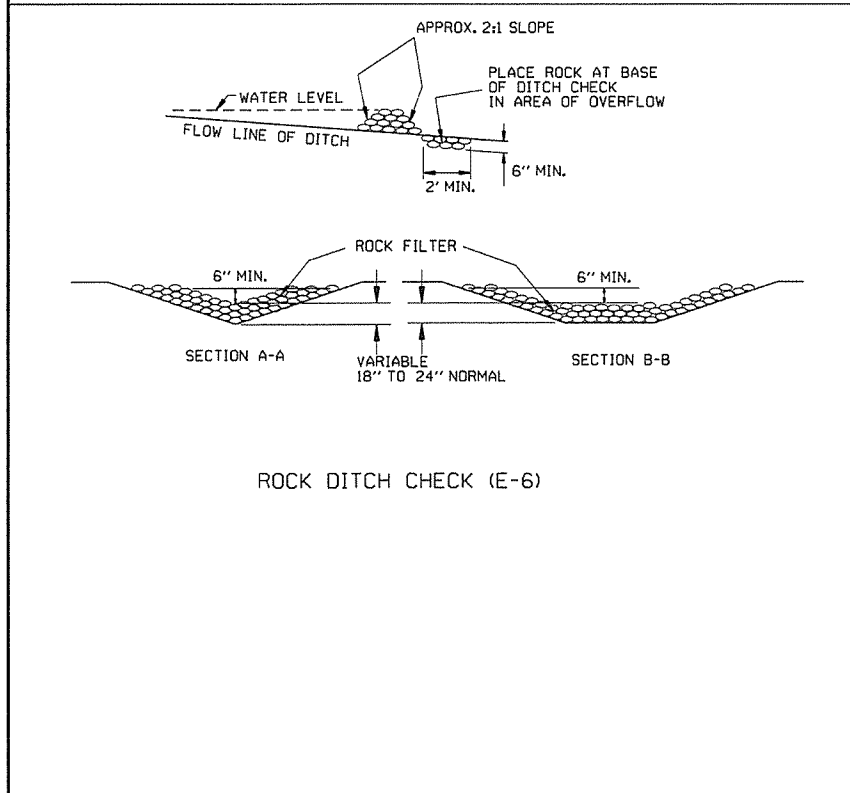
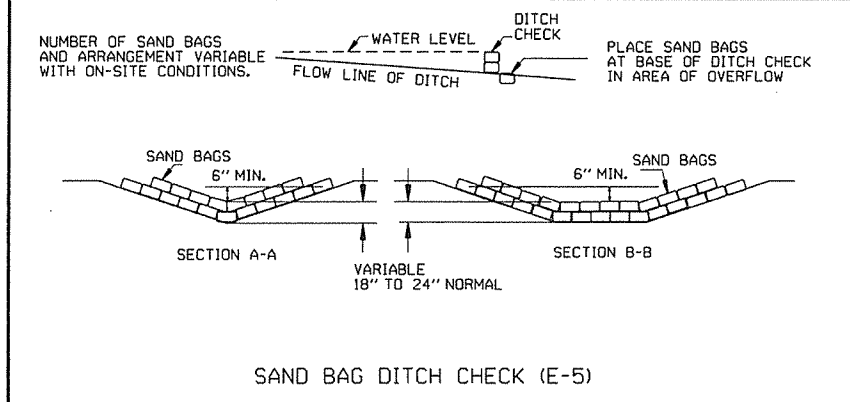
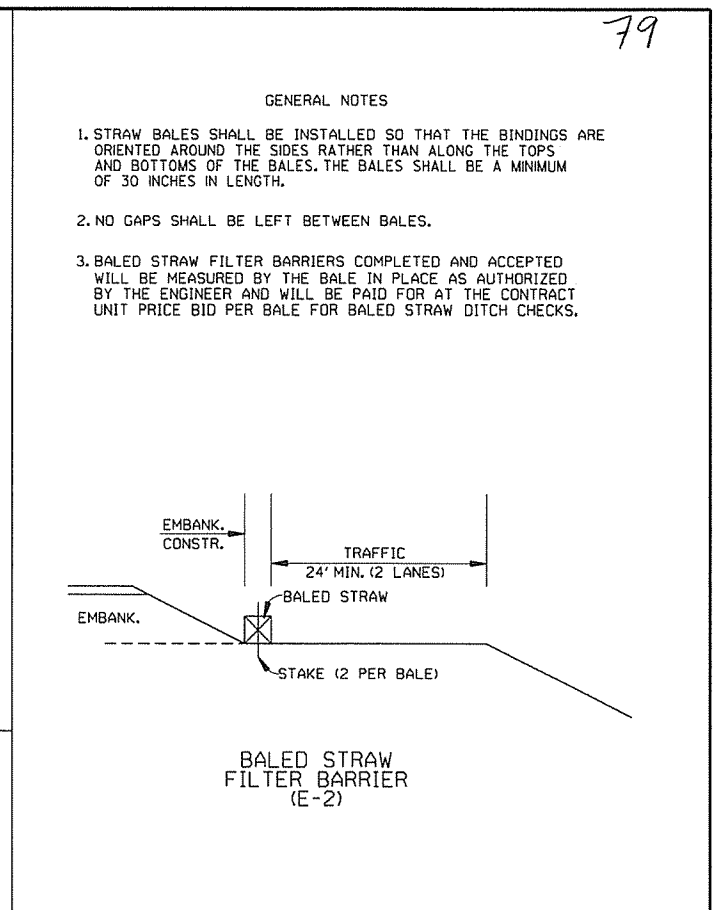
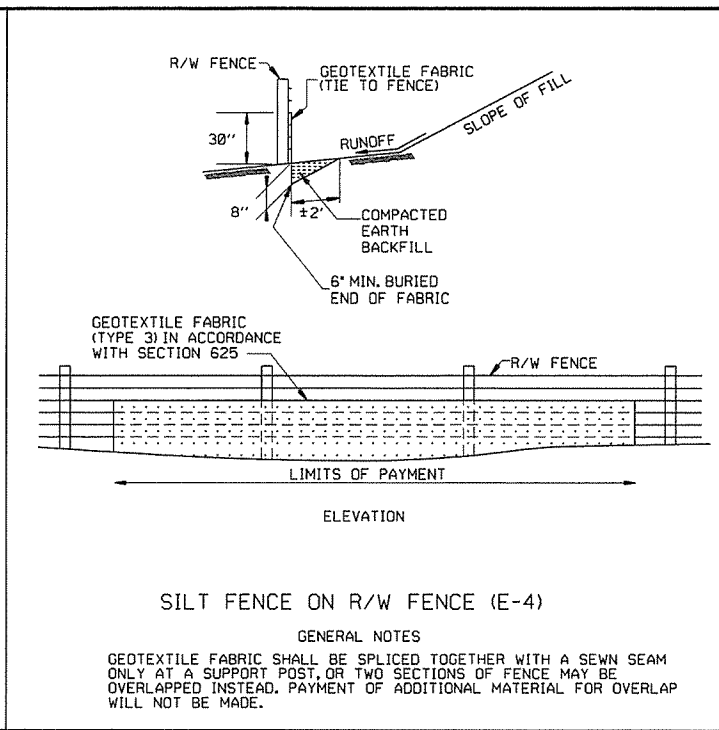
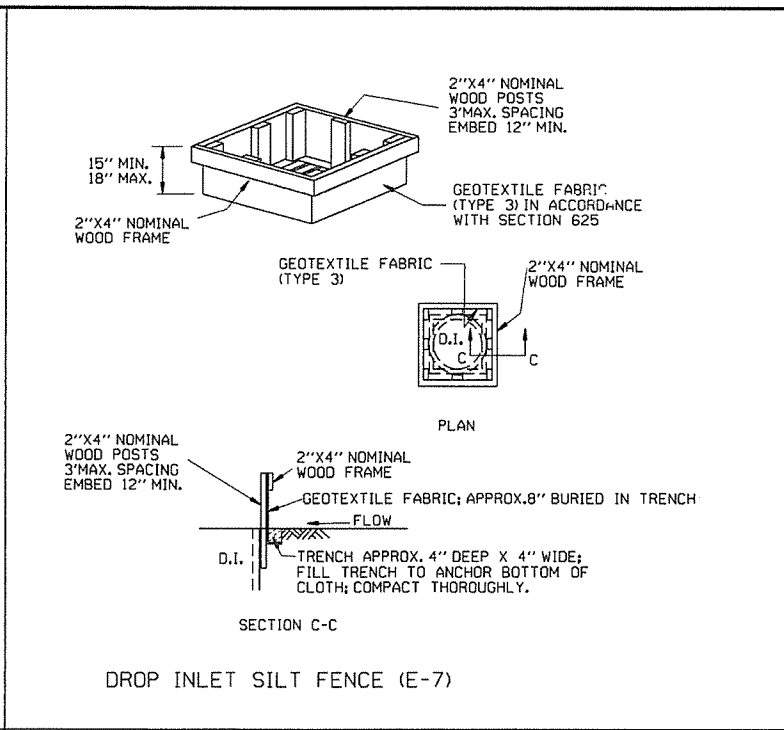
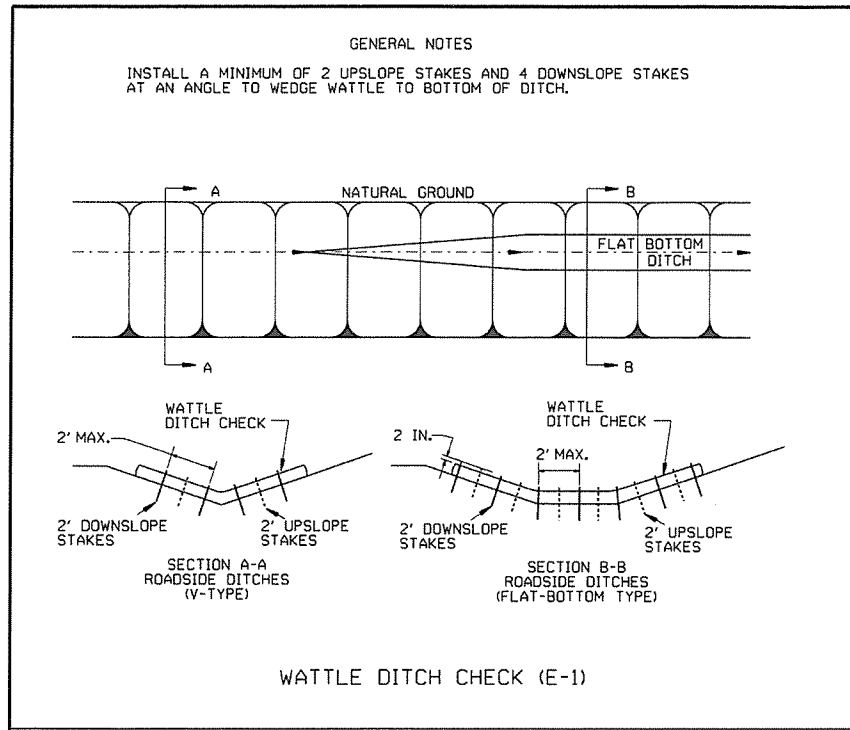
*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

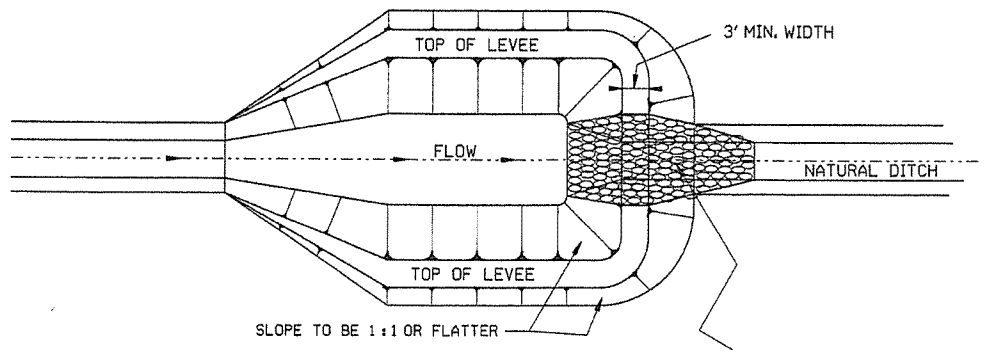
STANDARD DRAWING TC-5



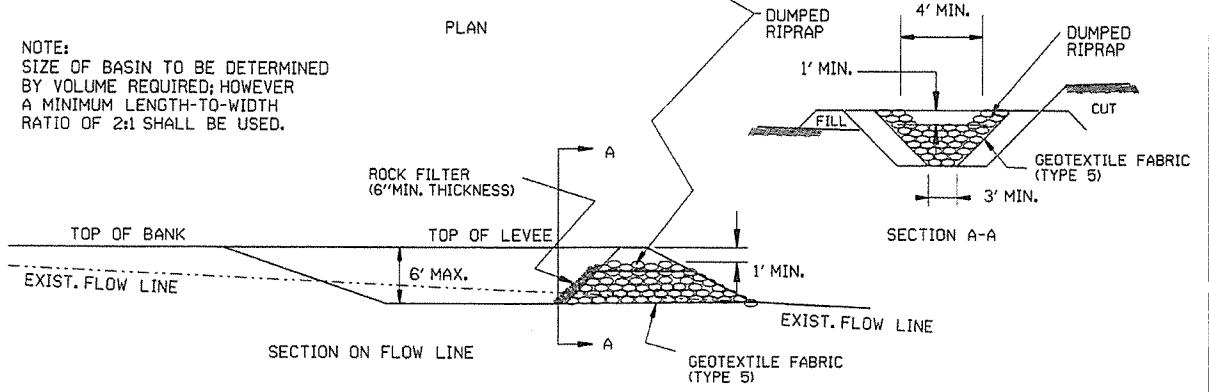
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK		ARKANSAS STATE HIGHWAY COMMISSION
11-18-98	ADDED NOTES		
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)		
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95	
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC		
6-2-94	REVISED E-1, 4, 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	
DATE	REVISION	FILMED	

TEMPORARY EROSION CONTROL DEVICES

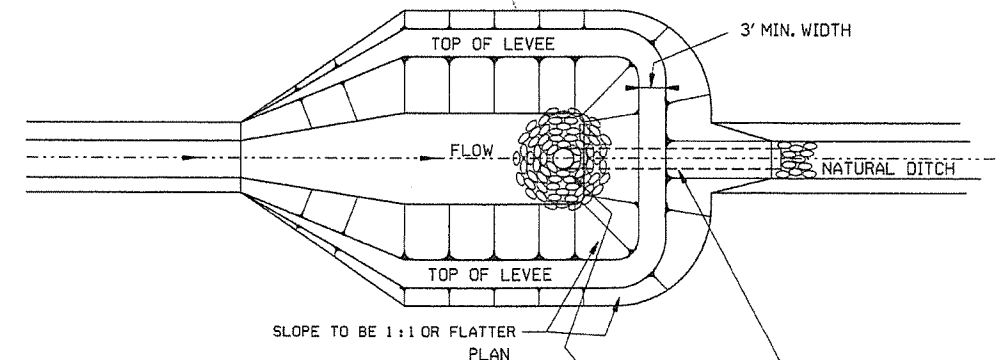
STANDARD DRAWING TEC-1



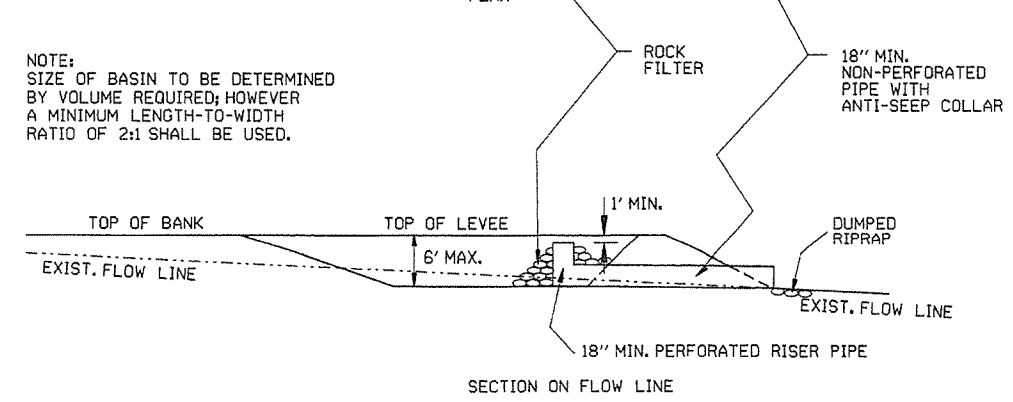
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



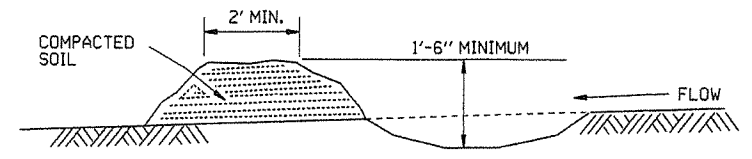
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.

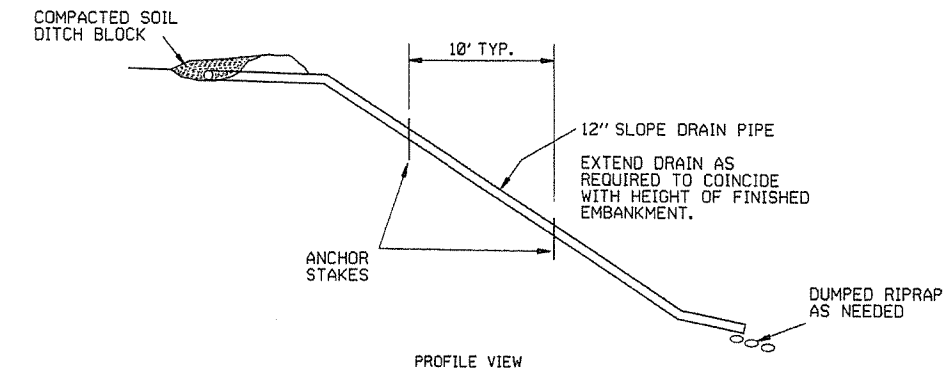
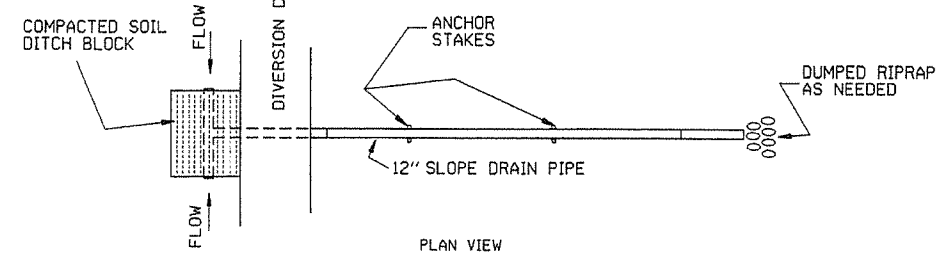


SEDIMENT BASIN WITH PIPE OUTLET (E-10)

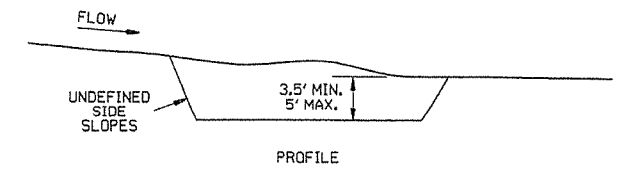
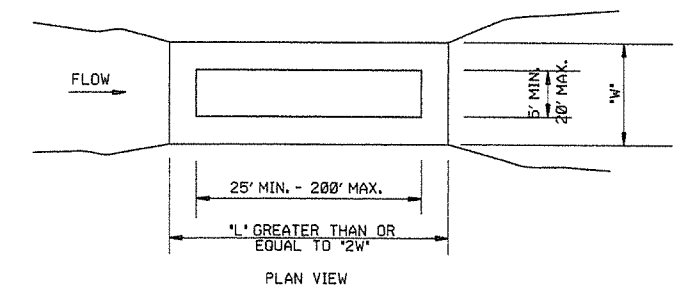


DIVERSION DITCH (E-8)

NOTE:
A T-SECTION SHALL BE USED AT THE INLET
FOR TWO-DIRECTIONAL FLOW.
AN ELBOW SHALL BE USED FOR
ONE-DIRECTIONAL FLOW.



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

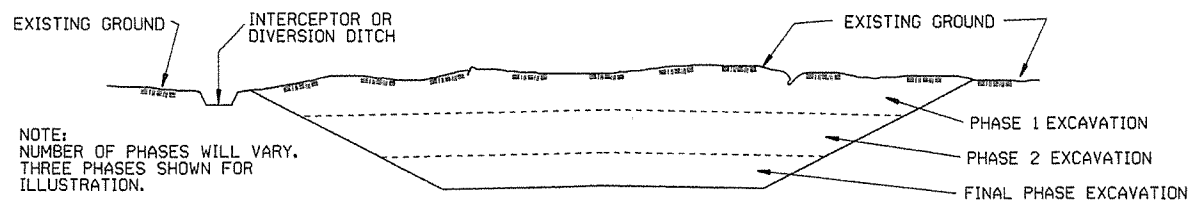
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION
 CONTROL DEVICES
 STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

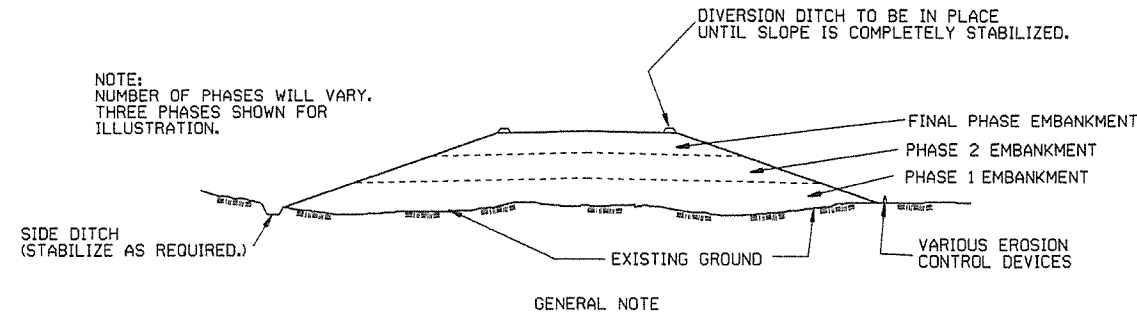
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDING, 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



NOTE:
NUMBER OF PHASES WILL VARY.
THREE PHASES SHOWN FOR
ILLUSTRATION.

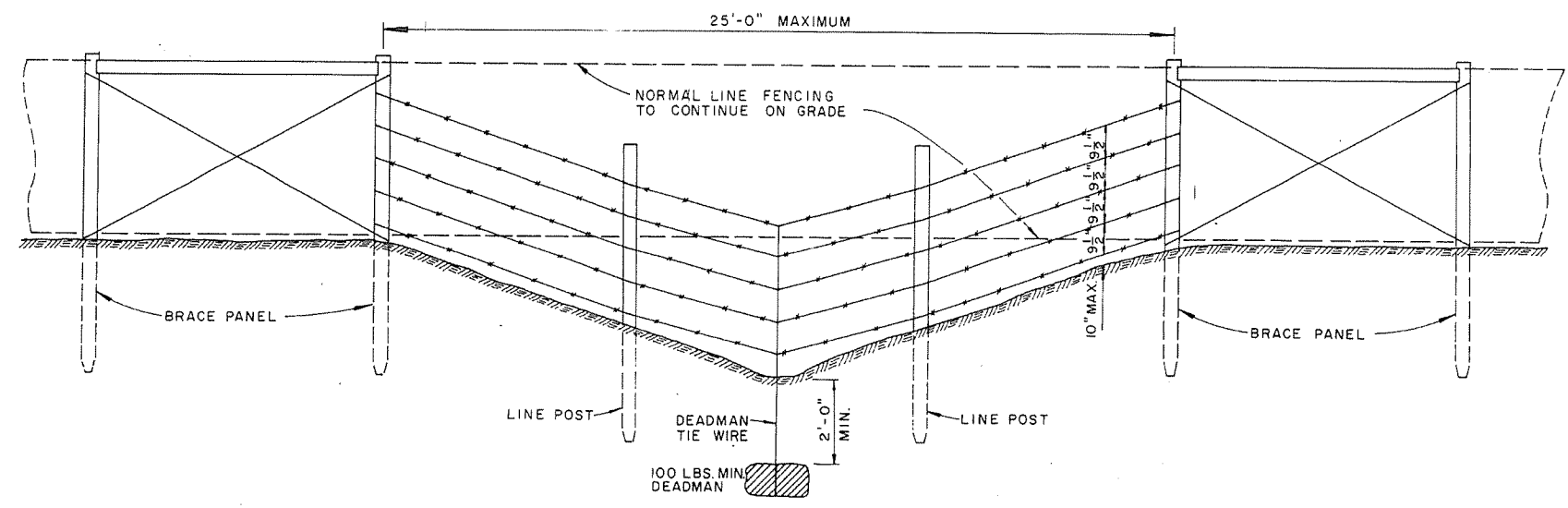
GENERAL NOTE

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

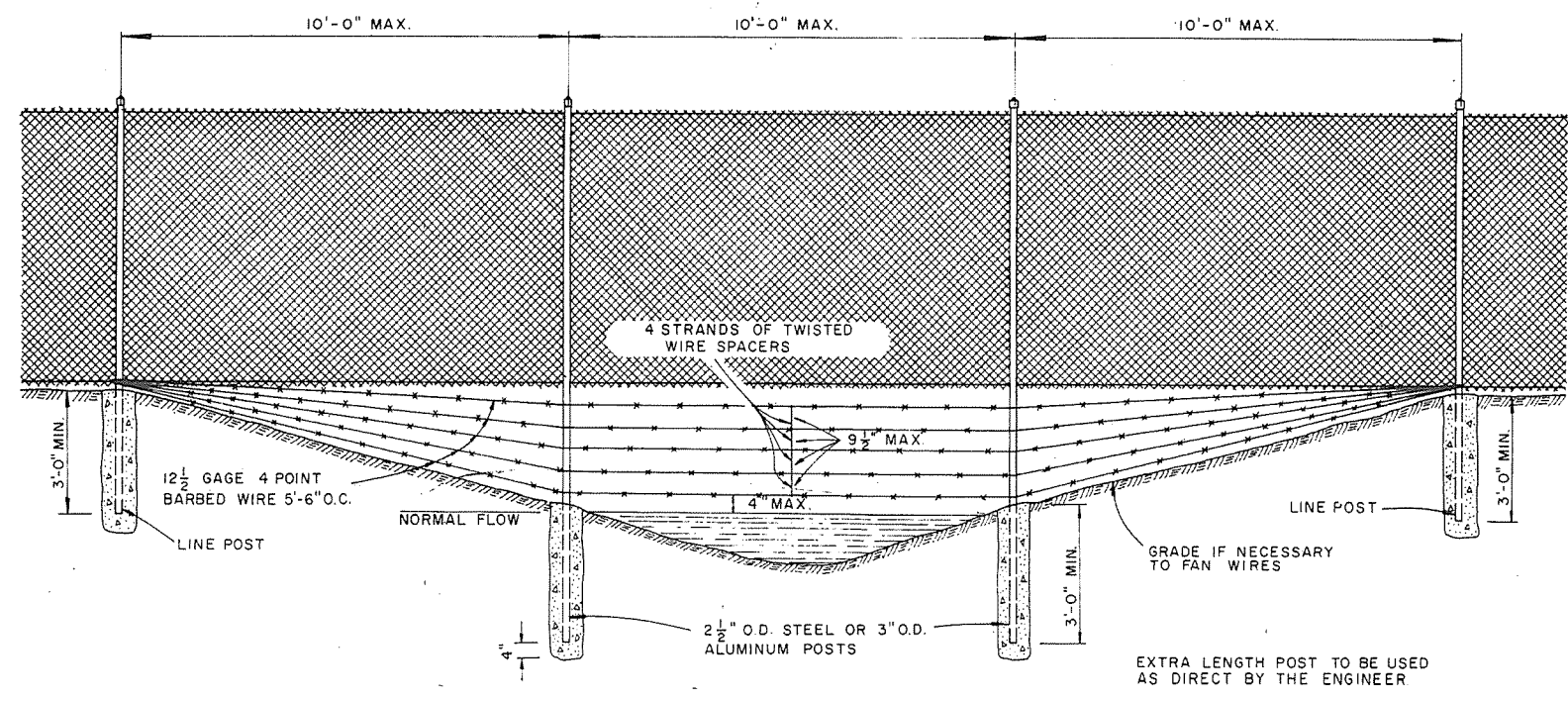
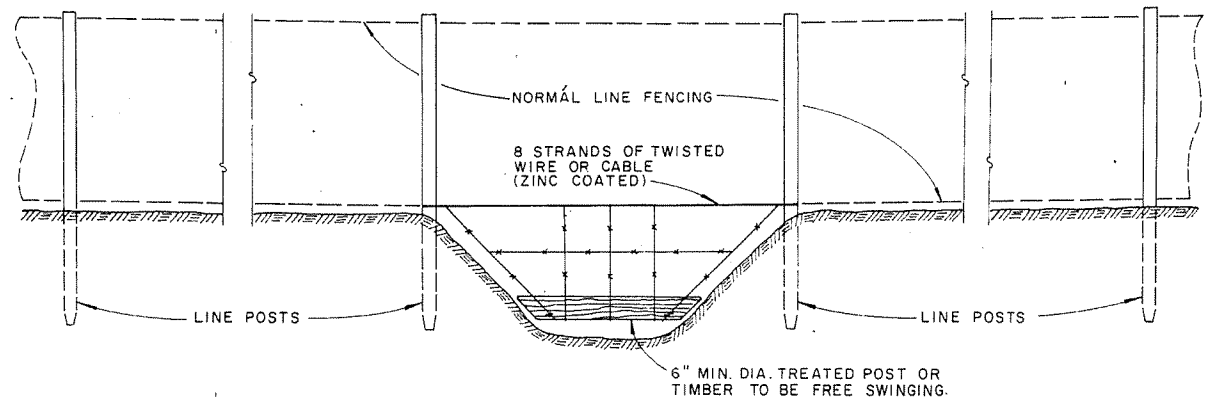
CONSTRUCTION SEQUENCE

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.

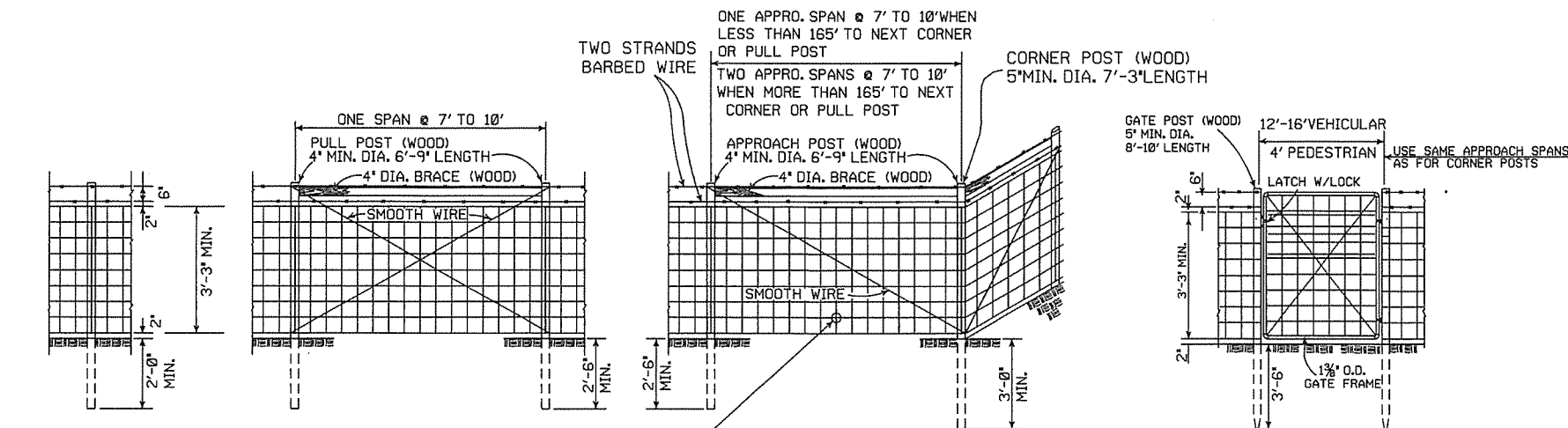
			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
11-03-94	CORRECTED SPELLING		
6-2-94	Drawn & Issued		
DATE	REVISION		6-2-94 FILMED
			STANDARD DRAWING TEC-3



GENERAL NOTES:
 THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.
 WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.
 IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.
 PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.



ARKANSAS STATE HIGHWAY COMMISSION		
WIRE FENCE WATER GAPS		
STANDARD DRAWING		
WF-2		
4-20-79	REVISED TOP RAIL & TENSION WIRE	676-4-20-79
10-2-72	REVISED & REDRAWN	529-10-2-72
DATE	REVISION	DATE FILMD

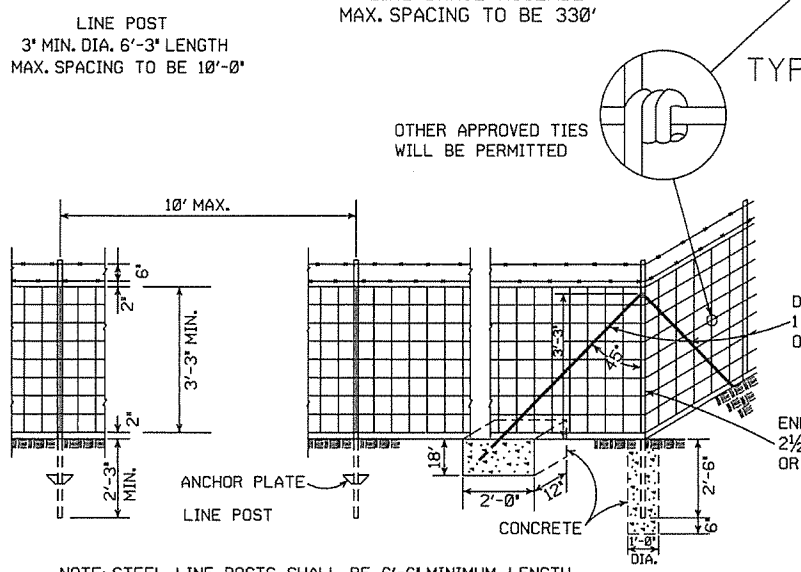


GENERAL NOTES:
 STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
 AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS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

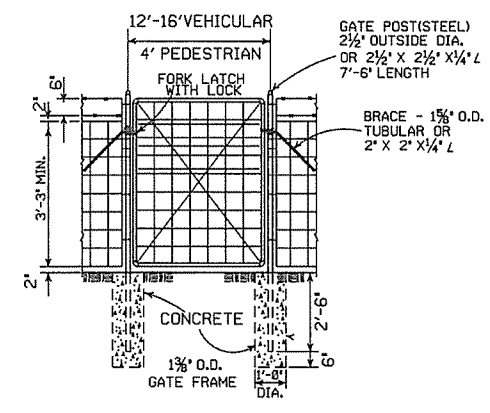
THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.
 DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

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

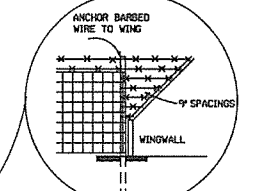
TYPE C FENCE (WOOD POSTS)



TYPE C FENCE (STEEL POSTS)



NOTE: USE 3/8" x 1 1/2" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.



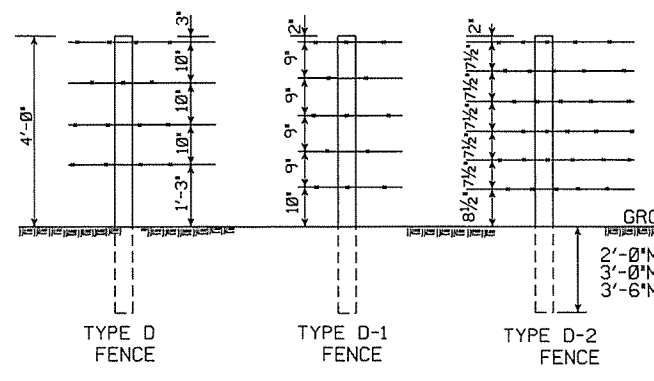
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

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

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

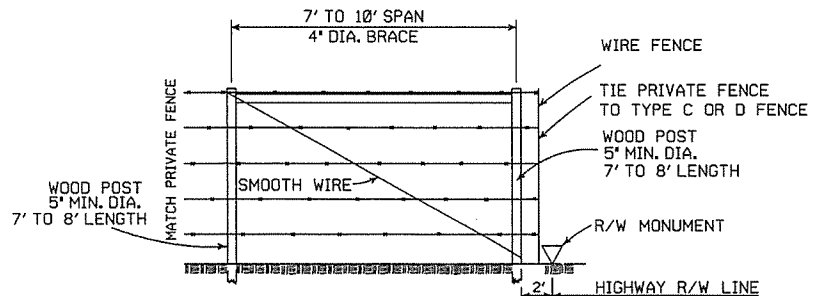
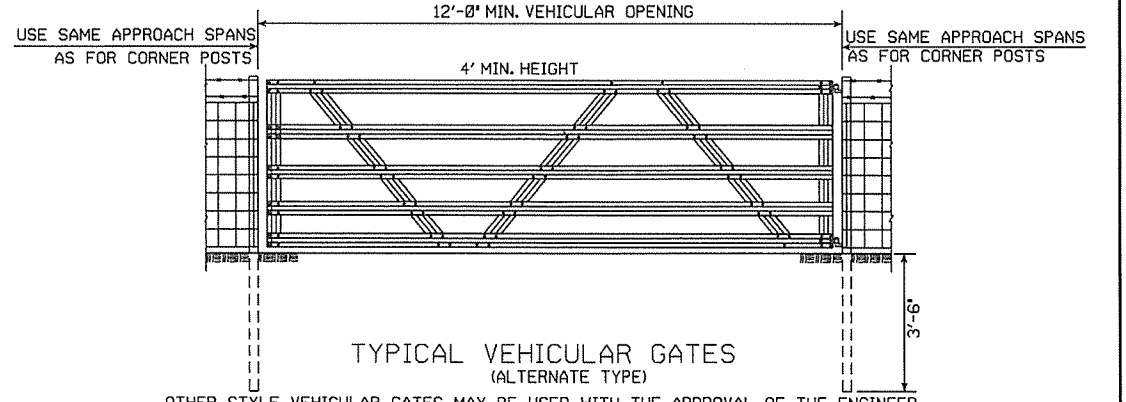
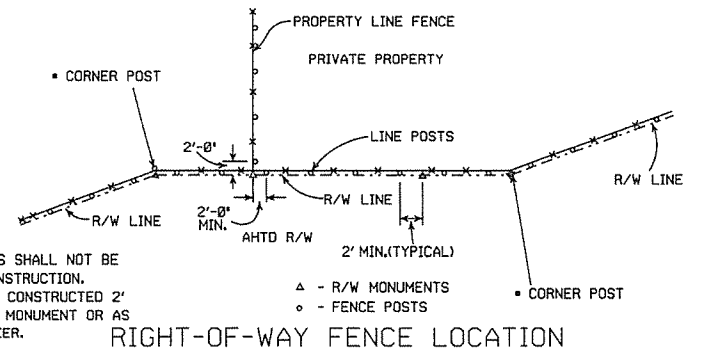
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

- 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.

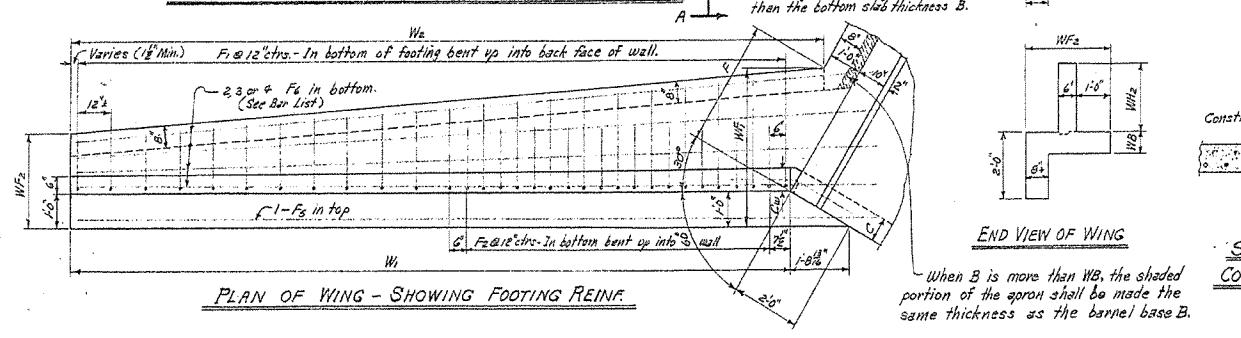
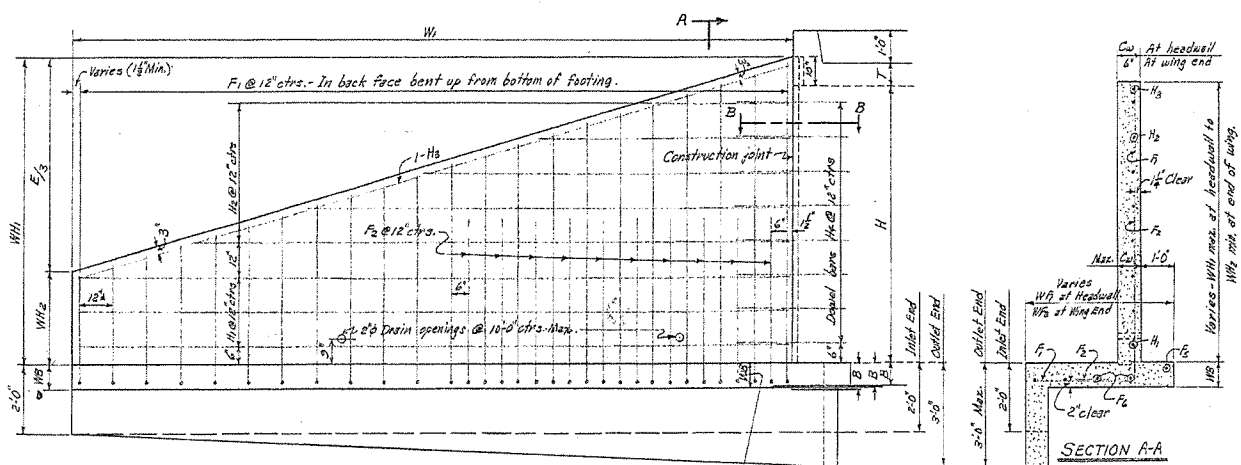


DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89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



WING DIMENSIONS

CLEAR HEIGHT OF BOX THICKNESS OF WING FOOTING	WING WALLS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HEADW. TO END OF WING	LENGTH OF WING WALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE		
	AT HEADWALL	AT END	AT HEADWALL	AT END					INLET END	OUTLET END	
2'	1'-11 1/2"	5'-0"	3'-0"	9'-8"	7'-8 1/2"	14'-4"	12'-4 1/2"	19'-0"	17'-0"	23'-8"	21'-8"
3'	2'-8 1/2"	5'-0"	2'-6"	9'-8"	6'-11 1/2"	14'-4"	11'-7 1/2"	19'-0"	16'-3 1/2"	23'-8"	20'-11 1/2"
4'	3'-6"	5'-0"	2'-0"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
5'	4'-3 1/2"	5'-0"	0'-8 1/2"	9'-8"	5'-4 1/2"	14'-4"	10'-0"	19'-0"	14'-8"	23'-8"	19'-4 1/2"
6'	5'-0 1/2"	5'-0"	0'-1 1/2"	9'-8"	4'-10"	14'-4"	9'-7 1/2"	19'-0"	14'-1 1/2"	23'-8"	19'-1 1/2"
7'	5'-7 1/2"	5'-0"	0'-1 1/2"	9'-8"	3'-11"	14'-4"	8'-10"	19'-0"	13'-5 1/2"	23'-8"	18'-5 1/2"
8'	6'-4 1/2"	5'-0"	0'-1 1/2"	9'-8"	3'-0"	14'-4"	8'-0"	19'-0"	12'-8"	23'-8"	17'-8"
9'	7'-1 1/2"	5'-0"	0'-1 1/2"	9'-8"	2'-0"	14'-4"	7'-0"	19'-0"	12'-0"	23'-8"	17'-0"
10'	7'-8 1/2"	5'-0"	0'-1 1/2"	9'-8"	1'-0"	14'-4"	6'-0"	19'-0"	11'-2"	23'-8"	16'-2"
11'	8'-5 1/2"	5'-0"	0'-1 1/2"	9'-8"	0'-0"	14'-4"	5'-0"	19'-0"	10'-4"	23'-8"	15'-4"
12'	9'-2 1/2"	5'-0"	0'-1 1/2"	9'-8"	0'-0"	14'-4"	4'-0"	19'-0"	9'-6"	23'-8"	14'-6"

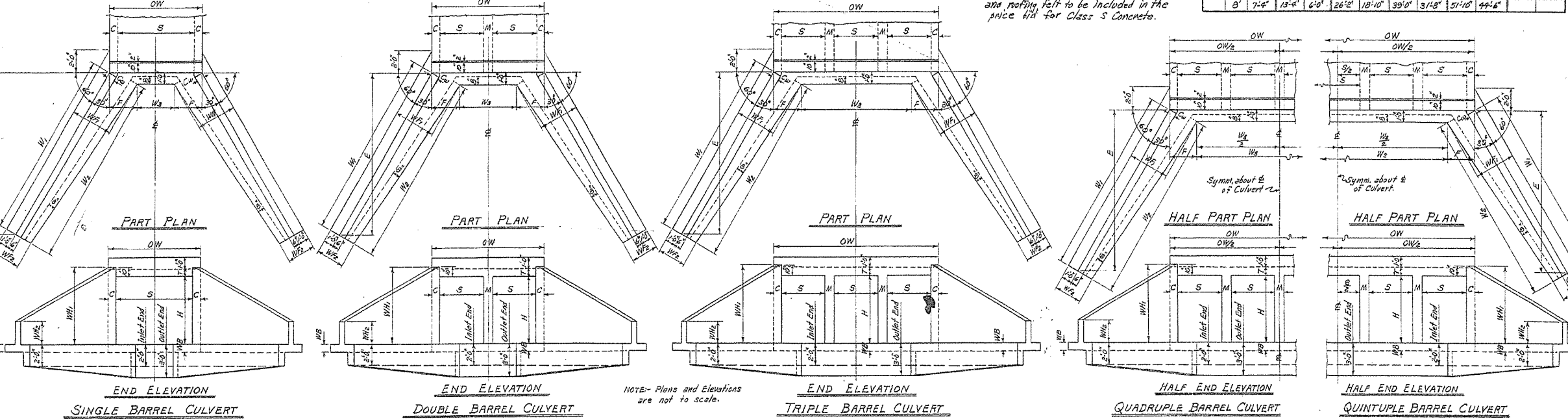
APRON DIMENSION W3 = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
		H	2F	OW	W3	OW	W3	OW	W3	OW	W3
2'	1'-11 1/2"	5'-0"	3'-0"	9'-8"	7'-8 1/2"	14'-4"	12'-4 1/2"	19'-0"	17'-0"	23'-8"	21'-8"
3'	2'-8 1/2"	5'-0"	2'-6"	9'-8"	6'-11 1/2"	14'-4"	11'-7 1/2"	19'-0"	16'-3 1/2"	23'-8"	20'-11 1/2"
4'	3'-6"	5'-0"	2'-0"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
5'	4'-3 1/2"	5'-0"	0'-8 1/2"	9'-8"	5'-4 1/2"	14'-4"	10'-0"	19'-0"	14'-8"	23'-8"	19'-4 1/2"
6'	5'-0 1/2"	5'-0"	0'-1 1/2"	9'-8"	4'-10"	14'-4"	9'-7 1/2"	19'-0"	14'-1 1/2"	23'-8"	19'-1 1/2"
7'	5'-7 1/2"	5'-0"	0'-1 1/2"	9'-8"	3'-11"	14'-4"	8'-10"	19'-0"	13'-5 1/2"	23'-8"	18'-5 1/2"
8'	6'-4 1/2"	5'-0"	0'-1 1/2"	9'-8"	3'-0"	14'-4"	8'-0"	19'-0"	12'-8"	23'-8"	17'-8"
9'	7'-1 1/2"	5'-0"	0'-1 1/2"	9'-8"	2'-0"	14'-4"	7'-0"	19'-0"	12'-0"	23'-8"	17'-0"
10'	7'-8 1/2"	5'-0"	0'-1 1/2"	9'-8"	1'-0"	14'-4"	6'-0"	19'-0"	11'-2"	23'-8"	16'-2"
11'	8'-5 1/2"	5'-0"	0'-1 1/2"	9'-8"	0'-0"	14'-4"	5'-0"	19'-0"	10'-4"	23'-8"	15'-4"
12'	9'-2 1/2"	5'-0"	0'-1 1/2"	9'-8"	0'-0"	14'-4"	4'-0"	19'-0"	9'-6"	23'-8"	14'-6"

QUANTITIES

CLASS S CONCRETE - 4 WINGS

CLEAR SPAN	CLEAR HEIGHT	HEADWALLS, WING WALLS, FOOTINGS, REINFORCING AND APRONS									
		H	CW	WB	LB	SING. BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
2'	6"	7'	128.0	4.50	5.44	6.42	7.38	8.34	9.30	10.26	
3'	6"	7'	169.7	6.24	7.21	8.17	9.13	10.09	11.05	12.01	
4'	6"	7'	254.6	8.33	9.28	10.24	11.20	12.16	13.12	14.08	
5'	6"	7'	327.8	10.72	11.68	12.64	13.60	14.56	15.52	16.48	
6'	6"	7'	388.1	14.55	15.51	16.47	17.43	18.39	19.35	20.31	
7'	6"	7'	434.9	18.97	19.93	20.89	21.85	22.81	23.77	24.73	
8'	6"	7'	469.6	23.94	24.90	25.86	26.82	27.78	28.74	29.70	
9'	6"	7'	495.6	29.46	30.42	31.38	32.34	33.30	34.26	35.22	
10'	6"	7'	514.4	35.52	36.48	37.44	38.40	39.36	40.32	41.28	
11'	6"	7'	528.1	42.12	43.08	44.04	45.00	45.96	46.92	47.88	
12'	6"	7'	537.8	49.26	50.22	51.18	52.14	53.10	54.06	55.02	



BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT	F1		F2		F3		F4		H1		H2		H3		H4		QUANTITY REINFORCING STEEL PER WING	BAR BENDING DIAGRAMS
	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING		
2'	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	27.0	
3'	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	41.1	
4'	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	63.7	
5'	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	89.5	
6'	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	145.8	
7'	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	283.7	
8'	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	#3	18"	356.4	

MEMBRANE: A membrane waterproofing 12" wide, consisting of three mopings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

GENERAL NOTES:
 CONCRETE: All concrete to be Class S, and shall be poured in the dry. All exposed corners to have 1/4 chamfers.
 REINFORCING STEEL: Reinforcing steel to be deformed bars of intermediate or hard grade.
 CONSTRUCTION JOINTS: Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
 SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
 UNIT STRESSES:
 Class S Concrete (n=10) 1200 psi
 Reinforcing Steel 20,000 psi

NOTE: This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-1	R-200X-1	R-300X-1	R-400X-1	R-500X-1
R-100X-2	R-200X-2	R-300X-2	R-400X-2	R-500X-2
	R-200X-3	R-300X-3		

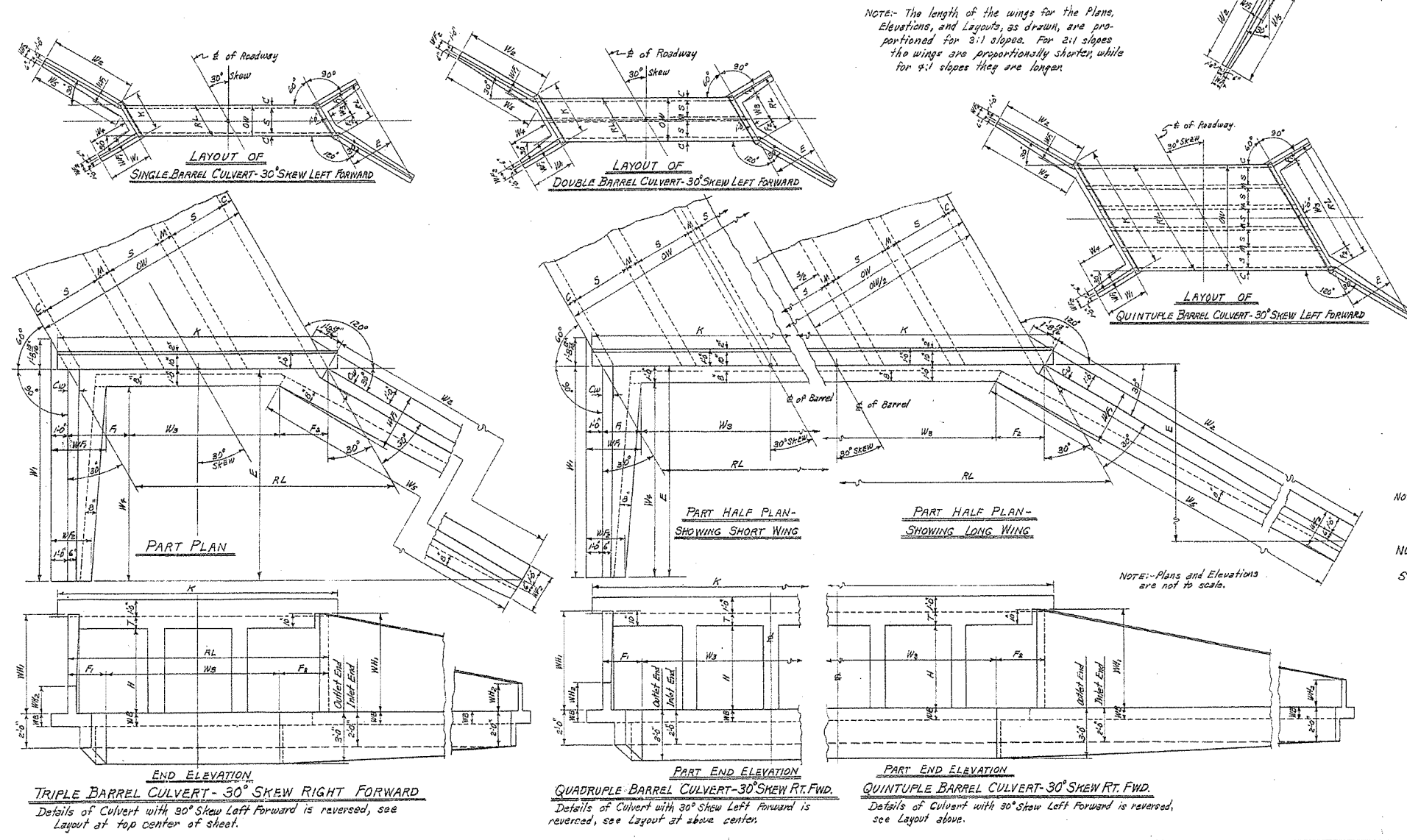
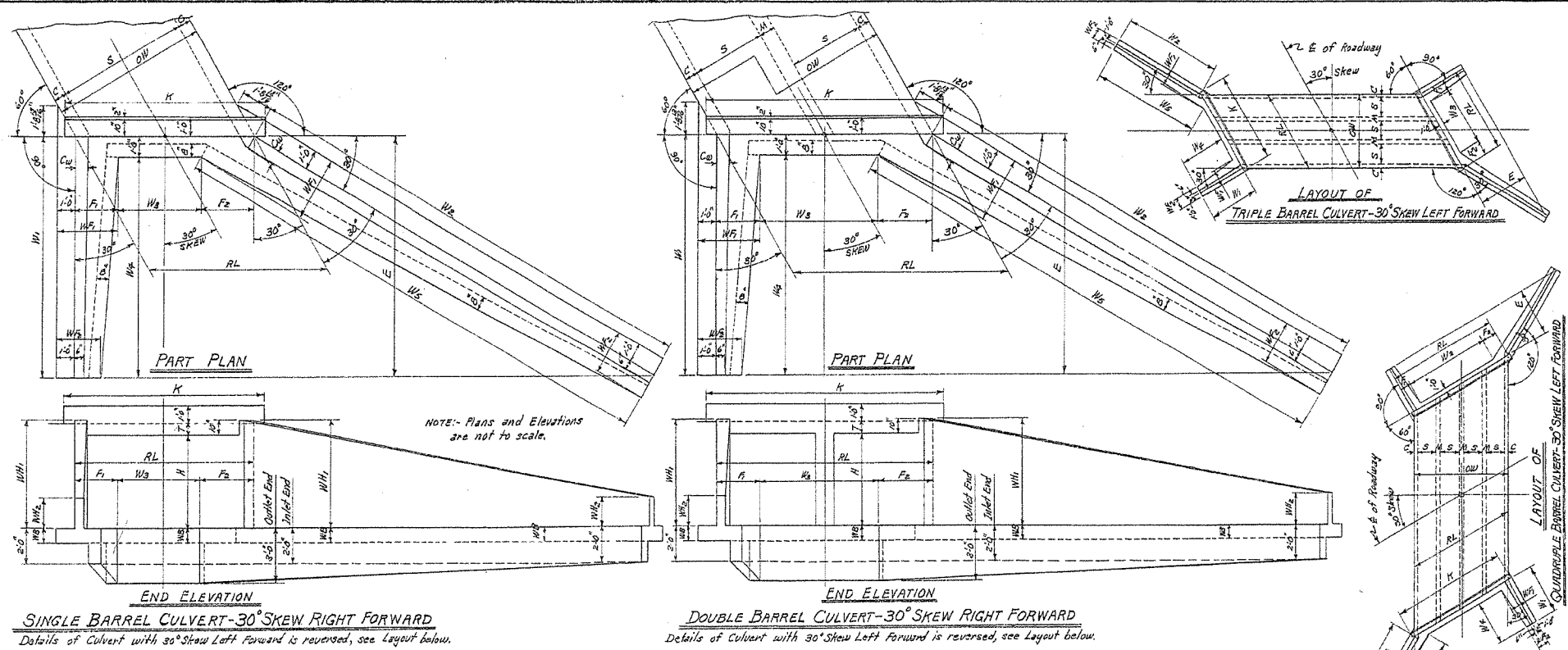
CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD WINGS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS
 3:1 SLOPES
 SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER
 QUADRUPLES & QUINTUPLES. FOR H = 8'-0" OR LESS
 STANDARD DRAWING NO. W-X003-1

Designed By: M.C.H. 8-20-62. Checked By: RWS - 1-9-63
 Drawn By: M.C.H. 8-4-62. Checked By: RWS - 1-31-63
 Quantity: M.C.H. 12-11-62. Checked By: RWS - 3-23-63

REVISIONS: Membrane added, 5-10-66 W.C.H.

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			85	
JOB No.					



USE WITH DRAWING No.	CLEAR SPAN	CLEAR HEIGHT	SUM OF FOOTING DIMENSIONS	ROADWAY LENGTH RL					HEADWALL LENGTH K					APRON DIMENSION W ₃									
				RL = DW x 1.1547					K = RL x (1.1547)					W ₃ = RL - (F ₁ + F ₂)									
				SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT			SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT		
5	H	F ₁ /F ₂	OW	RL	K	W ₃	OW	RL	K	W ₃	OW	RL	K	W ₃	OW	RL	K	W ₃	OW	RL	K	W ₃	
W-X-302-1, W-X303-1 or W-X304-1	4'	2'	2'-3"	5'-0"	5'-3"	6'-11"	3'-6"	9'-8"	11'-2"	12'-3"	8'-10"	14'-4"	16'-4"	17'-8"	14'-3"	19'-5"	21'-11"	23'-1"	19'-8"	23'-8"	27'-4"	28'-5"	25'-0"
		3'	3'-3"	5'-0"	"	"	2'-6"	9'-8"	"	"	7'-10"	14'-4"	"	"	13'-3"	19'-5"	"	"	18'-8"	23'-8"	"	"	24'-0"
	5'	4'	4'-3"	5'-0"	"	"	1'-6"	9'-8"	"	"	6'-10"	14'-4"	"	"	12'-8"	17'-4"	"	"	17'-8"	23'-8"	"	"	23'-0"
		5'	5'-3"	5'-0"	5'-3"	6'-11"	0'-6"	9'-8"	11'-2"	12'-3"	8'-10"	14'-4"	16'-4"	17'-8"	14'-3"	19'-5"	21'-11"	23'-1"	19'-8"	23'-8"	27'-4"	28'-5"	25'-0"
	6'	6'	6'-3"	5'-0"	5'-3"	6'-11"	0'-6"	9'-8"	11'-2"	12'-3"	8'-10"	14'-4"	16'-4"	17'-8"	14'-3"	19'-5"	21'-11"	23'-1"	19'-8"	23'-8"	27'-4"	28'-5"	25'-0"
		7'	7'-3"	6'-3"	7'-2"	8'-4"	0'-0"	12'-11"	13'-5"	15-11"	11-5"	16'-11"	18'-11"	17-8"	17-8"	20-9"	21-10"	23-5"	19-8"	29-7"	34-2"	35-3"	26-4"
	7'	8'	8'-3"	6'-0"	6'-11"	8'-11"	3'-7"	11-8"	13-5"	15-11"	11-5"	16'-11"	18'-11"	17-8"	17-8"	20-9"	21-10"	23-5"	19-8"	29-7"	34-2"	35-3"	26-4"
		9'	9'-3"	6'-0"	6'-11"	8'-11"	3'-7"	11-8"	13-5"	15-11"	11-5"	16'-11"	18'-11"	17-8"	17-8"	20-9"	21-10"	23-5"	19-8"	29-7"	34-2"	35-3"	26-4"
	8'	8'	8'-3"	7'-0"	8'-11"	9'-2"	2'-9"	12-8"	14-11"	16-11"	12-8"	17-8"	19-11"	18-11"	21-10"	22-11"	24-6"	20-9"	31-2"	32-1"	33-8"	34-9"	27-10"
		9'	9'-3"	7'-0"	8'-11"	9'-2"	2'-9"	12-8"	14-11"	16-11"	12-8"	17-8"	19-11"	18-11"	21-10"	22-11"	24-6"	20-9"	31-2"	32-1"	33-8"	34-9"	27-10"
	9'	10'	10'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"
		11'	11'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"
10'	10'	10'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"	
	11'	11'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"	
11'	11'	11'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"	
	12'	12'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"	
12'	12'	12'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"	
	13'	13'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"	
12'	12'	12'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"	
	13'	13'-3"	8'-0"	9'-2"	10-9"	3-11"	15-8"	18-11"	20-11"	15-8"	21-10"	23-11"	21-10"	24-6"	25-7"	27-2"	23-5"	34-9"	35-10"	36-11"	37-12"	30-11"	

Special case for these boxes. See Detail 'A' and Table 'A' for revised values of F₁, F₂, W₃ and W₄, when apron width is more than 1'-0" and W₃=0. For Details 'A' and Table 'A' for each slope, see Drawing Nos. W-X302-1, W-X302-2, or W-X303-1, W-X303-2, or W-X304-1, W-X304-2.

NOTE: This drawing to be used in conjunction with Standard Wing Drawings for 30° skew for each slope as listed below.
 2:1 Slopes: W-X302-1 or W-X302-2
 3:1 Slopes: W-X303-1 or W-X303-2
 4:1 Slopes: W-X304-1 or W-X304-2

NOTE: This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. -
 SINGLES: R-130X-0
 DOUBLES: R-230X-01, R-230X-02
 TRIPLES: R-330X-01, R-330X-02
 QUADRUPLES: R-430X-01, R-430X-02
 QUINTUPLES: R-530X-01, R-530X-02

CLASS S CONCRETE

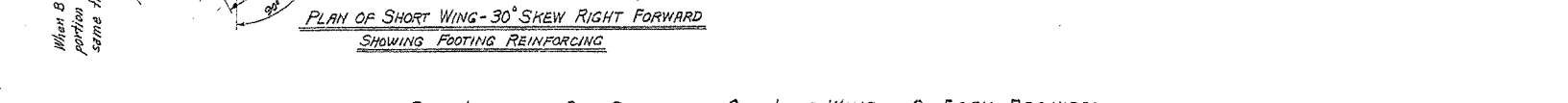
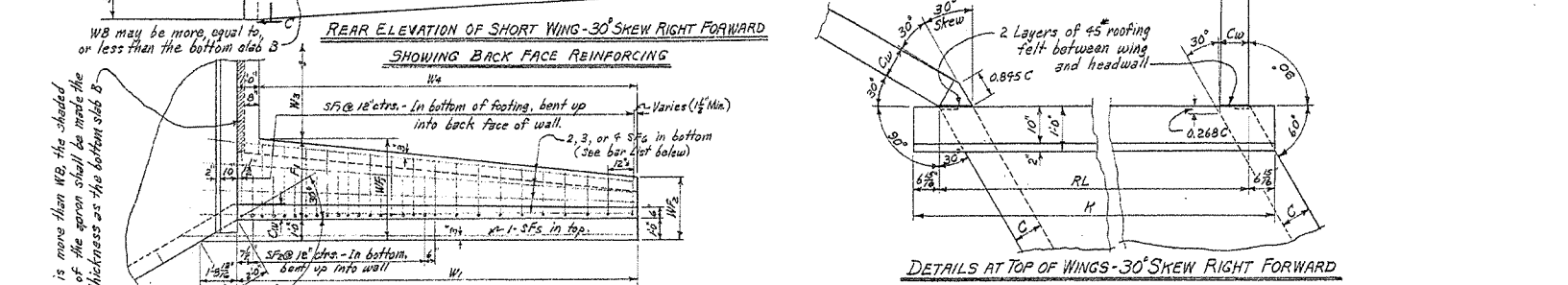
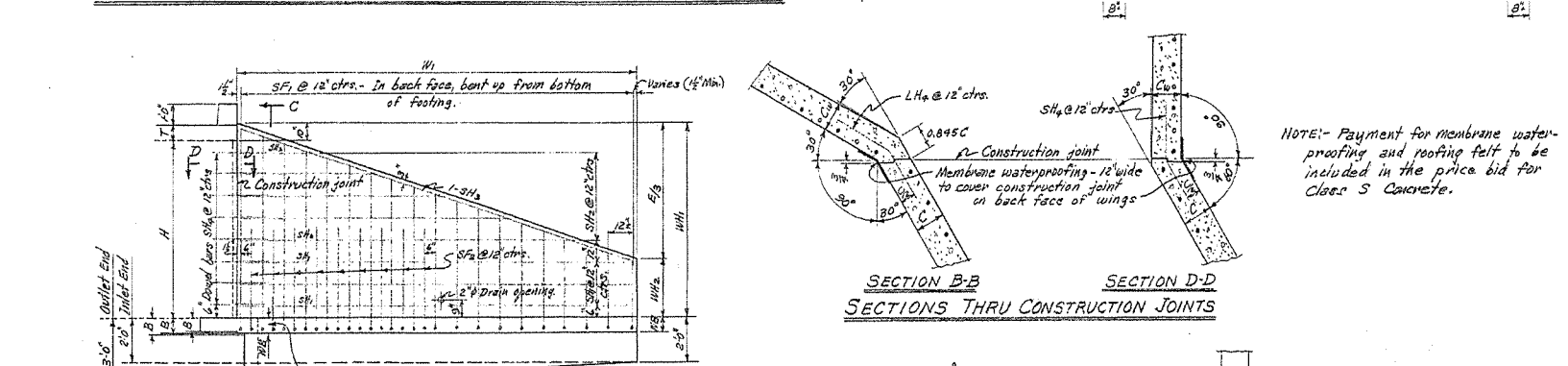
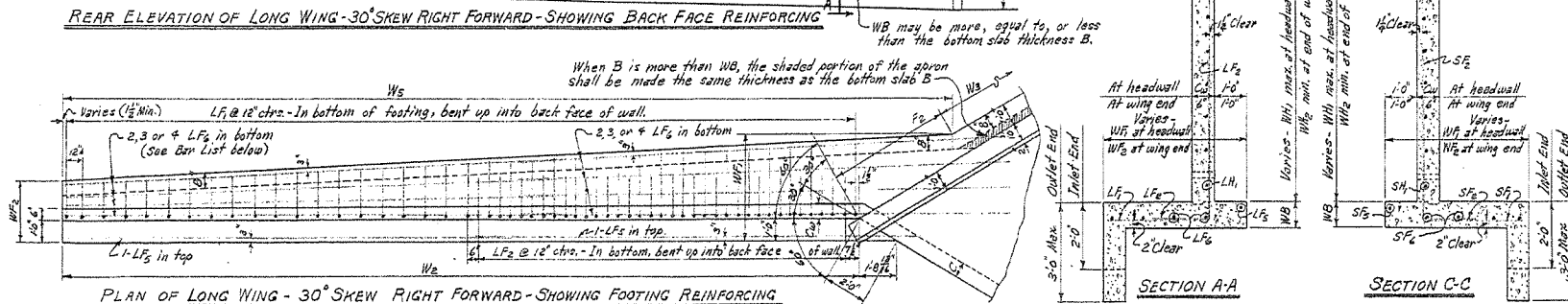
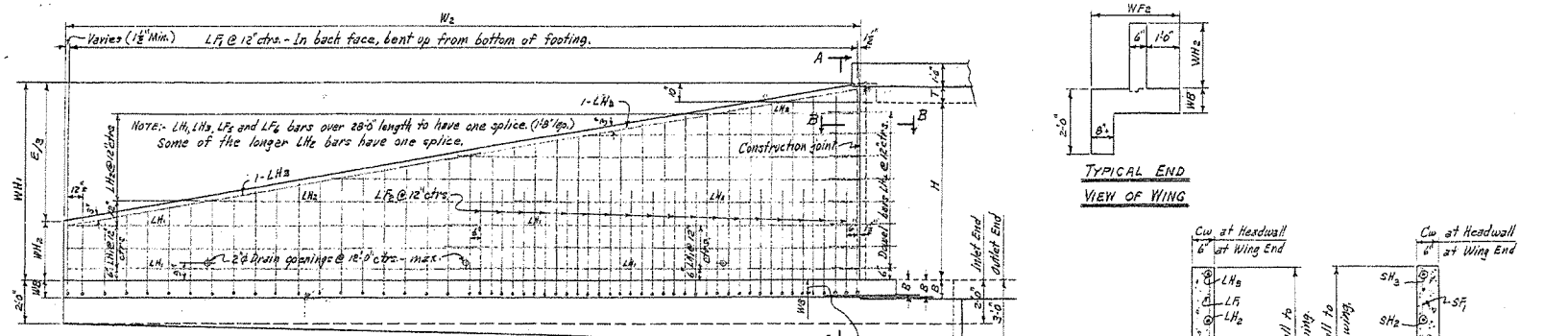
ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD WINGS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 30° SKEW

4', 5', 6', 7', 8', 9', 10', 11', 12' SPANS 2:1, 3:1 & 4:1 SLOPES
 SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER
 QUADRUPLES & QUINTUPLES. H=2', 3', 4', 5', 6', 7', 8', 9', 10', 11', 12'

STANDARD DRAWING NO. W-X30

Designed by: W.C.H. 5-16-63
 Drawn by: W.C.H. 7-15-63
 Checked by: Quantities Dept.

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			86	
JOB No.					

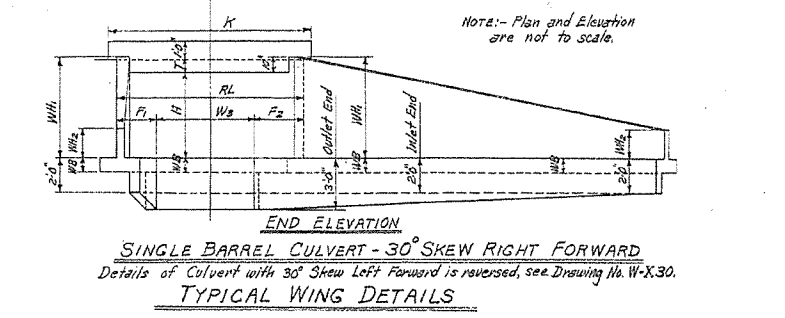
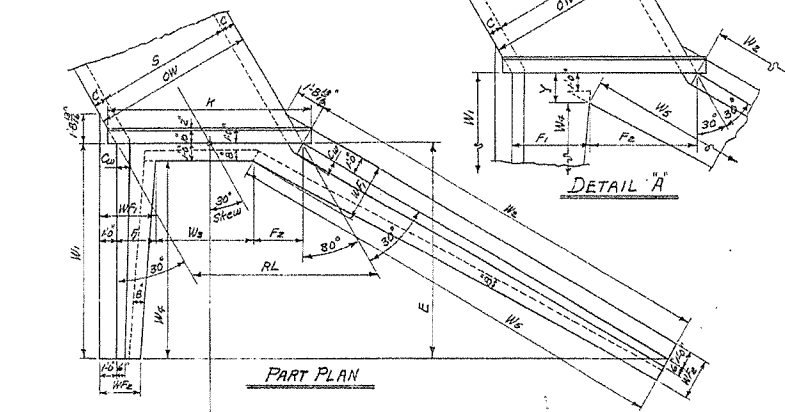


REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL	WING WALLS		WIDTHS OF WING FOOTINGS		FOOTING DIMENSIONS PARALLEL WITH HEADWALL		PERPENDICULAR TO END OF WING	LENGTHS OF WING WALLS		INSIDE FOOTING DIMENSION		QUANTITY PER WING CLASS 5 CONCRETE			
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING	SHORT WING	LONG WING		SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING
2'	7"	6"	2'-0"	0'-8"	2'-0"	2'-0"	1'-4"	0'-11 1/2"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	0.752	1.539	0.834	1.717	
3'	7"	6"	3'-0"	1'-0"	2'-0"	2'-0"	1'-4"	0'-11 1/2"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	1.180	2.340	1.239	2.545	
4'	7"	6"	4'-0"	1'-2"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	1.577	3.270	1.711	3.552	
5'	7"	6"	5'-0"	1'-4"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	2.093	4.341	2.252	4.680	
6'	7"	6"	6'-0"	1'-6"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	2.719	5.524	2.937	6.067	
7'	7"	6"	7'-0"	1'-8"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	3.464	7.134	3.708	7.772	
8'	7"	6"	8'-0"	2'-0"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	4.337	8.957	4.547	9.645	
9'	7"	6"	9'-0"	2'-2"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	5.347	11.092	5.507	11.822	
10'	7"	6"	10'-0"	2'-4"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	6.492	13.539	6.652	14.412	
11'	7"	6"	11'-0"	2'-6"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	7.772	16.296	7.932	17.376	
12'	7"	6"	12'-0"	2'-8"	3'-0"	2'-0"	2'-0"	1'-4"	6'-6"	13'-0"	5'-6"	19'-3 3/4"	9.187	19.365	9.347	20.445	

TABLE 'A' - DIMENSIONS FOR DETAIL 'A'

S	H	F1	F2	W3	Y	W4	W5
4'	6'	2'-7 1/2"	3'-3 1/2"	0'	1'-1 1/2"	13'-4 1/2"	31'-3 1/2"
5'	7'	3'-1 1/2"	4'-1 1/2"	0'	1'-3 1/2"	15'-2 1/2"	35'-10 1/2"
6'	8'	3'-7 1/2"	4'-10 1/2"	0'	1'-5 1/2"	17'-1 1/2"	40'-6 1/2"



NOTE: - For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X-30. For values of RL, K and W3 for each box, see above Std. also.

MEMBRANE: A membrane waterproofing 12' wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints of wings.

REVISIONS: - Membrane Added 5-10-66 W.C.H.

QUANTITIES

CLASS 5 CONCRETE - 4 WINGS

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL FOR 4 WINGS	HEADWALLS, WING WALLS, FOOTINGS, SIDEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
5'	7'	6"	6"	141	5.80	6.90	8.01	9.12	10.23
6'	7'	6"	6"	213	8.08	9.18	10.29	11.40	12.51
7'	7'	6"	6"	327	10.78	11.88	12.99	14.10	15.21
8'	7'	6"	6"	460	13.90	15.00	16.11	17.22	18.32
9'	7'	6"	6"	624	18.85	19.95	21.06	22.17	23.27
10'	7'	6"	6"	819	24.63	25.73	26.84	27.94	29.05
11'	7'	6"	6"	1044	31.23	32.33	33.44	34.54	35.65
12'	7'	6"	6"	1300	38.63	39.73	40.84	41.94	43.05

GENERAL NOTES: -

CONCRETE: - All concrete to be Class 5, and shall be poured in the dry. All exposed corners to have 3/4" chamfers.

REINFORCING STEEL: - Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS: - Construction joints between wingwall, footings and side walls shall be only where shown on plans.

SPECIFICATIONS: - Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable special provisions.

UNIT STRESSES: - Class 5 Concrete (n=10) 1200' / Reinforcing steel 20,000' /

NOTE: - This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. -

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-180X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
R-180X-1	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-180X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS 5 CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS

FOR

REINFORCED CONCRETE BOX CULVERTS

30° SKEW

4.5', 6', 7', 8', 9', 10', 11' & 12' SPANS

3:1 SLOPES.

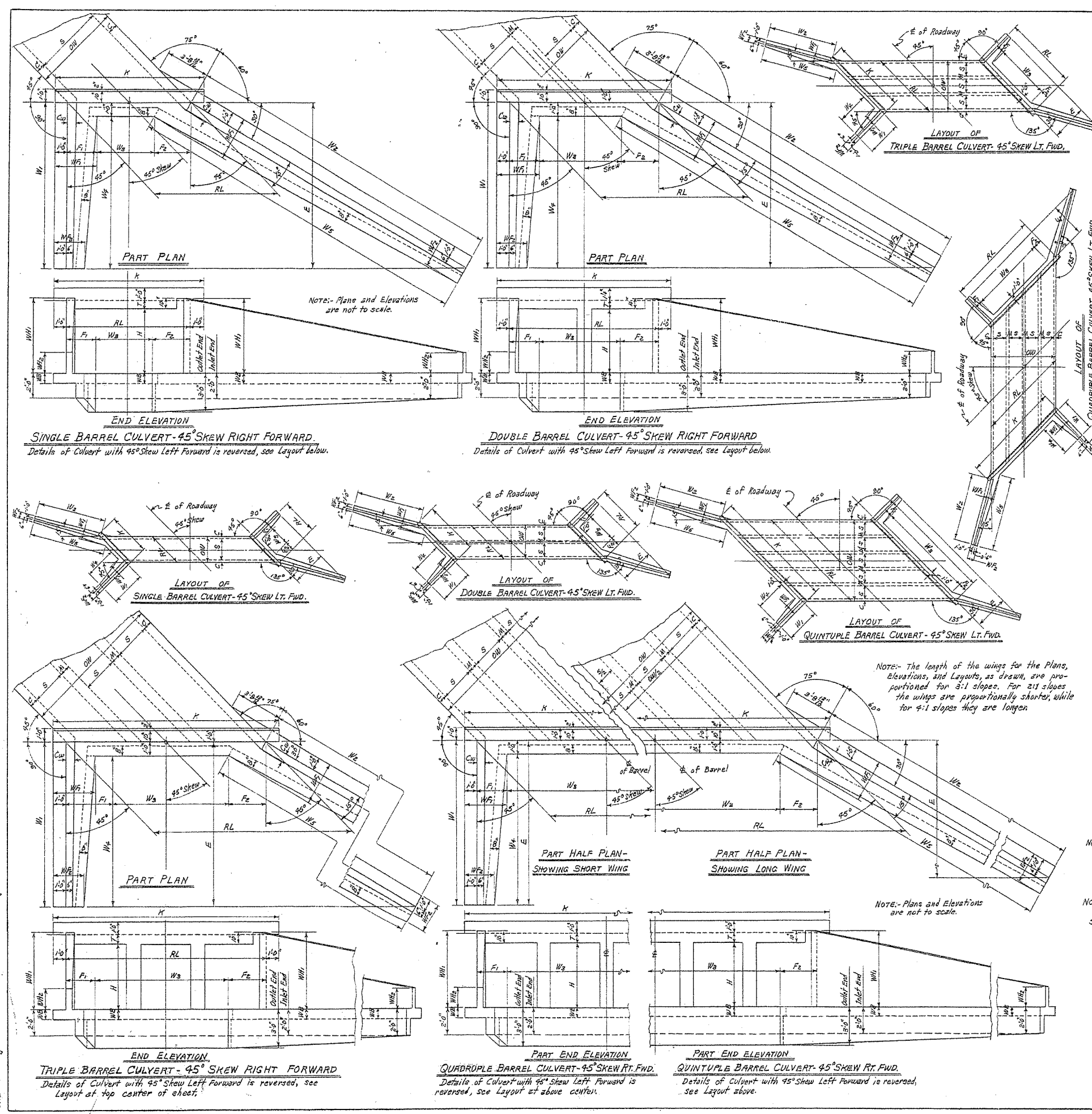
SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER

QUADRUPLES & QUINTUPLES. FOR H=8'-0" OR LESS

STANDARD DRAWING No. W-X-303-1

Designed By: W.C.H. 5-18-63 Checked By: R-19-63
 Drawn By: W.C.H. 7-26-63 Checked By: D.M.T. 7-15-64
 Quantities By: W.C.H. 1-2-64

FED. ROAD NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.			87	
JOB No.					



DRAWING NO.	USE WITH CLEAR SPAN	CLEAR HEIGHT	SUM OF SPAN DIMENSIONS	ROADWAY LENGTH RL					HEADWALL LENGTH K					APRON DIMENSION W ₃						
				RL = OW x 1.41421					K = RL(2.0)					W ₃ = RL - (F ₁ + F ₂)						
				SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT		SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT
2	2	2	2	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
3	3	3	3	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
4	4	4	4	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
5	5	5	5	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
6	6	6	6	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
7	7	7	7	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
8	8	8	8	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
9	9	9	9	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
10	10	10	10	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
11	11	11	11	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
12	12	12	12	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
7	7	7	7	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
8	8	8	8	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
9	9	9	9	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
10	10	10	10	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
11	11	11	11	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"
12	12	12	12	5'0"	7'0"	9'0"	11'0"	13'0"	15'0"	17'0"	19'0"	21'0"	23'0"	25'0"	27'0"	29'0"	31'0"	33'0"	35'0"	37'0"

NOTE: This drawing to be used in conjunction with Standard Wing Drawings for 45° Skews for each slope as listed below.
 2:1 Slopes
 3:1 Slopes
 4:1 Slopes
 W-X452-1 or W-X452-2 W-X453-1 or W-X453-2 W-X454-1 or W-X454-2

NOTE: This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. -
 SINGLES DOUBLES TRIPLES QUADRUPLES QUINTUPLES
 R-145X-0 R-245X-01 R-345X-01 R-445X-01 R-545X-01
 R-245X-02 R-345X-02 R-445X-02 R-545X-02
 R-145X-1 R-245X-1 R-345X-1 R-445X-1

CLASS 3 CONCRETE

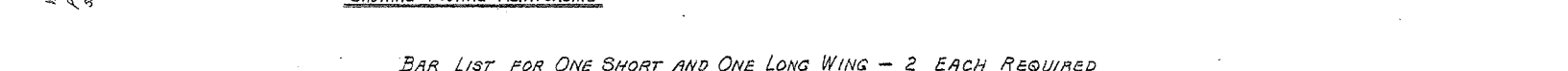
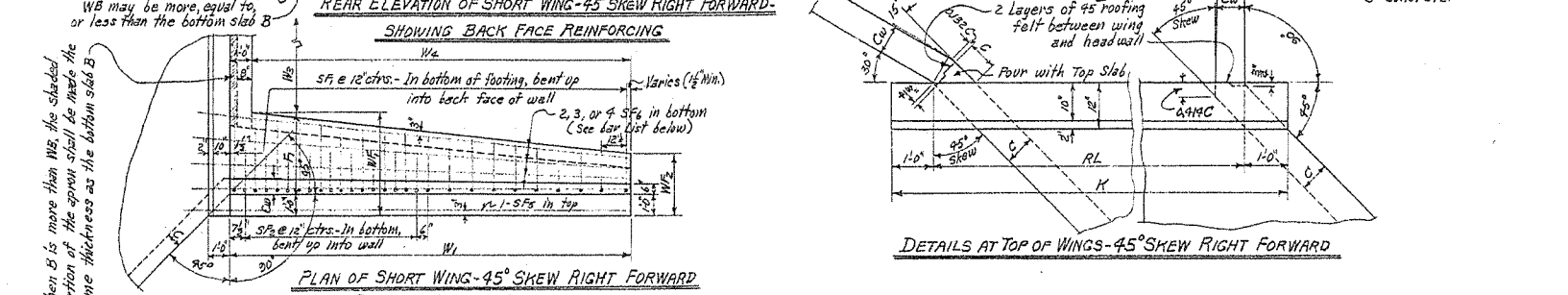
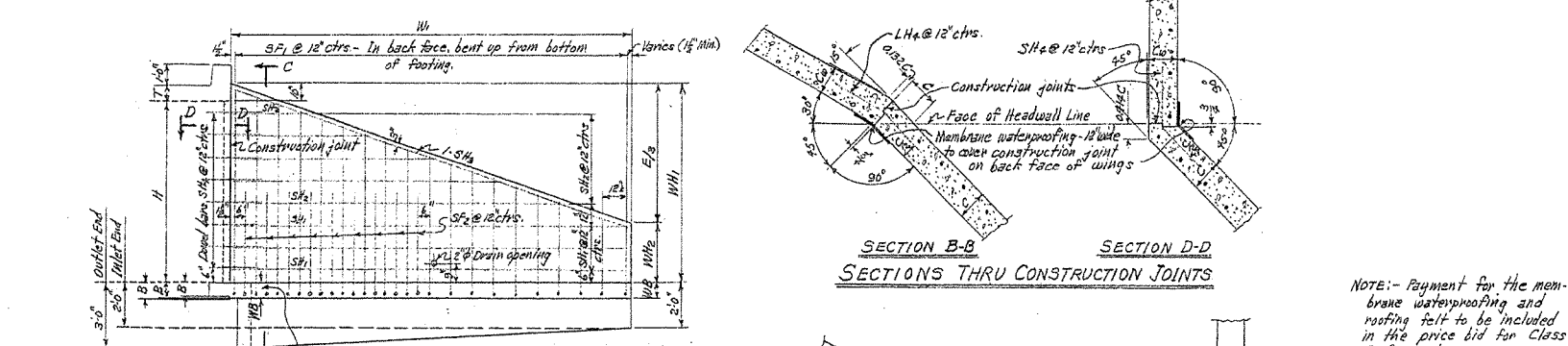
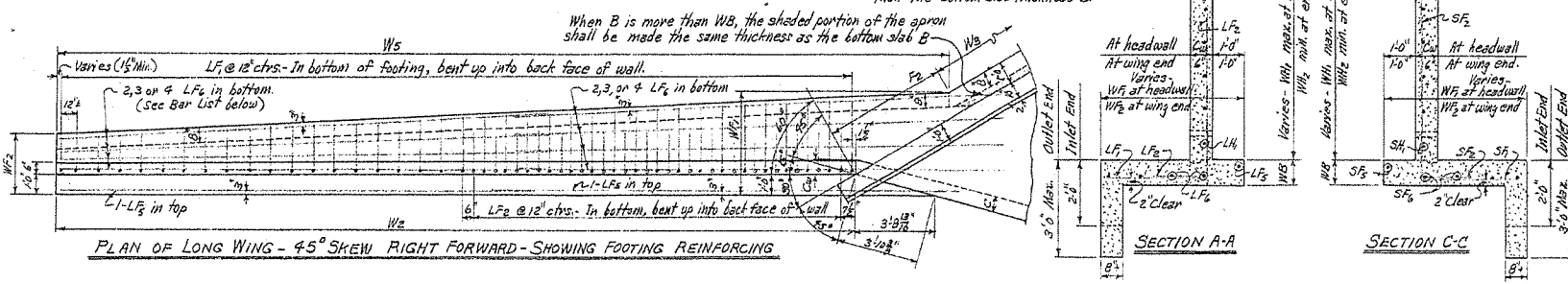
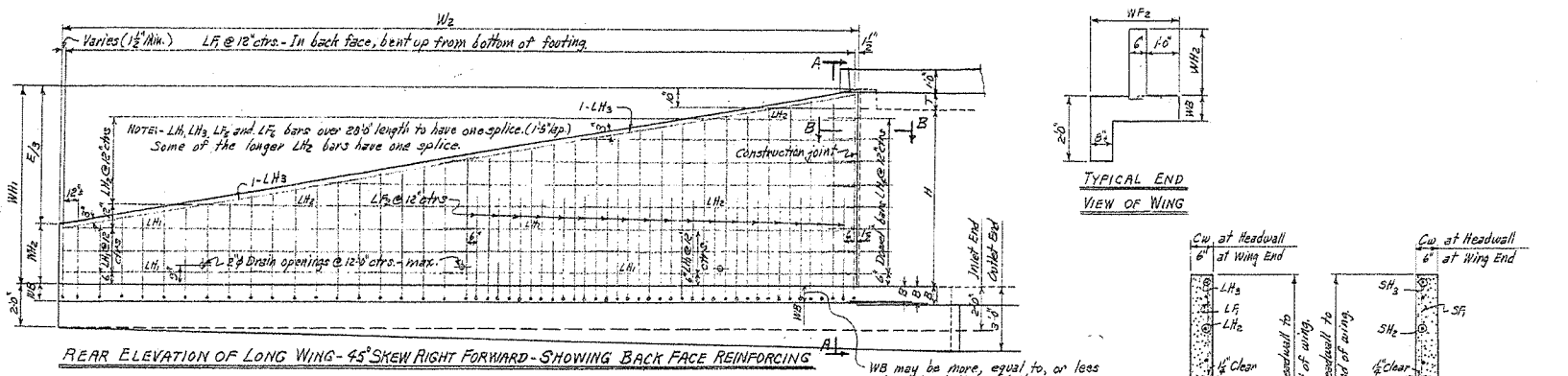
ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD WINGS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 45° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS 2:1, 3:1 & 4:1 SLOPES
 SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER
 QUADRUPLES & QUINTUPLES H = 2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'

STANDARD DRAWING No. W-X45

Designed by: W.C.H. 5-16-63
 Drawn by: W.C.H. 6-15-64
 Checked by: J.E.M. 6-23-64
 Checked by: J.E.M. 6-23-64

FED. ROAD NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.			38	
JOB No.					



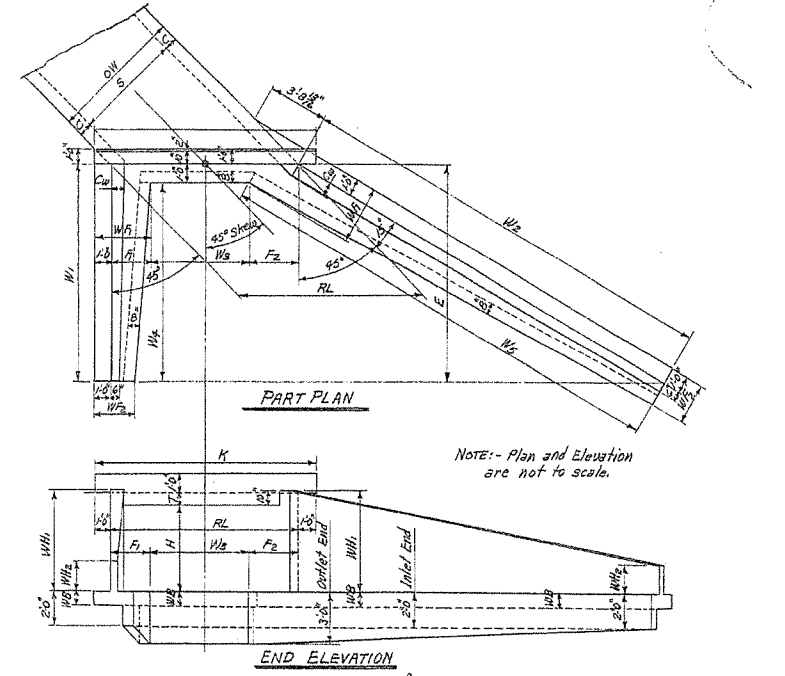
REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL	WINGWALL HEIGHTS	WIDTHS OF WING FOOTINGS	FOOTING DIMENSIONS - PARALLEL WITH HEADWALL	PERPENDICULAR TO END OF WING	LENGTHS OF WINGWALLS		INSIDE FOOTING DIMENSION		QUANTITY PER WING CLASS 5 CONCRETE			
							SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING	SHORT WING	LONG WING
2'	12"	12"	2'-0"	2'-0"	1'-0"	1'-0"	6'-6"	6'-6"	13'-0"	13'-0"	0.743	1.572	0.827	1.791
3'	12"	12"	3'-0"	3'-0"	1'-0"	1'-0"	8'-6"	8'-6"	17'-0"	17'-0"	1.120	2.364	1.229	2.590
4'	12"	12"	4'-0"	4'-0"	1'-0"	1'-0"	10'-6"	10'-6"	21'-0"	21'-0"	1.547	3.293	1.700	3.577
5'	12"	12"	5'-0"	5'-0"	1'-0"	1'-0"	12'-6"	12'-6"	25'-0"	25'-0"	2.022	4.367	2.241	4.705
6'	12"	12"	6'-0"	6'-0"	1'-0"	1'-0"	14'-6"	14'-6"	29'-0"	29'-0"	2.544	5.451	2.825	5.989
7'	12"	12"	7'-0"	7'-0"	1'-0"	1'-0"	16'-6"	16'-6"	33'-0"	33'-0"	3.114	6.655	3.478	7.388
8'	12"	12"	8'-0"	8'-0"	1'-0"	1'-0"	18'-6"	18'-6"	37'-0"	37'-0"	3.732	7.990	4.203	8.988
9'	12"	12"	9'-0"	9'-0"	1'-0"	1'-0"	20'-6"	20'-6"	41'-0"	41'-0"	4.398	9.456	5.038	10.651

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W₃.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL PER 4' WINGS	CLASS 5 CONCRETE - 4 WINGS				
					HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS	HEADWALLS	WINGWALLS	FOOTINGS	TOEWALLS AND APRONS
5'	4'	12"	12"	214	6.15	7.50	8.84	10.22	11.58
4'	3'	12"	12"	142	4.15	5.00	5.84	6.72	7.58
3'	2'	12"	12"	74	2.15	2.50	2.84	3.22	3.58
2'	1'	12"	12"	38	1.15	1.25	1.44	1.62	1.78



SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD
Details of Culvert with 45° Skew Left Forward is reversed, see Drawing No. W-X45.
TYPICAL WING DETAILS

NOTE: - For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X45. For values of RL, K and W₃ for each bar, see above Std. also.

MEMBRANE - A membrane waterproofing 12" wide, consisting of three mappings of waterproofing asphalt and two alternate layers of treated cotton fabric, shall be applied to the back face of wing to cover the construction joints in wings.

REVISIONS: - Membrane Added. 5-10-66 W.C.H.

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

CLEAR HEIGHT	WING LOCATION	SF ₁ & LH ₁ BENT				SF ₂ & LF ₂ BENT				SF ₃ & LH ₃ STRAIGHT				SF ₄ & LH ₄ STRAIGHT				BAR BENDING DIAGRAM	QUANTITY						
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.								
2'	Short	12"	7'	1'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	3'	12"	3'	2'-0"	3'	12"	1'	3'-3"	3'	12"	2'	2'-8"	1'-0"	24.4	46.3	
2'	Long	12"	14'	1'-5"	5'-11"	0'-8"	1'-0"	0'-10"	3'-0"	3'	12"	3'	12'-8"	3'	12"	1'	12'-11"	3'	12"	2'	2'-8"	1'-0"	36.8	70.3	
3'	Short	12"	9'	2'-1"	5'-3"	0'-10"	1'-4"	1'-4"	4'-0"	3'	12"	3'	2'-0"	3'	12"	2'	4'-5"	3'-3"	3'	12"	3'	3'-0"	1'-0"	55.9	107.9
3'	Long	12"	18'	1'-11"	5'-3"	0'-10"	1'-4"	1'-4"	4'-0"	3'	12"	3'	12'-8"	3'	12"	1'	16'-5"	3'-3"	3'	12"	3'	3'-0"	1'-0"	77.7	153.7
4'	Short	12"	11'	2'-6"	6'-7"	0'-11"	1'-8"	1'-8"	5'-0"	3'	12"	3'	2'-0"	3'	12"	3'	9'-8"	3'-3"	3'	12"	3'	3'-0"	1'-0"	127.6	253.9
4'	Long	12"	22'	2'-4"	6'-6"	0'-11"	1'-8"	1'-8"	5'-0"	3'	12"	3'	12'-8"	3'	12"	1'	20'-6"	3'-3"	3'	12"	3'	3'-0"	1'-0"	246.5	491.1
5'	Short	12"	13'	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	3'	12"	3'	3'-6"	3'	12"	3'	11'-4"	3'-3"	3'	12"	3'	3'-0"	1'-0"	312.5	623.6
5'	Long	12"	24'	2'-9"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	3'	12"	3'	3'-6"	3'	12"	3'	18'-4"	3'-3"	3'	12"	3'	3'-0"	1'-0"	559.9	1119.8
6'	Short	12"	15'	3'-6"	9'-4"	1'-2"	2'-4"	2'-4"	7'-0"	3'	12"	3'	4'-6"	3'	12"	3'	13'-4"	3'-3"	3'	12"	3'	3'-0"	1'-0"	408.0	816.0
6'	Long	12"	30'	3'-4"	9'-4"	1'-2"	2'-4"	2'-4"	7'-0"	3'	12"	3'	4'-6"	3'	12"	3'	24'-4"	3'-3"	3'	12"	3'	3'-0"	1'-0"	816.0	1632.0
7'	Short	12"	17'	3'-11"	10'-0"	1'-3"	2'-10"	2'-10"	8'-0"	3'	12"	3'	5'-0"	3'	12"	3'	15'-0"	3'-3"	3'	12"	3'	3'-0"	1'-0"	504.0	1008.0
7'	Long	12"	34'	3'-9"	10'-0"	1'-3"	2'-10"	2'-10"	8'-0"	3'	12"	3'	5'-0"	3'	12"	3'	30'-0"	3'-3"	3'	12"	3'	3'-0"	1'-0"	1008.0	2016.0
8'	Short	12"	19'	4'-6"	12'-5"	1'-5"	3'-4"	3'-4"	9'-0"	3'	12"	3'	6'-0"	3'	12"	3'	18'-0"	3'-3"	3'	12"	3'	3'-0"	1'-0"	672.0	1344.0
8'	Long	12"	38'	4'-4"	12'-5"	1'-5"	3'-4"	3'-4"	9'-0"	3'	12"	3'	6'-0"	3'	12"	3'	36'-0"	3'-3"	3'	12"	3'	3'-0"	1'-0"	1344.0	2688.0

NOTE: - Bars for short wing shall be marked with prefix letter 'S', while those for long wing shall be marked with letter 'L'. * Length without splice. Bars over 20' length may be spliced. (1'-8" lap)

Designed By: W.C.H. 5-13-63
 Checked By: J.C.M. 7-21-64
 Drawn By: W.C.H. 6-5-64
 Quantities By: W.C.H. 7-2-64

GENERAL NOTES: -
 CONCRETE - All concrete to be Class 5, and shall be poured in the dry. All exposed corners to have 3/4" chamfers.
 REINFORCING STEEL - Reinforcing steel to be deformed bars of intermediate or hard grade.
 CONSTRUCTION JOINTS - Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
 SPECIFICATIONS - Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
 UNIT STRESSES: -
 Class 5 Concrete (f' = 1200)
 Reinforcing Steel 20,000

NOTE: - This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. -
 SINGLES DOUBLES TRIPLES QUADRUPLES QUINTUPLES
 R-145X-0 R-245X-01 R-345X-01 R-445X-01 R-545X-01
 R-145X-2 R-245X-02 R-345X-02 R-445X-02 R-545X-02
 R-145X-1 R-245X-1 R-345X-1 R-445X-1

CLASS 5 CONCRETE
 ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD WINGS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 45° SKEW
 4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS 3:1 SLOPES
 SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER
 QUADRUPLES & QUINTUPLES FOR H = 8'-0" OR LESS
 STANDARD DRAWING No. W-X453-1

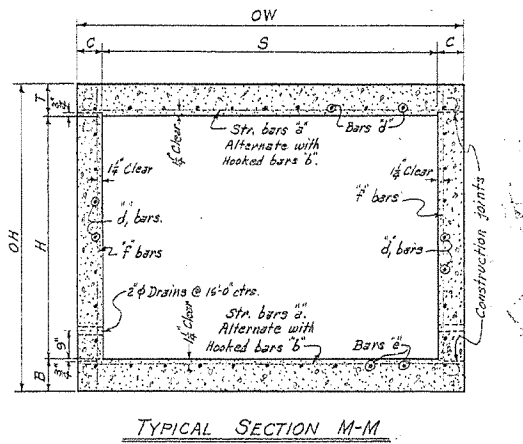
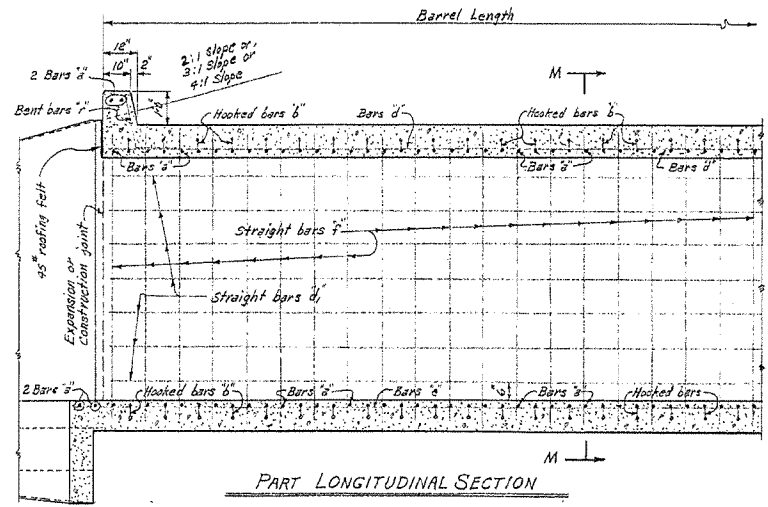
Table with columns: FED. ROAD No., STATE, FED. AID PROJECT, FISCAL YEAR, SHEET No., TOTAL SHEETS. Values: 6, ARK., 39.

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

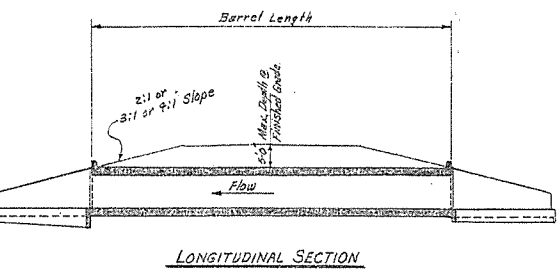
Main table for bar list with columns: DEPTH OF COVER, CLEAR SPAN, CLEAR HEIGHT, and various bar specifications (a, b, c, d, e, f bars).

DIMENSIONS QUANTITIES

Table with columns: MAX. DESIGN DEPTH OF COVER, CLEAR SPAN, CLEAR HEIGHT, and various dimensions and quantities.



Notes: For details of wings and bar laps see Drawing Nos. W-X002-1 or W-X003-1 or W-X004-1 or W-X004-2.



GENERAL NOTES: CONCRETE: All concrete to be Class S, and shall be poured in the dry. REINFORCING STEEL: Reinforcing to be deformed bars of intermediate or hard grade.

DESIGN LIVE LOAD H20-S16 LOADING A.A.S.H.O. 1961 AND SPECIAL MILITARY LOADING Two 25,000 Lb. Axles @ 9'-0" cts.

UNIT STRESSES: Class S Concrete (f' = 10) 1200 psi Reinforcing Steel 20,000 psi

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS 4.5, 6, 7, 8, 9, 10, 11 & 12 SPANS 3:1 OR 4:1 SLOPES UNDER 5'-0" COVER STANDARD DRAWING NO. R-100X-0

Designed By: W.C.H. 1-23-63. Checked By: W.C.H. 2-8-63. Drawn By: W.C.H. 2-8-63. Checked By: W.C.H. 2-12-63. Quantities By: W.C.H. 2-12-63.

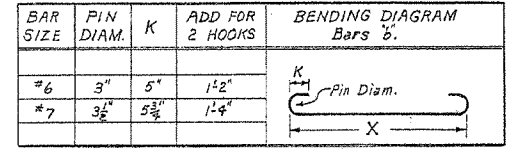
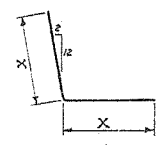


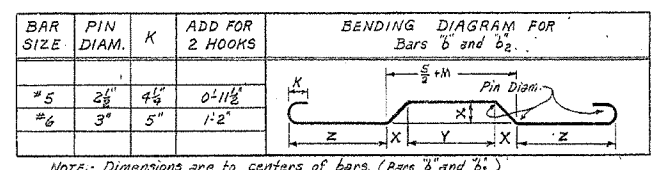
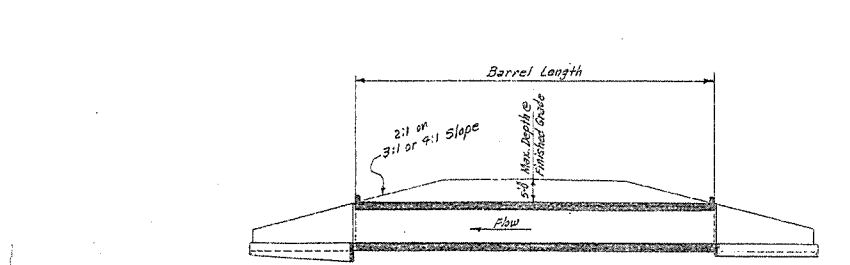
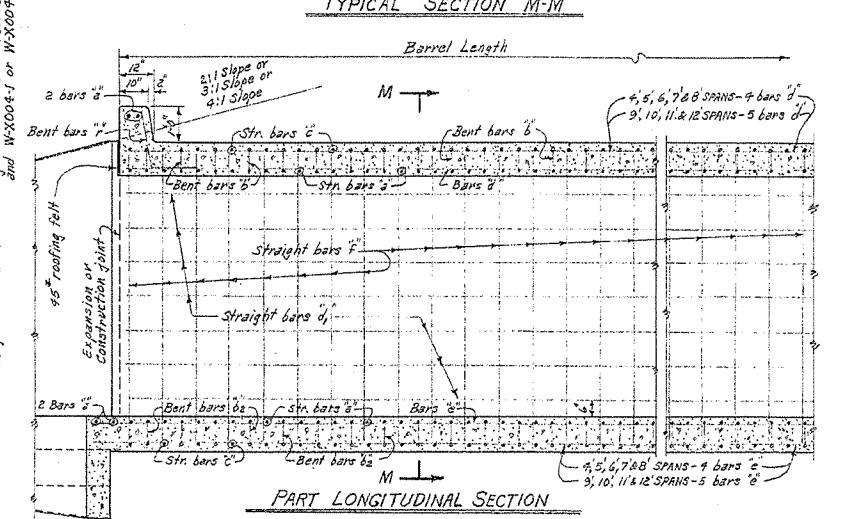
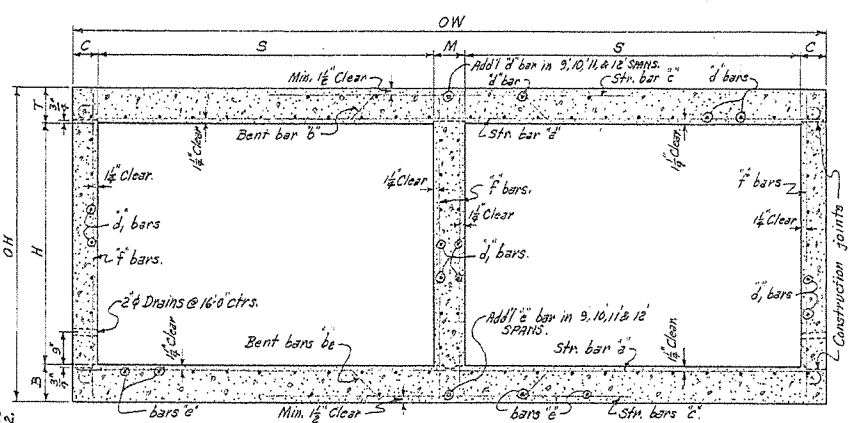
Table for DOWEL BARS FOR TWO HEADWALLS with columns: SPAN, SIZE, SPACING, HEADWALL LENGTH, X.



BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	6" bars												8" bars												10" bars												12" bars											
			STRAIGHT			BENT - See Diagram below.			BENT - See Diagram below.			STRAIGHT			STRAIGHT			STRAIGHT			STRAIGHT			STRAIGHT			STRAIGHT			STRAIGHT			STRAIGHT																	
D	S	H	SIZE	SPANNING	NUMBER REQ'D	LENGTH	X	Y	Z	SIZE	SPANNING	NUMBER REQ'D	LENGTH	X	Y	Z	SIZE	SPANNING	NUMBER REQ'D	LENGTH	X	Y	Z	SIZE	SPANNING	NUMBER REQ'D	LENGTH	X	Y	Z	SIZE	SPANNING	NUMBER REQ'D	LENGTH	X	Y	Z													
2	12	12	#5	12	12	12	0-0	0-0	0-0	#5	12	12	12	0-0	0-0	0-0	#5	12	12	12	0-0	0-0	0-0	#5	12	12	12	0-0	0-0	0-0	#5	12	12	12	0-0	0-0	0-0													

MAX. DESIGN DEPTH OF COVER	DIMENSIONS										QUANTITIES				
	D	S	H	A	OW	T	C	M	B	OH	CLYD.	LB.	LB.	LB.	
2	12	12	12	12	12	12	12	12	12	12	12	12	12		



DOWEL BARS FOR TWO HEADWALLS

SPANS @	SIZE	SPACING	No. REQ'D	LENGTH	X
4	#4	12"	20	2'-5"	1'-2 1/2"
5	#4	12"	24	2'-6"	1'-3"
6	#4	12"	28	2'-7"	1'-3 1/2"
7	#4	12"	32	2'-8"	1'-4"
8	#4	12"	36	2'-9"	1'-4 1/2"
9	#4	12"	40	2'-10"	1'-5"
10	#4	12"	46	2'-11"	1'-5 1/2"
11	#4	12"	50	3'-0"	1'-6"
12	#4	12"	54	3'-1"	1'-6 1/2"

GENERAL NOTES:-
 CONCRETE:- All concrete to be Class S, and shall be poured in the dry.
 All exposed corners to have 3/8 chamfers.
 REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
 BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 50 diameters.
 CONSTRUCTION JOINTS:- Construction joints between sidewalls, side walls, division walls and slabs shall be only where shown on plans.
 SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD
 H20-S16 LOADING A.A.S.H.O. 1961
 AND
 SPECIAL MILITARY LOADING
 Two 24,000 lb. Axles @ 4'-0" ctrs.
 UNIT STRESSES:-
 Class S Concrete (n=10) 1200 7/8
 Reinforcing Steel 20,000 7/8

NOTE:- This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also drawing Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE
 ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD BARREL SECTIONS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 4, 5, 6, 7, 8, 9, 10, 11 & 12 SPANS
 3:1 OR 4:1 SLOPES
 UNDER 5'-0" COVER
 STANDARD DRAWING NO. R-200X-O.

Checked by: TMS - 5-14-63
 Checked by: TMS - 5-24-63
 Checked by: TMS - 5-24-63
 Designed by: W.C.H. 1-17-63.
 Drawn by: W.C.H. 2-15-63.
 Quantities by: M.C.H. 2-19-63.

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH - TWO 30° SKEWED ENDS

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			90	
JOB No.					

DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	3" bars		4" bars		5" bars		6" bars		7" bars		8" bars		9" bars		10" bars						
			STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.					
D	S	H	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING					
0'-0" TO 5'-0" MINIMUM	4'-0"	2'-0"	112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"	
			112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"	
	4'-0"	3'-0"	2'-0"	112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"
				112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"
	4'-0"	2'-0"	2'-0"	112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"
				112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"
	4'-0"	1'-0"	2'-0"	112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"
				112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"
	4'-0"	0'-0"	2'-0"	112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"
				112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"
4'-0"	0'-0"	1'-0"	112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"	
			112	9'-5"	16	7'-8"	2-5"	5-4	10'-4"	0-3"	2-2 1/2"	2-4"	6	9'-2"	3-6"	8'-6"	3'-0"	5-6	10'-6"	0-3"	2-3 1/2"	2-4"	

BAR SIZE	PIN DIA.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS b AND b2	BAR SIZE	PIN DIA.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS c AND c2	SPAN SIZE	SPACING	No. REBAR	LENGTH	X	Dowel bars "r" in Two Headwalls
#5	3/8"	1/4"	0-1 1/2"		#5	3/8"	1/4"	0-5 3/8"		4'	4"	24	2'-5"	1'-2 1/2"	
#6	3/4"	1/2"	1-2"		#6	3/4"	1/2"	0-7"		5'	5"	24	2'-6"	1'-3 1/2"	
#7	7/8"	5/8"	1-3 1/2"		#7	7/8"	5/8"	0-8 1/2"		6'	6"	24	2'-7"	1'-4 1/2"	
#8	1"	3/4"	1-4 1/2"		#8	1"	3/4"	0-10"		7'	7"	24	2'-8"	1'-5 1/2"	
#9	1 1/8"	7/8"	1-5 1/2"		#9	1 1/8"	7/8"	0-11 1/2"		8'	8"	24	2'-9"	1'-6 1/2"	
#10	1 1/4"	1"	1-6 1/2"		#10	1 1/4"	1"	0-13"		9'	9"	24	2'-10"	1'-7 1/2"	

NOTE: Dimensions are to centers of bars (b, b2, c, c2). The X, Y & Z values for b2 bars are same as for b bars and for c2 bars same as for c bars.

These bars are in the skewed portion of barrel only. The length of a2 and c2 bars and overall length L of b1 and c1 bars vary by 1'-0" for 12" spacing and 1'-7" for 11" spacing. In the regular portion of the barrel begin and end with a set of a2 and c2 bars. If the spacing is such that the last set of bars would be b2 & c2 bars, use a set of a2 & c2 bars instead.

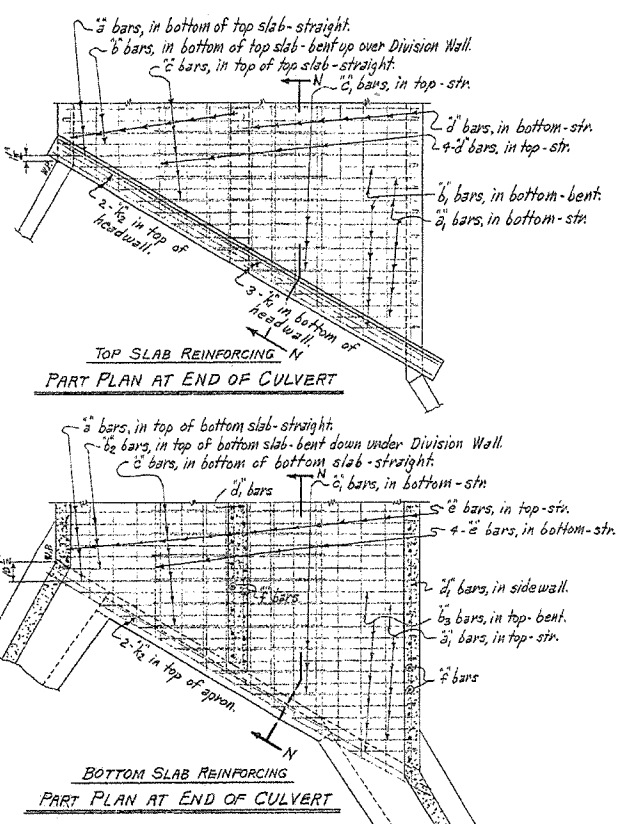
MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS										QUANTITIES					
	D	S	H	A	O	T	C	M	B	O	R	L	K	CONC.	LB.	LB.
0'-0" TO 5'-0" MINIMUM	4'-0"	2'-0"	2'-0"	2	16	9'-8"	6	8"	3'-0"	11'-2"	12'-3 1/2"	0.994	5523	88.15	42.71	
				3	24	9'-8"	6	8"	4'-0"	11'-2"	12'-3 1/2"	0.558	5844	93.99	46.65	
	4'-0"	3'-0"	2'-0"	2	16	9'-8"	6	8"	3'-0"	11'-2"	12'-3 1/2"	0.620	6170	98.84	49.38	
				3	24	9'-8"	6	8"	4'-0"	11'-2"	12'-3 1/2"	0.682	6493	104.18	52.73	
	4'-0"	2'-0"	2'-0"	2	16	9'-8"	6	8"	3'-0"	11'-2"	12'-3 1/2"	0.809	6897	110.74	56.07	
				3	24	9'-8"	6	8"	4'-0"	11'-2"	12'-3 1/2"	0.871	7218	116.34	58.93	
	4'-0"	1'-0"	2'-0"	2	16	9'-8"	6	8"	3'-0"	11'-2"	12'-3 1/2"	0.922	8894	140.89	61.21	
				3	24	9'-8"	6	8"	4'-0"	11'-2"	12'-3 1/2"	0.985	9215	146.49	64.55	
	4'-0"	0'-0"	2'-0"	2	16	9'-8"	6	8"	3'-0"	11'-2"	12'-3 1/2"	1.044	9621	152.09	67.89	
				3	24	9'-8"	6	8"	4'-0"	11'-2"	12'-3 1/2"	1.107	9942	157.69	71.23	
4'-0"	0'-0"	1'-0"	2	16	9'-8"	6	8"	3'-0"	11'-2"	12'-3 1/2"	1.166	10368	163.29	74.57		
			3	24	9'-8"	6	8"	4'-0"	11'-2"	12'-3 1/2"	1.229	10689	168.89	77.91		
4'-0"	0'-0"	0'-0"	2	16	9'-8"	6	8"	3'-0"	11'-2"	12'-3 1/2"	1.288	11114	174.49	81.25		
			3	24	9'-8"	6	8"	4'-0"	11'-2"	12'-3 1/2"	1.351	11435	180.09	84.59		

* For quantities in wings see Standard Wing Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars.

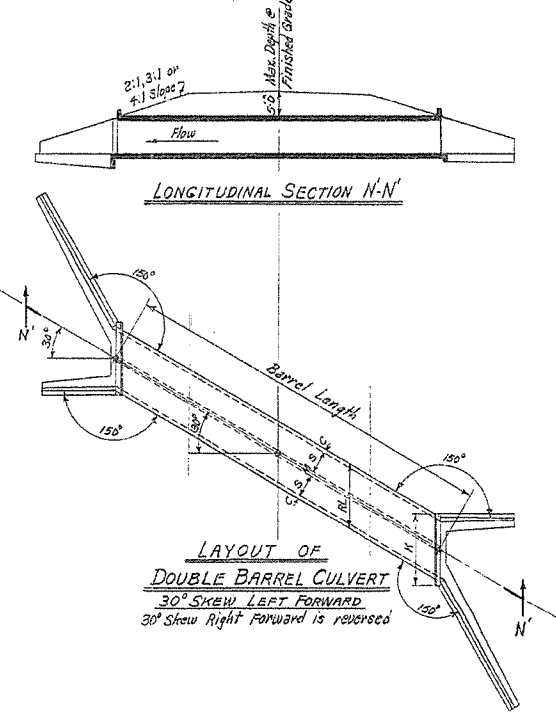
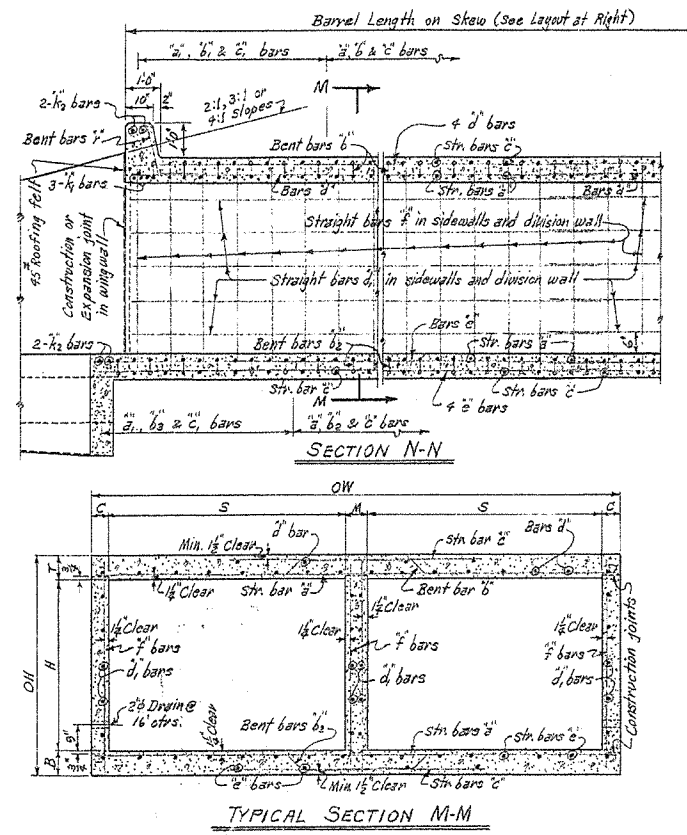
GENERAL NOTES
 CONCRETE: All concrete to be Class S, and shall be poured in the dry. All exposed corners to have 3/8" chamfers.
 REINFORCING STEEL: Reinforcing to be deformed bars of intermediate or hard grade.
 BAR LAP: In computing the quantities of steel from the tables add one lap for each add'l 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diam. min.
 CONSTRUCTION JOINTS: Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.
 SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD
 H20-S16 LOADING A.R.S.H.O. 1961
 AND
 SPECIAL MILITARY LOADING
 Two 24,000 Lb. Axles @ 4'-0" ctrs.
UNIT STRESSES:
 Class S Concrete (n=10) 1200 psi
 Reinforcing steel 20,000 psi

CLASS S CONCRETE
 ARKANSAS STATE HIGHWAY COMMISSION
 DETAILS OF STANDARD BARREL SECTIONS
 FOR
 REINFORCED CONCRETE BOX CULVERTS
 30° SKEW
 4', 5', 6', 7 AND 8' SPANS 2:1, 3:1 OR 4:1 SLOPES
 DOUBLES UNDER 5'-0" COVER
 STANDARD DRAWING No. R-230X-01



NOTE: For Details of Standard Wings and bar lists, see Drawing No. W-X302-1 or W-X302-2; W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.



NOTE: This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X302-1 or W-X302-2, W-X303-1 or W-X303-2, and W-X304-1 or W-X304-2. Also W-X30.

Designed by: M.C.H. 1-17-63
 Drawn by: M.C.H. 2-26-64
 Checked by: M.C.H. 4-3-64
 Quantities by: M.C.H. 4-3-64

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH - TWO 45° SKEWED ENDS

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			91	
JOB No.					

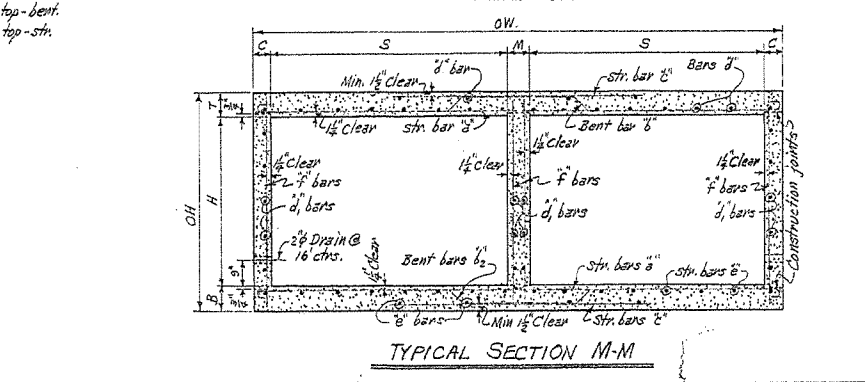
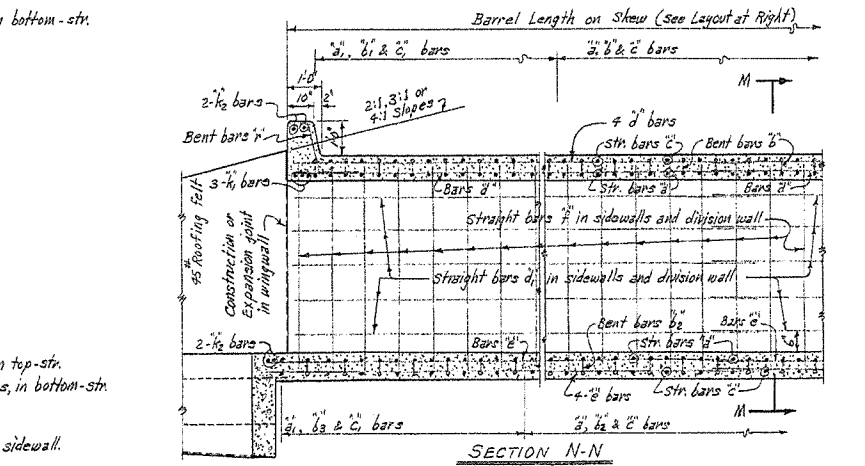
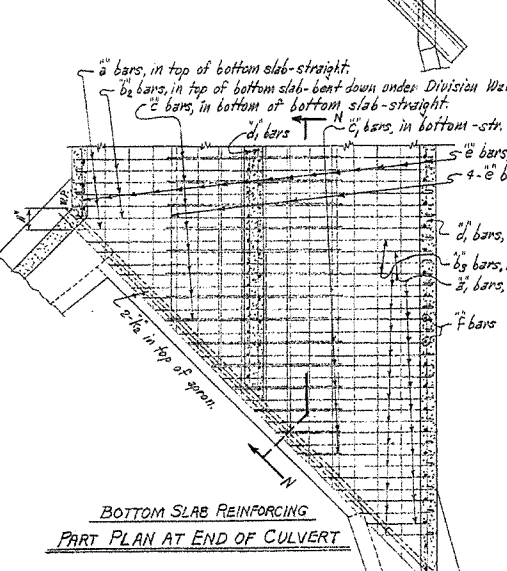
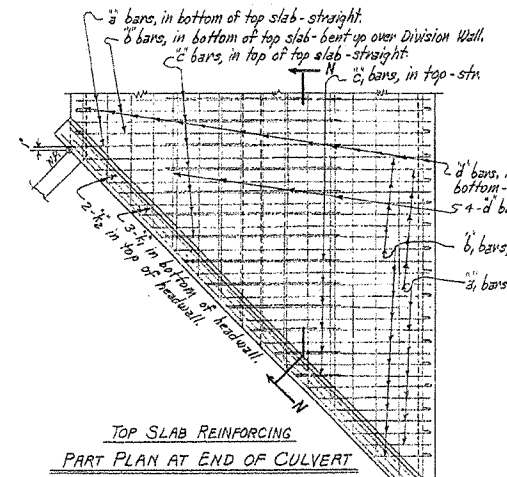
DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	a bars		b bars		c bars		d bars		e bars		f bars		g bars		h bars		i bars			
			STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.	STRAIGHT	BENT - See Diagrams below.		
D	S	H	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING	SIZE	SPACING		
0'-0" TO 5'-0" MAXIMUM	4'-0"	12'	10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	
			10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	
			10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	
	6'-0"	12'	12'	10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"
				10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"
				10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"
	8'-0"	12'	12'	10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"
				10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"
				10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"
	10'-0"	12'	12'	10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"
				10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"
				10# 9'-5"	12"	2# 8'-5"	2'-5"	5# 10'-6"	0'-3"	2-2# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"	1# 14'-6"	3-4# 8'-10"	2'-0"	5# 12'-6"	0'-2"	2-3# 3'-4"

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS										QUANTITIES			
	CLEAR SPAN	CLEAR HEIGHT	SP. OF DIVISIONS	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALL	THICKNESS OF DIVISION SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL	REINFORCING STEEL	PER LIN. FT. OF BARREL	ADDITIONAL PER LAP
D	S	H	A	OW	T	C	M	B	OH	RL	K	CL. YD.	LB.	LB.
5'-0"	4'-0"	12'	2' 16"	9'-4"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71	
			3' 24"	9'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71	
			4' 32"	9'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71	
	6'-0"	12'	12'	3' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71
				4' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71
				5' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71
	8'-0"	12'	12'	4' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71
				5' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71
				6' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71
	10'-0"	12'	12'	5' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71
				6' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71
				7' 30"	11'-8"	6"	6"	3'-0"	13'-8"	15'-8"	0.996	5.587	88.15	42.71

BAR SIZE	FIN. DIA.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM FOR BARS b ₁ AND b ₂	BAR SIZE	FIN. DIA.	K	ADD FOR 1 HOOK	BENDING DIAGRAM FOR BARS b ₁ AND b ₂
#5	2 1/8"	4 1/2"	0-11/16"		#5	2 1/8"	4 1/2"	0-5/8"	
#6	3"	5"	0-1"		#6	3"	5"	0-7/8"	

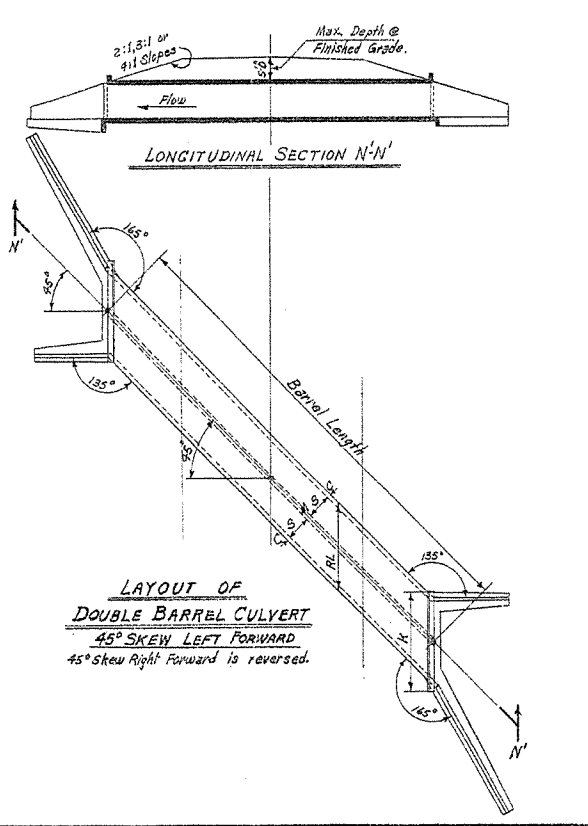
Notes: Dimensions are to centers of bars (b₁, b₂, b₃, b₄). The X, Y & Z values for b₁ bars are same as for b₂ bars and for b₃ bars same as for b₄ bars.

Notes: For Details of Standard Wings and bar lists, see Drawing No. W-X452-1 or W-X452-2; W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.



These bars are in the skewed portion of barrel only. The length of b₁ and b₂ bars and overall length 'L' of b₁ and b₂ bars vary by 1/4" for 12" spacing and 0-11" for 11" spacing.

In the regular portion of the barrel begin and end with a set of 'a' and 'c' bars. If the spacing is such that the last set of bars would be 'b' & 1/2 bars, use a set of 'a' & 'c' bars instead.



* For quantities in wings see Standard Wing Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars.

GENERAL NOTES

CONCRETE: All concrete to be Class 5, and shall be poured in the dry. All exposed corners to have 3/4" chamfers.

REINFORCING STEEL: Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP: In computing the quantities of steel from the tables add one lap for each add'l 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diam. min.

CONSTRUCTION JOINTS: Construction joints between wingwalls, side walls, division wall and slabs shall be only where shown on plans.

SPECIFICATIONS: Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD
H20-S16 LOADING A.A.S.H.O. 1961
 AND
SPECIAL MILITARY LOADING
 Two 28000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:
 Class 5 Concrete (n=10) 1200 psi
 Reinforcing Steel 20,000 psi

NOTE: This drawing to be used in conjunction with Standard Wing Drawing Nos. W-X452-1 or W-X452-2, W-X453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.

CLASS 5 CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD BARREL SECTIONS

FOR

REINFORCED CONCRETE BOX CULVERTS

45° SKEW

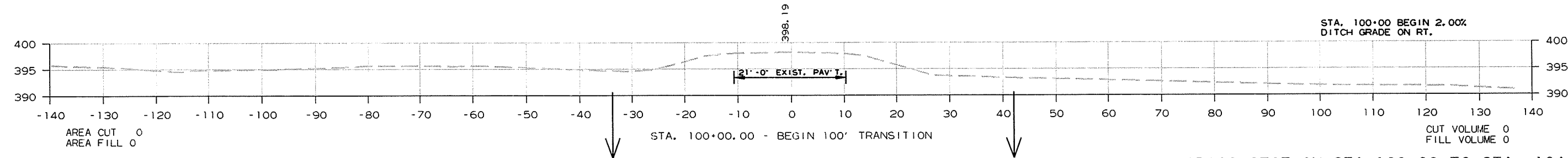
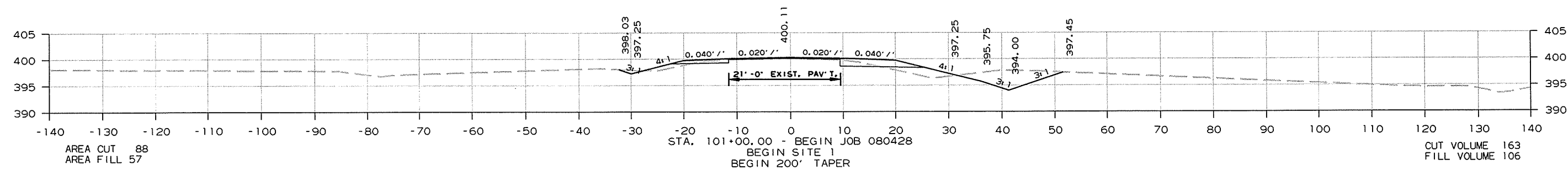
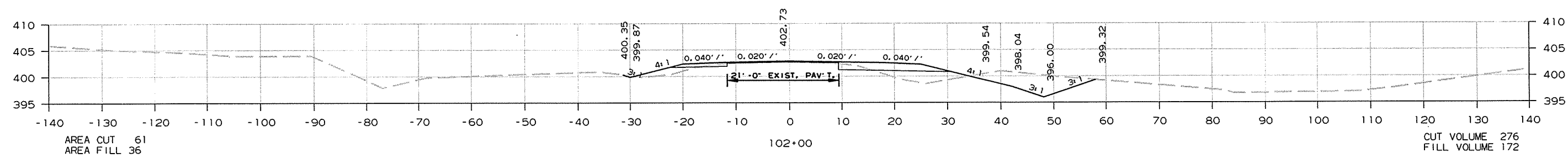
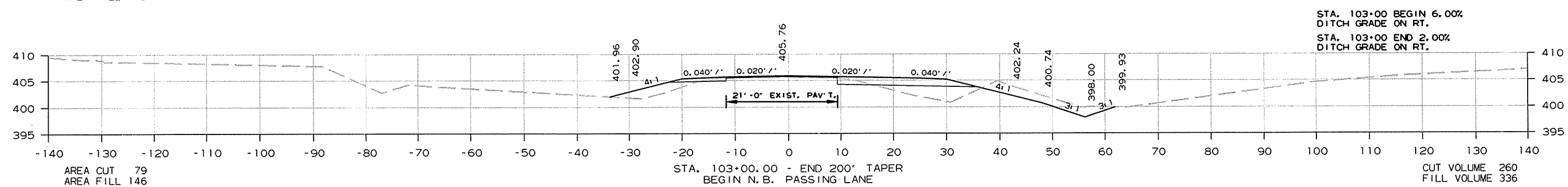
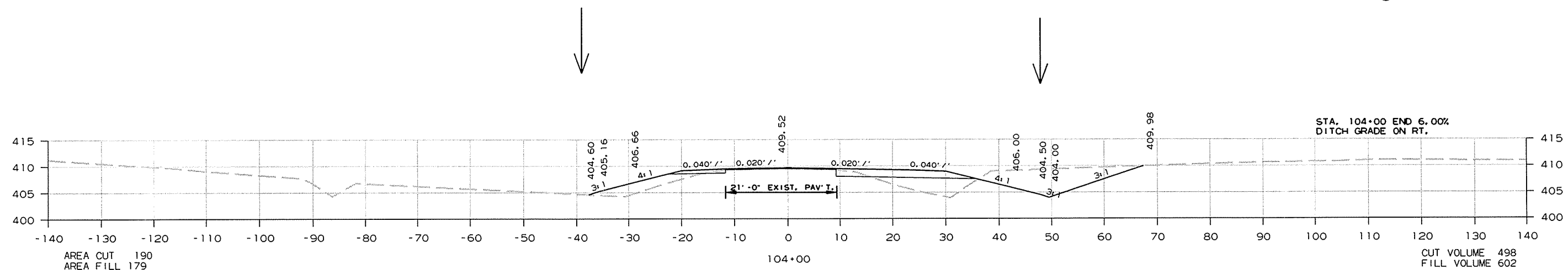
4', 5', 6', 7' AND 8' SPANS 2:1, 3:1 OR 4:1 SLOPES
DOUBLES UNDER 5'-0" COVER

STANDARD DRAWING NO. R-245X-01

Designed by: W.C.H. 1-17-63
 Drawn by: W.C.H. 7-14-64
 Checked by: R.H.S. 5-14-63
 Checked by: W.C.H. 10-1-64
 Quantities by: W.C.H.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							92	134

2 CROSS SECTIONS SITE 1- NB

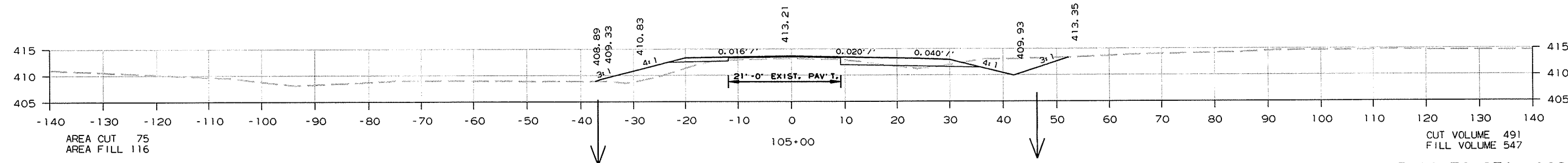
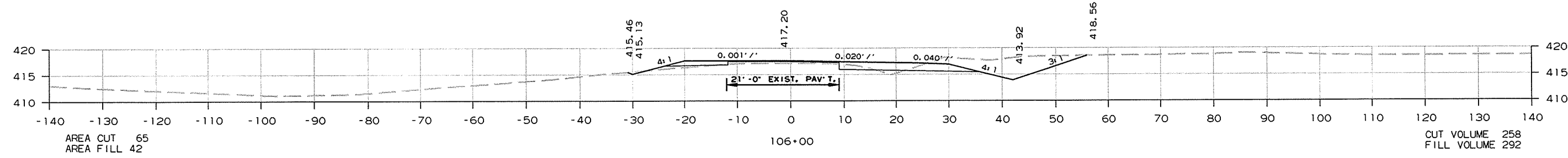
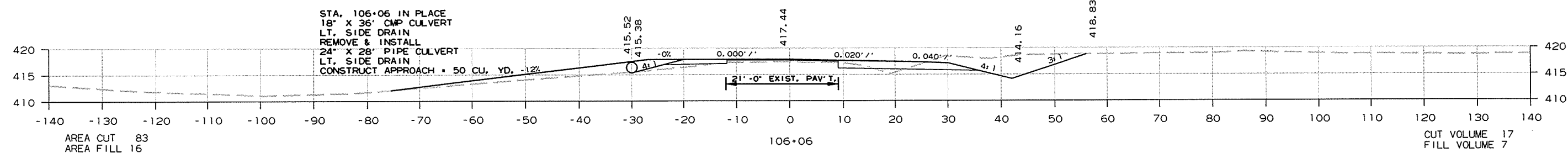
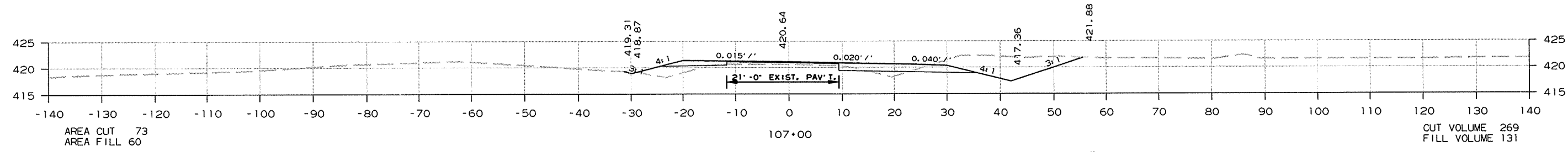
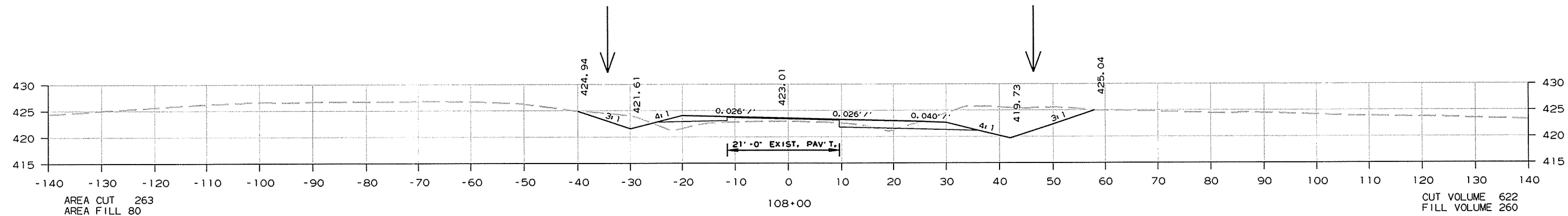


CROSS SECTION STA. 100+00 TO STA. 104+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	93	134

② CROSS SECTIONS SITE I- NB



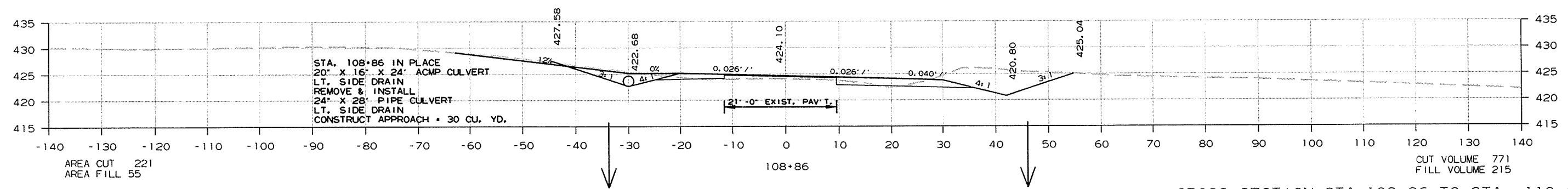
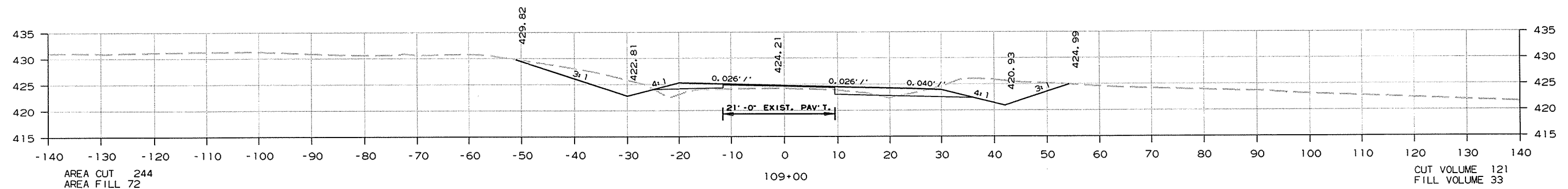
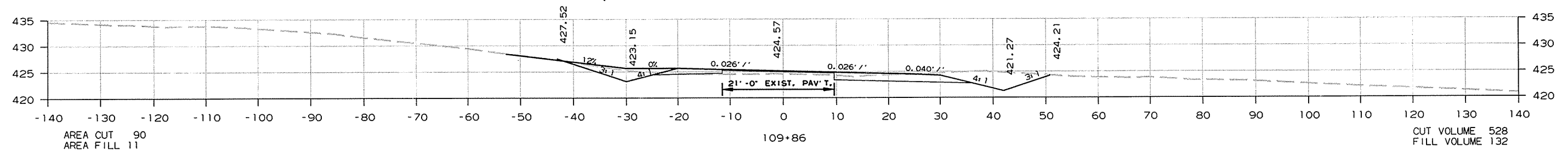
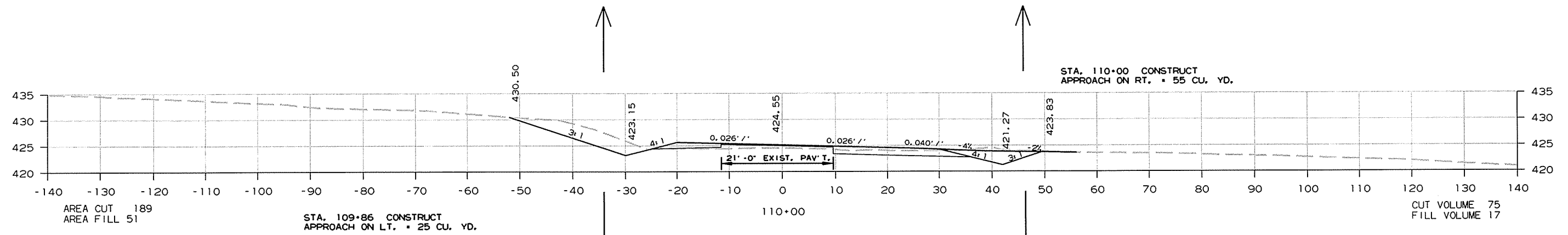
CROSS SECTION STA. 105+00 TO STA. 108+00

12/19/2013

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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
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JOB NO. 080428							94	134

② CROSS SECTIONS SITE I - NB



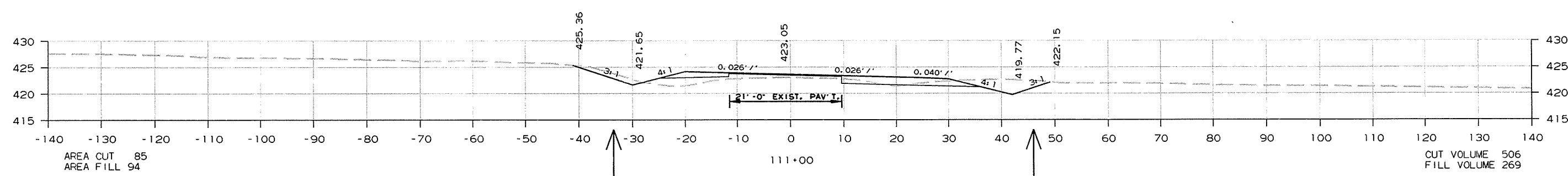
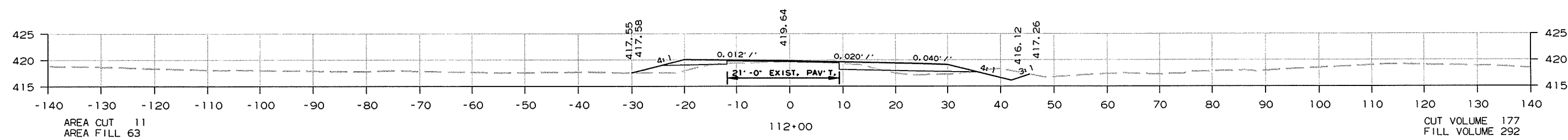
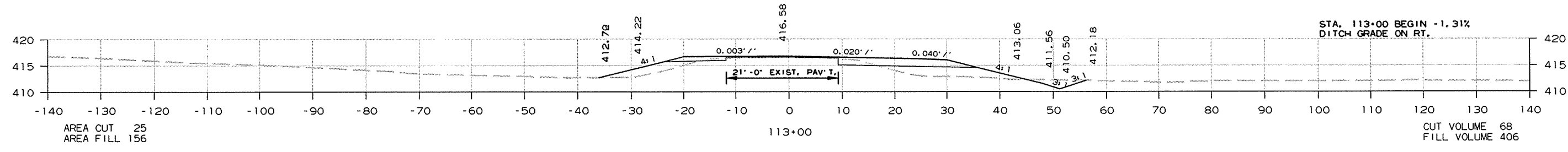
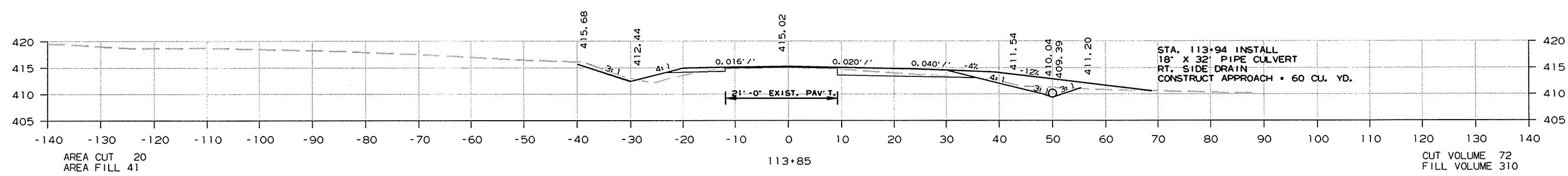
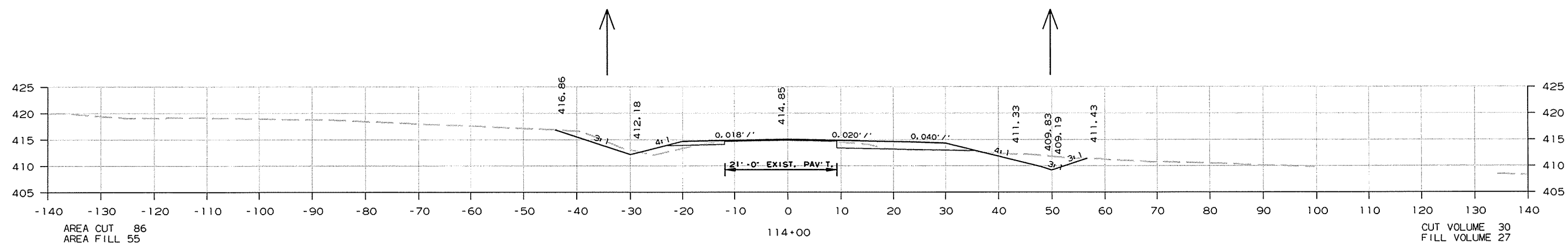
CROSS SECTION STA. 108+86 TO STA. 110+00

12/19/2013

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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.	080428	95

2 CROSS SECTIONS SITE I- NB

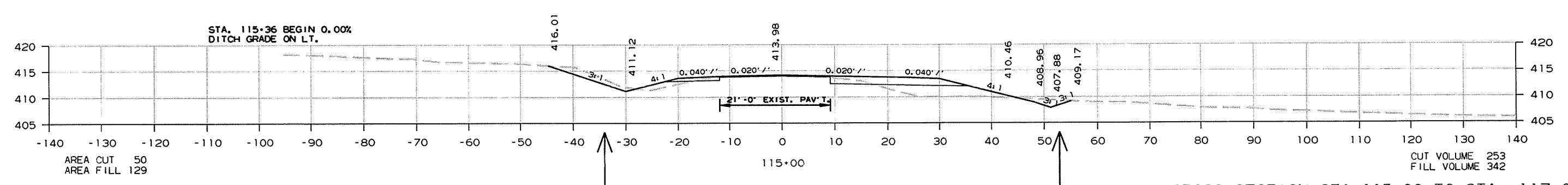
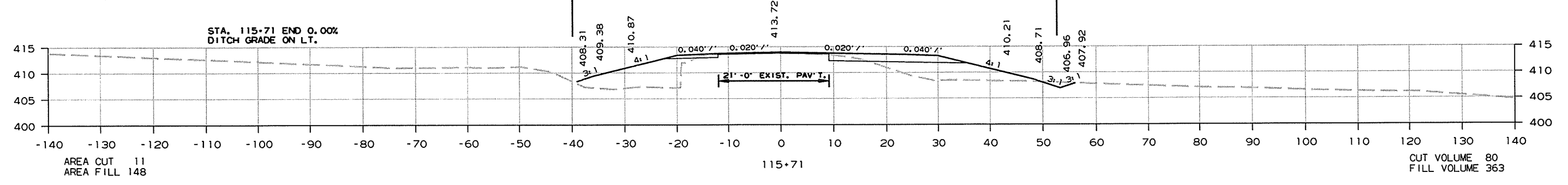
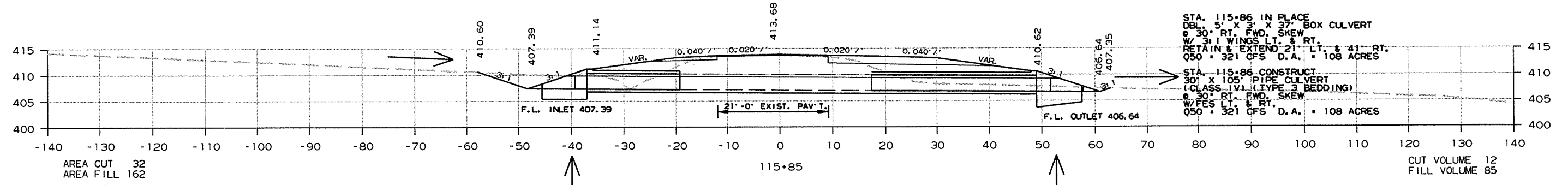
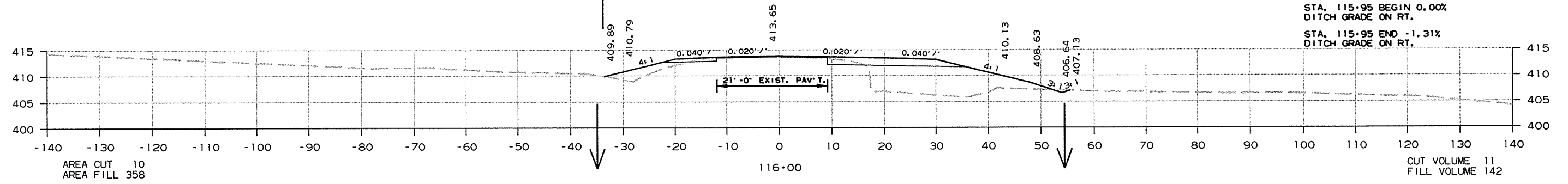
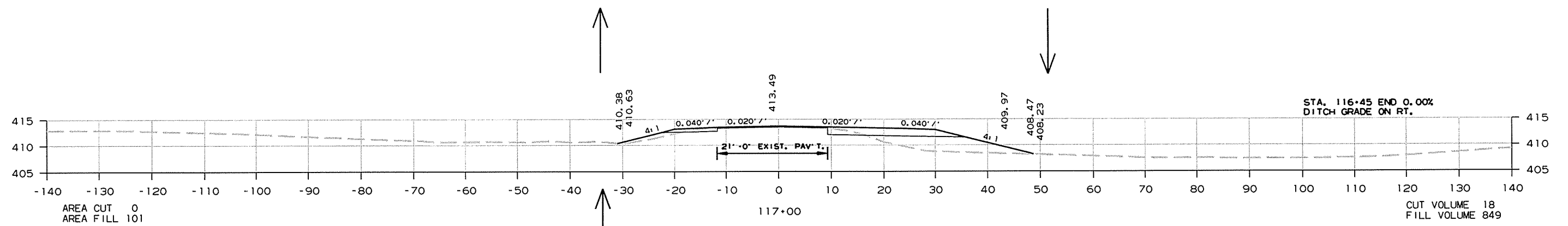


CROSS SECTION STA. 111+00 TO STA. 114+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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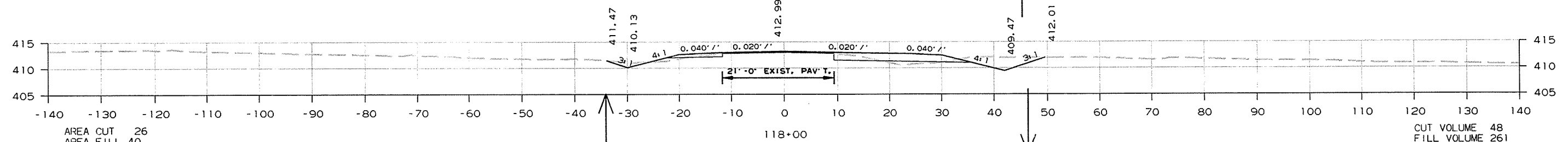
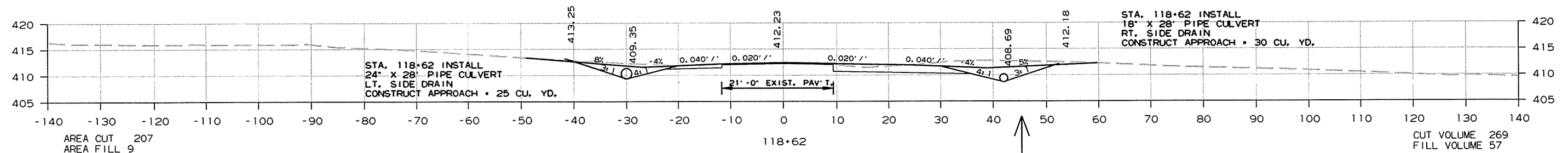
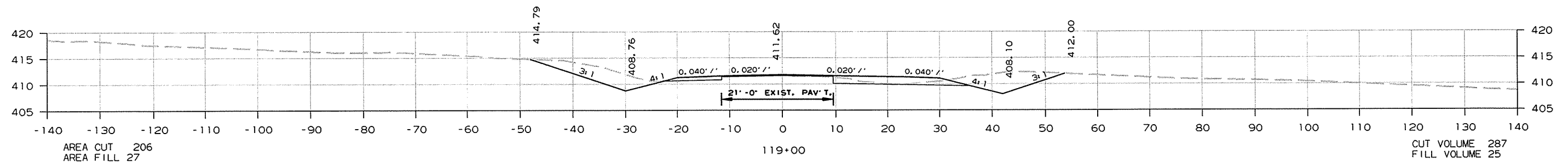
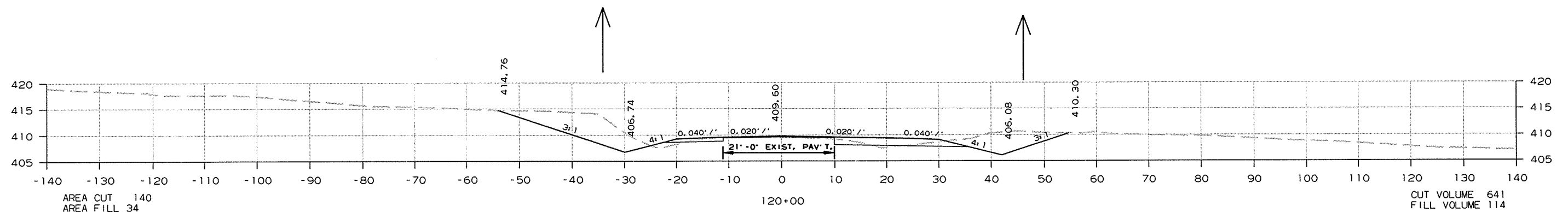
2 CROSS SECTIONS SITE I - NB



CROSS SECTION STA. 115+00 TO STA. 117+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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						JOB NO. 080428	97	134

② CROSS SECTIONS SITE 1 - NB



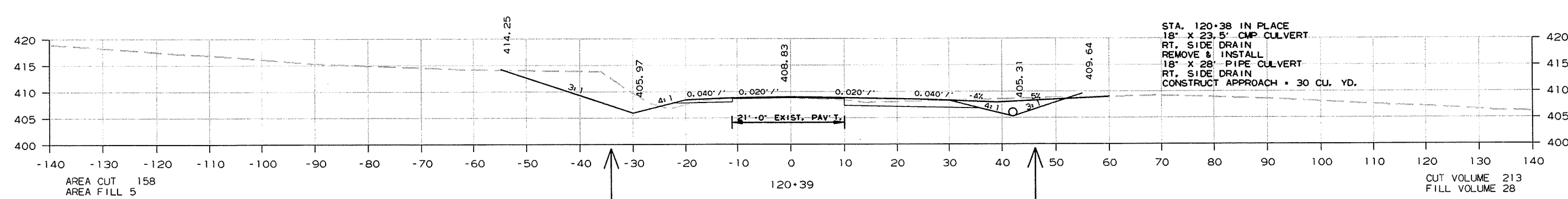
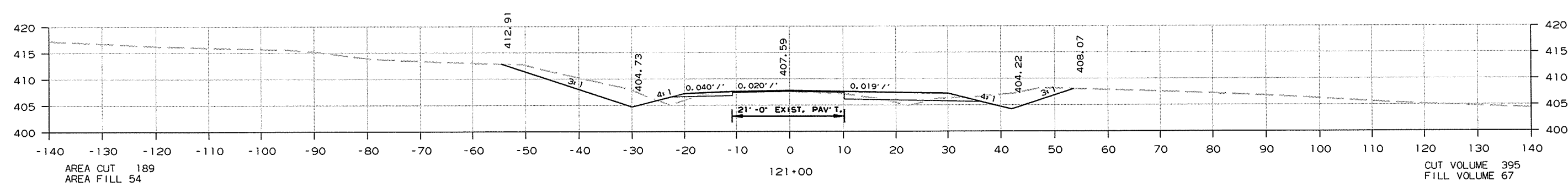
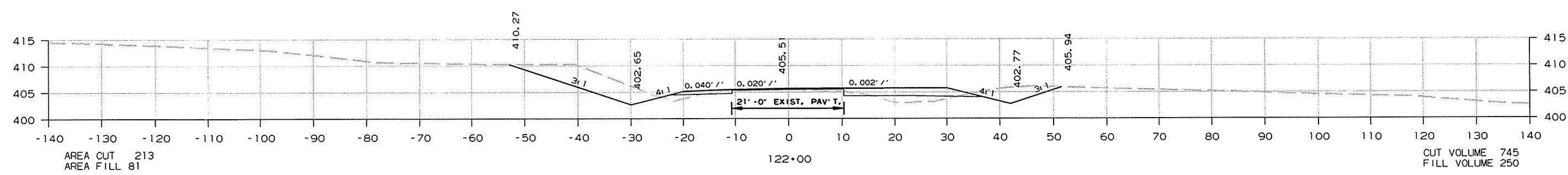
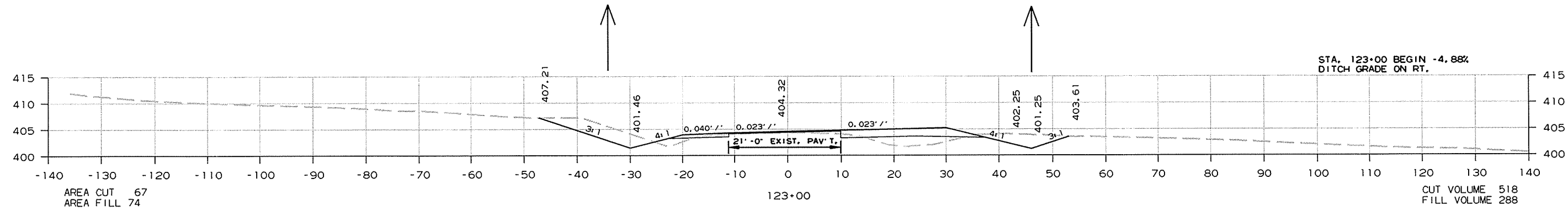
CROSS SECTION STA. 118+00 TO STA. 120+00

12/19/2013

RO80428.DCN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	98

② CROSS SECTIONS SITE I- NB



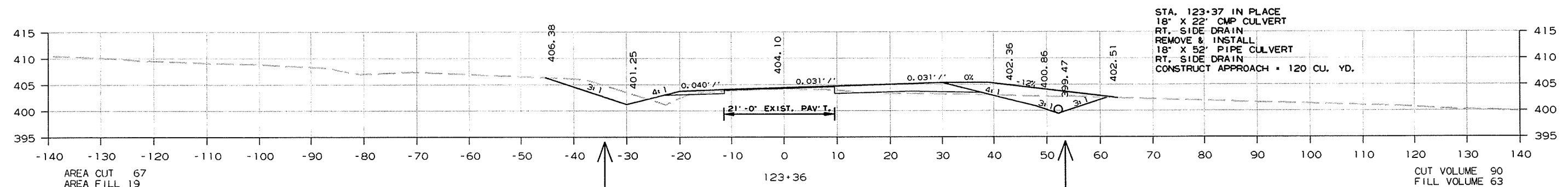
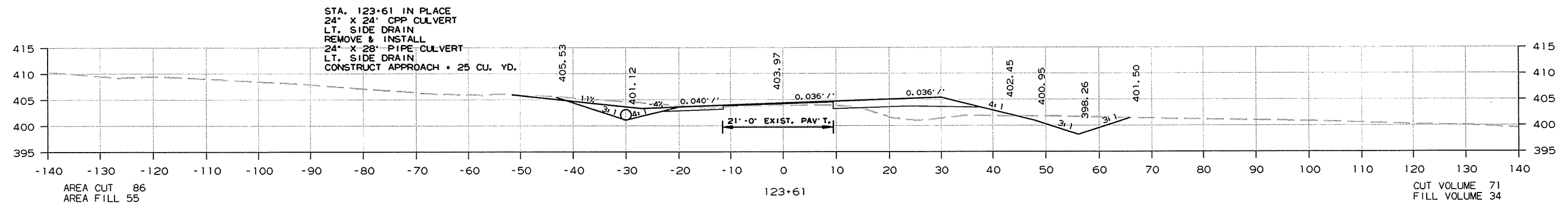
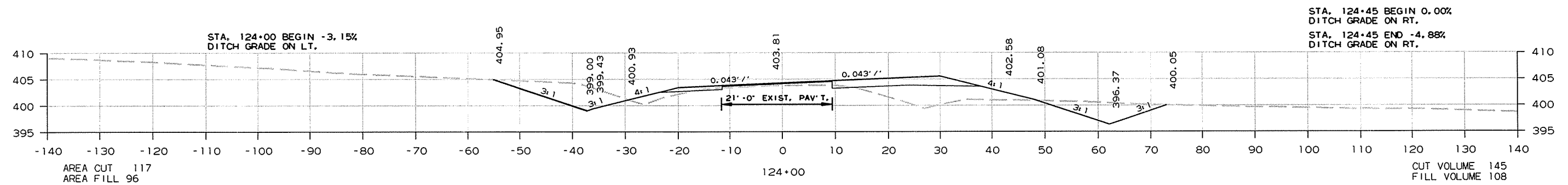
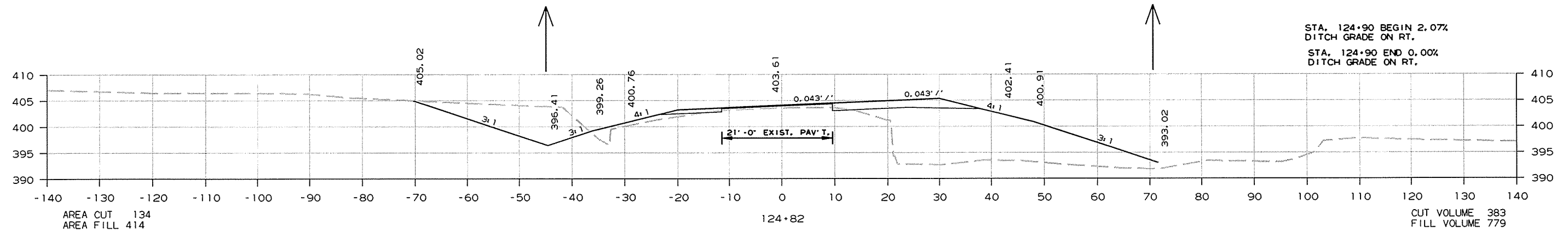
CROSS SECTION STA. 120+39 TO STA. 123+00

12/19/2013

RO80428.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 CROSS SECTIONS SITE I- NB



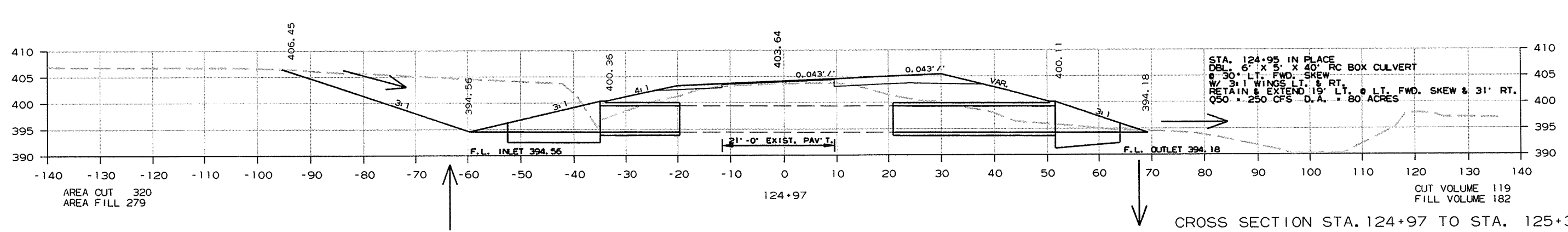
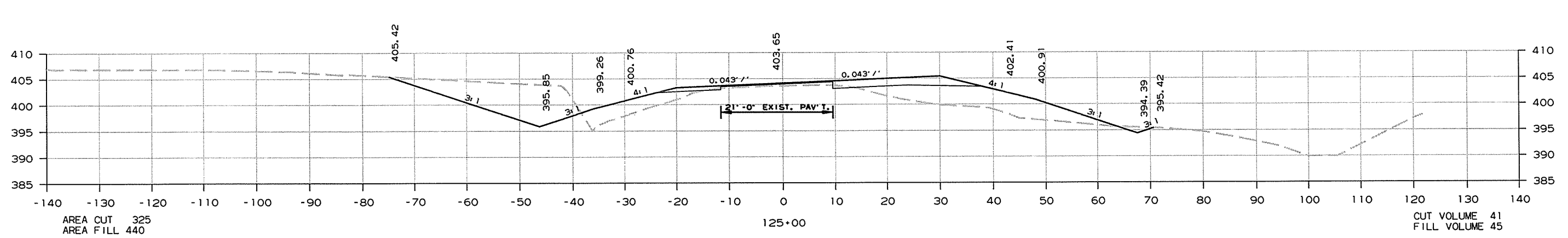
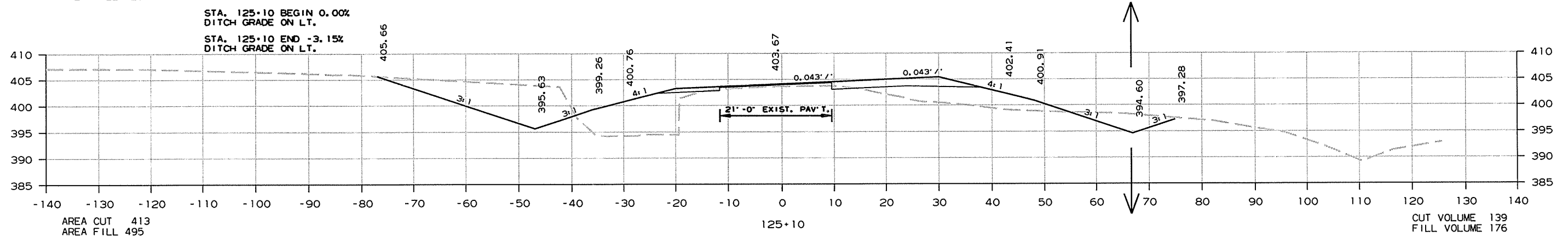
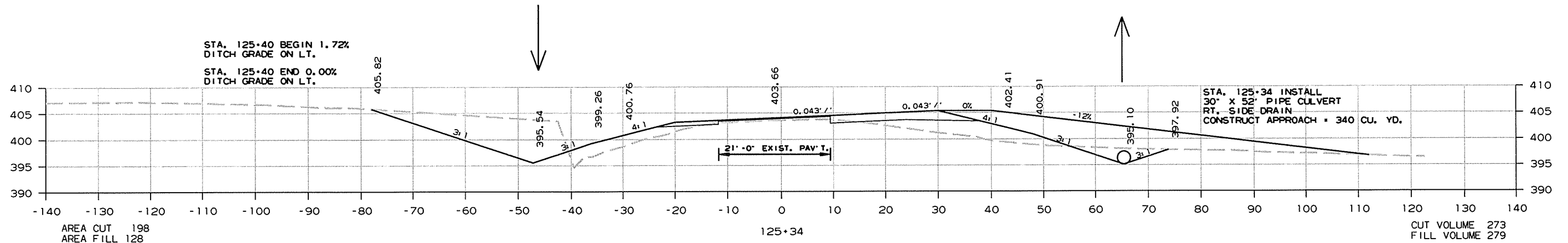
CROSS SECTION STA. 123+36 TO STA. 124+82

12/19/2013

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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.	080428	100
							134	

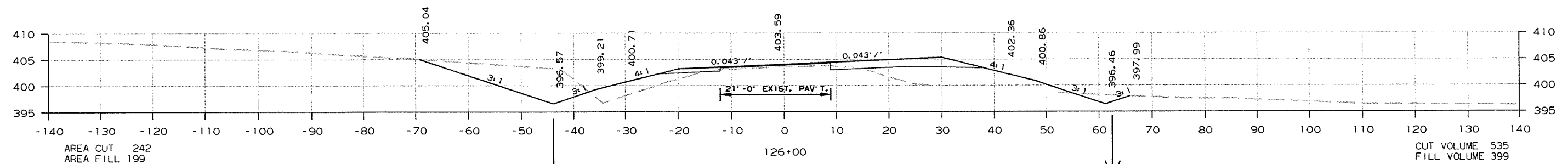
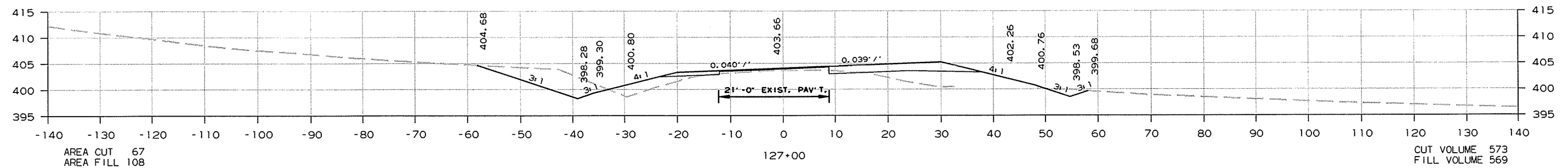
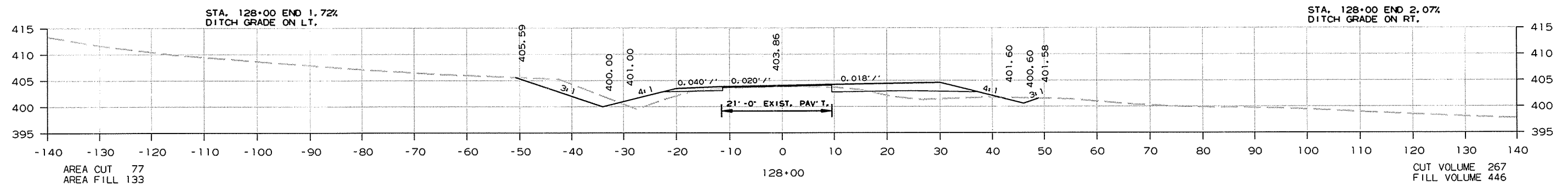
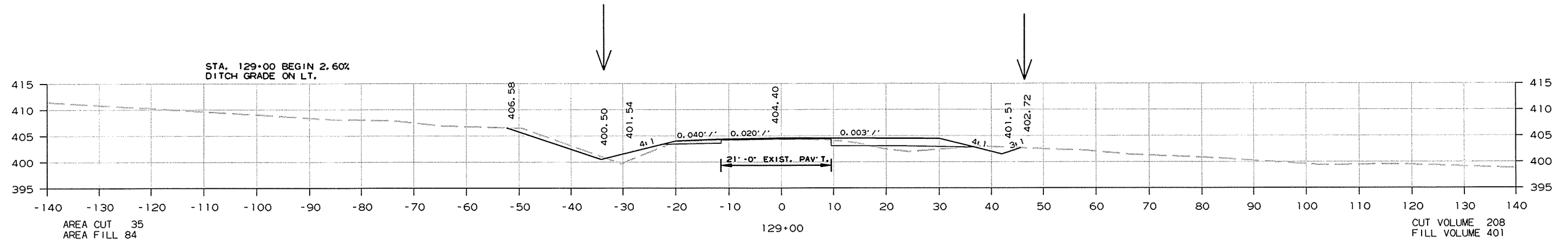
2 CROSS SECTIONS SITE I- NB



CROSS SECTION STA. 124+97 TO STA. 125+34

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							101	134

② CROSS SECTIONS SITE 1- NB



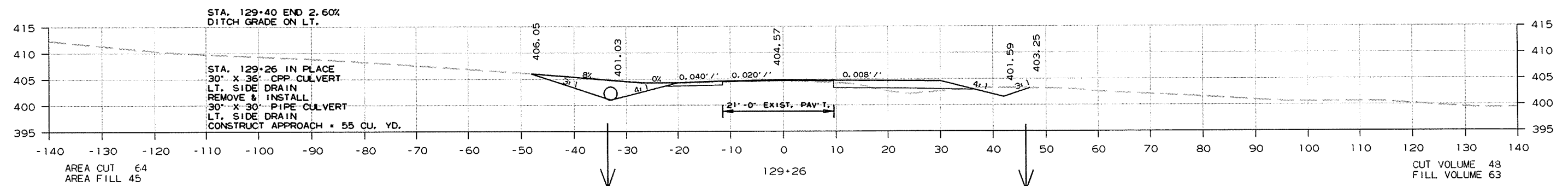
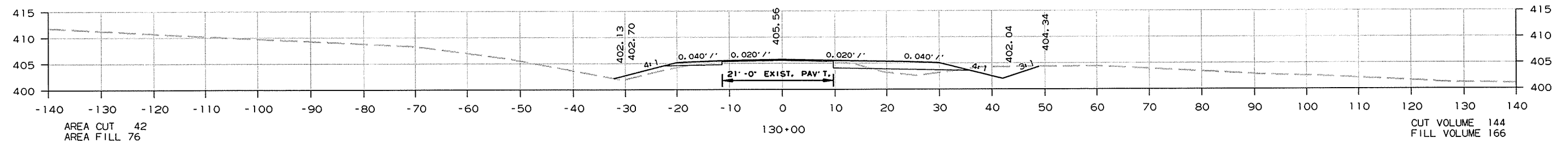
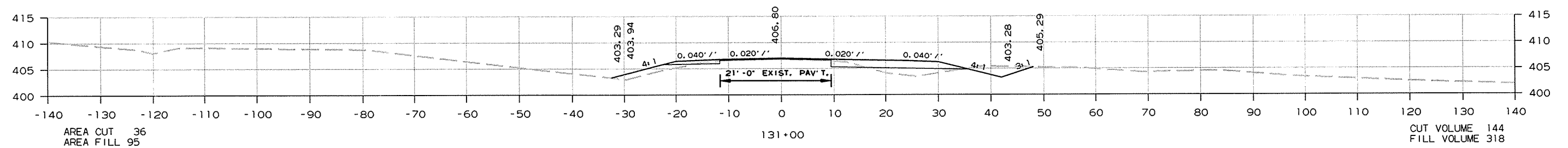
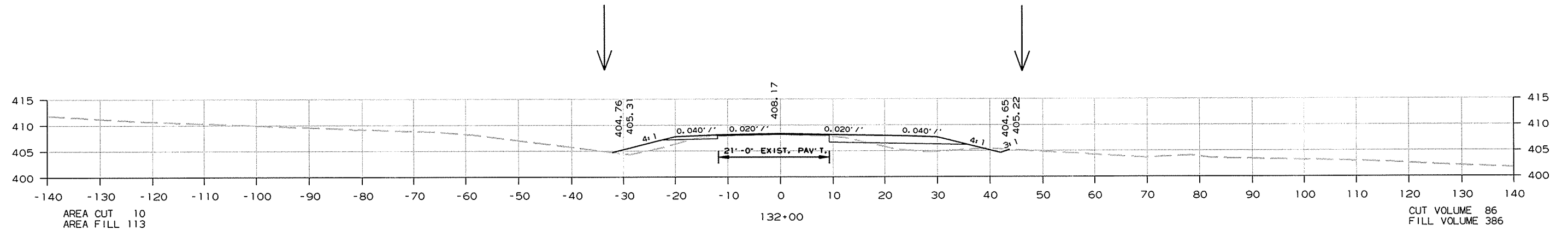
CROSS SECTION STA. 126+00 TO STA. 129+00

12/19/2013

R080428.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
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JOB NO.							080428	102	134

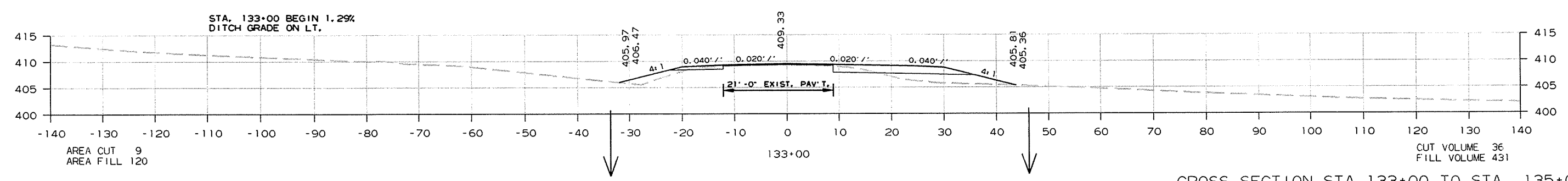
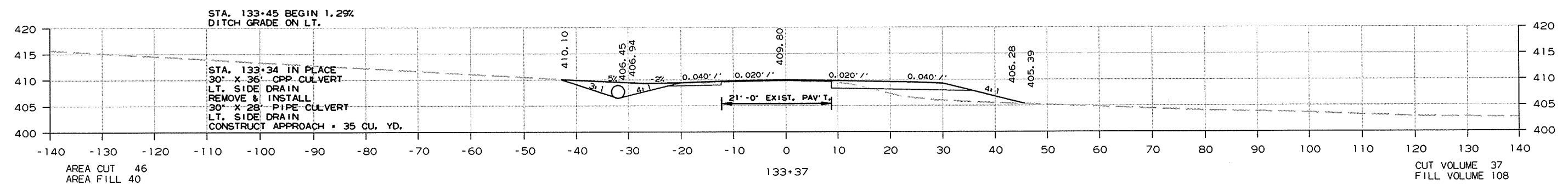
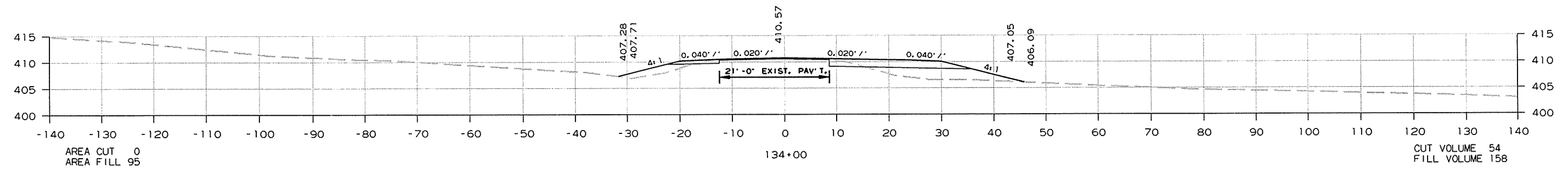
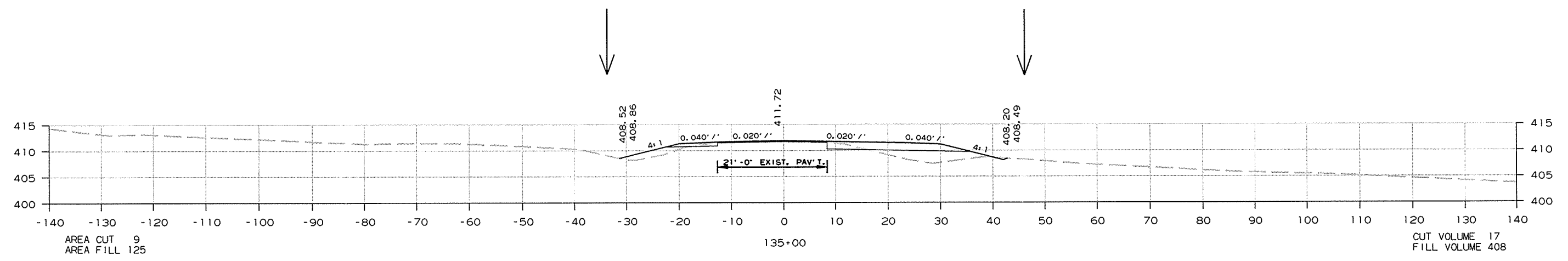
② CROSS SECTIONS SITE 1- NB



CROSS SECTION STA. 129+26 TO STA. 132+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	103	134

2 CROSS SECTIONS SITE 1- NB

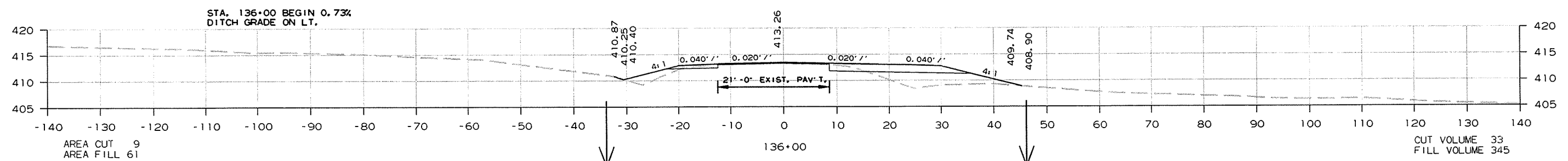
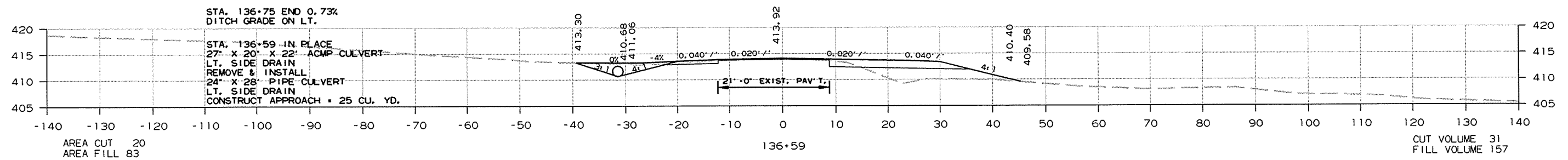
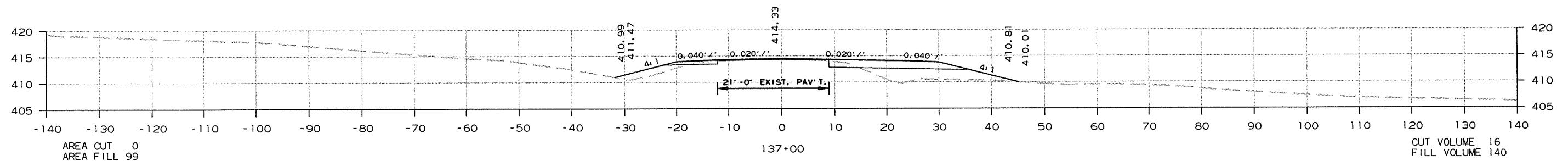
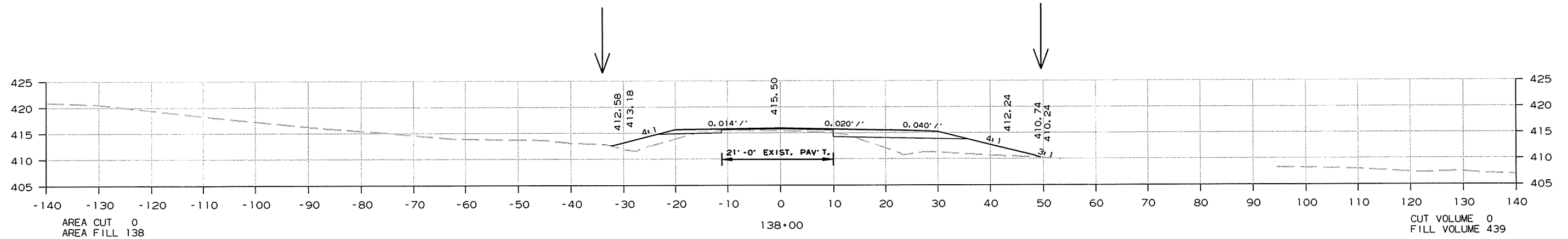


CROSS SECTION STA. 133+00 TO STA. 135+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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② CROSS SECTIONS SITE I - NB



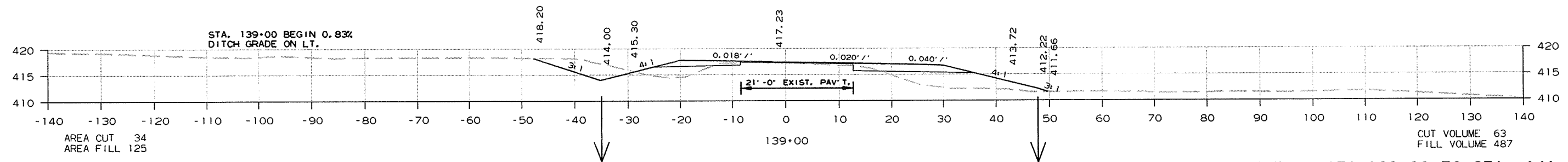
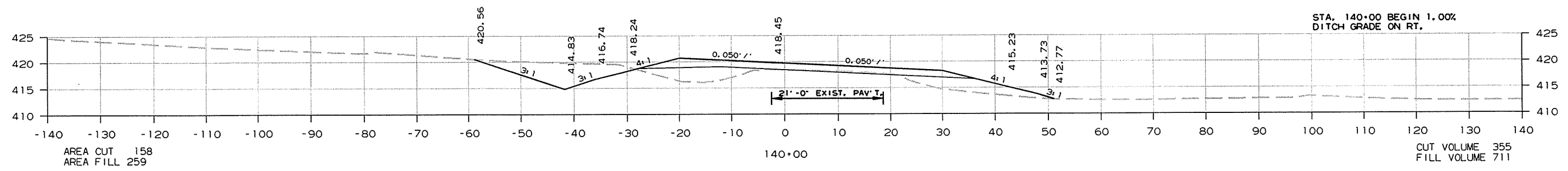
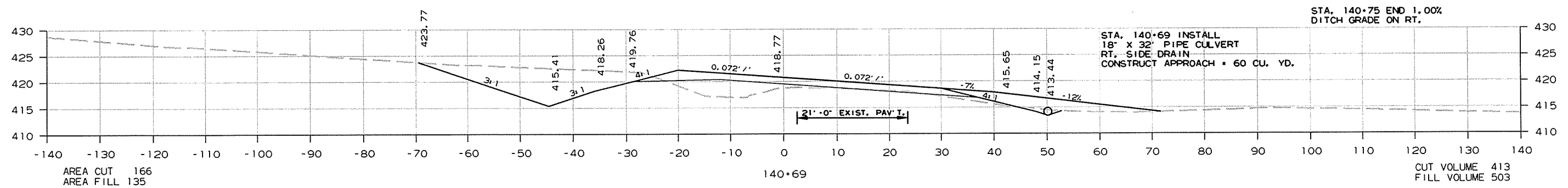
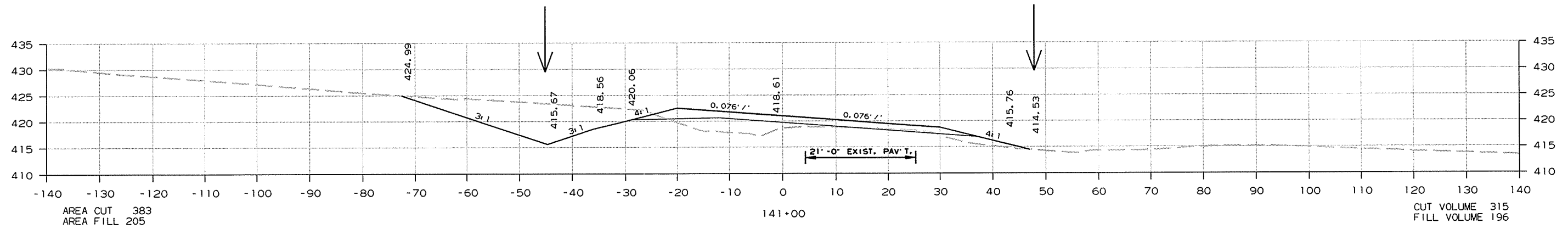
CROSS SECTION STA. 136+00 TO STA. 138+00

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RO80428.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.	080428	105

2 CROSS SECTIONS SITE 1- NB

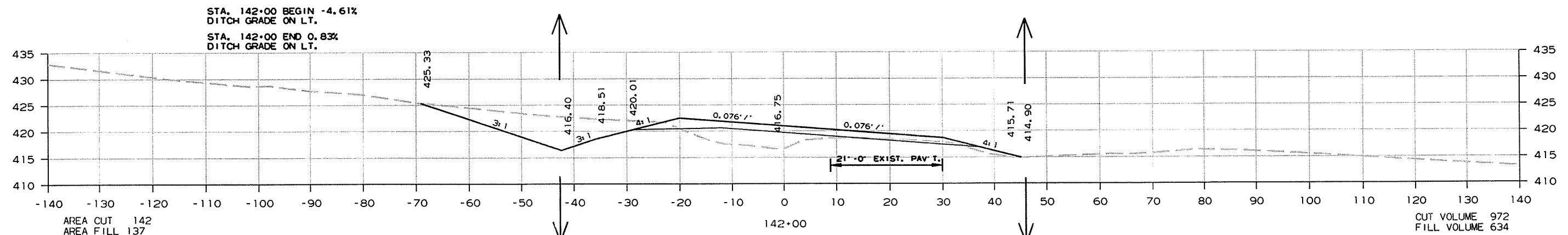
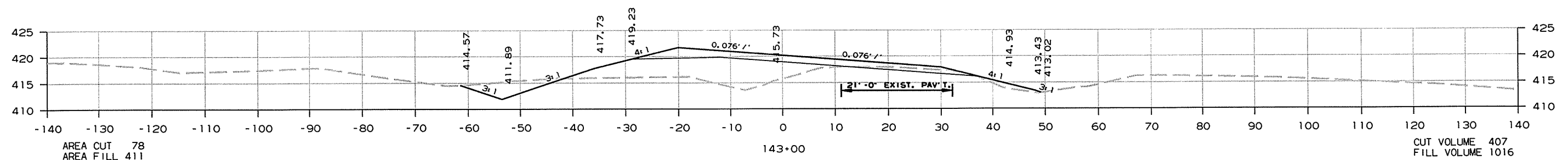
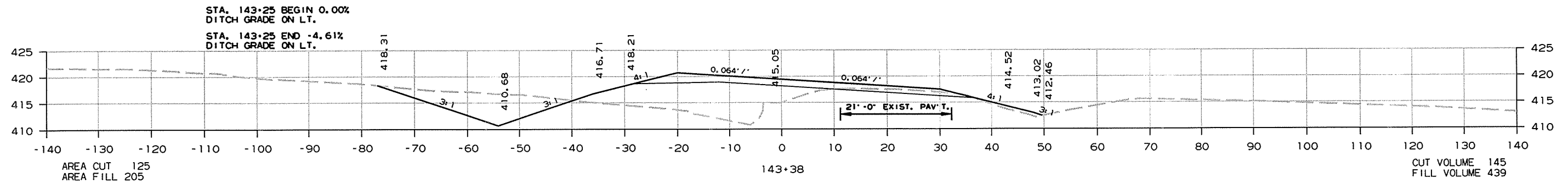
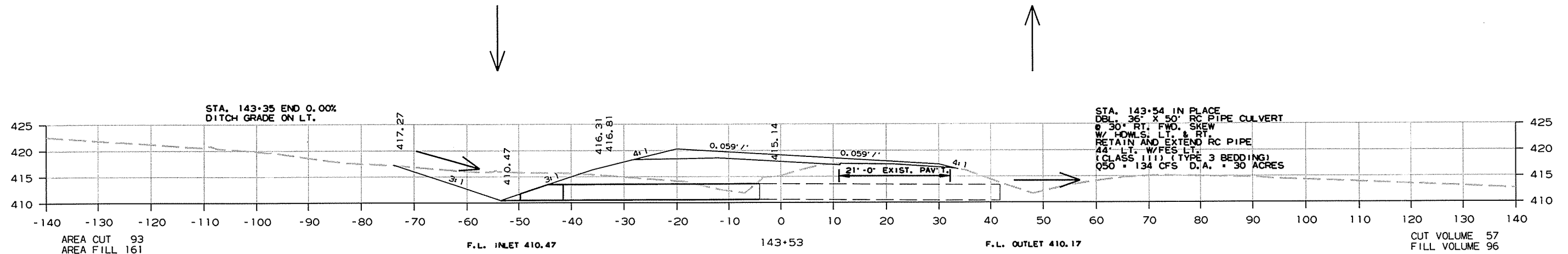


CROSS SECTION STA. 139+00 TO STA. 141+00

12/19/2013 R080428.DCN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	106	134

② CROSS SECTIONS SITE I - NB



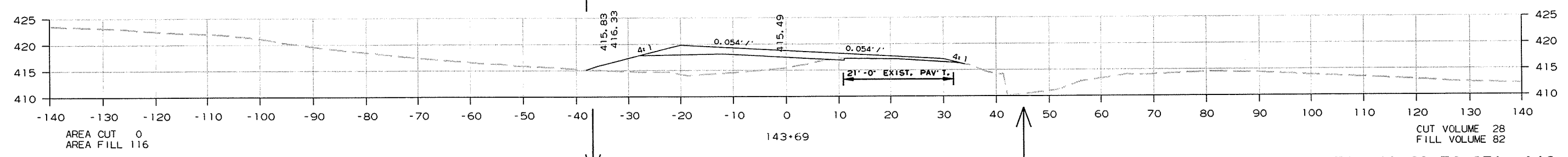
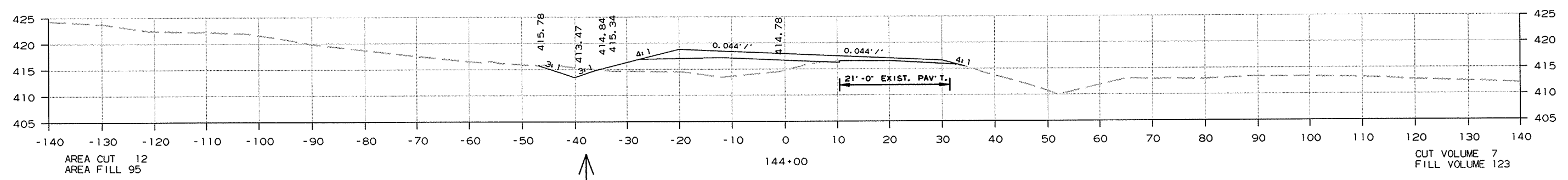
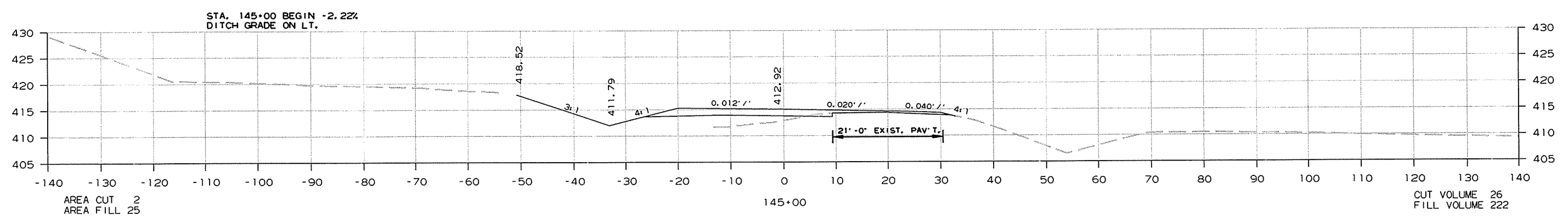
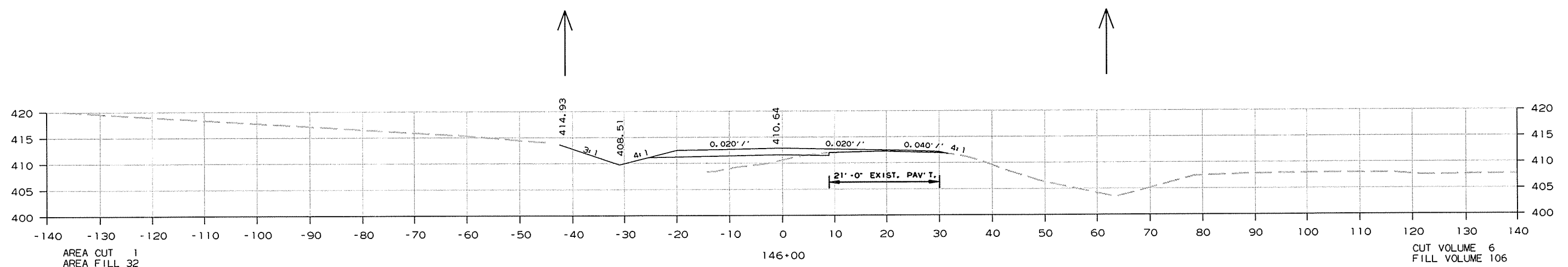
CROSS SECTION STA. 142+00 TO STA. 143+53

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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.	080428	107

2 CROSS SECTIONS SITE I - NB



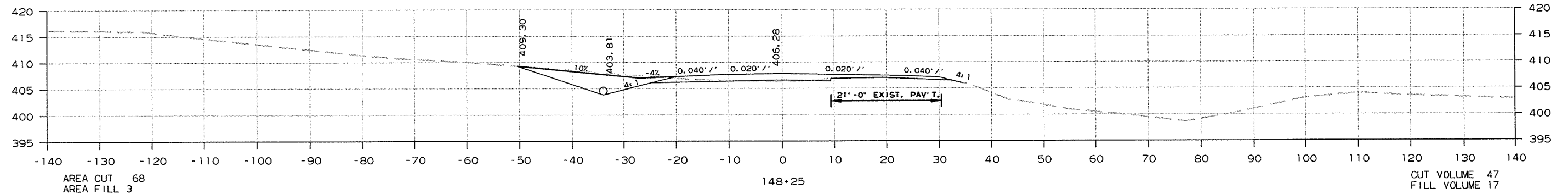
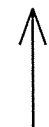
CROSS SECTION STA. 143+69 TO STA. 146+00

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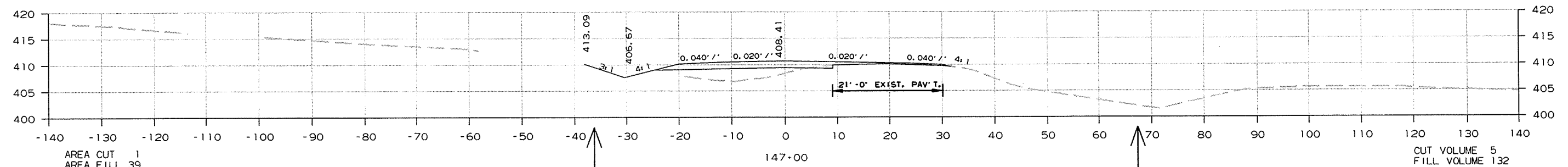
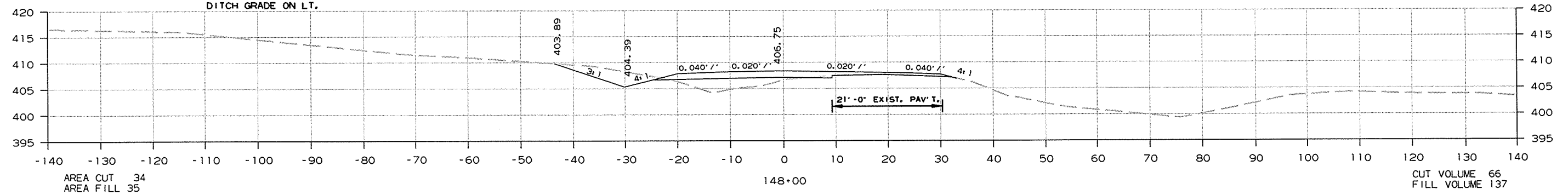
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		080428	108	134

② CROSS SECTIONS SITE 1- NB

STA. 148+26 IN PLACE
 18" x 24" CPP CULVERT
 LT. SIDE DRAIN
 REMOVE AND INSTALL
 18" x 36" PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH ON LT. = 65 CU. YD.



STA. 148+00 END -2.22%
 DITCH GRADE ON LT.



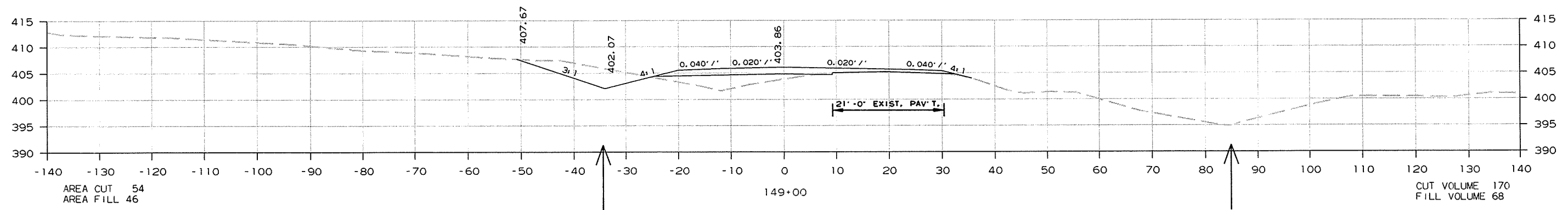
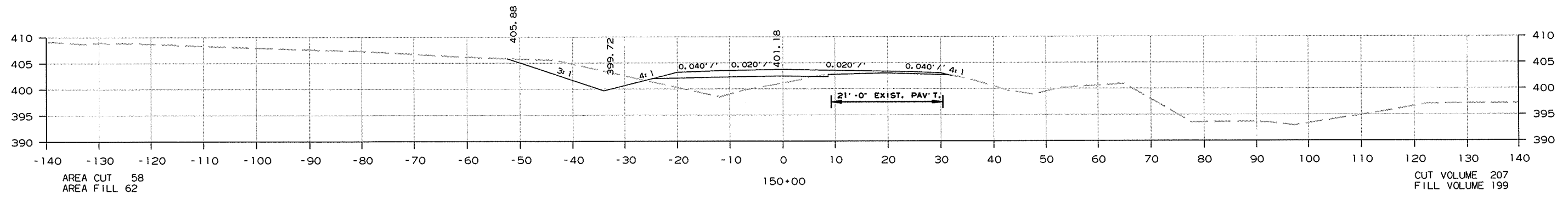
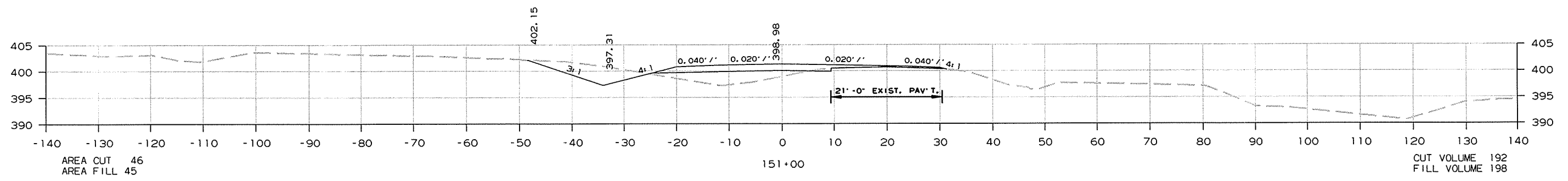
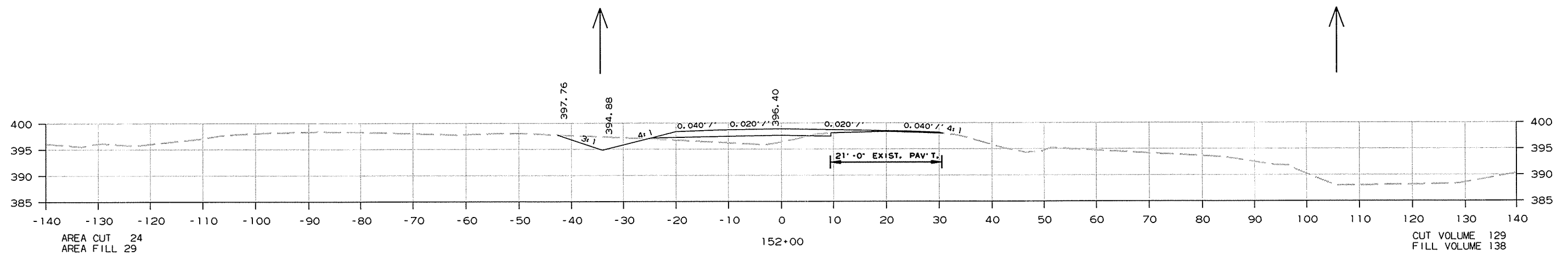
CROSS SECTION STA. 147+00 TO STA. 148+25

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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. 080428							109	134

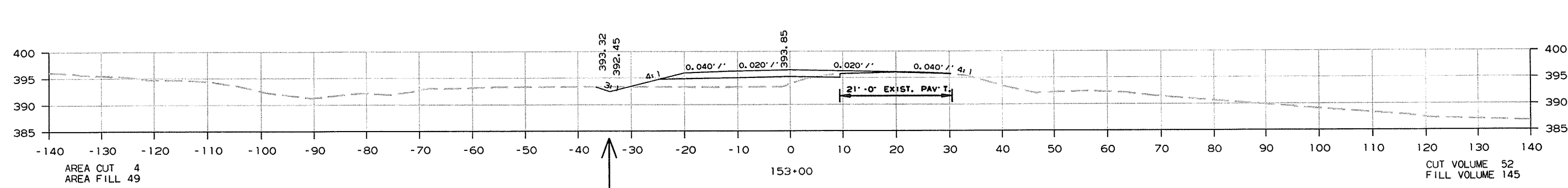
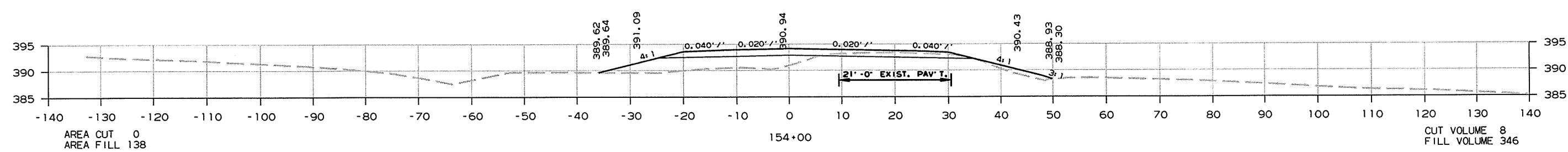
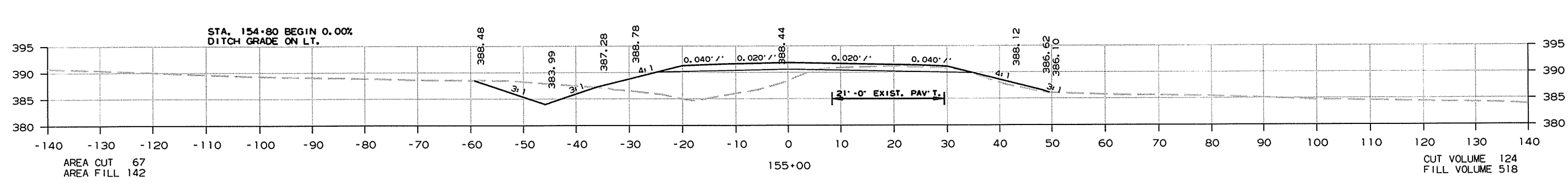
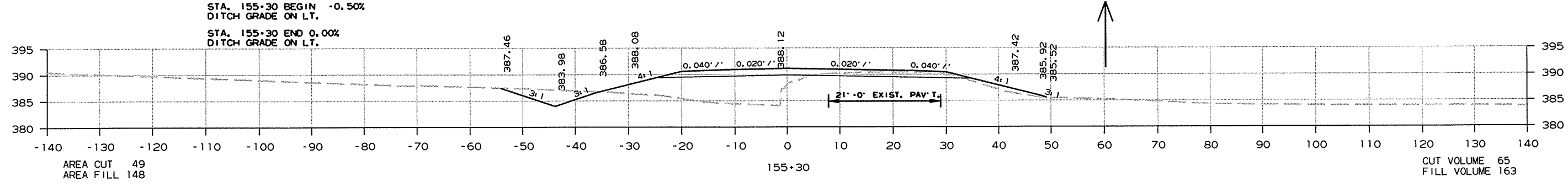
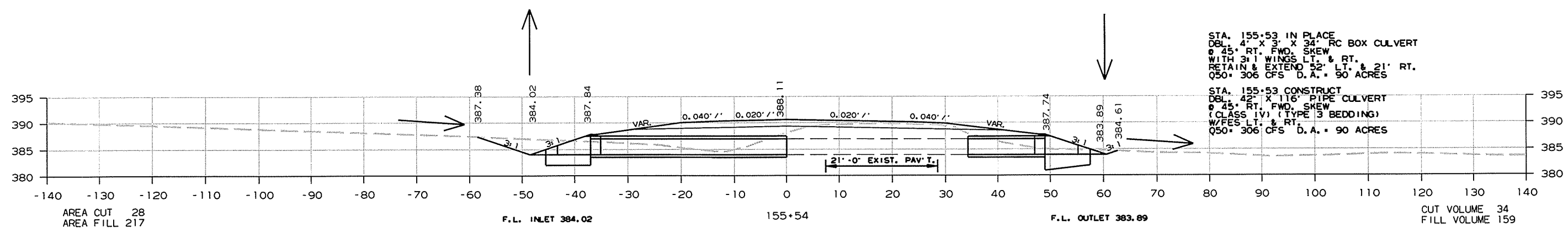
2 CROSS SECTIONS SITE 1- NB



CROSS SECTION STA. 149+00 TO STA. 152+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							110	132

2 CROSS SECTIONS SITE I - NB

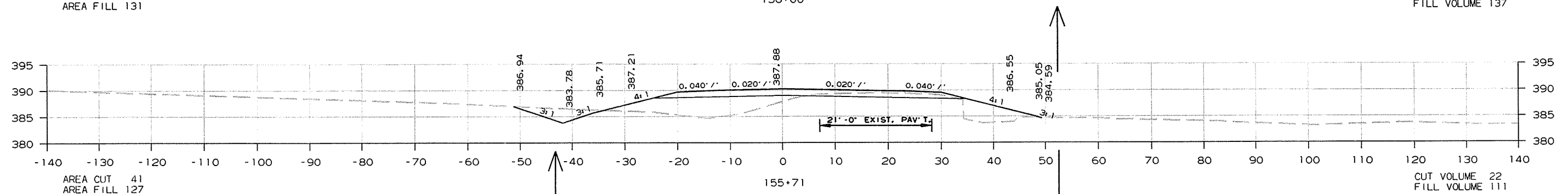
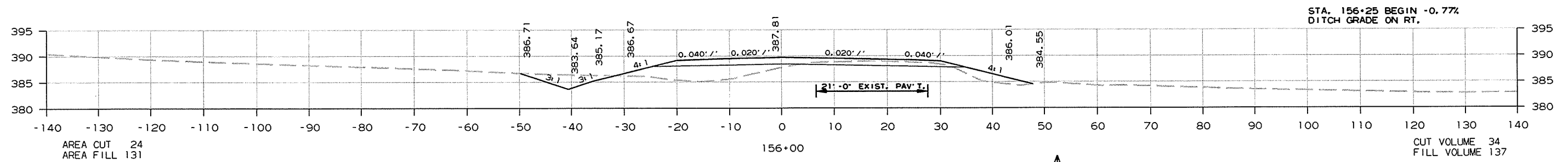
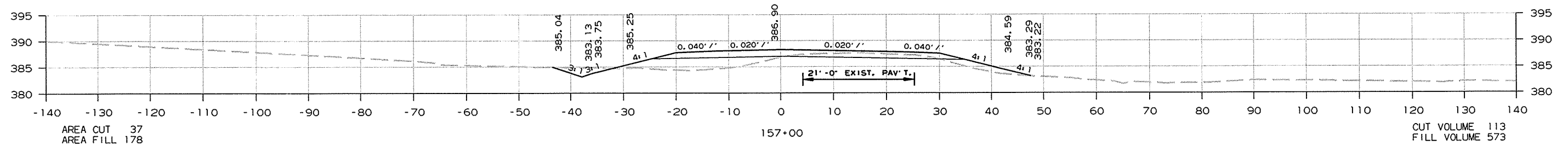
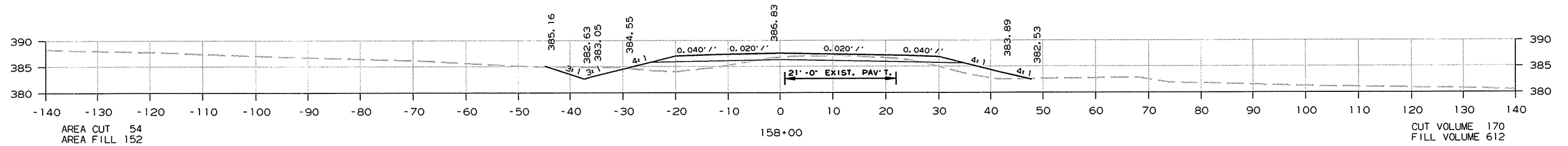
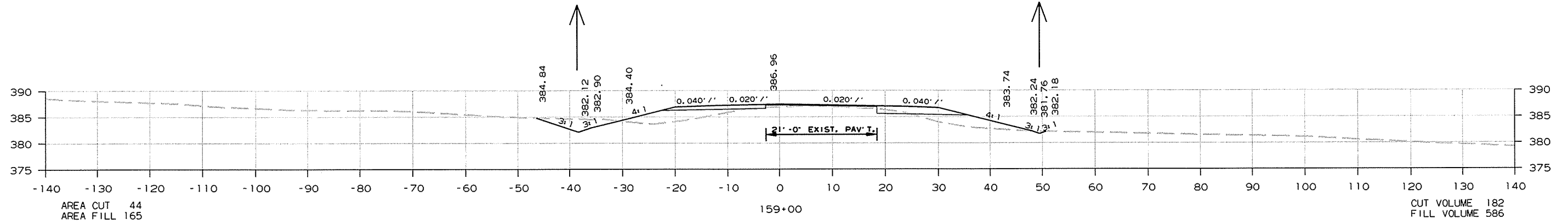


CROSS SECTION STA. 153+00 TO STA. 155+54

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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. 080428	111	134

② CROSS SECTIONS SITE I - NB



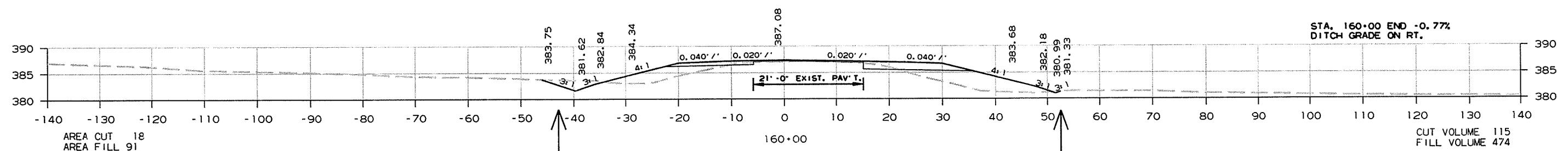
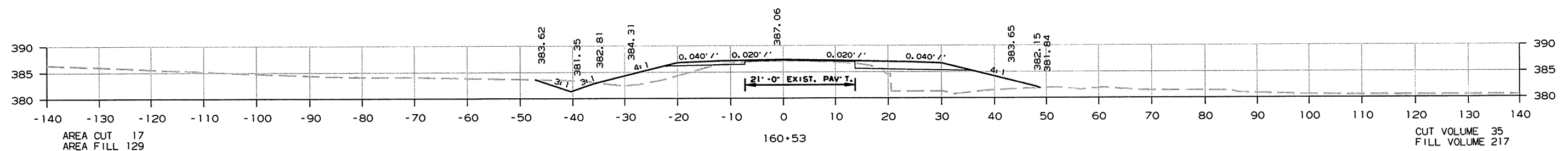
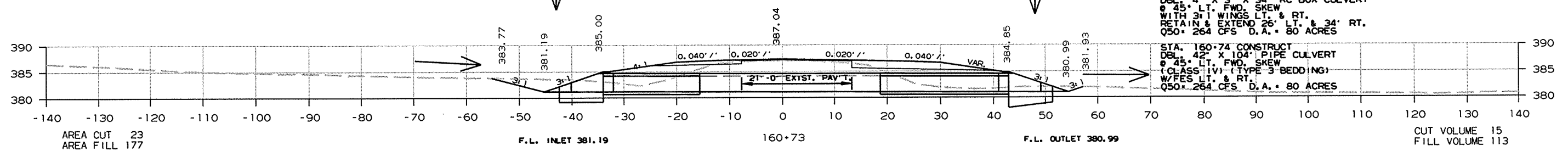
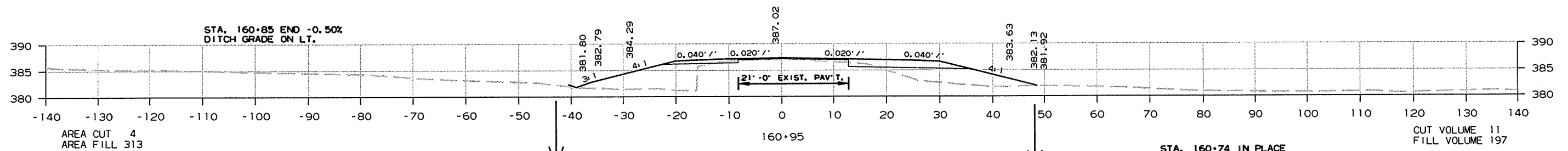
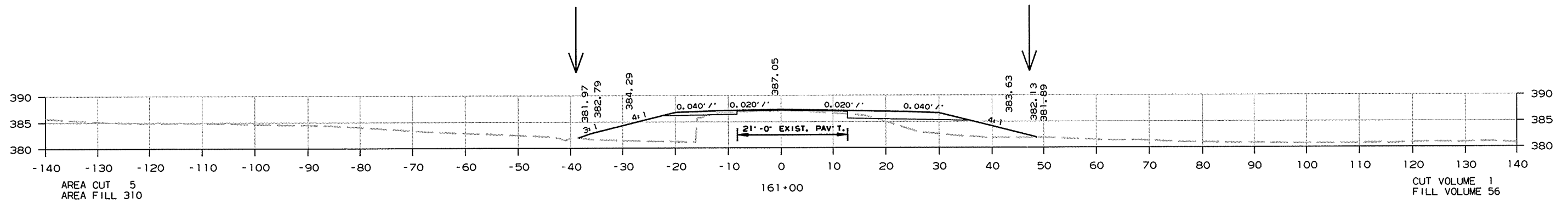
CROSS SECTION STA. 155+71 TO STA. 159+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	080428		112	134

② CROSS SECTIONS SITE I - NB



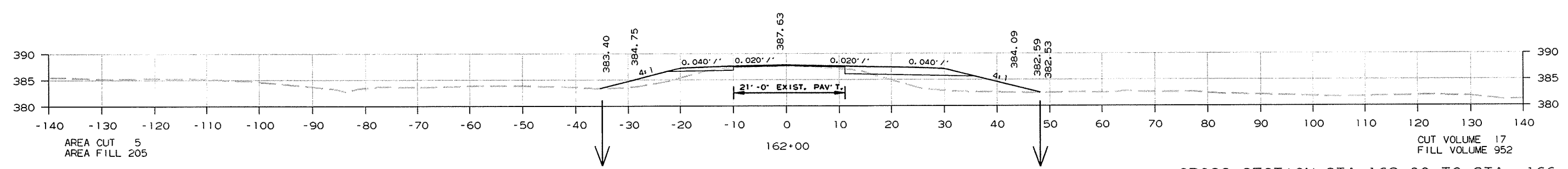
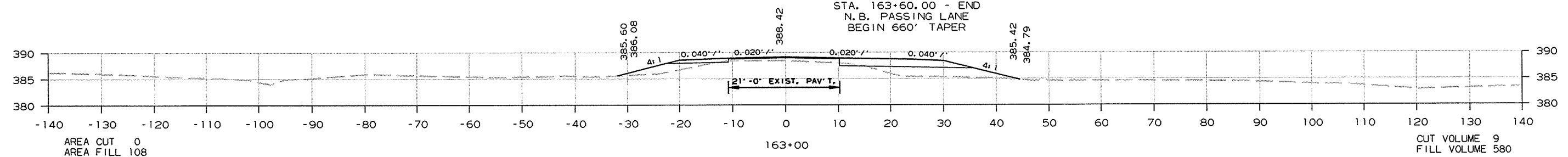
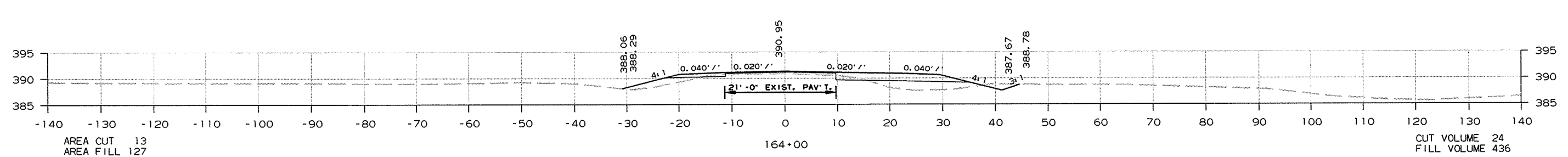
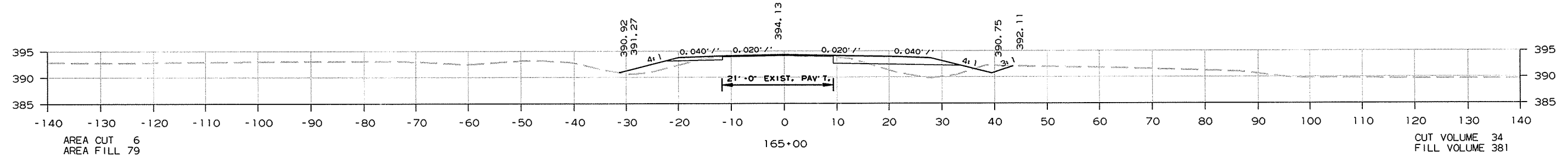
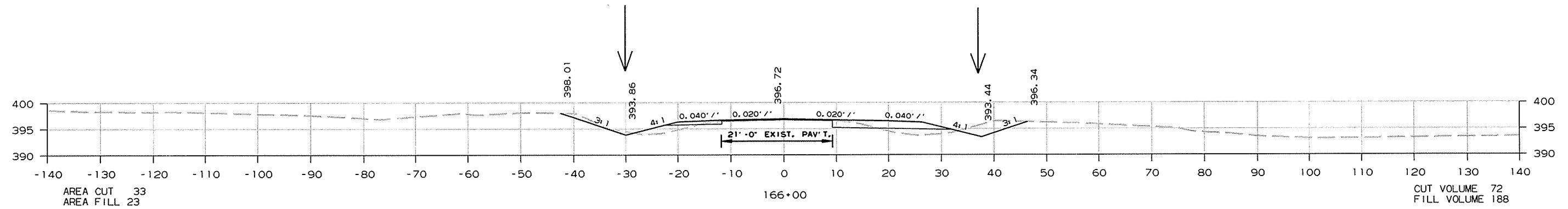
CROSS SECTION STA. 160+00 TO STA. 161+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	113	134

② CROSS SECTIONS SITE I - NB



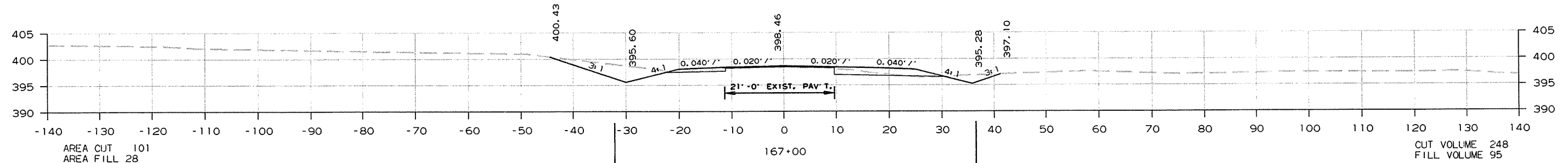
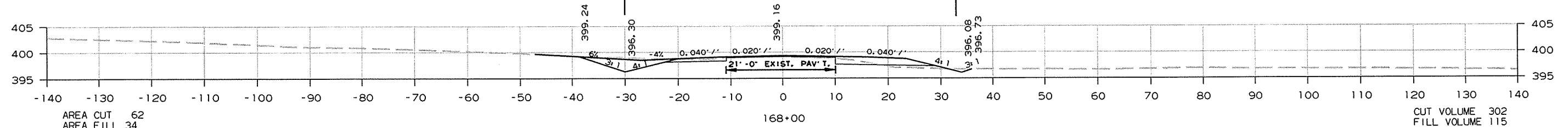
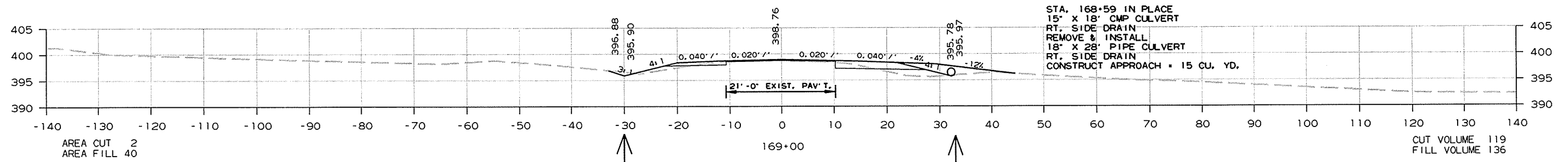
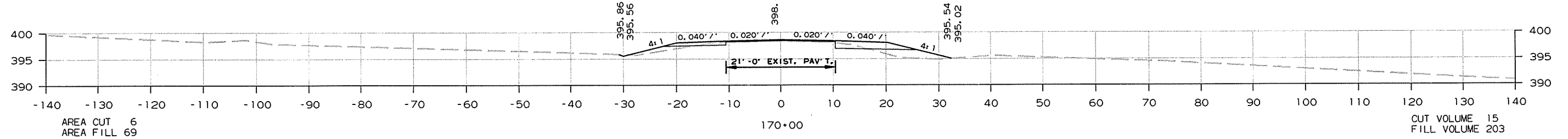
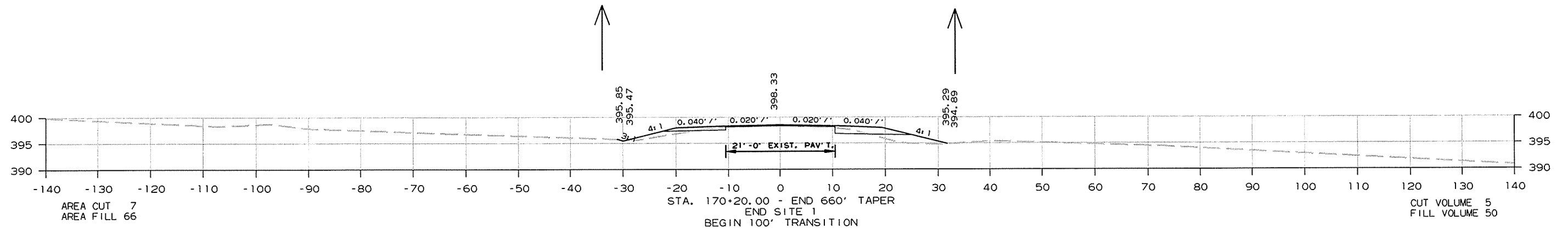
CROSS SECTION STA. 162+00 TO STA. 166+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	114	134

② CROSS SECTIONS SITE 1 - NB



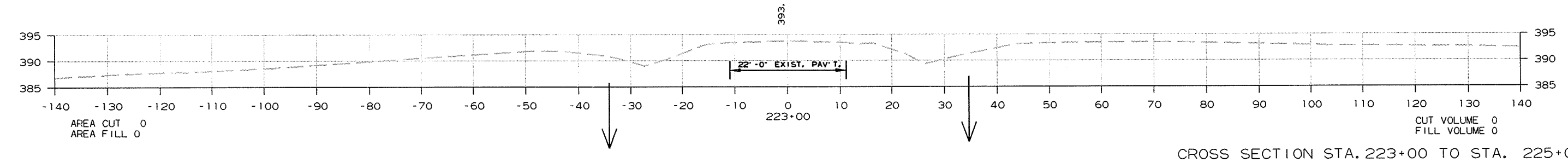
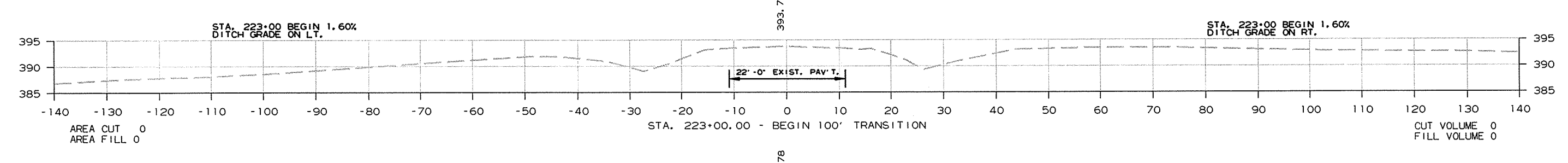
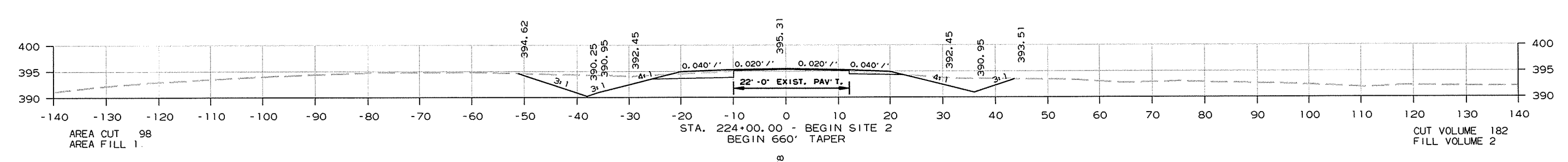
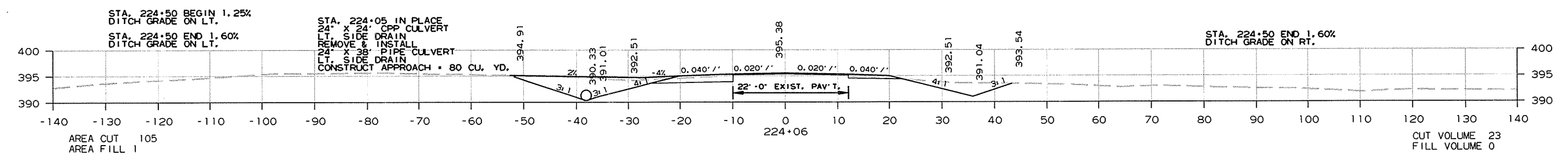
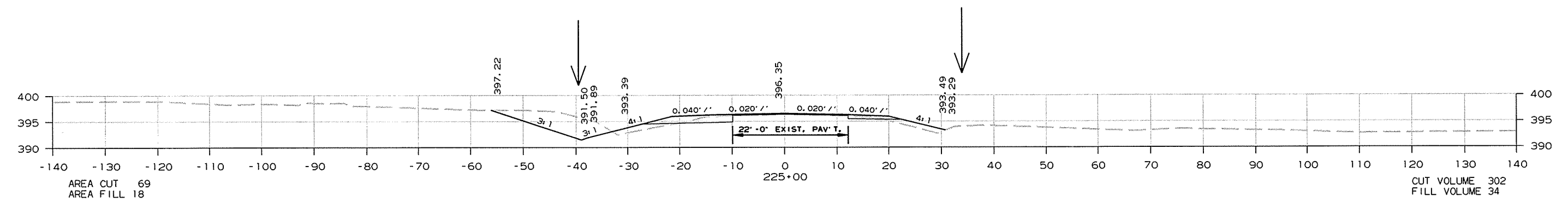
CROSS SECTION STA. 167+00 TO STA. 170+20

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DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
JOB NO.							080428	115	134

2 CROSS SECTIONS SITE 2 - SB

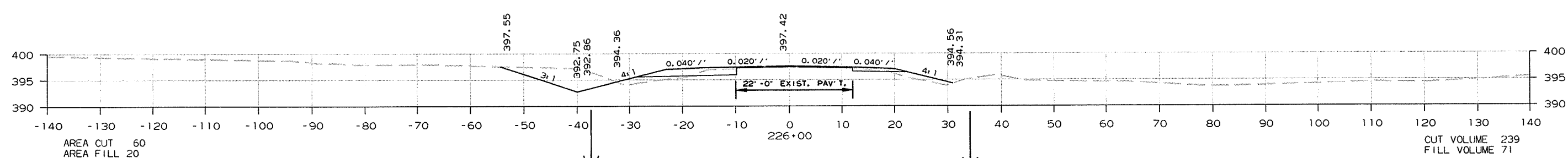
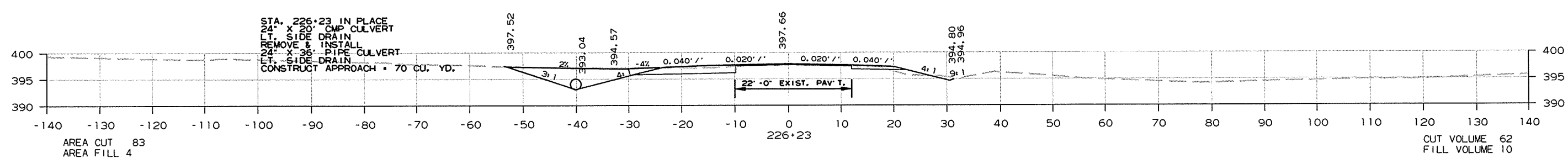
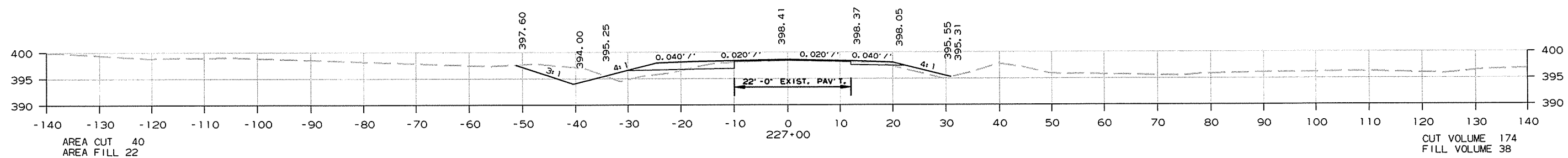
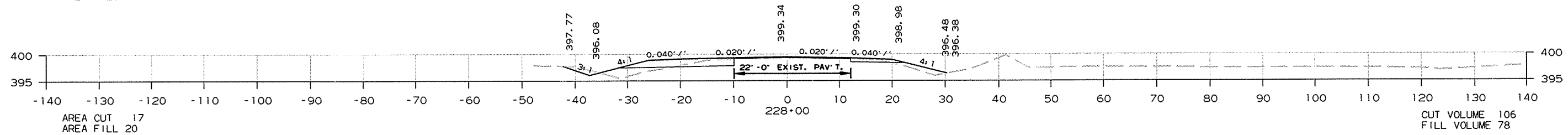
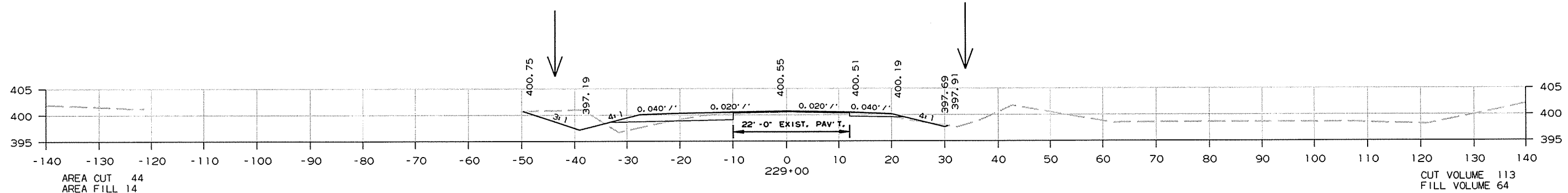


CROSS SECTION STA. 223+00 TO STA. 225+00

12/18/2013 R080428.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. 080428	116	134

2 CROSS SECTIONS SITE 2 - SB

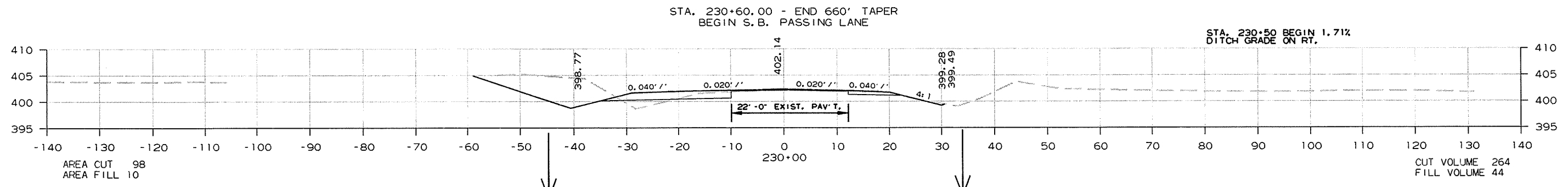
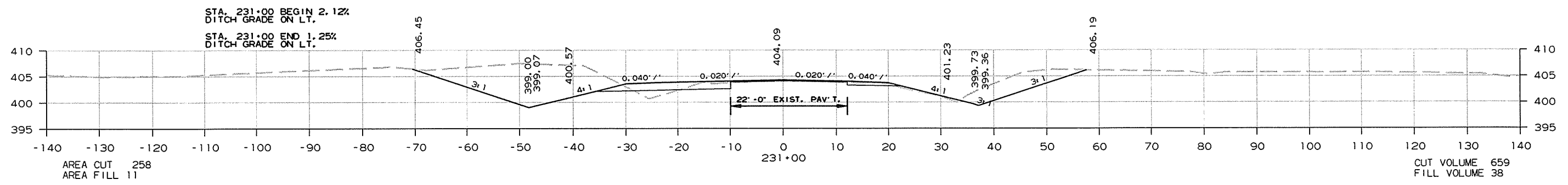
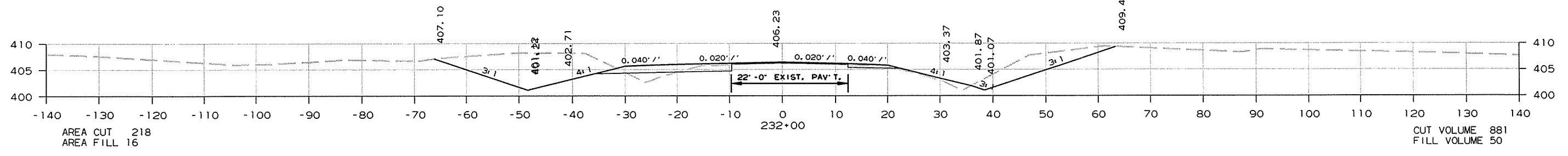
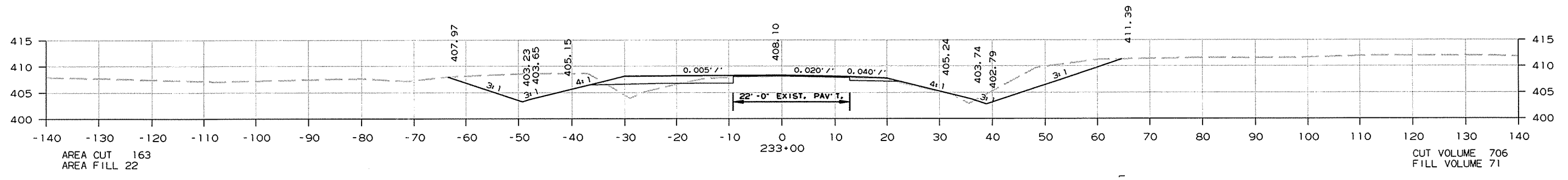
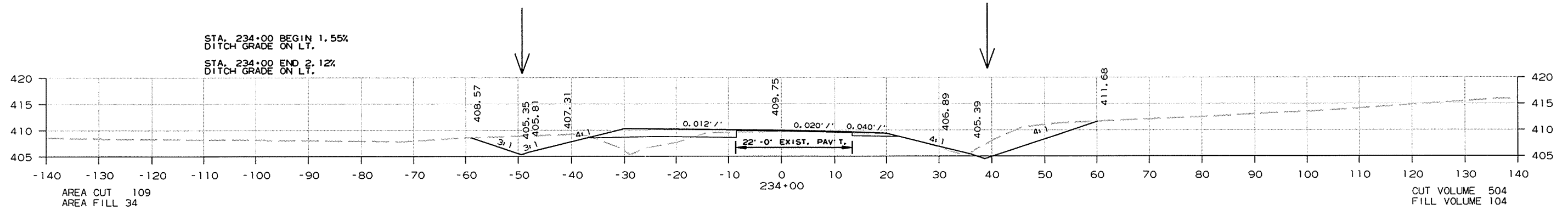


CROSS SECTION STA. 226+00 TO STA. 229+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	117	134

2 CROSS SECTIONS SITE 2 - SB

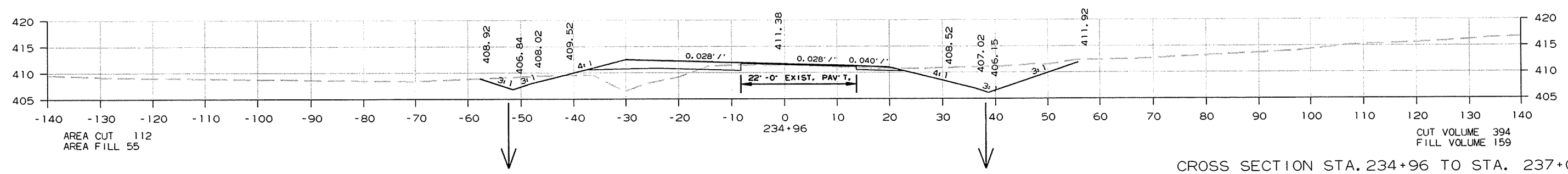
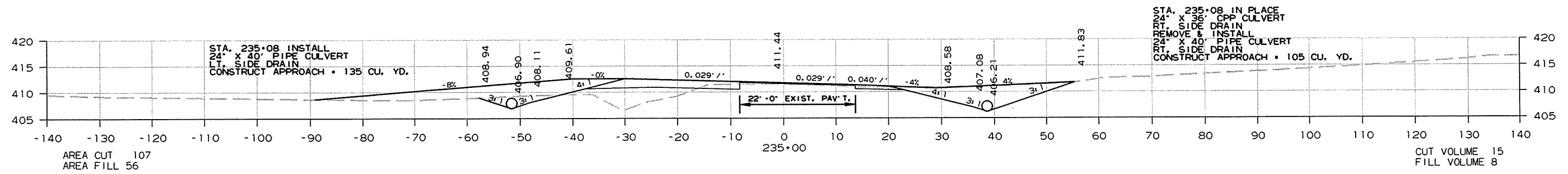
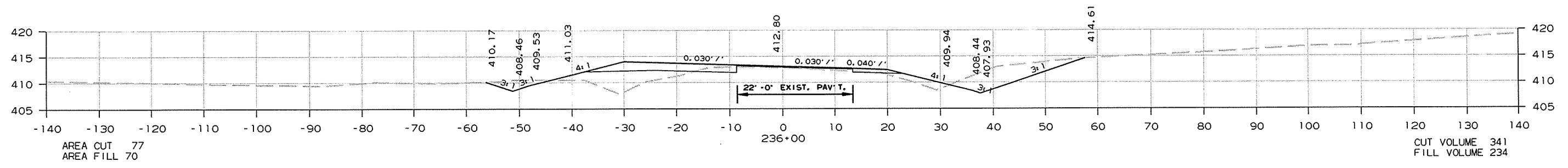
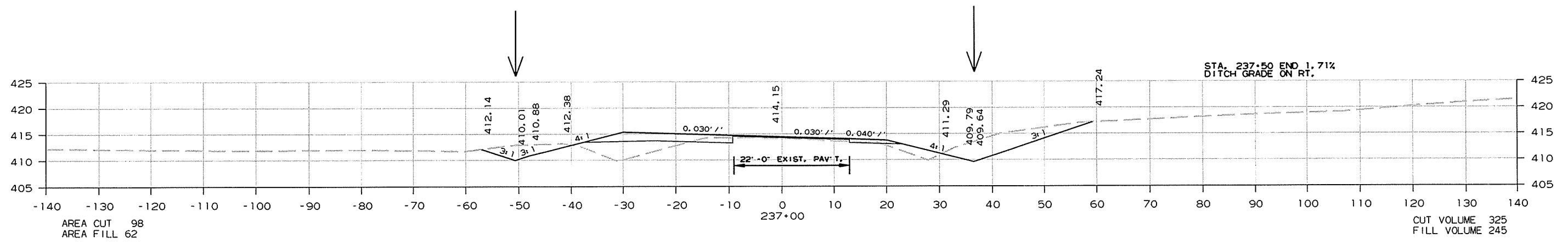


CROSS SECTION STA. 230+00 TO STA. 234+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	080428
							SHEET NO.	118
							TOTAL SHEETS	134

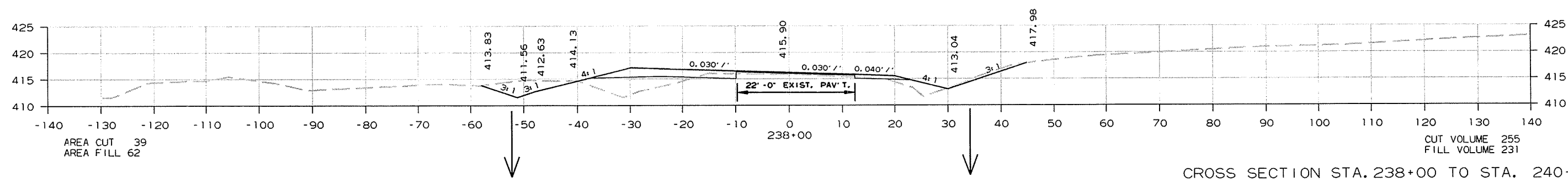
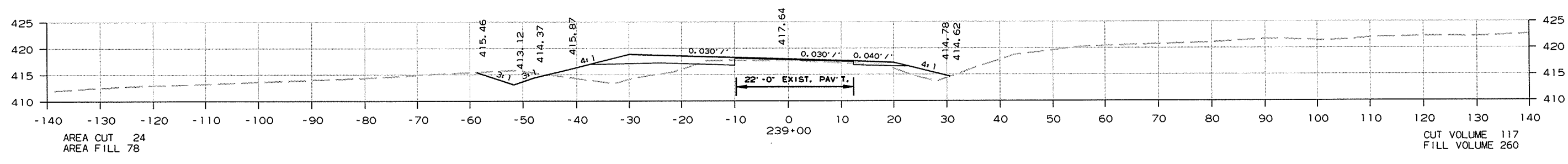
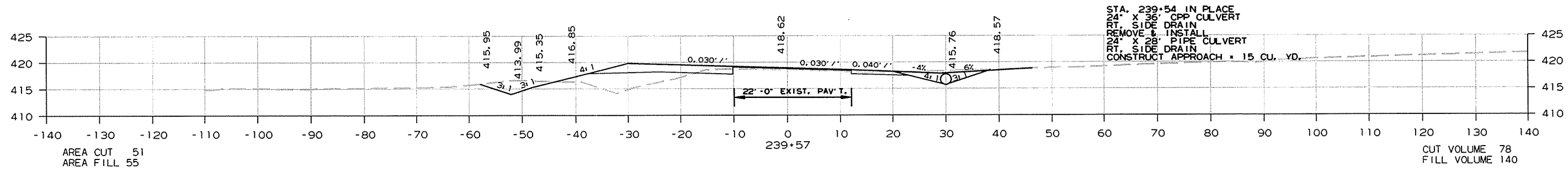
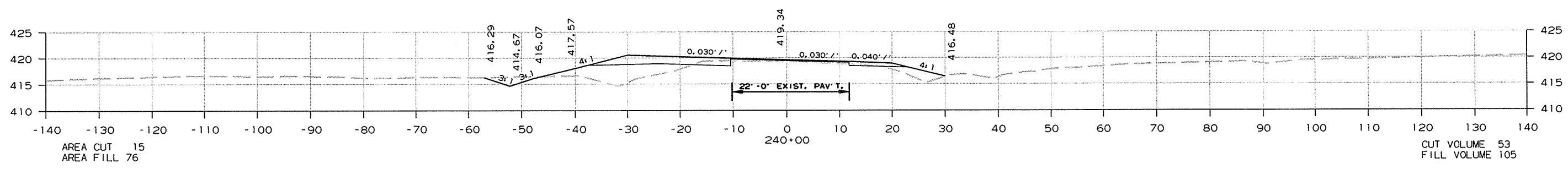
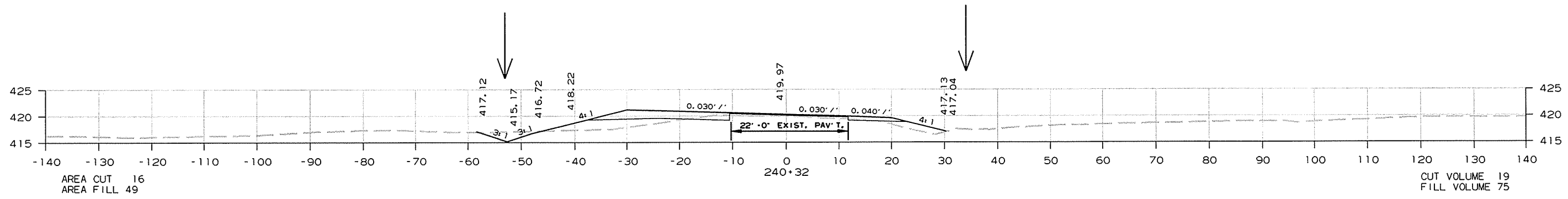
2 CROSS SECTIONS SITE 2 - SB



R080428.DGN 12/18/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							119	134

2 CROSS SECTIONS SITE 2 - SB

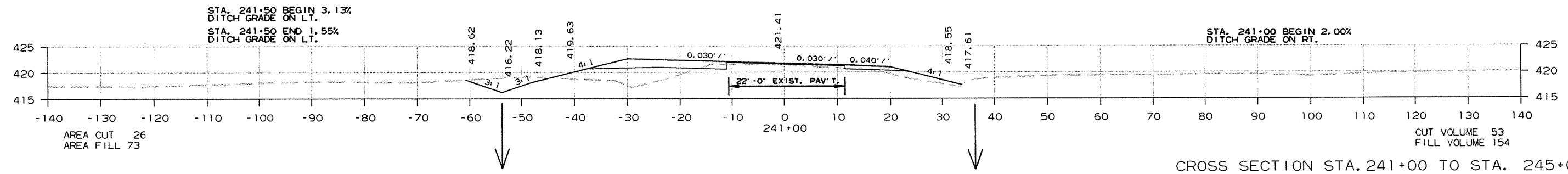
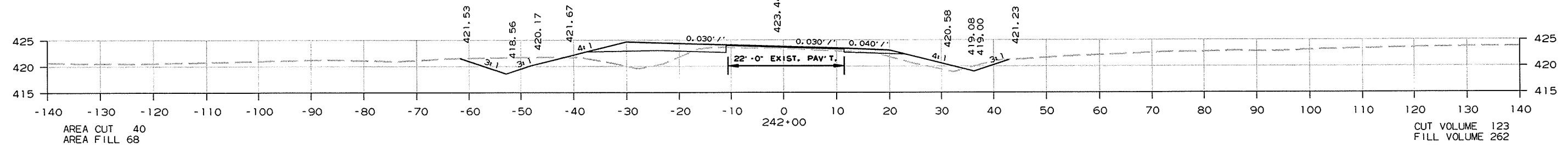
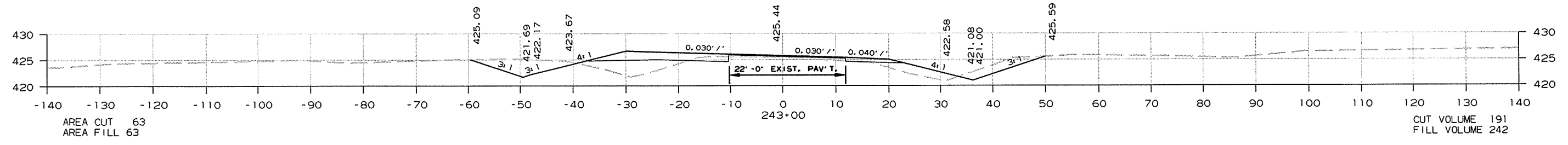
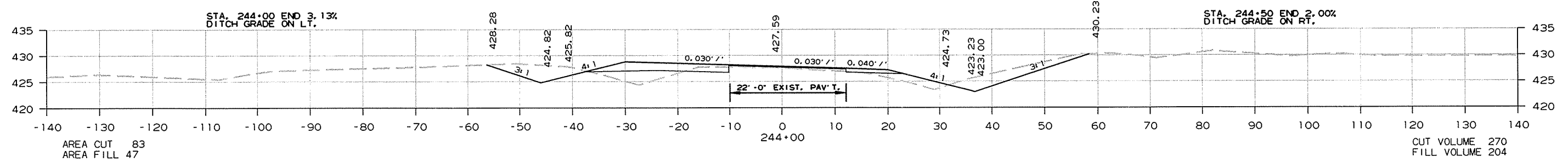
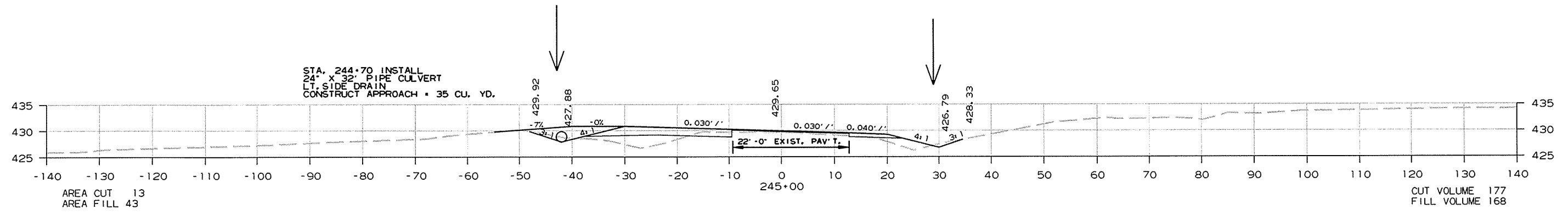


CROSS SECTION STA. 238+00 TO STA. 240+32

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DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							120	134

2 CROSS SECTIONS SITE 2 - SB

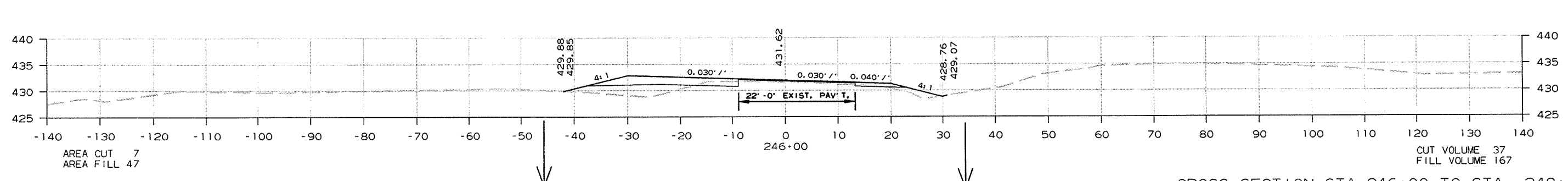
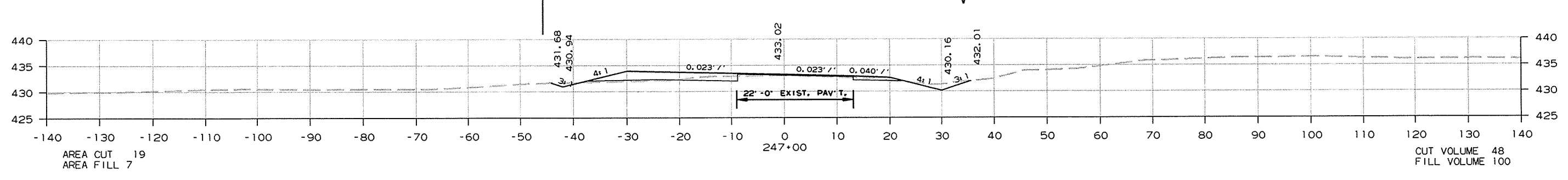
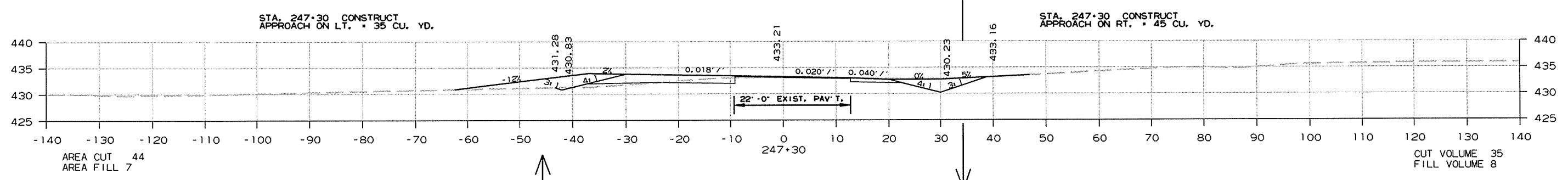
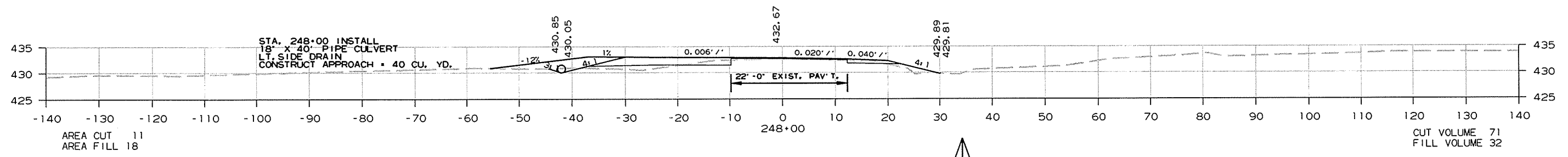
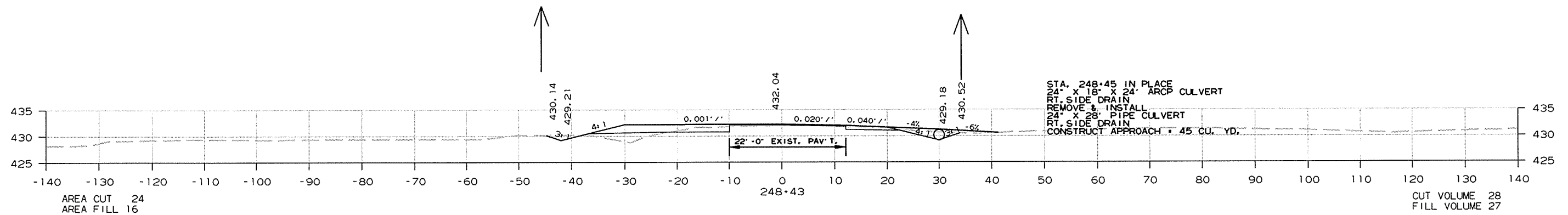


CROSS SECTION STA. 241+00 TO STA. 245+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	121	134

2 CROSS SECTIONS SITE 2 - SB

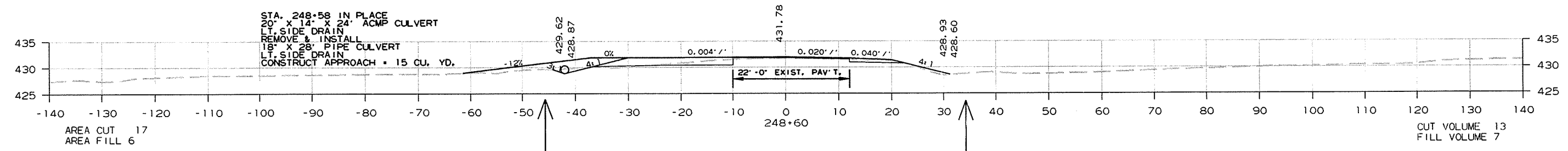
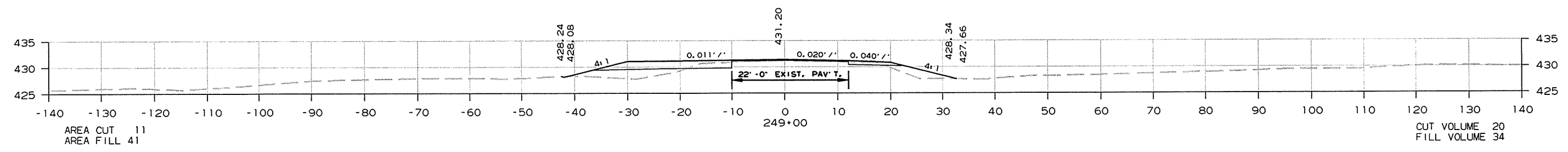
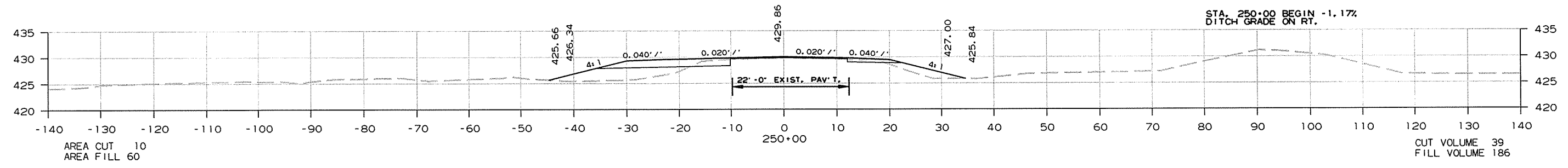
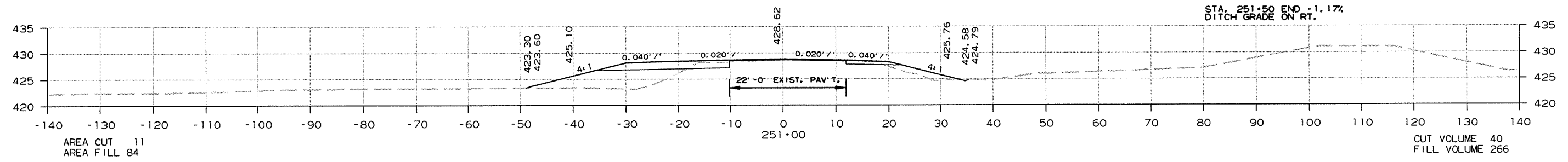
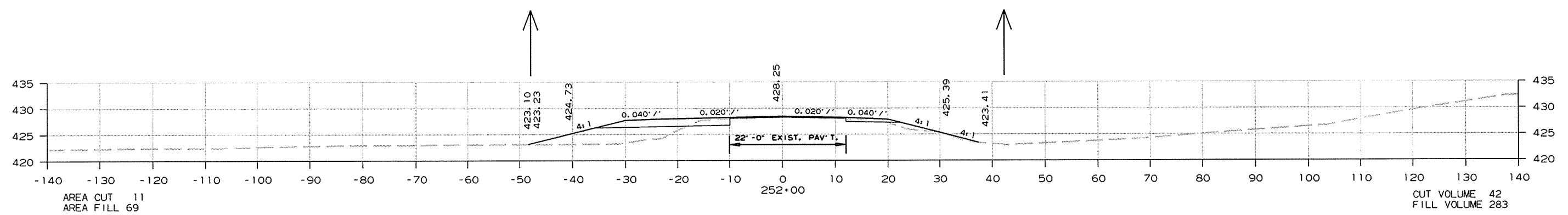


CROSS SECTION STA. 246+00 TO STA. 248+43

R080428.DGN 12/18/2013

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	080428	122
								134

2 CROSS SECTIONS SITE 2 - SB

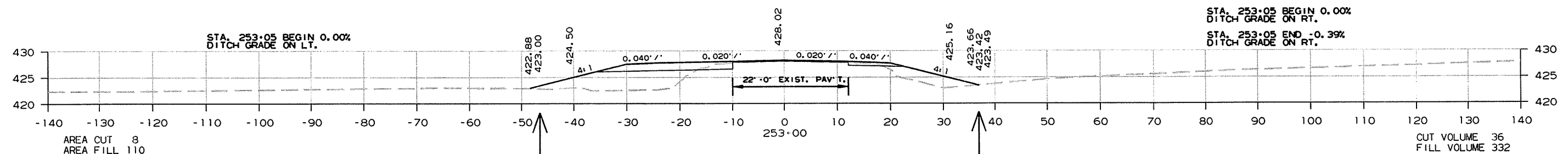
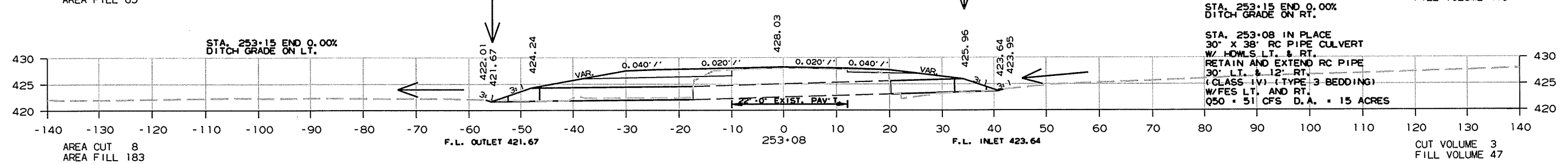
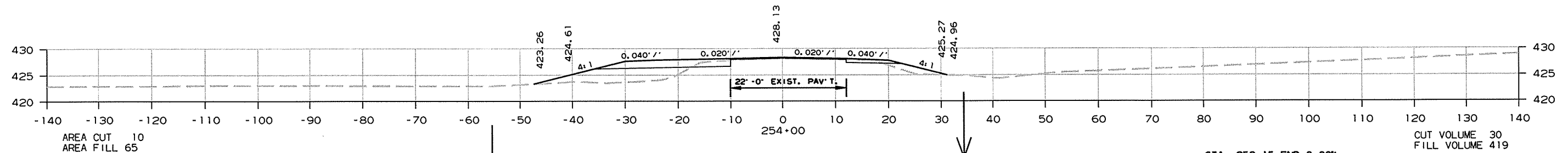
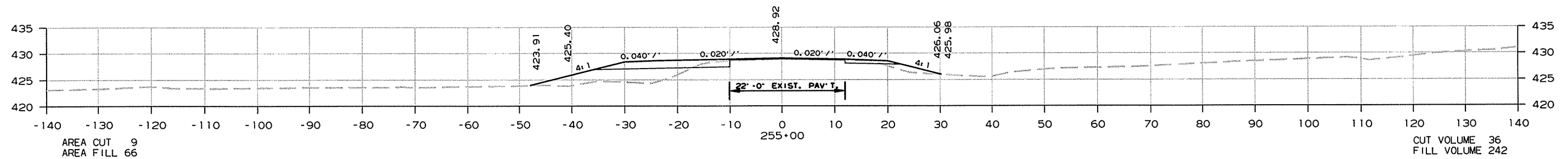
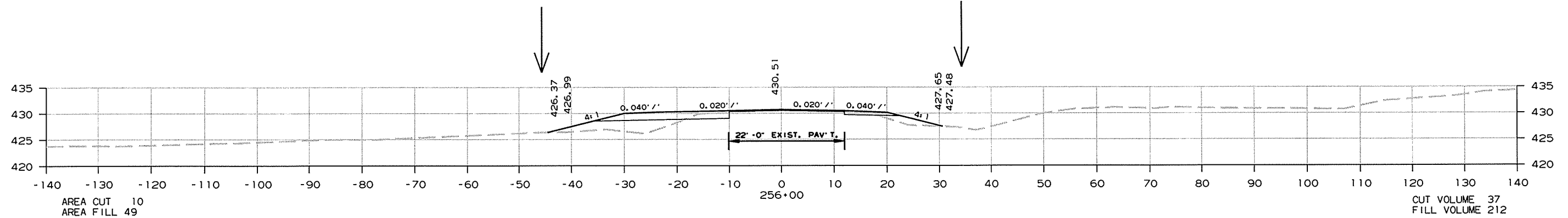


CROSS SECTION STA. 248+60 TO STA. 252+00

12/18/2013 R080428.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. 080428	123	134

2 CROSS SECTIONS SITE 2 - SB



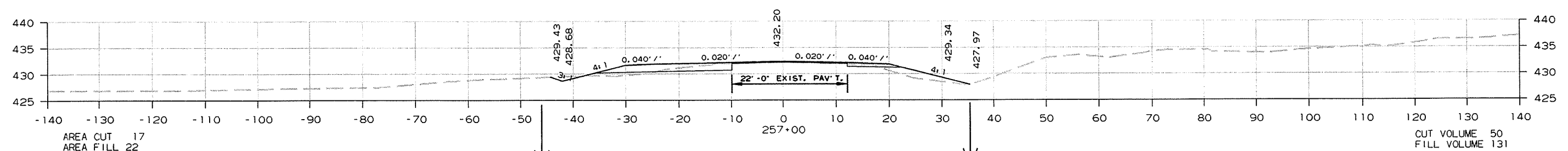
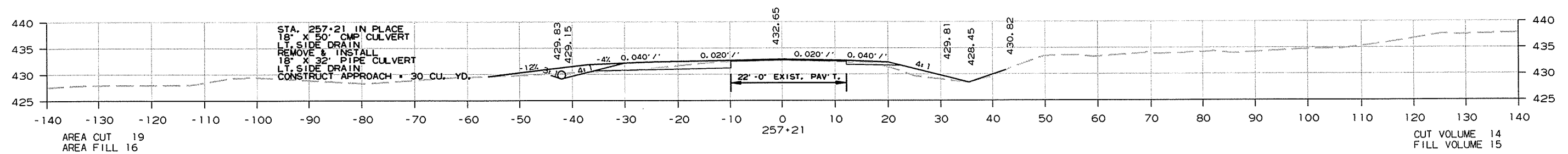
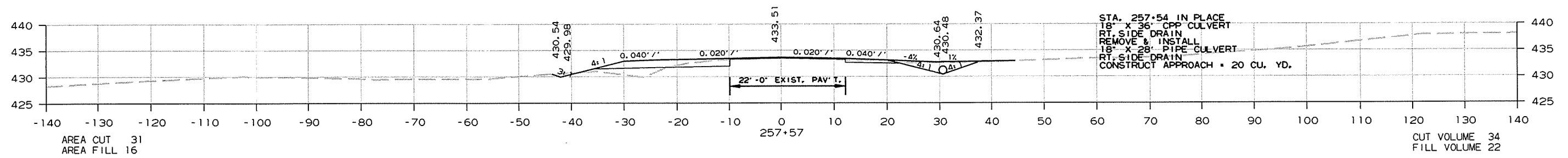
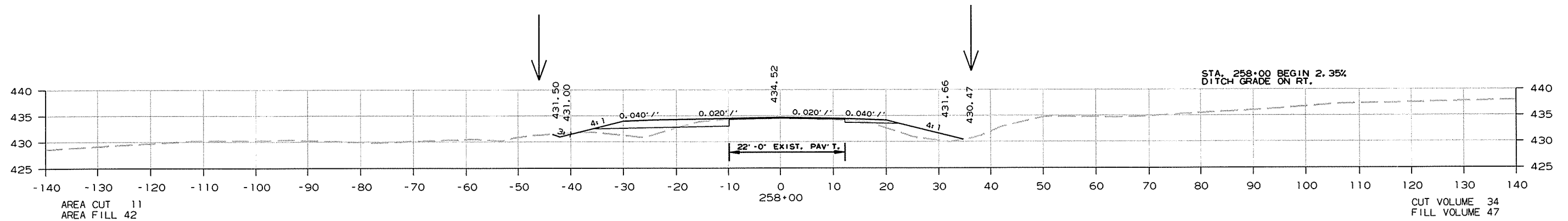
CROSS SECTION STA. 253+00 TO STA. 256+00

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R080428.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. 080428	124	134

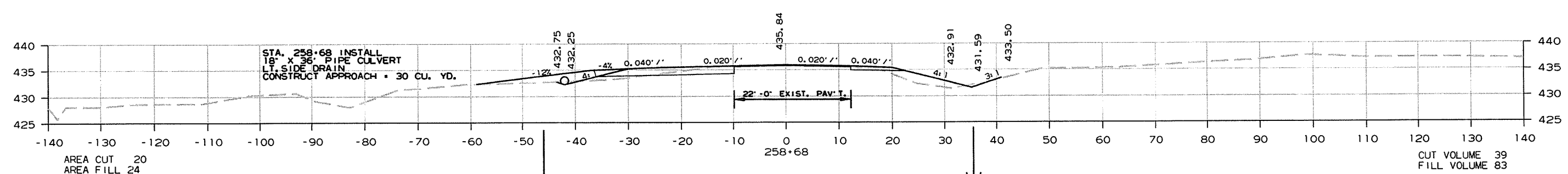
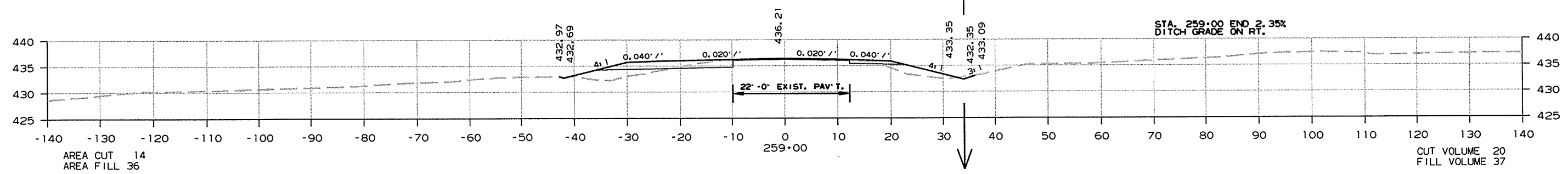
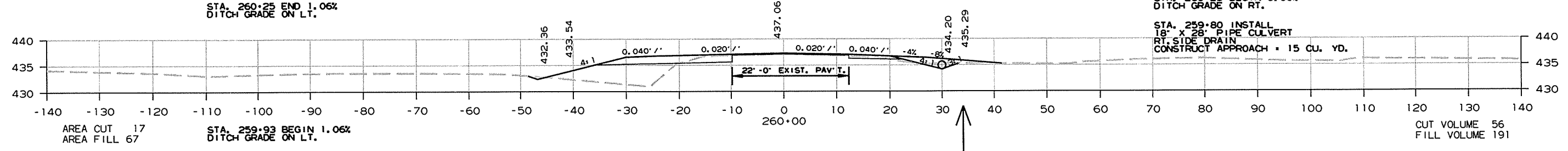
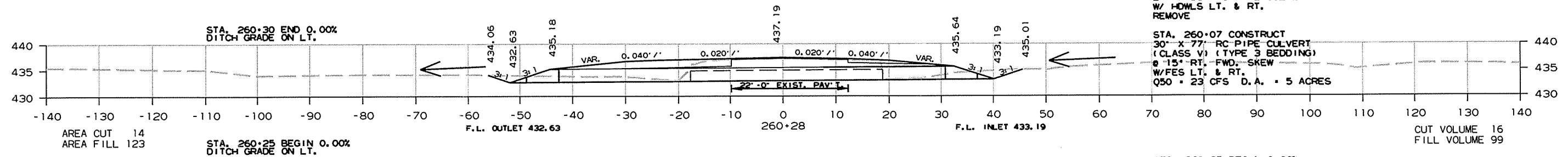
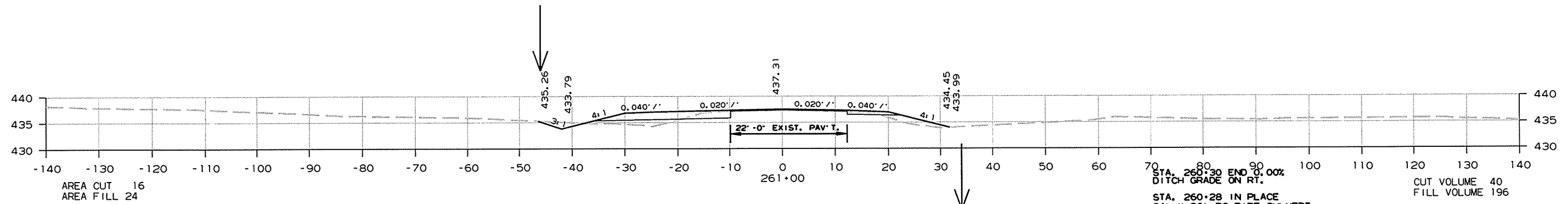
② CROSS SECTIONS SITE 2 - SB



CROSS SECTION STA. 257+00 TO STA. 258+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. 080428	125	134

② CROSS SECTIONS SITE 2 - SB

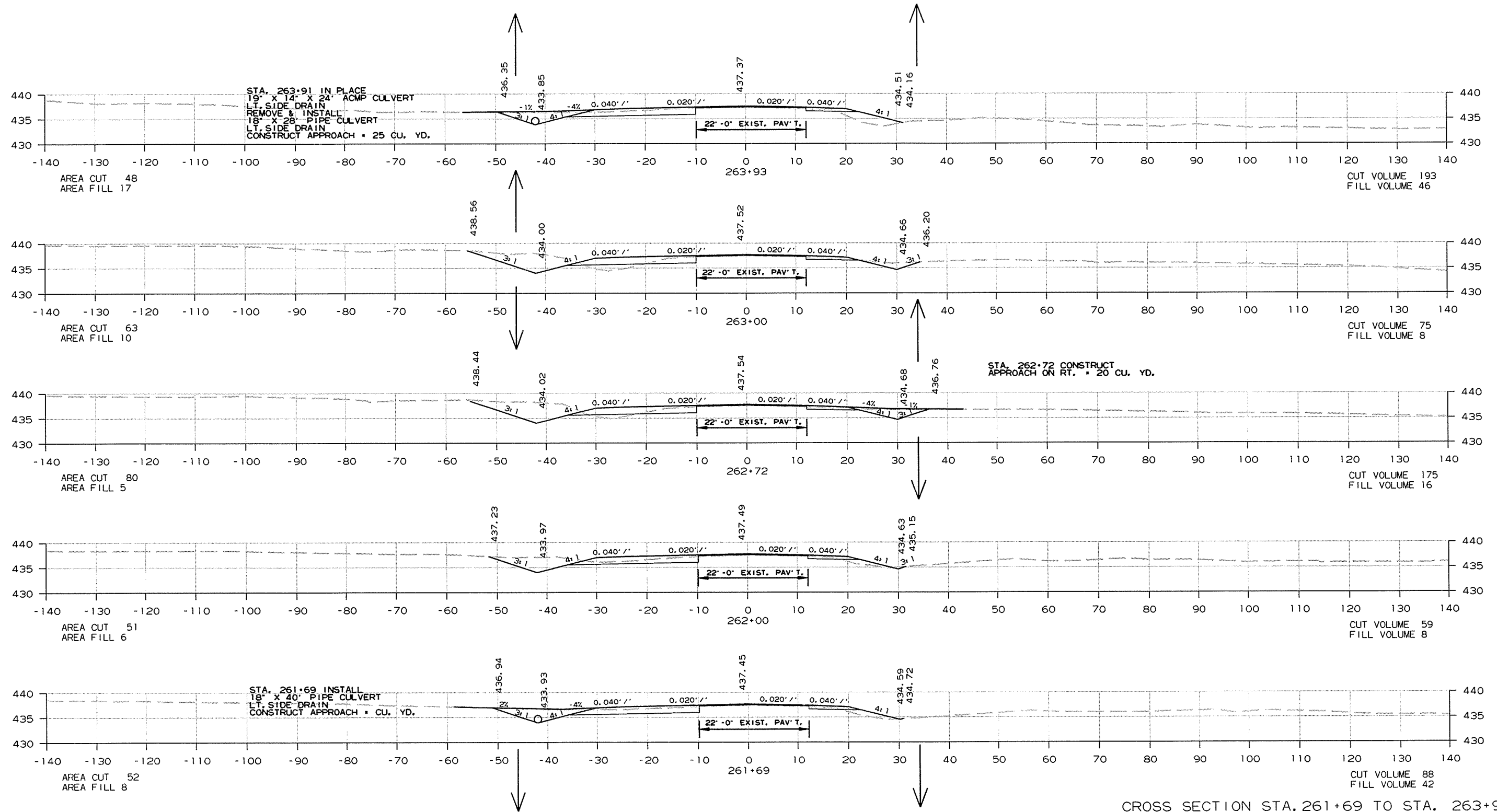


CROSS SECTION STA. 258+68 TO STA. 261+00

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 R080428.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. 080428	126	134

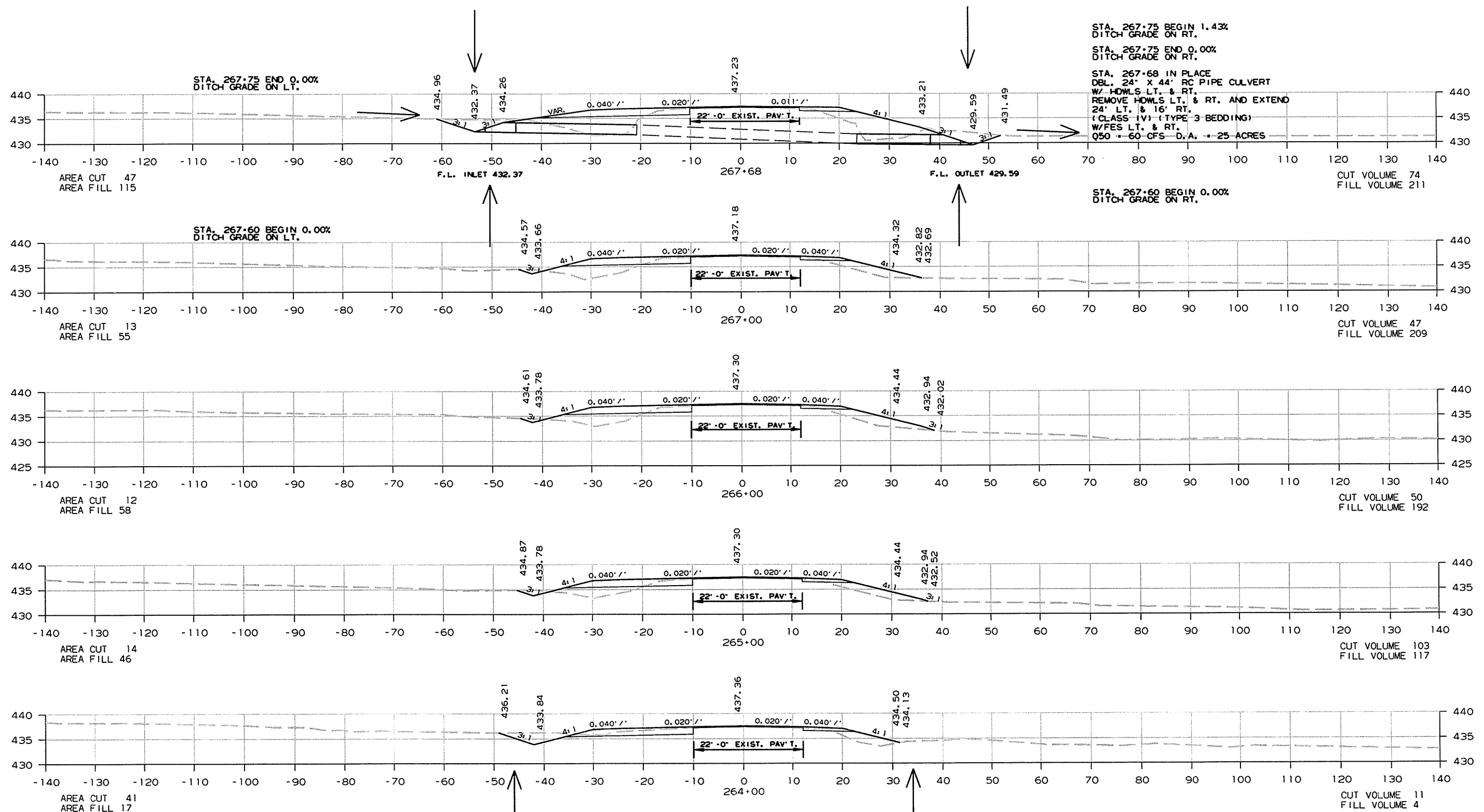
② CROSS SECTIONS SITE 2 - SB



CROSS SECTION STA. 261+69 TO STA. 263+93

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 080428							127	134

2 CROSS SECTIONS SITE 2 - SB

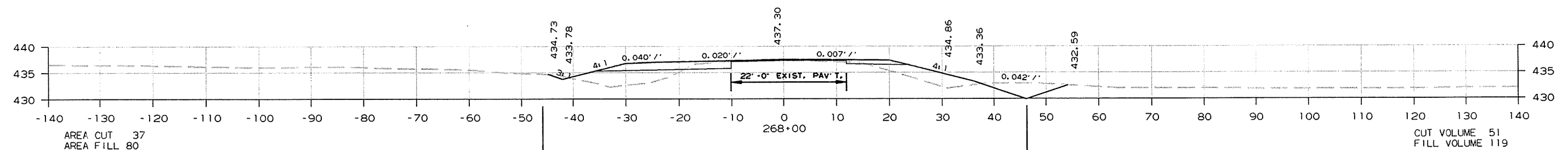
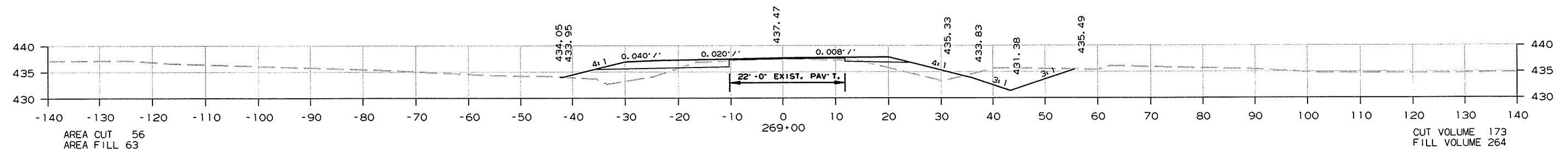
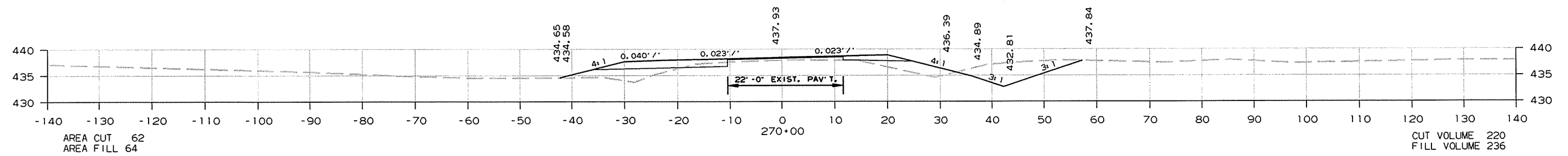
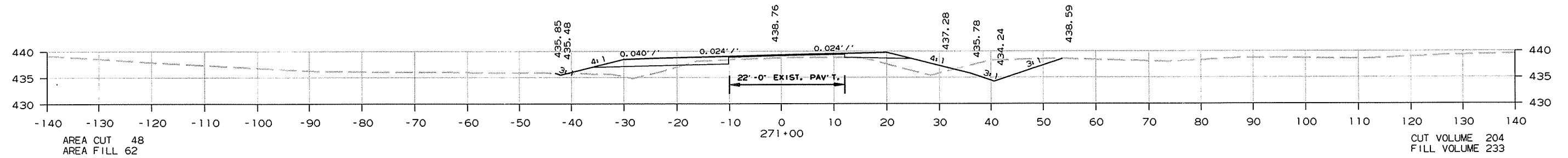
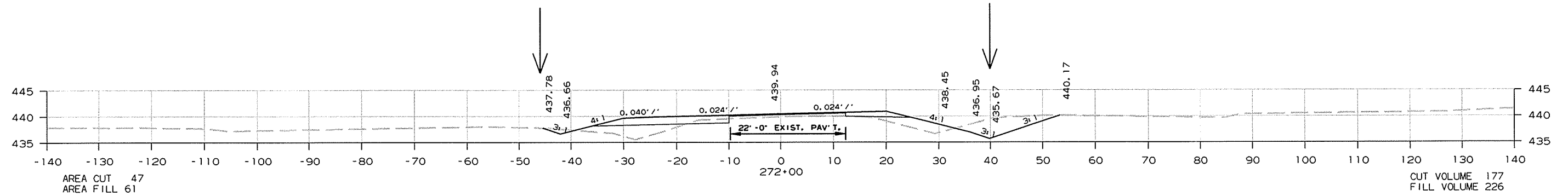


CROSS SECTION STA. 264+00 TO STA. 267+67

12/20/2013
R080428.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. 080428							128	134

② CROSS SECTIONS SITE 2 - SB



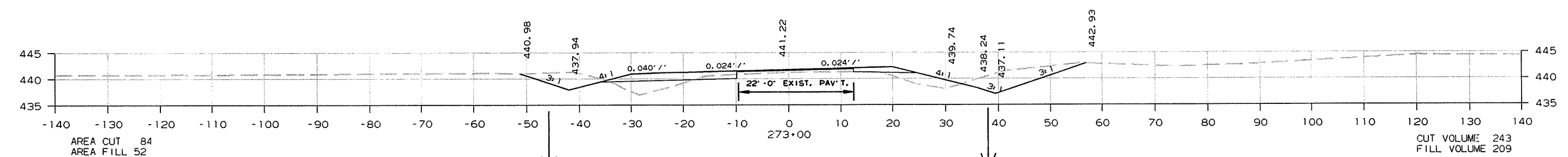
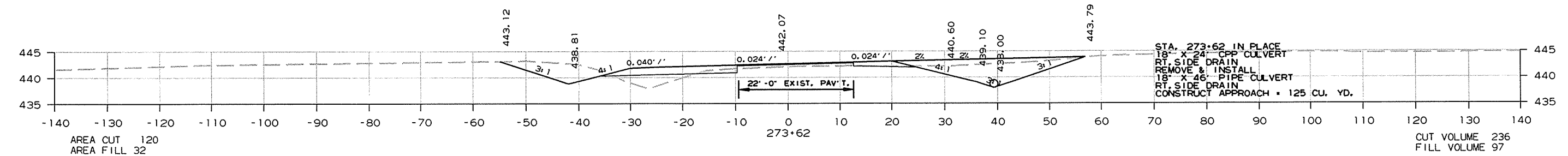
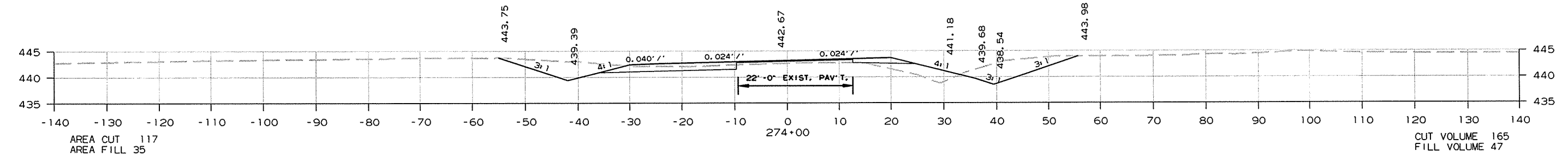
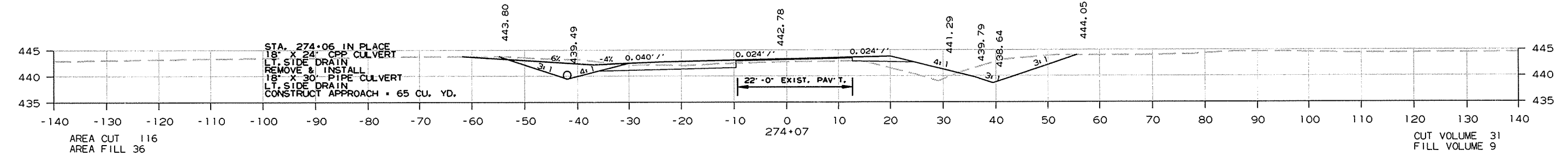
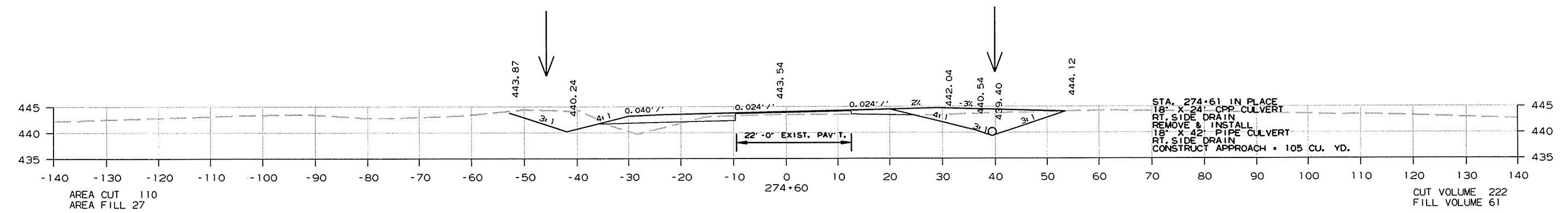
CROSS SECTION STA. 268+00 TO STA. 272+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	080428
							SHEET NO.	129
							TOTAL SHEETS	134

2 CROSS SECTIONS SITE 2 - SB

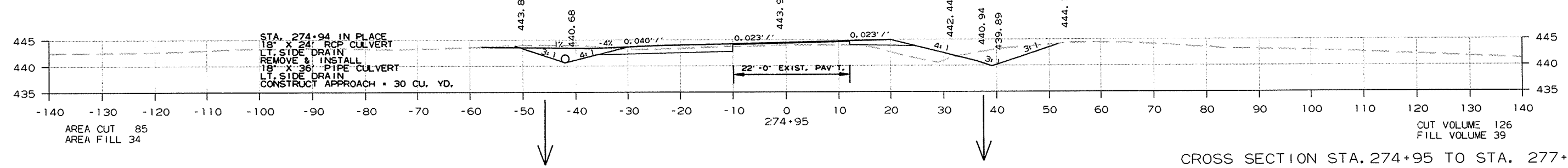
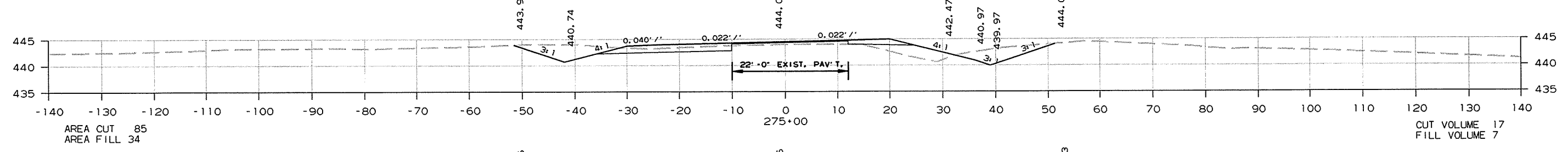
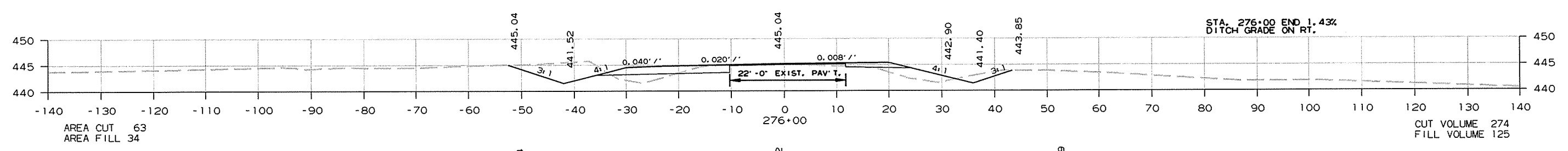
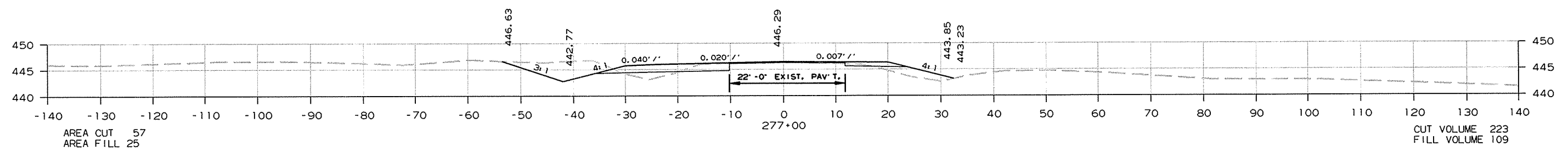
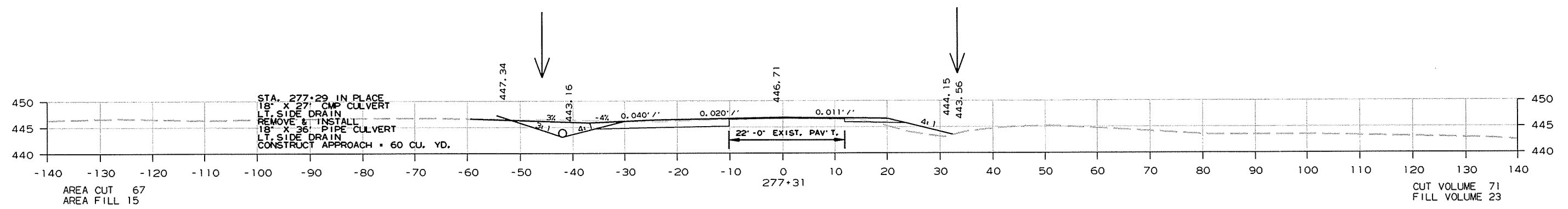


CROSS SECTION STA. 273+00 TO STA. 274+60

12/18/2013 R080428.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. 080428							130	134

2 CROSS SECTIONS SITE 2 - SB

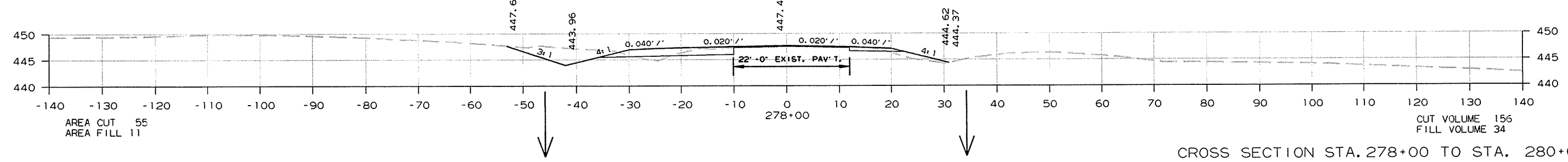
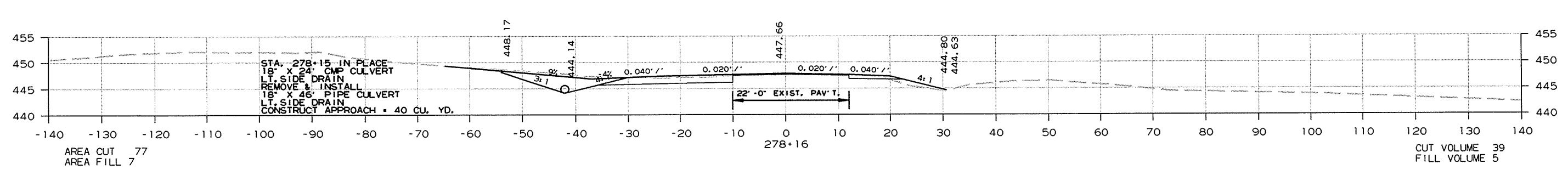
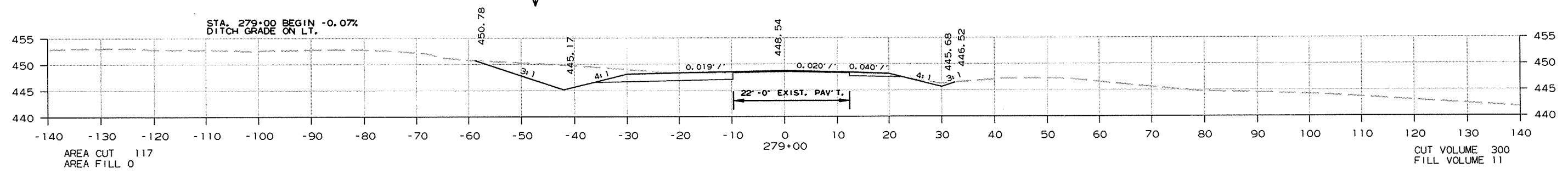
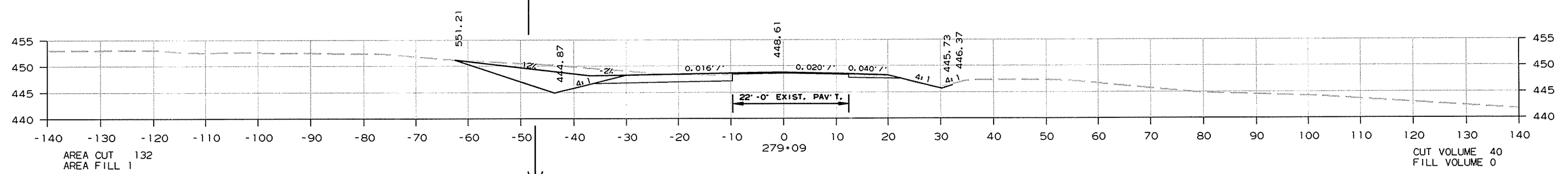
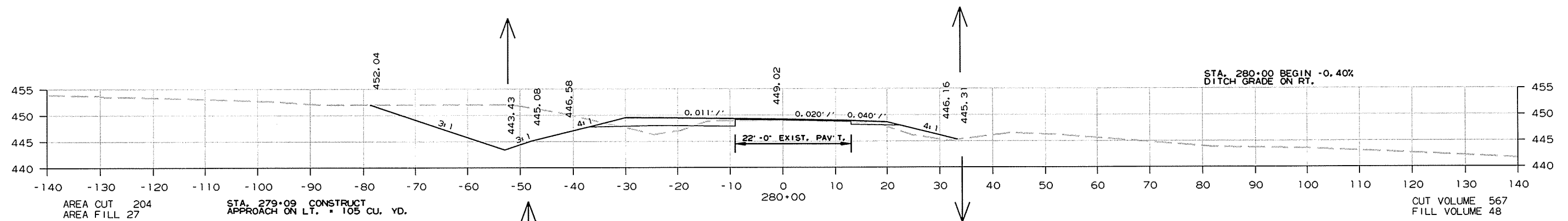


CROSS SECTION STA. 274+95 TO STA. 277+31

12/18/2013 R080428.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. 080428							131	134

2 CROSS SECTIONS SITE 2 - SB

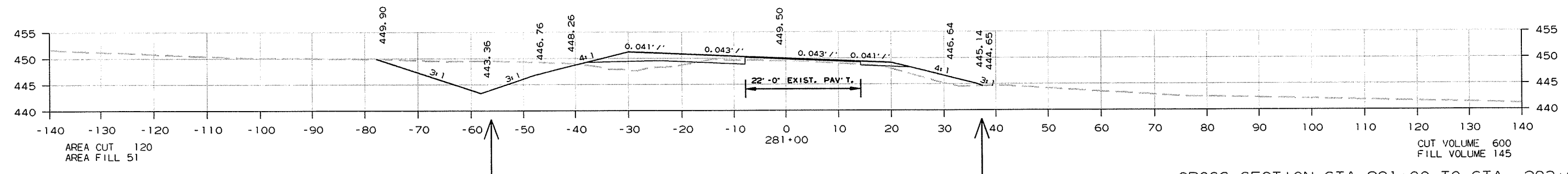
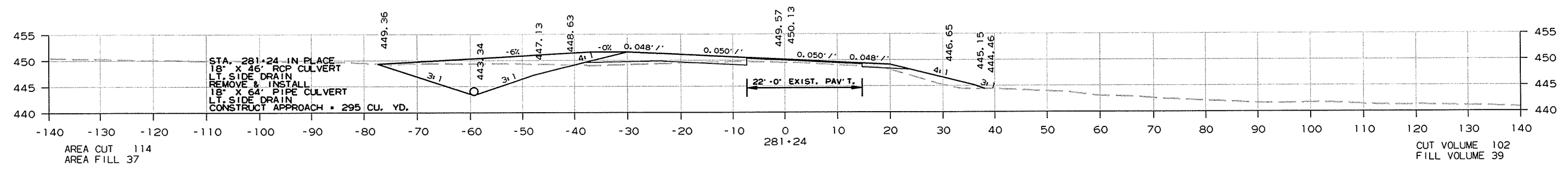
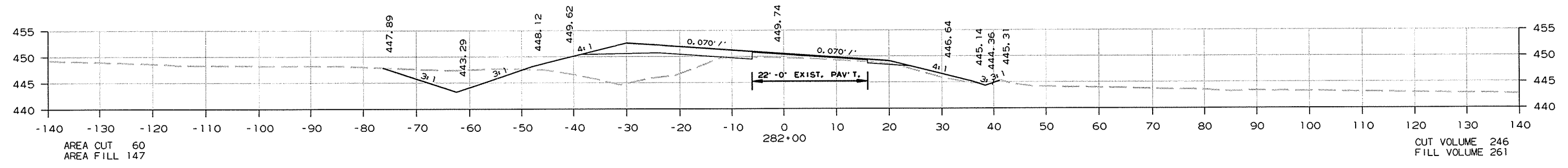
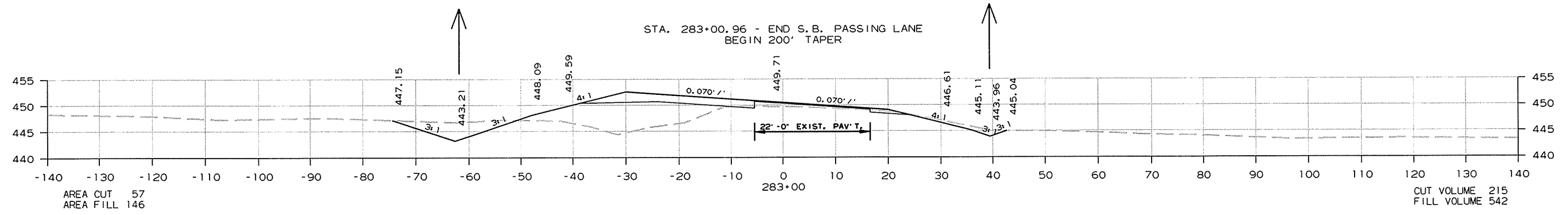


CROSS SECTION STA. 278+00 TO STA. 280+00

12/18/2013
R080428.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. 080428							132	134

② CROSS SECTIONS SITE 2 - SB



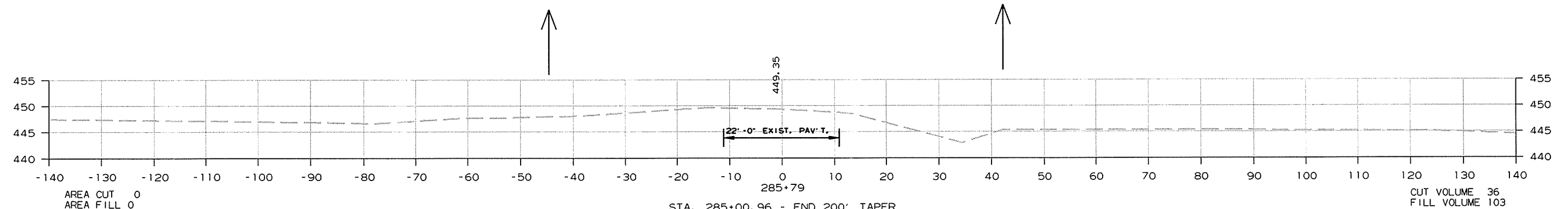
CROSS SECTION STA. 281+00 TO STA. 283+00

12/18/2013

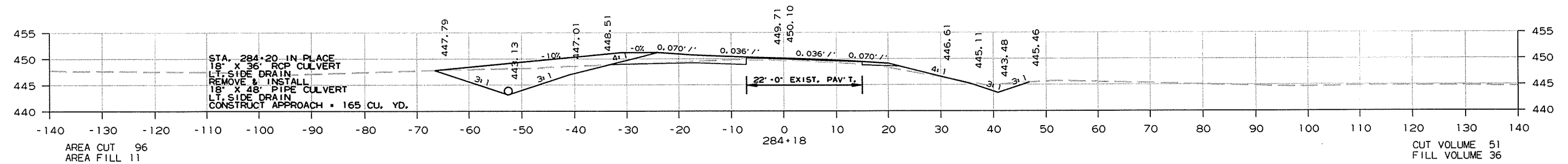
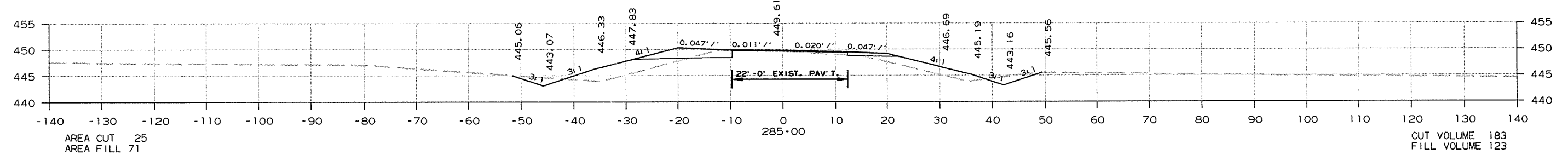
R080428.DGN

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. 080428							133	134

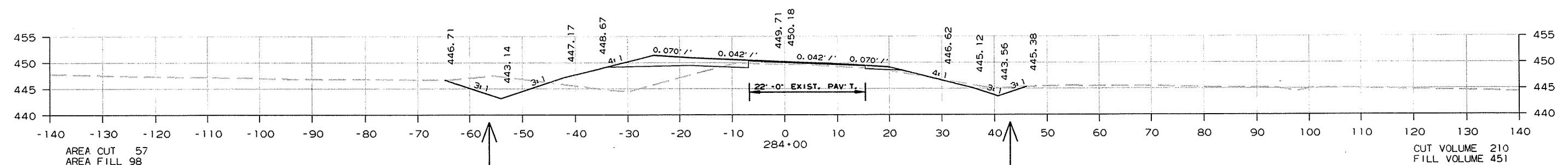
2 CROSS SECTIONS SITE 2 - SB



STA. 285+00.96 - END 200' TAPER
END SITE 2 - END JOB 080428
BEGIN 100' TRANSITION



STA. 284+20 IN PLACE
18" X 36" RCP CULVERT
L.T. SIDE DRAIN
REMOVE & INSTALL
18" X 48" PIPE CULVERT
L.T. SIDE DRAIN
CONSTRUCT APPROACH = 165 CU. YD.

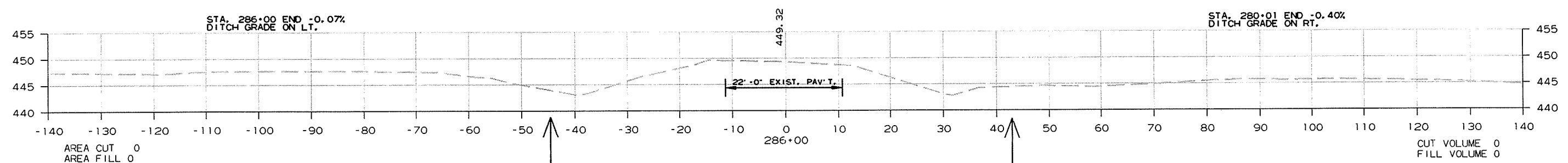
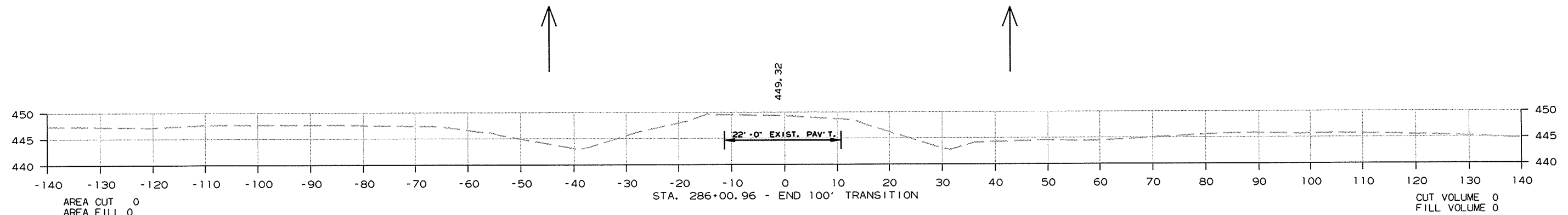


CROSS SECTION STA. 284+00 TO STA. 285+79

12/18/2013
R080428.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. 080428	134	134

2 CROSS SECTIONS SITE 2 - SB



CROSS SECTION STA. 286+00 TO STA. 286+01

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