DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	1	128
				(2)	JASPER-CO. RD. 46 (PASSING LANES) (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

JASPER - CO. RD. 46
(PASSING LANES) (S)

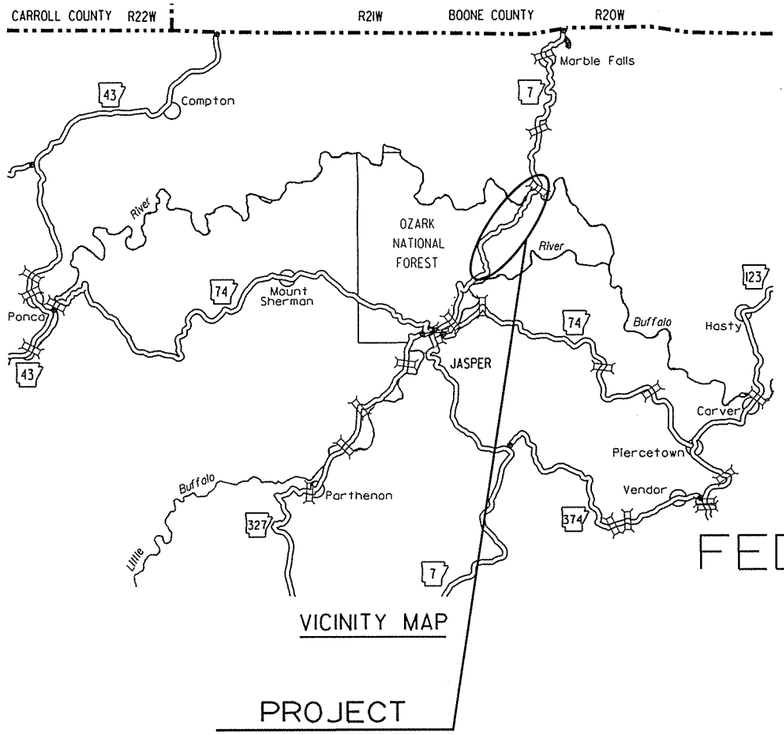
NEWTON COUNTY

ROUTE 7 SECTION 18

JOB 090169

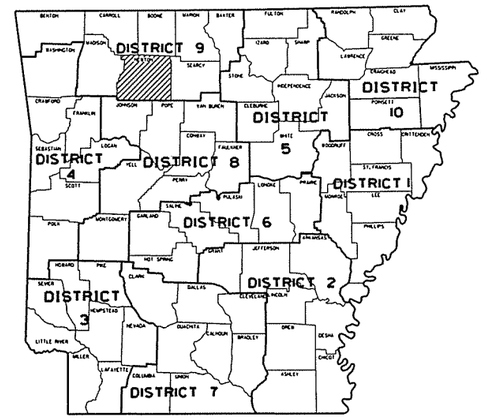
FED. AID PROJ. STPR-0051(10)

NOT TO SCALE



VICINITY MAP

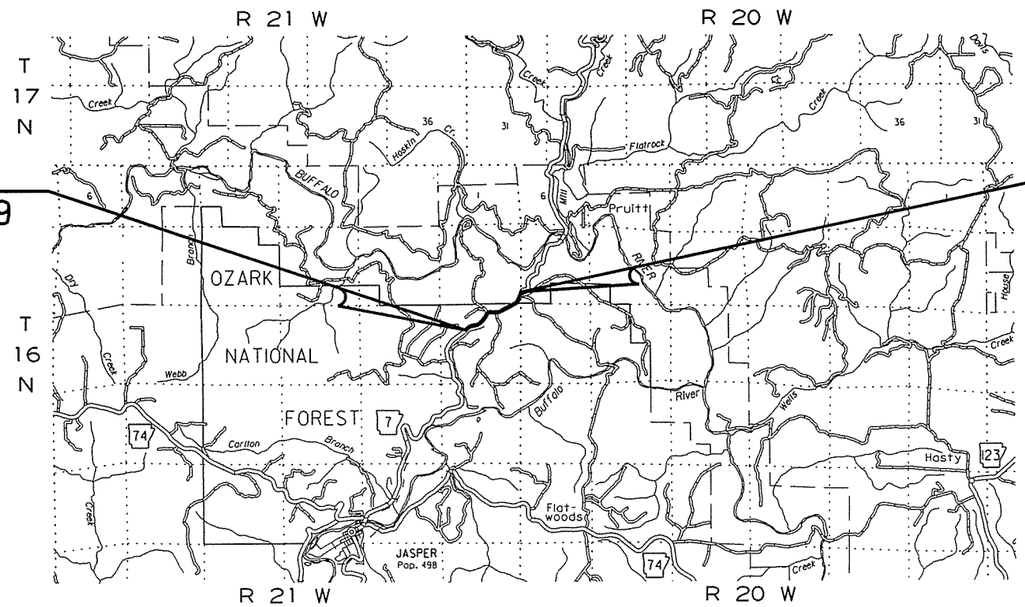
PROJECT LOCATION



ARK. HWY. DIST. NO. 9

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2034
2014 ADT	2800
2034 ADT	3500
2034 DHV	385
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	9%
AVERAGE RUNNING SPEED	45 MPH



STA. 8+00.00
BEGIN JOB 090169
LOG MILE 18.30

STA. 55+80.00
END JOB 090169

N

BEGIN POINT OF PROJECT
LAT. = N 36°02'40"
LONG. = W 93°08'38"

MID-POINT OF PROJECT
LAT. = N 36°02'57"
LONG. = W 93°08'57"

END POINT OF PROJECT
LAT. = N 36°03'05"
LONG. = W 93°08'52"

GROSS LENGTH OF PROJECT		4780.00	FEET	OR	0.905	MILES
NET	"	" ROADWAY	4780.00	"	"	0.905	"
NET	"	" BRIDGES	0.00	"	"	0.000	"
NET	"	" PROJECT	4780.00	"	"	0.905	"

P.E. 090169

APPROVED

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

10-31-14

DEPUTY DIRECTOR AND CHIEF ENGINEER

10/13/2014

R090169.TIT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	090169		2	128

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

INDEX OF SHEETS

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-14-14

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
108-1	LIQUIDATED DAMAGES
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
620-1	MULCH COVER
JOB 090169	BLASTING FOR ENHANCEMENT OF ROCK FEATURES AND FACES
JOB 090169	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 090169	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 090169	CAVE DISCOVERY
JOB 090169	COMPACTED EMBANKMENT
JOB 090169	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 090169	EXPLORATORY HOLES
JOB 090169	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 090169	MANDATORY USE OF INTERNET BIDDING
JOB 090169	NATIVE STONE FOR RIPRAP
JOB 090169	NATIVE STONE FOR DITCH LINER
JOB 090169	PARTNERING REQUIREMENTS
JOB 090169	PLASTIC PIPE
JOB 090169	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 090169	RESTRICTIONS ON PROPOSED CONTRACTOR SITES AND WORK WITHIN THE BUFFALO NATIONAL RIVER
JOB 090169	ROCK FILL
JOB 090169	SOIL STABILIZATION
JOB 090169	SPECIAL CLEARING REQUIREMENTS
JOB 090169	SPECIAL SEEDING REQUIREMENTS
JOB 090169	STORM WATER POLLUTION PREVENTION PLAN
JOB 090169	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 090169	SUBMISSION OF CONTRACTOR MATERIALS TEST RESULTS
JOB 090169	UTILITY ADJUSTMENTS
JOB 090169	VALUE ENGINEERING
JOB 090169	WARM MIX ASPHALT
JOB 090169	WELLHEAD PROTECTION

GENERAL NOTES

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

7/10/2014

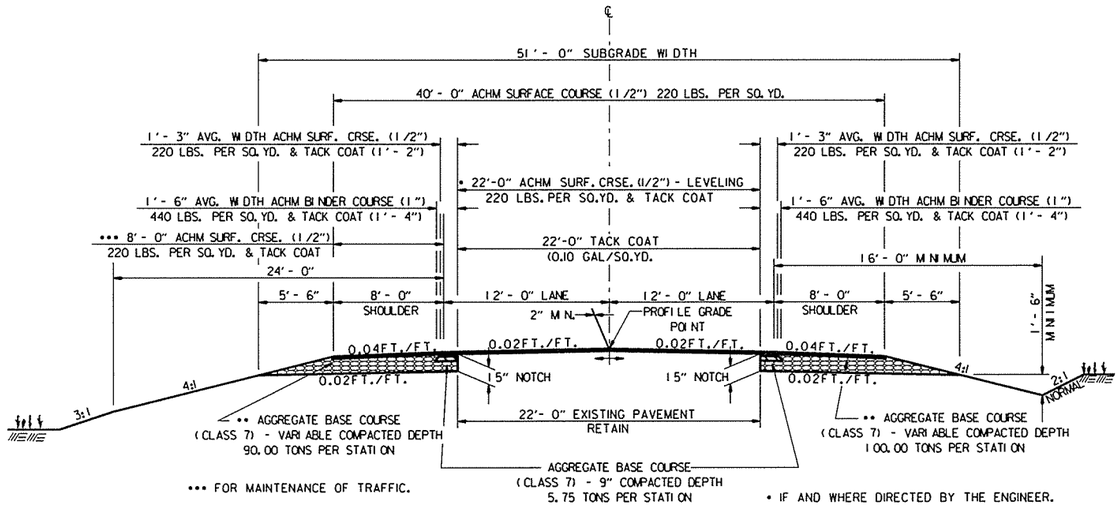
R090169.B01

INDEX OF SHEETS, GOVERNING SPECIFICATIONS AND GENERAL NOTES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	3	128

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



TYPICAL SECTION OF IMPROVEMENT
NOTCH & WIDENING - NORMAL CROWN

STA.8+00.00

TRANSITION FROM 2-LANES TO 3-LANES
STA.8+00.00 - STA.10+00.00 (RIGHT PASSING LANE)

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.

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

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10/23/2014

R090169.T01

TYPICAL SECTIONS OF IMPROVEMENT

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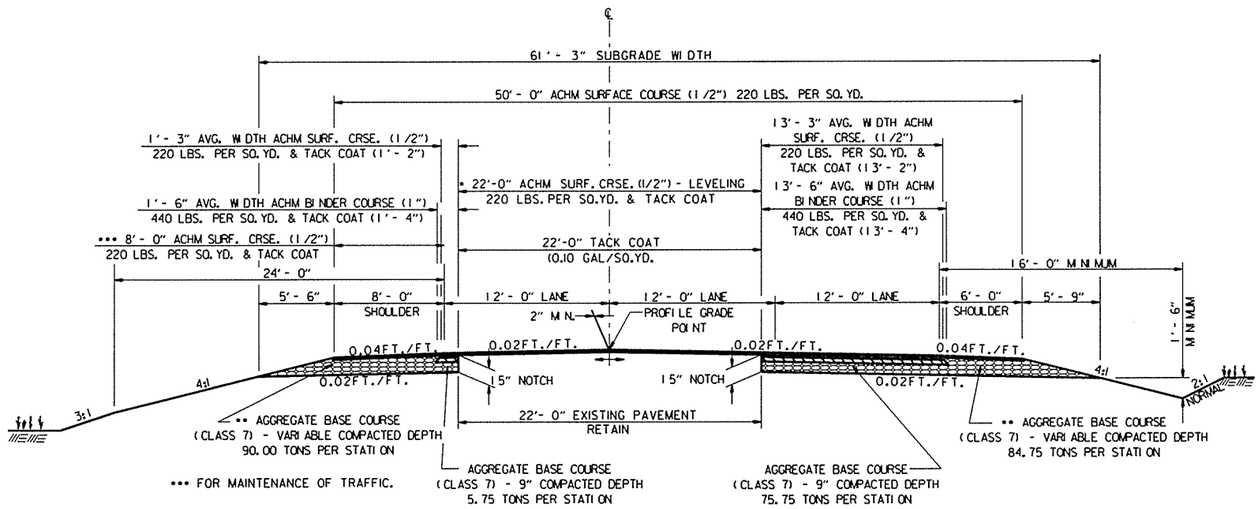
				6	ARK.			
				JOB NO.		090169	4	128

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



TYPICAL SECTION OF IMPROVEMENT - NOTCH & WIDENING - NORMAL CROWN
RIGHT PASSING LANES (REVERSE FOR LEFT PASSING LANES)

STA.10+00.00 - STA.15+00.00 (RIGHT PASSING LANE)
STA.48+00.00 - STA.52+00.00 (LEFT PASSING LANE)

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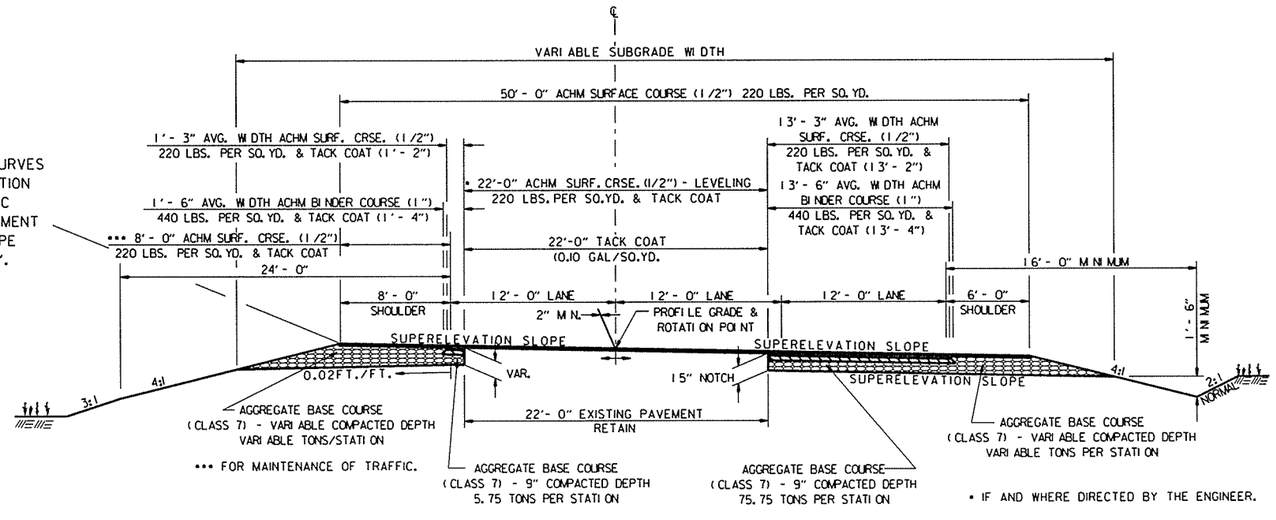

TYPICAL SECTION OF IMPROVEMENT - NOTCH & WIDENING - SUPERELEVATION
RIGHT PASSING LANES (REVERSE FOR LEFT PASSING LANES)

STA.10+00.00 - STA.15+00.00 (RIGHT PASSING LANE)
STA.48+00.00 - STA.52+00.00 (LEFT PASSING LANE)

10/23/2014

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TYPICAL SECTIONS OF IMPROVEMENT

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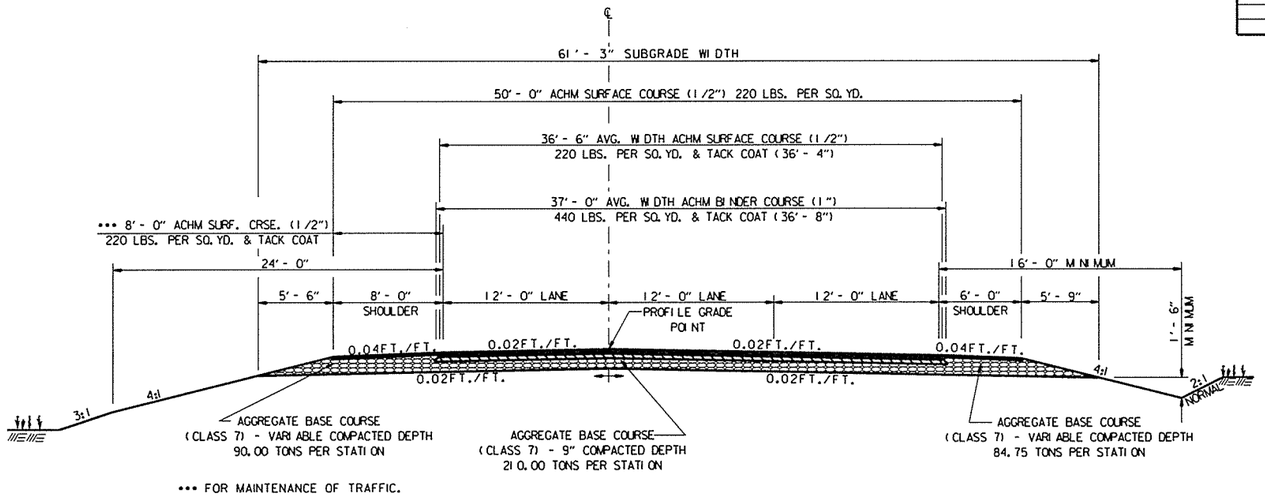
				6	ARK.			
				JOB NO.		090169	5	128

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



••• FOR MAINTENANCE OF TRAFFIC.

TYPICAL SECTION OF IMPROVEMENT - FULL DEPTH - NORMAL CROWN
RIGHT PASSING LANES (REVERSE FOR LEFT PASSING LANES)

STA.15+00.00 - STA.19+60.00 (RIGHT PASSING LANE)

TRANSITION FROM 3-LANES TO 4-LANES
STA.19+60.00 - STA.25+00.00 (RIGHT & LEFT PASSING LANES)

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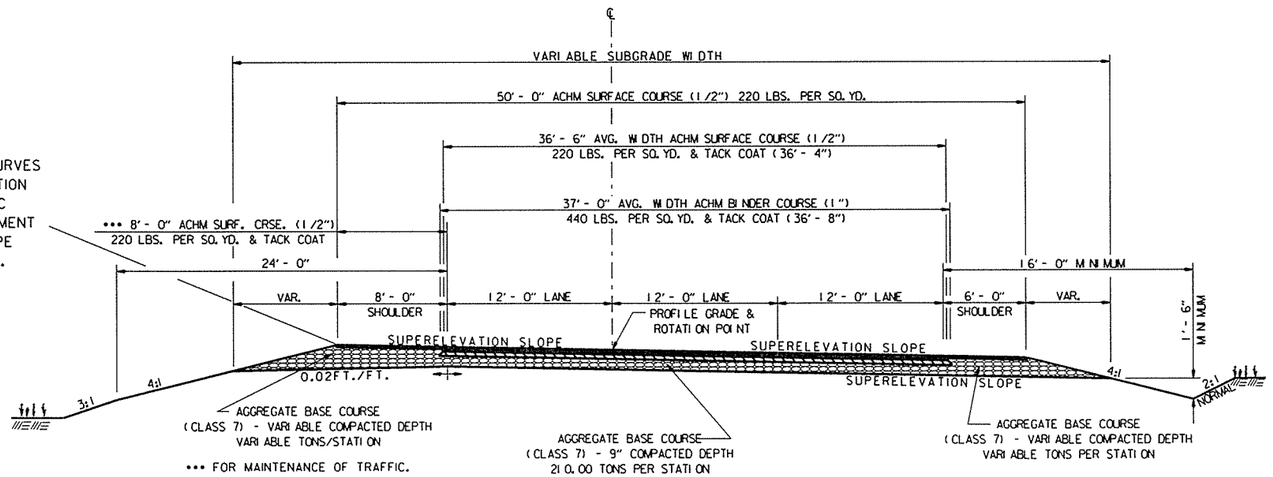

••• FOR MAINTENANCE OF TRAFFIC.

TYPICAL SECTION OF IMPROVEMENT - FULL DEPTH - SUPERELEVATION
RIGHT PASSING LANES (REVERSE FOR LEFT PASSING LANES)

STA.15+00.00 - STA.19+60.00 (RIGHT PASSING LANE)

TRANSITION FROM 3-LANES TO 4-LANES
STA.19+60.00 - STA.25+00.00 (RIGHT & LEFT PASSING LANES)

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TYPICAL SECTIONS OF IMPROVEMENT

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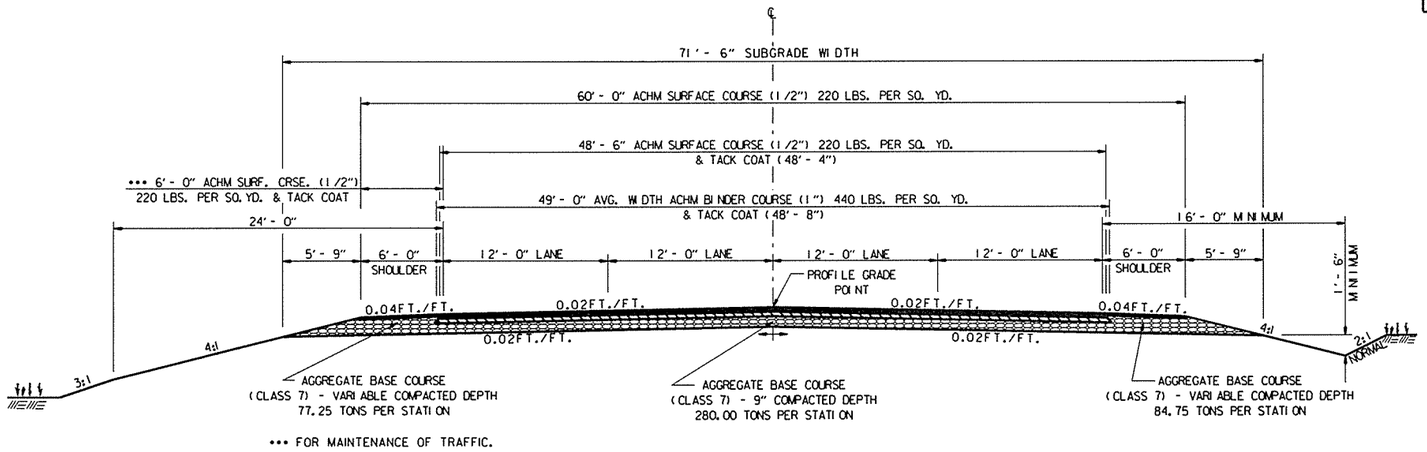
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



••• FOR MAINTENANCE OF TRAFFIC.

TYPICAL SECTION OF IMPROVEMENT - FULL DEPTH - NORMAL CROWN - RIGHT PASSING LANES & LEFT PASSING LANES

STA.25+00.00 - STA.37+00.00 (RIGHT & LEFT PASSING LANES)

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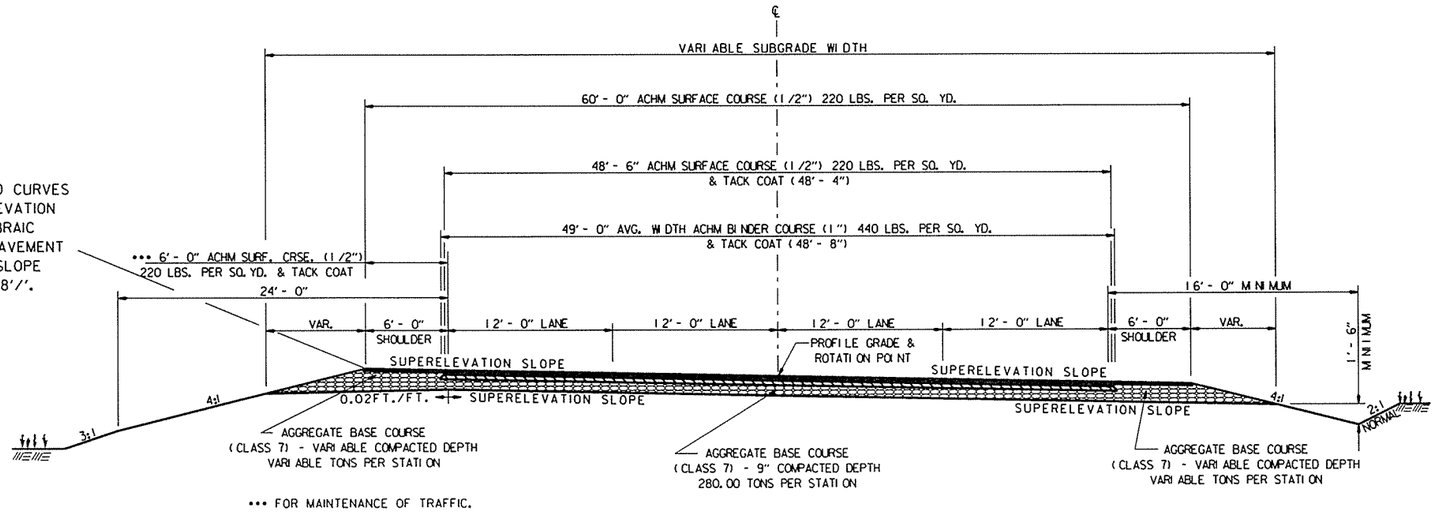

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TYPICAL SECTION OF IMPROVEMENT - FULL DEPTH - SUPERELEVATION - RIGHT PASSING LANES & LEFT PASSING LANES

STA.25+00.00 - STA.37+00.00 (RIGHT & LEFT PASSING LANES)

10/23/2014

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TYPICAL SECTIONS OF IMPROVEMENT

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(2) TYPICAL SECTIONS OF IMPROVEMENT

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TRINITY D. SMITH
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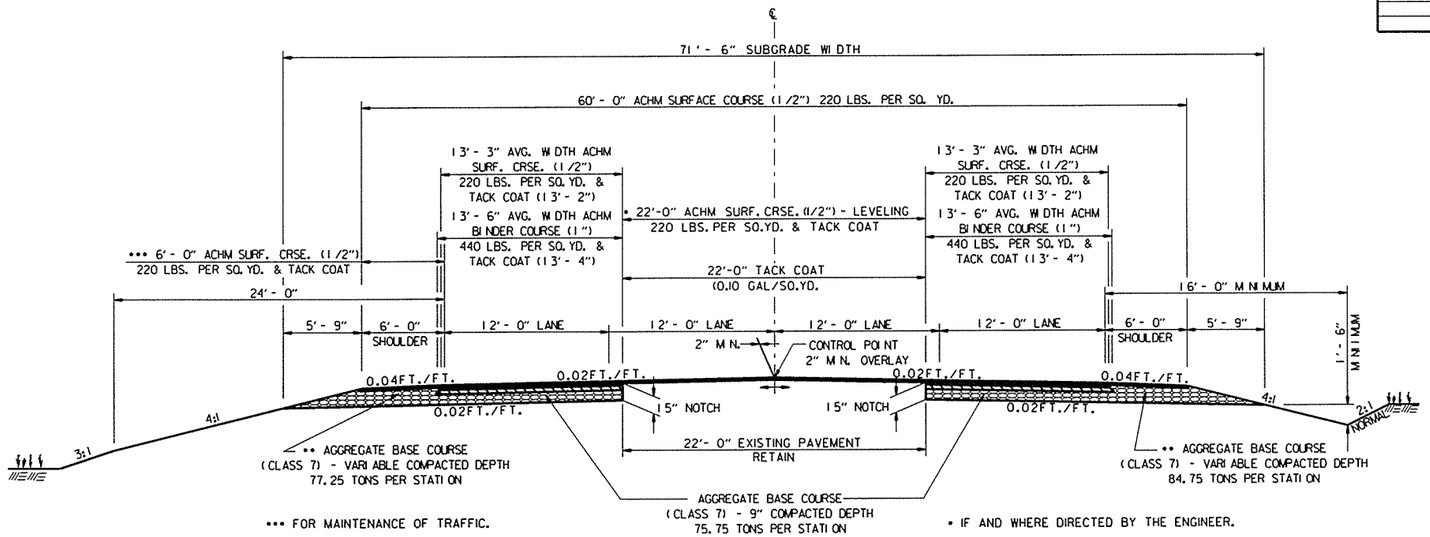

TYPICAL SECTION OF IMPROVEMENT - NOTCH & WIDENING - NORMAL CROWN - RIGHT PASSING LANES & LEFT PASSING LANES

STA.37+00.00 - STA.42+60.00 (RIGHT & LEFT PASSING LANES)

TRANSITION FROM 4-LANES TO 3-LANES
STA.42+60.00 - STA.48+00.00 (LEFT PASSING LANE)

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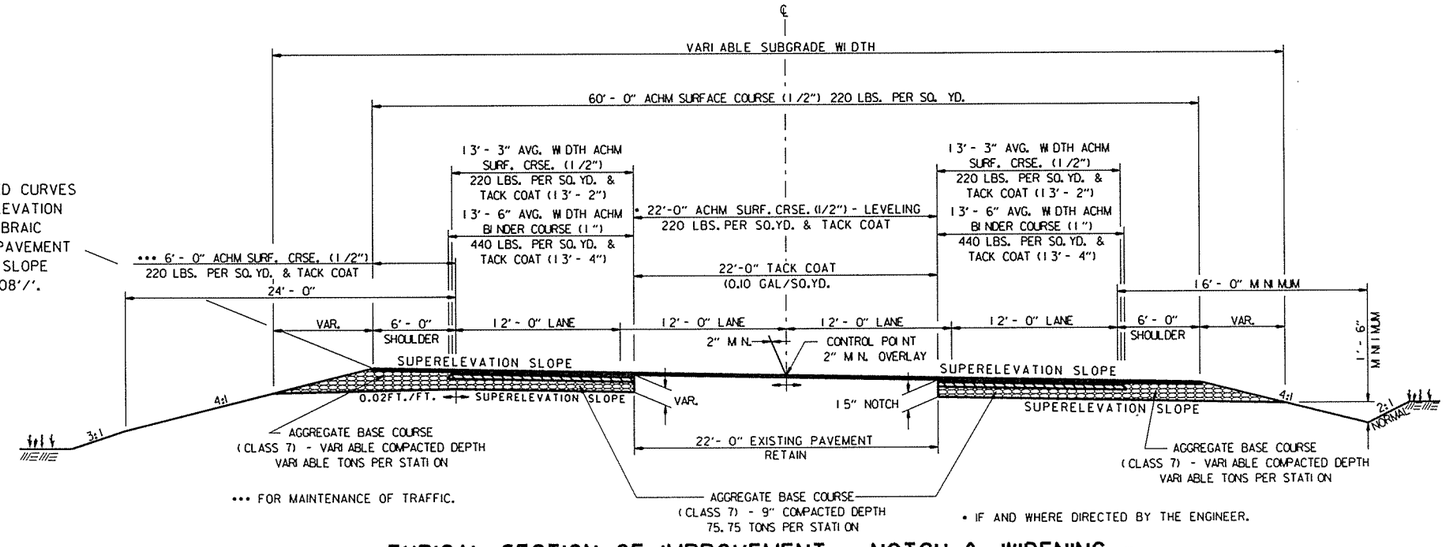

TYPICAL SECTION OF IMPROVEMENT - NOTCH & WIDENING - SUPERELEVATION - RIGHT PASSING LANES & LEFT PASSING LANES

STA.37+00.00 - STA.42+60.00 (RIGHT & LEFT PASSING LANES)

TRANSITION FROM 4-LANES TO 3-LANES
STA.42+60.00 - STA.48+00.00 (LEFT PASSING LANE)

10/23/2014

R090169.T01

TYPICAL SECTIONS OF IMPROVEMENT

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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
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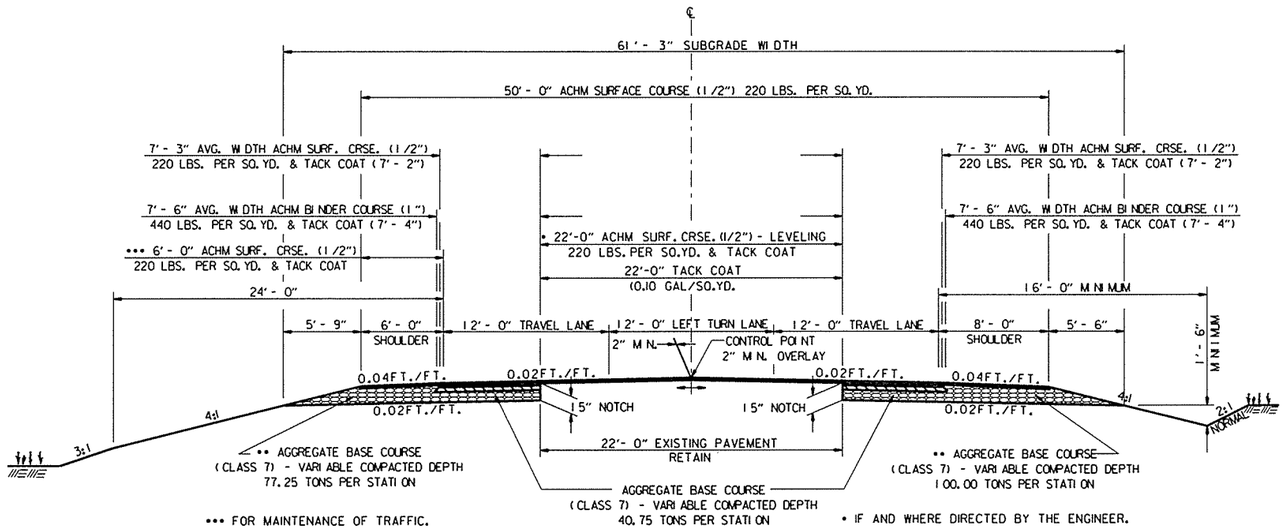
No. 11425
TRINITY D. SMITH
10-31-14



TYPICAL SECTION OF IMPROVEMENT
NOTCH & WIDENING - NORMAL CROWN - LEFT TURN LANE

STA.52+00.00 - STA.53+60.00

TRANSITION FROM 3-LANES TO 2-LANES
STA.53+60.00 - STA.55+80.00

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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.

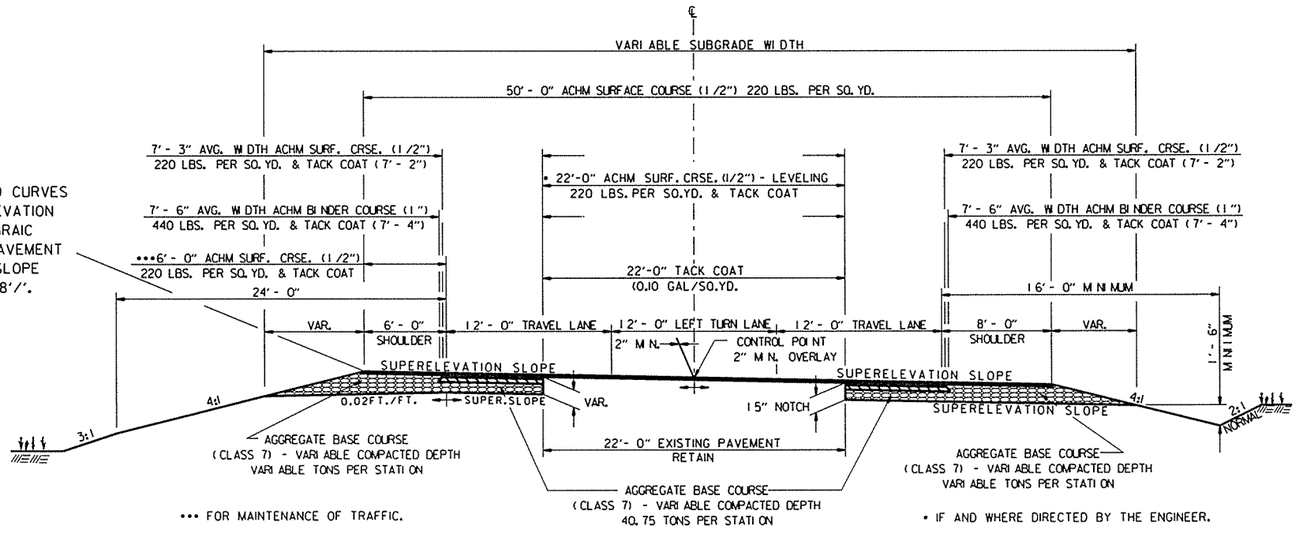
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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.

•• THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE ACHM SURFACE COURSE (1") IN LIEU OF AGGREGATE BASE COURSE UNDER THE PROPOSED SHOULDER, AT NO ADDITIONAL COST TO THE DEPARTMENT. MEASUREMENT WILL BE BASED UPON CALCULATIONS FROM THE PLAN DIMENSIONS.

ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.



TYPICAL SECTION OF IMPROVEMENT
NOTCH & WIDENING - SUPERELEVATION - LEFT TURN LANE

STA.52+00.00 - STA.53+60.00

TRANSITION FROM 3-LANES TO 2-LANES
STA.53+60.00 - STA.55+80.00

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TYPICAL SECTIONS OF IMPROVEMENT

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				6	ARK.			
				JOB NO.		090169	9	128

(2) TYPICAL SECTIONS OF IMPROVEMENT

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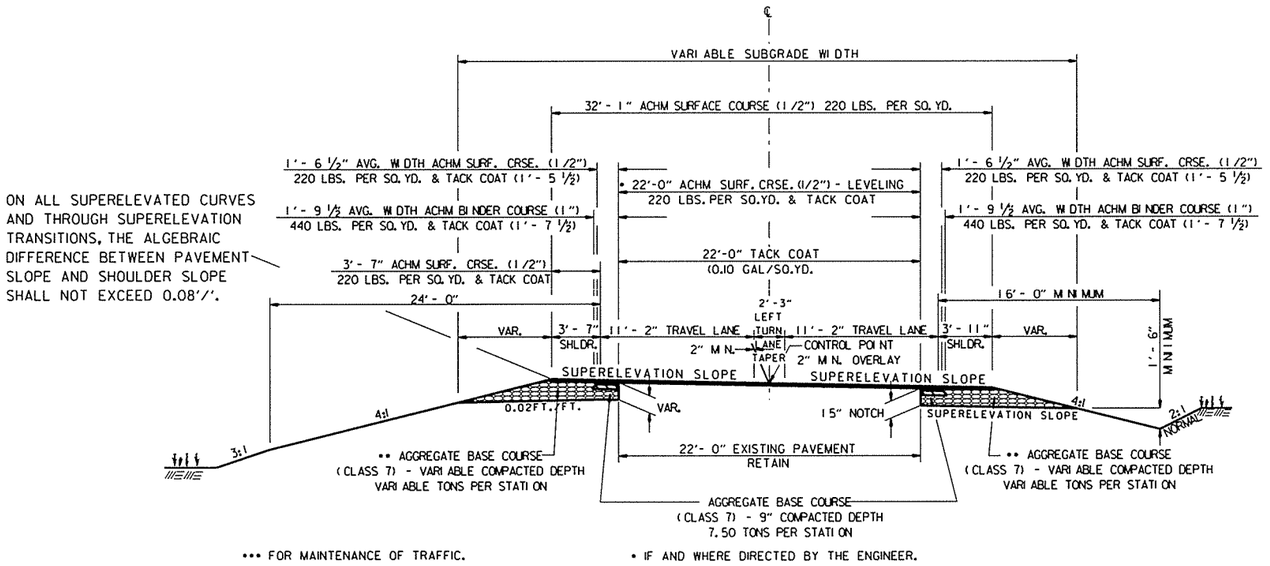
TRINITY D. SMITH
10-31-14



ON ALL SUPERELEVATED CURVES AND THROUGH SUPERELEVATION TRANSITIONS, THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

••• FOR MAINTENANCE OF TRAFFIC.

• IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTION OF IMPROVEMENT
NOTCH & WIDENING - SUPERELEVATION
STA.55+80.00

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.

•• THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE ACHM SURFACE COURSE (1") IN LIEU OF AGGREGATE BASE COURSE UNDER THE PROPOSED SHOULDER, AT NO ADDITIONAL COST TO THE DEPARTMENT. MEASUREMENT WILL BE BASED UPON CALCULATIONS FROM THE PLAN DIMENSIONS.

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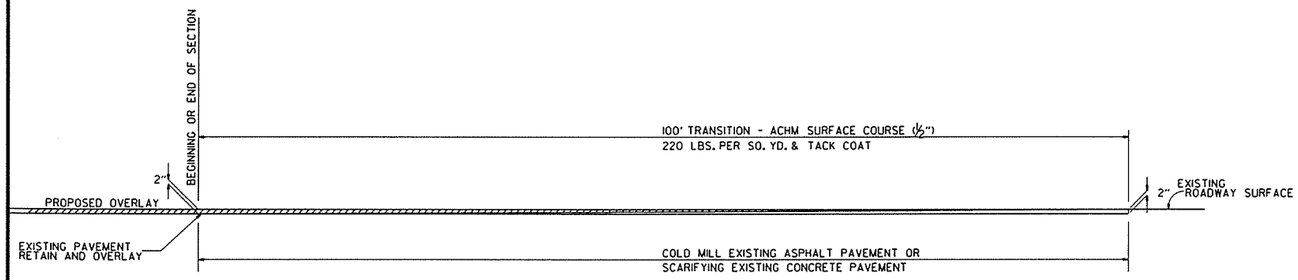
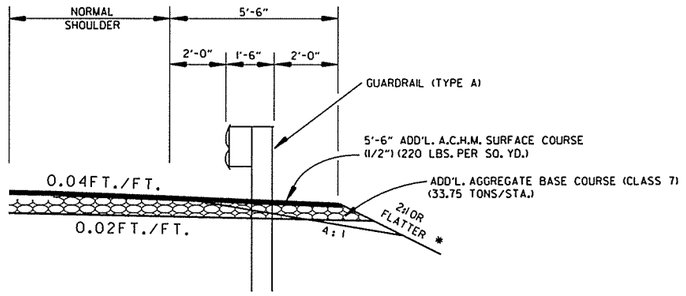
TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	10	128

(2) SPECIAL DETAILS

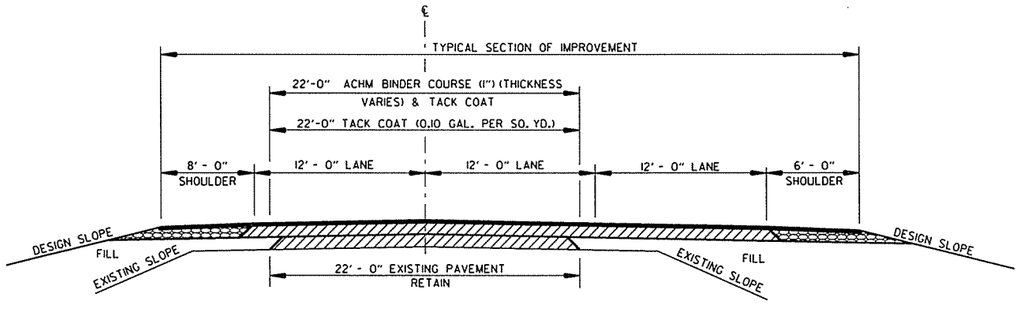


DETAIL FOR PAVEMENT TRANSITIONS



WIDENING FOR GUARDRAIL

NOTE: • REFER TO STANDARD DRAWINGS GR-8, GR-9, GR-9A, GR-10, & GR-10A FOR ADDITIONAL INFORMATION. REFER TO CROSS SECTION FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.



METHOD OF RAISING GRADE

NOTES:

(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.
(2) QUANTITIES FOR METHOD OF GRADE RAISE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS ONE FOOT OR LESS.
(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09 OF THE STANDARD SPECIFICATIONS.

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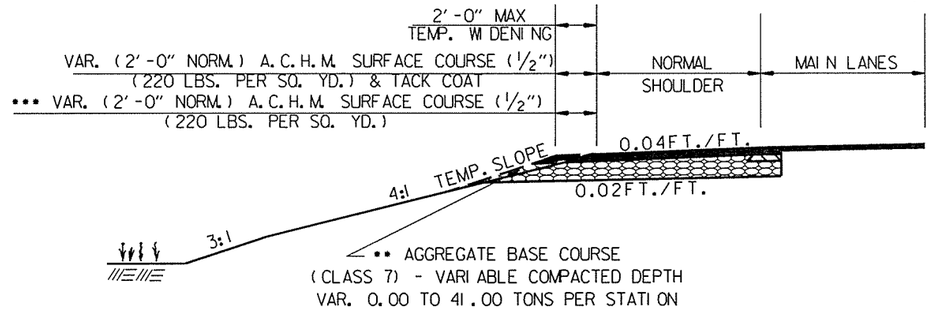
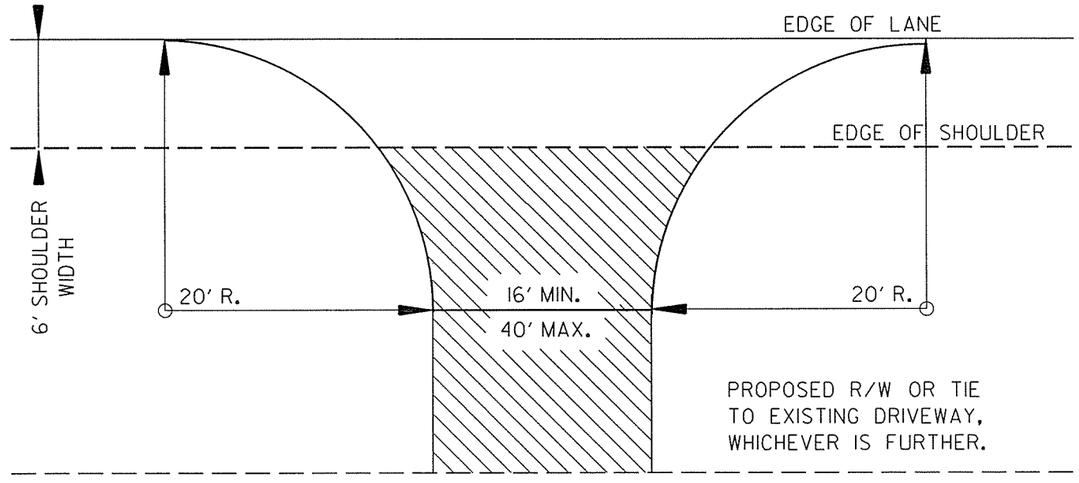


••• FOR MAINTENANCE OF TRAFFIC.

ADDITIONAL WIDENING FOR MAINTENANCE OF TRAFFIC

STA. 28+00.00 - STA. 36+10.00



DETAIL FOR DRIVEWAY TURNOUTS (6'-0" SHOULDER)

SPECIAL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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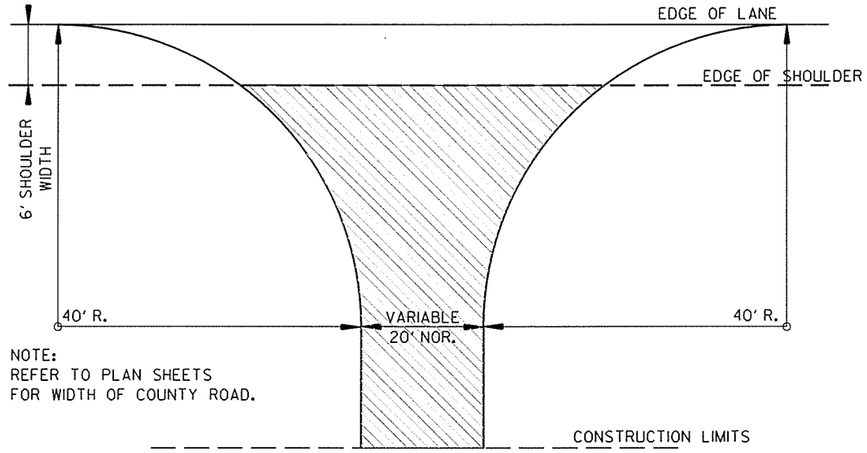
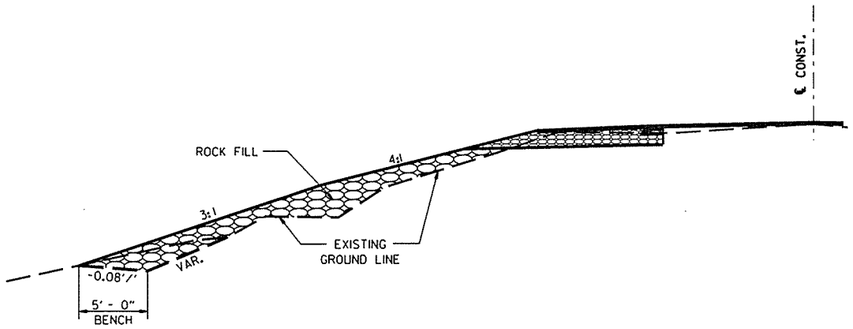
(2) SPECIAL DETAILS



DETAIL FOR COUNTY ROAD TURNOUTS (6'-0" SHOULDER) OPEN SHOULDER SECTION

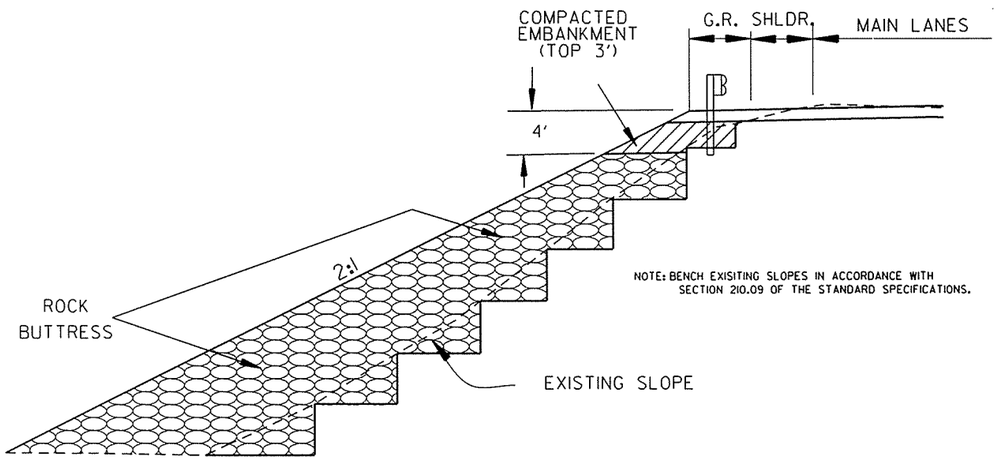
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

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



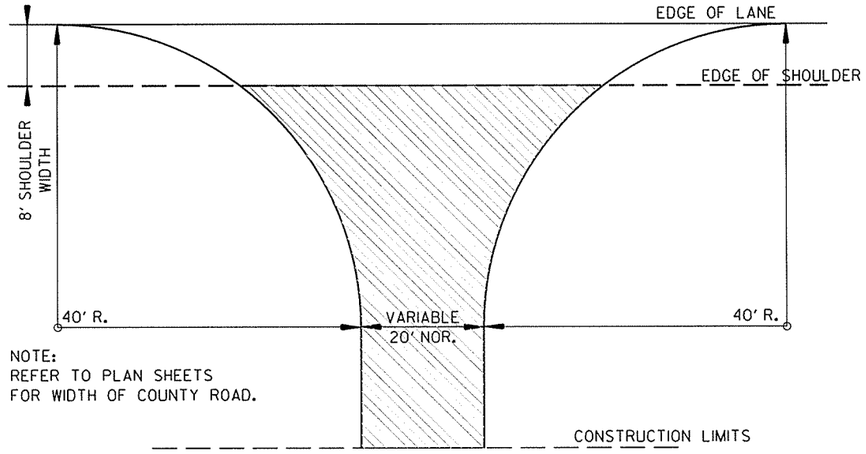
DETAIL SHOWING ROCK FILL AND BENCH CUT TYPICAL FOR FULL DEPTH AND NOTCH & WIDENING SECTIONS

NOTE: REFER TO CROSS SECTIONS AND QUANTITY SHEETS FOR ROCK FILL LIMITS.



DETAIL OF BENCH ON FILL SLOPES

SEE CROSS SECTIONS FOR DETAILS.



DETAIL FOR COUNTY ROAD TURNOUTS (8'-0" SHOULDER) OPEN SHOULDER SECTION

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

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

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SPECIAL DETAILS

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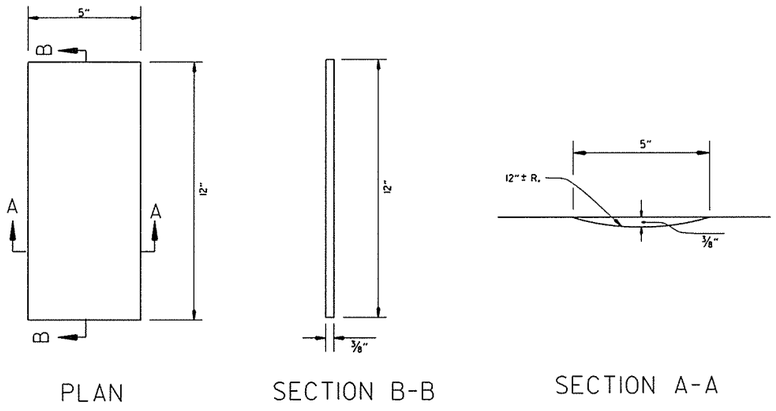
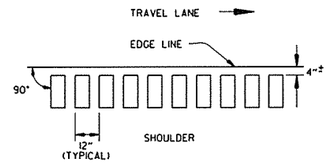
				6	ARK.			
				JOB NO.		090169	12	128

(2) SPECIAL DETAILS

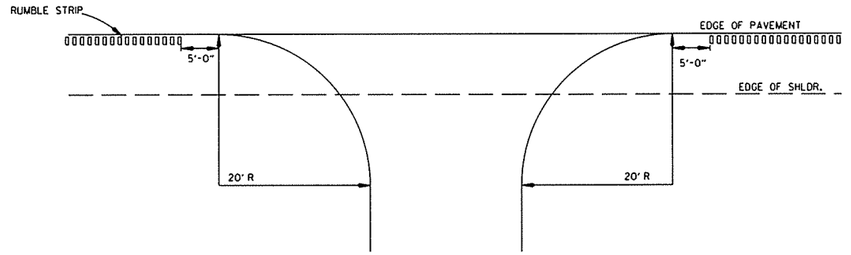


PLAN SECTION B-B SECTION A-A

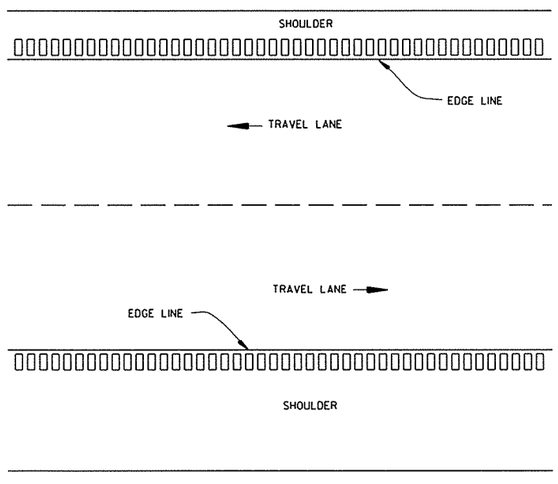
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



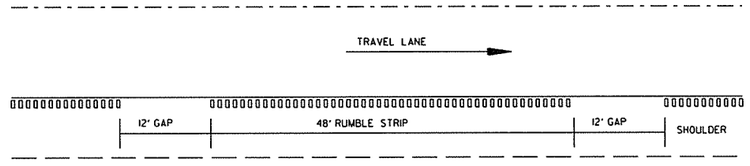
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



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.

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SPECIAL DETAILS

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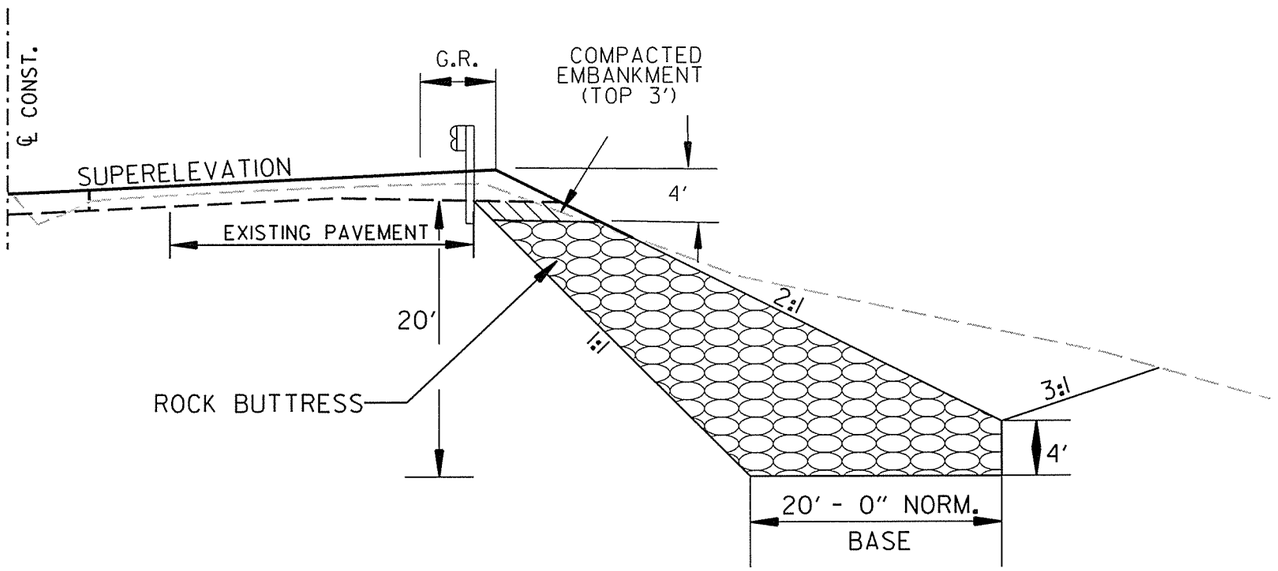
				6	ARK.			
				JOB NO.		090169	13	128

(2) SPECIAL DETAILS

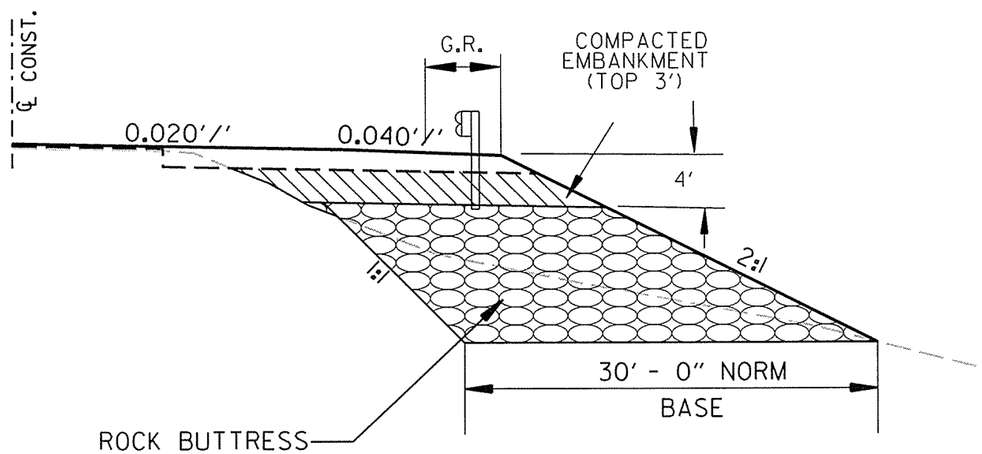
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



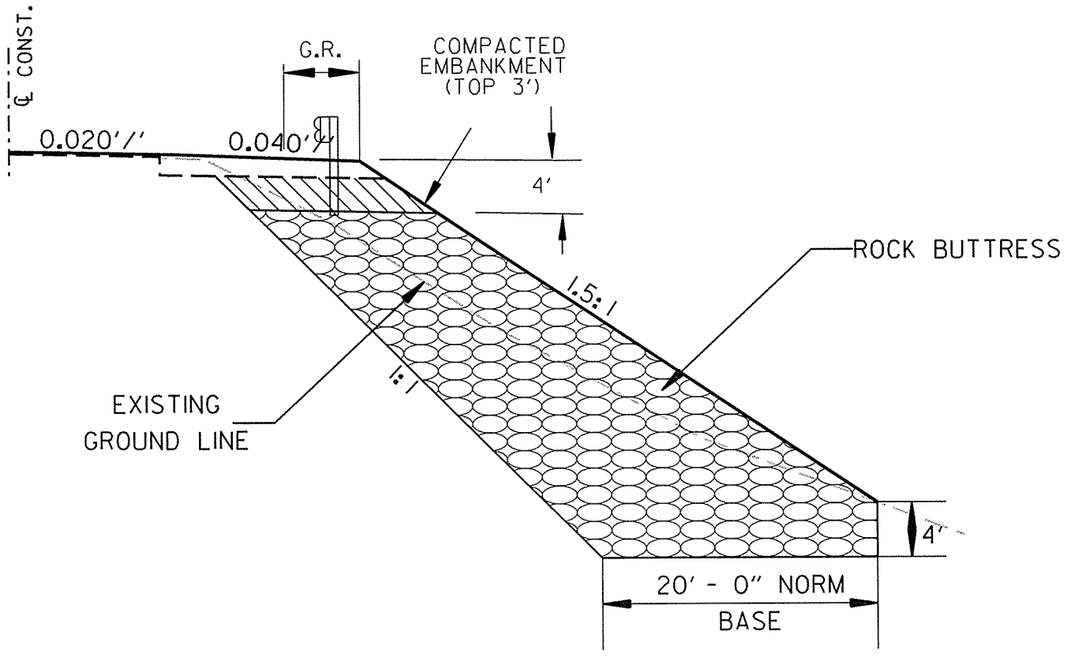
NOTE:

1. REPAIRS SHOULD BE CONSTRUCTED USING MATERIAL MEETING THE REQUIREMENTS OF SECTION 630 IN STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014. WITHIN THE BOUNDARIES OF THE BUFFALO NATIONAL PARK, STA. 44+00 - STA. 55+80, THE STONE SHALL BE NATIVE SANDSTONE THE COLOR AND APPEARANCE APPROXIMATING THE LOCALLY. THE COLOR SHALL BE TAN, BROWN OR BUFF.
2. DEPTHS OF BUTTRESS DESIGNS MAY BE ALTERED IF COMPETENT FOUNDING MATERIAL, AS DETERMINED BY THE ENGINEER, IS ENCOUNTERED AT HIGHER ELEVATIONS.
3. POSITIVE DRAINAGE SHOULD BE ESTABLISHED AT THE BASE OF THE BUTTRESS EITHER BY LEAVING EXPOSED OR INSTALLING PIPE DRAINS.
4. THE TOP 1' OF ROCK BUTTRESS SHALL BE REDUCED IN SIZE TO PROVIDE A GRADABLE CHOKING LAYER. THE 3' LAYER OF COMPACTED EMBANKMENT FOR GUARDRAIL IS ACCEPTABLE.

DETAIL SHOWING ROCK BUTTRESS ON RT.
STA. 14+50 TO STA. 17+00
STA. 20+00 TO STA. 22+50
NOTE: REFER TO CROSS SECTIONS AND QUANTITY SHEETS FOR ROCK FILL LIMITS.



DETAIL SHOWING ROCK BUTTRESS ON RT.
STA. 26+00 TO STA. 31+00
STA. 34+00 TO STA. 44+00
STA. 49+00 TO STA. 51+00
STA. 54+00 TO STA. 55+80
NOTE: REFER TO CROSS SECTIONS AND QUANTITY SHEETS FOR ROCK FILL LIMITS.



DETAIL SHOWING ROCK BUTTRESS ON RT.
STA. 8+00 TO STA. 12+00
NOTE: REFER TO CROSS SECTIONS AND QUANTITY SHEETS FOR ROCK FILL LIMITS.

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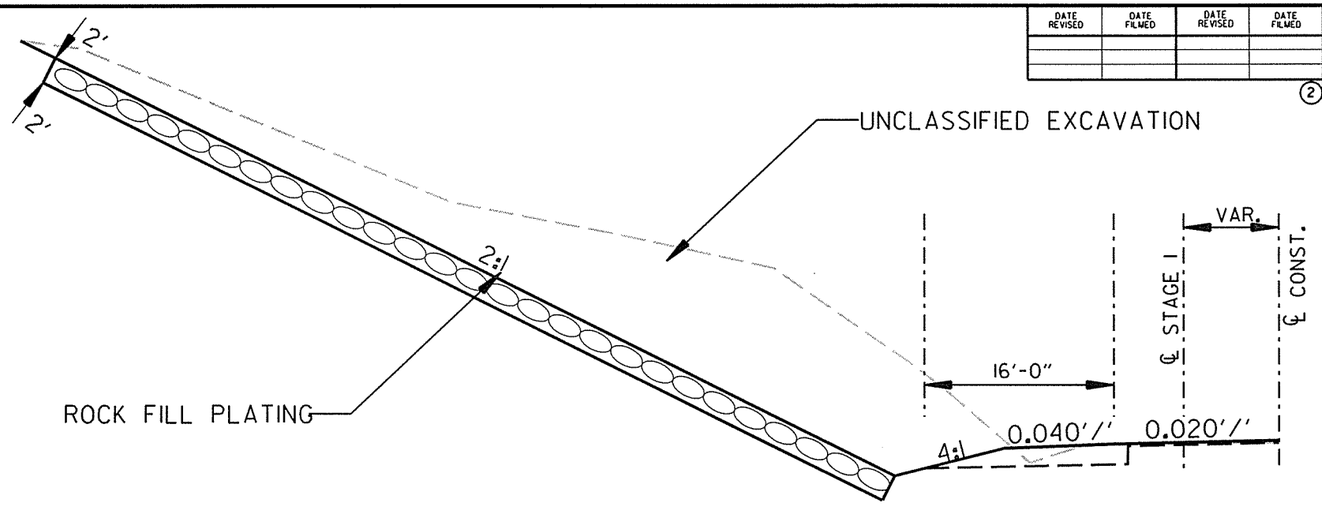
SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	14	128

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14

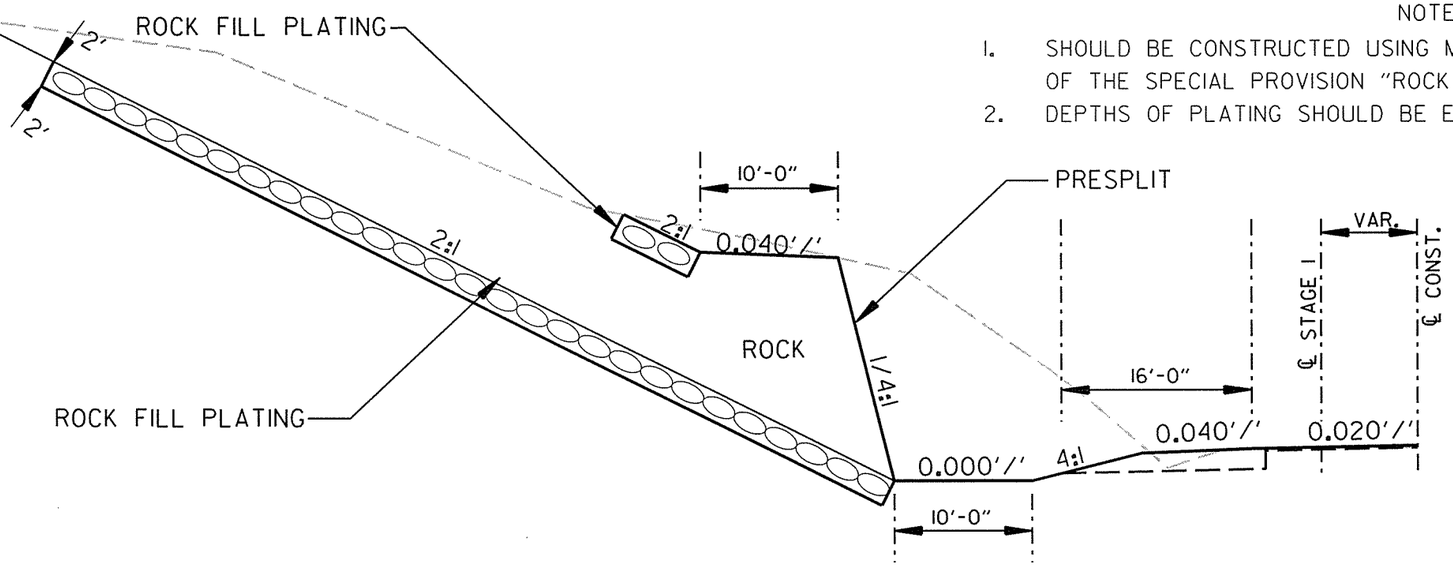


DETAIL SHOWING SLOPE PLATING ON LT.
STA. 8+00 TO STA. 11+00
STA. 14+00 TO STA. 26+40

NOTE: REFER TO CROSS SECTIONS AND QUANTITY SHEETS FOR QUANTITIES.

NOTE:

1. SHOULD BE CONSTRUCTED USING MATERIAL MEETING THE REQUIREMENTS OF THE SPECIAL PROVISION "ROCK FILL"
2. DEPTHS OF PLATING SHOULD BE EMBEDDED 2'-0" DEEP.



DETAIL SHOWING PRESPLITTING ON LT.
STA. 8+00 TO STA. 11+00
STA. 14+00 TO STA. 26+40

NOTE: REFER TO CROSS SECTIONS AND QUANTITY SHEETS FOR QUANTITIES.

NOTE:

1. SHOULD BE CONSTRUCTED USING MATERIAL MEETING THE REQUIREMENTS OF THE SPECIAL PROVISION "ROCK FILL"
2. DEPTHS OF PLATING SHOULD BE EMBEDDED 2'-0" DEEP.

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SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	15	128

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLES
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- [E-14] = SEDIMENT BASIN

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

NOTE:
RETAIN ALL TREES IN T. C. E.'S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14

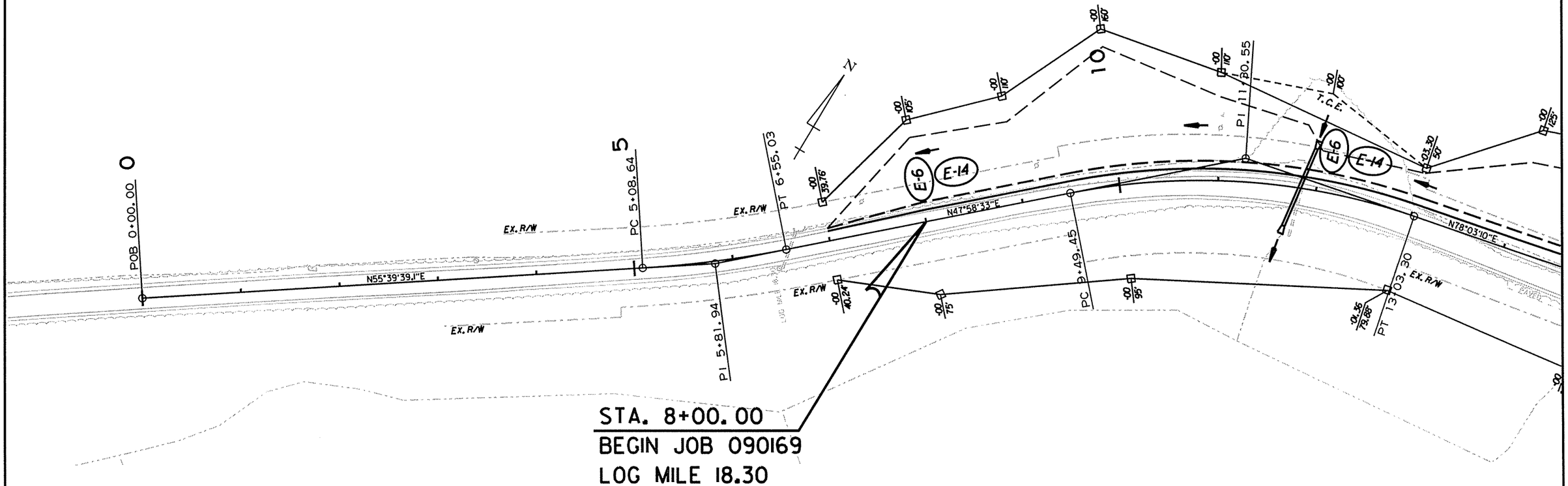
STA. 8+00
INSTALL E-6 = 3 CU. YDS

STA. 8+01
INSTALL E-14 = 121 CU. YDS

STA. 11+98
INSTALL E-6 = 3 CU. YDS

STA. 11+99
INSTALL E-14 = 97 CU. YDS

STA. 13+21
INSTALL E-6 = 3 CU. YDS



STA. 8+00.00
BEGIN JOB 090169
LOG MILE 18.30

7/10/2014

R090169SI.E01

TEMPORARY EROSION CONTROL DETAILS STAGE I

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	16	128

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLES
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

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

NOTE:
RETAIN ALL TREES IN T. C. E.'S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-12-14

STA. 15+44
INSTALL E-6 = 3 CU. YDS

STA. 15+45
INSTALL E-14 = 181 CU. YDS

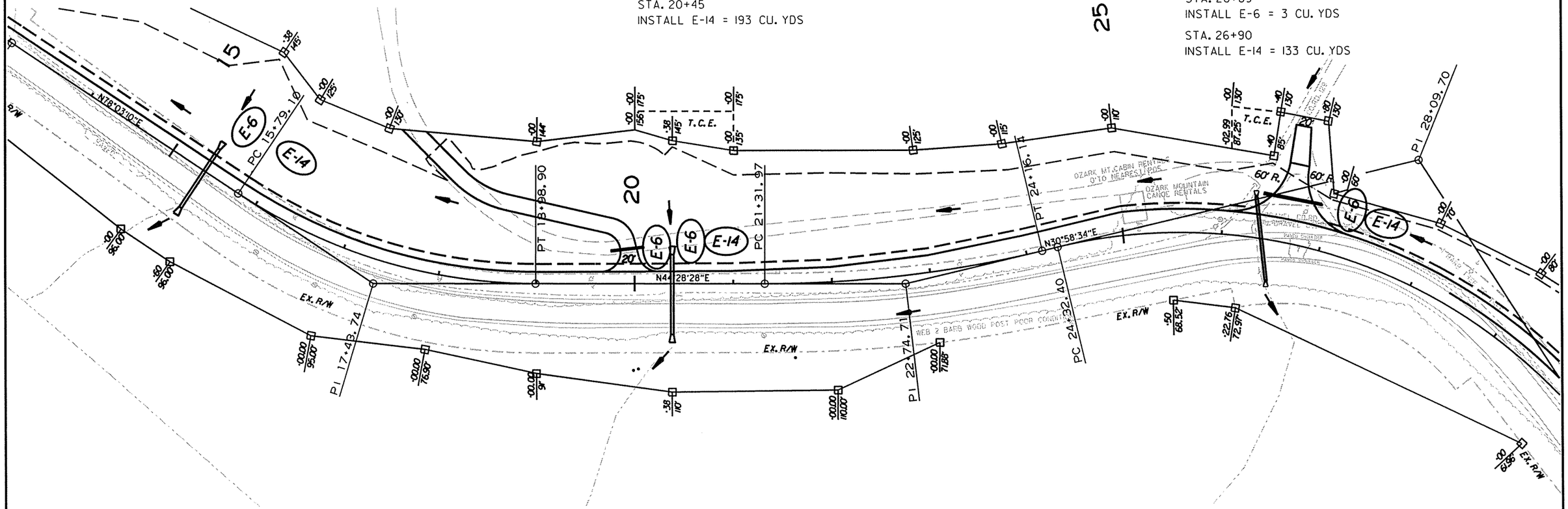
STA. 20+25
INSTALL E-6 = 3 CU. YDS

STA. 20+44
INSTALL E-6 = 3 CU. YDS

STA. 20+45
INSTALL E-14 = 193 CU. YDS

STA. 26+89
INSTALL E-6 = 3 CU. YDS

STA. 26+90
INSTALL E-14 = 133 CU. YDS



TEMPORARY EROSION CONTROL DETAILS STAGE I

R090169SI.E01 7/10/2014

LEGEND

- (E-1) = WATTLES
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

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

NOTE:
RETAIN ALL TREES IN T. C. E.'S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.

REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		090169	17	128

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-4-14

STA. 36+31
INSTALL E-14 = 97 CU. YDS

STA. 36+48
INSTALL E-6 = 3 CU. YDS

STA. 36+32
INSTALL E-6 = 3 CU. YDS

STA. 36+84
INSTALL E-6 = 3 CU. YDS

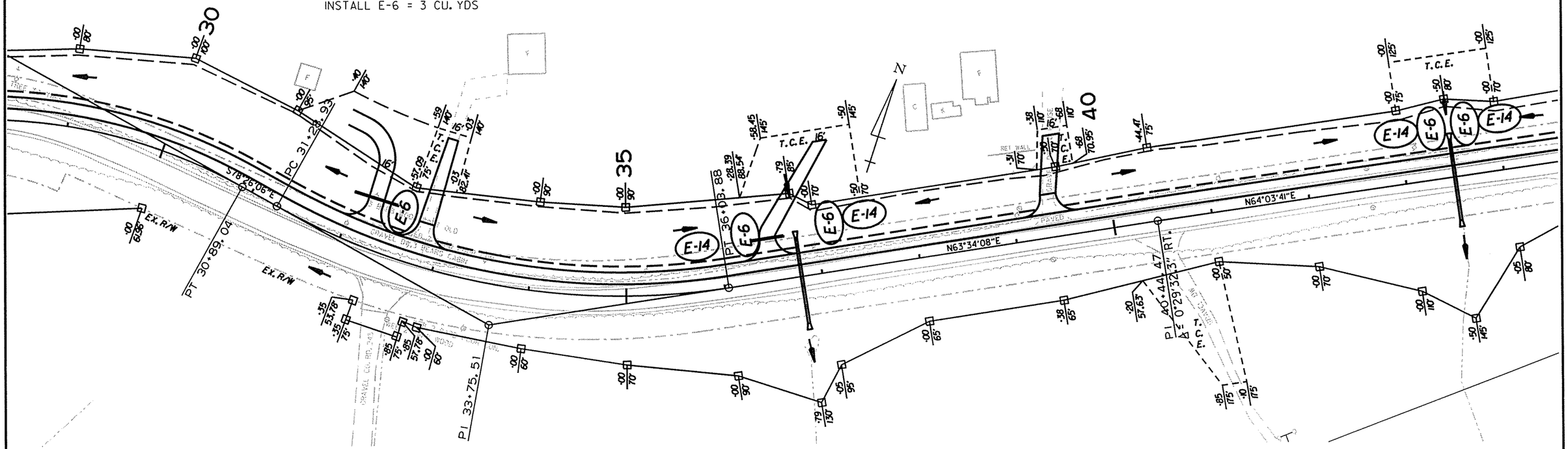
STA. 36+85
INSTALL E-14 = 52 CU. YDS

STA. 43+45
INSTALL E-6 = 3 CU. YDS

STA. 43+44
INSTALL E-14 = 84 CU. YDS

STA. 43+55
INSTALL E-6 = 3 CU. YDS

STA. 43+56
INSTALL E-14 = 39 CU. YDS



TEMPORARY EROSION CONTROL DETAILS STAGE I

7/10/2014

R090169S1.E01

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	18	128

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLES
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

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

NOTE:
RETAIN ALL TREES IN T. C. E.'S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.

REVISIONS

DATE OF REVISION	REVISION

STA. 43+44
INSTALL E-14 = 84 CU. YDS

STA. 43+45
INSTALL E-6 = 3 CU. YDS

STA. 43+55
INSTALL E-6 = 3 CU. YDS

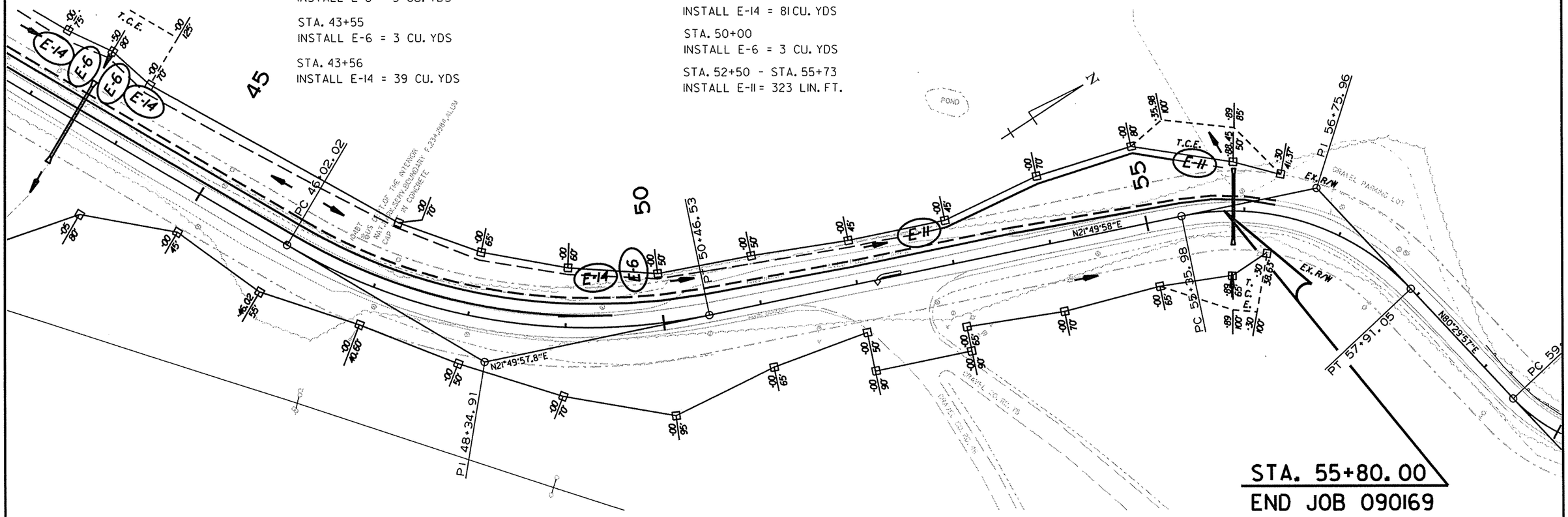
STA. 43+56
INSTALL E-14 = 39 CU. YDS

STA. 49+99
INSTALL E-14 = 81 CU. YDS

STA. 50+00
INSTALL E-6 = 3 CU. YDS

STA. 52+50 - STA. 55+73
INSTALL E-11 = 323 LIN. FT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



TEMPORARY EROSION CONTROL DETAILS STAGE I

7/10/2014

R090169SI.E01

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	19	128

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

(E-1) = WATTLES
(E-6) = ROCK DITCH CHECK
(E-11) = SILT FENCE
(E-14) = SEDIMENT BASIN

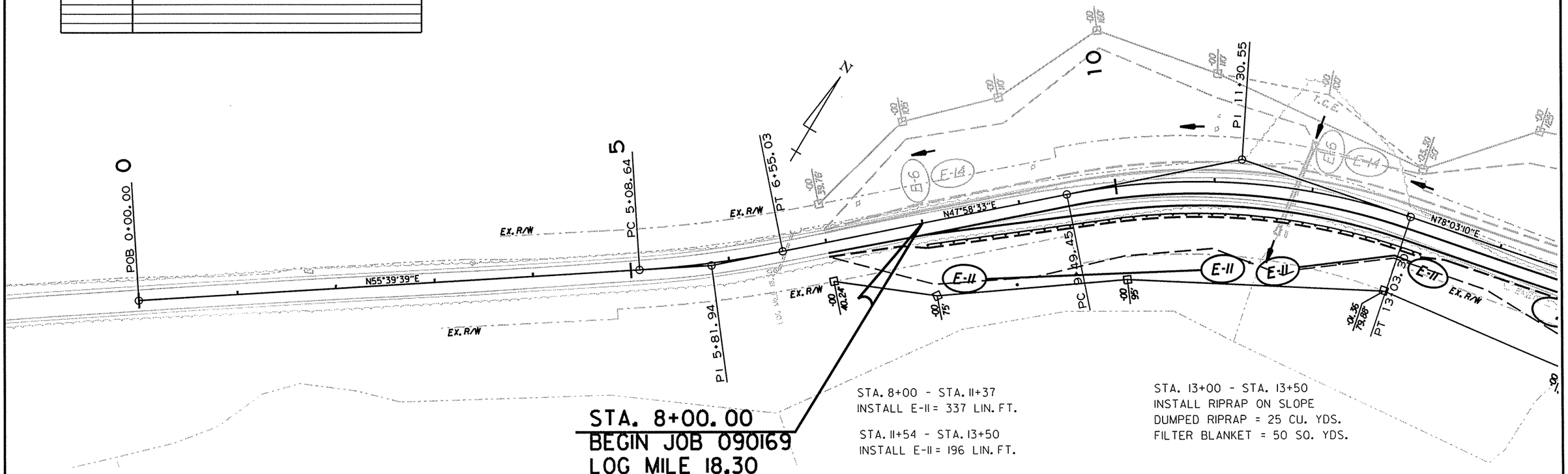
NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

NOTE:
RETAIN ALL TREES IN T. C. E.'S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14

REVISIONS

DATE OF REVISION	REVISION



TEMPORARY EROSION CONTROL DETAILS STAGE 2

7/11/2014

R090169S2.E01

LEGEND

- (E-1) = WATTLES
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

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

REVISIONS

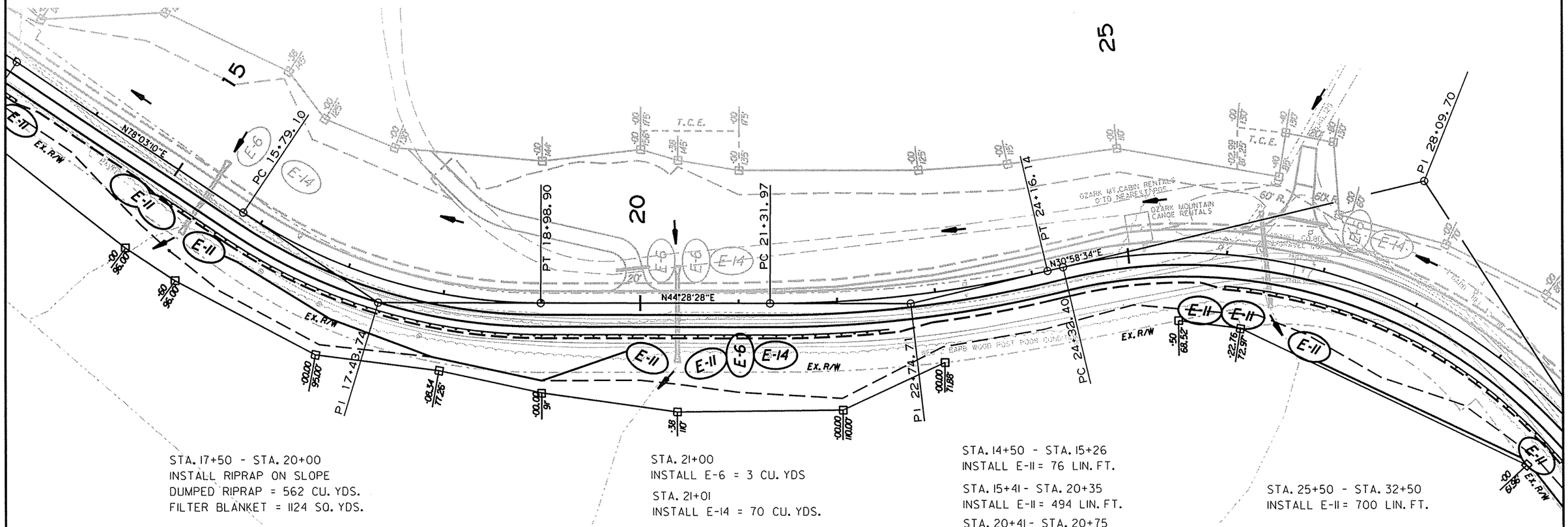
DATE OF REVISION	REVISION

NOTE:
RETAIN ALL TREES IN T. C. E.'S
NOT AFFECTED BY CONSTRUCTION
OF DRIVEWAYS OR CHANNELIZATION
WORK FOR PROPOSED CROSS DRAINS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	20	128

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-12-14



STA. 17+50 - STA. 20+00
INSTALL RIPRAP ON SLOPE
DUMPED RIPRAP = 562 CU. YDS.
FILTER BLANKET = 1124 SQ. YDS.

STA. 21+00
INSTALL E-6 = 3 CU. YDS

STA. 21+01
INSTALL E-14 = 70 CU. YDS.

STA. 14+50 - STA. 15+26
INSTALL E-11 = 76 LIN. FT.

STA. 15+41 - STA. 20+35
INSTALL E-11 = 494 LIN. FT.

STA. 20+41 - STA. 20+75
INSTALL E-11 = 34 LIN. FT.

STA. 25+50 - STA. 32+50
INSTALL E-11 = 700 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS STAGE 2

7/11/2014

R090169S2.E01

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	21	128

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-1) = WATTLES
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

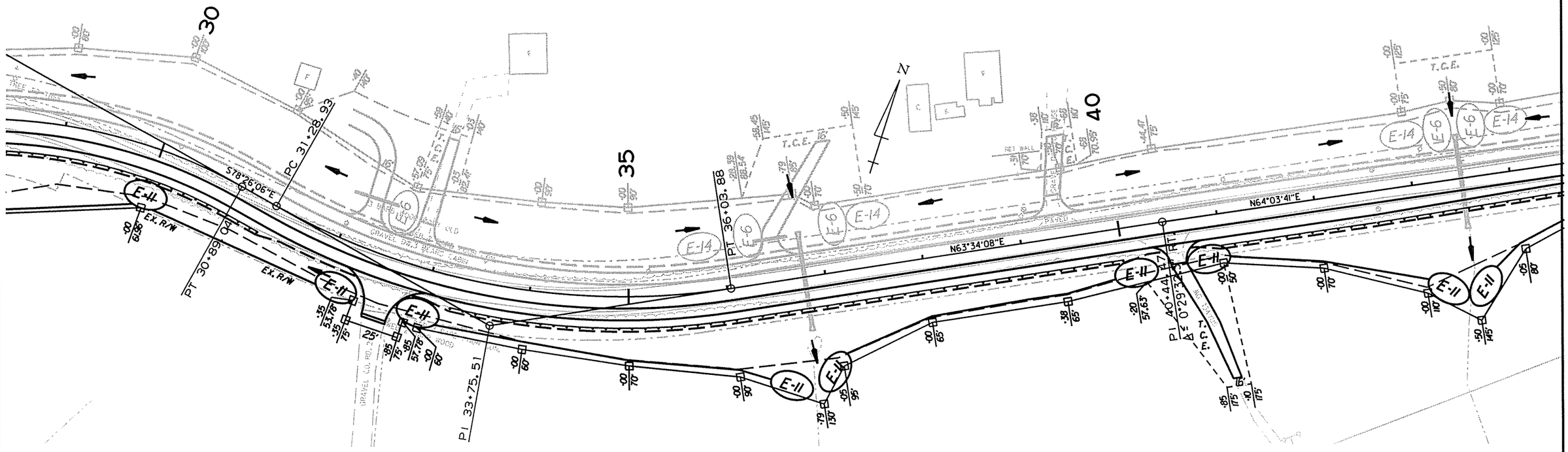
NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

NOTE:
RETAIN ALL TREES IN T. C. E.'S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-4-14



STA. 26+82 - STA. 32+50
INSTALL E-II = 700 LIN. FT.

STA. 32+72 - STA. 36+69
INSTALL E-II = 397 LIN. FT.

STA. 36+82 - STA. 40+47
INSTALL E-II = 365 LIN. FT.

STA. 40+63 - STA. 43+37
INSTALL E-II = 274 LIN. FT.

STA. 43+53 - STA. 51+75
INSTALL E-II = 822 LIN. FT.

STA. 30+00 - STA. 31+50
INSTALL RIPRAP ON SLOPE
DUMPED RIPRAP = 100 CU. YDS.
FILTER BLANKET = 200 SQ. YDS.

TEMPORARY EROSION CONTROL DETAILS STAGE 2

7/11/2014

R090169S2.E01

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	22	128

② TEMPORARY EROSION CONTROL DETAILS

No. 11425
TRINITY D. SMITH
10-31-14

LEGEND

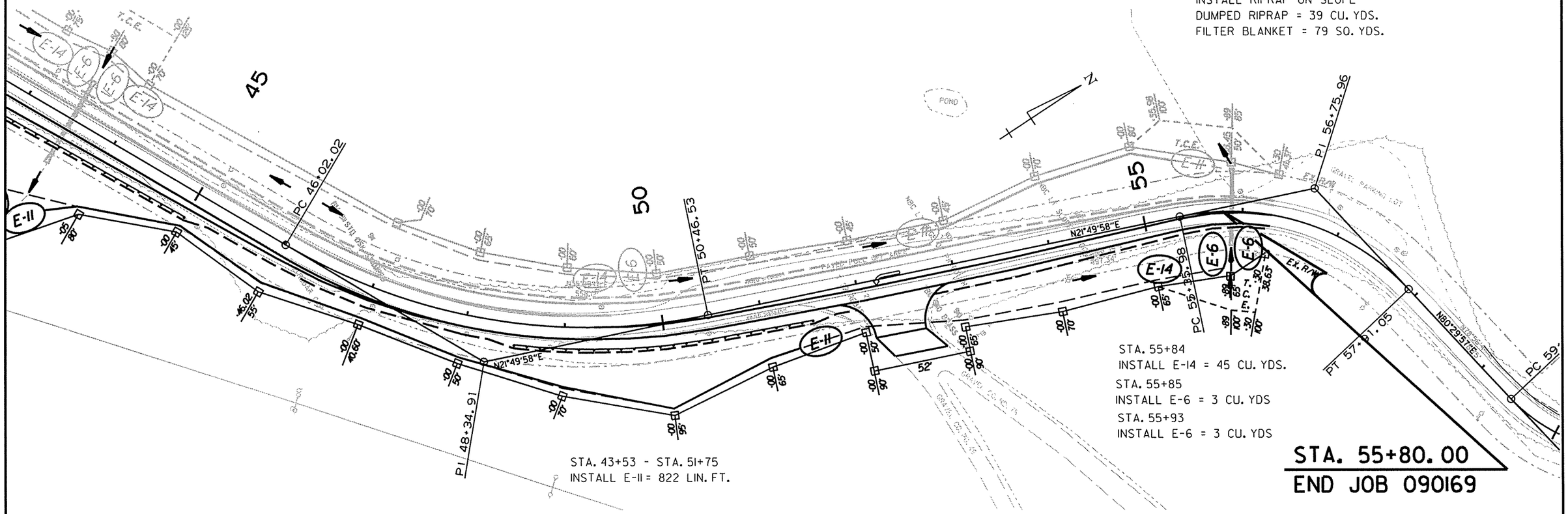
E-1 = WATTLES
E-6 = ROCK DITCH CHECK
E-11 = SILT FENCE
E-14 = SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

NOTE:
RETAIN ALL TREES IN T. C. E.'S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.



STA. 55+89
INSTALL RIPRAP ON SLOPE
DUMPED RIPRAP = 39 CU. YDS.
FILTER BLANKET = 79 SQ. YDS.

STA. 55+84
INSTALL E-14 = 45 CU. YDS.
STA. 55+85
INSTALL E-6 = 3 CU. YDS
STA. 55+93
INSTALL E-6 = 3 CU. YDS

STA. 43+53 - STA. 51+75
INSTALL E-11 = 822 LIN. FT.

STA. 55+80.00
END JOB 090169

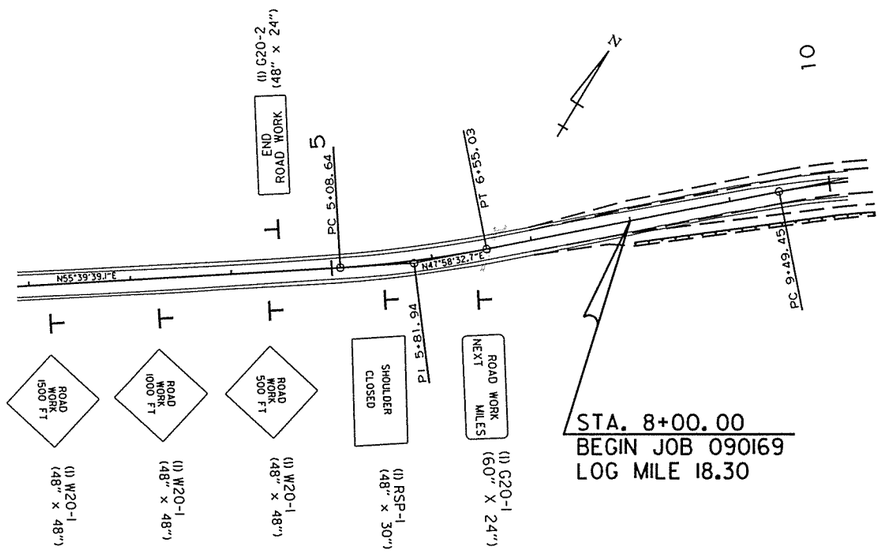
TEMPORARY EROSION CONTROL DETAILS STAGE 2

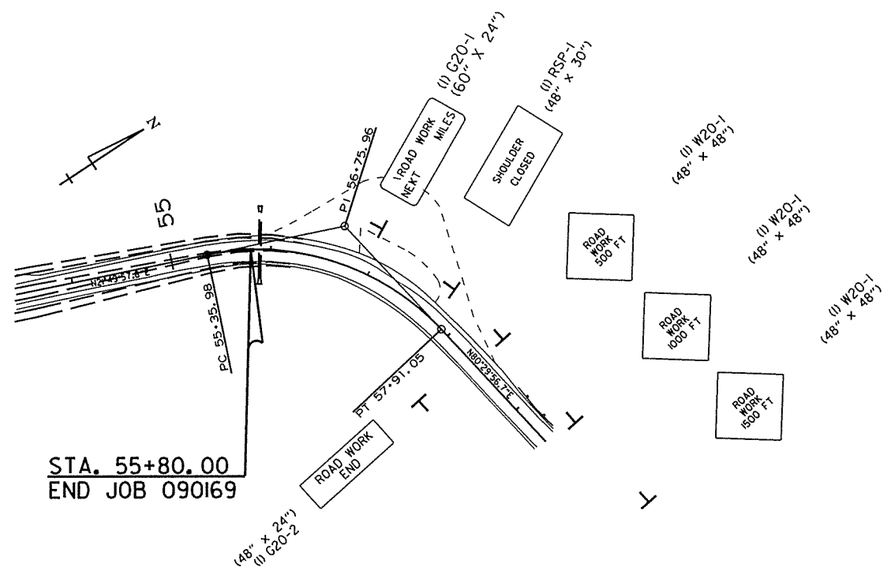
7/11/2014
R090169S2.E01

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	23	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14





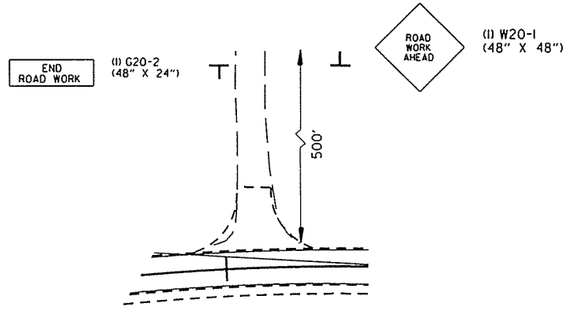
SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

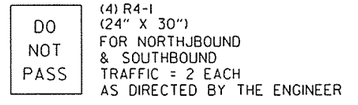
STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.



NEEDED AT 5 SIDE ROADS
(TOTAL ALL SITES)

ADVANCE SIGN AT SIDE ROADS
ALL STAGES



MAINTENANCE OF TRAFFIC
ADVANCE SIGNS ALL STAGES

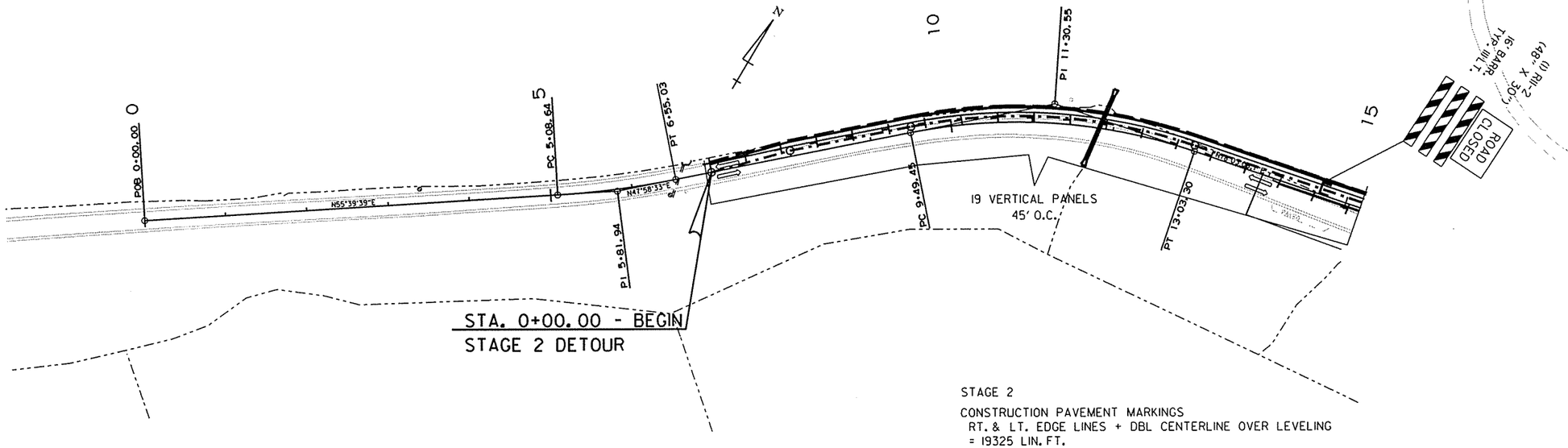
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	24	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



STAGE 2

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL CENTERLINE OVER LEVELING
= 19325 LIN. FT.

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

NOTE:

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

MAINTENANCE OF TRAFFIC STAGE 1 DETAILS

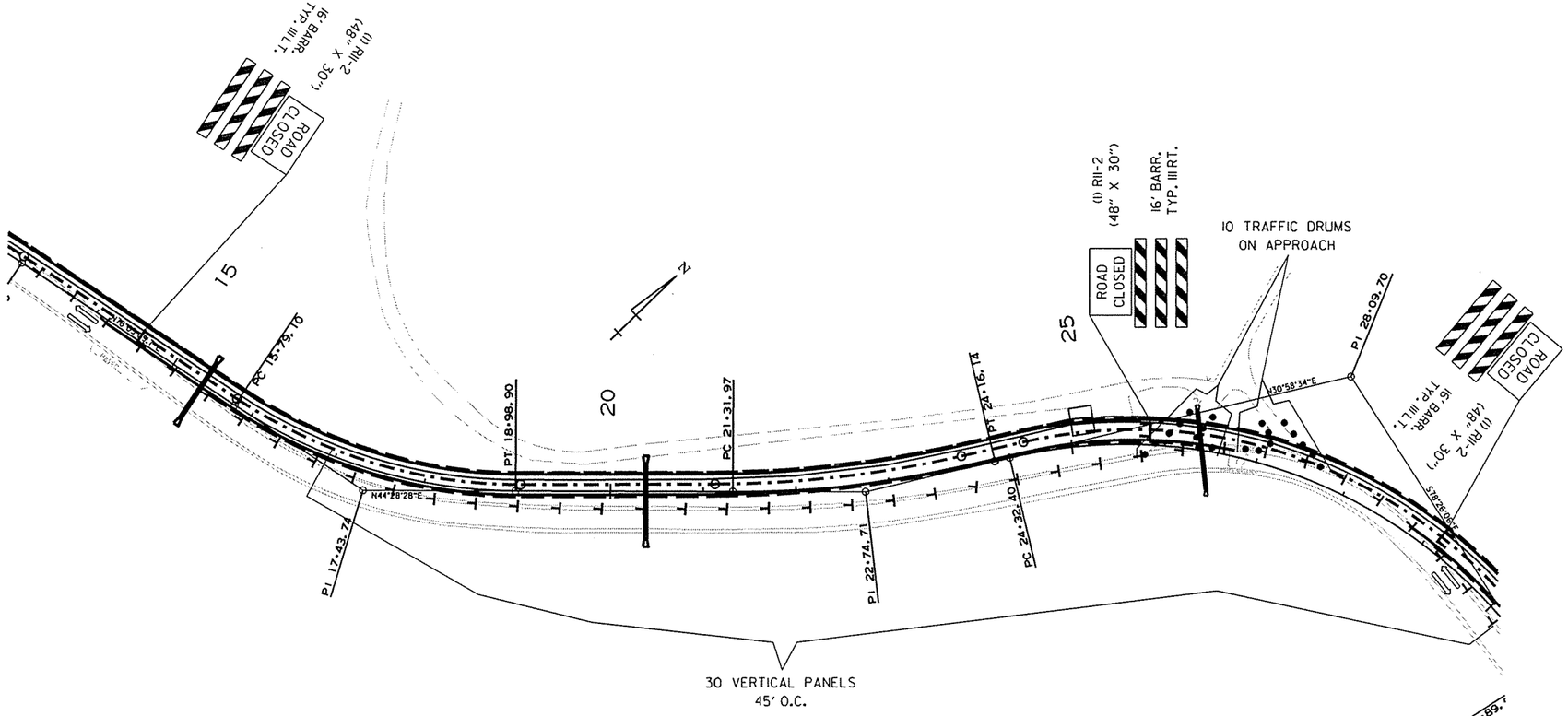
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	25	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



NOTE:

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

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 2

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL CENTERLINE OVER LEVELING
= 19325 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 1 DETAILS

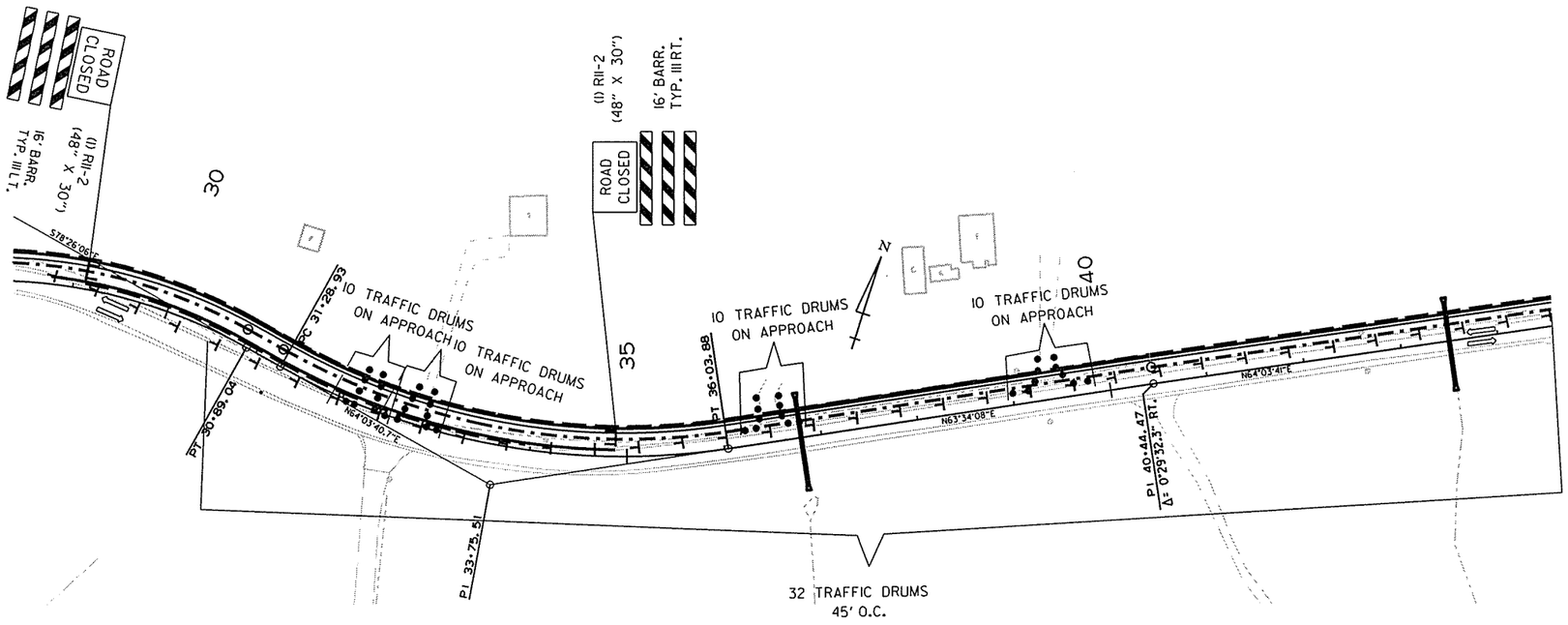
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	26	124

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-4-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 2

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL CENTERLINE OVER LEVELING
= 19325 LIN. FT.

NOTE:

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

MAINTENANCE OF TRAFFIC STAGE 1 DETAILS

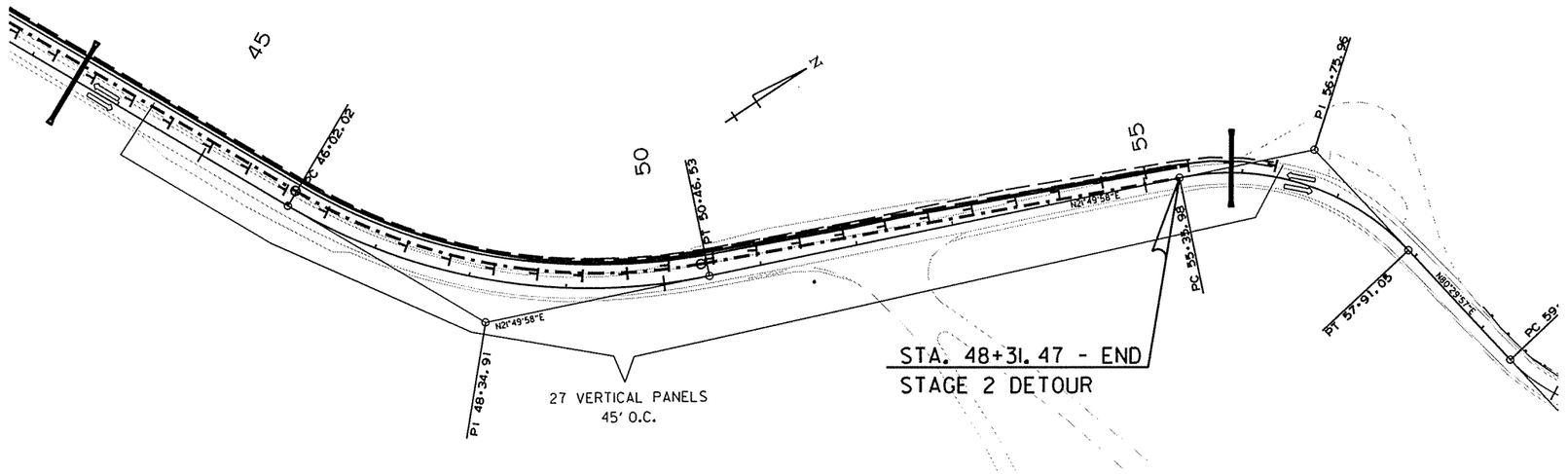
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	27	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 2

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL CENTERLINE OVER LEVELING
= 19325 LIN. FT.

NOTE:

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

MAINTENANCE OF TRAFFIC STAGE 1 DETAILS

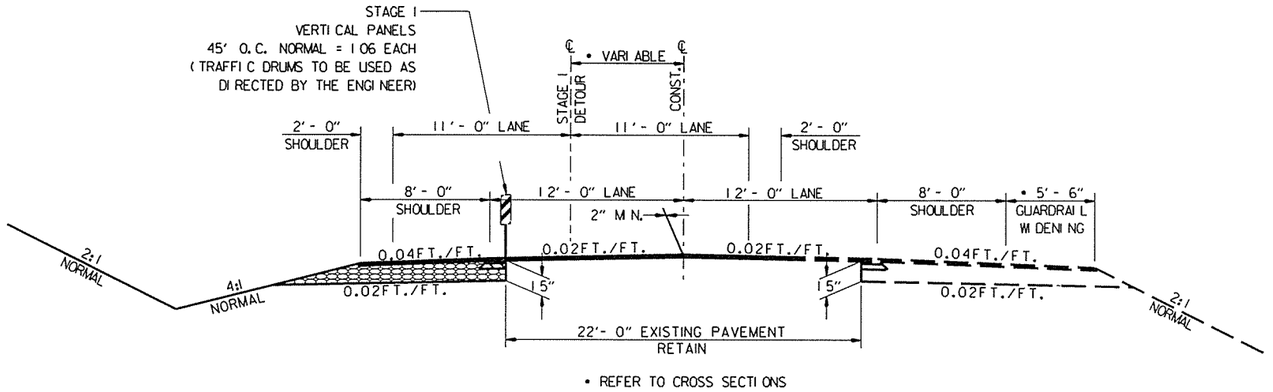
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	28	128

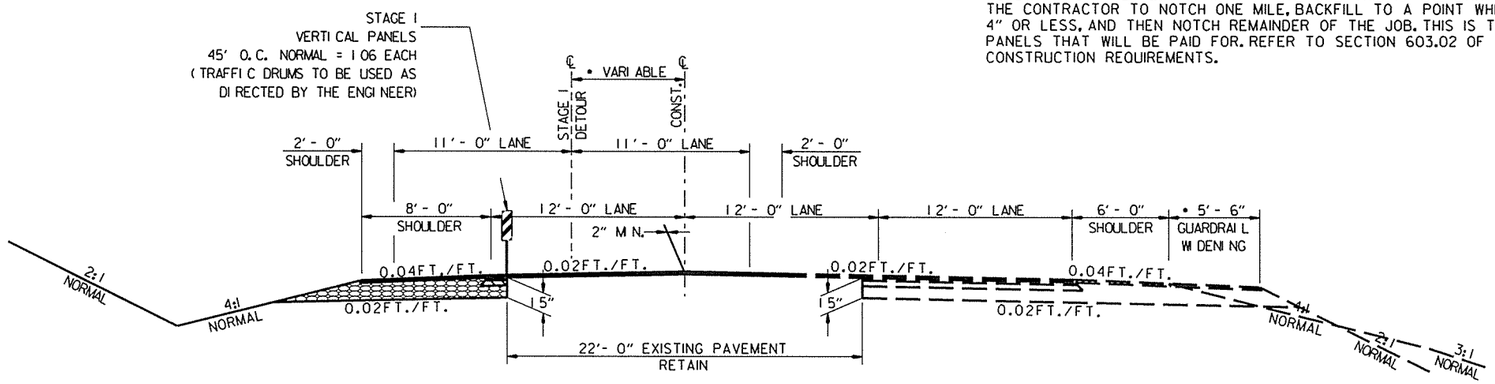
(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



DETAIL OF TWO LANE SECTION AT BEGINNING OF STAGE I - NOTCH & WIDENING

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



DETAIL FOR RIGHT PASSING LANES - NOTCH & WIDENING - STAGE I

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

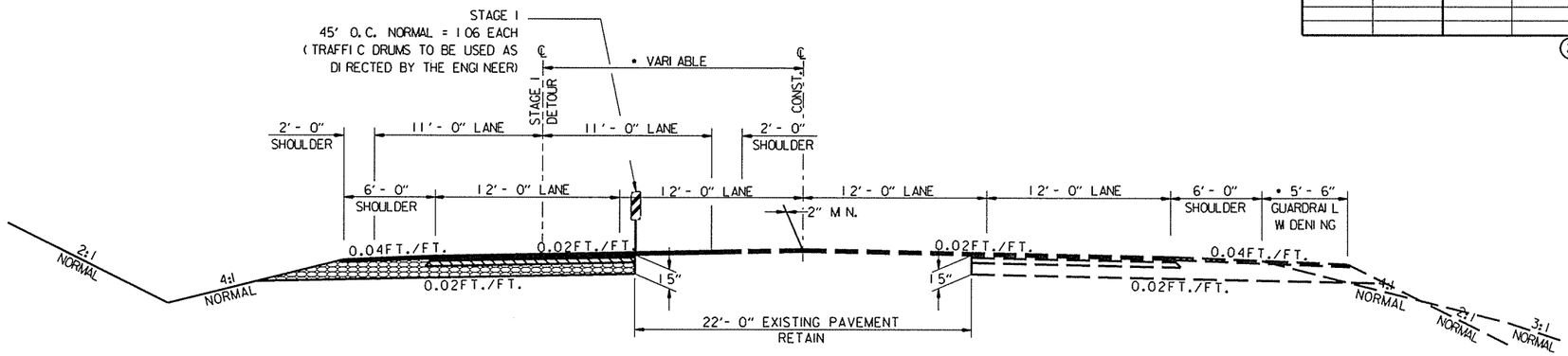
MAINTENANCE OF TRAFFIC STAGE I DETAILS

7/8/2014

R090169.MDT

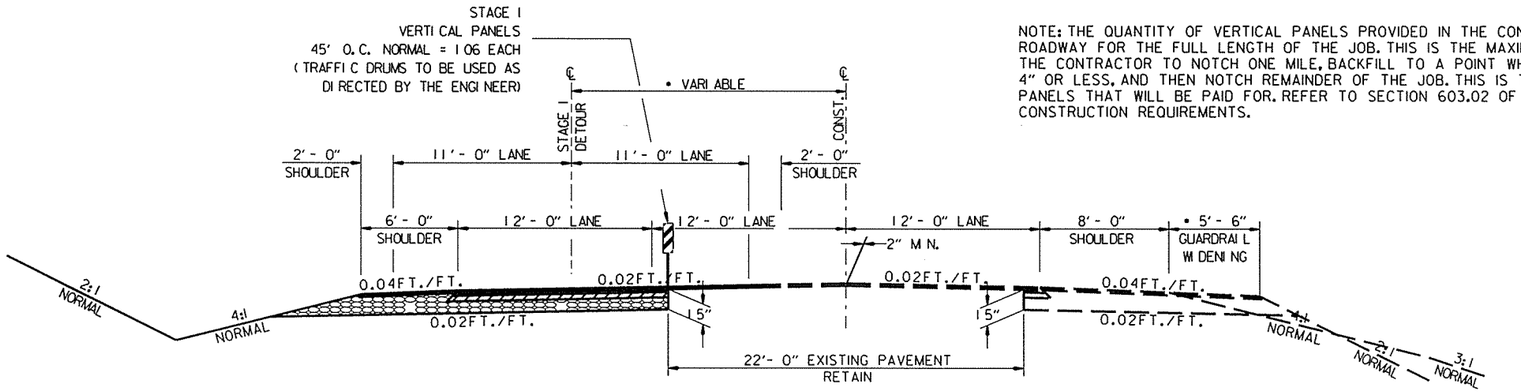
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	29	128

(2) MAINTENANCE OF TRAFFIC



• REFER TO CROSS SECTIONS

DETAIL FOR LEFT & RIGHT PASSING LANES - NOTCH & WIDENING - STAGE I



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

• REFER TO CROSS SECTIONS

DETAIL FOR LEFT PASSING LANES - NOTCH & WIDENING - STAGE I

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

MAINTENANCE OF TRAFFIC STAGE I DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14

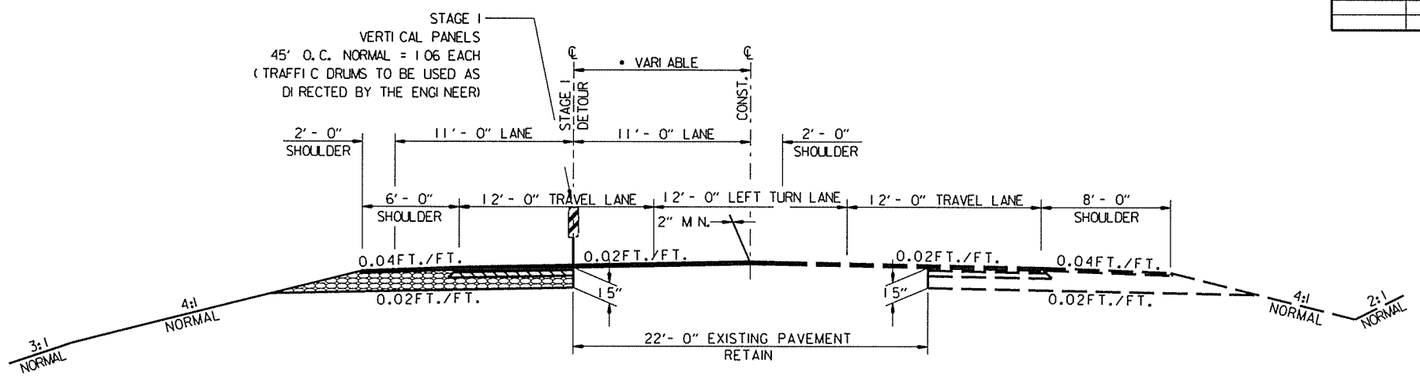
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	30	128

(2) MAINTENANCE OF TRAFFIC

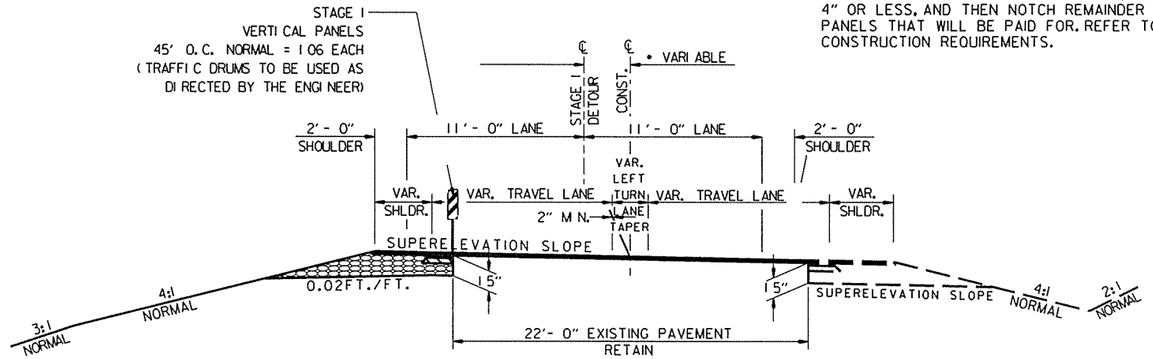
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



• REFER TO CROSS SECTIONS

DETAIL FOR LEFT TURN LANE - NOTCH & WIDENING - STAGE I

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



• REFER TO CROSS SECTIONS

DETAIL OF TWO LANE SECTION AT END OF STAGE I NOTCH & WIDENING

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

7/8/2014

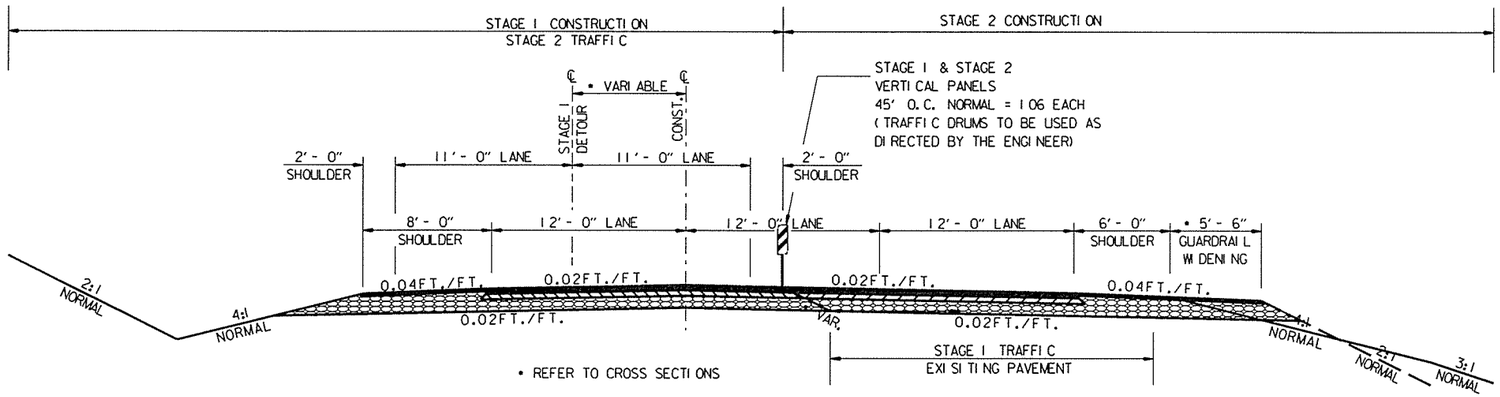
R090169.MOT

MAINTENANCE OF TRAFFIC STAGE I DETAILS

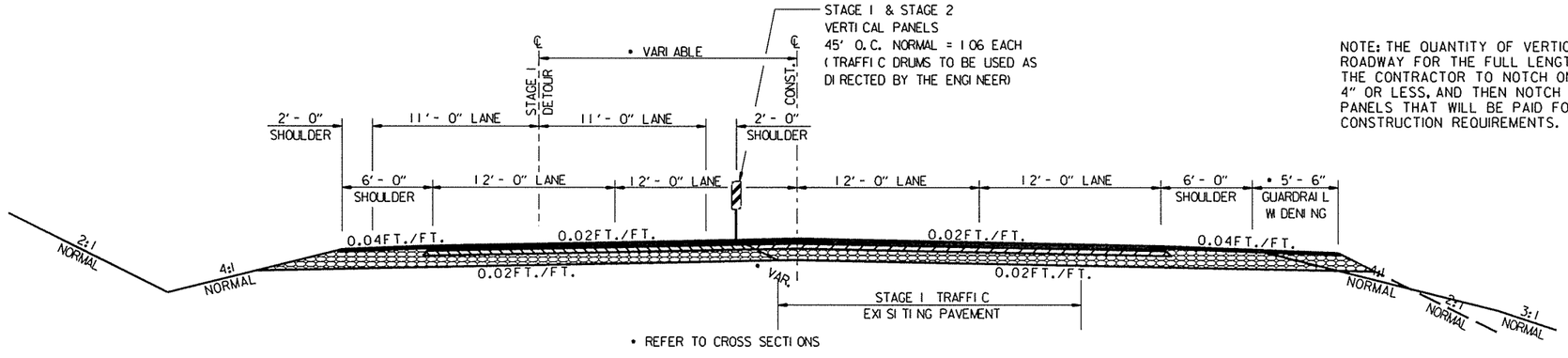
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	31	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



DETAIL FOR RIGHT PASSING LANES - FULL DEPTH - STAGE 1& 2



DETAIL FOR LEFT & RIGHT PASSING LANES - FULL DEPTH - STAGE 1& 2

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

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

MAINTENANCE OF TRAFFIC STAGE 1& 2 DETAILS

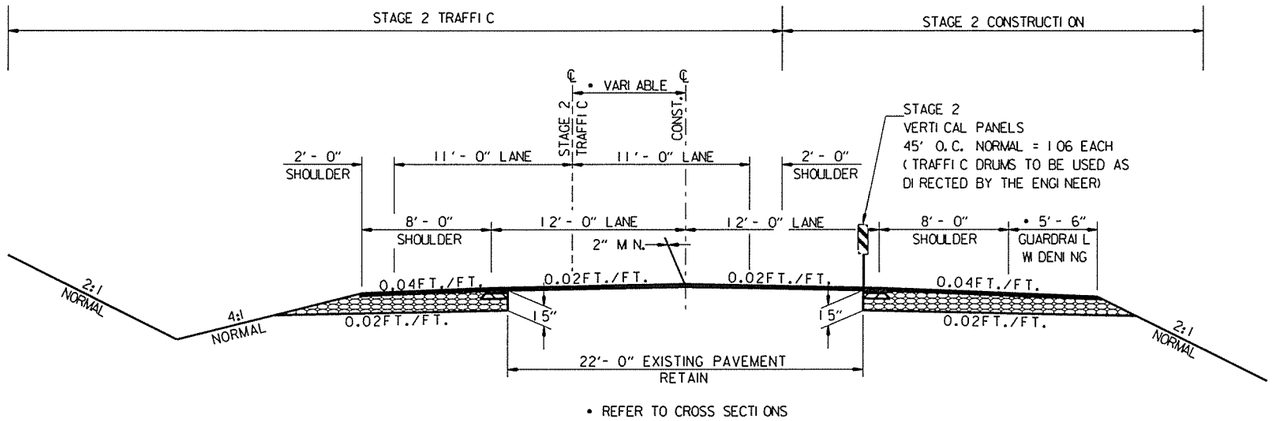
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	32	128

(2) MAINTENANCE OF TRAFFIC

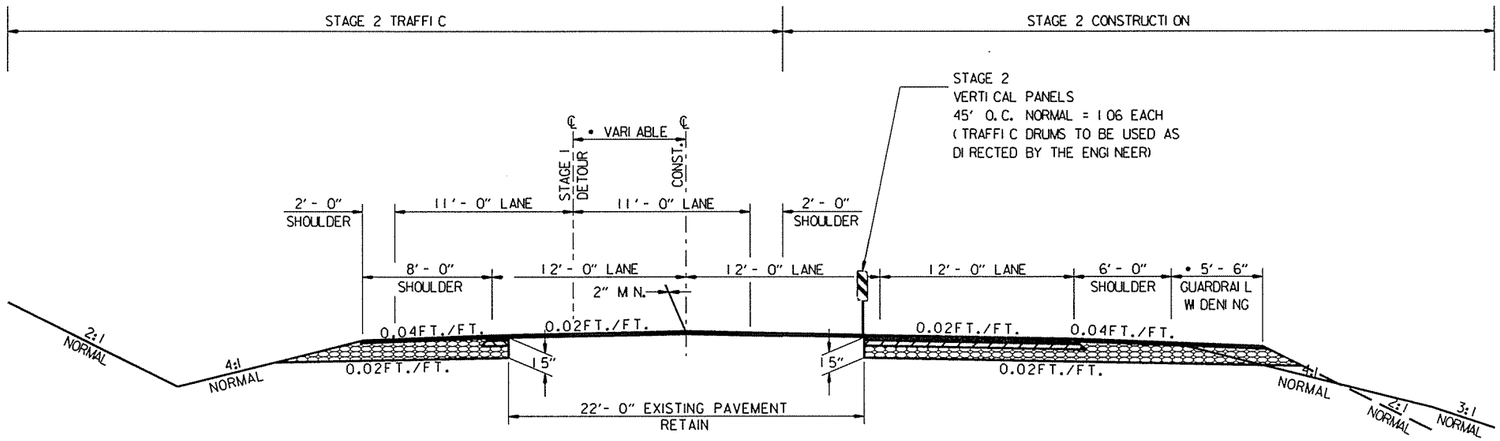
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



• REFER TO CROSS SECTIONS

DETAIL OF TWO LANE SECTION AT BEGINNING OF STAGE 2 - NOTCH & WIDENING

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



• REFER TO CROSS SECTIONS

DETAIL FOR RIGHT PASSING LANES - NOTCH & WIDENING - STAGE 2

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
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STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

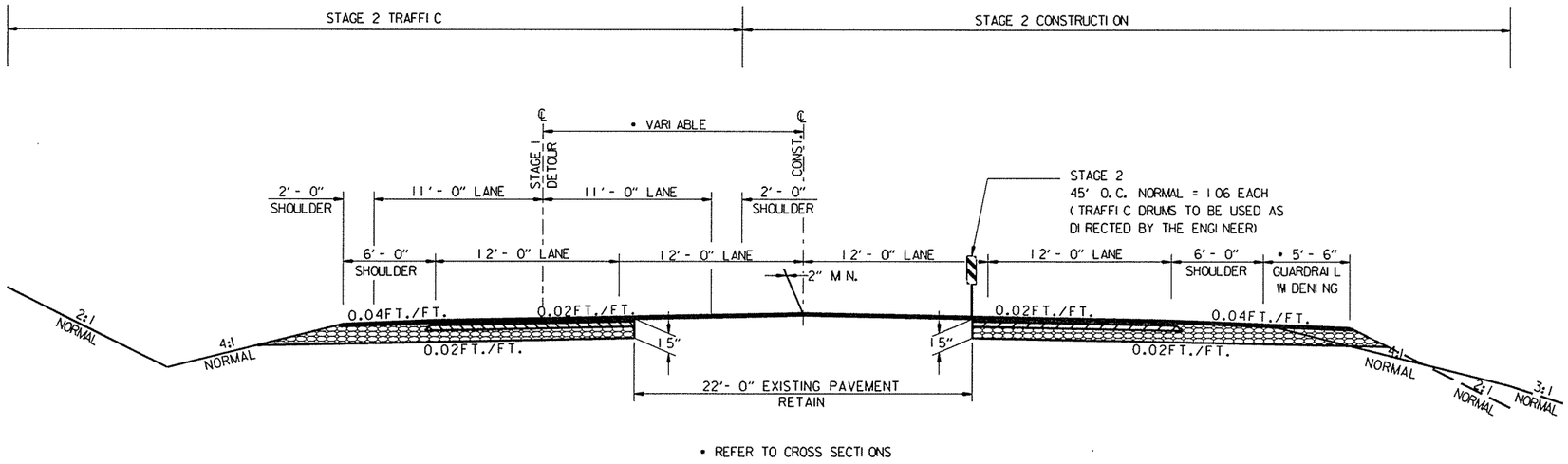
7/8/2014

R090169.MDT

MAINTENANCE OF TRAFFIC STAGE 2 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.		090169	33	128

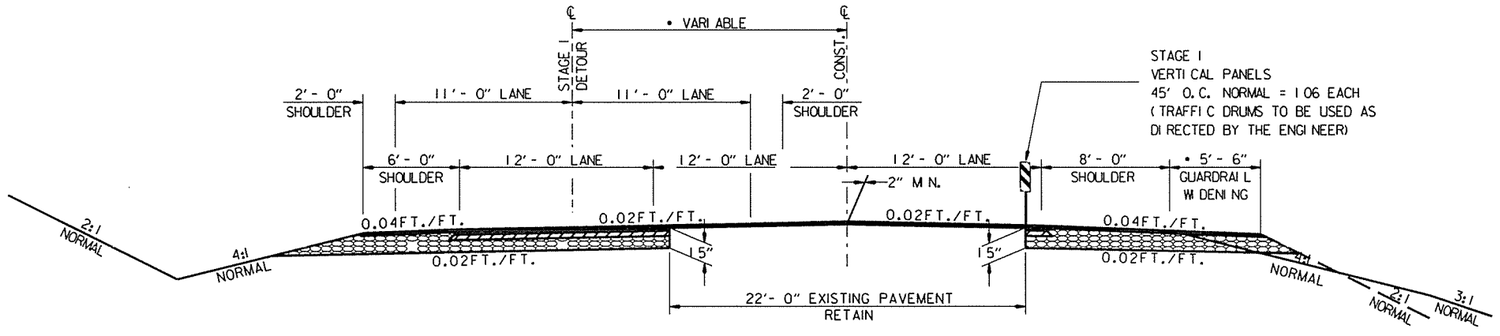
(2) MAINTENANCE OF TRAFFIC



• REFER TO CROSS SECTIONS

DETAIL FOR LEFT & RIGHT PASSING LANES - NOTCH & WIDENING - STAGE 2

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



• REFER TO CROSS SECTIONS

DETAIL FOR LEFT PASSING LANES - NOTCH & WIDENING - STAGE 2

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
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CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

MAINTENANCE OF TRAFFIC STAGE 2 DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14

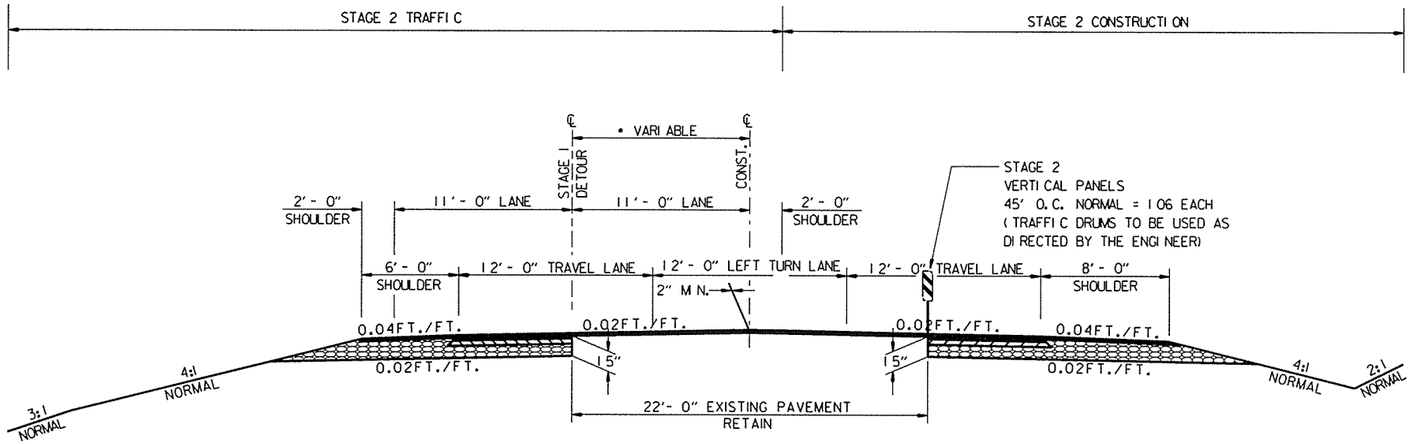
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	34	128

(2) MAINTENANCE OF TRAFFIC

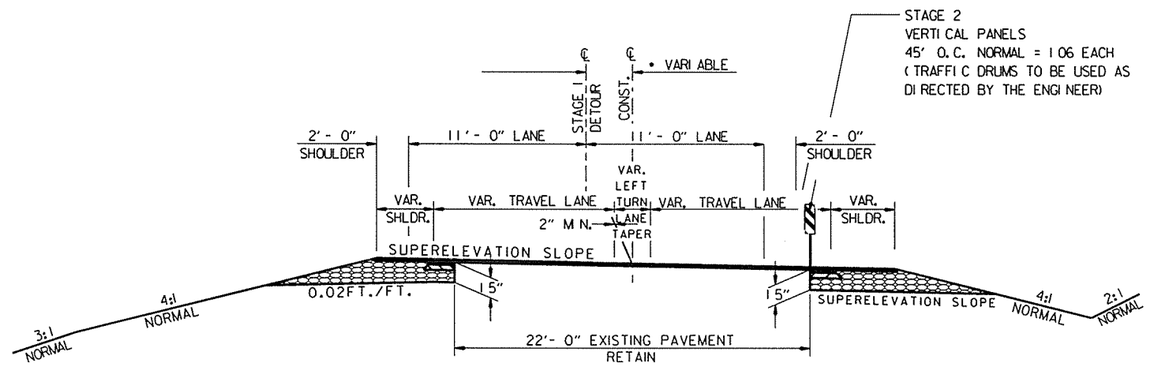
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



• REFER TO CROSS SECTIONS

DETAIL FOR LEFT TURN LANE - NOTCH & WIDENING - STAGE 2

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



• REFER TO CROSS SECTIONS

DETAIL OF TWO LANE SECTION AT END OF STAGE 2 NOTCH & WIDENING

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
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STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

MAINTENANCE OF TRAFFIC STAGE 2 DETAILS

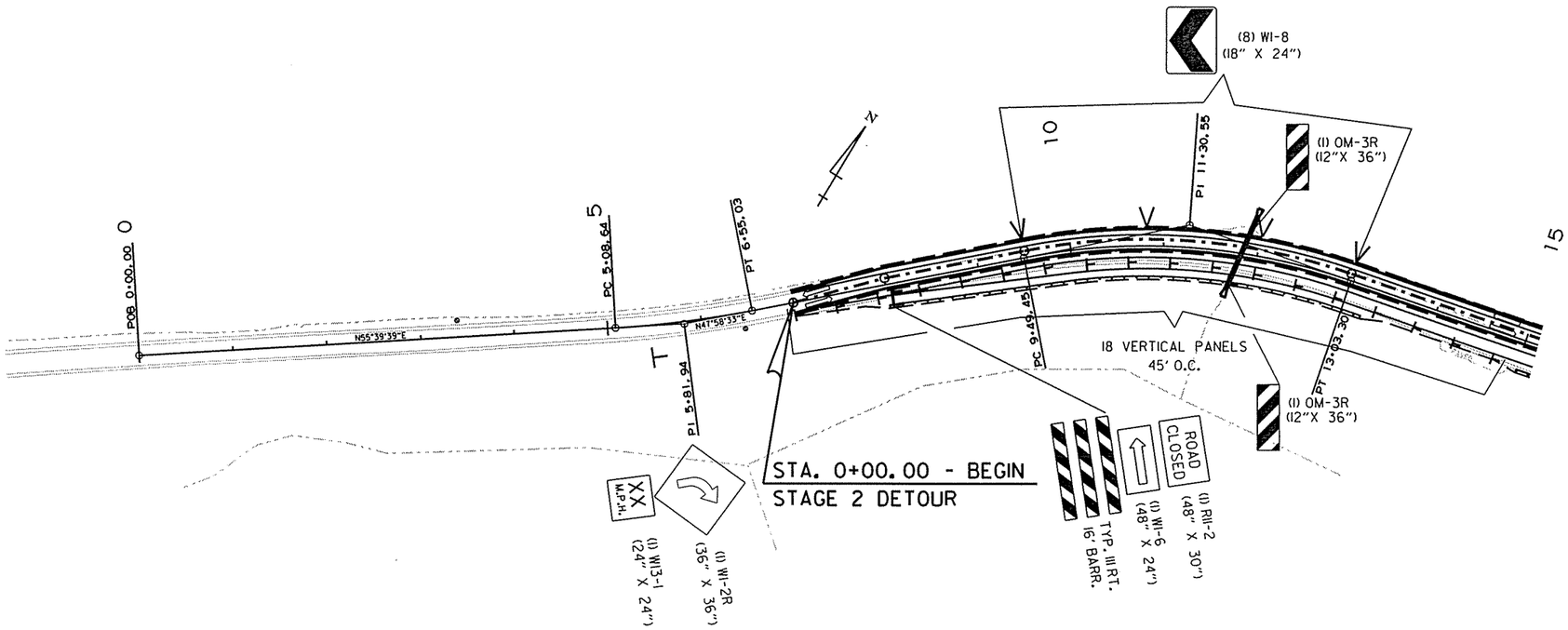
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	35	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
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STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 2
REMOVAL OF PERMANENT PAVEMENT MARKINGS
LT. EDGE & EXIST. CENTERLINE THROUGH DETOUR TIE-INS
= 5978 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL CENTERLINE ON DETOUR
= 19325 LIN. FT.

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)
80' O. C. ON DETOUR CENTERLINE = 61 EACH

MAINTENANCE OF TRAFFIC STAGE 2 DETAILS

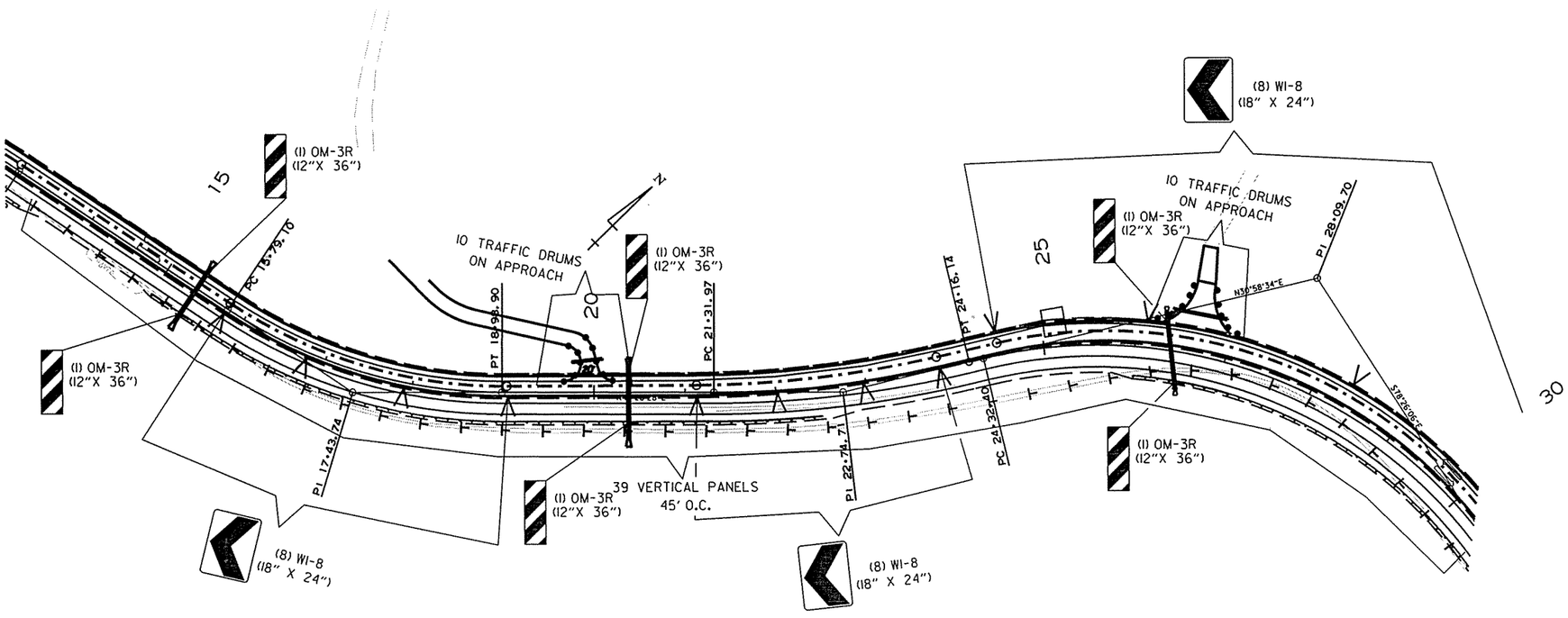
7/8/2014

R090169.MOT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	36	124

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-12-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
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CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
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CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 2
REMOVAL OF PERMANENT PAVEMENT MARKINGS
LT. EDGE & EXIST. CENTERLINE THROUGH DETOUR TIE-INS
= 5978 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL CENTERLINE ON DETOUR
= 19325 LIN. FT.

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)
80' O. C. ON DETOUR CENTERLINE = 61 EACH

MAINTENANCE OF TRAFFIC STAGE 2 DETAILS

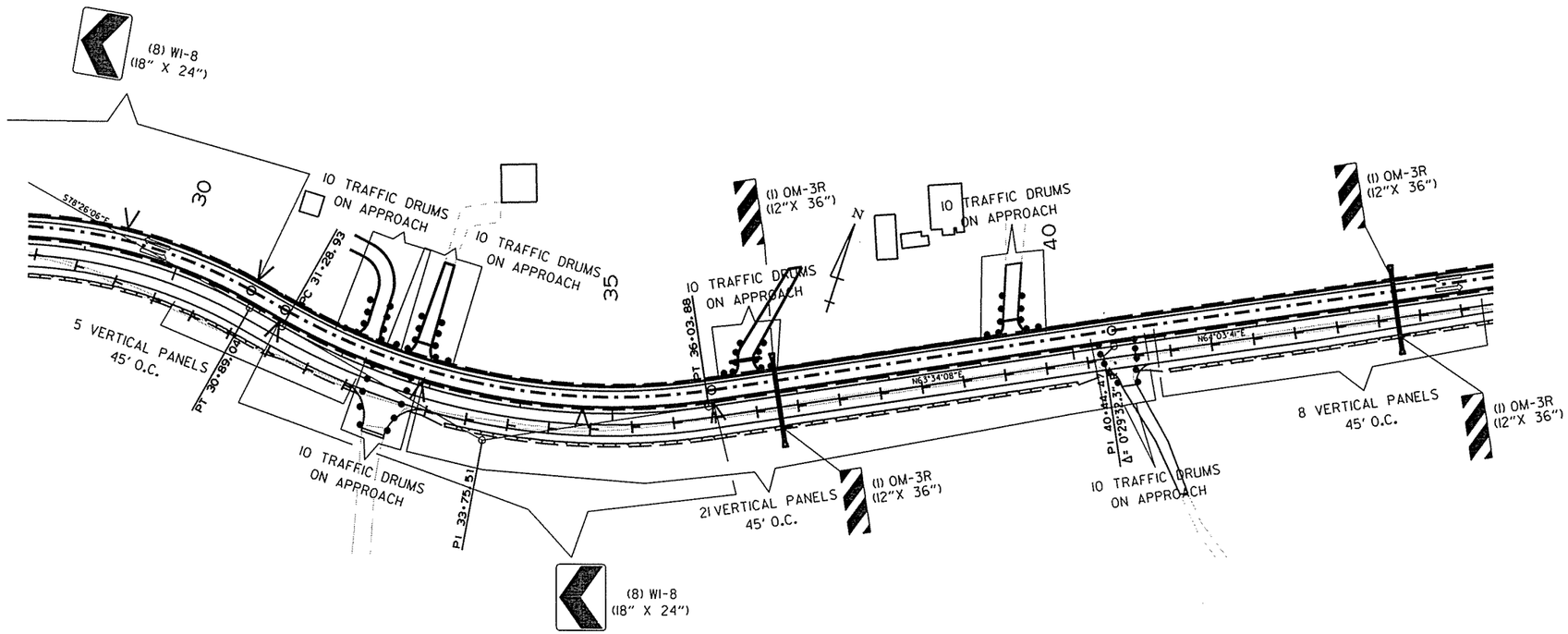
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	37	124

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-4-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 2
REMOVAL OF PERMANENT PAVEMENT MARKINGS
LT. EDGE & EXIST. CENTERLINE THROUGH DETOUR TIE-INS
= 5978 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL CENTERLINE ON DETOUR
= 19325 LIN. FT.

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)
80' O. C. ON DETOUR CENTERLINE = 61 EACH

MAINTENANCE OF TRAFFIC STAGE 2 DETAILS

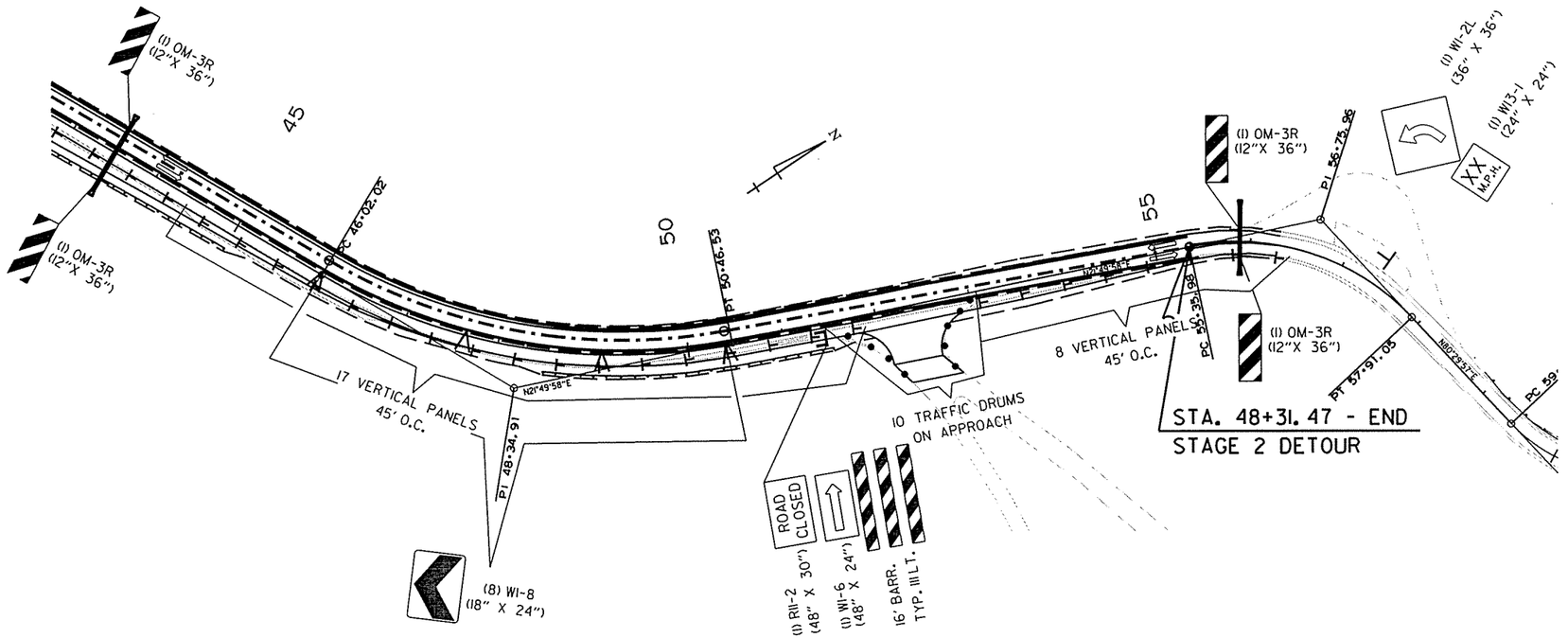
7/8/2014

R090169.MOT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	38	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 2
REMOVAL OF PERMANENT PAVEMENT MARKINGS
LT. EDGE & EXIST. CENTERLINE THROUGH DETOUR TIE-INS
= 5978 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
RT. & LT. EDGE LINES + DBL CENTERLINE ON DETOUR
= 19325 LIN. FT.

RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)
80' O. C. ON DETOUR CENTERLINE = 61 EACH

MAINTENANCE OF TRAFFIC STAGE 2 DETAILS

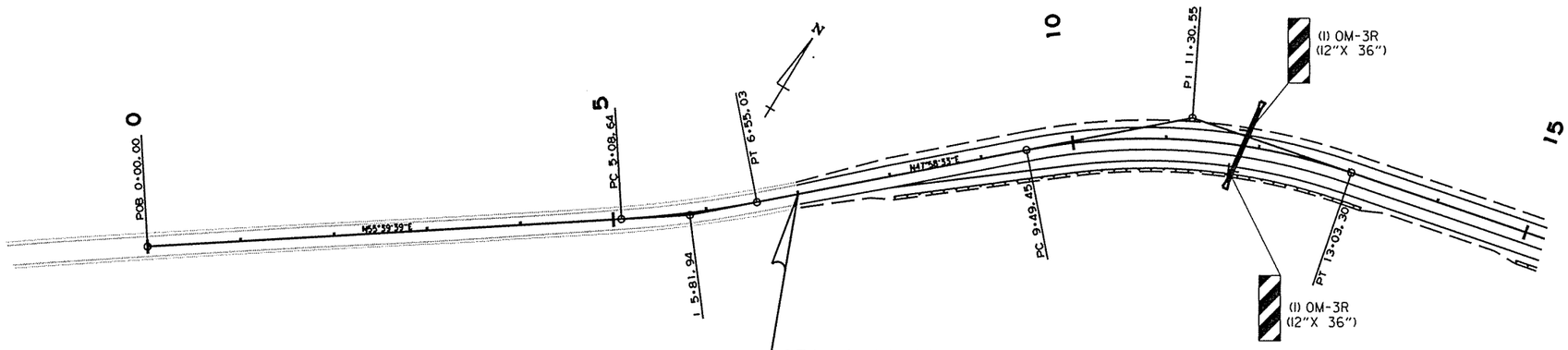
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	39	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



STA. 0+00.00 - BEGIN
STAGE 2 DETOUR

SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 3
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
ONE EDGE LINE + DBL CENTERLINE FROM STAGE 2
= 14494 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
ONE EDGE LINE + DBL CENTERLINE ON CL CONSTRUCTION
AT DETOUR TIE-IN LOCATIONS
= 8967 LIN. FT.

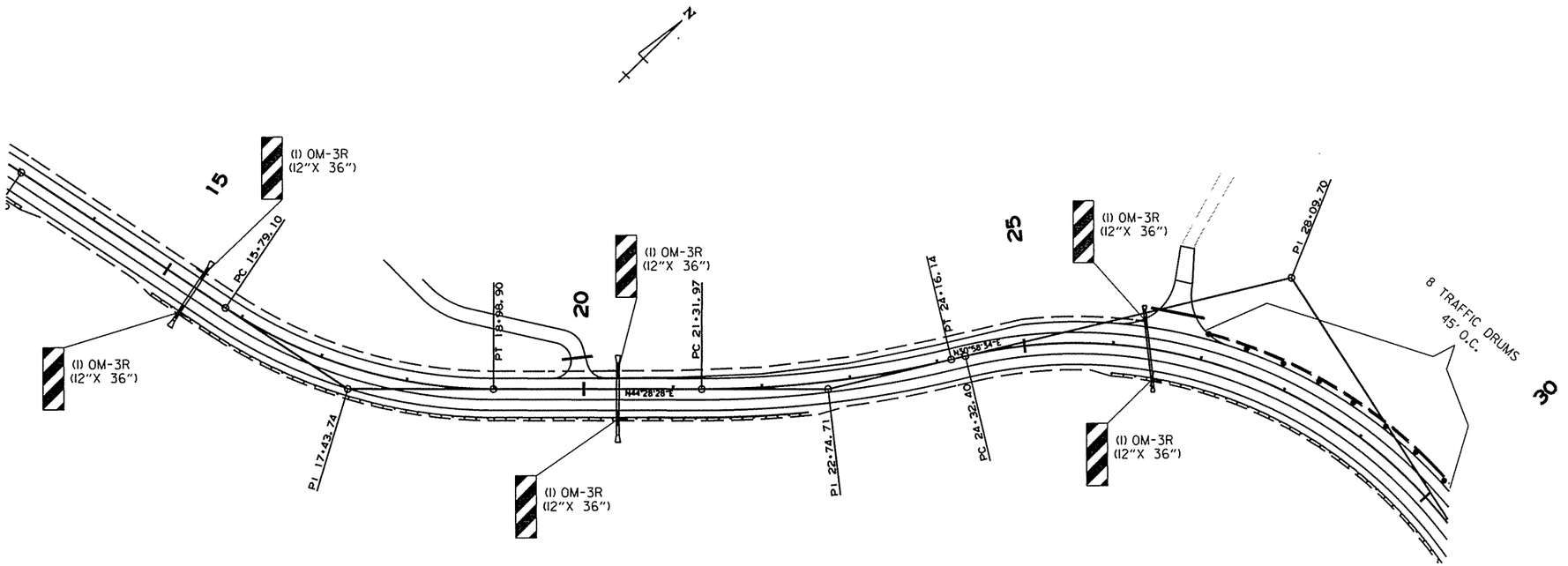
MAINTENANCE OF TRAFFIC STAGE 3 DETAILS

7/8/2014
R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	40	124

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-12-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 3
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
ONE EDGE LINE + DBL CENTERLINE FROM STAGE 2
= 14494 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
ONE EDGE LINE + DBL CENTERLINE ON CL CONSTRUCTION AT DETOUR TIE-IN LOCATIONS
= 8967 LIN. FT.

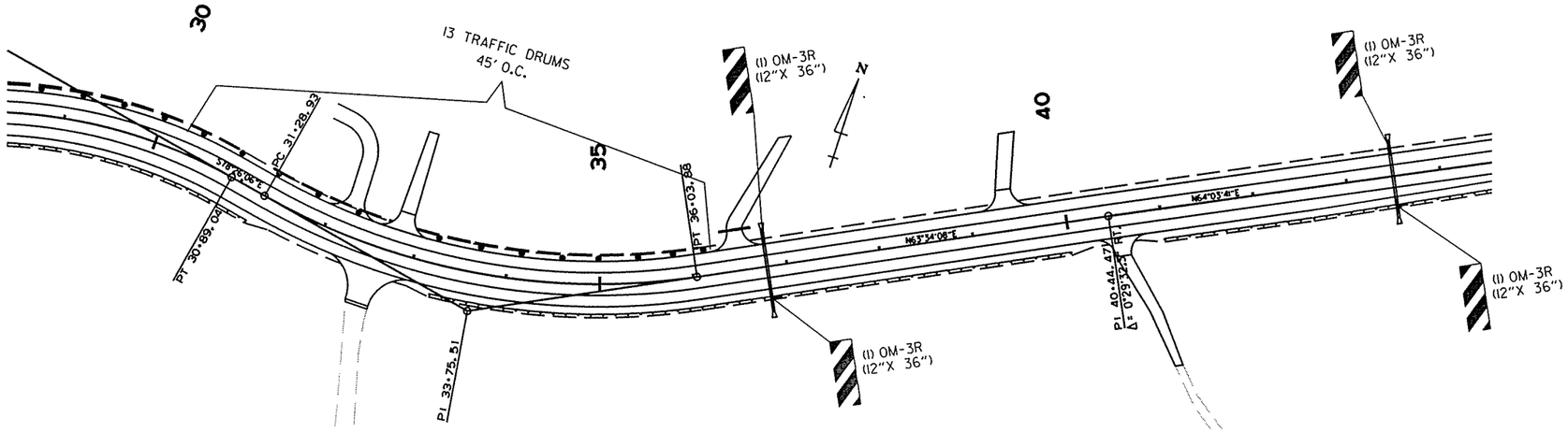
MAINTENANCE OF TRAFFIC STAGE 3 DETAILS

7/8/2014
R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	41	124

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-4-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 3
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
ONE EDGE LINE + DBL CENTERLINE FROM STAGE 2
= 14494 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
ONE EDGE LINE + DBL CENTERLINE ON CL CONSTRUCTION
AT DETOUR TIE-IN LOCATIONS
= 8967 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 3 DETAILS

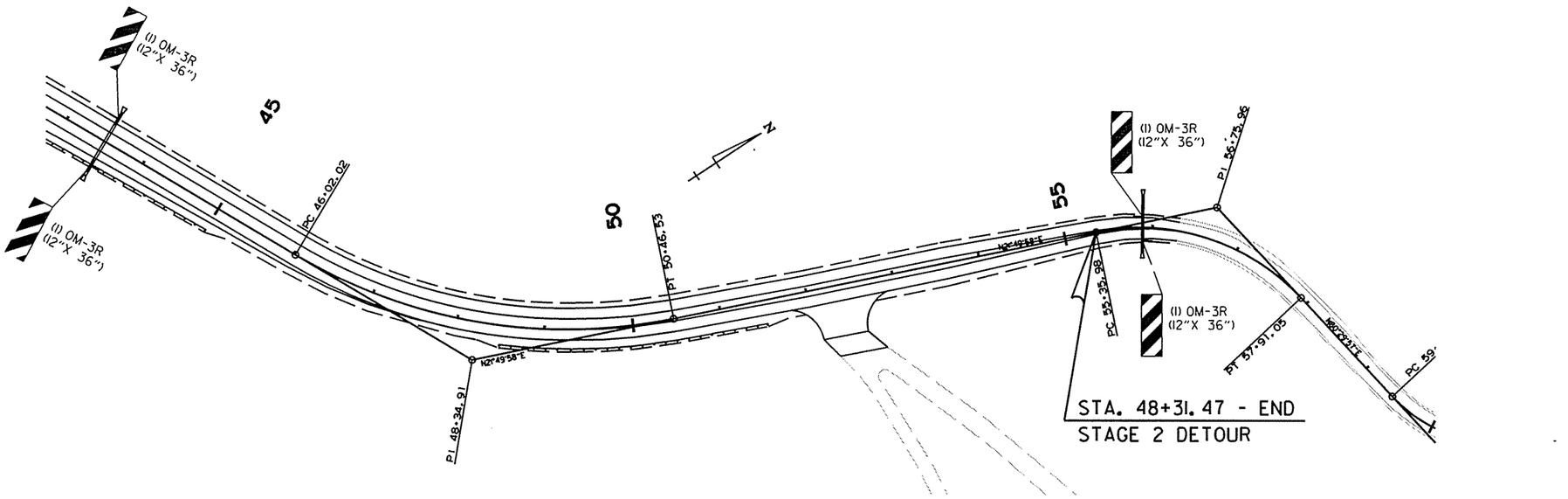
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	42	128

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

STAGE 3
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS
ONE EDGE LINE + DBL CENTERLINE FROM STAGE 2
= 14494 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
ONE EDGE LINE + DBL CENTERLINE ON CL CONSTRUCTION
AT DETOUR TIE-IN LOCATIONS
= 8967 LIN. FT.

MAINTENANCE OF TRAFFIC STAGE 3 DETAILS

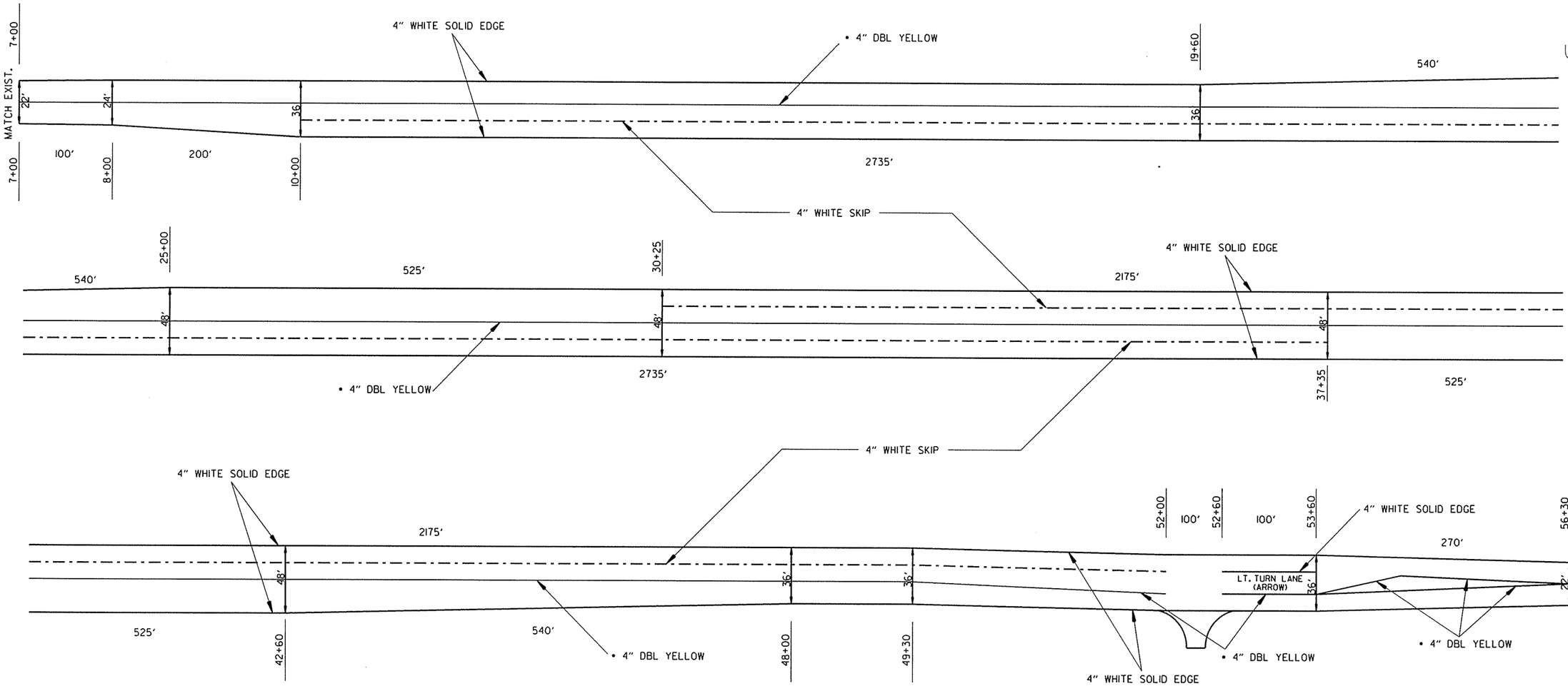
7/8/2014

R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	43	128

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING ROADWAY WITH APPROPRIATE TRAFFIC CONTROL DEVICES.
REMOVE EXISTING CULVERTS TO BE REPLACED WITH NEW CULVERTS AND CONSTRUCT NEW CULVERTS UNDER TRAFFIC.
PLACE ASPHALT LEVELING COURSE OVER EXISTING ROADWAY AS DIRECTED BY THE ENGINEER.
CONSTRUCT EARTHWORK AND PAVING FOR MAIN LANES AND ADDITIONAL WIDENING ON LEFT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 2 DETOUR.

STAGE 2
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 2 AND SHIFT TRAFFIC ONTO STAGE 2 ROADWAY AS SHOWN ON PLANS.
CONSTRUCT STAGE 3 TRAFFIC EARTHWORK AND PAVING FOR MAIN LANES ON RIGHT AND INSTALL APPROPRIATE TRAFFIC CONTROL DEVICES FOR STAGE 3 TRAFFIC.

STAGE 3
INSTALL CONSTRUCTION PAVEMENT MARKINGS FOR STAGE 3 AND SHIFT TRAFFIC TO PROPOSED MAIN LANES AND REMOVE ADDITIONAL WIDENING USED FOR STAGE 2 TRAFFIC FROM STA. 28+00.00 TO STA. 36+10.00.

END OF JOB
PERFORM COLD MILLING OF EXISTING ROADWAY TO TIE JOB AT BEGIN AND END OF PROJECT.
PLACE FINAL ASPHALT SURFACE.
INSTALL FINAL STRIPING.

END OF JOB

THERMOPLASTIC PAVEMENT MARKINGS
- LT. & RT. EDGE LINES
  - RIGHT PASSING LANE SEGMENT = 4930 LIN. FT. 4" WHITE
  - LEFT PASSING LANE SEGMENT = 4930 LIN. FT. 4" WHITE
- • DBL. CENTERLINE
  - RIGHT & LEFT PASSING LANE SEGMENT = 9000 LIN. FT. 4" YELLOW
- WHITE SKIP LINE
  - RIGHT PASSING LANE SEGMENT = 1050 LIN. FT. 4" WHITE
  - LEFT PASSING LANE SEGMENT = 178 LIN. FT. 4" WHITE
- LEFT TURN LANE

END OF JOB

RAISED PAVEMENT MARKERS 80' O.C.
- TYPE II (WHITE) ON SKIP LINES
  - RIGHT PASSING LANE SEGMENT = 34 EACH
  - LEFT PASSING LANE SEGMENT = 27 EACH
- TYPE II (YEL/YEL) ON CENTERLINE
  - RIGHT & LEFT PASSING LANE SEGMENT = 113 EACH
- LEFT TURN LANE

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

PERMANENT PAVEMENT MARKING DETAILS

7/8/2014
R090169.MDT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	44	128

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-12-14

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
												RIGHT	LEFT
			LIN. FT. - EACH					NO.	SQ. FT.	EACH		LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2	32.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2	32.0				
W20-1	ROAD WORK AHEAD	48"x48"	5	5	5	5	5	5	80.0				
G20-2	END ROAD WORK	48"x24"	8	8	8	8	8	8	64.0				
G20-1	ROAD WORK NEXT xx MILES	60"x24"	2	2	2	2	2	2	20.0				
W1-2R	CURVE RT.	36"X36"		1			1	1	9.0				
W1-2L	CURVE LT.	36"X36"		1			1	1	9.0				
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		2			2	2	8.0				
R11-2	ROAD CLOSED	48"x30"	4	2			4	4	40.0				
OM-3R	OBJECT MARKER	12"x36"		14	14		14	14	42.0				
W1-6	LARGE ARROW	48"x24"		2			2	2	16.0				
W1-8	CHEVRONS	18"x24"		48			48	48	144.0				
R4-1	DO NOT PASS	24"x30"	4	4	4	4	4	4	20.0				
RSP-1	SHOULDER CLOSED	48"x30"	2	2	2	2	2	2	20.0				
	VERTICAL PANELS		106	106			106			106			
	TRAFFIC DRUMS		166	196	21		196				196		
	TYPE III BARRICADE-RT. (16')		2	1			2					32	
	TYPE III BARRICADE-LT. (16')		2	1			2						32
TOTALS:									568.0	106	196	32	32

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

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING		
								TYPE II (WHITE)	TYPE II (YEL/YEL)	4" WHITE	4" YELLOW	ARROWS
	LIN. FT. - EACH				LIN. FT.		LIN. FT.	EACH		LIN. FT.		EACH
REMOVAL OF PERMANENT PAVEMENT MARKINGS		5978			5978							
CONSTRUCTION PAVEMENT MARKINGS	19325	19325	8967			47617						
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS			14494				14494					
RAISED PAVEMENT MARKERS TYPE II (WHITE)				62				62				
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)		61		121					182			
THERMOPLASTIC PAVEMENT MARKING WHITE (4")				11218						11218		
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")				9670							9670	
THERMOPLASTIC PAVEMENT MARKING ARROWS				1								1
TOTALS:					5978	47617	14494	62	182	11218	9670	1

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

7/8/2014

R090169.Q01

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.		090169	45	128

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																						
7+00.00	8+00.00	CONNECTION TO EXISTING LANES	100.00	VAR.	100.75	VAR.	230.00	0.10	23.00									VAR.	383.00	220.00	42.13	42.13
8+00.00	10+00.00	TRANSITIONS FROM 2 LANES TO 3 LANES - NOTCH & WIDENING	200.00	228.88	457.76	25.00	555.56	0.03	16.67	9.00	200.00	440.00	44.00	16.50	366.67	220.00	40.33	45.00	1000.00	220.00	110.00	150.33
10+00.00	15+00.00	3 LANES - RIGHT PASSING LANE - NOTCH & WIDENING	500.00	256.25	1281.25	37.00	2055.56	0.03	61.67	15.00	833.33	440.00	183.33	22.50	1250.00	220.00	137.50	50.00	2777.78	220.00	305.56	443.06
15+00.00	19+60.00	3 LANES - RIGHT PASSING LANE - FULL DEPTH	460.00	384.75	1769.85	81.00	4140.00	0.03	124.20	37.00	1891.11	440.00	416.04	44.50	2274.44	220.00	250.19	50.00	2555.56	220.00	281.11	531.30
19+60.00	25+00.00	TRANSITIONS FROM 3 LANES TO 4 LANES - FULL DEPTH	540.00	413.38	2232.25	92.00	5520.00	0.03	165.60	43.00	2580.00	440.00	567.60	49.50	2970.00	220.00	326.70	55.00	3300.00	220.00	363.00	689.70
25+00.00	37+00.00	4 LANES - RIGHT & LEFT PASSING LANES - FULL DEPTH	1200.00	442.00	5304.00	104.50	13933.33	0.03	418.00	49.00	6533.33	440.00	1437.33	55.50	7400.00	220.00	814.00	60.00	8000.00	220.00	880.00	1694.00
37+00.00	42+60.00	4 LANES - RIGHT & LEFT PASSING LANES - NOTCH & WIDENING	560.00	313.50	1755.60	59.50	3702.22	0.03	111.07	27.00	1680.00	440.00	369.60	32.50	2022.22	220.00	222.44	60.00	3733.33	220.00	410.67	633.11
42+60.00	48+00.00	TRANSITIONS FROM 4 LANES TO 3 LANES - NOTCH & WIDENING	540.00	286.38	1546.45	41.50	2490.00	0.03	74.70	21.00	1260.00	440.00	277.20	27.50	1650.00	220.00	181.50	55.00	3300.00	220.00	363.00	544.50
48+00.00	52+00.00	3 LANES - LEFT PASSING LANE - NOTCH & WIDENING	400.00	256.25	1025.00	37.00	1644.44	0.03	49.33	15.00	666.67	440.00	146.67	22.50	1000.00	220.00	110.00	50.00	2222.22	220.00	244.44	354.44
52+00.00	53+60.00	3 LANES - LEFT TURN LANE - NOTCH & WIDENING	160.00	258.75	414.00	35.50	631.11	0.03	18.93	15.00	266.67	440.00	58.67	20.50	364.44	220.00	40.09	50.00	888.89	220.00	97.78	137.87
53+60.00	55+80.00	TRANSITIONS FROM 3 LANES TO 2 LANES - NOTCH & WIDENING	220.00	197.88	435.34	22.87	559.04	0.03	16.77	9.29	227.09	440.00	49.96	13.58	331.96	220.00	36.52	41.04	1003.20	220.00	110.35	146.87
55+80.00	56+30.00	CONNECTION TO EXISTING LANES	50.00	VAR.	26.00	VAR.	115.00	0.10	11.50									VAR.	167.00	220.00	18.37	18.37
ADDITIONAL FOR LEVELING																						
8+00.00	10+00.00	TRANSITIONS FROM 2 LANES TO 3 LANES - NOTCH & WIDENING	200.00			22.00	488.89	0.10	48.89									22.00	488.89	220.00	53.78	53.78
10+00.00	15+00.00	3 LANES - RIGHT PASSING LANE - NOTCH & WIDENING	500.00			22.00	1222.22	0.10	122.22									22.00	1222.22	220.00	134.44	134.44
36+00.00	42+60.00	4 LANES - RIGHT & LEFT PASSING LANES - NOTCH & WIDENING	660.00			22.00	1613.33	0.10	161.33									22.00	1613.33	220.00	177.47	177.47
42+60.00	48+00.00	TRANSITIONS FROM 4 LANES TO 3 LANES - NOTCH & WIDENING	540.00			22.00	1320.00	0.10	132.00									22.00	1320.00	220.00	145.20	145.20
48+00.00	52+00.00	3 LANES - LEFT PASSING LANE - NOTCH & WIDENING	400.00			22.00	977.78	0.10	97.78									22.00	977.78	220.00	107.56	107.56
52+00.00	53+60.00	3 LANES - LEFT TURN LANE - NOTCH & WIDENING	160.00			22.00	391.11	0.10	39.11									22.00	391.11	220.00	43.02	43.02
53+60.00	55+80.00	TRANSITIONS FROM 3 LANES TO 2 LANES - NOTCH & WIDENING	220.00			22.00	537.78	0.10	53.78									22.00	537.78	220.00	59.16	59.16
ADDITIONAL FOR MAINTENANCE OF TRAFFIC WIDENING																						
28+00.00	36+10.00	HWY. 7	810.00	20.50	166.05	1.00	90.00	0.03	2.70					1.00	90.00	220.00	9.90	1.00	90.00	220.00	9.90	19.80
ADDITIONAL FOR SUPERELEVATION																						
8+00.00	55+80.00	HWY. 7	4780.00	VAR.	3591.15																	
ADDITIONAL FOR GUARDRAIL WIDENING																						
7+57.00	7+90.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
7+90.00	13+35.00	HWY. 7 RIGHT	545.00	33.75	183.94													5.50	333.06	220.00	36.64	36.64
13+35.00	13+68.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
14+57.00	14+90.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
14+90.00	22+60.00	HWY. 7 RIGHT	770.00	33.75	259.88													5.50	470.56	220.00	51.76	51.76
22+60.00	22+93.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
25+57.00	25+90.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
25+90.00	31+35.00	HWY. 7 RIGHT	545.00	33.75	183.94													5.50	333.06	220.00	36.64	36.64
31+35.00	31+68.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
32+82.00	33+15.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
33+15.00	40+10.00	HWY. 7 RIGHT	695.00	33.75	234.56													5.50	424.72	220.00	46.72	46.72
40+10.00	40+43.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
40+57.00	40+90.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
40+90.00	45+10.00	HWY. 7 RIGHT	420.00	33.75	141.75													5.50	256.67	220.00	28.23	28.23
45+10.00	45+43.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
48+07.00	48+40.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
48+40.00	51+60.00	HWY. 7 RIGHT	320.00	33.75	108.00													5.50	195.56	220.00	21.51	21.51
51+60.00	51+93.00	HWY. 7 RIGHT	33.00	16.88	5.57													2.75	10.08	220.00	1.11	1.11
TOTALS:					21284.36		42217.37		1749.25		16138.20		3550.40		19719.73		2169.17		38106.68		4191.76	6360.93

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

7/8/2014

R090169.001

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.		090169	46	128

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-13-14

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					SPECIAL SEEDING						TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	NATIVE GRASSES SEEDING	NATIVE WILDFLOWERS SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE (20') DITCH CHECKS (E-1)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	LIN. FT.	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
8+00	40+00	MAIN LANES	10.71	21.42	10.71	1092.4	10.71											36	323	1078	1078	1102
40+00	55+89	INSIDE PARK LIMITS						3.61	3.61	7.22	3.61	368.2	3.61					9	3695	115	115	255
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.														19.00	19.00	387.6	900	21	1000			144
TOTALS:			10.71	21.42	10.71	1092.4	10.71	3.61	3.61	7.22	3.61	368.2	3.61	19.00	19.00	387.6	900	66	5018	1193	1193	1501

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING.
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING.
WATTLE DITCH CHECKS.....9 LIN. FT. / LOCATION
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		STANDARD DRAWINGS
							18"	24"	
			FEET	SQ. YD.	TON	TON	LIN. FT.		
20+00	LT.	HWY. 7	16	969	106.6	396	28		PCC-1, PCM-1, PCP-1, PCP-2
26+64	LT.	HWY. 7	20	344	37.8	140		60	PCC-1, PCM-1, PCP-1, PCP-2
32+25	LT.	HWY. 7	16	210	23.1	86	46		PCC-1, PCM-1, PCP-1, PCP-2
32+59	RT.	HWY. 7	25	144	15.8	59			
32+81	LT.	HWY. 7	16	160	17.6	65			
36+50	LT.	HWY. 7	16	202	22.2	82	34		PCC-1, PCM-1, PCP-1, PCP-2
39+38	LT.	HWY. 7	16	138	15.2	56			
40+55	RT.	HWY. 7	16	201	22.1	81			
52+35	RT.	HWY. 7	52	348	38.3	141			
* ENTIRE PROJECT TEMPORARY DRIVES						55			
TOTALS:				2716	298.7	1161	108	60	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

** FOR INFORMATION ONLY

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.

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
7+00	36	2	39.20	93	9	38.00	5' LT. OF CENTERLINE	0 - 3.7z	47	21	A - 7 - 6 (15)	RD/BR
15+00	36	2	41.70	93	9	31.80	5' LT. OF CENTERLINE	0 - 3.8z	50	26	A - 7 - 6 (18)	RED
23+00	36	2	47.80	93	9	22.10	5' LT. OF CENTERLINE	0 - 2.2z	40	22	A - 6 (11)	RD/BR
31+00	36	2	51.50	93	9	15.00	5' LT. OF CENTERLINE	0 - 3.2z	43	28	A - 7 - 6 (10)	RD/BR
39+00	36	2	53.50	93	9	5.40	5' LT. OF CENTERLINE	0 - 5	20	4	A - 4 (1)	RED
47+00	36	2	57.10	93	8	57.30	5' LT. OF CENTERLINE	0 - 4.2z	44	24	A - 7 - 6 (15)	RED
47+00	36	3	3.50	93	8	52.30	15' LT. OF CENTERLINE	0 - 5	60	29	A - 7 - 5 (23)	RED
55+00	36	3	8.60	93	8	46.00	5' LT. OF CENTERLINE	0 - 5	27	9	A - 4 (4)	RED
63+00	36	2	57.10	93	8	57.30	5' LT. OF CENTERLINE	0 - 5	24	10	A - 4 (1)	RD/BR

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	DESCRIPTION	SIGN FOUNDATIONS	BUILDINGS	SIGNS	SEPTIC SYSTEM	WELL	FOUNDATIONS
		EACH	EACH	EACH	EACH	EACH	SQ.YD.
25+00	WELL AND SEPTIC SYSTEM ON LT.				1	1	
25+10	OZARK MOUNTAIN CABIN & CANOE RENTALS ON LT.		1				79
25+15	SIGN ON LT.			1			
32+60	SIGN ON LT.			1			
39+10	SIGN ON LT.			1			
47+00	SIGN ON RT.	1		1			
TOTALS:		1	1	4	1	1	79

FENCING

STATION	STATION	LOCATION	WIRE FENCE		* 16'-0" GATES
			(TYPE C)	(TYPE D)	
			LIN. FT.		EACH
20+38	32+50	RT.	1225		
27+00	32+75	LT.		575	1
33+00	35+00	RT.	200		
TOTALS:			1425	575	1

* DENOTES ALTERNATE BID ITEM.

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
11+83	MAIN LANES	9.67	28	7.5
15+38	MAIN LANES	9.67	28	7.5
20+38	MAIN LANES	9.67	28	7.5
26+40	MAIN LANES	9.08	28	7.1
36+79	MAIN LANES	9.08	28	7.1
43+50	MAIN LANES	9.08	28	7.1
55+89	MAIN LANES	8.50	28	6.6
TOTAL:				50.4

AVG. DEPTH = 9"

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	3	3
TOTALS:	3	3

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
8+00	55+80	MAIN LANES	48	48
TOTALS:			48	48

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
7+00	32+12	RT.	2512
33+04	40+24	RT.	720
40+86	51+74	RT.	1088
52+95	56+80	RT.	385
7+00	19+61	LT.	1261
20+29	25+99	LT.	570
27+29	31+86	LT.	457
33+15	36+17	LT.	302
36+83	39+05	LT.	222
39+71	56+80	LT.	1709
TOTAL:			9226

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	100
DIRECTED BY THE ENGINEER	
TOTAL:	100

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

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

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

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

7/8/2014

R090169.001

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.		090169	47	128

(2) QUANTITIES

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 11-13-14

EXPLORATORY HOLES

STATION	OFFSET	SIDE	EXPLORATORY HOLES DEPTH
			LIN. FT.
10+00	43	LT.	14
14+00	34	LT.	14
14+50	34	LT.	15
15+00	34	LT.	17
15+50	34	LT.	17
16+00	34	LT.	17
16+50	36	LT.	18
17+00	38	LT.	18
17+50	36	LT.	18
18+00	36	LT.	16
18+50	38	LT.	18
19+00	38	LT.	18
19+50	36	LT.	18
20+00	36	LT.	17
20+50	36	LT.	17
21+00	36	LT.	15
21+50	36	LT.	15
22+00	36	LT.	16
22+50	38	LT.	16
23+00	36	LT.	17
23+50	38	LT.	17
24+00	38	LT.	16
24+50	40	LT.	16
25+00	44	LT.	14
30+00	50	LT.	14
30+50	46	LT.	14
31+00	46	LT.	15
34+00	48	LT.	15
35+00	48	LT.	14
TOTAL:			466

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION	*ROCK FILL	* PRESPLITTING	* ROCK BUTTRESS
			CU. YD.		TON	CU. YD.	SQ. YD.	CU. YD.
ENTIRE	PROJECT	APPROACHES	4059	552				
ENTIRE	PROJECT	DITCH DIKE		112				
* ENTIRE	PROJECT	TO BE USED IF AND WHERE	121009	1800	100	9809	15105	44102
		DIRECTED BY THE ENGINEER						
TOTALS:			125068	2464	100	9809	15105	44102

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS EACH
11+83	24" x 78' C.M. PIPE CULVERT W/HDWLL. ON LT.	1
15+38	24" x 43' PIPE CULVERT (39' C.M. LT. & 4' R.C. RT.) W/HDWLL. ON LT.	1
20+38	30" x 45' PIPE CULVERT (37' C.M. LT. & 8' R.C. RT.) W/HDWLL. ON LT.	1
26+40	30" x 43' C.M. PIPE CULVERT W/HDWLL. ON LT.	1
27+23	18" x 41' C.M. PIPE CULVERT LT. SIDE DRAIN	1
36+79	15" x 54' C.M. PIPE CULVERT W/HDWLL. ON LT.	1
43+50	30" x 59' C.M. PIPE CULVERT W/HDWLL. ON LT.	1
55+89	18" x 38' R.C. PIPE CULVERT W/HDWLL. ON LT. & RT.	1
TOTAL:		8

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	70
ENGINEER	
TOTAL:	70

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

DUMPED RIPRAP AND FILTER BLANKET

STATION	STATION	LOCATION	DUMPED RIPRAP	DUMPED RIPRAP (GROUTED)	FILTER BLANKET
			CU. YDS.	CU. YDS.	SQ. YDS.
13+00	13+50	ON RIGHT SLOPE	25		50
17+50	20+00	ON RIGHT SLOPE	562		1124
31+50	31+50	ON RIGHT SLOPE	100		200
55+89		OUTLET OF PIPE CULVERT		39	79
		TO BE USED IF AND WHERE	200	100	400
		DIRECTED BY THE ENGINEER			
			10		20
TOTALS:			897	139	1873

*NOTE: QUA *NOTE: QUANTITIES ESTIMATED.
SEE SECTIOI SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 24"	(CLASS III) 30"	(CLASS III) 36"	(CLASS IV) 30"	(CLASS IV) 36"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 24"	30"	36"	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.					EACH			SQ.YD.	M.GAL	
11+83	CONSTRUCT R.C. PIPE CULVERT (15 DEGREES L.F.S.) W/F.E.S. ON LT. & RT.			86					2	34	0.43	FES-1, FES-2, PCC-1
15+38	CONSTRUCT R.C. PIPE CULVERT W/F.E.S. ON LT. & RT.					72			2	34	0.43	FES-1, FES-2, PCC-1
20+38	CONSTRUCT R.C. PIPE CULVERT W/F.E.S. ON LT. & RT.					82			2	34	0.43	FES-1, FES-2, PCC-1
26+40	CONSTRUCT R.C. PIPE CULVERT (15 DEGREES L.F.S.) W/F.E.S. ON LT. & RT.		86					2		26	0.33	FES-1, FES-2, PCC-1
36+79	CONSTRUCT R.C. PIPE CULVERT W/F.E.S. ON LT. & RT.		88					2		26	0.33	FES-1, FES-2, PCC-1
43+50	CONSTRUCT R.C. PIPE CULVERT W/F.E.S. ON LT. & RT.				84			2		26	0.33	FES-1, FES-2, PCC-1
55+89	CONSTRUCT R.C. PIPE CULVERT W/F.E.S. ON LT. & RT. - RIPRAP OUTLET CHANNEL	60					2			16	0.20	FES-1, FES-2, PCC-1
TOTALS:		60	174	86	84	154	2	6	6	196	2.48	

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.

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH LIN. FT.	CLASS 2 SQ. YD.
17+00	29+50	ON LT.	1250.0	555.6
47+00	48+00	ON LT.	100.0	44.4
50+00	53+00	ON LT.	300.0	133.3
14+00	14+50	ON RT.	50.0	22.2
15+00	18+00	ON RT.	300.0	133.3
21+00	25+00	ON RT.	400.0	177.8
52+00	52+30	ON RT.	30.0	13.3
53+00	56+00	ON RT.	300.0	133.3
*ENTIRE PROJECT		TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.		200.0
TOTAL:				1413.2

REMOVAL AND DISPOSAL OF FENCE AND GATES

STATION	STATION	LOCATION	FENCE	GATES	GATES REMOVED AND RECONSTRUCTED
			LIN. FT.	EACH	EACH
20+38	32+50	RT.	1225		
27+00	32+75	LT.	575	1	
32+41		LT.			1
33+00	35+00	RT.	200		
40+55		RT.			2
TOTALS:			2000	1	3

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
14+00	17+50	ON RT.	350.00	4	155.56	155.56	1.96
20+00	26+00	ON RT.	600.00	4	266.67	266.67	3.36
32+00	32+81	ON RT.	81.00	4	36.00	36.00	0.45
11+00	14+00	ON LT.	300.00	4	133.33	133.33	1.68
26+40	44+00	ON LT.	1760.00	4	782.22	782.22	9.86
TOTALS:					1373.78	1373.78	17.31

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

4" PIPE UNDERDRAIN

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

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

NATIVE STONE FOR DITCH LINER

STATION	STATION	LOCATION	TOTAL AREA SQ. FT.	NATIVE STONE FOR DITCH LINER TON
44+00	54+00	ON LT.	2000.00	119
55+00	56+80	ON LT.	360.00	21
52+00	52+35	ON RT.	70.00	4
53+00	56+80	ON RT.	760.00	45
TOTAL:			3190.00	189

REFER TO SP "NATIVE STONE FOR DITCH LINER".

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
7+00	8+00	MAIN LANES	22	244.44
55+80	56+30	MAIN LANES	22	122.22
TOTAL:				366.66

NOTE: AVERAGE MILLING DEPTH 1".

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	TERMINAL ANCHOR POST (TYPE 1)
			LIN. FT.	EACH
8+00	13+25	RT.	525	2
15+00	22+50	RT.	750	2
26+00	31+25	RT.	525	2
33+25	40+00	RT.	675	2
41+00	45+00	RT.	400	2
48+50	51+50	RT.	300	2
TOTALS:			3175	12

7/8/2014

R090169.001

QUANTITIES

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	48	STATION
SP & 201	GRUBBING	48	STATION
202	REMOVAL AND DISPOSAL OF WELL	1	EACH
202	REMOVAL AND DISPOSAL OF FENCE	2000	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES	1	EACH
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS	1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	8	EACH
202	REMOVAL AND DISPOSAL OF SEPTIC SYSTEM	1	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS	1	EACH
202	REMOVAL AND DISPOSAL OF SIGNS	4	EACH
202	REMOVAL AND DISPOSAL OF FOUNDATIONS	79	SQ. YD.
208	GATES REMOVED AND RECONSTRUCTED	3	EACH
210	UNCLASSIFIED EXCAVATION	125068	CU. YD.
210	PRESPLITTING	15105	SQ. YD.
SP & 210	COMPACTED EMBANKMENT	2464	CU. YD.
SP & 210	ROCK FILL	9809	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
303	AGGREGATE BASE COURSE (CLASS 7)	22445	TON
401	TACK COAT	1799	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	3390	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	160	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	6287	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	373	TON
412	COLD MILLING ASPHALT PAVEMENT	367	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	25	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY	100	TON
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
602	FURNISHING FIELD LABORATORY	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
604	SIGNS	568	SQ. FT.
604	BARRICADES	64	LIN. FT.
604	TRAFFIC DRUMS	196	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	47617	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	14494	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	5978	LIN. FT.
604	VERTICAL PANELS	106	EACH
605	CONCRETE DITCH PAVING (TYPE B)	1374	SQ. YD.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	60	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	174	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	84	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	86	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	154	LIN. FT.
SP & 606	18" SIDE DRAIN	108	LIN. FT.
SP & 606	24" SIDE DRAIN	60	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	6	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	6	EACH
606	SELECTED PIPE BEDDING	70	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS	8	EACH
611	4" PIPE UNDERDRAINS	1000	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)	50.4	CU. YD.
617	GUARDRAIL (TYPE A)	3175	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)	12	EACH
619	WIRE FENCE (TYPE C)	1425	LIN. FT.
619	WIRE FENCE (TYPE D)	575	LIN. FT.
* 619	16' STEEL GATES (ALTERNATE NO. 1)	1	EACH
* 619	16' ALUMINUM GATES (ALTERNATE NO. 2)	1	EACH
620	LIME	29	TON
620	SEEDING	10.71	ACRE
SP & 620	SPECIAL SEEDING: NATIVE GRASSES	3.61	ACRE
SP & 620	SPECIAL SEEDING: NATIVE WILDFLOWERS	3.61	ACRE
SS & 620	MULCH COVER	33.32	ACRE
620	WATER	1868.0	M.GAL.
621	TEMPORARY SEEDING	19.00	ACRE
621	SILT FENCE	5018	LIN. FT.
621	SEDIMENT BASIN	1193	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	1193	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	1501	CU. YD.
621	ROCK DITCH CHECKS	66	CU. YD.
621	WATTLE (20")	900	LIN. FT.
623	SECOND SEEDING APPLICATION	10.71	ACRE
SP & 623	SPECIAL SECOND SEEDING	3.61	ACRE
624	SOLID SODDING	1570	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 2)	1413	SQ. YD.
630	ROCK BUTTRESS	44102	CU. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	3	EACH
637	MAILBOX SUPPORTS (SINGLE)	3	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	9226	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	11218	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	9670	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	1	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	244	EACH
SP & 816	FILTER BLANKET	1873	SQ. YD.
SP & 816	DUMPED RIPRAP	897	CU. YD.
SP & 816	DUMPED RIPRAP (GROUTED)	139	CU. YD.
SP	EXPLORATORY HOLES	466	LIN. FT.
SP	NATIVE STONE FOR DITCH LINER	189	TON

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
12/1/2014	ADDED LAST PARAGRAPH TO "SPECIAL CLEARING REQUIREMENT" SP	48
12/15/2014	REVISED SPECIAL PROVISION DELAY IN RIGHT OF WAY OCCUPANCY	48

SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11485 TIMOTHY R. SMITH 12-15-14

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		48	128
12-15-14				JOB NO. 090169				

(2) SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	49	128

(2) SURVEY CONTROL DETAILS

Project Name: 090169
Date: 10/14/2014
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *510009 - 510009A*
Projected to Ground Coordinates
Units: U.S. Survey Foot

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

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
1	629958.8020	0.0100	974755.0463	0.0100	896.76	0.006	CTL	PD:T 1 REBAR CAP
2	632004.9226	0.0100	975892.8869	0.0100	880.97	0.005	CTL	PD:T 2 REBAR CAP
3	632952.7471	0.0100	975420.5284	0.0100	905.57	0.005	CTL	PD:T 3 REBAR CAP
4	633812.2104	0.0100	975289.2993	0.0100	901.41	0.005	CTL	PD:T 4 REBAR CAP
5	634749.3200	0.0100	975382.1675	0.0100	894.41	0.005	CTL	PD:T 5 REBAR CAP
6	635225.5530	0.0100	975043.4232	0.0100	872.90	0.005	CTL	PD:T 6 REBAR CAP
7	635505.3478	0.0100	975266.6907	0.0100	881.55	0.005	CTL	PD:T 7 REBAR CAP
8	635859.1554	0.0100	975402.1808	0.0100	883.15	0.005	CTL	PD:T 8 REBAR CAP
9	636097.3759	0.0100	975993.4561	0.0100	881.27	0.004	CTL	PD:T 9 REBAR CAP
10	636669.7343	0.0100	976141.4352	0.0100	879.76	0.004	CTL	PD:T 10 REBAR CAP
11	621845.9039	0.0100	968428.4164	0.0100	884.33	0.015	CTL	PD:T 11 REBAR CAP
12	622730.1718	0.5100	968287.8046	0.5100	920.34	0.015	CTL	PD:T 12 REBAR CAP
13	623093.0578	0.0100	968044.2785	0.0100	940.35	0.015	CTL	PD:T 13 REBAR CAP
14	623727.3647	0.0100	968000.3160	0.0100	957.43	0.014	CTL	PD:T 14 REBAR CAP
15	624820.1162	0.0100	969247.6795	0.0100	1042.39	0.013	CTL	PD:T 15 REBAR CAP
16	625159.2467	0.0100	969596.8670	0.0100	1074.72	0.013	CTL	PD:T 16 REBAR CAP
17	625255.1661	0.0100	970196.8237	0.0100	1116.48	0.012	CTL	PD:T 17 REBAR CAP
18	625654.7823	0.0100	970616.6986	0.0100	1145.72	0.011	CTL	PD:T 18 REBAR CAP
19	626001.6473	0.0100	971503.4808	0.0100	1171.56	0.011	CTL	PD:T 19 REBAR CAP
20	626304.1869	0.0100	972171.6017	0.0100	1166.56	0.011	CTL	PD:T 20 REBAR CAP
21	626538.6356	0.0050	972656.0713	0.0050	1160.96	0.010	CTL	PD:T 21 REBAR CAP
22	626993.0761	0.5100	972980.0791	0.5100	1130.57	0.010	CTL	PD:T 22 REBAR CAP
23	627521.0213	0.0100	973549.0320	0.0100	1076.60	0.009	CTL	PD:T 23 REBAR CAP
24	628056.5090	0.0100	973553.5086	0.0100	1049.23	0.008	CTL	PD:T 24 REBAR CAP
25	628299.1090	0.0100	973709.7364	0.0100	1034.52	0.008	CTL	PD:T 25 REBAR CAP
26	628547.4115	0.0100	974177.0998	0.0100	1010.87	0.007	CTL	PD:T 26 REBAR CAP
27	628961.2633	0.0100	974209.3976	0.0100	983.92	0.006	CTL	PD:T 27 REBAR CAP
28	629147.4477	0.0100	974347.9989	0.0100	968.79	0.005	CTL	PD:T 28 REBAR CAP
29	629214.9253	0.0100	974578.2644	0.0100	952.80	0.005	CTL	PD:T 29 REBAR CAP
100	630481.1896	0.0001	975703.2298	0.0001	820.18	0.002	GPS	PD:AHTD GPS 510009A
101	631309.2073	0.0001	976262.3690	0.0001	841.97	0.004	GPS	PD:AHTD GPS 510009
102	603645.4092	0.0001	972820.4629	0.0001	500.00	999.000	GPS	PD:AHTD GPS 510010A
103	604195.1419	0.0001	972962.0601	0.0001	534.74	999.000	GPS	PD:AHTD GPS 510010
900	638792.5694	0.5000	976330.3004	0.5000	844.19	0.002	BM	PD:NGS POINT N 18
901	636627.8151	0.0100	976098.7844	0.0100	881.88	0.004	BM	PD:TBM 901 CH SQ HDW
902	635932.4780	0.0100	975574.7329	0.0100	882.05	0.005	BM	PD:TBM 902 CH SQ HDW
903	633998.6246	0.0100	975279.1678	0.0100	900.57	0.005	BM	PD:TBM 903 CH SQ HDW
904	632198.5960	0.0100	975712.8469	0.0100	900.27	0.005	BM	PD:TBM 904 CH SQ HDW
905	631054.5963	0.5000	976105.7424	0.5000	832.67	0.003	BM	PD:TBM 905 CH SQ END CONC
906	630401.3525	0.0100	975182.9856	0.0100	847.33	0.004	BM	PD:TBM 906 CH SQ HDW
907	629609.9597	0.0100	974671.1994	0.0100	920.56	0.006	BM	PD:TBM 907 CH SQ HDW
908	630719.9151	0.0100	975892.6680	0.0100	820.74	0.002	BM	PD:NGS POINT P 18
909	628597.0125	0.0100	974208.4069	0.0100	1007.15	0.006	BM	PD:TBM 909 CH SQ CENT HDW
910	627061.0018	0.0050	973043.5776	0.0050	1132.51	0.010	BM	PD:TBM 910 BRASS CAP
911	626607.7050	0.0100	972650.1719	0.0100	1165.88	0.010	BM	PD:BM 911 STD DSK STAMPED
912	625483.7122	0.0100	970413.1994	0.0100	1128.99	0.011	BM	PD:TBM 912 CH SQ HDW
913	624361.0970	0.0100	968533.9026	0.0100	997.72	0.013	BM	PD:TBM 913 CH SQ HDW
914	621888.9662	0.0100	968364.6426	0.0100	890.87	0.015	BM	PD:TBM 914 CH SQ LIME STONE
970	627666.2192	100.0000	973686.8431	100.0000	1132.18	0.002	BM	PD:NGS POINT 1134
971	629994.0281	100.0000	982336.2497	100.0000	846.00	0.002	BM	PD:NGS POINT T 130
972	621861.0289	100.0000	968526.5606	100.0000	886.66	0.002	BM	PD:NGS POINT Q 18
973	629260.1075	100.0000	993742.4310	100.0000	1290.85	0.002	BM	PD:NGS POINT R 130
975	612327.2660	100.0000	962333.5112	100.0000	834.11	0.002	BM	PD:NGS POINT R 18
976	630171.2016	100.0000	1003031.4611	100.0000	1371.39	0.002	BM	PD:NGS POINT Q 130
977	615952.1629	100.0000	955311.4830	100.0000	1479.63	0.002	BM	PD:NGS POINT V 152

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: *"(include all common information here)"* plus other

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: *"JOB:080426, T-#"*point description of the individual point. These monuments

5X, 5Y, 5Z – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the

Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be

All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey

Positional Accuracy:
- Horizontal - GPS (1.0 cm± 1PPM) — *PN: 100-103*
- Horizontal - Primary (2.0cm± 20PPM): — *PN:1-29*
- Horizontal - Secondary (3 cm ± 50PPM): — *N/A*
- Vertical - NGS 1st Order (±4mm x Vdist in km) — *N/A*
- Vertical - NGS 2nd Order (±6mm x Vdist in km) — *900, 908, 970- 973, 975- 977*
- Vertical - NGS 3rd Order (±8mm x Vdist in km) — *PN:901-907, 909-914*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0301 - North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.999935183 has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM:
A project Elevation Factor of: 0.999960360 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 828.76 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-29, 100&101 From NGS BM: N 18 (PN:900)

Basis of Bearing: Grid Bearings based on AHTD GPS points: *510009 - 510009A*
Convergence Angle is: 0°40'07.54" Left at PN: 21
LT: 36-02-56.7 N LG: 93-08-57.4 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

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

STAGE 2 DETOUR CENTERLINE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8030	POB	0+00.00	624856.4228	969262.3653
8031	PI	1+00.70	624928.8745	969332.3062
8032	PC	2+51.58	625029.8761	969444.3843
8034	PT	6+05.42	625188.6041	969756.0968
8035	PC	8+81.54	625245.7641	970026.2351
8037	PT	12+04.22	625399.3866	970304.6607
8038	PC	14+12.76	625548.9638	970449.9735
8040	PT	16+79.72	625759.3890	970613.3789
8041	PC	17+48.00	625817.6076	970649.0423
8043	PT	23+99.85	626061.3598	971210.3786
8044	PC	24+41.65	626052.9787	971251.3356
8046	PT	29+16.60	626113.3019	971713.7124
8047	PI	33+51.49	626306.8770	972103.1384
8048	PC	39+07.95	626550.2799	972603.5468
8050	PT	43+35.98	626853.1240	972893.2539
8051	POE	48+31.47	627307.8672	973090.0255

CONSTRUCTION CENTERLINE

POINT NO.	TYPE	STATION	NORTHING	EASTING
300	POB	0+00.00	624448.9745	968693.9840
8000	PC	5+08.64	624735.8947	969113.9765
8002	PT	6+55.03	624826.3145	969228.9551
8003	PC	9+49.45	625023.4175	969447.6739
8005	PT	13+03.30	625182.1449	969759.3853
8006	PC	15+79.10	625239.2397	970029.2151
8008	PT	18+98.90	625390.7999	970305.6275
8009	PC	21+31.97	625557.1097	970468.9134
8011	PT	24+16.14	625781.3578	970642.3899
8012	PC	24+32.40	625795.3031	970650.7612
8014	PT	30+89.04	626043.1479	971214.5794
8015	PC	31+28.93	626035.1503	971253.6621
8017	PT	36+03.88	626095.4736	971716.0377
307	PI	40+44.47	626291.5895	972110.5744
8018	PC	46+02.02	626535.4647	972611.9536
8020	PT	50+46.53	626853.5253	972908.0006
8021	PC	55+35.98	627307.8672	973090.0255
8023	PT	57+91.05	627460.9179	973280.1504
8024	PC	59+43.42	627486.0695	973430.4355
8026	PT	62+06.97	627679.4352	973567.6858
8027	PC	63+38.87	627809.4303	973545.3132
8029	PT	66+93.21	628147.8680	973616.8657
312	POE	67+74.78	628215.7845	973662.0585

DRIVE

POINT NO.	TYPE	STATION	NORTHING	EASTING
8052	POB	1+00.00	625471.5287	970367.7151
8053	PC	1+32.82	625487.6769	970339.1434
8055	PT	1+54.57	625487.0695	970318.4573
8056	PC	2+63.92	625427.7744	970226.5835
8058	PT	3+21.23	625411.7949	970172.3568
8059	POE	3+55.97	625411.7949	970137.6176

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-12-14

10/14/2014

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SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	50	128

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-12-14

HPT 751 REBAR CAP 751

TBM 913 CH SQ HDW @ 9E

N56°47'45"E 979.82'

POB 0+00.00

300

N55°39'39"E

PC 5+08.64

8000

CONST.
PI = 5+81.94
Δ = 7°41'06" LT.
D = 5°15'00"
T = 73.30'
L = 146.38'
PC = 5+08.64
PT = 6+55.03
NO SUPER

PI 5+81.94

BASELINE

PT 6+55.03
POT 7+00.00 CONSTRUCTION
CL POB 0+00.00 DETOUR STAGE 2
Δ=3°59'09.4" LT.

8002

8030

15 T 15 REBAR CAP

STAGE 2 C.L.

CONSTRUCTION C.L.

N43°59'23"E

8031

N47°58'33"E

N45°50'14"E 185.77'

PI 1+00.70 RT. Δ=3°59'09.3"

8032

8003

PC 9+49.45
PC 2+51.58

CL STAGE 2
P.I. 4+32.68
Δ = 30°04'37"RT.
D = 8°29'60"
T = 181.10'
L = 353.85'
P.C. 2+51.58
PT 6+05.42
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES

CONST.
P.I. 11+30.55
Δ= 30°04'37"RT.
D = 8°30'00"
T = 181.10'
L = 353.85'
P.C. 9+49.45
P.T. 13+03.30
e = 0.094'/'
Ls = 275'

PI 11+30.55

PI 4+32.68

REBAR CAP

N47° 58'33"E

STA. 8+00.00
BEGIN JOB 090169
LOG MILE 18.30

PI 4+

DRIVE @ STA. 20+00

CL STAGE 2
P.I. 10+47.75
Δ = 33°52'52"LT.
D = 10°30'00"
T = 166.21'
L = 322.68'
P.C. 8+81.54
PT 12+04.22
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES

CONST.
P.I. 17+43.74
Δ= 33°34'42"LT.
D = 10°30'00"
T = 164.64'
L = 319.79'
P.C. 15+79.10
P.T. 18+98.90
e = 0.099'/'
Ls = 275'

DRIVE
P.I. 2+93.39
Δ= 32°50'17"RT.
D = 57°17'45"
T = 29.47
L = 57.31'
P.C. 2+63.92
P.T. 3+21.23
NO SUPER

DRIVE
P.I. 1+44.91
Δ= 62°18'45"LT.
D = 286°28'44"
T = 12.09'
L = 21.75'
P.C. 1+32.82
P.T. 1+54.57
NO SUPER

PT 13+03.30

PT 6+05.42

N78°03'10"E

8034

8005

8035

8006

PC 8+81.54
PC 15+79.10

POE 3+55.97

S 80°00'00" W

8059

8058

8056

P.T. 3+21.23

P.C. 2+63.92

P.I. 2+93.39

PT 18+98.90
PT 12+04.22

57°09'43"
109.35'

8055

8053

P.I. 1+44.91

P.C. 1+32.82

P.T. 1+54.57

8037

8052

N44°28'28"E 8008

POB 1.00.00

N44°10'17"E

8038

8009

PC 14+12.76
PC 21+31.97

CL STAGE 2
P.I. 15+46.79
Δ = 12°40'51"LT.
D = 4°45'00"
T = 134.03'
L = 266.97'
P.C. 14+12.76
PT 16+79.72
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES

CONST.
P.I. 22+74.71
Δ= 13°29'54"LT.
D = 4°45'00"
T = 142.75
L = 284.17
P.C. 21+31.97
P.T. 24+16.14
e = 0.068'/'
Ls = 275'

PT 16+79.72

PT 24+16.14

N30°58'34"E

8040

8011

8041

8012

PC 24+32.40
PC 17+48.00

CL STAGE 2
P.I. 21+21.71
Δ = 70°04'27"RT.
D = 10°45'00"
T = 373.71'
L = 651.85'
P.C. 17+48.00
PT 23+99.85
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES

N31° 29'26"E

PI 15+46.79

PI 22+74.71

PI 17+43.74
PI 10+47.75

BASELINE

CONSTRUCTION C.L.

SURVEY CONTROL DETAILS

10/14/2014

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	51	128

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14

P.I. 28+09.70
P.I. 21+21.71
S78°26'06"E
S78°26'06"E
HP? 752 REBAR CAP
752
30
25
CL STAGE 2
P.I. 21+21.71
Δ = 70°04'27"RT.
D = 10°45'00"
T = 373.71'
L = 651.85'
P.C. 17+48.00
PT 23+99.85
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES
CONST.
P.I. 28+09.70
Δ= 70°35'20"RT.
D = 10°45'00"
T = 377.29'
L = 656.63
P.C. 24+32.40
P.T. 30+89.04
e = 0.100'/'
Ls = 275'
8043
8044
8014
8015
PC 24+41.65
PC 31+28.93
PT 23+99.85
PT 30+89.04
CL STAGE 2
P.I. 26+88.23
Δ = 37°59'45"LT.
D = 8°00'00"
T = 246.58'
L = 474.95'
P.C. 24+41.65
PT 29+16.60
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES
CONST.
P.I. 33+75.51
Δ= 37°59'45"LT.
D = 8°00'00"
T = 246.58'
L = 474.95'
P.C. 30+89.04
P.T. 36+03.88
e = 0.092'/'
Ls = 275'
N
35
30
40
P.I. 33+51.49
Δ = 0°29'32" RT.
CONSTRUCTION C.L.
8047
307
20
T 20 REBAR CAP
N63° 34'09"E
N63°34'09"E
N65°38'17"E
735.43'
STAGE 2 C.L.
PT 36+03.88
PT 29+16.60
8046
8017
BASELINE
P.I. 40+44.47
Δ = 0°29'32" RT.
P.I. 26+88.23
P.I. 33+75.51
T 19 REBAR CAP
19

N64°03'41"E
N64°03'41"E
N64°10'35"E
536.22'
45
40
CL STAGE 2
P.I. 41+31.42
Δ = 40°39'46"LT.
D = 9°30'00"
T = 223.47'
L = 428.03'
P.C. 39+07.95
PT 43+35.98
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES
CONST.
P.I. 48+34.91
Δ= 42°13'43"LT.
D = 9°30'00"
T = 232.89'
L = 444.51
P.C. 46+02.02
P.T. 50+46.53
e = 0.096'/'
Ls = 275'
PC 39+07.95
PC 46+02.02
8048
8018
BM SB STD DSK STAMPED
10487 SB SB
US DEPT.OF THE INTERIOR
NAT. PARK SERV.BOUNDARY F.234,1984,ALUM
SET IN CONCRETE
21
T 21REBAR CAP
N35°29'17"E
358.12'
50
55
STAGE 2 C.L.
PT 43+35.98
PT 50+46.53
8050
8020
BASELINE
P.I. 41+31.42
P.I. 48+34.91
CONSTRUCTION C.L.
NBC LT EDGE OF PAVED SH
NBC LT SLOPE OF DITCH
802
N23° 23'55"E
N21°49'58"E
N23°36'39"E
497.34'
22
T 22 REBAR CAP
TBM 9/0 BRASS CAP
1042@ 9/0
STANDARD DISC SET IN CON. USGS/DEPT.OF
NT. BR-9.1980
PDE 48+31.47
CL STAGE 2
8051
8021
PC 55+35.98
CL CONSTRUCTION
P.I. 56+75.96
NPT 753 REBAR CAP
753
CONST.
P.I. 56+75.96
Δ= 58°39'59"RT.
D = 23°00'00"
T = 139.98'
L = 255.07'
P.C. 55+35.98
P.T. 57+91.05
e = MATCH EXISTING
PT 57+91.05
STA. 55+80.00
END JOB 090169

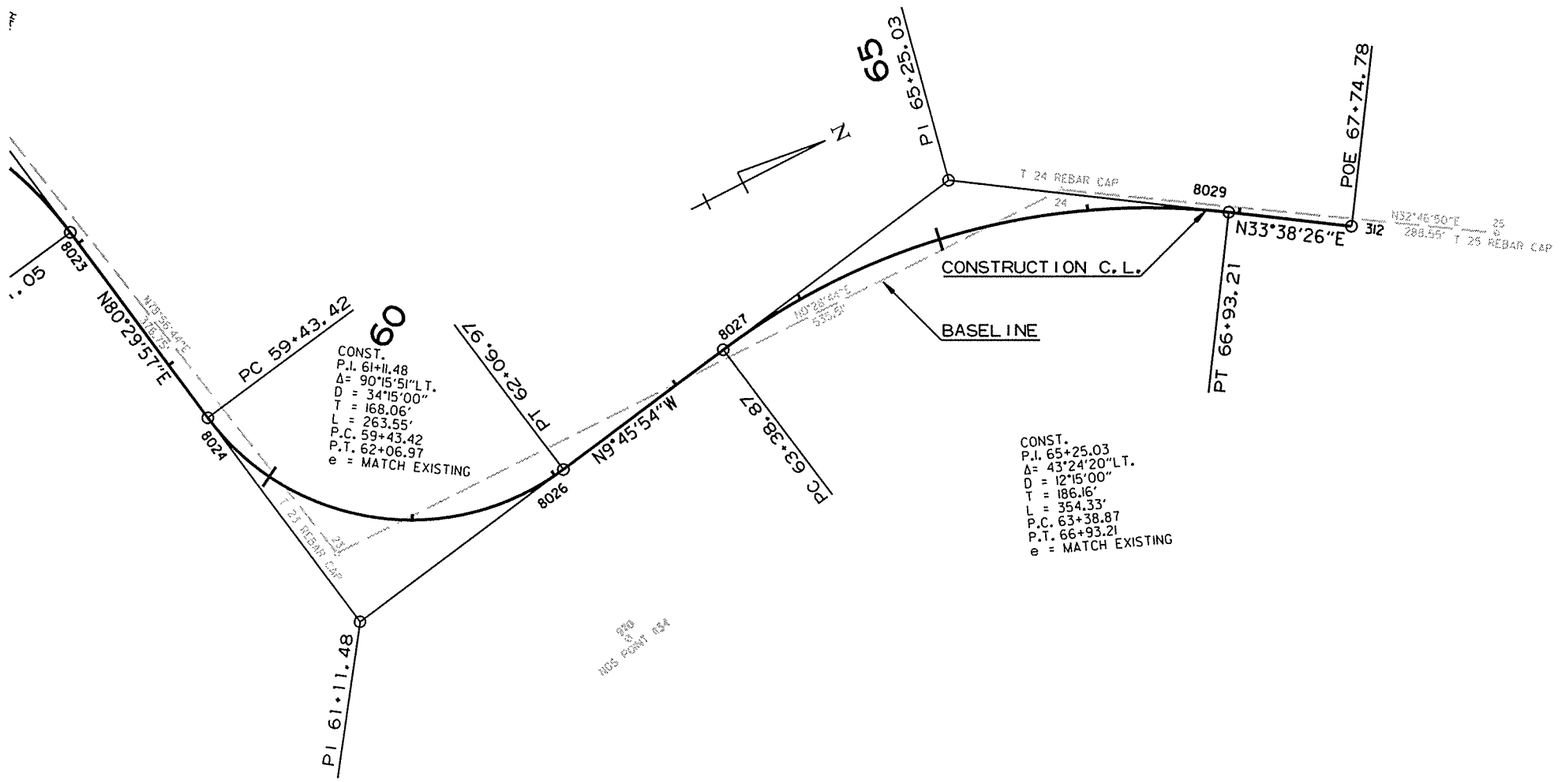
SURVEY CONTROL DETAILS

10/14/2014
R090169.SOI

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	52	128

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14



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SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	53	128

(2) PLANS AND PROFILE SHEETS

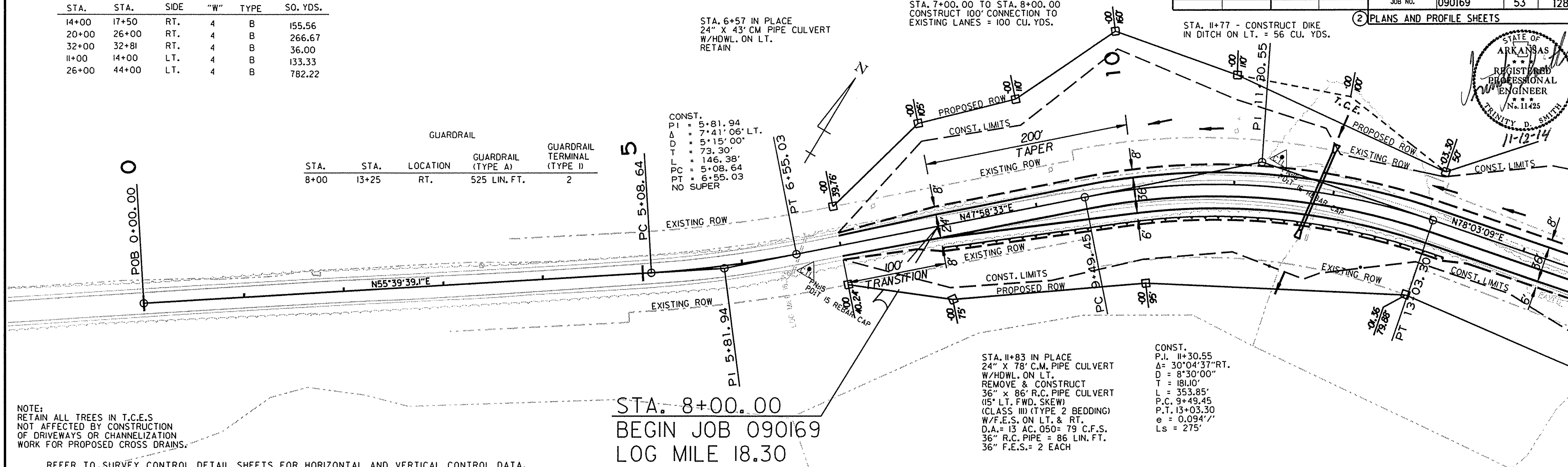
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
11-12-14

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	TYPE	SQ. YDS.
14+00	17+50	RT.	4	B	155.56
20+00	26+00	RT.	4	B	266.67
32+00	32+81	RT.	4	B	36.00
11+00	14+00	LT.	4	B	133.33
26+00	44+00	LT.	4	B	782.22

GUARDRAIL

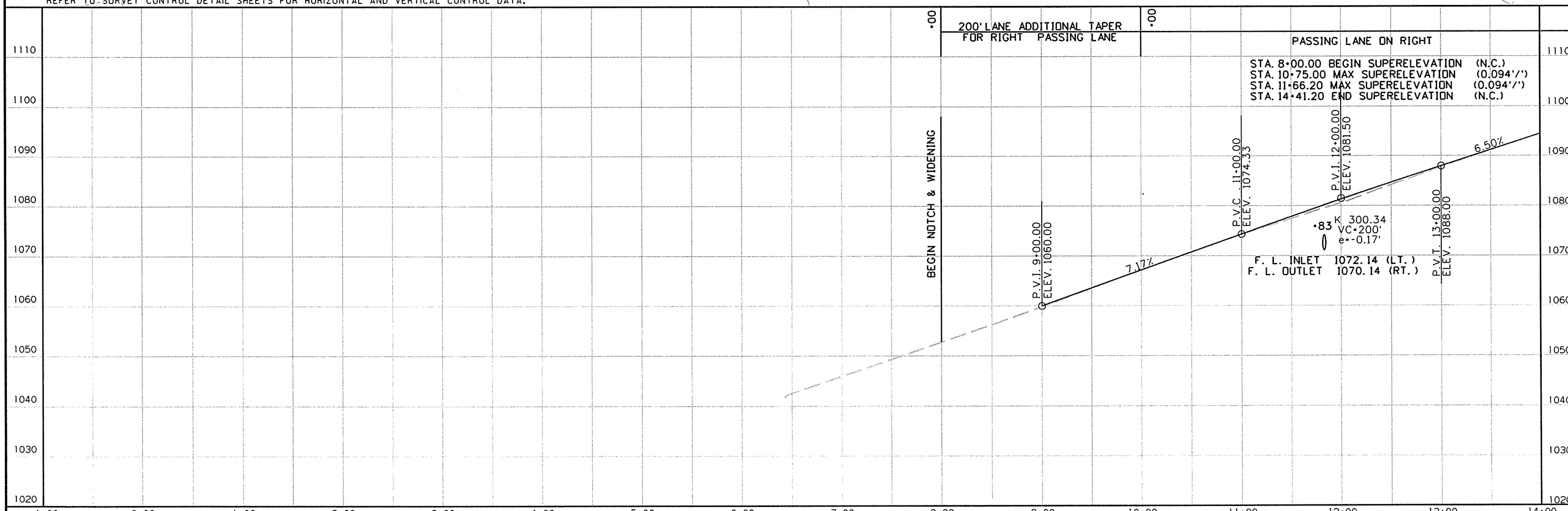
STA.	STA.	LOCATION	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE 1)
8+00	13+25	RT.	525 LIN. FT.	2



STA. 6+57 IN PLACE
24" X 43' CM PIPE CULVERT
W/HDWL. ON LT.
RETAIN
STA. 7+00.00 TO STA. 8+00.00
CONSTRUCT 100' CONNECTION TO
EXISTING LANES = 100 CU. YDS.
STA. 11+77 - CONSTRUCT DIKE
IN DITCH ON LT. = 56 CU. YDS.
CONST.
PI = 5+81.94
Δ = 7°41'06" LT.
D = 5°15'00"
T = 73.30'
L = 146.38'
PC = 5+08.64
PT = 6+55.03
NO SUPER
POB 0+00.00
PC 5+08.64
PT 6+55.03
PI 5+81.94
PI 11+30.55
PC 9+49.45
PT 13+03.30
N55°39'39.1"E
N47°58'33"E
N78°03'09"E
EXISTING ROW
PROPOSED ROW
CONST. LIMITS
T.C.E.
200' TAPER
100' TRANSITION
STA. 8+00.00
BEGIN JOB 090169
LOG MILE 18.30
STA. 11+83 IN PLACE
24" X 78' C.M. PIPE CULVERT
W/HDWL. ON LT.
REMOVE & CONSTRUCT
36" x 86' R.C. PIPE CULVERT
(15° LT. FWD. SKEW)
(CLASS III) (TYPE 2 BEDDING)
W/F.E.S. ON LT. & RT.
D.A.= 13 AC. Q50= 79 C.F.S.
36" R.C. PIPE = 86 LIN. FT.
36" F.E.S.= 2 EACH
CONST.
P.I. 11+30.55
Δ= 30°04'37"RT.
D = 8°30'00"
T = 181.10'
L = 353.85'
P.C. 9+49.45
P.T. 13+03.30
e = 0.094'/'
Ls = 275'

NOTE:
RETAIN ALL TREES IN T.C.E.S
NOT AFFECTED BY CONSTRUCTION
OF DRIVEWAYS OR CHANNELIZATION
WORK FOR PROPOSED CROSS DRAINS.

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



200' LANE ADDITIONAL TAPER
FOR RIGHT PASSING LANE
PASSING LANE ON RIGHT
STA. 8+00.00 BEGIN SUPERELEVATION (N.C.)
STA. 10+75.00 MAX SUPERELEVATION (0.094'/')
STA. 11+66.20 MAX SUPERELEVATION (0.094'/')
STA. 14+41.20 END SUPERELEVATION (N.C.)
BEGIN NOTCH & WIDENING
P.V.I. 9+00.00
ELEV. 1060.00
7.17%
P.V.C. 11+00.00
ELEV. 1074.33
P.V.I. 12+00.00
ELEV. 1081.50
K 300.34
VC=200'
e=-0.17'
F. L. INLET 1072.14 (LT.)
F. L. OUTLET 1070.14 (RT.)
P.V.T. 13+00.00
ELEV. 1088.00
6.50%
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020
-1+00
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	54	128

PLANS AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-13-14

STA. 15+32 CONSTRUCT DIKE IN DITCH ON LT.= 18 CU. YDS.

CONST.
P.I. 17+43.74
Δ= 33°34'42"LT.
D = 10°30'00"
T = 164.64'
L = 319.79'
P.C. 15+79.10
P.T. 18+98.90
e = 0.099'/'
Ls = 275'

STA. 20+00 INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 3540 CU. YDS.
(INCLUDES 3535 CU. YDS. UNCLASSIFIED EXCAVATION & 5 CU. YDS. COMPACTED EMBANKMENT)

STA. 20+32 CONSTRUCT DIKE IN DITCH ON LT.= 28 CU. YDS.

CONST.
P.I. 22+74.71
Δ= 13°29'54"LT.
D = 4°45'00"
T = 142.75
L = 284.17
P.C. 21+31.97
P.T. 24+16.14
e = 0.068'/'
Ls = 275'

EROSION CONTROL MATTING (CLASS 2) (4')

STA.	STA.	SIDE	SQ. YDS.
17+00	29+50	LT.	556

STA. 26+64 INSTALL
24" X 60' PIPE CULVERT
LT. SIDE DRAIN - CONSTRUCT
TURNOUT = 188 CU. YDS.
(INCLUDES 49 C.Y. UNCLASSIFIED EXCAVATION & 134 C.Y. COMPACTED EMBANKMENT)

STA. 26+35 CONSTRUCT DIKE IN DITCH ON LT.= 10 CU. YDS.

STA. 27+23 IN PLACE
18" X 41' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE

CONST.
P.I. 28+09.70
Δ= 70°35'20"RT.
D = 10°45'00"
T = 377.29'
L = 656.63
P.C. 24+32.40
P.T. 30+89.04
e = 0.100'/'
Ls = 275'

STA. 15+38 IN PLACE
24" X 43' PIPE CULVERT
39' C.M. LT. & 4' R.C. RT.
W/HDWL. ON LT.
REMOVE & CONSTRUCT
36" x 72' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
W/F.E.S. ON LT. & RT.
D.A.= 6 AC.; Q50= 37 C.F.S.
36" R.C. PIPE = 72 LIN. FT.
36" F.E.S.= 2 EACH

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	TYPE	SQ. YDS.
14+00	17+50	RT.	4	B	155.56
20+00	26+00	RT.	4	B	266.67
32+00	32+81	RT.	4	B	36.00
11+00	14+00	LT.	4	B	133.33
26+00	44+00	LT.	4	B	782.22

NOTE:
RETAIN ALL TREES IN T.C.E.S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.

GUARDRAIL

STA.	STA.	LOCATION	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE I)
15+00	22+50	RT.	750 LIN. FT.	2
26+00	31+25	RT.	525 LIN. FT.	2

STA. 20+38 IN PLACE
30" X 45' PIPE CULVERT
37' C.M. LT. & 8' R.C. RT.
W/HDWL. ON LT.
REMOVE & CONSTRUCT
36" x 82' R.C. PIPE CULVERT
(CLASS IV) (TYPE 3 BEDDING)
W/F.E.S. ON LT. & RT.
D.A.= 8 AC.; Q50= 49 C.F.S.
36" R.C. PIPE = 82 LIN. FT.
36" F.E.S.= 2 EACH

EROSION CONTROL MATTING (CLASS 2) (4')

STA.	STA.	SIDE	SQ. YDS.
14+00	14+50	RT.	22
15+00	18+00	RT.	133
21+00	25+00	RT.	178

STA. 26+40 IN PLACE
30" X 43' C.M. PIPE CULVERT
W/HDWL. ON LT.
REMOVE & CONSTRUCT
30" x 86' R. C. PIPE CULVERT
(15° RT. FWD. SKEW)
(CLASS III) (TYPE 2 BEDDING)
W/F.E.S. ON LT. & RT.
D.A.= 4 AC.; Q50= 24 C.F.S.
30" R.C. PIPE = 86 LIN. FT.
30" F.E.S.= 2 EACH

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

PASSING LANE ON RIGHT

STA. 8+00.00 BEGIN SUPERELEVATION (N.C.)
STA. 10+75.00 MAX SUPERELEVATION (0.094'/')
STA. 11+66.20 MAX SUPERELEVATION (0.094'/')
STA. 14+41.20 END SUPERELEVATION (N.C.)

+00.00 - END NOTCH & WIDENING - BEGIN FULL DEPTH

6.50%

P.V.C. 16+00.00
ELEV. 1107.50

P.V.I. 17+00.00
ELEV. 1114.00

K 128.10
VC=200'
e=-0.39'

P.V.T. 18+00.00
ELEV. 1118.94

+38
F. L. INLET 1097.41 (LT.)
F. L. OUTLET 1095.41 (RT.)

+60

540' DROP TAPER FOR LEFT PASSING LANE

STA. 14+41.20 BEGIN SUPERELEVATION (N.C.)
STA. 17+16.20 MAX SUPERELEVATION (0.099'/')
STA. 18+30.15 MAX SUPERELEVATION (0.099'/')
STA. 21+84.47 TRANSITION (0.037'/')
STA. 22+74.06 MAX SUPERELEVATION (0.037'/')
STA. 24+24.27 END SUPERELEVATION (N.C.)

4.94%

+38
F. L. INLET 1123.28 (LT.)
F. L. OUTLET 1121.38 (RT.)

+00

P.V.C. 24+25.00
ELEV. 1149.81

PASSING LANE ON LEFT
PASSING LANE ON RIGHT

+40
K 175.39
VC=1000'
e=-7.13'

F. L. INLET 1155.59 (LT.)
F. L. OUTLET 1150.38 (RT.)

1170
1160
1150
1140
1130
1120
1110
1100
1090
1080

14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	55	128

(2) PLANS AND PROFILE SHEETS

EROSION CONTROL MATTING (CLASS 2) (4')

STA.	STA.	SIDE	SQ. YDS.
17+00	29+50	LT.	556

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	TYPE	SQ. YDS.
14+00	17+50	RT.	4	B	155.56
20+00	26+00	RT.	4	B	266.67
32+00	32+81	RT.	4	B	36.00
11+00	14+00	LT.	4	B	133.33
26+00	44+00	LT.	4	B	782.22

CONST.
P.I. 33+75.51
Δ= 37°59'45"LT.
D = 8°00'00"
T = 246.58'
L = 474.95'
P.C. 31+28.93
P.T. 36+03.88
e = 0.092'/'
Ls = 275'

STA. 36+50 INSTALL
18" X 33' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 175 CU. YDS.
(INCLUDES 135 C.Y. UNCLASSIFIED EXCAVATION & 40 C.Y. COMPACTED EMBANKMENT)

STA. 36+79 IN PLACE
15" X 54' CM PIPE CULVERT
W/HDWL. ON LT.
REMOVE & CONSTRUCT
30" x 88' R.C. PIPE CULVERT
(CLASS III) (TYPE 2 BEDDING)
W/F.E.S. ON LT. & RT.
D.A. = 3 AC.; 050= 18 C.F.S.
30" R.C. PIPE= 88 LIN. FT.
30" F.E.S.= 2 EACH

STA. 39+38 CONSTRUCT
APPROACH ON LT.= 91 CU. YDS.
(INCLUDES 55 CU. YDS. UNCLASSIFIED EXCAVATION & 36 CU. YDS. COMPACTED EMBANKMENT)

STA. 32+25 INSTALL
18" X 46' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 190 CU. YDS.
(INCLUDES 120 CU. YDS. UNCLASSIFIED EXCAVATION & 70 CU. YDS. COMPACTED EMBANKMENT)

STA. 32+81 CONSTRUCT
APPROACH ON LT.= 208 CU. YDS.
(INCLUDES 165 CU. YDS. UNCLASSIFIED EXCAVATION & 43 C.Y. COMPACTED EMBANKMENT)

EROSION CONTROL MATTING (CLASS 2) (4')

STA.	STA.	SIDE	SQ. YDS.
47+00	48+00	LT.	44
50+00	53+00	LT.	133

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

CONST.
P.I. 28+09.70
Δ= 70°35'20"RT.
D = 10°45'00"
T = 377.29'
L = 656.63
P.C. 24+32.40
P.T. 30+89.04
e = 0.100'/'
Ls = 275'

STA. 32+59 CONSTRUCT
TURNOUT ON RT.= 37 CU. YDS.

STA. 40+55 CONSTRUCT
APPROACH ON RT. = 137 CU. YDS.

GUARDRAIL

STA.	STA.	LOCATION	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE I)
26+00	31+25	RT.	525 LIN. FT.	2
33+25	40+00	RT.	675 LIN. FT.	2
41+00	45+00	RT.	400 LIN. FT.	2

STA. 43+50 IN PLACE
30" X 59' C.M. PIPE CULVERT
W/HDWL. ON LT.
REMOVE & CONSTRUCT
30" x 84' R.C. PIPE CULVERT
(CLASS IV) (TYPE 2 BEDDING)
W/F.E.S. ON LT. & RT.
D.A.= 3 AC.; 050= 18 C.F.S.
30" R.C. PIPE = 84 LIN. FT.
30" F.E.S.= 2 EACH

NOTE:
RETAIN ALL TREES IN T.C.E.S NOT AFFECTED BY CONSTRUCTION OF DRIVEWAYS OR CHANNELIZATION WORK FOR PROPOSED CROSS DRAINS.

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

PASSING LANE ON LEFT
PASSING LANE ON RIGHT

STA. 24+24.27 BEGIN SUPERELEVATION (N.C.)
STA. 26+99.27 MAX SUPERELEVATION (0.100'/')
STA. 28+33.99 MAX SUPERELEVATION (0.100'/')
STA. 31+08.99 END SUPERELEVATION (N.C.)

STA. 31+08.99 BEGIN SUPERELEVATION (N.C.)
STA. 33+83.99 MAX SUPERELEVATION (0.092'/')
STA. 35+35.13 MAX SUPERELEVATION (0.092'/')
STA. 38+10.13 END SUPERELEVATION (N.C.)

P.V.I. 29+25.00
ELEV. 1174.50

K 175.39
VC=1000'
e=-7.13'

P.V.T. 34+25.00
ELEV. 1170.69

-0.76%

P.V.C. 35+00.00
ELEV. 1170.11

K 315.97
VC=200'
e=0.16'

P.V.T. 36+00.00
ELEV. 1169.35
END FULL DEPTH - BEGIN NOTCH & WIDENING

-0.13%

P.V.T. 37+00.00 - END FINISHED
ELEV. 1169.22

•79
F. L. INLET 1162.74 (LT.)
F. L. OUTLET 1160.74 (RT.)

PASSING LANE ON LEFT
540' DROP TAPER FOR RIGHT PASSING LANE

STA. 43+95.77 BEGIN SUPERELEVATION (N.C.)
STA. 46+70.77 MAX SUPERELEVATION (0.096'/')
STA. 49+77.78 MAX SUPERELEVATION (0.096'/')
STA. 52+52.78 END SUPERELEVATION (N.C.)

•50
F. L. INLET 1155.99 (LT.)
F. L. OUTLET 1153.99 (RT.)

1210 1200 1190 1180 1170 1160 1150 1140 1130 1120

29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00

10/9/2014

R090169.P01

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	56	128

(2) PLANS AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-21-14

CONCRETE DITCH PAVING

STA.	STA.	SIDE	"W"	TYPE	SQ. YDS.
14+00	17+50	RT.	4	B	155.56
20+00	26+00	RT.	4	B	266.67
32+00	32+81	RT.	4	B	36.00
11+00	14+00	LT.	4	B	133.33
26+00	44+00	LT.	4	B	782.22

EROSION CONTROL MATTING (CLASS 2) (4')

STA.	STA.	SIDE	SQ. YDS.
47+00	48+00	LT.	44
50+00	53+00	LT.	133

STA. 55+80.00 TO STA. 56+30.00
CONSTRUCT 50' CONNECTION TO
EXISTING LANES = 50 CU. YDS.

CONST.
P.I. 48+34.91
Δ= 42°13'43"LT.
D = 9°30'00"
T = 232.89'
L = 444.51
P.C. 46+02.02
P.T. 50+46.53
e = 0.096'/'
Ls = 275'

STA. 43+50 IN PLACE
30" X 59' C.M. PIPE CULVERT
W/HDWL. ON LT.
REMOVE & CONSTRUCT
30" x 84' R.C. PIPE CULVERT
(CLASS IV) (TYPE 2 BEDDING)
W/F.E.S. ON LT. & RT.
D.A.= 3 AC.; Q50= 18 C.F.S.
30" R.C. PIPE = 84 LIN. FT.
30" F.E.S.= 2 EACH

NOTE:
RETAIN ALL TREES IN T.C.E.S
NOT AFFECTED BY CONSTRUCTION
OF DRIVEWAYS OR CHANNELIZATION
WORK FOR PROPOSED CROSS DRAINS.

EROSION CONTROL MATTING (CLASS 2) (4')

STA.	STA.	SIDE	SQ. YDS.
52+00	52+30	RT.	13
53+00	56+00	RT.	133

STA. 52+35 - CONSTRUCT
TURNOUT ON RT. = 50 CU. YDS.

GUARDRAIL

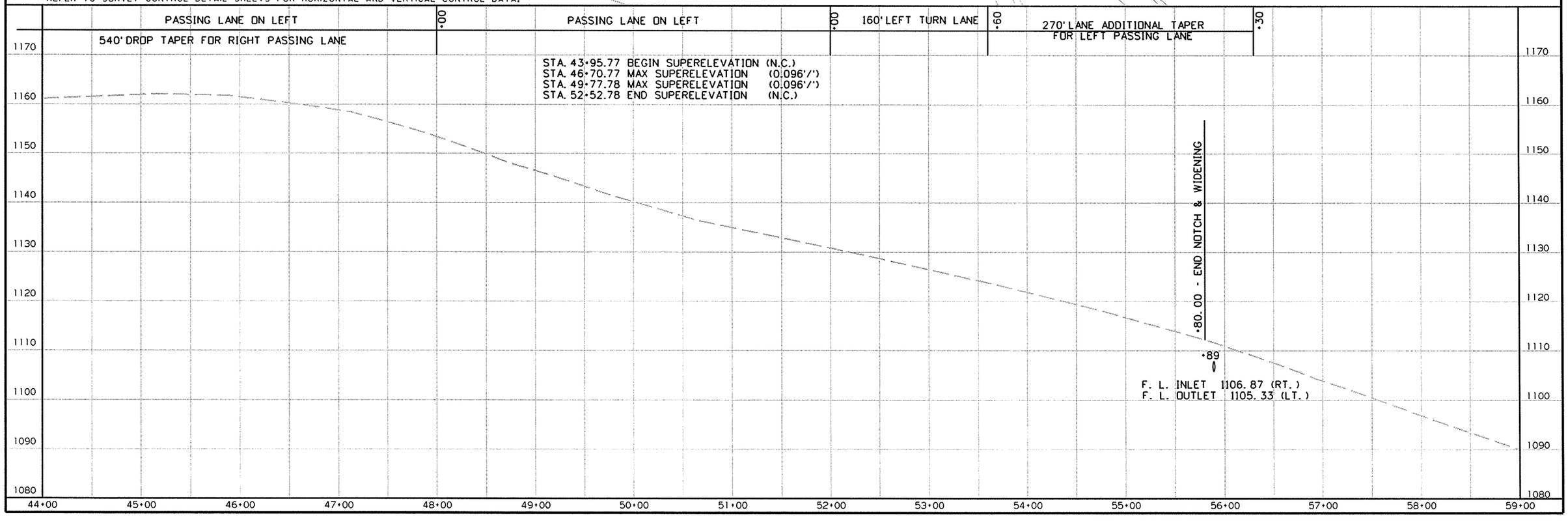
STA.	STA.	LOCATION	GUARDRAIL (TYPE A)	GUARDRAIL TERMINAL (TYPE I)
41+00	45+00	RT.	400 LIN. FT.	2
48+50	51+50	RT.	300 LIN. FT.	2

STA. 55+89 IN PLACE
18" X 38' R.C. PIPE CULVERT
W/HDWLS. ON LT. & RT.
REMOVE & CONSTRUCT
24" x 60' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
W/F.E.S. ON LT. & RT.
D.A.= 3 AC.; Q50= 18 C.F.S.
24" R.C. PIPE = 60 LIN. FT.
24" F.E.S.= 2 EACH
RIPRAP OUTLET CHANNEL
DUMPED RIPRAP = 39 CU. YDS.
FILTER BLANKET = 79 SQ. YDS.

CONST.
P.I. 56+75.96
Δ= 58°39'59"RT.
D = 23°00'00"
T = 139.98'
L = 255.07'
P.C. 55+35.98
P.T. 57+91.05
e = MATCH EXISTING

STA. 55+80.00
END JOB 090169

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



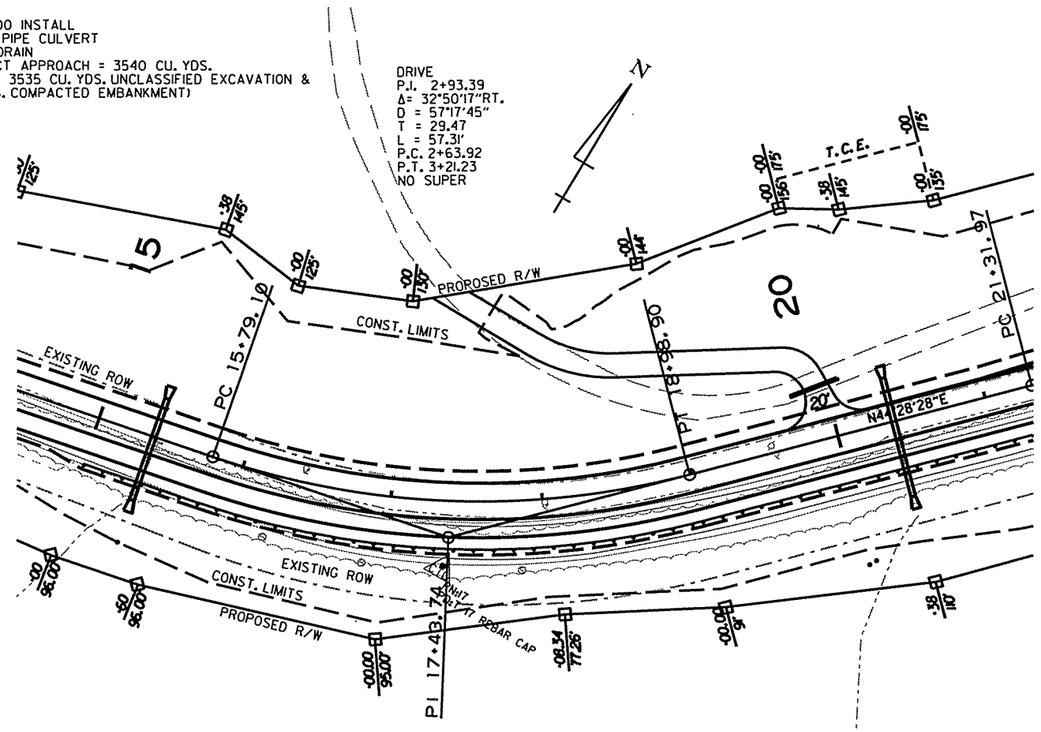
10/9/2014

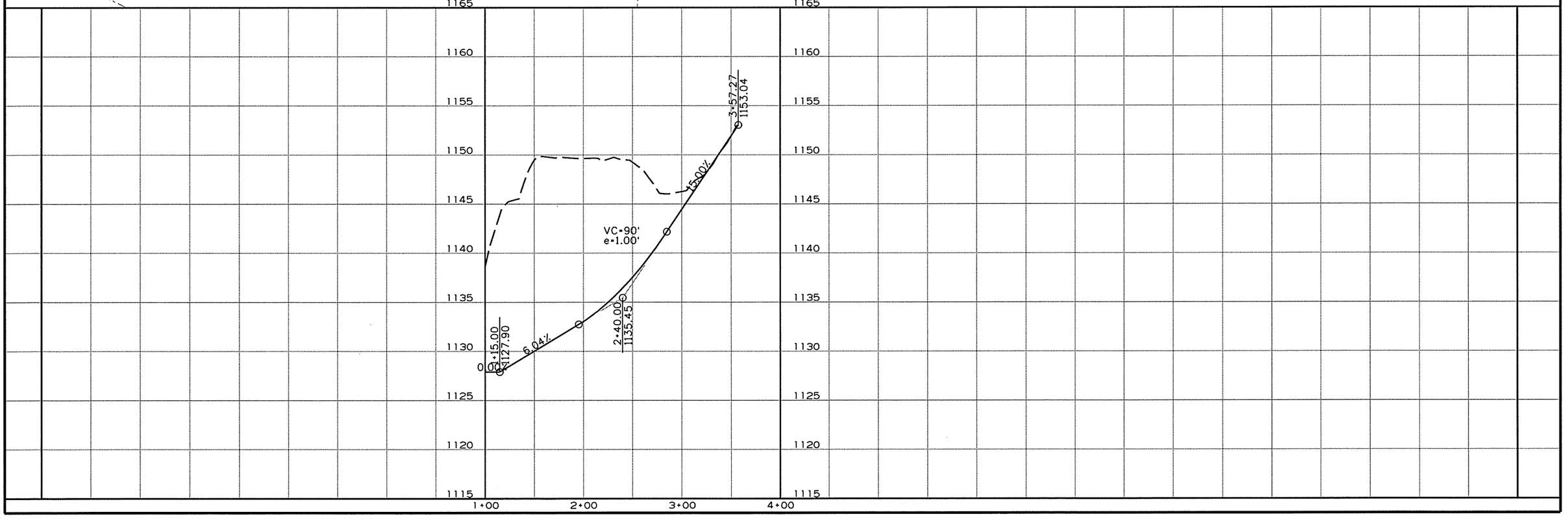
R090169.P01

STA. 20+00 INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 3540 CU. YDS.
(INCLUDES 3535 CU. YDS. UNCLASSIFIED EXCAVATION &
5 CU. YDS. COMPACTED EMBANKMENT)

DRIVE
P.I. 2+93.39
Δ= 32°50'17"RT.
D = 57°17'45"
T = 29.47
L = 57.31'
P.C. 2+63.92
P.T. 3+21.23
NO SUPER

DRIVE
P.I. 1+44.91
Δ= 62°18'45"LT.
D = 286°28'44"
T = 12.09'
L = 21.75'
P.C. 1+32.82
P.T. 1+54.57
NO SUPER





DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090169	56A	128

(2) PLANS AND PROFILE SHEETS DRIVE @ STA. 20+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-13-14

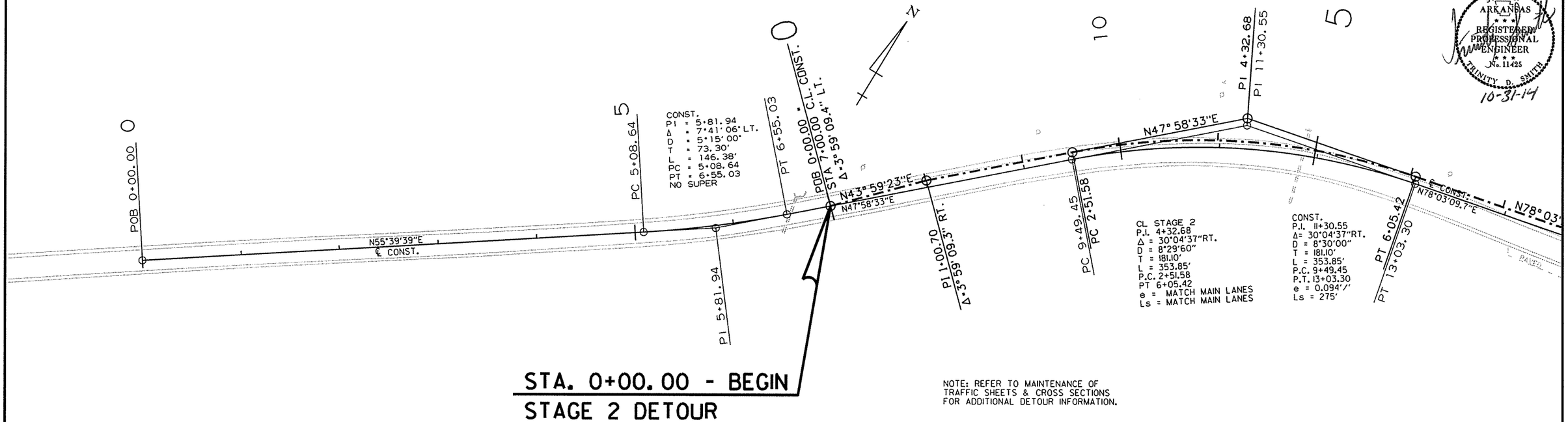
11/12/2014
R090169.002

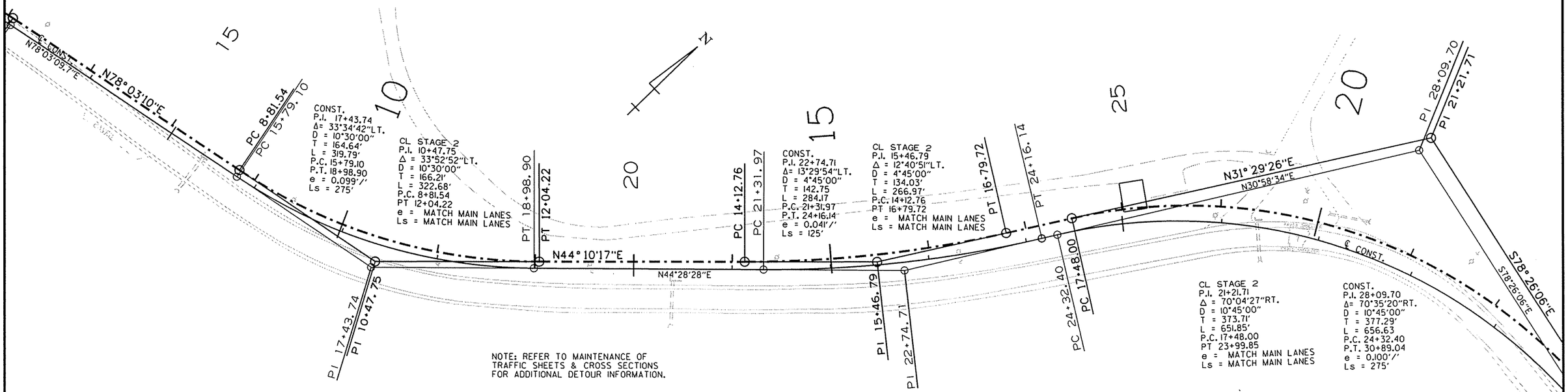
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	57	128

(2) STAGE 2 DETOUR PLAN STA. 0 - STA. 22

NOTE: MATCH PROPOSED CONSTRUCTION GRADE & SUPERELEVATION RATES FOR STAGE 2 DETOUR.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-31-14





STAGE 2 DETOUR PLAN

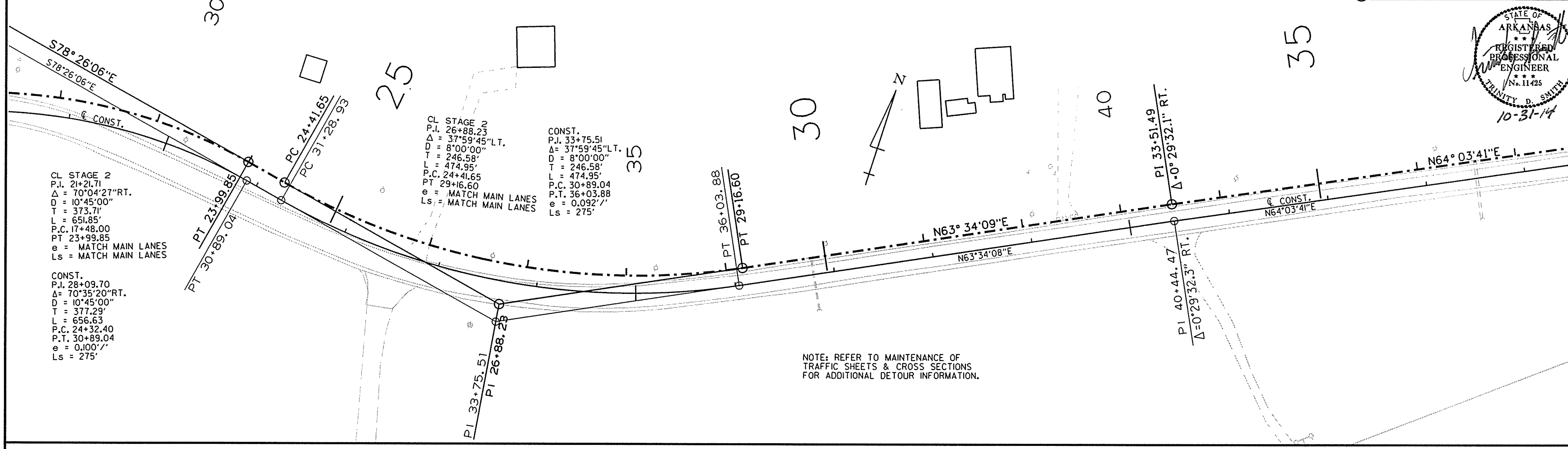
7/7/2014

R090169.D01

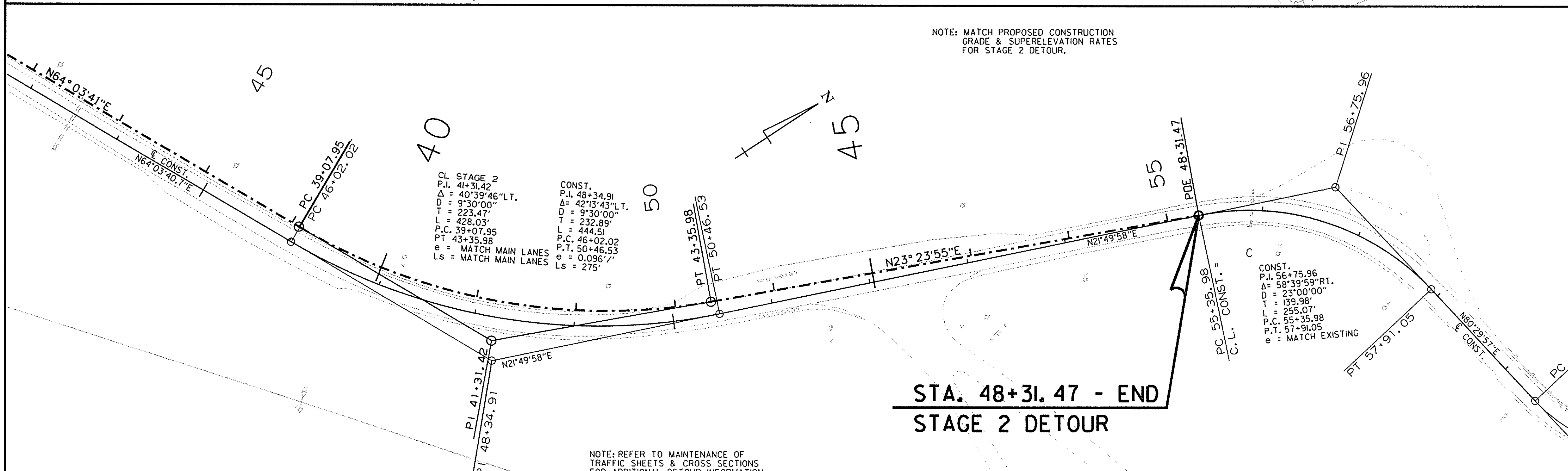
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	58	128

(2) STAGE 2 DETOUR PLAN STA. 22 - STA. 48

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
10-31-14



NOTE: MATCH PROPOSED CONSTRUCTION GRADE & SUPERELEVATION RATES FOR STAGE 2 DETOUR.
S78°26'06"E
PC 24+41.65
PC 31+28.93
PT 23+99.85
PT 30+89.04
CL STAGE 2
P.I. 21+21.71
Δ = 70°04'27"RT.
D = 10°45'00"
T = 373.71'
L = 651.85'
P.C. 17+48.00
PT 23+99.85
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES
CONST.
P.I. 28+09.70
Δ= 70°35'20"RT.
D = 10°45'00"
T = 377.29'
L = 656.63
P.C. 24+32.40
P.T. 30+89.04
e = 0.100'/'
Ls = 275'
CL STAGE 2
P.I. 26+88.23
Δ = 37°59'45"LT.
D = 8°00'00"
T = 246.58'
L = 474.95'
P.C. 24+41.65
PT 29+16.60
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES
CONST.
P.I. 33+75.51
Δ= 37°59'45"LT.
D = 8°00'00"
T = 246.58'
L = 474.95'
P.C. 30+89.04
P.T. 36+03.88
e = 0.092'/'
Ls = 275'
PI 33+75.51
PI 26+88.23
PT 36+03.88
PT 29+16.60
N63° 34'09"E
N63°34'08"E
PI 33+51.49
Δ=0°29'32.1" RT.
PI 40+44.47
Δ=0°29'32.3" RT.
N64° 03'41"E
N64°03'41"E
NOTE: REFER TO MAINTENANCE OF TRAFFIC SHEETS & CROSS SECTIONS FOR ADDITIONAL DETOUR INFORMATION.



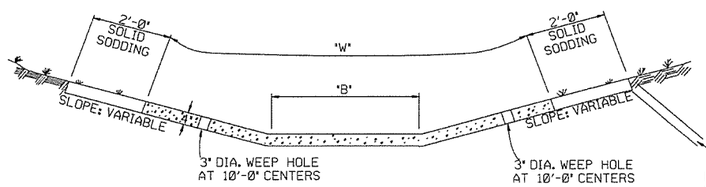
NOTE: MATCH PROPOSED CONSTRUCTION GRADE & SUPERELEVATION RATES FOR STAGE 2 DETOUR.
N64°03'41"E
N64°03'40.7"E
PC 39+07.95
PC 46+02.02
CL STAGE 2
P.I. 41+31.42
Δ = 40°39'46"LT.
D = 9°30'00"
T = 223.47'
L = 428.03'
P.C. 39+07.95
PT 43+35.98
e = MATCH MAIN LANES
Ls = MATCH MAIN LANES
CONST.
P.I. 48+34.91
Δ= 42°13'43"LT.
D = 9°30'00"
T = 232.89'
L = 444.51
P.C. 46+02.02
P.T. 50+46.53
e = 0.096'/'
Ls = 275'
PT 43+35.98
PT 50+46.53
PI 41+31.42
PI 48+34.91
N21°49'58"E
N23° 23'55"E
POE 48+31.47
PC 55+35.98
C.L. CONST. =
PI 56+75.96
CONST.
P.I. 56+75.96
Δ= 58°39'59"RT.
D = 23°00'00"
T = 139.98'
L = 255.07'
P.C. 55+35.98
P.T. 57+91.05
e = MATCH EXISTING
PT 57+91.05
N80°29'57"E
PC 59
STA. 48+31.47 - END
STAGE 2 DETOUR
NOTE: REFER TO MAINTENANCE OF TRAFFIC SHEETS & CROSS SECTIONS FOR ADDITIONAL DETOUR INFORMATION.

STAGE 2 DETOUR PLAN

7/7/2014

R090169.D01

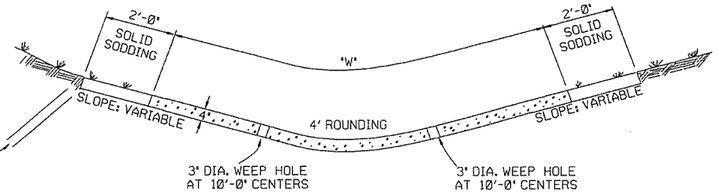
REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



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

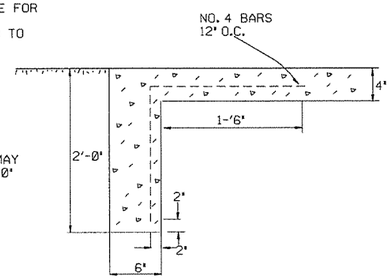
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



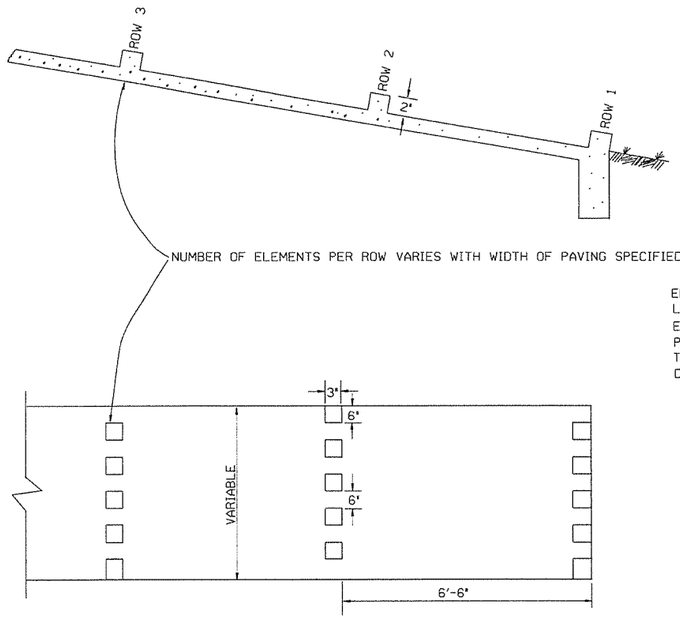
TYPE B

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



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

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

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

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

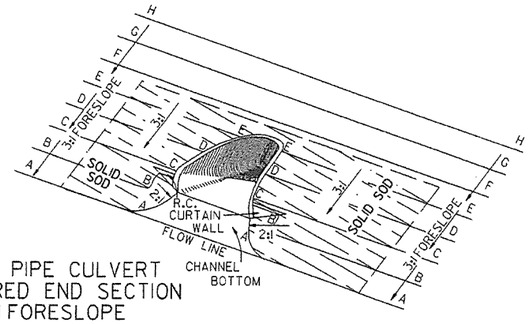
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

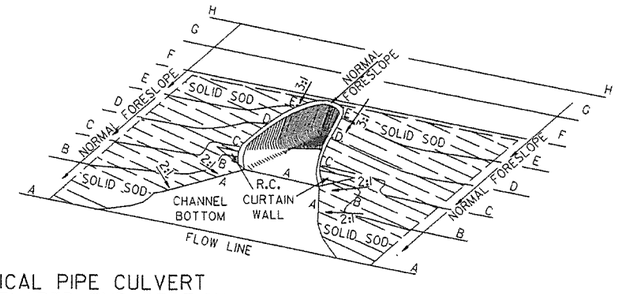
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

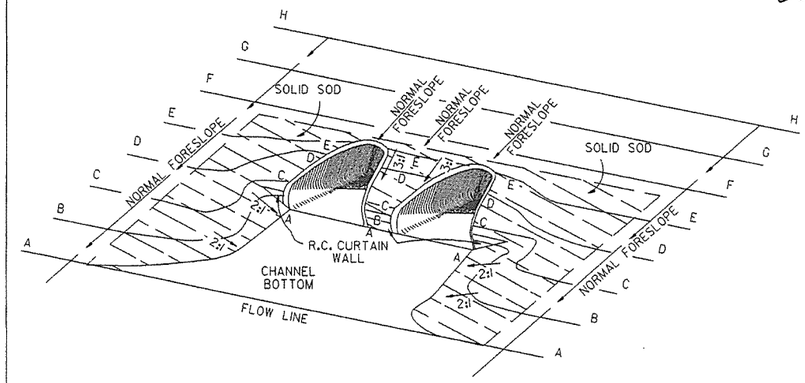
STANDARD DRAWING CDP-1



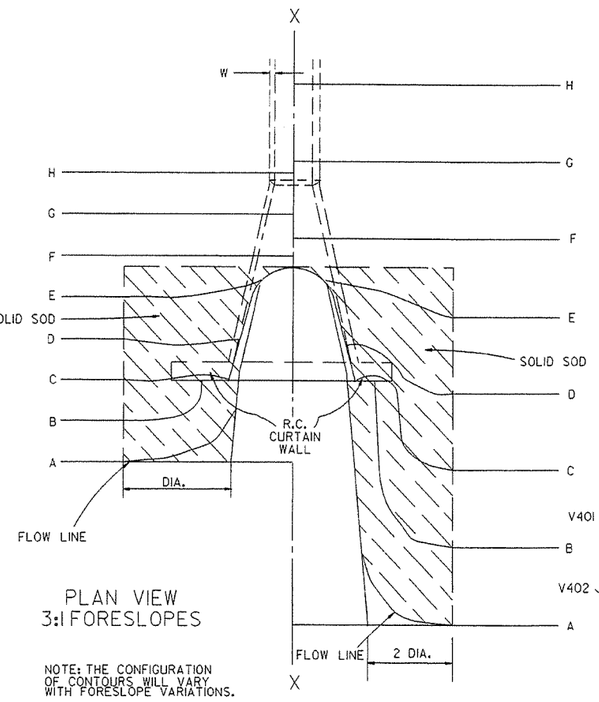
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

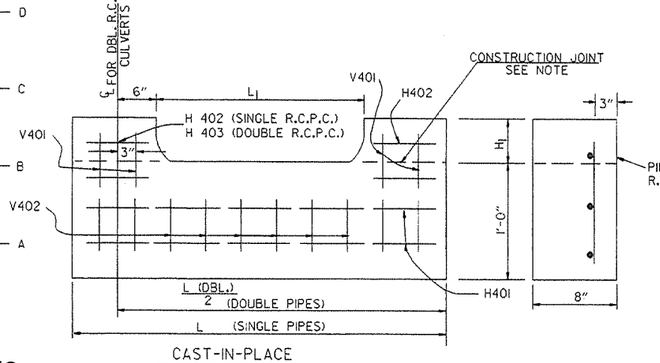
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

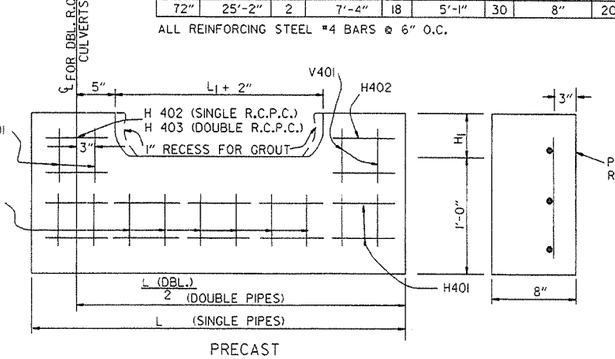
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0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

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



CAST-IN-PLACE

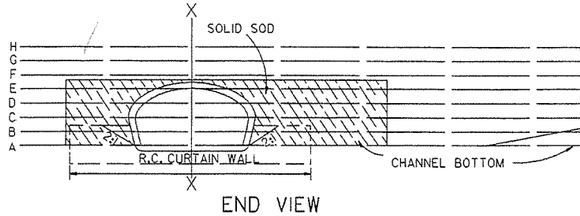
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



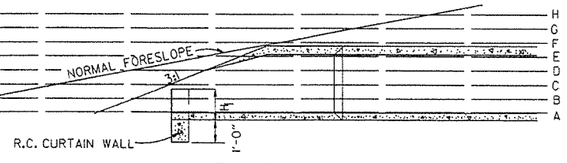
PRECAST

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

R.C. CURTAIN WALL DETAILS



END VIEW



SECTIONAL VIEW "X-X"

REINFORCING STEEL SCHEDULE

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

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

SOLID SODDING

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

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

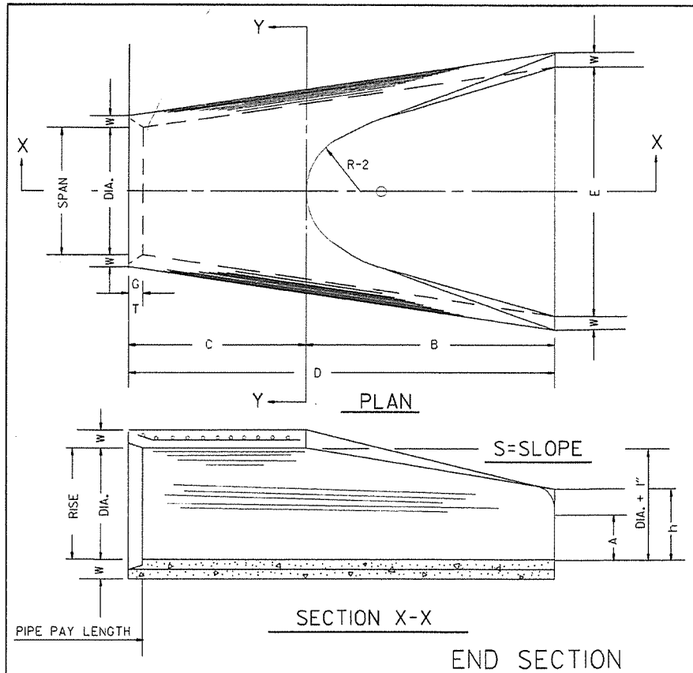
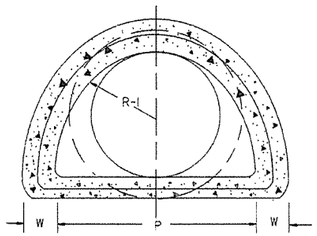
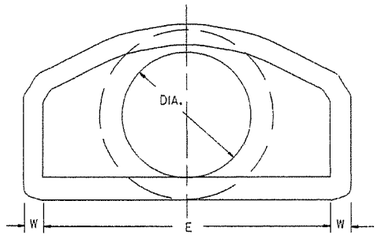


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. − 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33⅜"	16⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47⅛"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77⅛"	38⅝"	24"	5"	13250	4'-6"



SECTION Y-Y



END VIEW

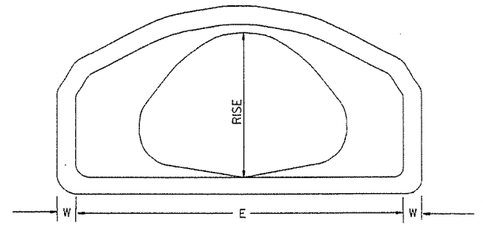
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

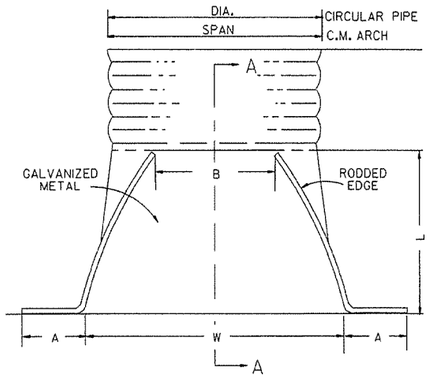
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅞"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅞"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59⅛"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2½:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅝"	24"	5"	2½:1

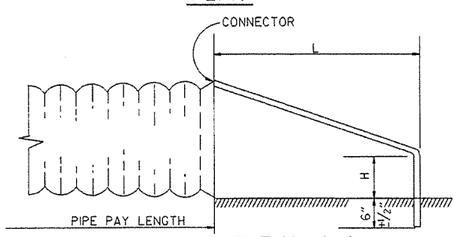
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



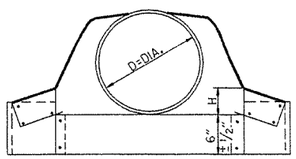
END VIEW
CONCRETE ARCH PIPE



PLAN



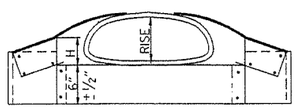
SECTION A-A



CIRCULAR PIPE

CIRCULAR PIPE

D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1



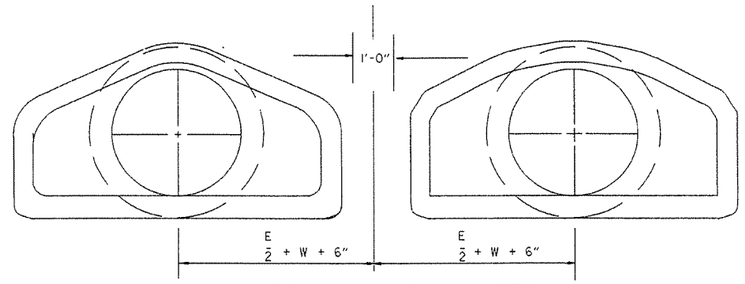
C.M. ARCH PIPE

C.M. ARCH PIPE

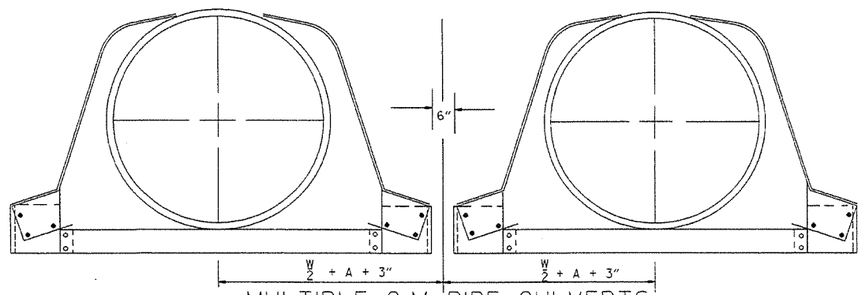
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

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

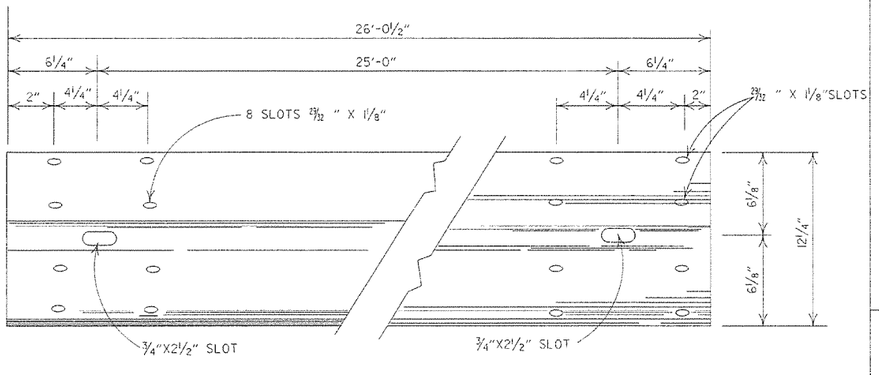
FILMED

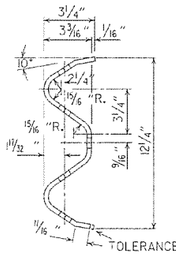
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

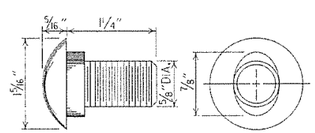
stdfes2.dgn



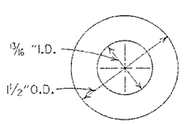


DETAILS OF W-BEAM GUARD RAIL

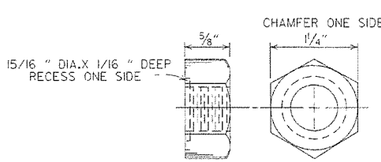
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



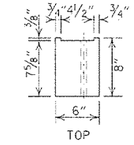
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

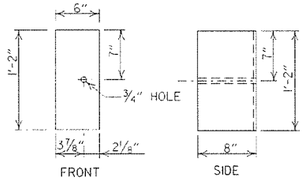


NUT

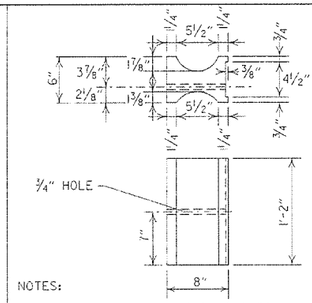


TOP

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



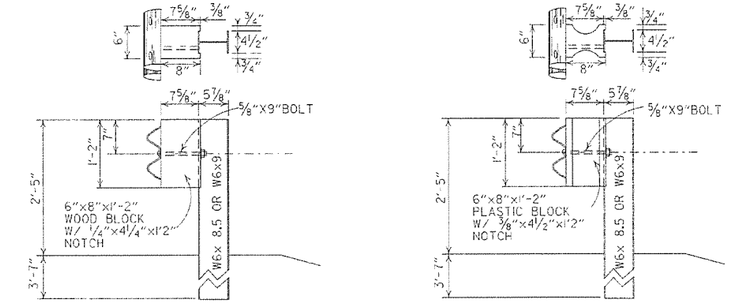
WOOD BLOCKOUT (W-BEAM)



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

PLASTIC BLOCKOUT (W-BEAM)

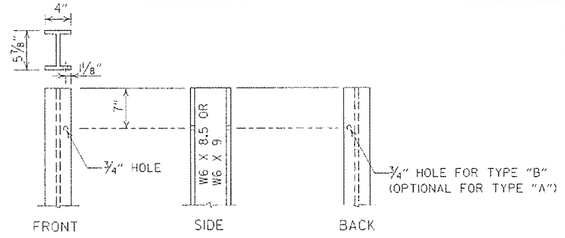
HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



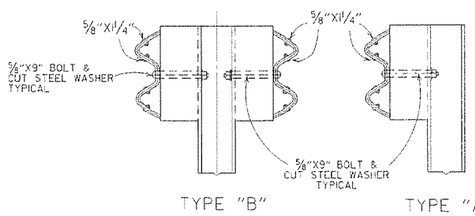
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



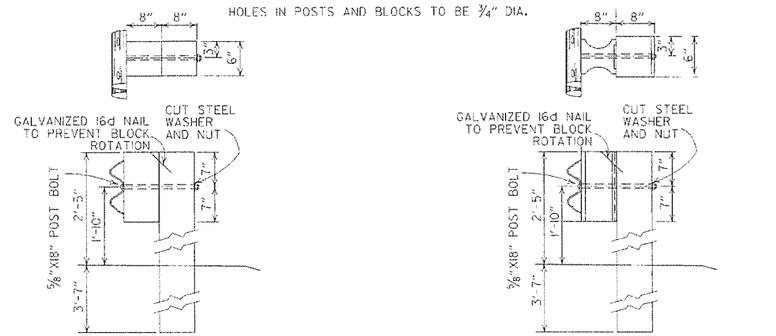
STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



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

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

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

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

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

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

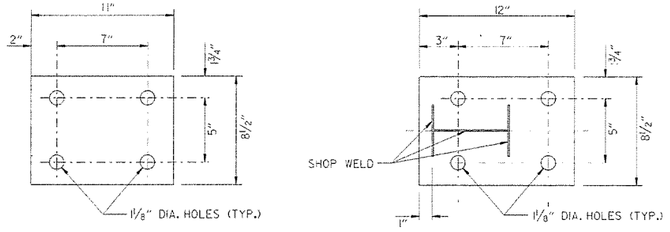
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

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

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

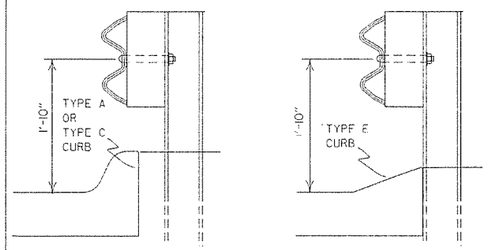
STANDARD DRAWING GR-8



WASHER PLATE

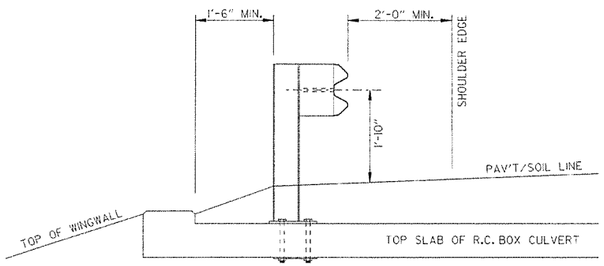
BASE PLATE

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

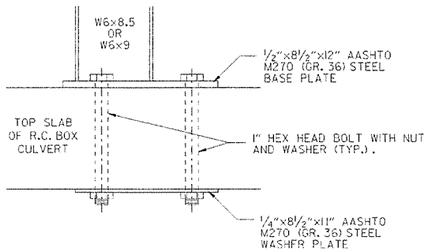


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

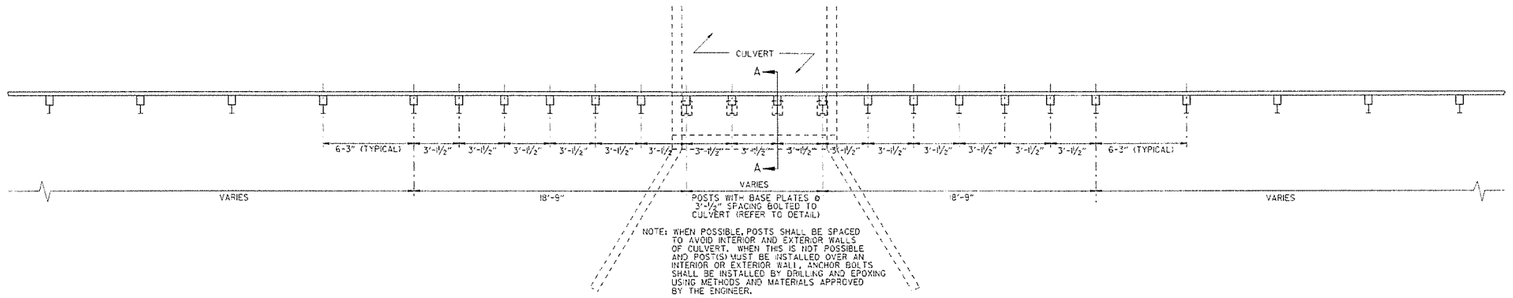
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A



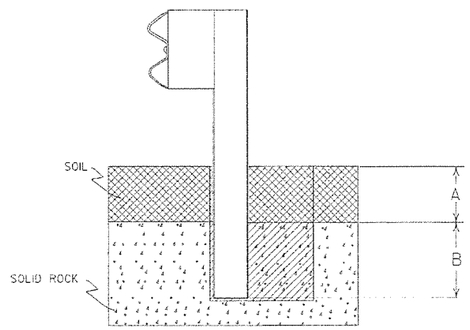
DETAIL OF CONNECTION



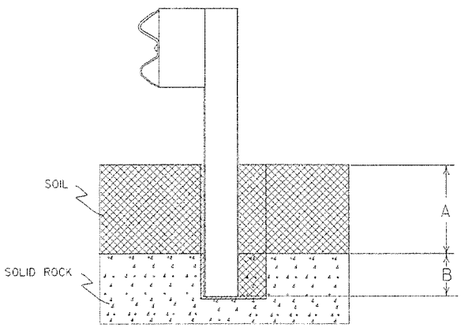
PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-6.

Case 1

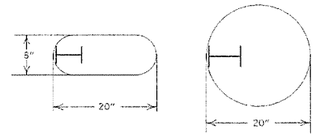


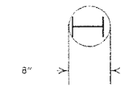
Case 2



Plan View Steel Posts

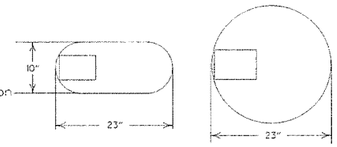
Either hole configuration acceptable

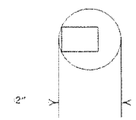




Plan View Wood Posts

Either hole configuration acceptable





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

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

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

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

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

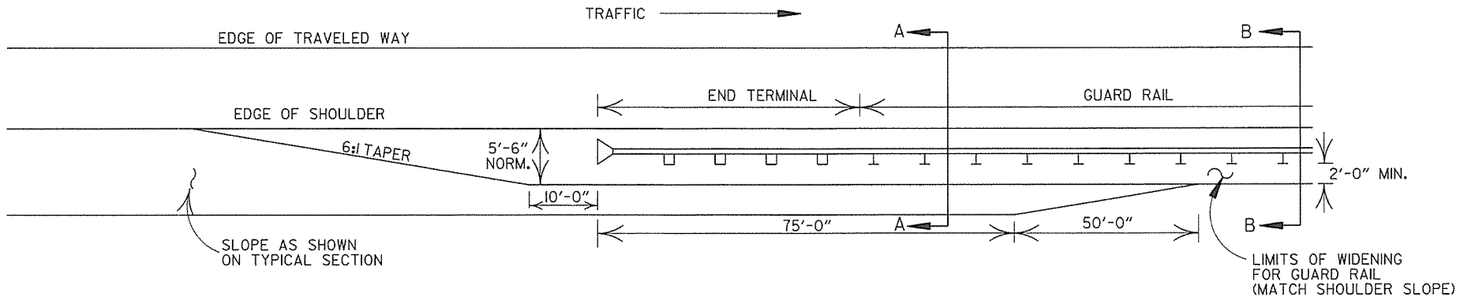
DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)

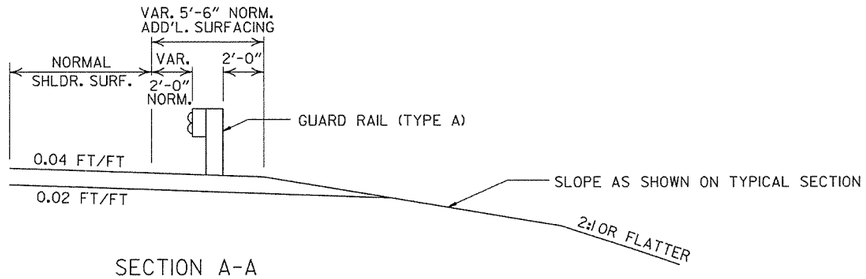
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

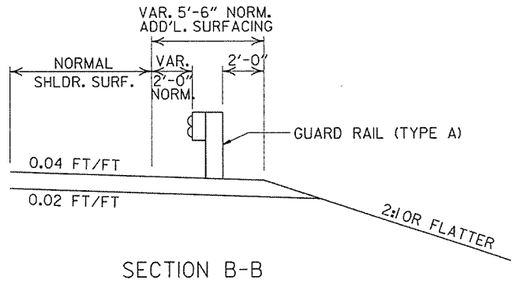
GUARD RAIL DETAILS

STANDARD DRAWING GR-8A





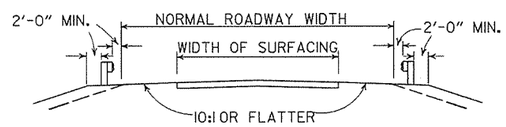
SECTION A-A



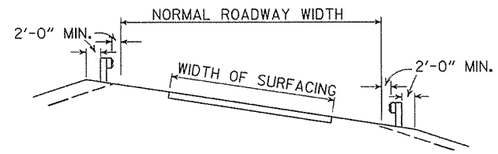
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

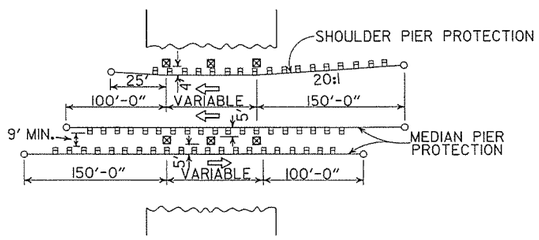


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



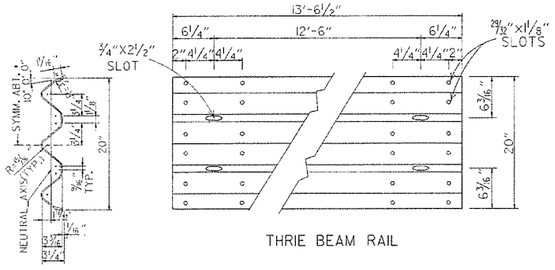
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

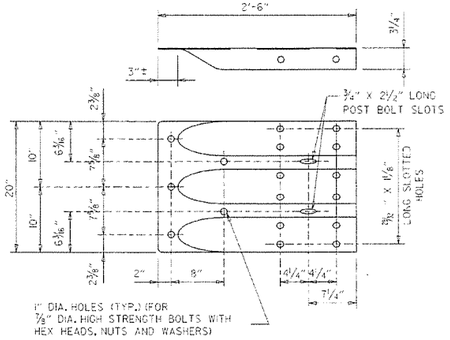
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A

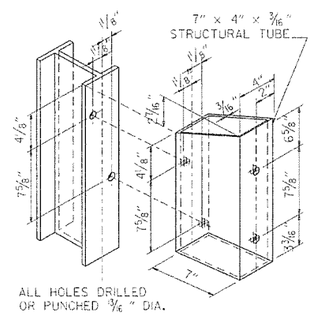


THRIE BEAM RAIL

SECTION THRU
THRIE BEAM RAIL



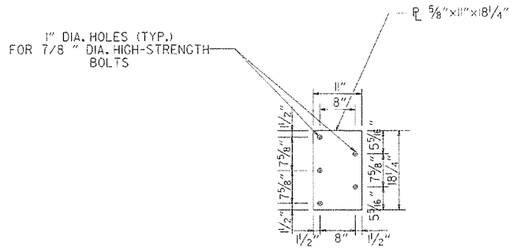
SPECIAL END SHOE



ALL HOLES DRILLED
OR PUNCHED ⅜" DIA.

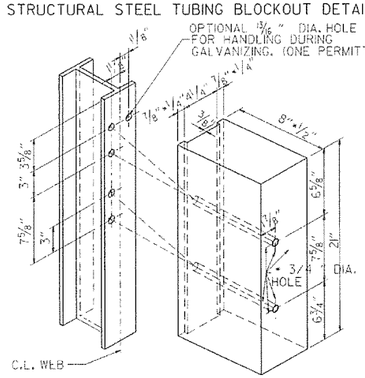
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

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



CONNECTOR PLATE

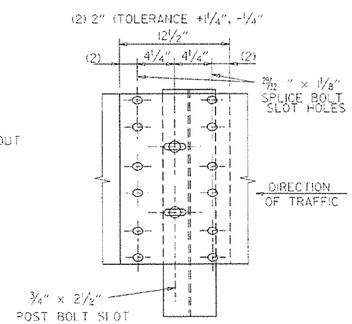
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



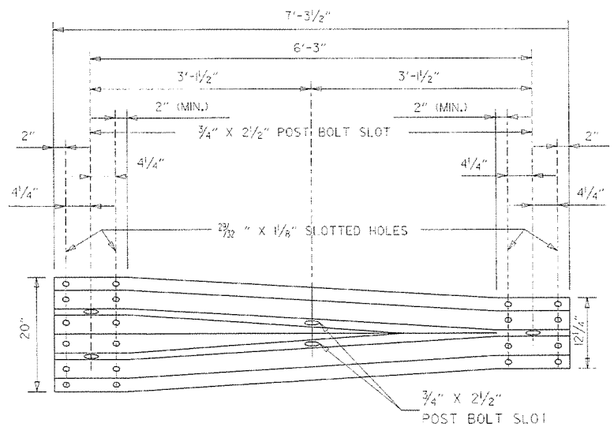
ALL HOLES 1⅛" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

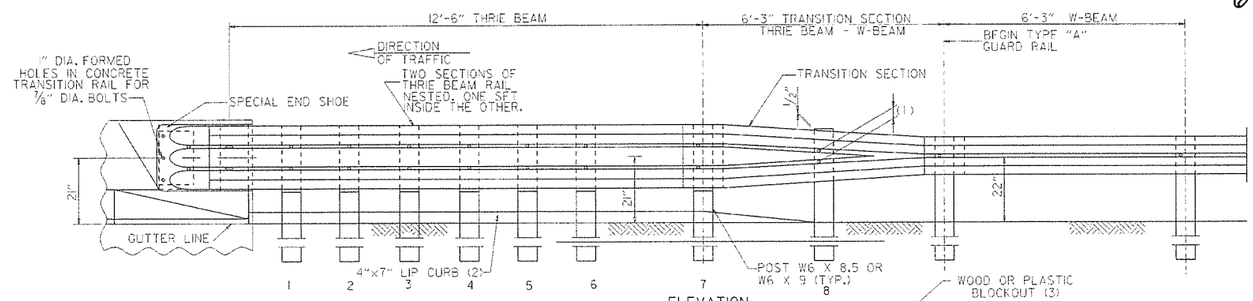
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



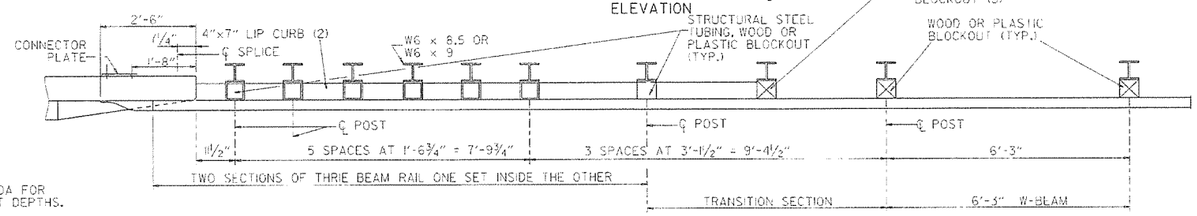
THRIE BEAM RAIL
SPLICE AT POST



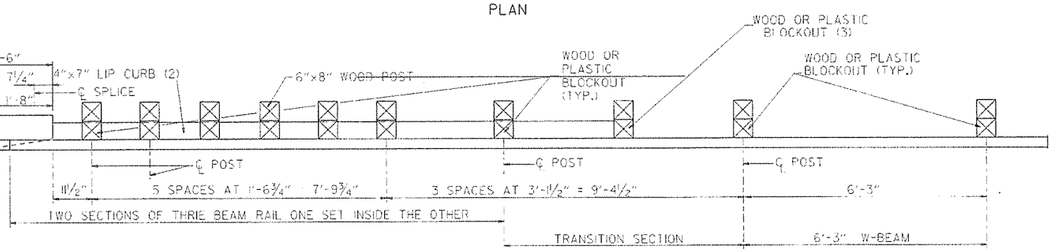
TRANSITION SECTION



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

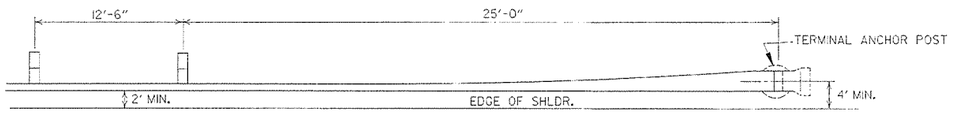
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

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

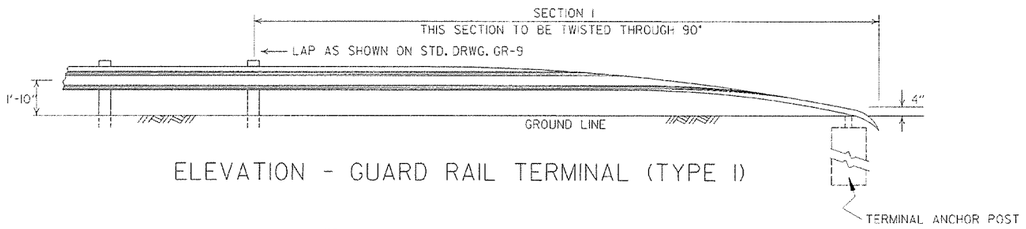
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

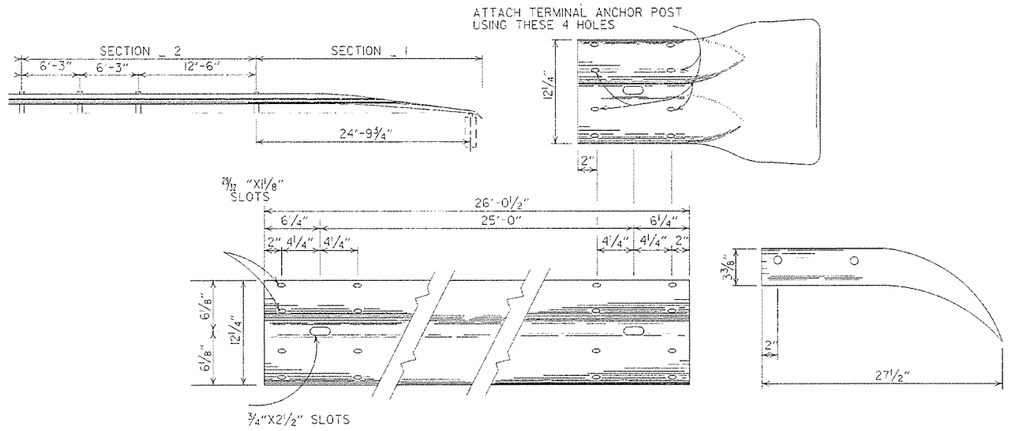


PLAN - GUARD RAIL TERMINAL (TYPE I)



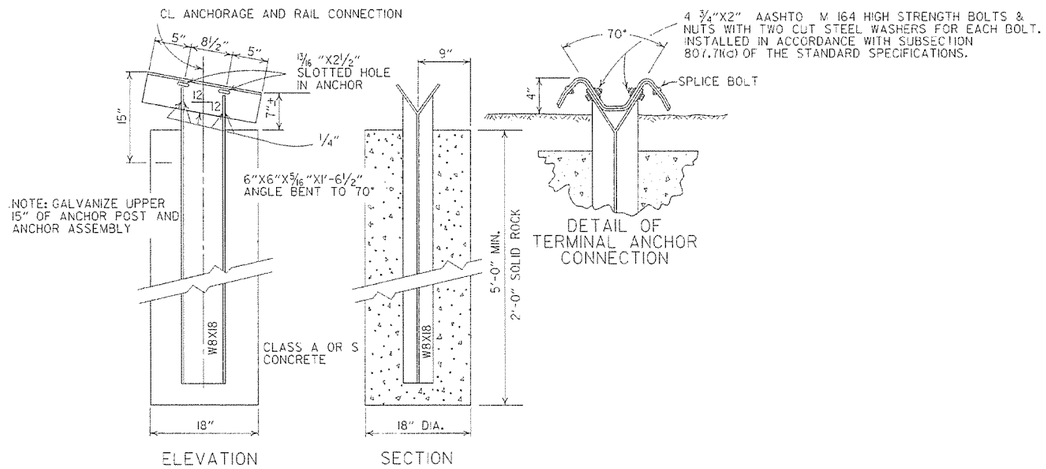
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



ELEVATION SECTION

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

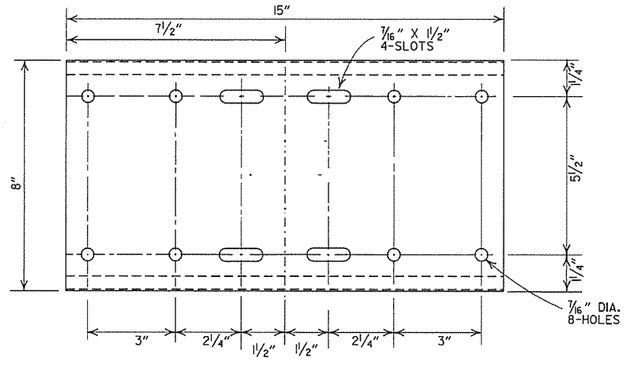
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
6-26-97	REVISED LAP NOTE	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-3-94	DIVENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92

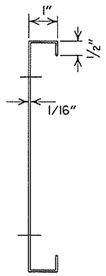
ARKANSAS STATE HIGHWAY COMMISSION

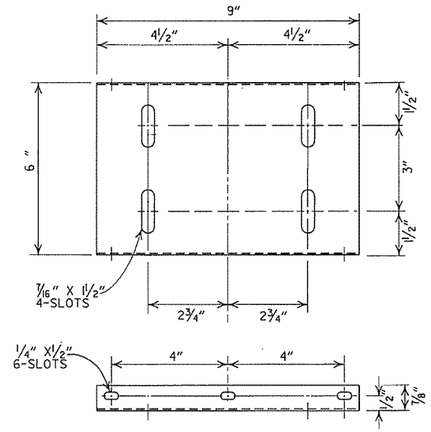
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

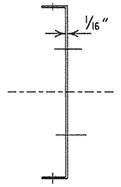


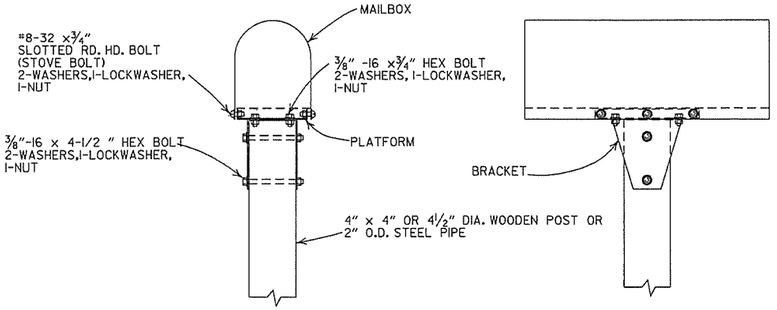
SHELF



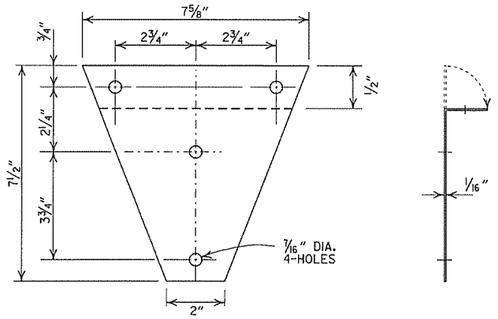


PLATFORM





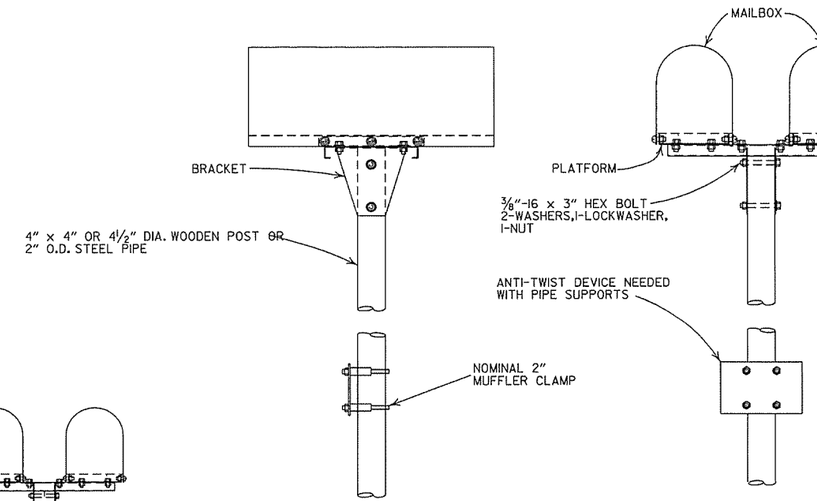
SINGLE INSTALLATION



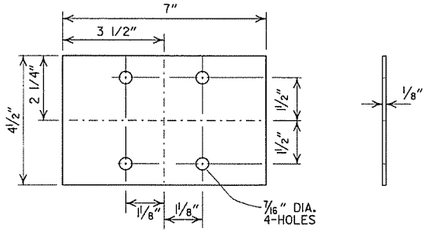
BRACKET

GENERAL NOTES

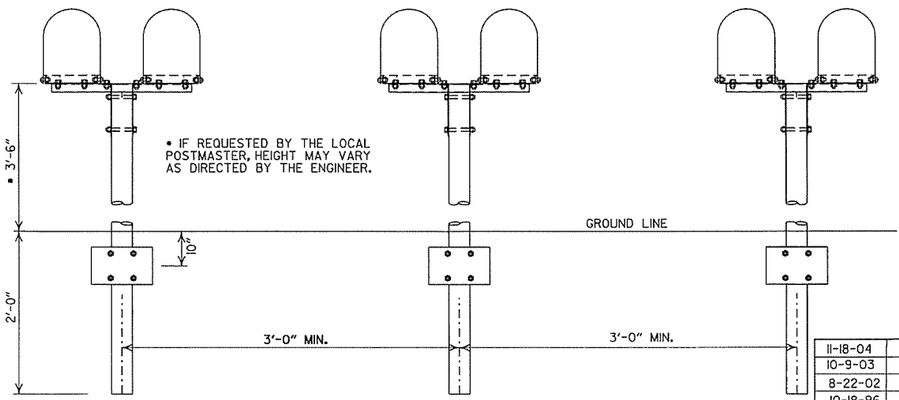
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X ¾" 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.



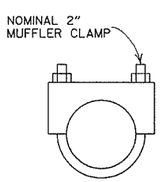
DOUBLE INSTALLATION



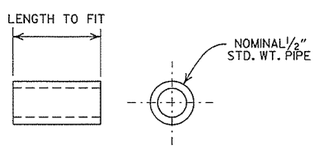
ANTI-TWIST PLATE



SPACING FOR MULTIPLE POST INSTALLATION



CLAMP



SPACER

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

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

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

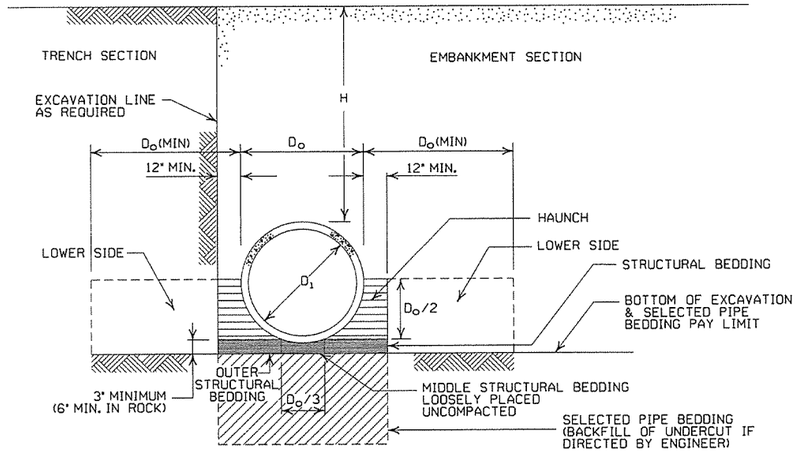
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

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

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

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

CONSTRUCTION SEQUENCE

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

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

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

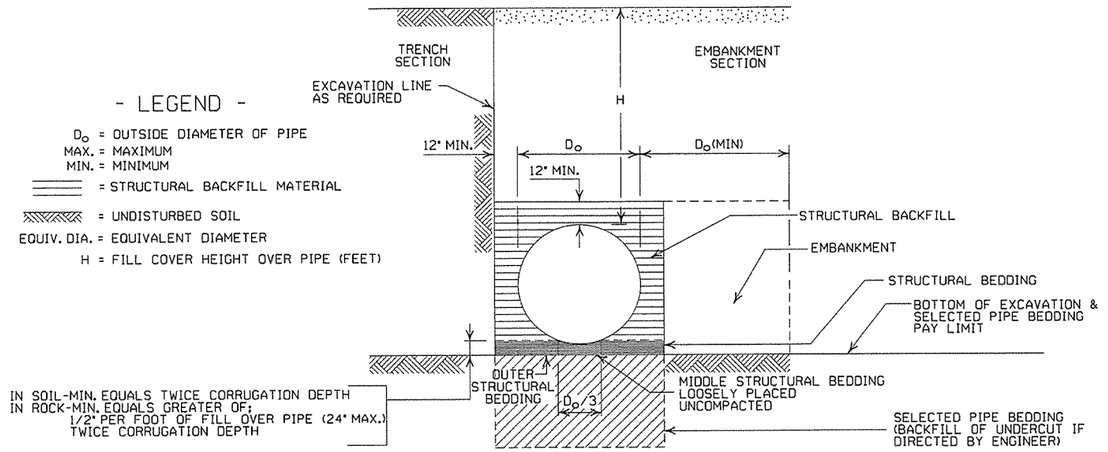
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

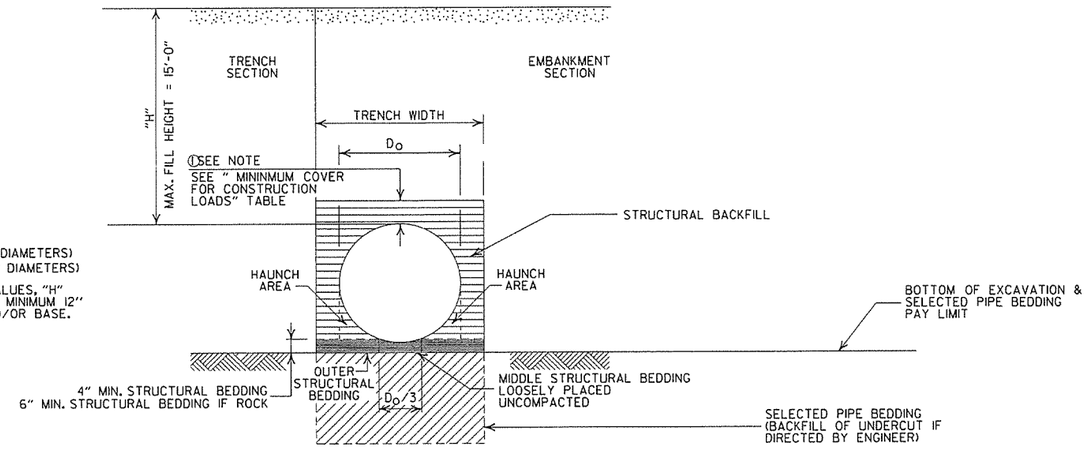
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

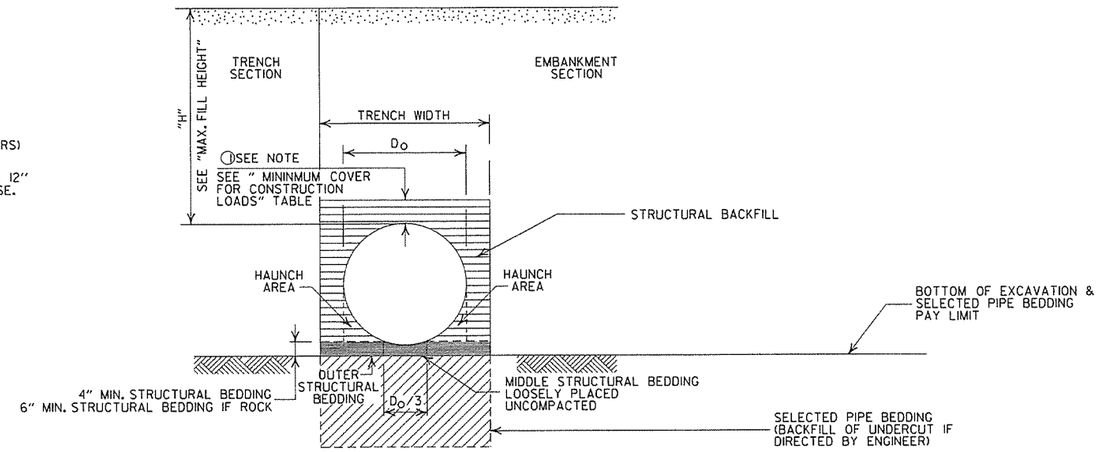
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

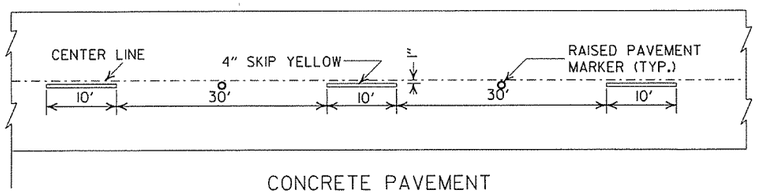
= UNDISTURBED SOIL

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

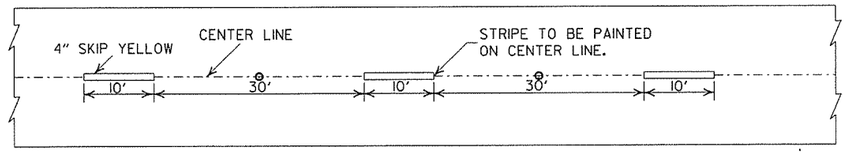
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT
(PVC F949)

STANDARD DRAWING PCP-2

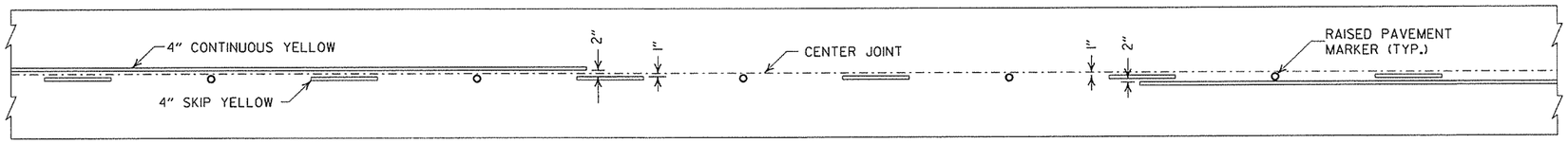


CONCRETE PAVEMENT

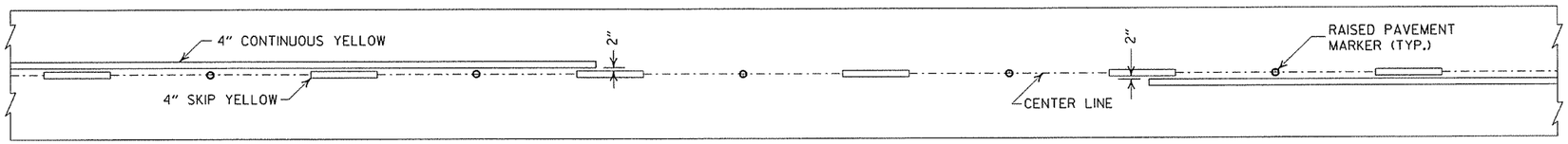


ASPHALT PAVEMENT

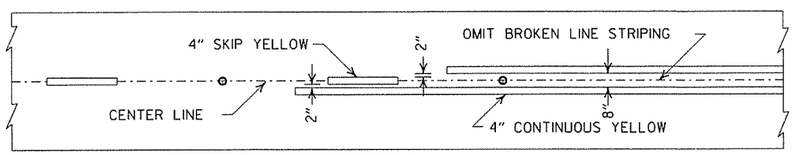
BROKEN LINE STRIPING



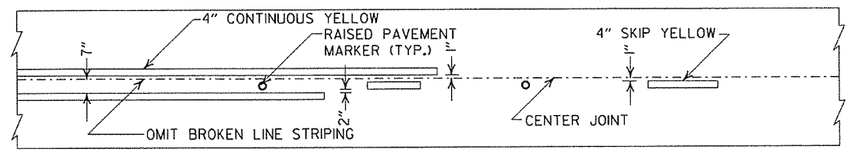
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

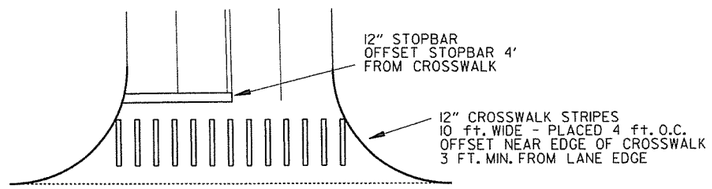


ASPHALT PAVEMENT



CONCRETE PAVEMENT

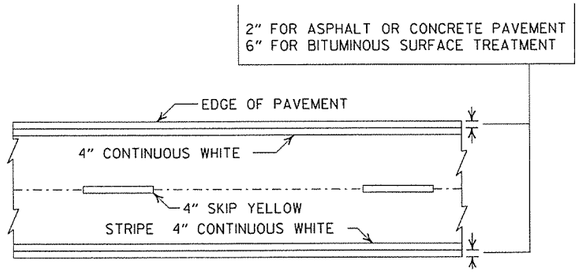
STRIPING AT ADJACENT NO PASSING LANES



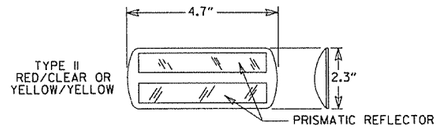
CROSSWALK AND STOPBAR DETAILS

NOTES:

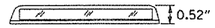
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED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



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

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

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

NOTE:

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

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

ARKANSAS STATE HIGHWAY COMMISSION

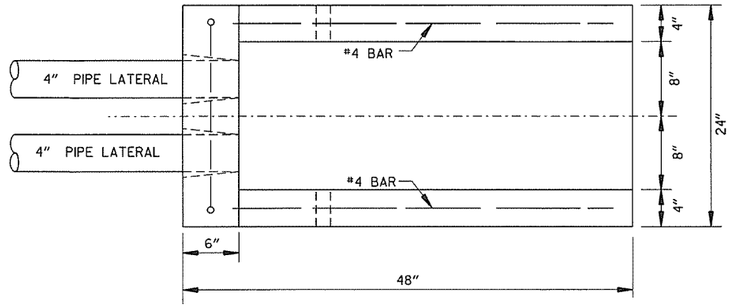
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

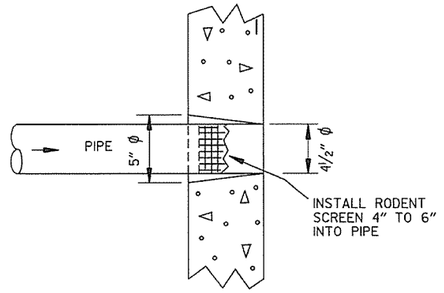
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

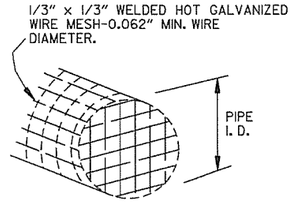
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



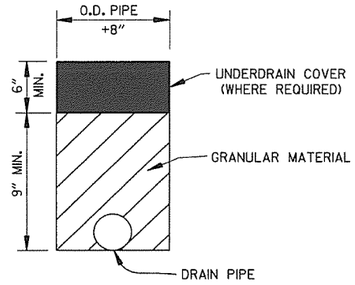
PLAN VIEW

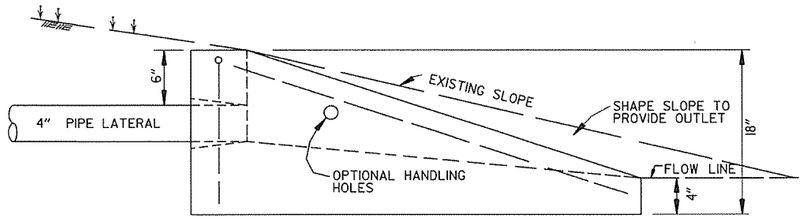


DETAIL OF HOLE FOR 4" PIPE

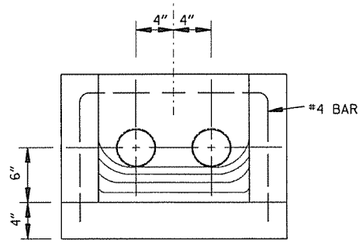


DETAIL OF RODENT SCREEN

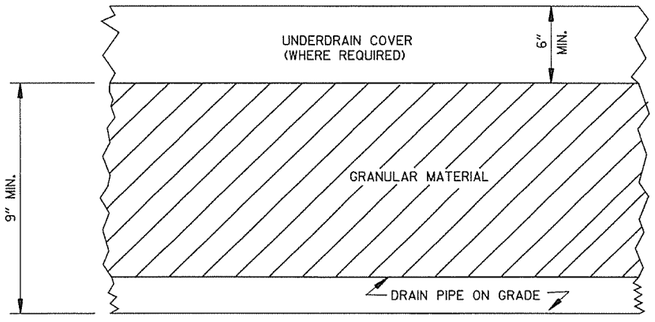




SIDE VIEW

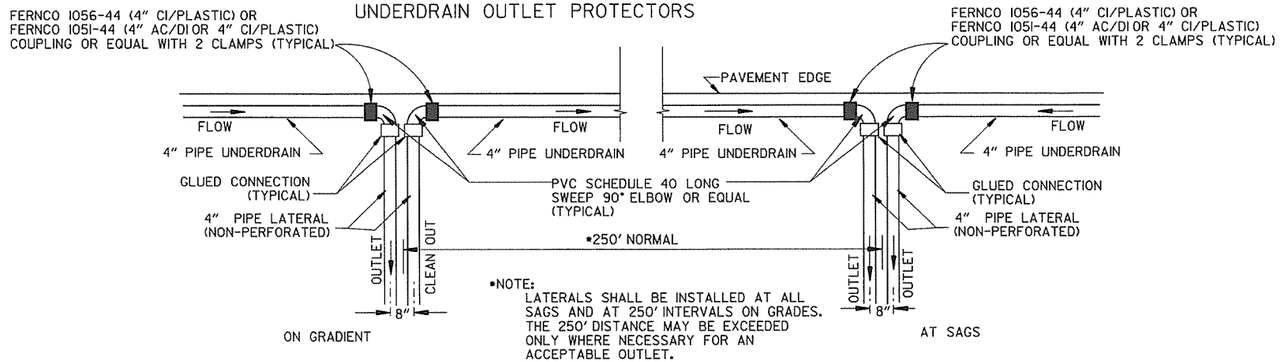


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

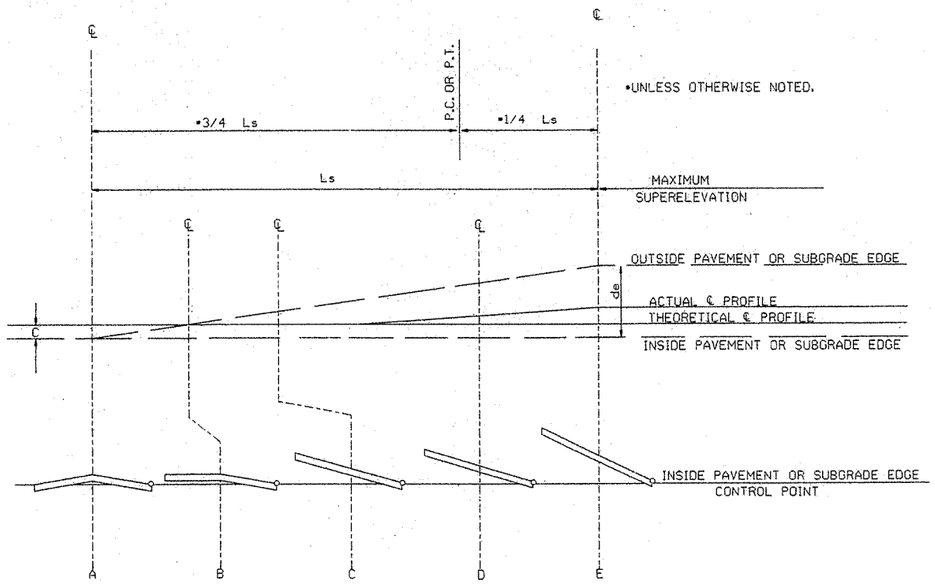
7-20-95 INSTD.PUI

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037	250	300	0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043			0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049			0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025	150		0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350			
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295	350	0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300							
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220	250	0.100	290										
8° 30′	0.061			0.087	225													
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																
	D MAX = 24° 45′			D MAX = 13° 15′			D MAX = 8° 15′			D MAX = 6° 30′			D MAX = 5° 15′			D MAX = 3° 30′		

ABBREVIATIONS

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



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

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

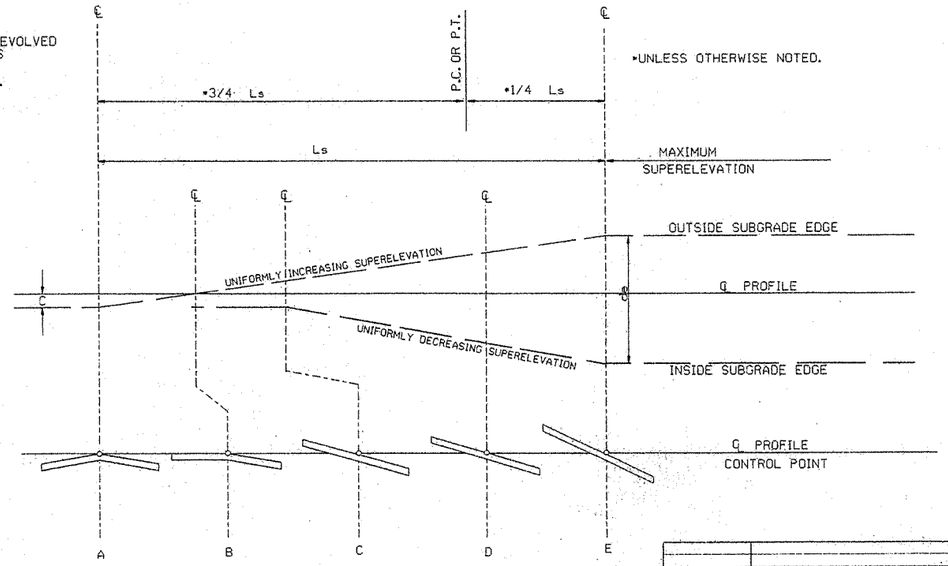
GENERAL NOTES

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

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

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

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

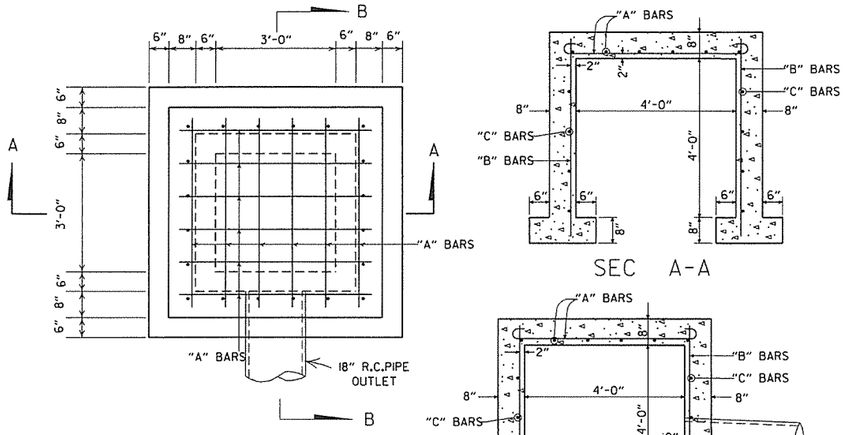
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

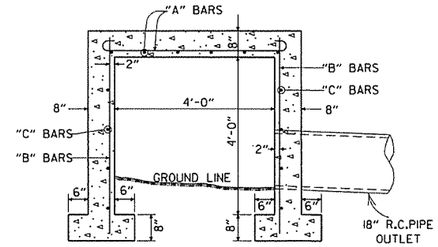
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN



SEC A-A



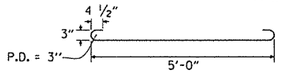
SEC B-B

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

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



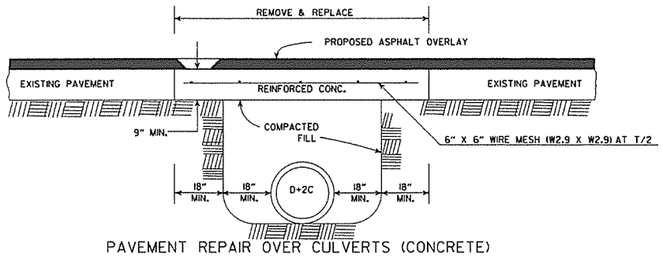
"A" BARS

QUANTITIES

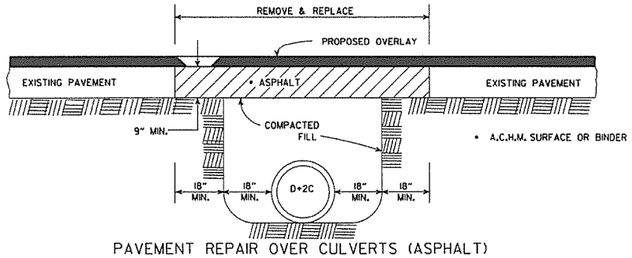
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

GENERAL NOTE:
THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITTIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



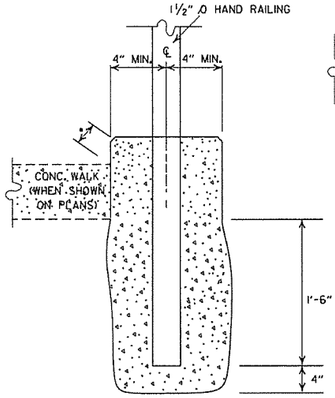
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



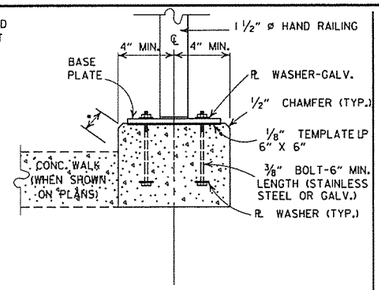
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

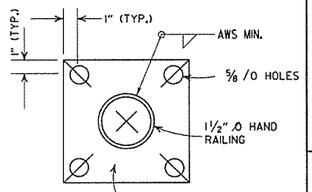
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

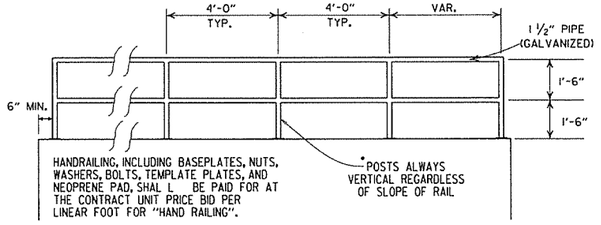


POST CONNECTION TO WALL

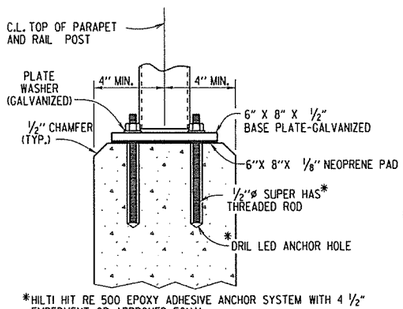


BASE PLATE

POST CONNECTION DETAILS



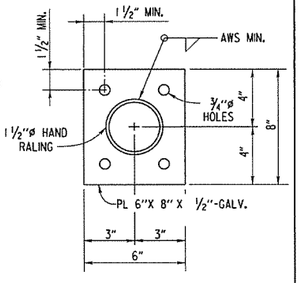
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

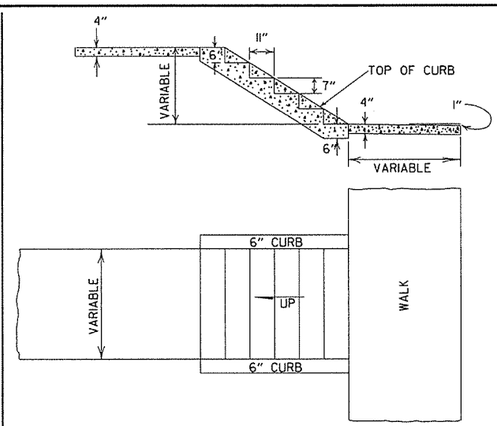
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

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

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-B53
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

RI-1

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

RI-2

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

R2-1

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

R2-5A

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

R2-5C

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

R4-1

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

R4-2

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

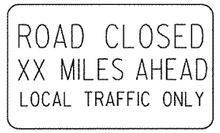
R5-1

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

RII-2

48"X30"

RII-3A



60"X30"

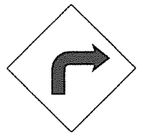
RII-4

60"X30"

RSP-1

48"X30"

WI-1



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

WI-2

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

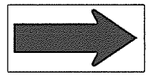
WI-3

STD. 48"X48"

WI-4

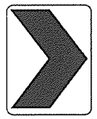
STD. 48"X48"

WI-6



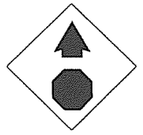
STD. 48"X24"
SPECIAL 60"X30"

WI-8



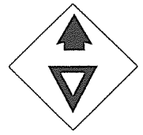
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



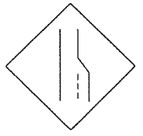
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

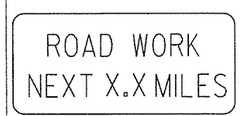
W8-11

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

W8-9

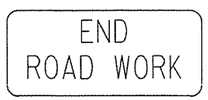
STD. 36"X36"
FWY. 48"X48"

G20-1



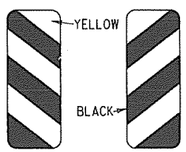
60"X24"

G20-2



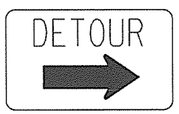
48"X24"

OM-3L OM-3R



12"X36"

M4-9

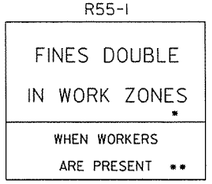


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

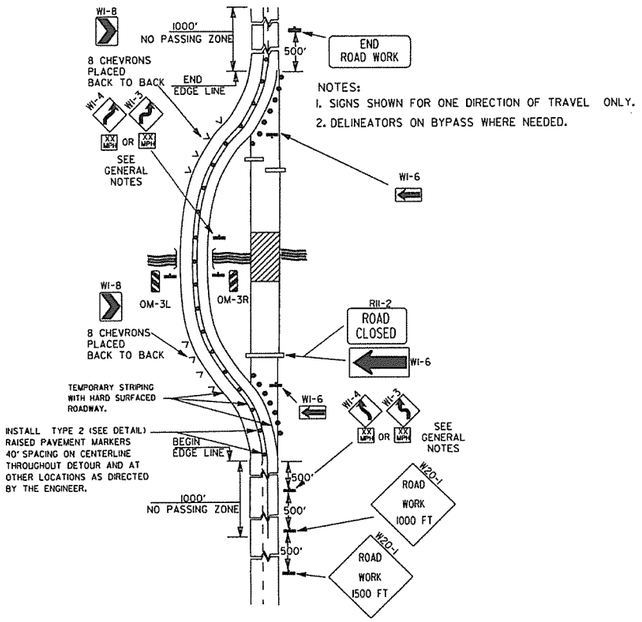
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

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

ARKANSAS STATE HIGHWAY COMMISSION

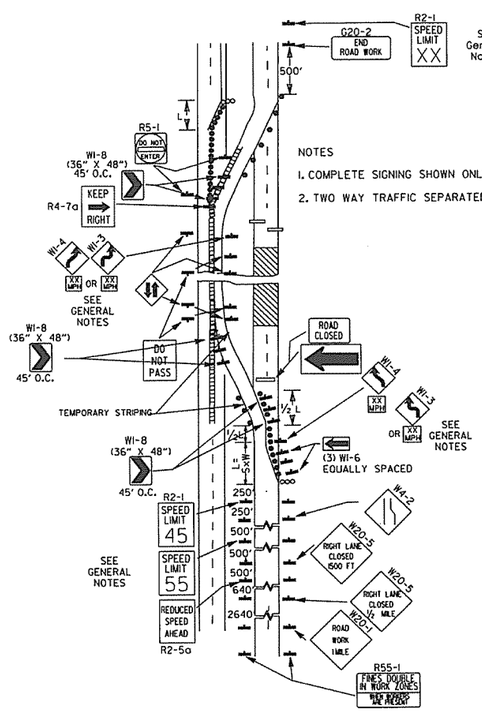
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



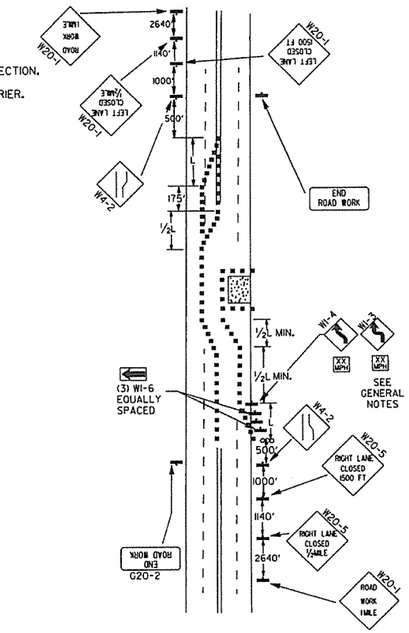
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

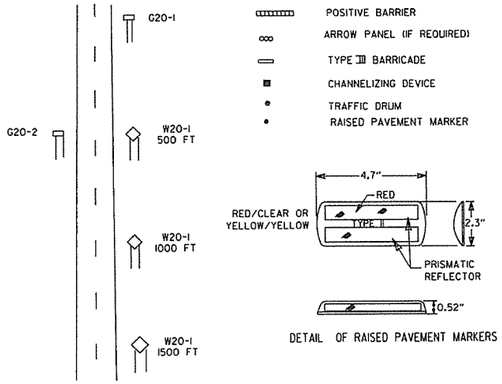


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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

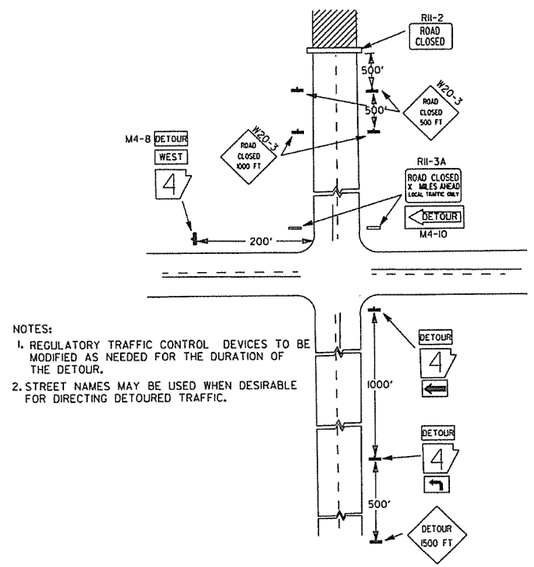


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



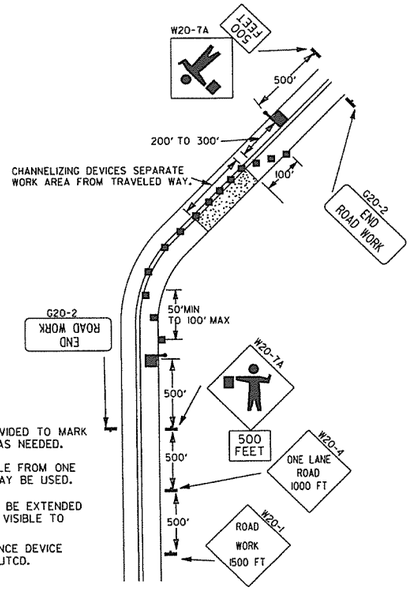
DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT



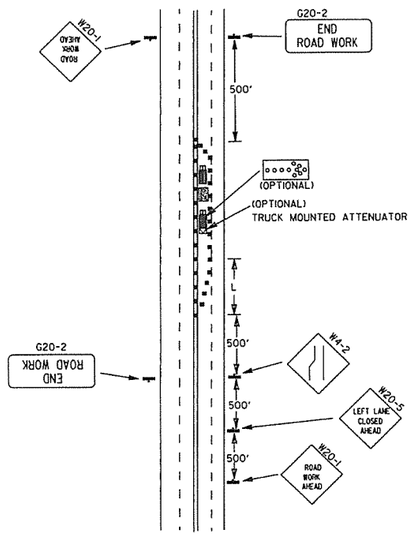
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

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



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

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:

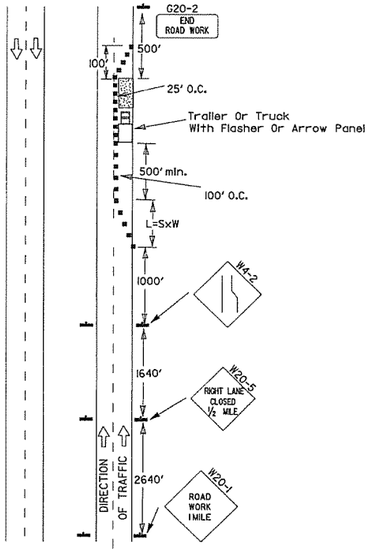
1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED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

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

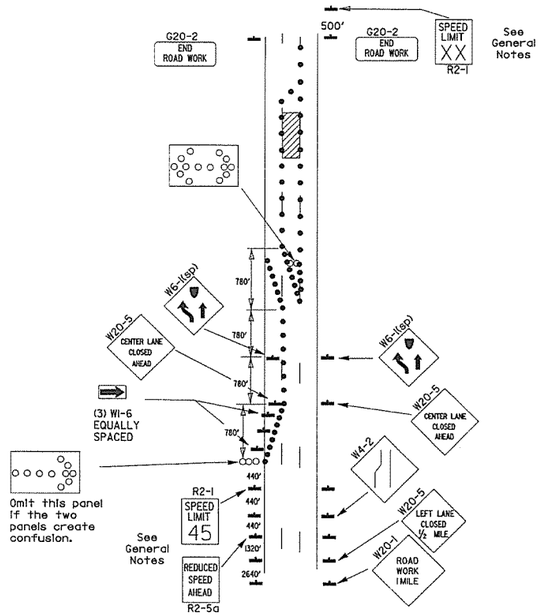
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

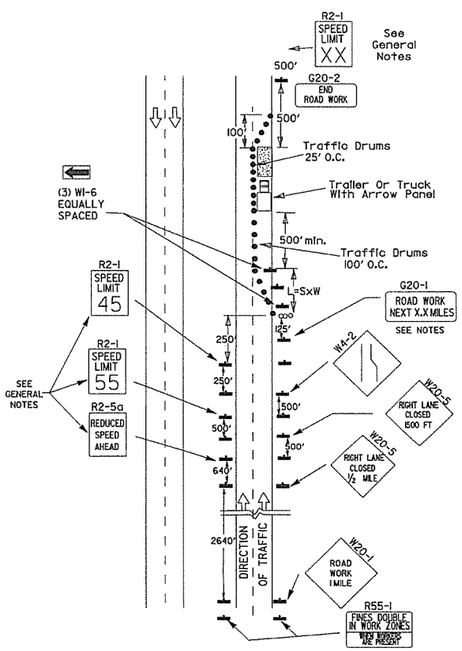
STANDARD DRAWING TC-2



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



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



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

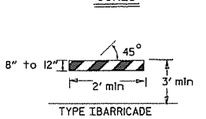
KEY:

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

GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

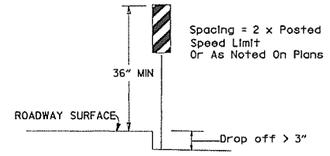
Channelizing devices



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

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

VERTICAL PANEL PLACEMENT



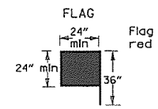
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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

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

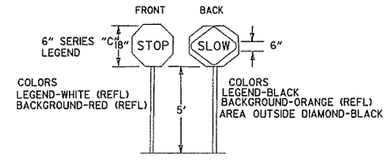
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

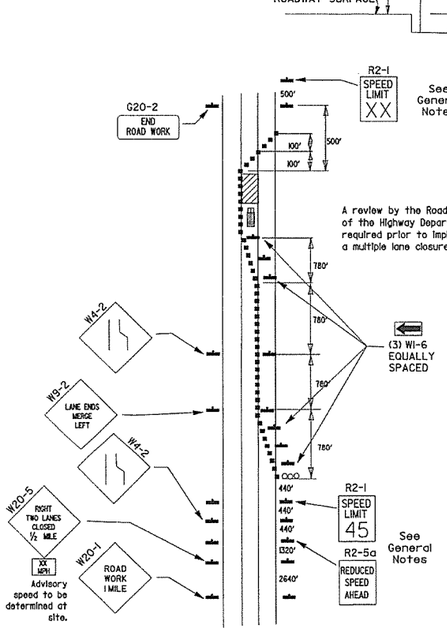
FLAG



Flag shall be of good grade red material

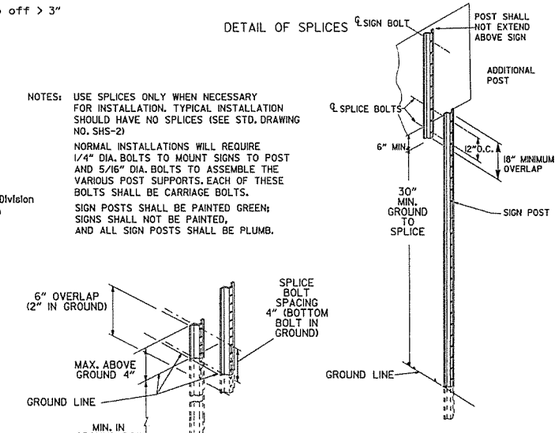
STOP SLOW PADDLE





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

DETAIL OF SPLICES



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

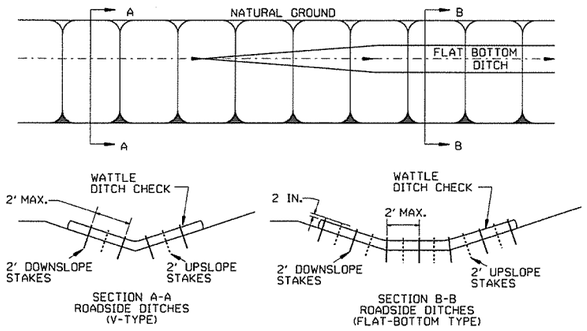
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

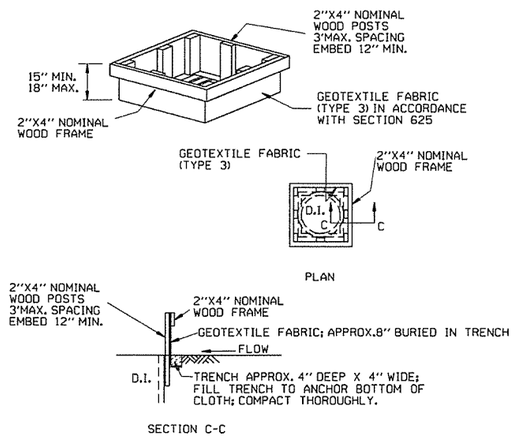
STANDARD DRAWING TC-3

GENERAL NOTES

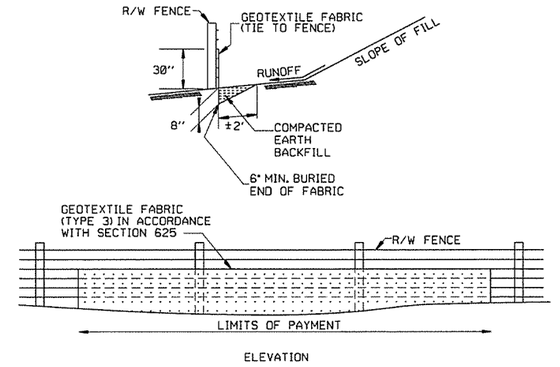
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

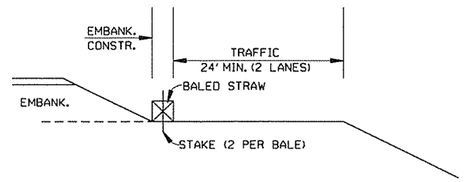
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

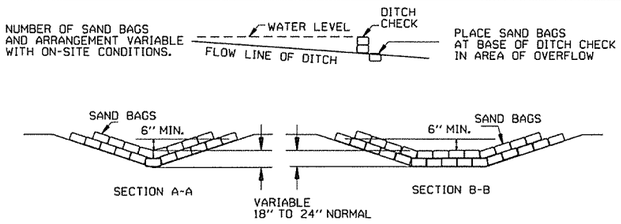
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

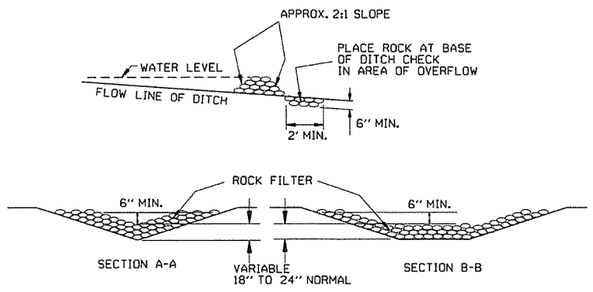
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



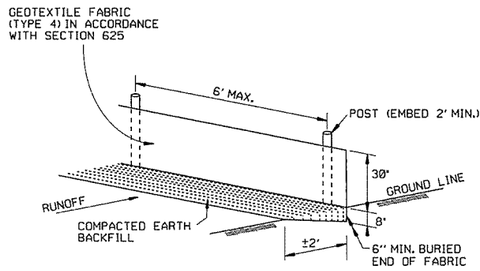
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

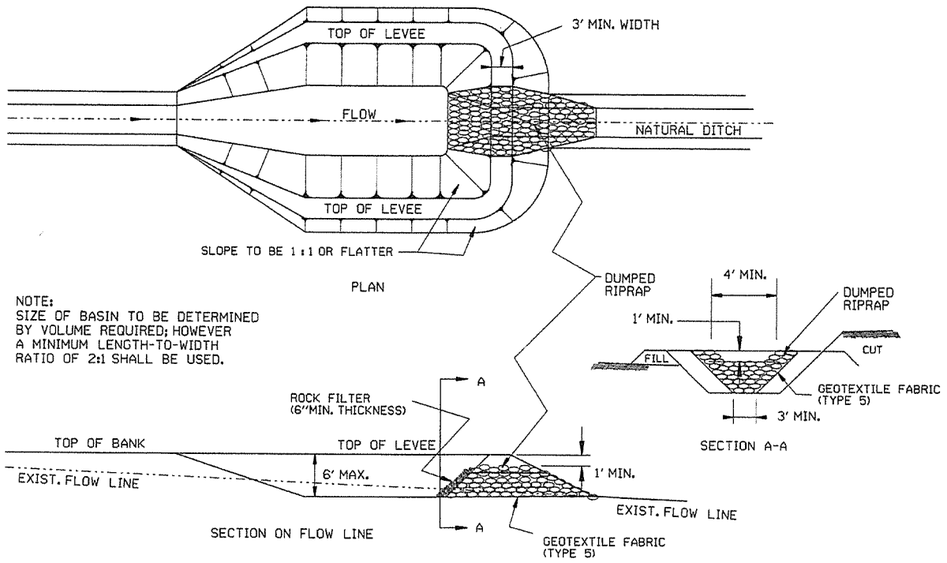
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

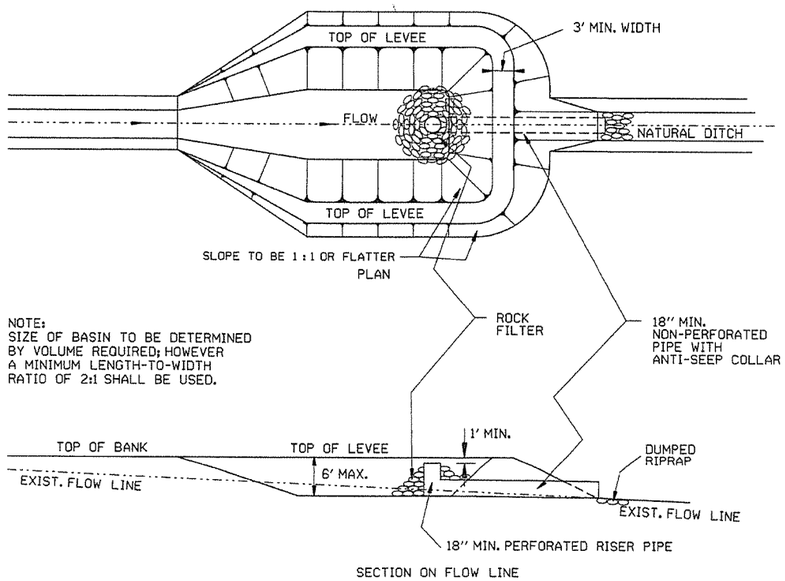
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

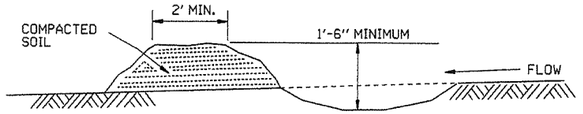
STANDARD DRAWING TEC-1



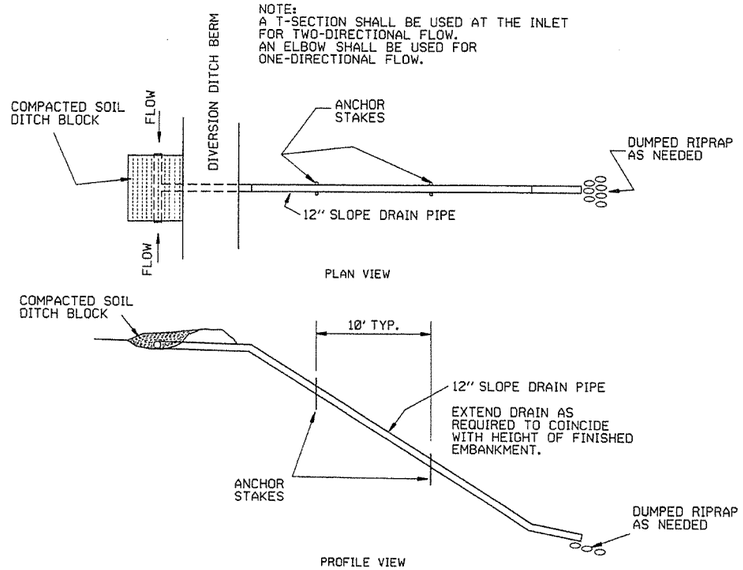
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



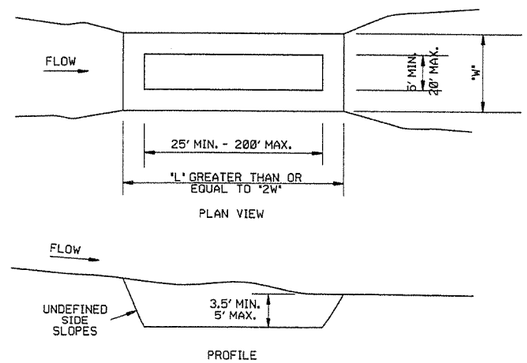
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

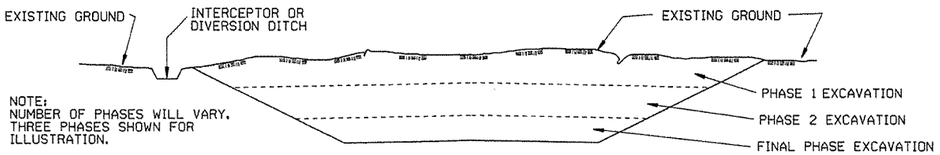
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



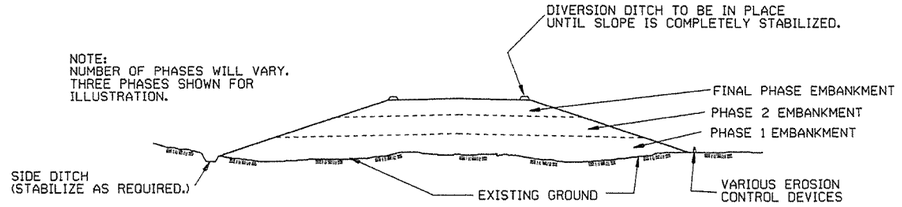
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

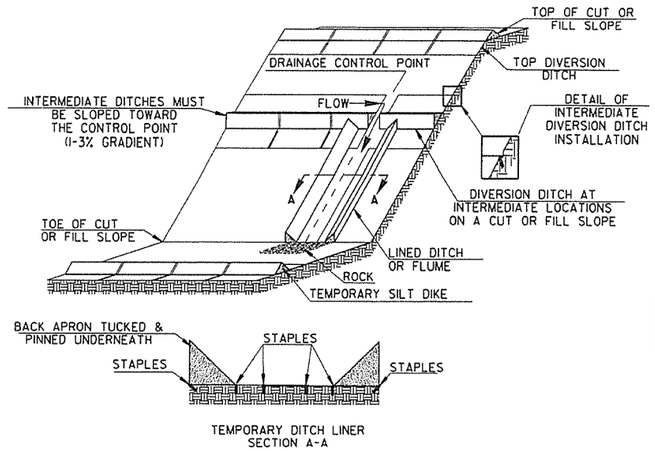
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

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

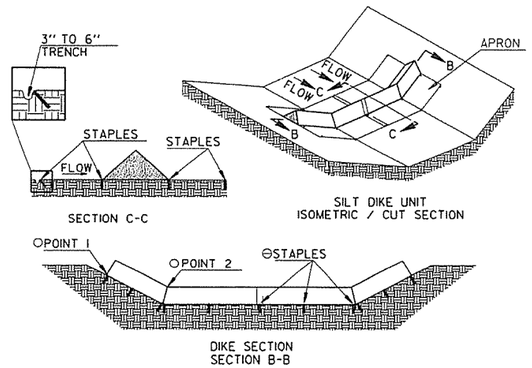
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3



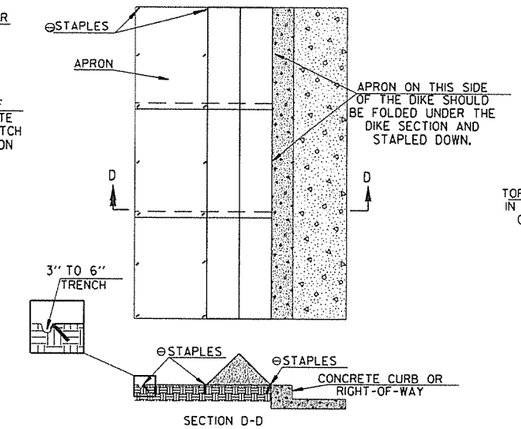
TRIANGULAR SILT DIKE INSTALLATION
FOR
DIVERSION DITCH AND/OR DITCH LINER



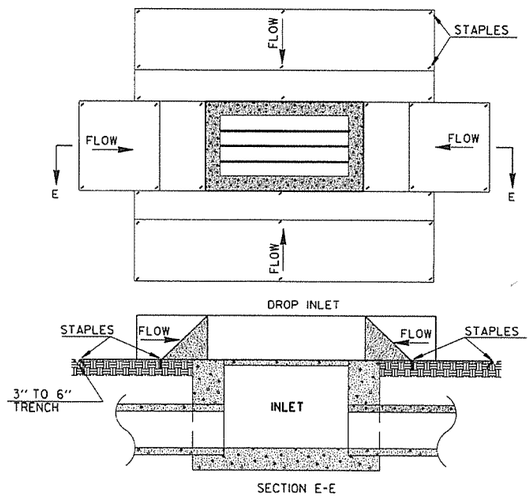
TRIANGULAR SILT DIKE INSTALLATION
FOR
ROADWAY DITCH OR DRAINAGE DITCH

○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

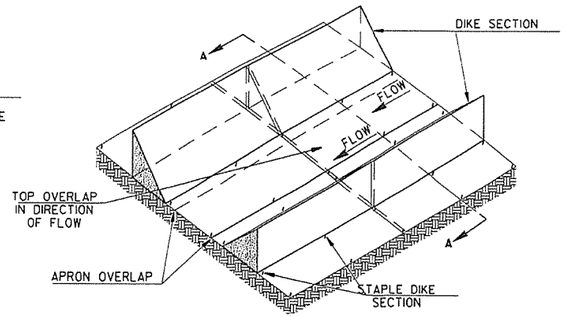
⊖ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION
FOR
CONTINUOUS BARRIER



TRIANGULAR SILT DIKE INSTALLATION
FOR
DROP INLETS



TRIANGULAR SILT DIKE INSTALLATION
FOR
TEMPORARY DITCH LINER

GENERAL NOTES

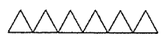
1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.

2. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.

   THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS, THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.

3. ACCEPTED TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.

SYMBOLOGY
SYMBOL TO BE USED TO DENOTE DEVICE ON PLANS



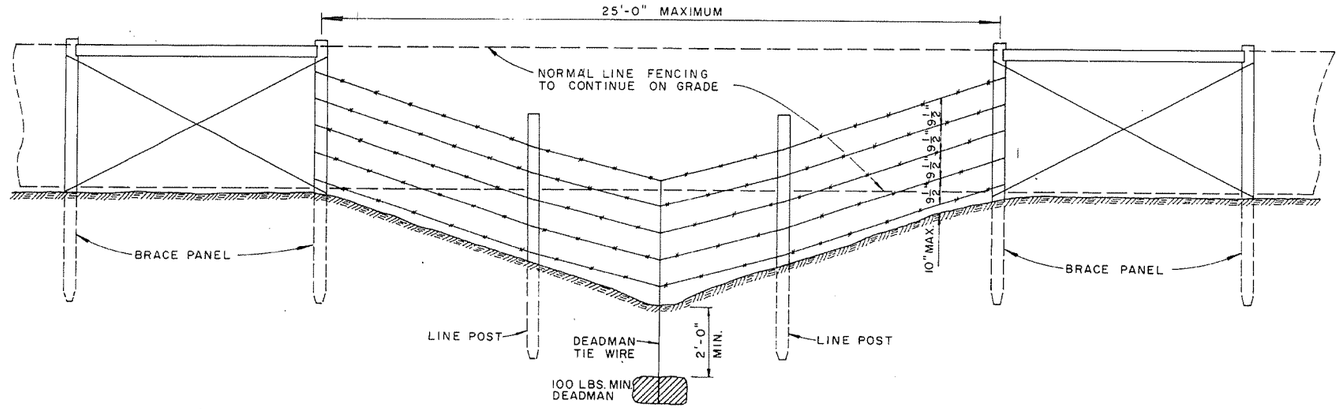
NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

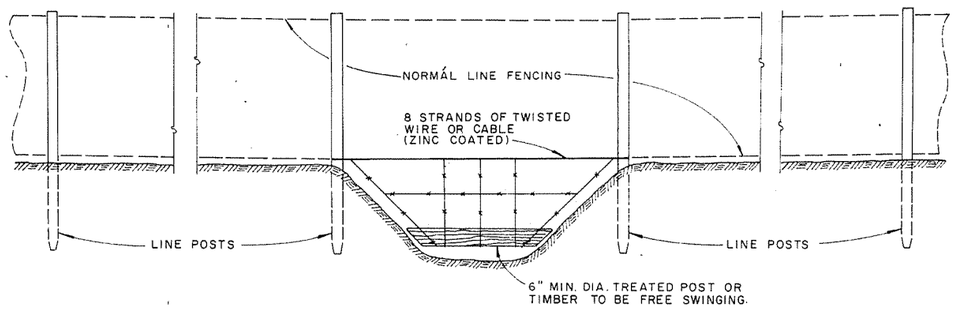
DATE	REVISION	FILMED
7-26-12	REVISED GENERAL NOTE 2.	
12-15-11	ISSUED	

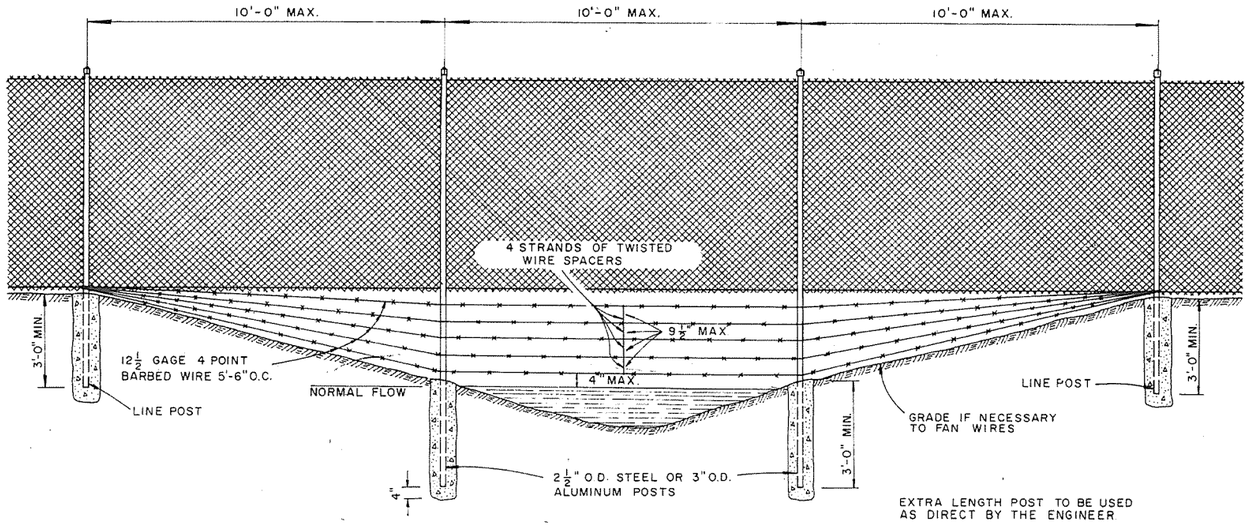
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-4







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	DATE FILM'D.
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

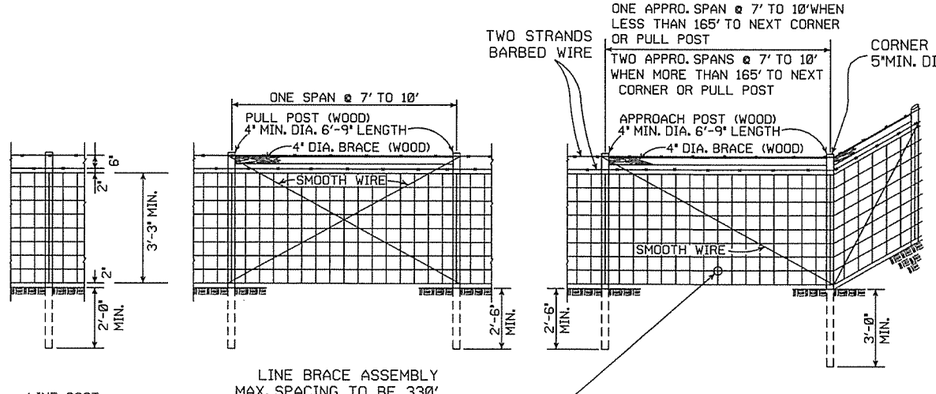
WIRE FENCE WATER GAPS

STANDARD DRAWING

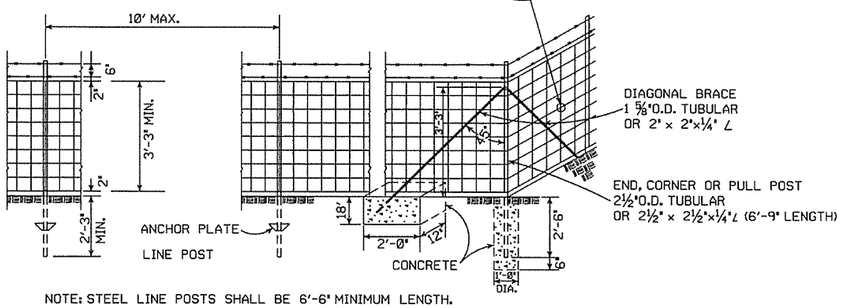
WF-2

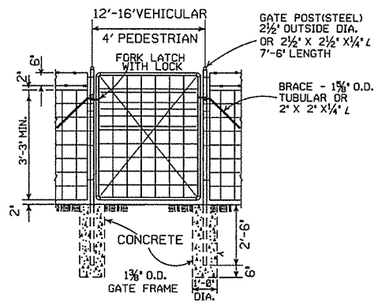
1M—11-71—47100—PPASC

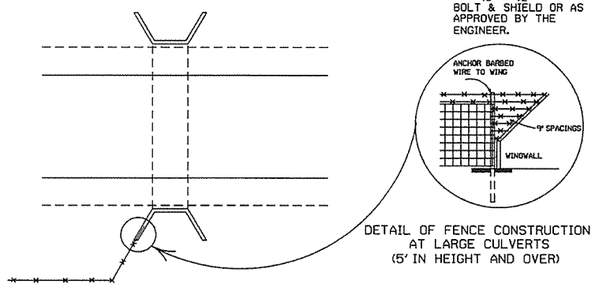
TYPE C FENCE (WOOD POSTS)



OTHER APPROVED TIES WILL BE PERMITTED







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

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

GENERAL NOTES:

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

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

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

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

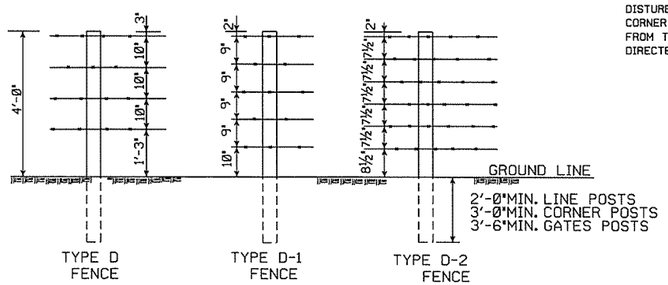
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS:
THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

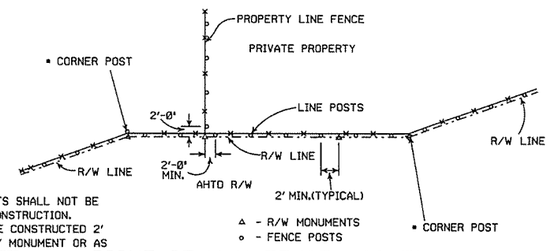
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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

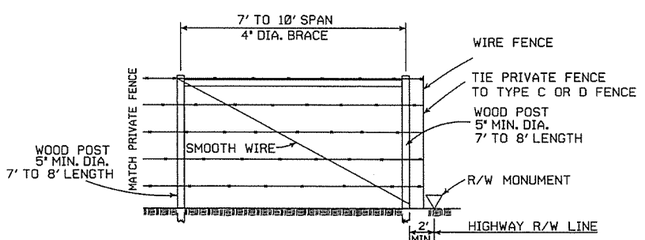


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

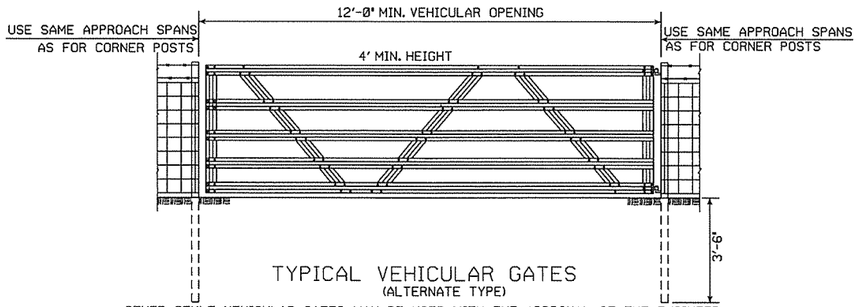


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



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



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

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

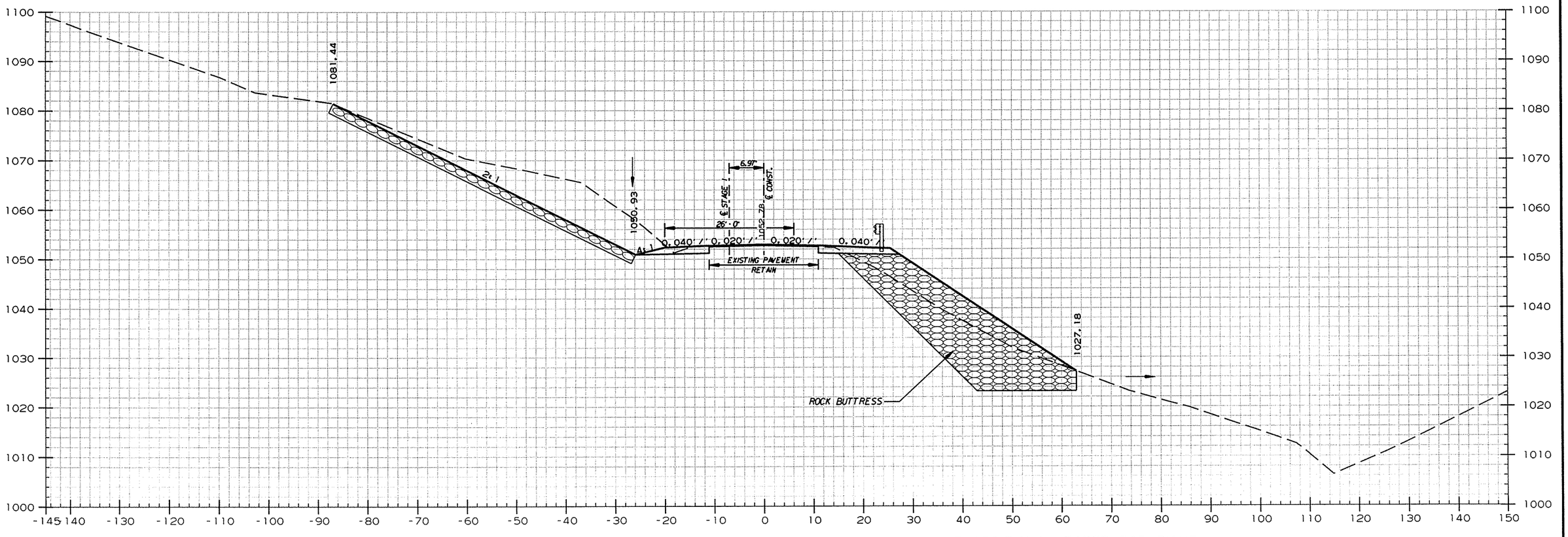
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

STANDARD DRAWING WF-4

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	85	128

(2) CROSS SECTIONS



8+00 - BEGIN JOB 090169 - BEGIN NOTCH & WIDENING SECTION - BEGIN 200' LANE ADDITIONAL TAPER FOR RIGHT PASSING LANE - BEGIN GUARDRAIL ON RIGHT - END 100' CONNECTION TO EXISTING LANES

7+00 - BEGIN 100' CONNECTION TO EXISTING LANES

Area Cut :	780.9 (excavation)	Volume Cut :	0 (excavation)
Area Fill:	0 (embankment)	Volume Fill:	0 (embankment)
Area Cut :	518.0 (rock buttress)	Volume Cut :	0 (rock buttress)
Area Fill:	136.5 (rock fill)	Volume Fill:	0 (rock fill)

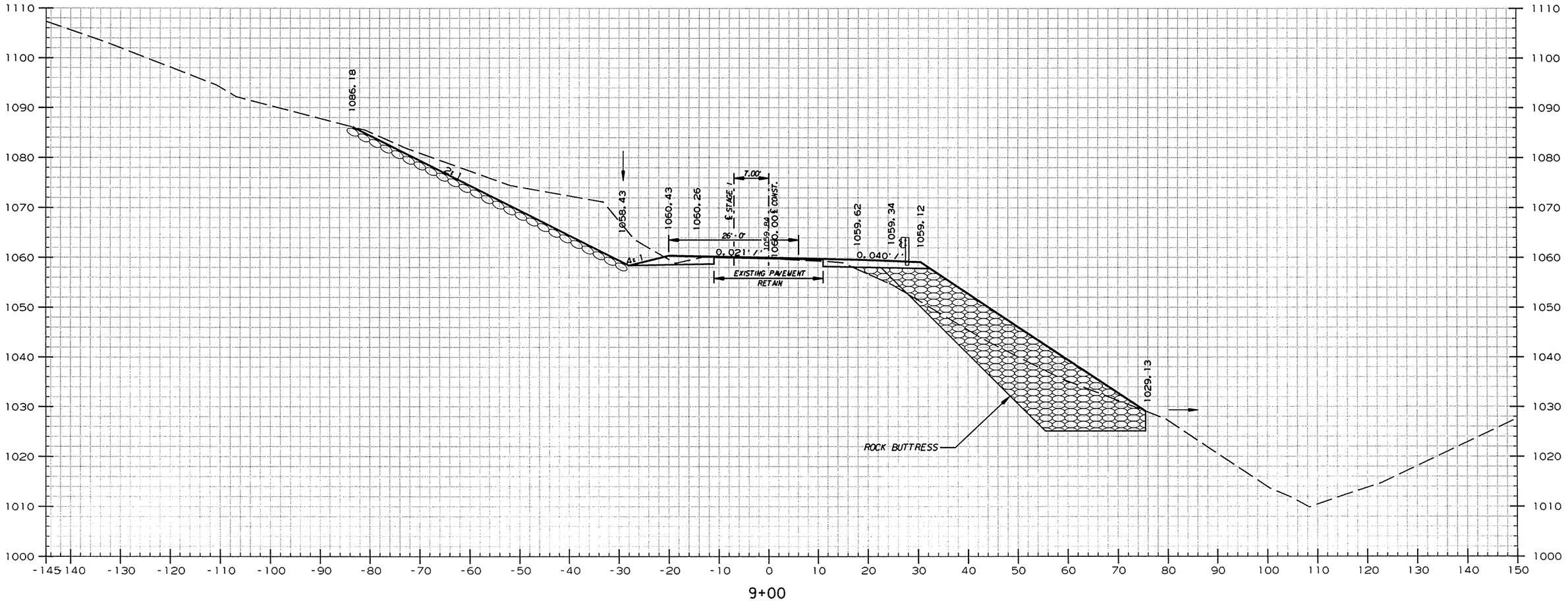
STA. 8+00 TO STA. 8+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	86	128

(2) CROSS SECTIONS



Area Cut. :	720.5 (excavation)	Volume Cut. :	2780.5 (excavation)
Area Fill:	0 (embankment)	Volume Fill:	0 (embankment)
Area Cut. :	584.9 (rock buttress)	Volume Cut. :	2042.5 (rock buttress)
Area Fill:	124.1 (rock fill)	Volume Fill:	482.4 (rock fill)

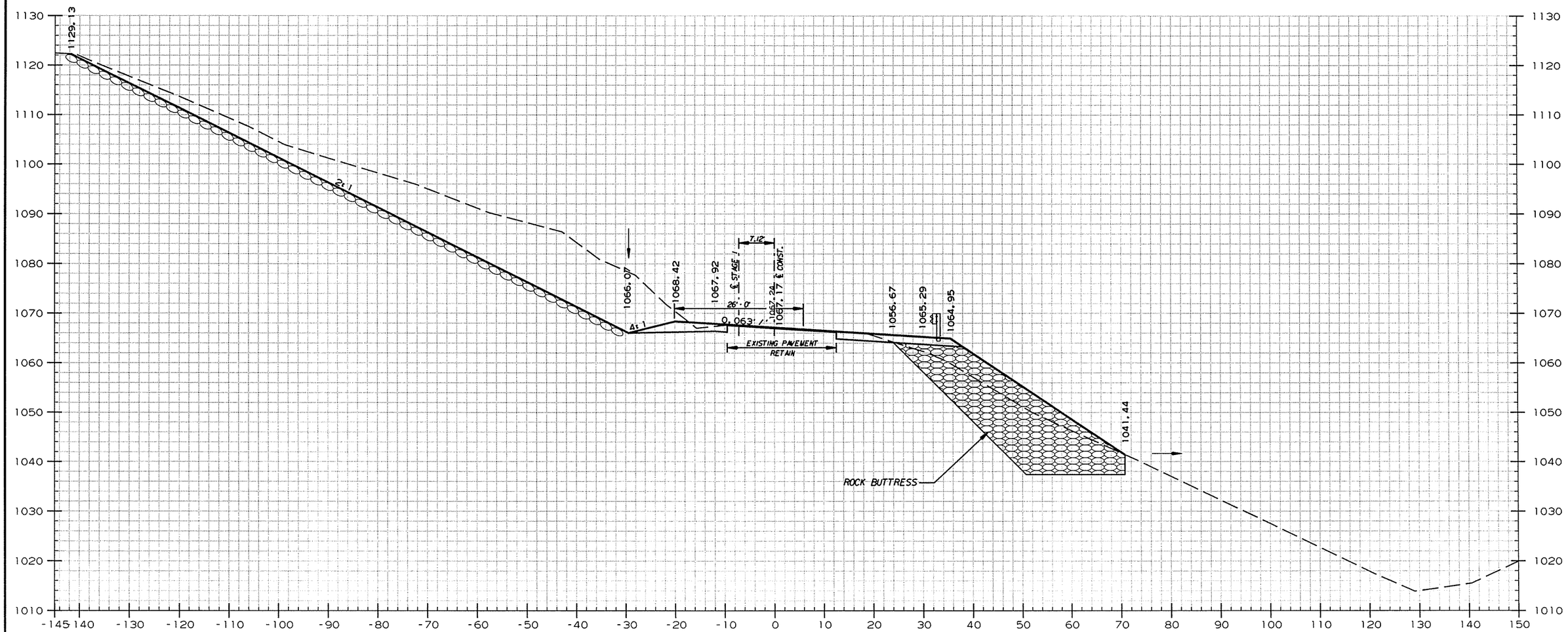
STA. 9+00 TO STA. 9+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	87	128

(2) CROSS SECTIONS



10+00 - END 200' LANE ADDITIONAL TAPER FOR
RIGHT PASSING LANE - BEGIN RIGHT PASSING LANE

Area Cut. : 1454.0 (excavation)
Area Fill: 0 (embankment)
Area Cut. : 498.7 (rock buttress)
Area Fill: 251.4 (rock fill)

Volume Cut. : 4027.0 (excavation)
Volume Fill: 0 (embankment)
Volume Cut. : 2006.7 (rock buttress)
Volume Fill: 695.4 (rock fill)

STA. 10+00 TO STA. 10+00

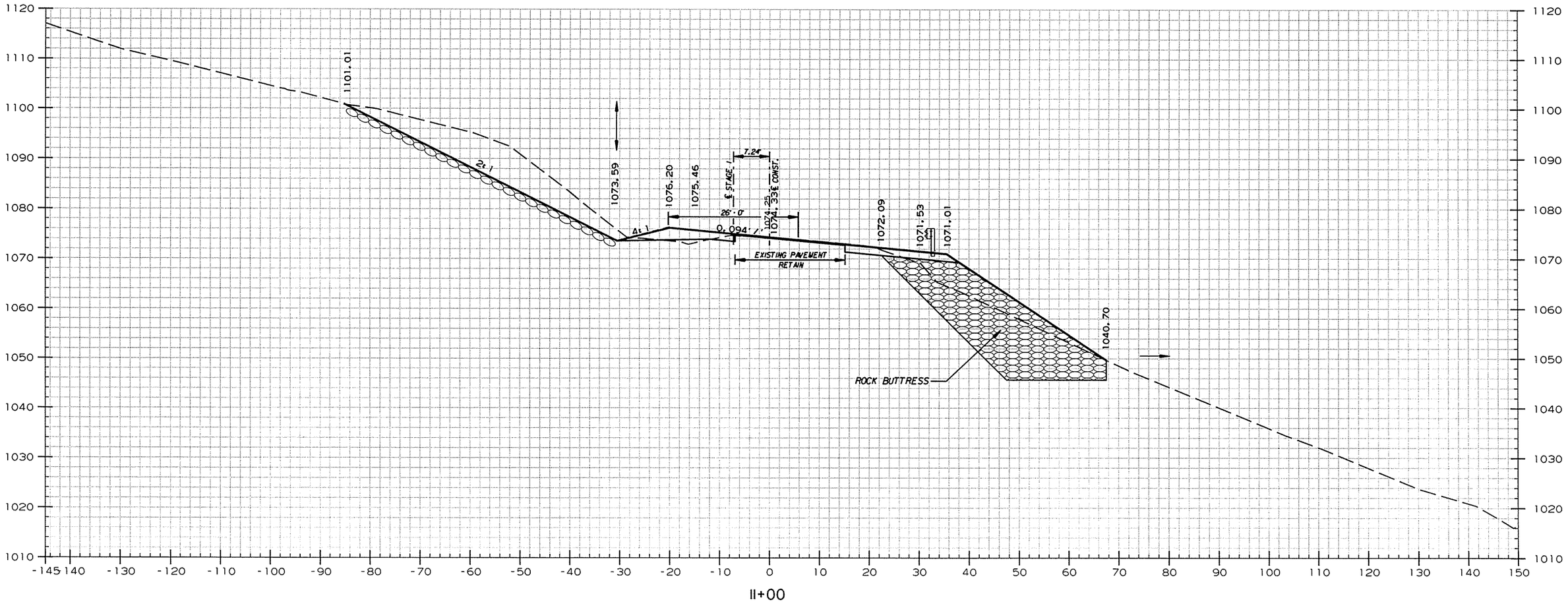
10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090169	88	128

(2) CROSS SECTIONS



Area Cut : 764.8 (excavation)
Area Fill: 4.0 (embankment)
Area Cut : 472.4 (rock buttress)
Area Fill: 122.6 (rock fill)

Volume Cut : 4109.0 (excavation)
Volume Fill: 7.4 (embankment)
Volume Cut : 1798.4 (rock buttress)
Volume Fill: 692.7 (rock fill)

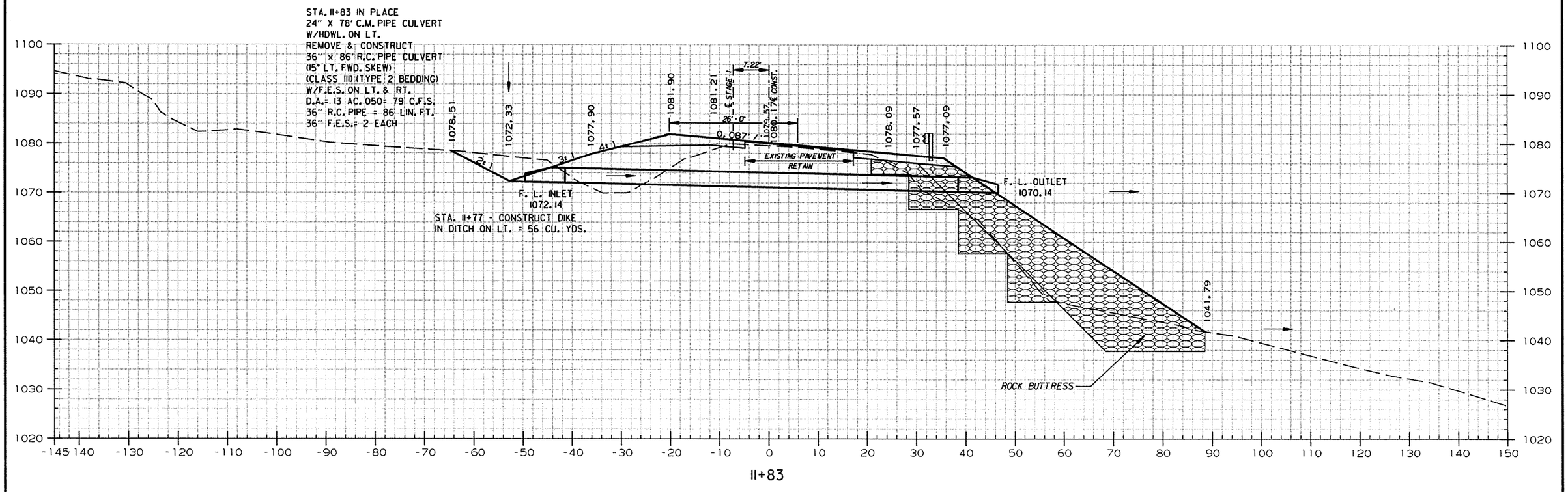
STA. 11+00 TO STA. 11+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	89	128

(2) CROSS SECTIONS



10/28/2014

R090169.CRS

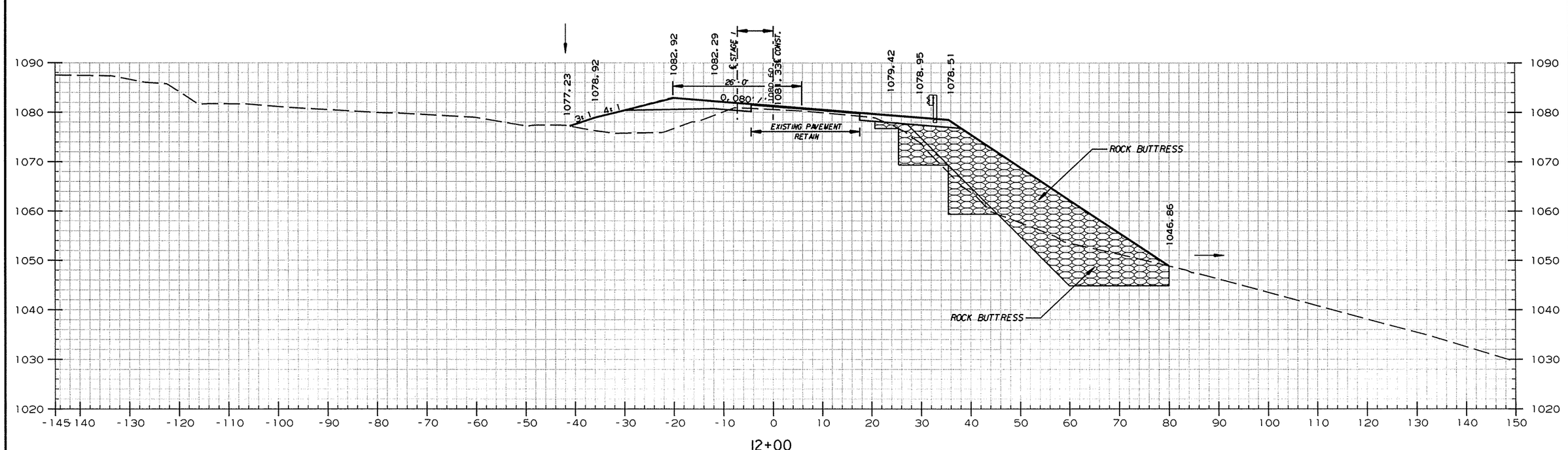
Area Cut. : 365.5 (excavation)
Area Fill: 173.9 (embankment)
Area Cut. : 796.3 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 1737.3 (excavation)
Volume Fill: 273.5 (embankment)
Volume Cut. : 1949.9 (rock buttress)
Volume Fill: 188.5 (rock fill)

STA. 11+83 TO STA. 11+83

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	90	128

(2) CROSS SECTIONS



Area Cut. : 275.4 (excavation)
Area Fill: 98.0 (embankment)
Area Cut. : 672.5 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 201.8 (excavation)
Volume Fill: 85.6 (embankment)
Volume Cut. : 462.4 (rock buttress)
Volume Fill: 0.0 (rock fill)

STA. 12+00 TO STA. 12+00

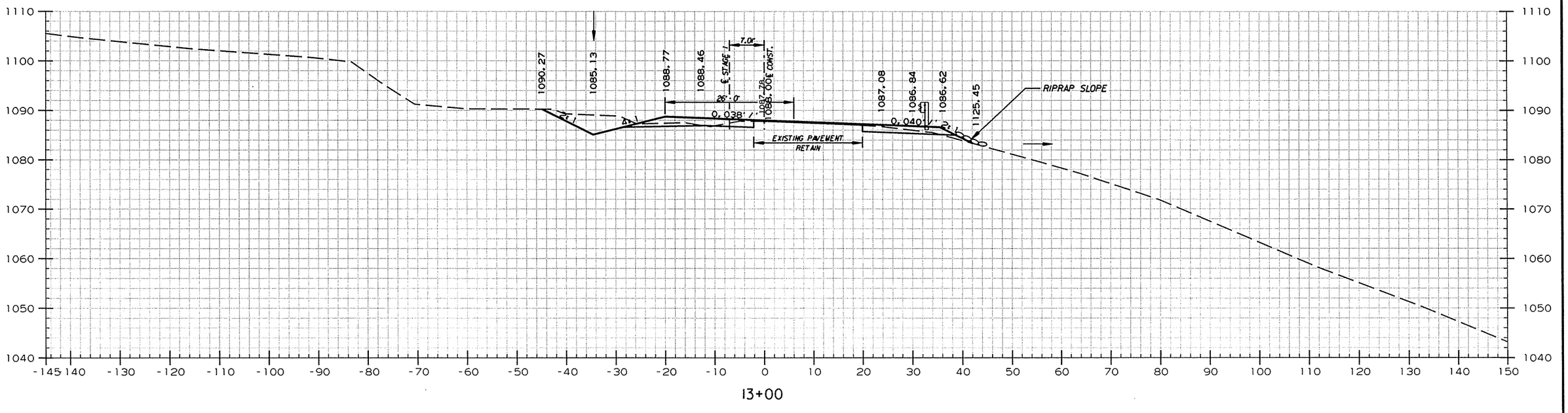
10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	91	128

(2) CROSS SECTIONS

13+25 - END GUARDRAIL ON RIGHT



Area Cut : 67.1 (excavation)
Area Fill: 2.7 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 634.3 (excavation)
Volume Fill: 186.5 (embankment)
Volume Cut : 1245.3 (rock buttress)
Volume Fill: 0.0 (rock fill)

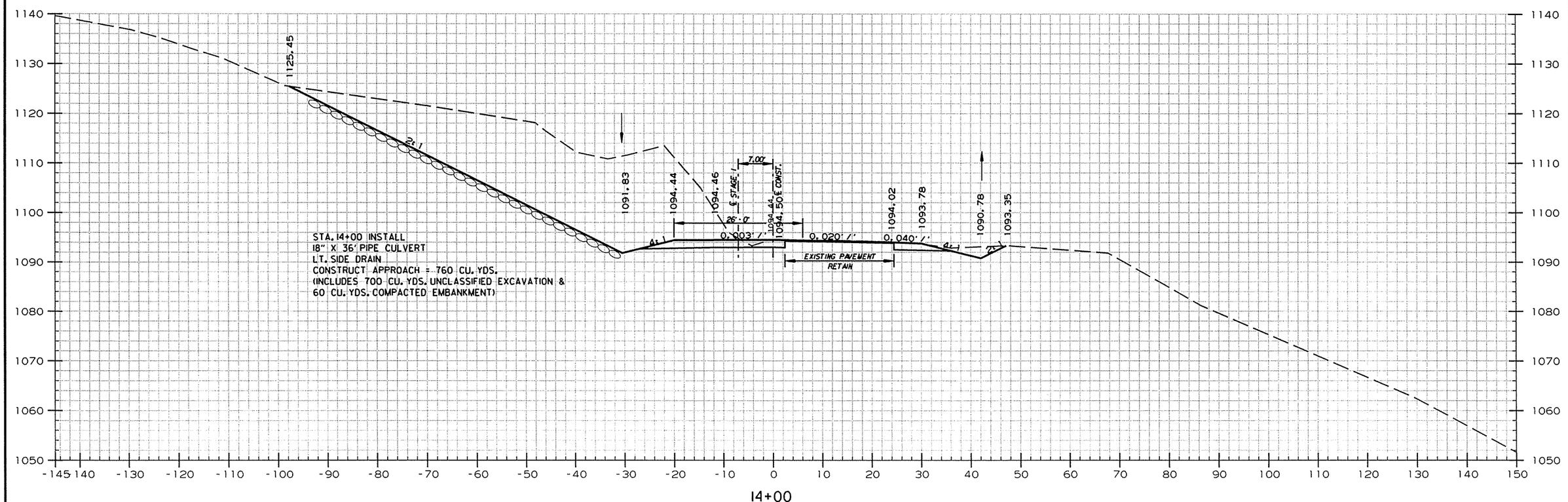
STA.13+00 TO STA.13+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	92	128

(2) CROSS SECTIONS



Area Cut. : 1090.3 (excavation)
Area Fill: 0 (embankment)
Area Cut. : 0 (rock buttress)
Area Fill: 142.2 (rock fill)

Volume Cut. : 2143.0 (excavation)
Volume Fill: 5.0 (embankment)
Volume Cut. : 0 (rock buttress)
Volume Fill: 263.3 (rock fill)

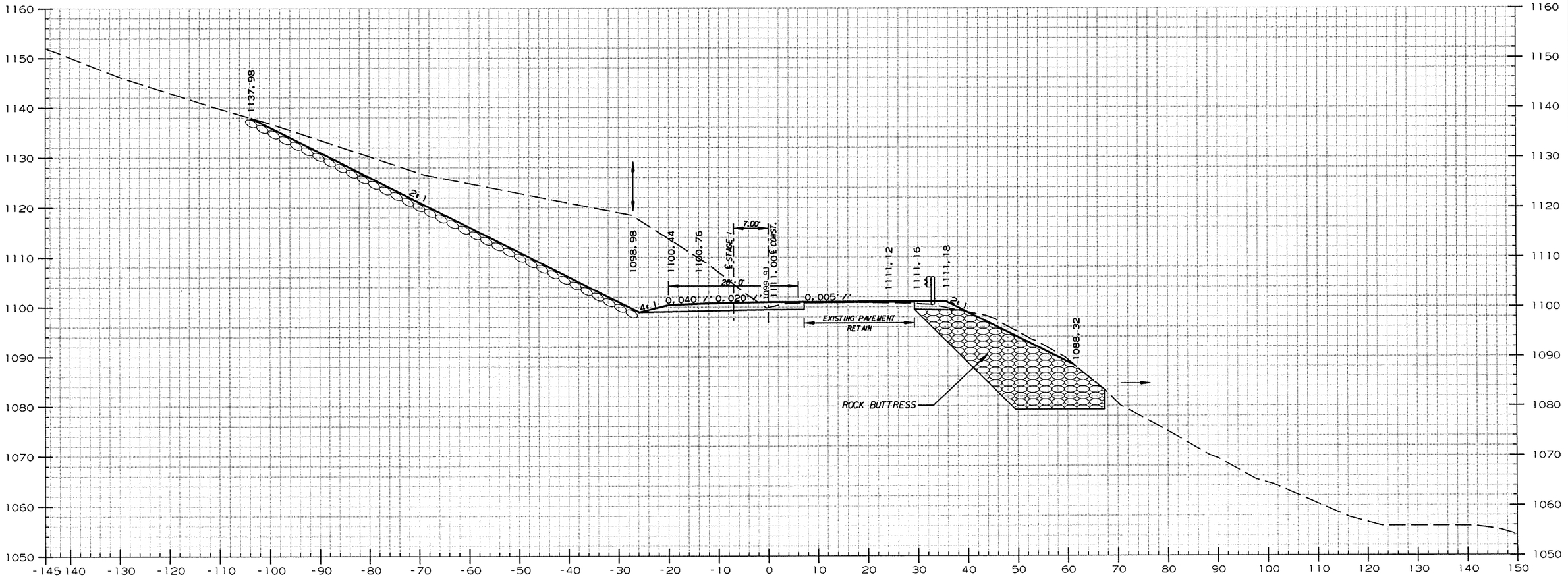
STA. 14+00 TO STA. 14+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	93	128

(2) CROSS SECTIONS



15+00 - END NOTCH & WIDENING SECTION -
BEGIN FULL DEPTH SECTION - BEGIN GUARDRAIL ON RIGHT

Area Cut :	1468.2 (excavation)	Volume Cut :	4737.9 (excavation)
Area Fill:	0 (embankment)	Volume Fill:	0 (embankment)
Area Cut :	354.1 (rock buttress)	Volume Cut :	655.7 (rock buttress)
Area Fill:	174.4 (rock fill)	Volume Fill:	586.3 (rock fill)

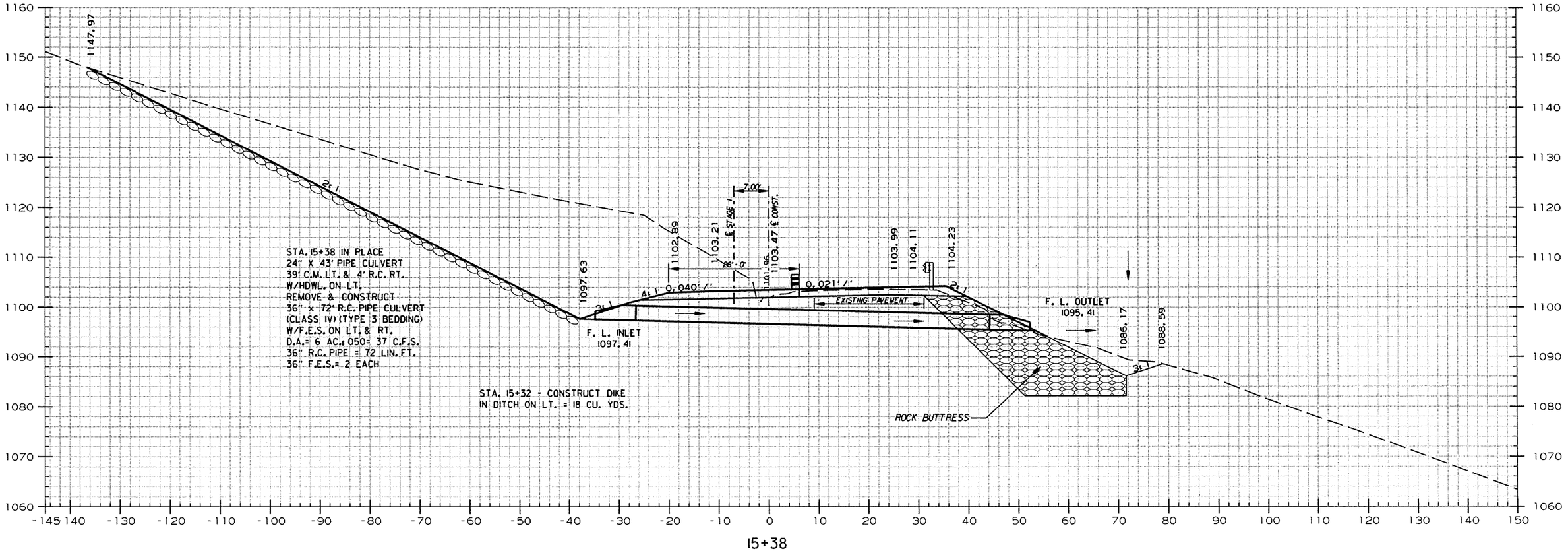
STA. 15+00 TO STA. 15+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	94	128

(2) CROSS SECTIONS



Area Cut : 2141.2 (excavation)
Area Fill: 1.0 (embankment)
Area Cut : 352.1 (rock buttress)
Area Fill: 221.5 (rock fill)

Volume Cut : 2539.9 (excavation)
Volume Fill: 1.0 (embankment)
Volume Cut : 497.0 (rock buttress)
Volume Fill: 278.6 (rock fill)

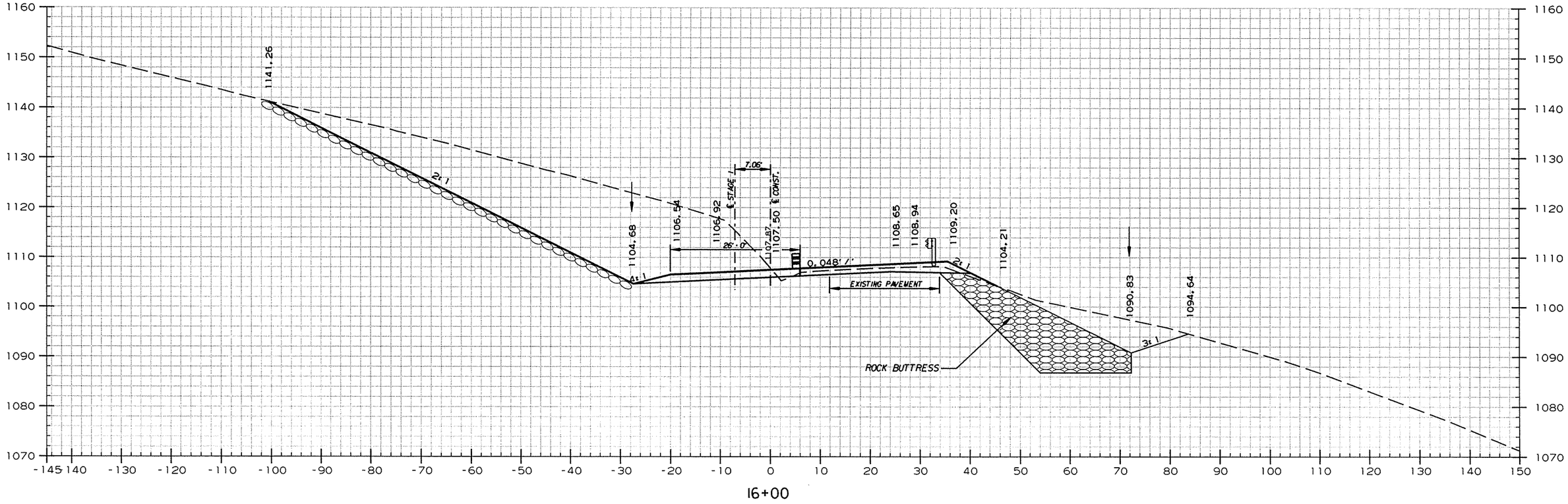
STA. 15+38 TO STA. 15+38

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	95	128

(2) CROSS SECTIONS



Area Cut : 1647.8 (excavation)
Area Fill: 1.2 (embankment)
Area Cut : 307.1 (rock buttress)
Area Fill: 163.6 (rock fill)

Volume Cut : 4350.3 (excavation)
Volume Fill: 2.5 (embankment)
Volume Cut : 756.8 (rock buttress)
Volume Fill: 442.2 (rock fill)

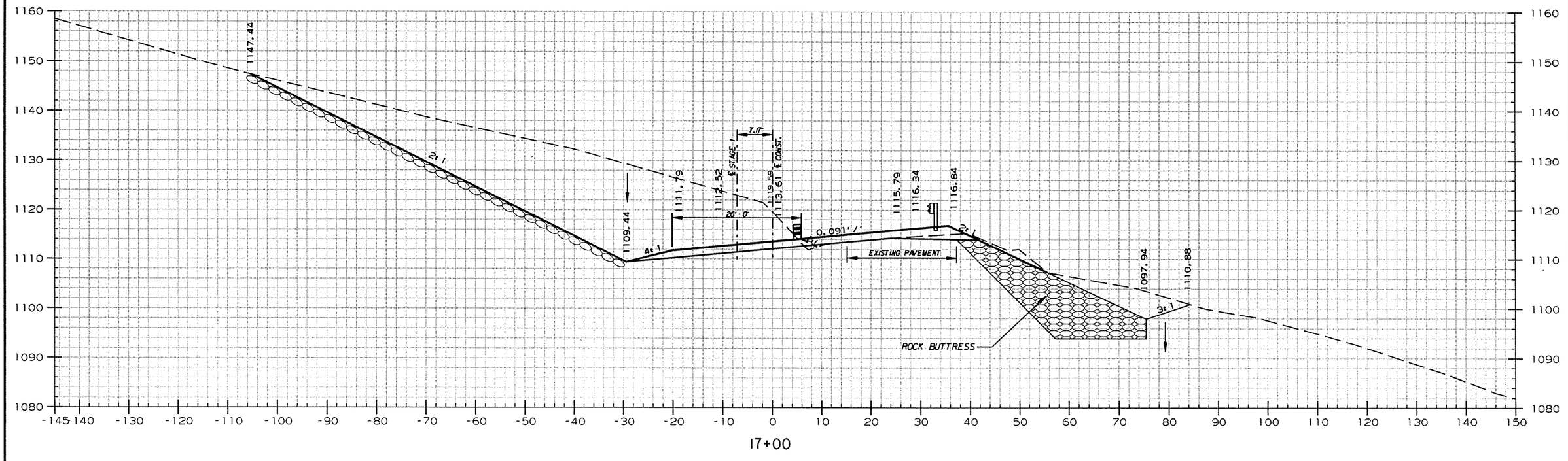
STA. 16+00 TO STA. 16+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	96	128

(2) CROSS SECTIONS



Area Cut. : 1772.5 (excavation)
Area Fill: 2.2 (embankment)
Area Cut. : 292.9 (rock buttress)
Area Fill: 170.0 (rock fill)

Volume Cut. : 6334.0 (excavation)
Volume Fill: 6.3 (embankment)
Volume Cut. : 1111.0 (rock buttress)
Volume Fill: 617.7 (rock fill)

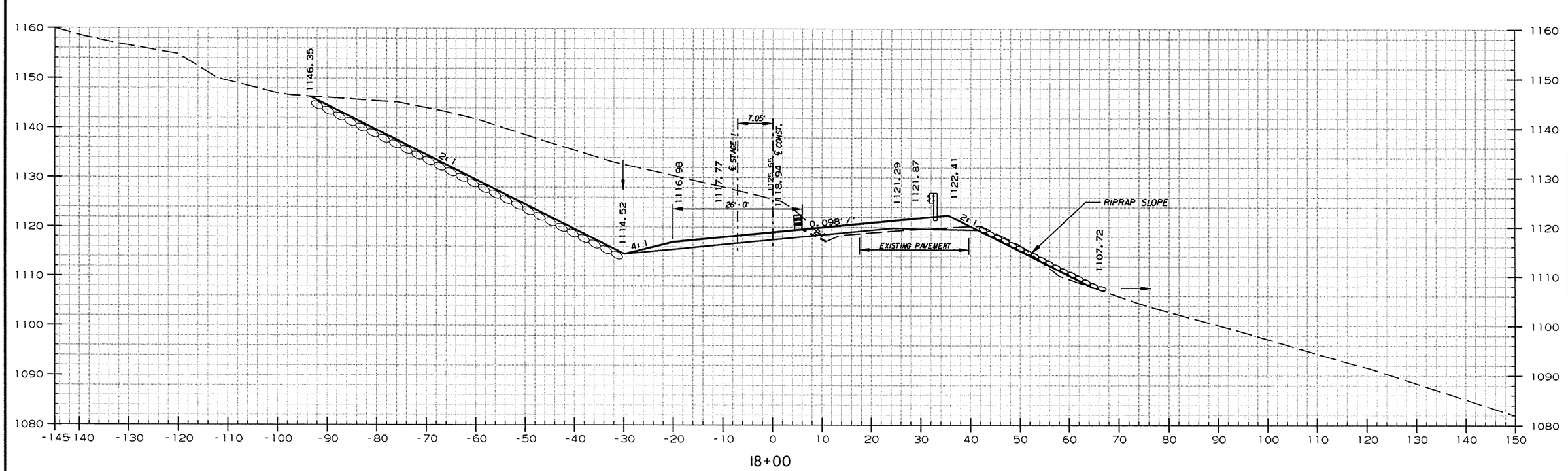
STA. 17+00 TO STA. 17+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	97	128

(2) CROSS SECTIONS



Area Cut : 1263.7 (excavation)
Area Fill: 11.7 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 142.3 (rock fill)

Volume Cut : 5622.7 (excavation)
Volume Fill: 25.7 (embankment)
Volume Cut : 542.4 (rock buttress)
Volume Fill: 578.3 (rock fill)

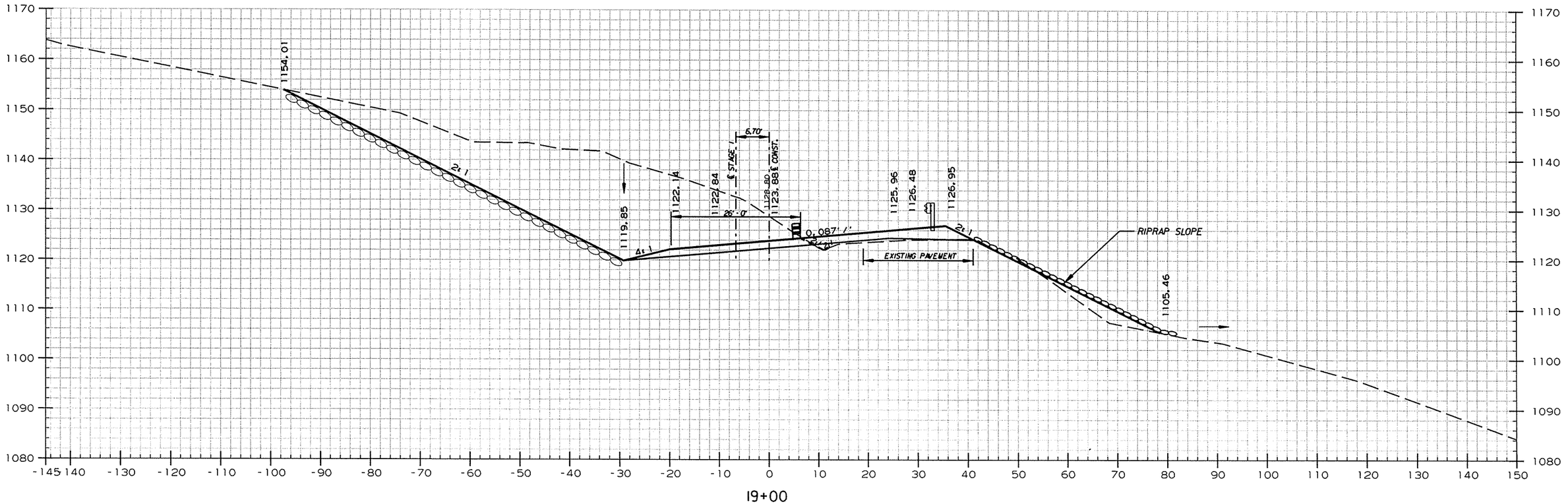
STA. 18+00 TO STA. 18+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	98	128

(2) CROSS SECTIONS



Area Cut : 1248.5 (excavation)
Area Fill: 49.9 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 152.8 (rock fill)

Volume Cut : 4652.2 (excavation)
Volume Fill: 114.1 (embankment)
Volume Cut : 0 (rock buttress)
Volume Fill: 546.5 (rock fill)

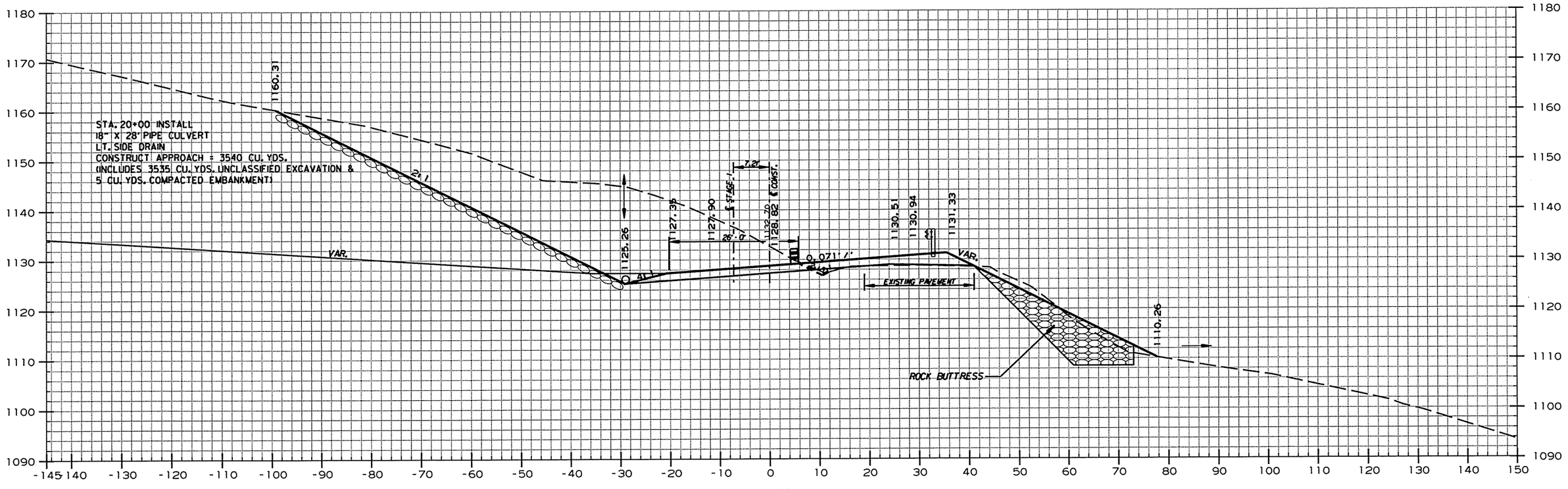
STA. 19+00 TO STA. 19+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	99	128

(2) CROSS SECTIONS



19+60 - END 540' DROP LANE TAPER FOR LEFT PASSING LANE

Area Cut : 1416.1 (excavation)
Area Fill: 3.7 (embankment)
Area Cut : 184.0 (rock buttress)
Area Fill: 156.8 (rock fill)

Volume Cut : 4934.3 (excavation)
Volume Fill: 99.2 (embankment)
Volume Cut : 340.7 (rock buttress)
Volume Fill: 573.2 (rock fill)

STA. 20+00 TO STA. 20+00

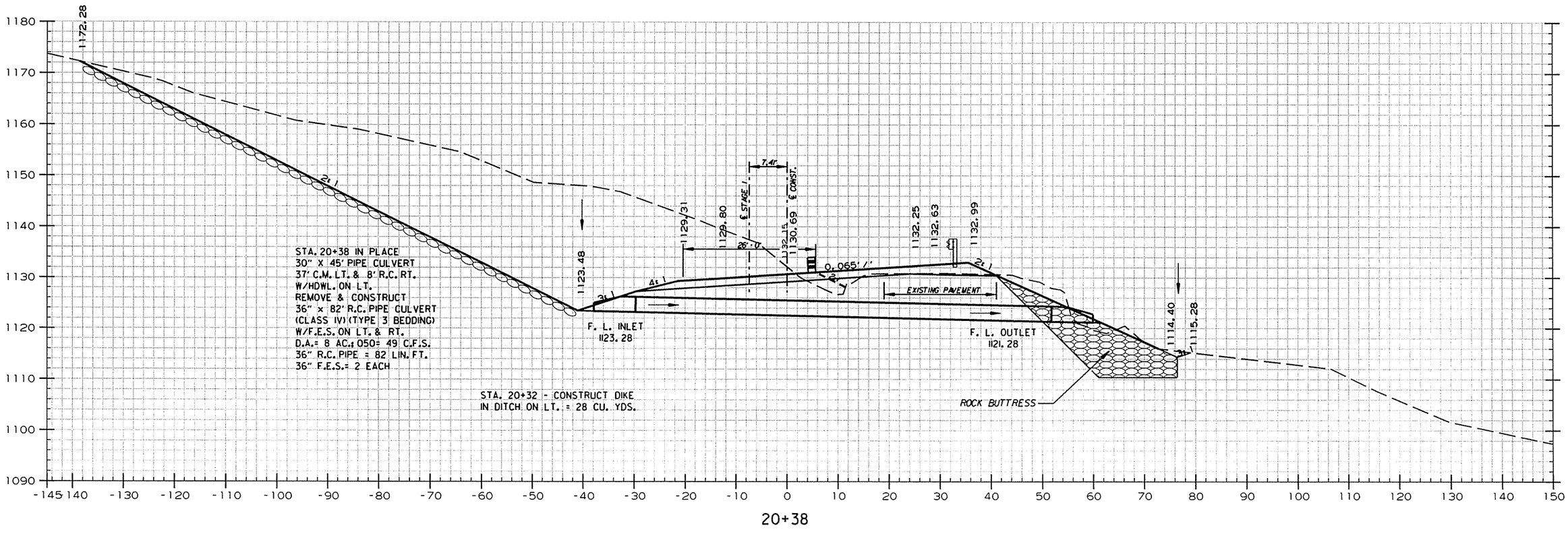
10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	100	128

(2) CROSS SECTIONS

20+75 - END GUARDRAIL ON RIGHT



Area Cut :	2222.4 (excavation)	Volume Cut :	2560.4 (excavation)
Area Fill:	17.2 (embankment)	Volume Fill:	14.7 (embankment)
Area Cut :	226.4 (rock buttress)	Volume Cut :	288.8 (rock buttress)
Area Fill:	218.2 (rock fill)	Volume Fill:	263.9 (rock fill)

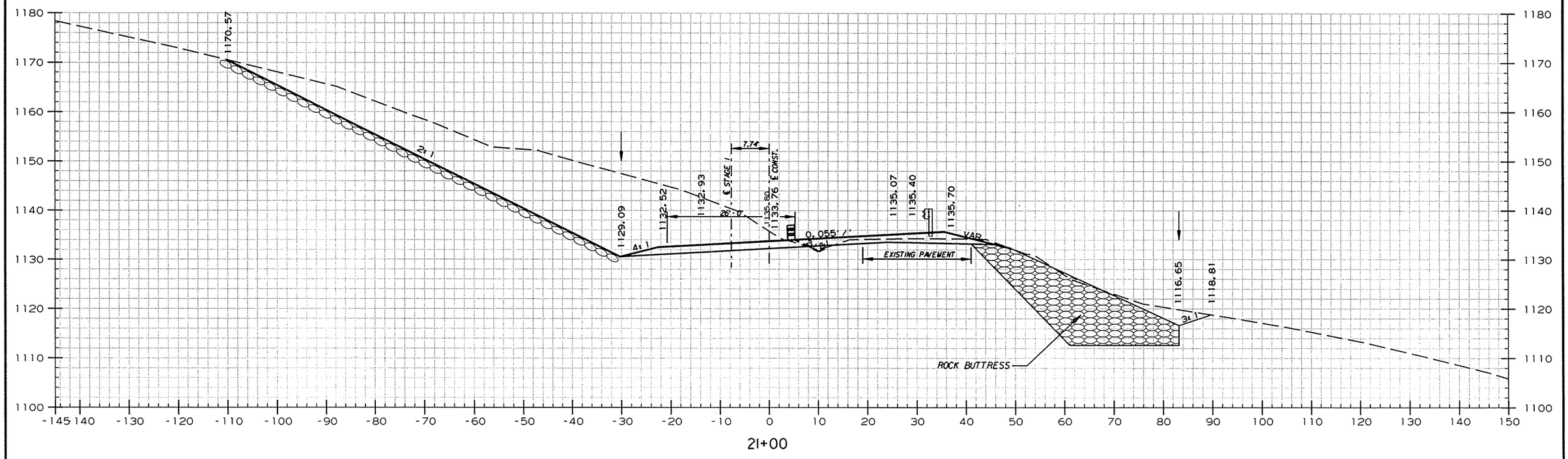
STA. 20+38 TO STA. 20+38

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	101	128

(2) CROSS SECTIONS



Area Cut : 1614.2 (excavation)
Area Fill: 2.8 (embankment)
Area Cut : 362.1 (rock buttress)
Area Fill: 178.8 (rock fill)

Volume Cut : 4405.0 (excavation)
Volume Fill: 23.0 (embankment)
Volume Cut : 675.7 (rock buttress)
Volume Fill: 455.8 (rock fill)

STA. 21+00 TO STA. 21+00

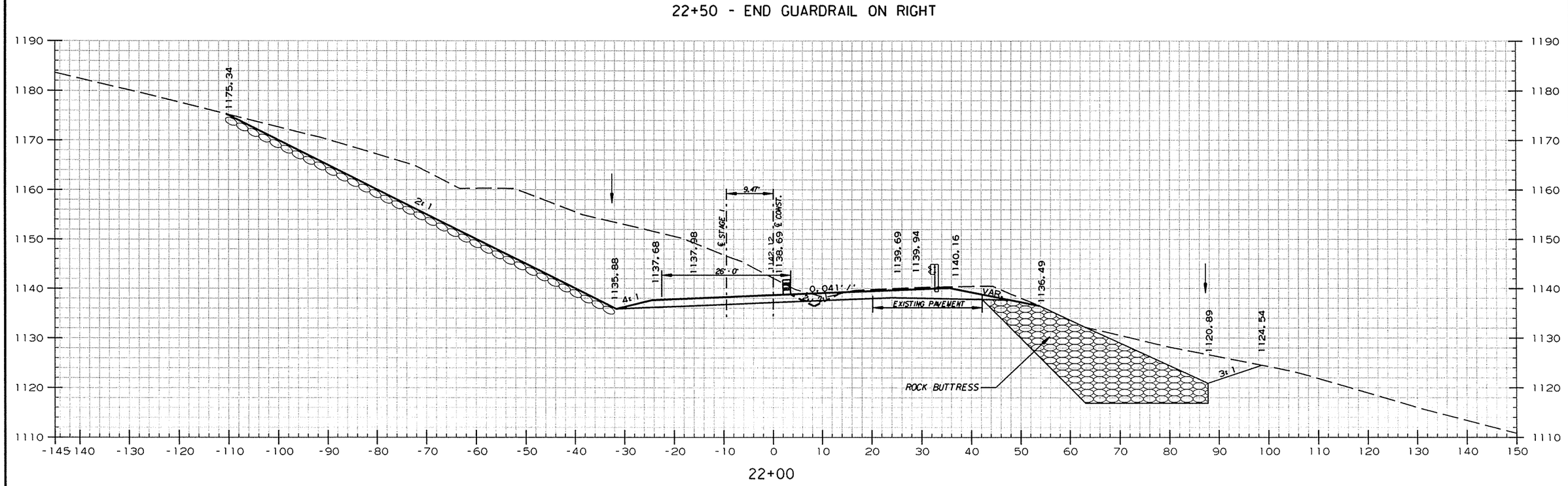
10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	102	128

(2) CROSS SECTIONS

22+50 - END GUARDRAIL ON RIGHT



Area Cut : 1881.5 (excavation)
Area Fill: 2.4 (embankment)
Area Cut : 420.5 (rock buttress)
Area Fill: 176.5 (rock fill)

Volume Cut : 6473.6 (excavation)
Volume Fill: 9.7 (embankment)
Volume Cut : 1449.2 (rock buttress)
Volume Fill: 657.8 (rock fill)

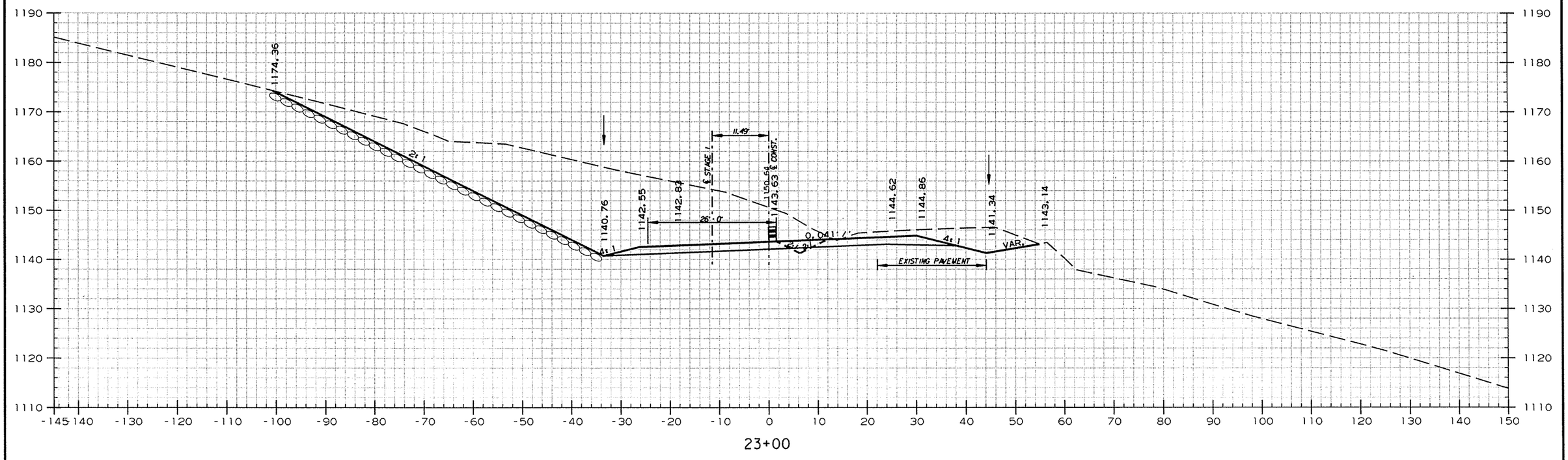
STA. 22+00 TO STA. 22+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	103	128

(2) CROSS SECTIONS



Area Cut : 1385.1 (excavation)
Area Fill: 2.4 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 150.3 (rock fill)

Volume Cut : 6049.2 (excavation)
Volume Fill: 8.9 (embankment)
Volume Cut : 778.6 (rock buttress)
Volume Fill: 605.0 (rock fill)

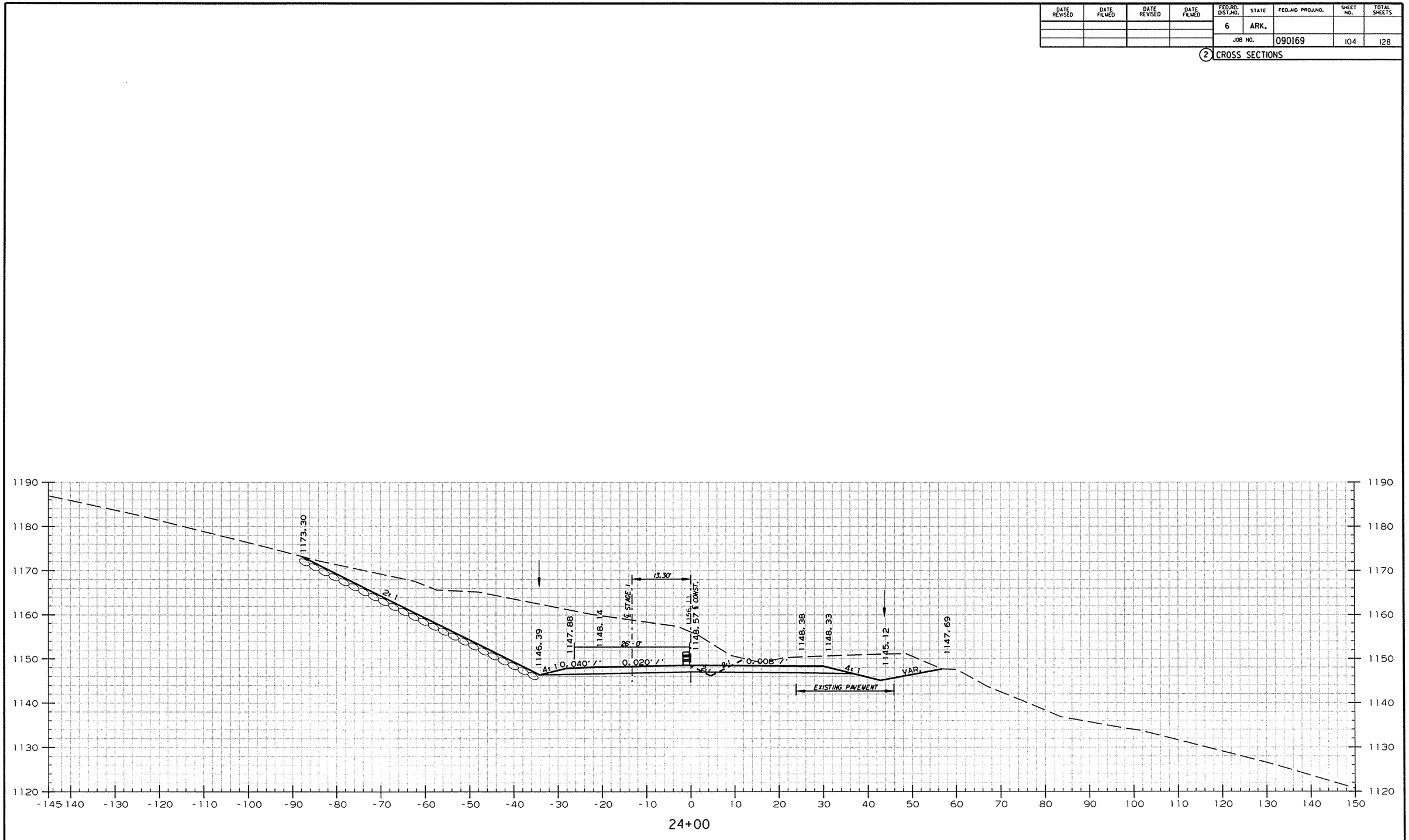
STA. 23+00 TO STA. 23+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	104	128

(2) CROSS SECTIONS



Area Cut : 1205.3 (excavation)
Area Fill: 1.5 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 120.3 (rock fill)

Volume Cut : 4797.9 (excavation)
Volume Fill: 7.2 (embankment)
Volume Cut : 0 (rock buttress)
Volume Fill: 501.1 (rock fill)

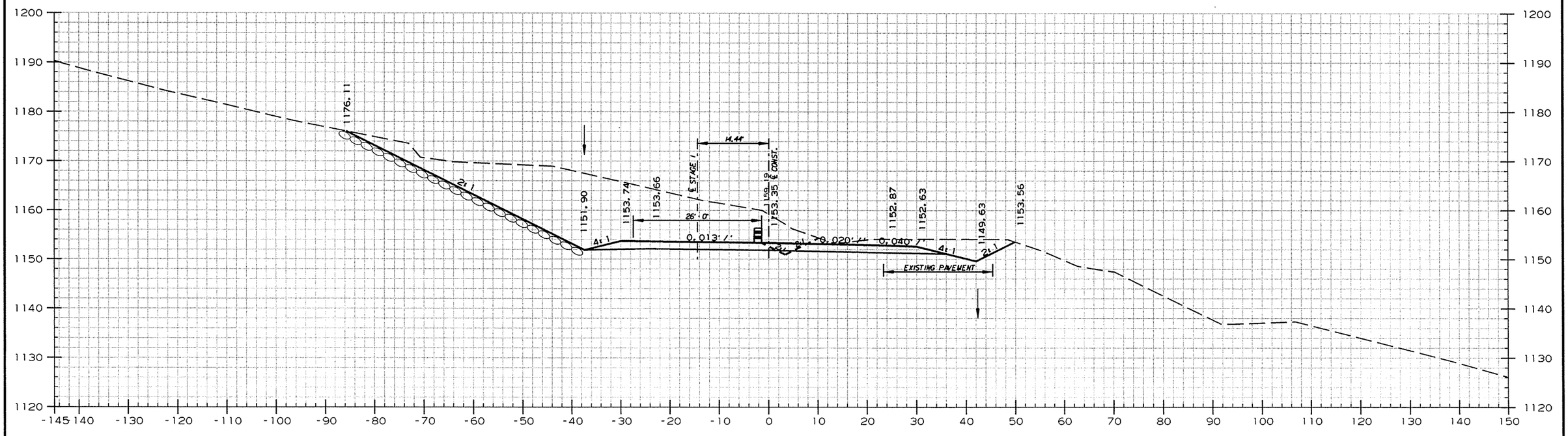
STA. 24+00 TO STA. 24+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	105	128

(2) CROSS SECTIONS



25+00 - END LEFT PASSING LANE - BEGIN
540' DROP LANE TAPER FOR LEFT PASSING LANE

Area Cut :	1025.6 (excavation)	Volume Cut :	4131.4 (excavation)
Area Fill:	1.3 (embankment)	Volume Fill:	5.2 (embankment)
Area Cut :	0 (rock buttress)	Volume Cut :	0 (rock buttress)
Area Fill:	108.3 (rock fill)	Volume Fill:	423.4 (rock fill)

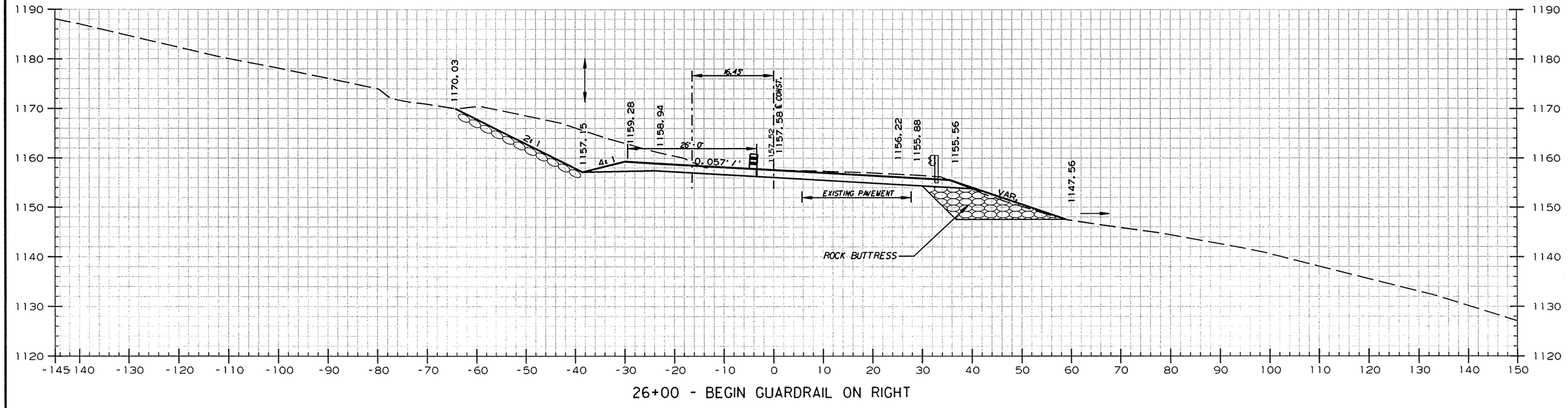
STA. 25+00 TO STA. 25+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	106	128

(2) CROSS SECTIONS



26+00 - BEGIN GUARDRAIL ON RIGHT

Area Cut :	492.4 (excavation)	Volume Cut :	2811.1 (excavation)
Area Fill:	0 (embankment)	Volume Fill:	2.4 (embankment)
Area Cut :	103.4 (rock buttress)	Volume Cut :	191.5 (rock buttress)
Area Fill:	57.6 (rock fill)	Volume Fill:	307.3 (rock fill)

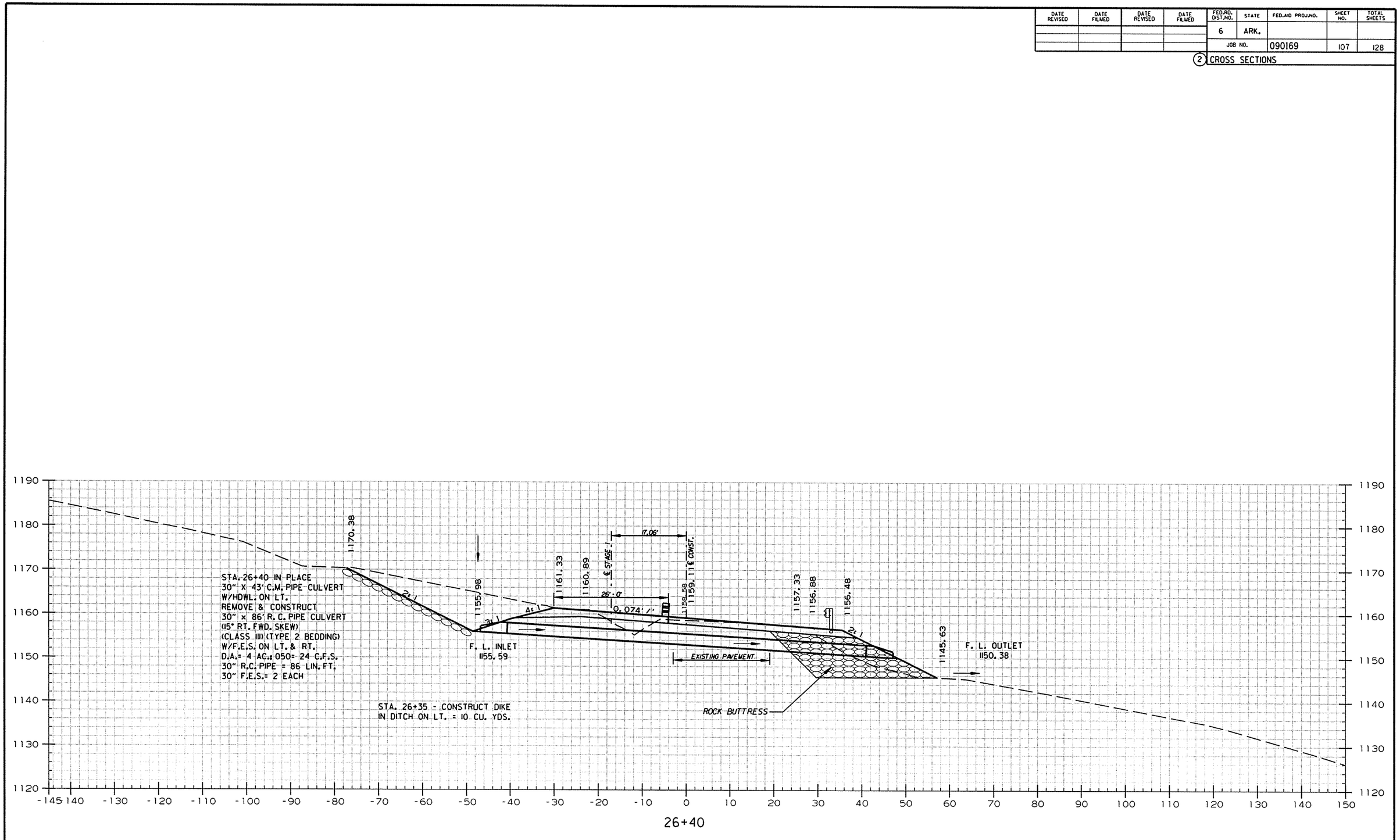
STA. 26+00 TO STA. 26+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	107	128

(2) CROSS SECTIONS



Area Cut : 497.2 (excavation)
Area Fill: 17.6 (embankment)
Area Cut : 222.8 (rock buttress)
Area Fill: 64.3 (rock fill)

Volume Cut : 733.0 (excavation)
Volume Fill: 13.0 (embankment)
Volume Cut : 241.6 (rock buttress)
Volume Fill: 90.3 (rock fill)

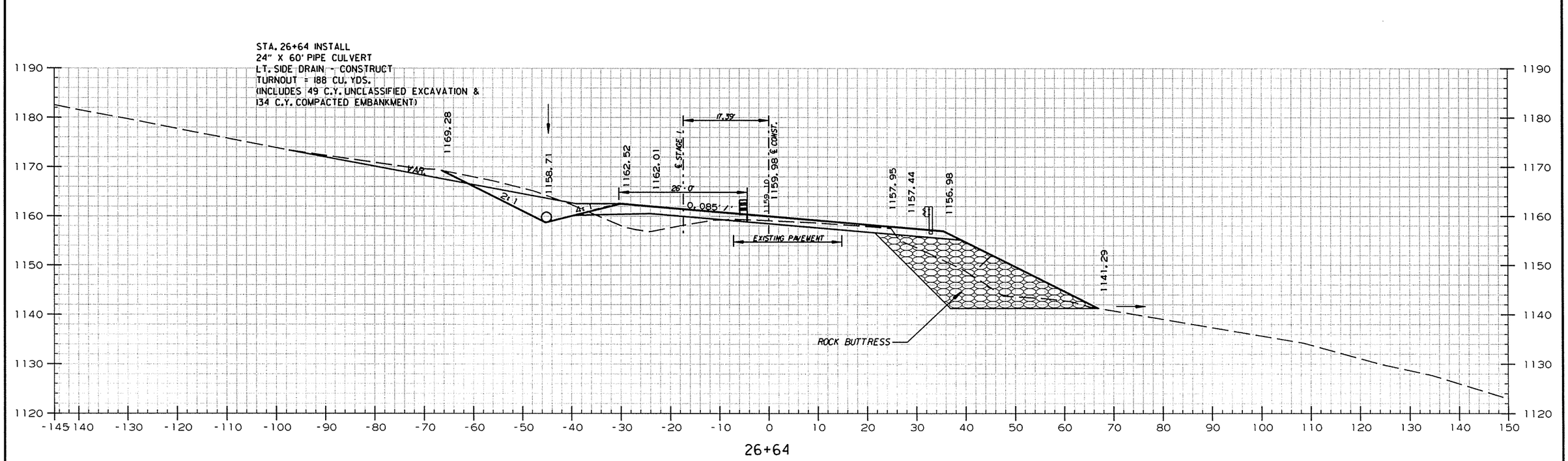
STA. 26+40 TO STA. 26+40

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	108	128

(2) CROSS SECTIONS



Area Cut : 289.7 (excavation)
Area Fill: 49.1 (embankment)
Area Cut : 332.1 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 349.7 (excavation)
Volume Fill: 29.6 (embankment)
Volume Cut : 246.6 (rock buttress)
Volume Fill: 28.6 (rock fill)

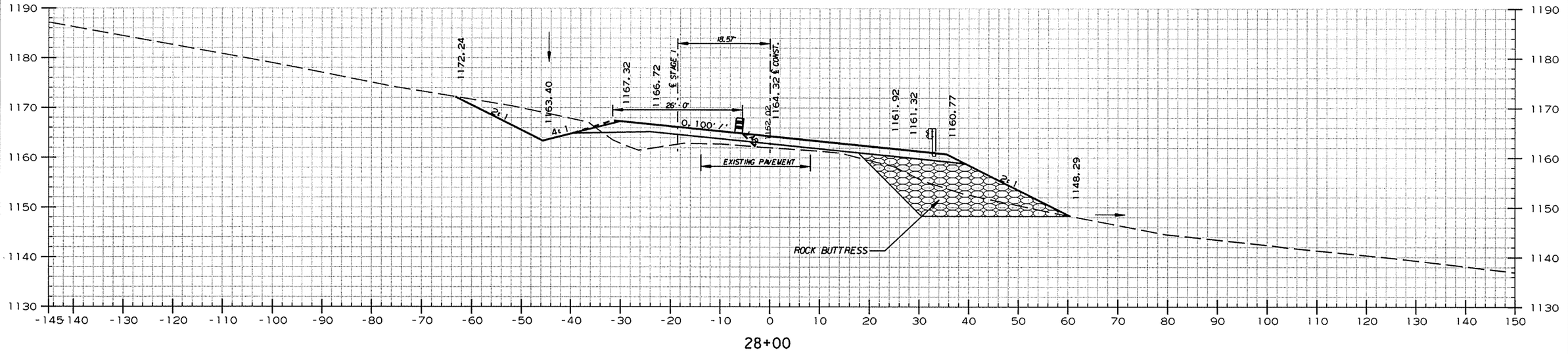
STA. 26+64 TO STA. 26+64

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	109	128

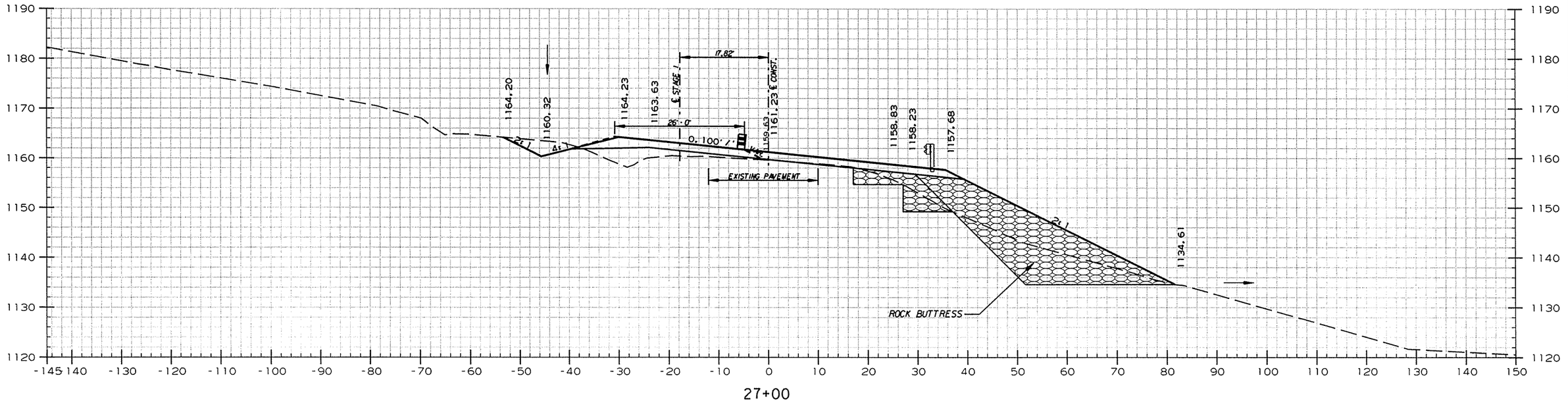
(2) CROSS SECTIONS



28+00

Area Cut. : 231.3 (excavation)
Area Fill: 71.2 (embankment)
Area Cut. : 282.8 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 904.7 (excavation)
Volume Fill: 223.1 (embankment)
Volume Cut. : 1433.6 (rock buttress)
Volume Fill: 0 (rock fill)



27+00

Area Cut. : 257.2 (excavation)
Area Fill: 49.2 (embankment)
Area Cut. : 491.3 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 364.6 (excavation)
Volume Fill: 65.6 (embankment)
Volume Cut. : 548.9 (rock buttress)
Volume Fill: 0 (rock fill)

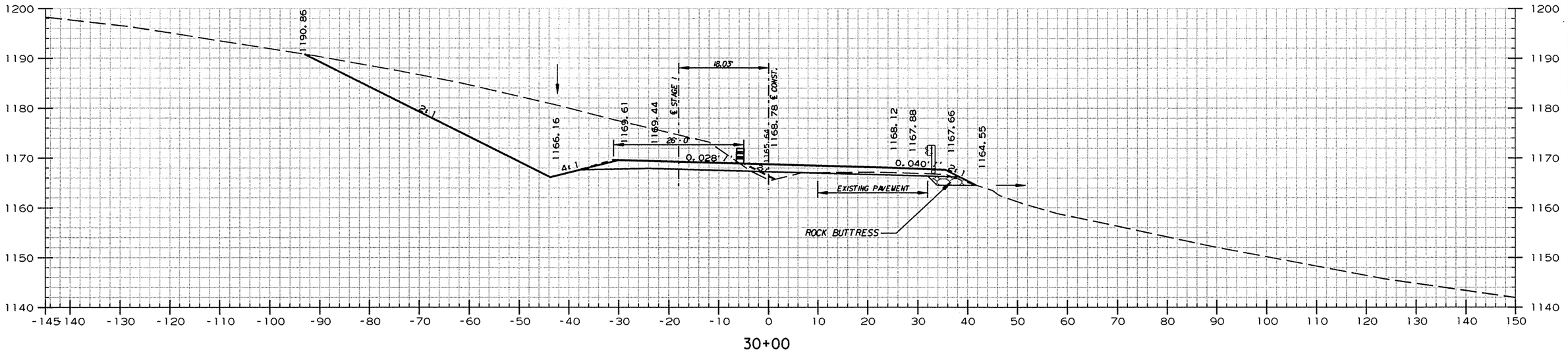
STA. 27+00 TO STA. 28+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	110	128

(2) CROSS SECTIONS



30+00

Area Cut : 723.1 (excavation)
Area Fill: 9.3 (embankment)
Area Cut : 12.4 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 1968.8 (excavation)
Volume Fill: 73.5 (embankment)
Volume Cut : 225.5 (rock buttress)
Volume Fill: 0 (rock fill)

29+00

Area Cut : 340.0 (excavation)
Area Fill: 30.4 (embankment)
Area Cut : 109.4 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 1058.1 (excavation)
Volume Fill: 188.3 (embankment)
Volume Cut : 726.3 (rock buttress)
Volume Fill: 0 (rock fill)

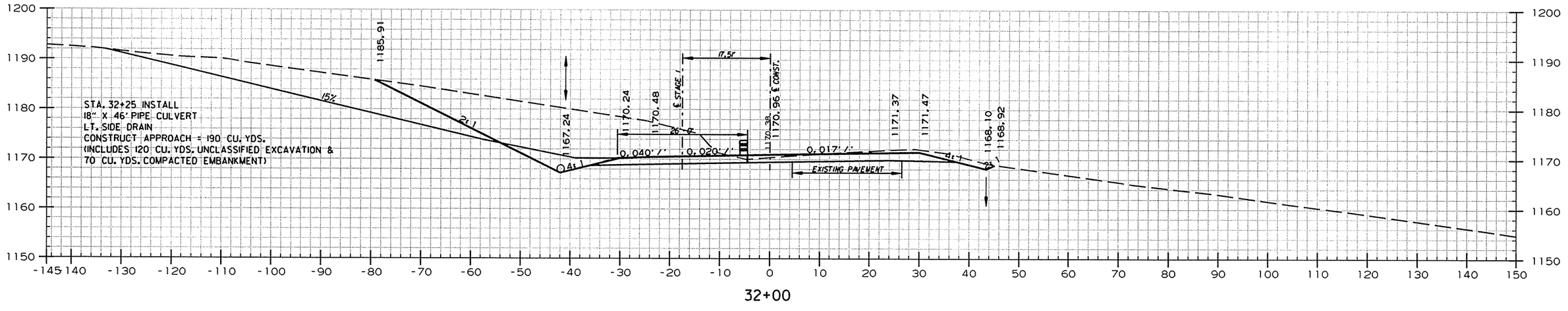
STA. 29+00 TO STA. 30+00

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	III	128

(2) CROSS SECTIONS

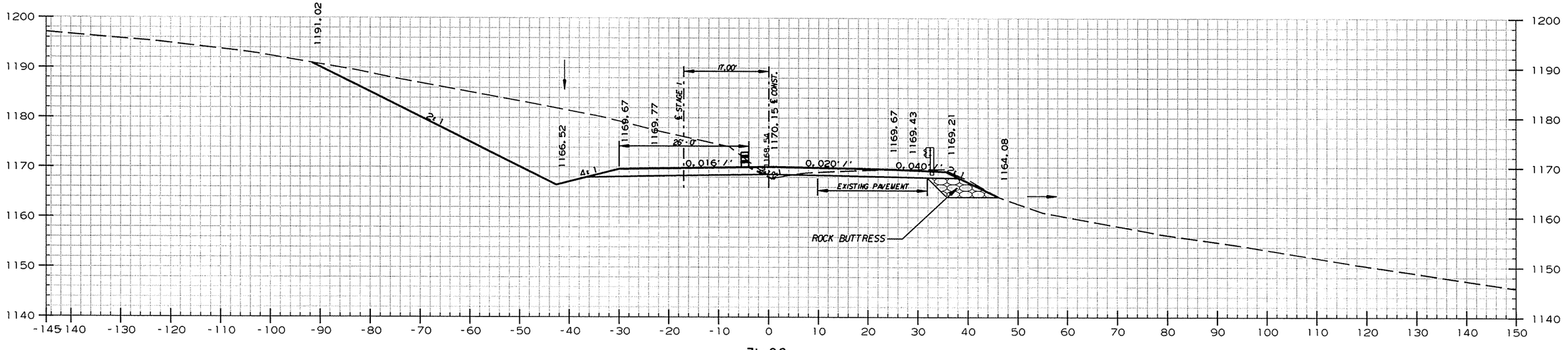


32+00

Area Cut : 606.2 (excavation)
Area Fill: 0 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 2641.1 (excavation)
Volume Fill: 4.8 (embankment)
Volume Cut : 0 (rock buttress)
Volume Fill: 0 (rock fill)

31+25 - END GUARDRAIL ON RIGHT



31+00

Area Cut : 820.0 (excavation)
Area Fill: 2.6 (embankment)
Area Cut : 32.1 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 2857.6 (excavation)
Volume Fill: 22.0 (embankment)
Volume Cut : 82.3 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 31+00 TO STA. 32+00

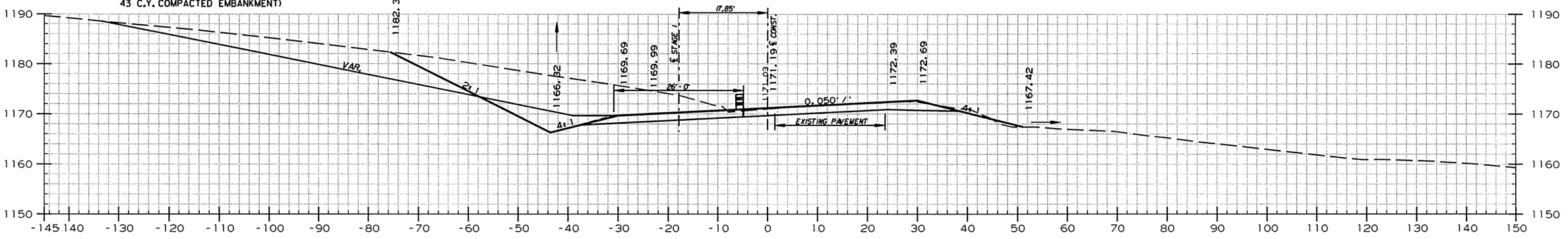
10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	112	128

(2) CROSS SECTIONS

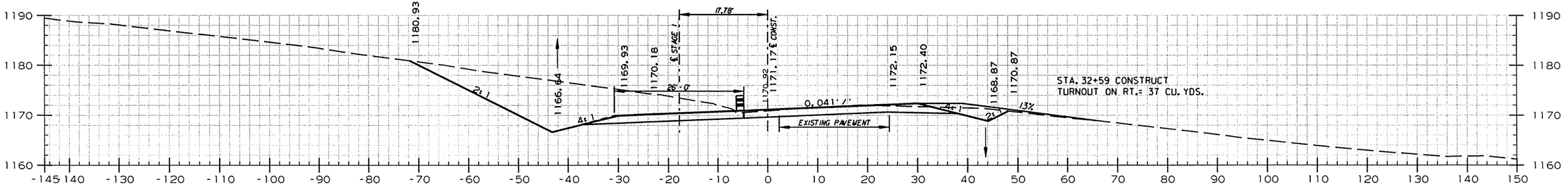
STA. 32+81 CONSTRUCT
APPROACH ON LT.= 208 CU. YDS.
(INCLUDES 165 CU. YDS. UNCLASSIFIED EXCAVATION &
43 C.Y. COMPACTED EMBANKMENT)



32+81

Area Cut : 485.1 (excavation)
Area Fill: 2.4 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 375.3 (excavation)
Volume Fill: 1.0 (embankment)
Volume Cut : 0 (rock buttress)
Volume Fill: 0 (rock fill)



32+59

Area Cut : 436.2 (excavation)
Area Fill: 0 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 1138.9 (excavation)
Volume Fill: 0 (embankment)
Volume Cut : 0 (rock buttress)
Volume Fill: 0 (rock fill)

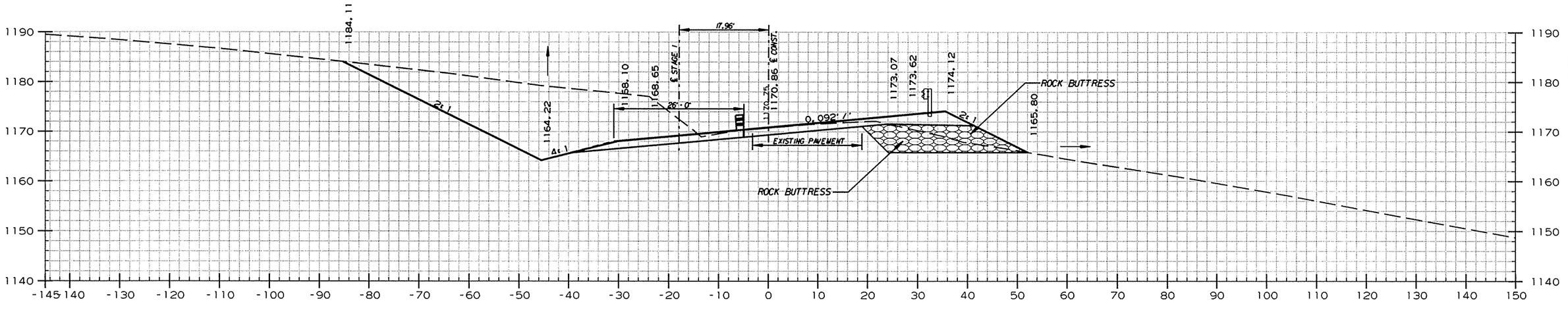
STA. 32+59 TO STA. 32+81

10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	113	128

(2) CROSS SECTIONS

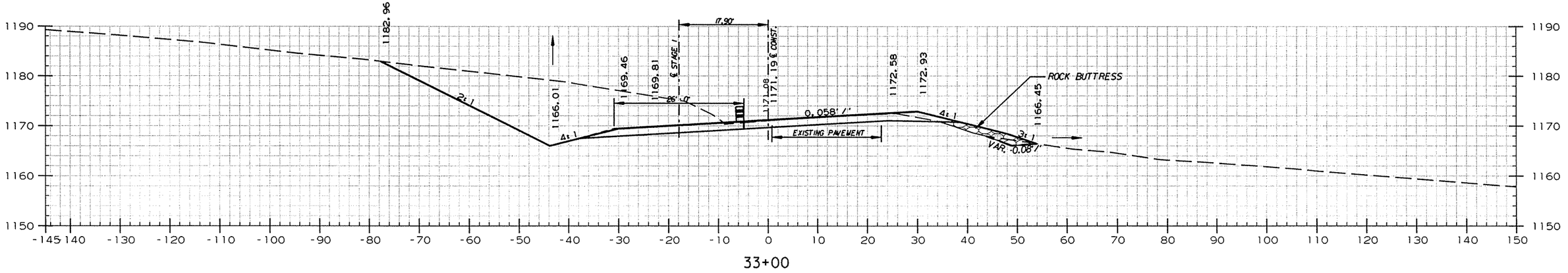


34+00

Area Cut. : 754.7 (excavation)
Area Fill: 0 (embankment)
Area Cut. : 140.8 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 2449.9 (excavation)
Volume Fill: 0 (embankment)
Volume Cut. : 260.7 (rock buttress)
Volume Fill: 45.7 (rock fill)

33+25 - BEGIN GUARDRAIL ON RIGHT



33+00

Area Cut. : 568.2 (excavation)
Area Fill: 0 (embankment)
Area Cut. : 0 (rock buttress)
Area Fill: 24.7 (rock fill)

Volume Cut. : 370.6 (excavation)
Volume Fill: 1.0 (embankment)
Volume Cut. : 0 (rock buttress)
Volume Fill: 8.7 (rock fill)

STA. 33+00 TO STA. 34+00

10/28/2014

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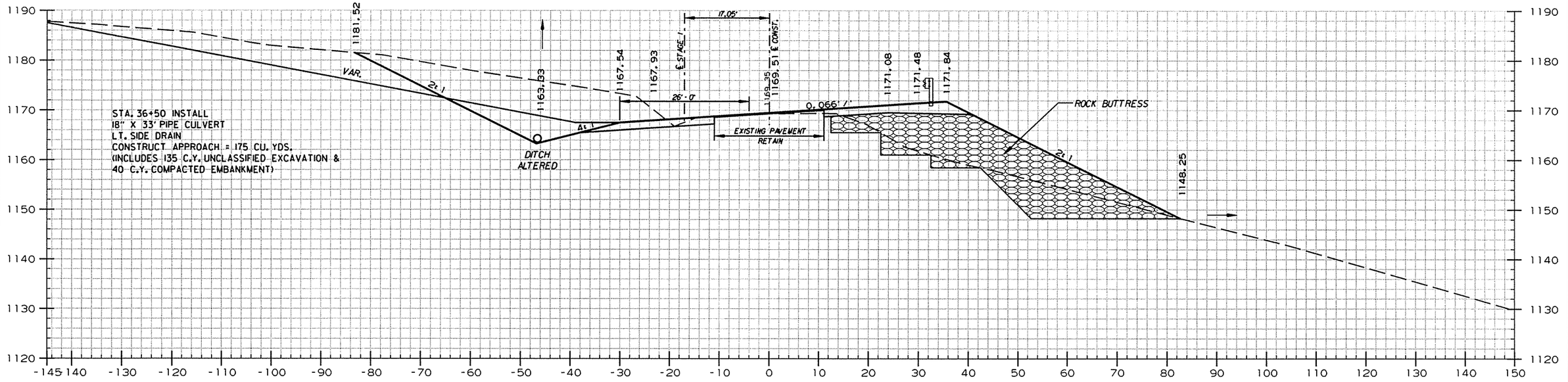
				6	ARK.			
				JOB NO.		090169	114	128

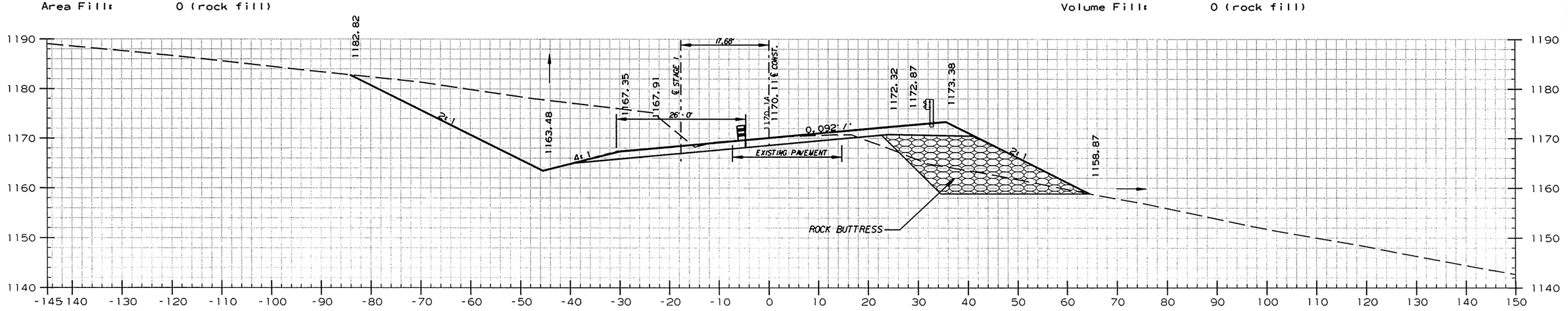
(2) CROSS SECTIONS



36+00 - BEGIN NOTCH & WIDENING
SECTION - END FULL DEPTH SECTION

Area Cut : 666.4 (excavation)
Area Fill: 0 (embankment)
Area Cut : 579.8 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 2571.2 (excavation)
Volume Fill: 16.4 (embankment)
Volume Cut : 1600.1 (rock buttress)
Volume Fill: 0 (rock fill)



35+00

Area Cut : 722.0 (excavation)
Area Fill: 8.8 (embankment)
Area Cut : 284.2 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 2734.8 (excavation)
Volume Fill: 16.4 (embankment)
Volume Cut : 787.0 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 35+00 TO STA. 36+00

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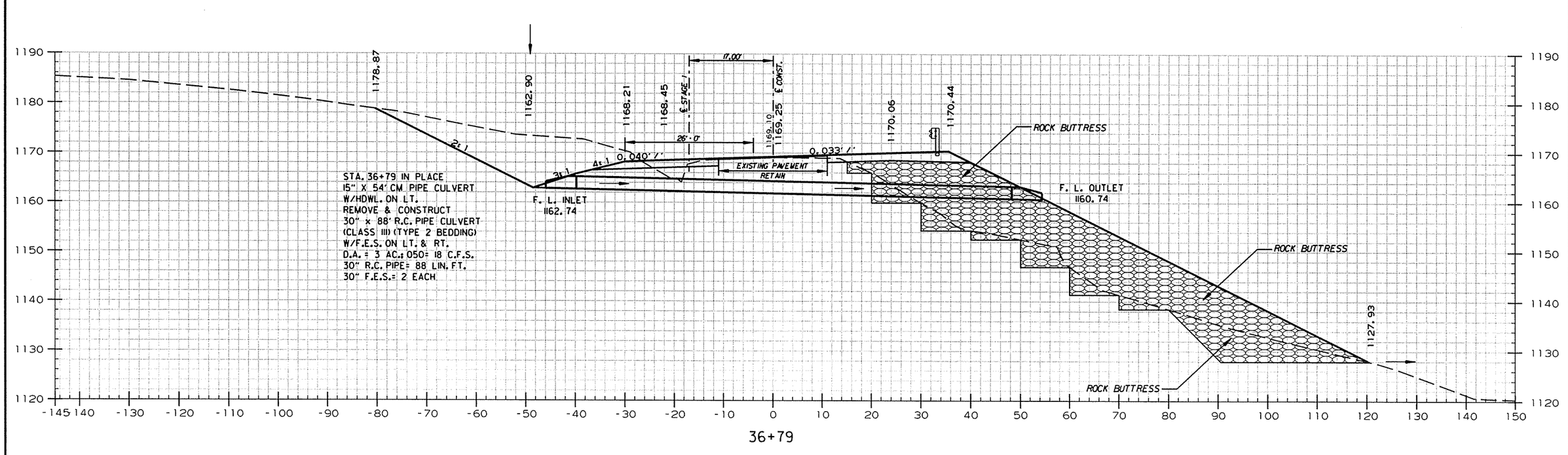
				6	ARK.			
				JOB NO.		090169	115	128

(2) CROSS SECTIONS



Area Cut. :	609.2 (excavation)
Area Fill:	10.7 (embankment)
Area Cut. :	1126.0 (rock buttress)
Area Fill:	0 (rock fill)

Volume Cut. :	1866.2 (excavation)
Volume Fill:	15.6 (embankment)
Volume Cut. :	2495.6 (rock buttress)
Volume Fill:	0 (rock fill)

STA. 36+79 TO STA. 36+79

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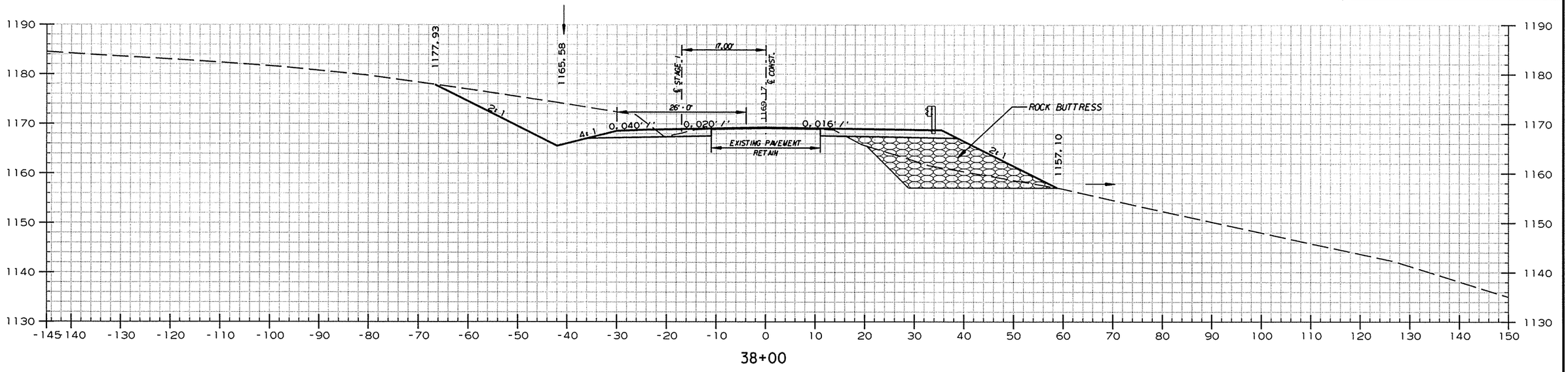
				6	ARK.			
				JOB NO.		090169	116	128

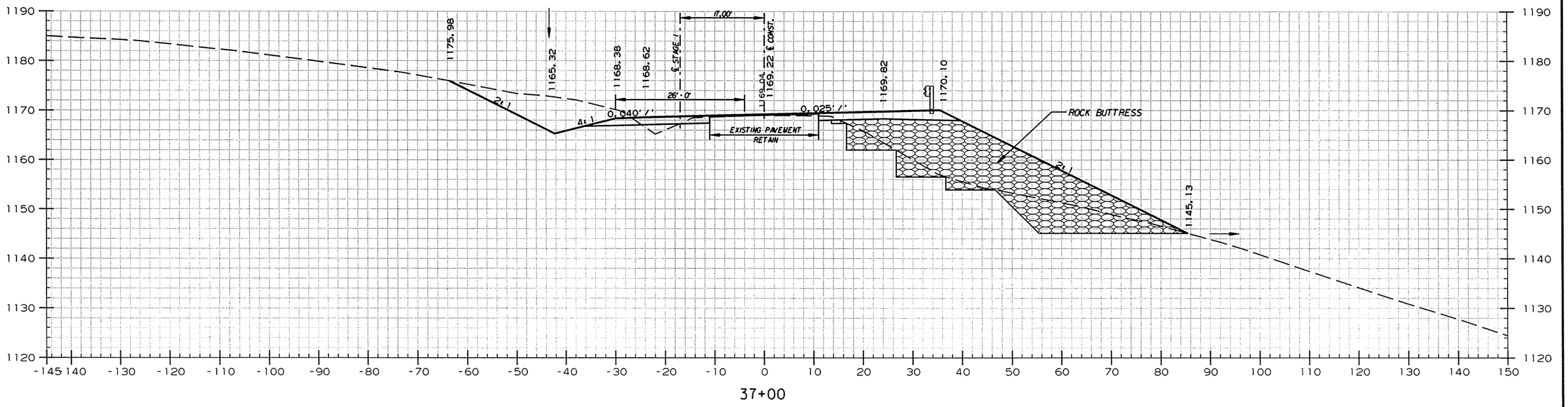
(2) CROSS SECTIONS



38+00

Area Cut : 337.5 (excavation)
Area Fill: 2.5 (embankment)
Area Cut : 256.9 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 1301.1 (excavation)
Volume Fill: 18.7 (embankment)
Volume Cut : 1674.2 (rock buttress)
Volume Fill: 0 (rock fill)



37+00

Area Cut : 365.1 (excavation)
Area Fill: 7.6 (embankment)
Area Cut : 647.1 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 378.9 (excavation)
Volume Fill: 7.1 (embankment)
Volume Cut : 689.6 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 37+00 TO STA. 38+00

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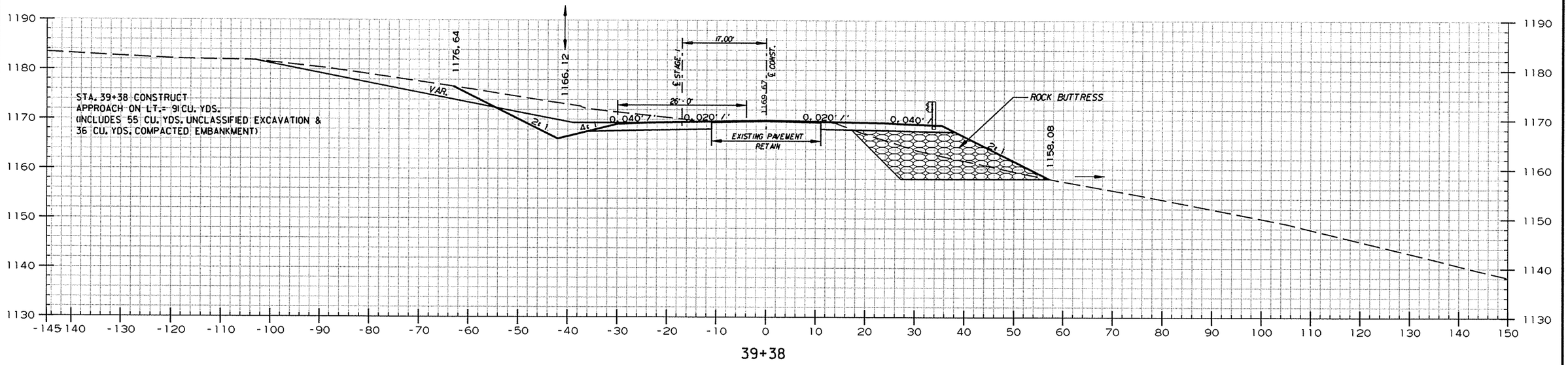
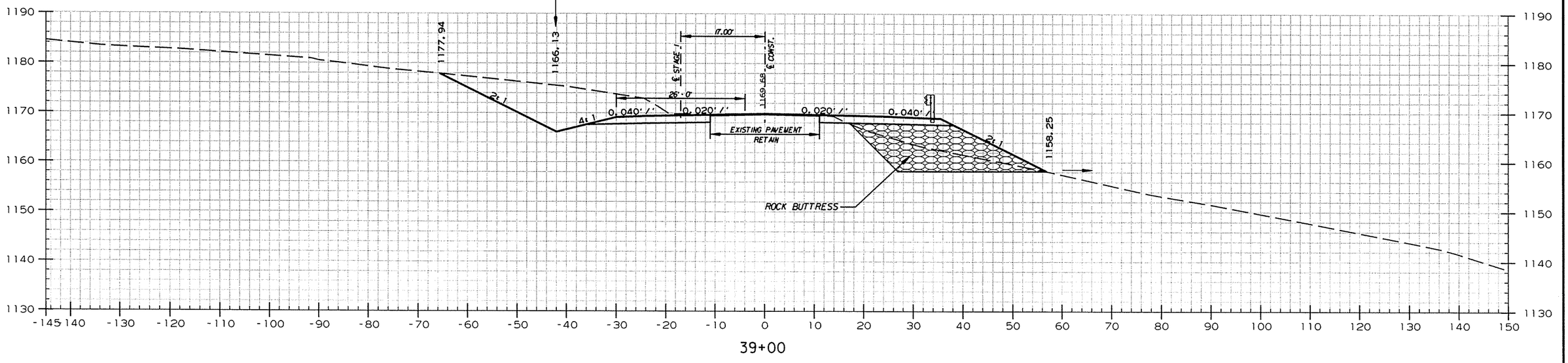
				6	ARK.			
				JOB NO.		090169	117	128

(2) CROSS SECTIONS



Area Cut. : 322.8 (excavation)
Area Fill: 0 (embankment)
Area Cut. : 244.2 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 500.1 (excavation)
Volume Fill: 0 (embankment)
Volume Cut. : 341.4 (rock buttress)
Volume Fill: 0 (rock fill)



Area Cut. : 387.9 (excavation)
Area Fill: 0 (embankment)
Area Cut. : 240.9 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 1343.2 (excavation)
Volume Fill: 4.7 (embankment)
Volume Cut. : 922.0 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 39+00 TO STA. 39+38

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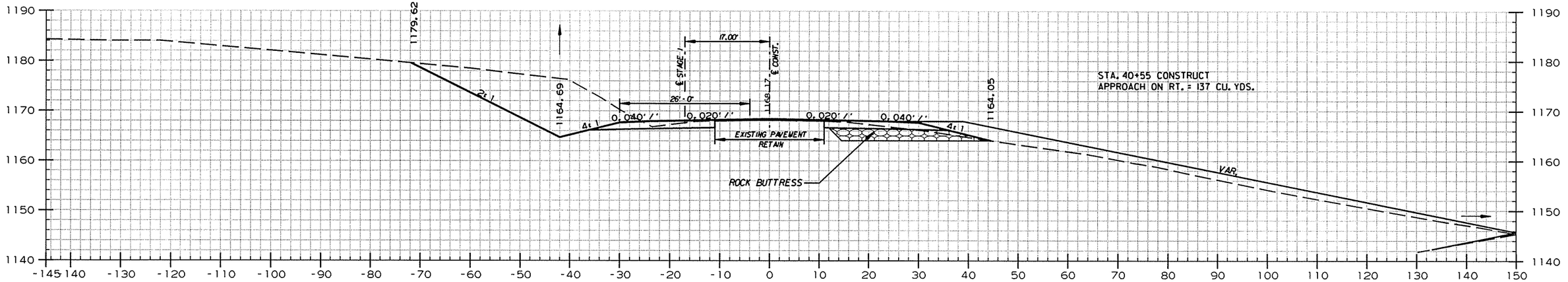
				6	ARK.			
				JOB NO.		090169	118	128

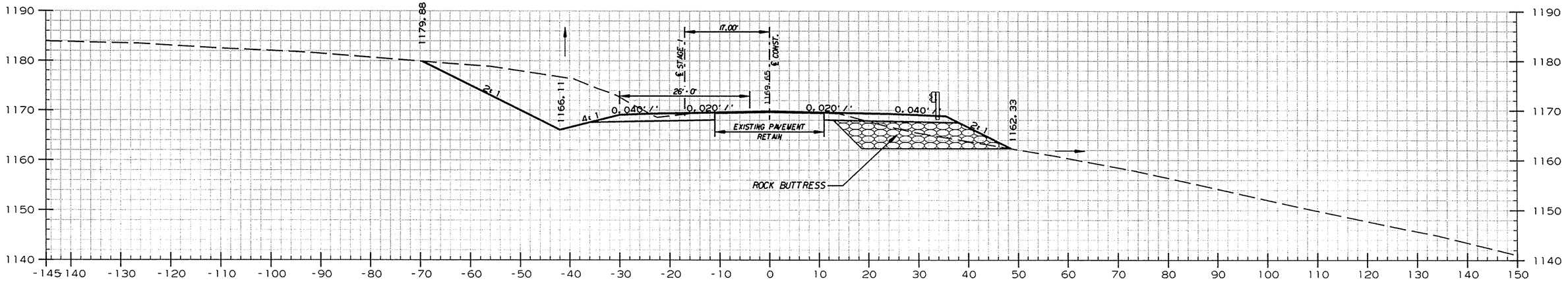
(2) CROSS SECTIONS



40+55

Area Cut : 370.1 (excavation)
Area Fill: 0 (embankment)
Area Cut : 63.0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 768.3 (excavation)
Volume Fill: 0 (embankment)
Volume Cut : 216.4 (rock buttress)
Volume Fill: 0 (rock fill)



40+00 - END GUARDRAIL ON RIGHT

Area Cut : 384.2 (excavation)
Area Fill: 0 (embankment)
Area Cut : 149.5 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 811.7 (excavation)
Volume Fill: 0 (embankment)
Volume Cut : 452.0 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 40+00 TO STA. 40+55

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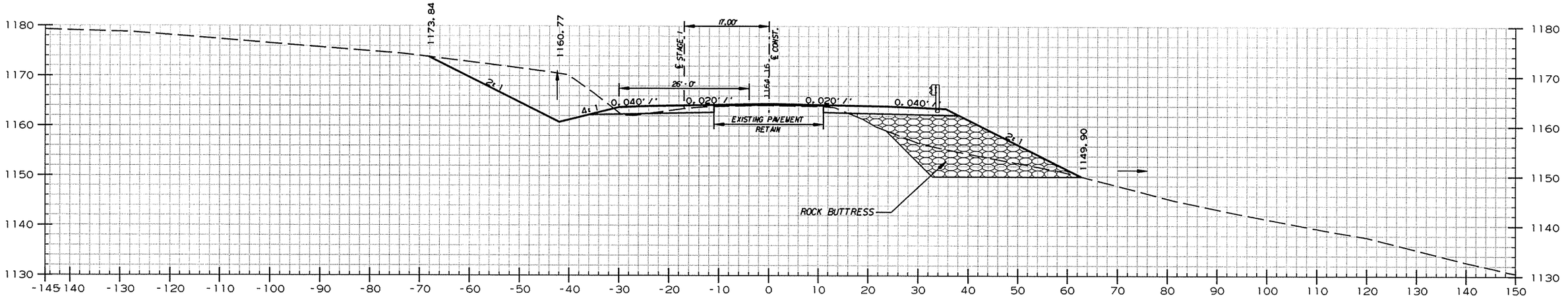
				6	ARK.			
				JOB NO.		090169	119	128

(2) CROSS SECTIONS

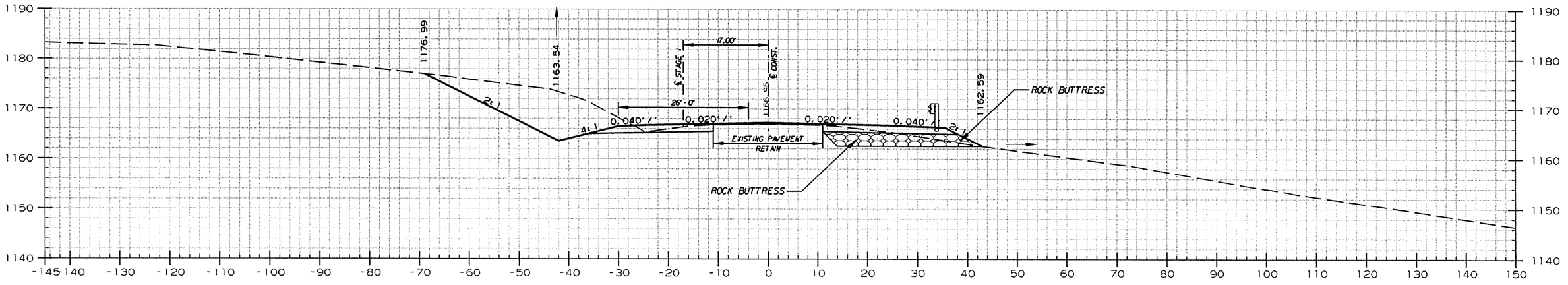
42+60 - END RIGHT PASSING LANE - BEGIN
540' DROP LANE TAPER FOR RIGHT PASSING LANE



42+00

Area Cut. : 324.3 (excavation)
Area Fill: 8.2 (embankment)
Area Cut. : 304.1 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 1163.0 (excavation)
Volume Fill: 15.2 (embankment)
Volume Cut. : 700.1 (rock buttress)
Volume Fill: 0 (rock fill)



41+00 - BEGIN GUARDRAIL ON RIGHT

Area Cut. : 303.8 (excavation)
Area Fill: 0 (embankment)
Area Cut. : 74.0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 561.6 (excavation)
Volume Fill: 0 (embankment)
Volume Cut. : 114.1 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 41+00 TO STA. 42+00

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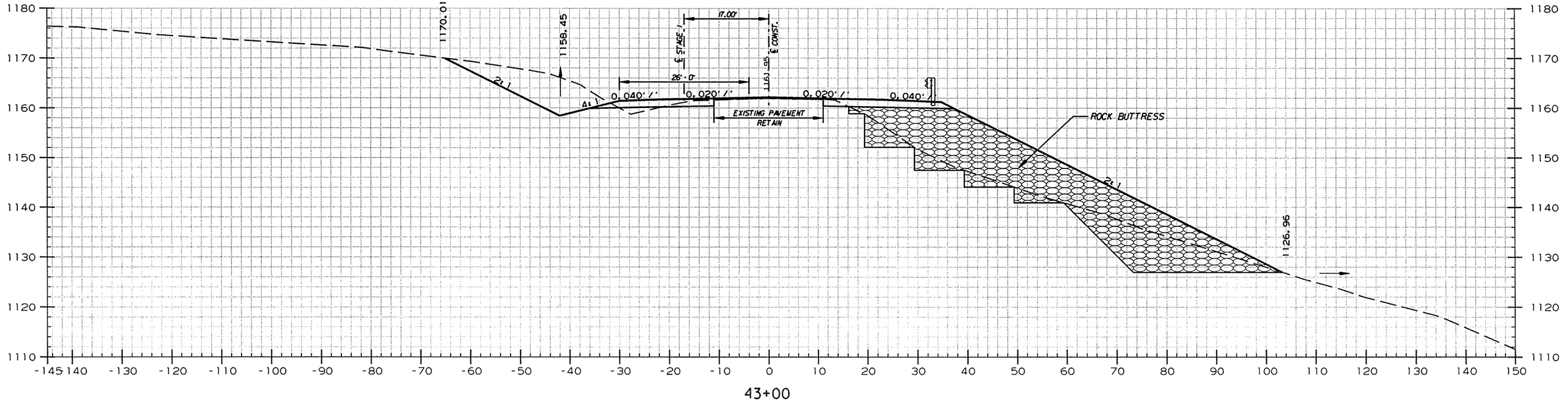
				6	ARK.			
				JOB NO.		090169	120	128

(2) CROSS SECTIONS



Area Cut :	247.8 (excavation)	Volume Cut :	1059.4 (excavation)
Area Fill:	6.0 (embankment)	Volume Fill:	26.3 (embankment)
Area Cut :	823.0 (rock buttress)	Volume Cut :	2087.2 (rock buttress)
Area Fill:	0 (rock fill)	Volume Fill:	0 (rock fill)

STA. 43+00 TO STA. 43+00

10/28/2014

R090169.CRS

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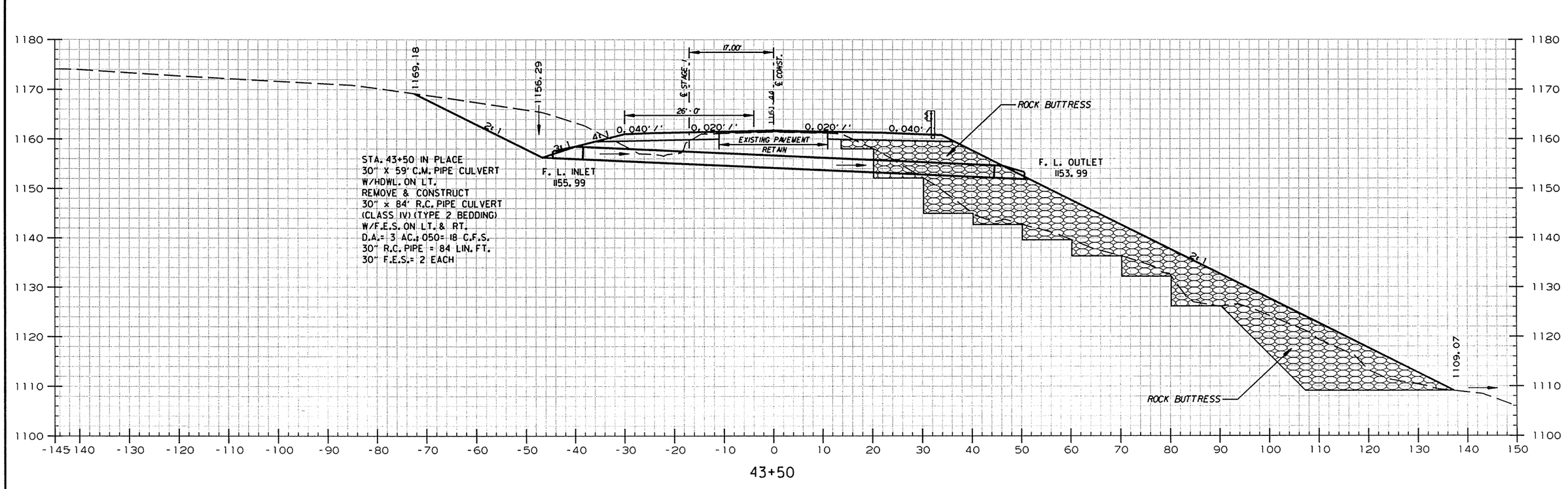
				6	ARK.			
				JOB NO.		090169	121	128

(2) CROSS SECTIONS



Area Cut. : 612.2 (excavation)
Area Fill: 32.0 (embankment)
Area Cut. : 1123.2 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut. : 796.3 (excavation)
Volume Fill: 35.2 (embankment)
Volume Cut. : 1802.1 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 43+50 TO STA. 43+50

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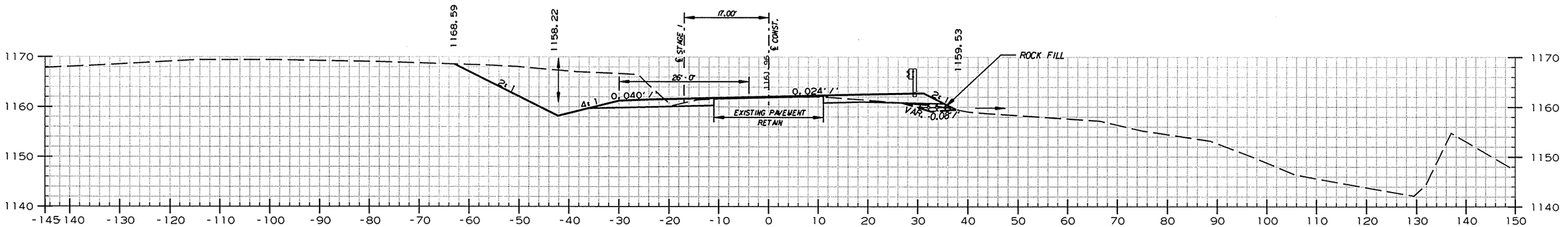
R090169.CRS

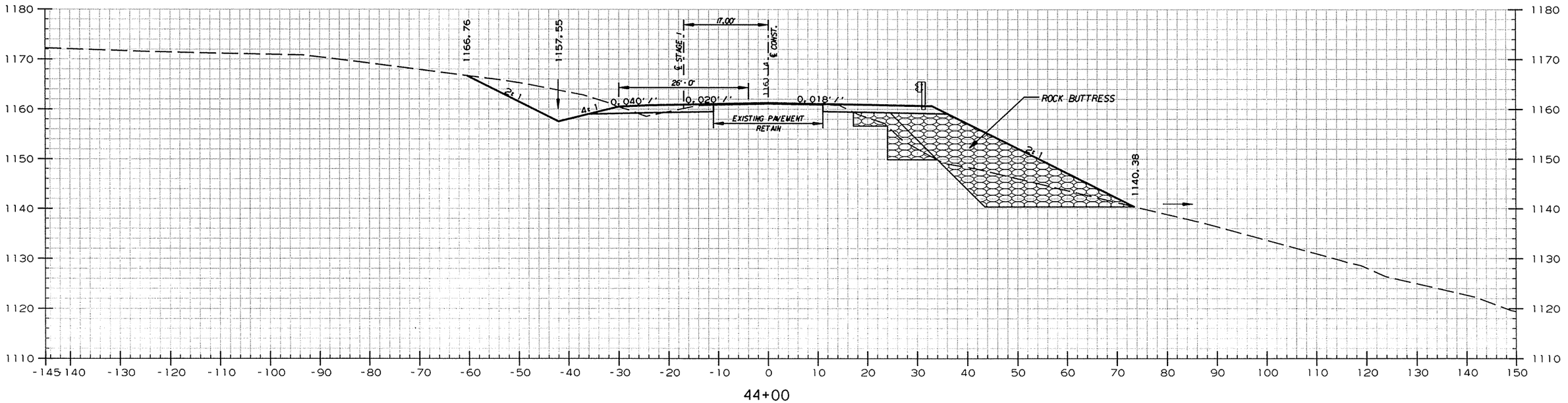
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	122	128

(2) CROSS SECTIONS



45+00 - END GUARDRAIL ON RIGHT

Area Cut :	260.7 (excavation)	Volume Cut :	1279.9 (excavation)
Area Fill:	0 (embankment)	Volume Fill:	3.6 (embankment)
Area Cut :	0 (rock buttress)	Volume Cut :	844.6 (rock buttress)
Area Fill:	10.2 (rock fill)	Volume Fill:	18.9 (rock fill)



44+00

Area Cut :	430.5 (excavation)	Volume Cut :	965.5 (excavation)
Area Fill:	1.9 (embankment)	Volume Fill:	31.5 (embankment)
Area Cut :	456.1 (rock buttress)	Volume Cut :	1462.3 (rock buttress)
Area Fill:	0 (rock fill)	Volume Fill:	0 (rock fill)

STA. 44+00 TO STA. 45+00

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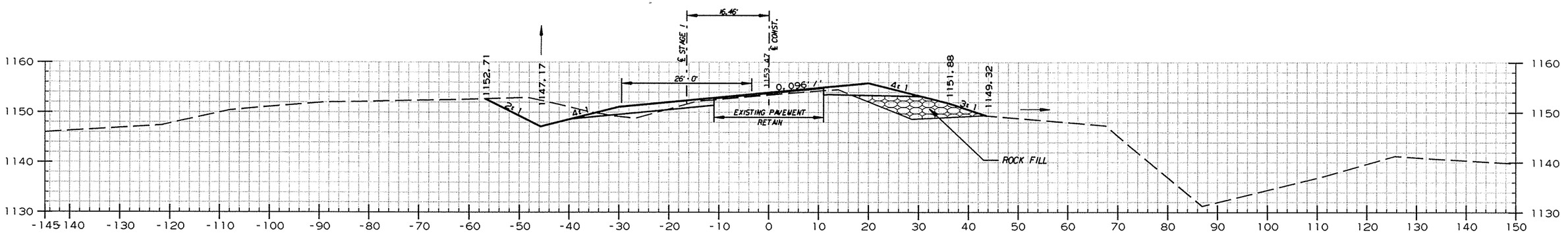
				6	ARK.			
				JOB NO.		090169	123	128

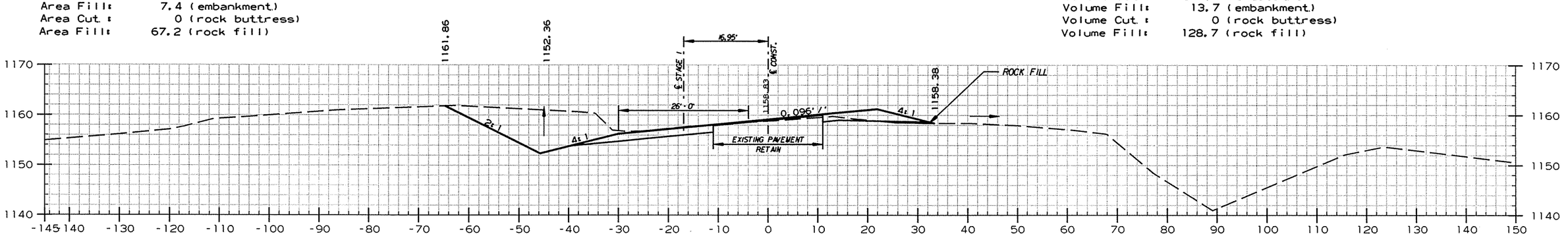
(2) CROSS SECTIONS



48+00 - END 540' DROP LANE TAPER FOR RIGHT PASSING LANE

Area Cut : 74.6 (excavation)
Area Fill: 7.4 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 67.2 (rock fill)

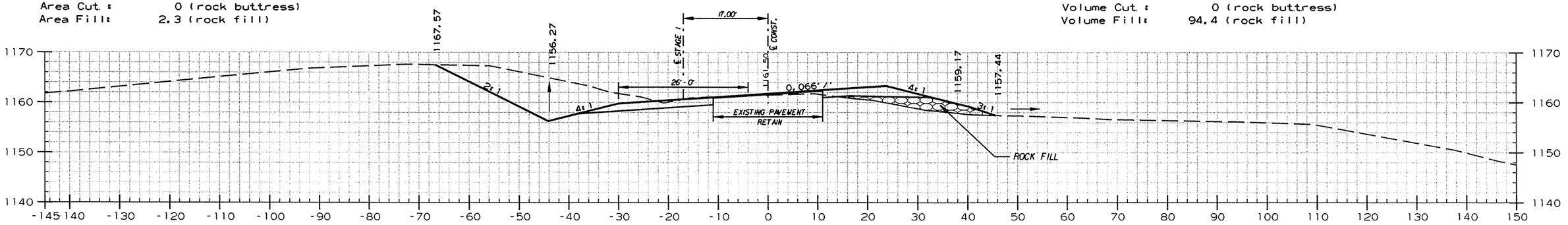
Volume Cut : 541.1 (excavation)
Volume Fill: 13.7 (embankment)
Volume Cut : 0 (rock buttress)
Volume Fill: 128.7 (rock fill)



47+00

Area Cut : 217.6 (excavation)
Area Fill: 0 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 2.3 (rock fill)

Volume Cut : 828.1 (excavation)
Volume Fill: 0 (embankment)
Volume Cut : 0 (rock buttress)
Volume Fill: 94.4 (rock fill)



46+00

Area Cut : 229.6 (excavation)
Area Fill: 0 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 48.7 (rock fill)

Volume Cut : 908.0 (excavation)
Volume Fill: 0 (embankment)
Volume Cut : 0 (rock buttress)
Volume Fill: 109.1 (rock fill)

STA. 46+00 TO STA. 48+00

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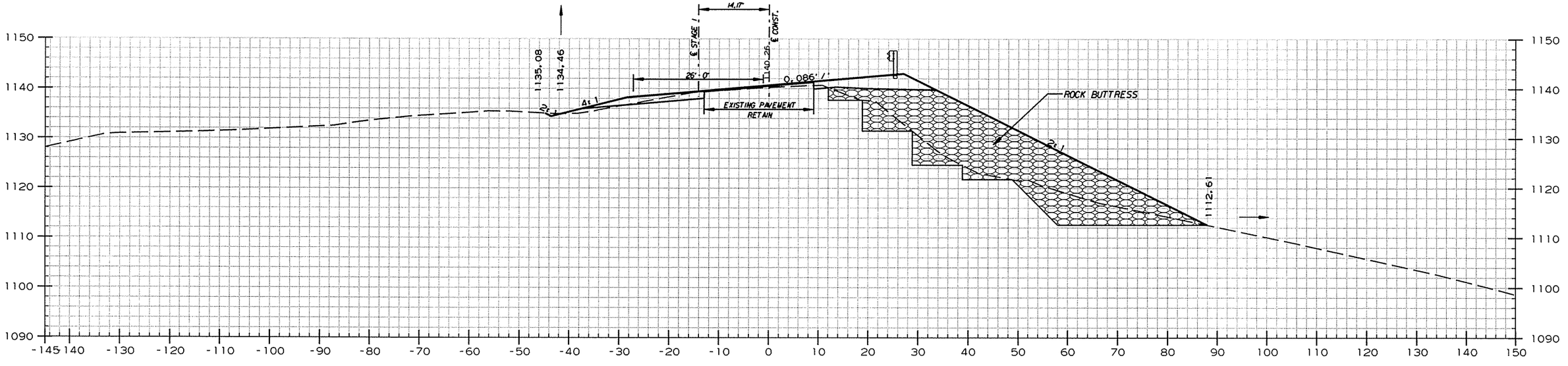
				6	ARK.			
				JOB NO.		090169	124	128

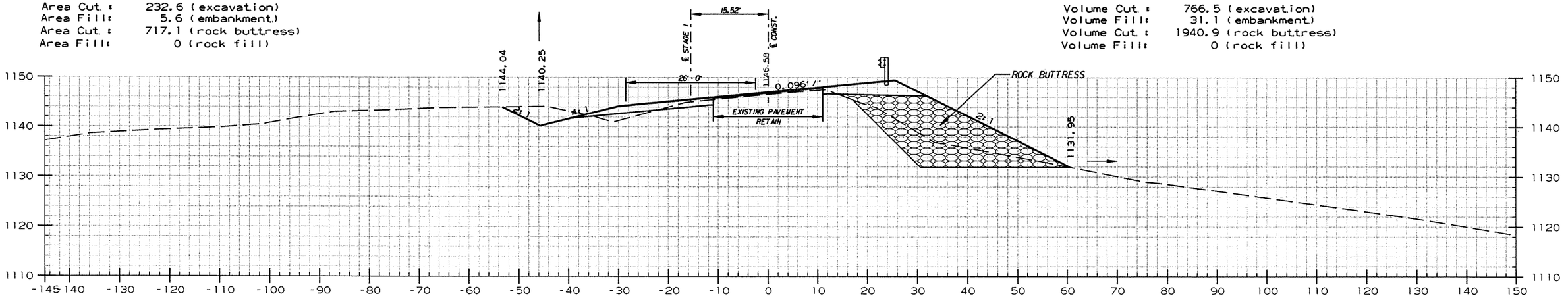
(2) CROSS SECTIONS



50+00

Area Cut : 232.6 (excavation)
Area Fill: 5.6 (embankment)
Area Cut : 717.1 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 766.5 (excavation)
Volume Fill: 31.1 (embankment)
Volume Cut : 1940.9 (rock buttress)
Volume Fill: 0 (rock fill)



49+00

Area Cut : 181.3 (excavation)
Area Fill: 11.2 (embankment)
Area Cut : 330.9 (rock buttress)
Area Fill: 0 (rock fill)

48+50 - BEGIN GUARDRAIL ON RIGHT

Volume Cut : 474.0 (excavation)
Volume Fill: 34.4 (embankment)
Volume Cut : 612.8 (rock buttress)
Volume Fill: 124.4 (rock fill)

STA. 49+00 TO STA. 50+00

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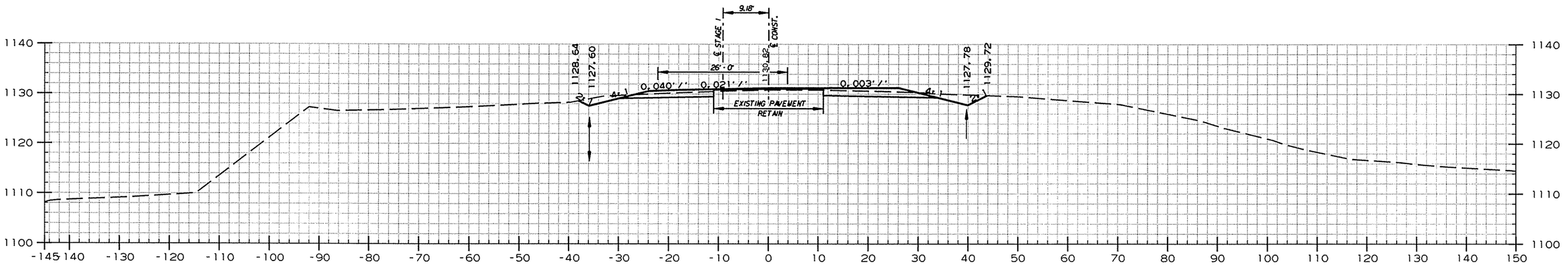
				6	ARK.			
				JOB NO.		090169	125	128

(2) CROSS SECTIONS

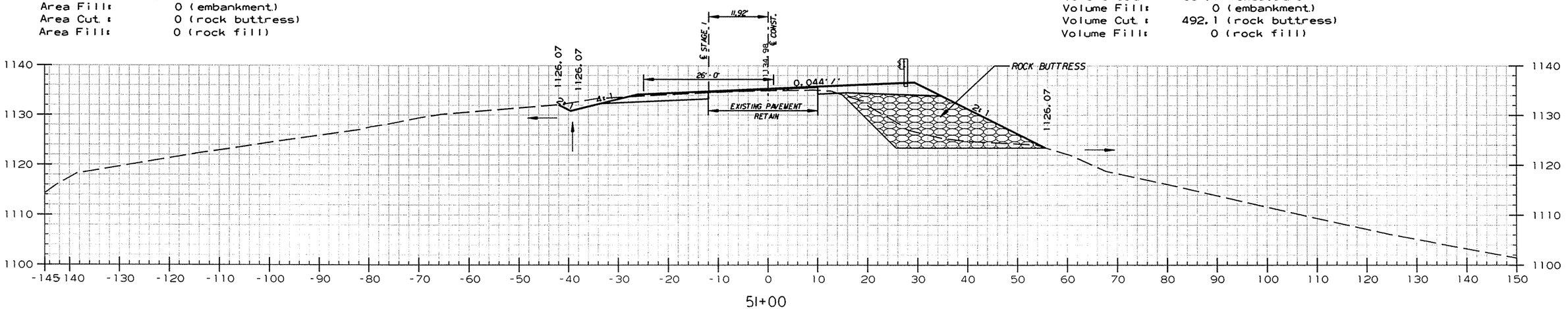


52+00

51+50 - END GUARDRAIL ON RIGHT

Area Cut : 59.4 (excavation)
Area Fill: 0 (embankment)
Area Cut : 0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 331.7 (excavation)
Volume Fill: 0 (embankment)
Volume Cut : 492.1 (rock buttress)
Volume Fill: 0 (rock fill)



51+00

Area Cut : 119.7 (excavation)
Area Fill: 0 (embankment)
Area Cut : 265.7 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 652.4 (excavation)
Volume Fill: 10.6 (embankment)
Volume Cut : 1820.1 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 51+00 TO STA. 52+00

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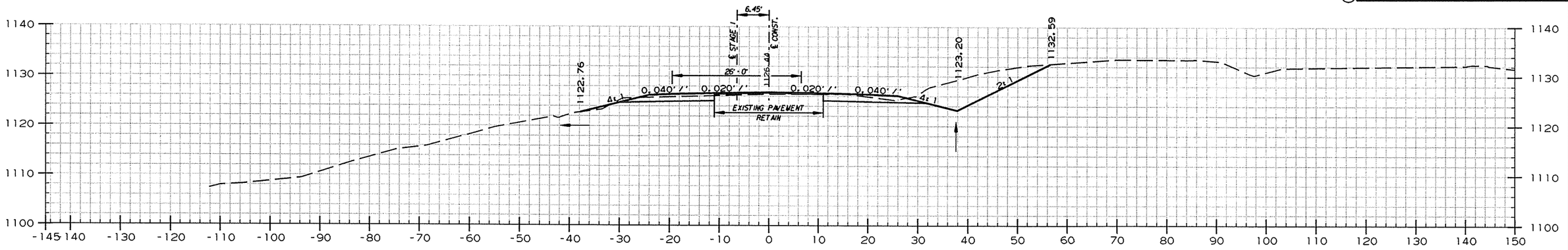
				6	ARK.			
				JOB NO.		090169	126	128

(2) CROSS SECTIONS

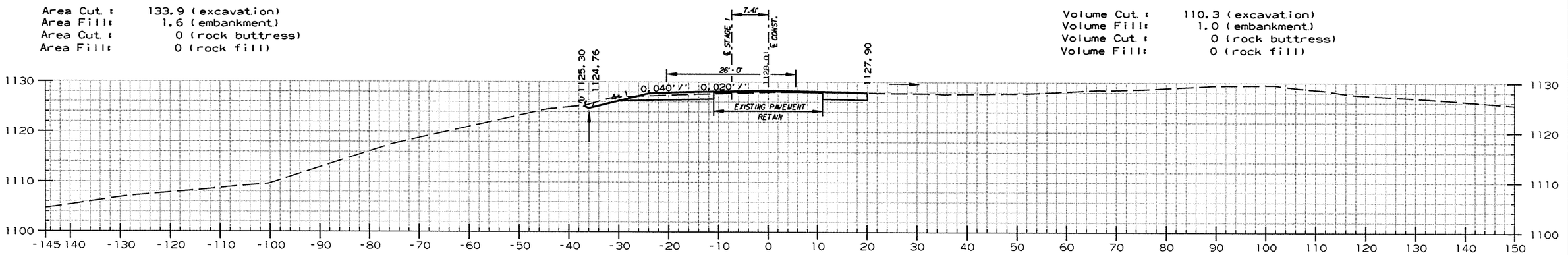
53+60 BEGIN LEFT PASSING LANE - BEGIN 270'
LANE ADDITIONAL TAPER FOR LEFT PASSING LANE



53+00

Area Cut.: 133.9 (excavation)
Area Fill: 1.6 (embankment)
Area Cut.: 0 (rock buttress)
Area Fill: 0 (rock fill)

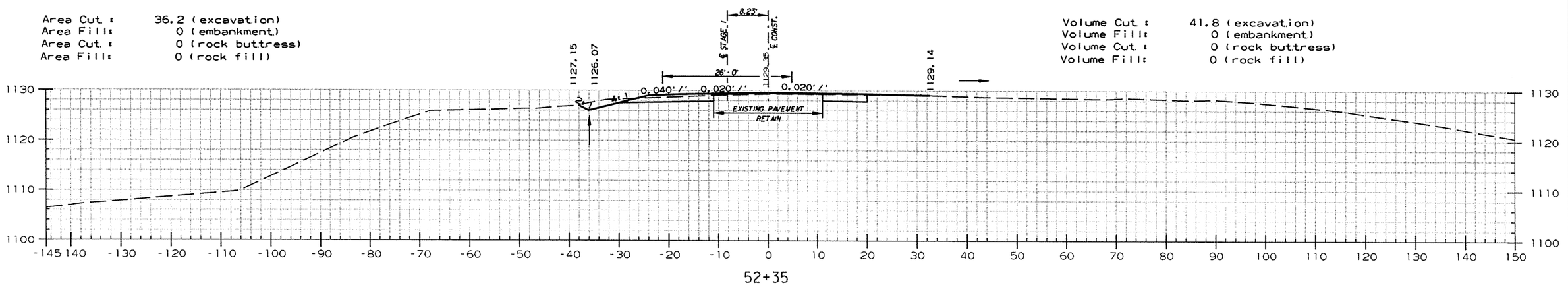
Volume Cut.: 110.3 (excavation)
Volume Fill: 1.0 (embankment)
Volume Cut.: 0 (rock buttress)
Volume Fill: 0 (rock fill)



52+65

Area Cut.: 36.2 (excavation)
Area Fill: 0 (embankment)
Area Cut.: 0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut.: 41.8 (excavation)
Volume Fill: 0 (embankment)
Volume Cut.: 0 (rock buttress)
Volume Fill: 0 (rock fill)



52+35

Area Cut.: 39.0 (excavation)
Area Fill: 0 (embankment)
Area Cut.: 0 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut.: 63.8 (excavation)
Volume Fill: 0 (embankment)
Volume Cut.: 0 (rock buttress)
Volume Fill: 0 (rock fill)

STA. 52+35 TO STA. 53+00

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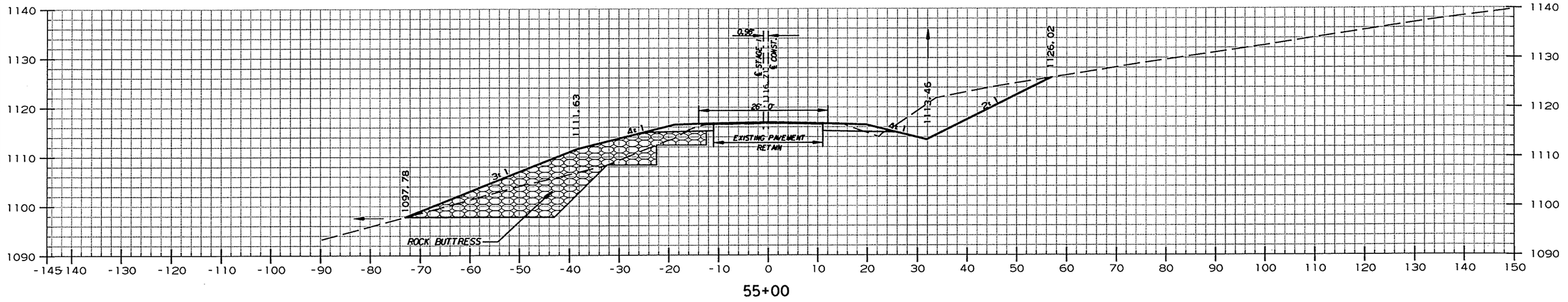
				6	ARK.			
				JOB NO.		090169	127	128

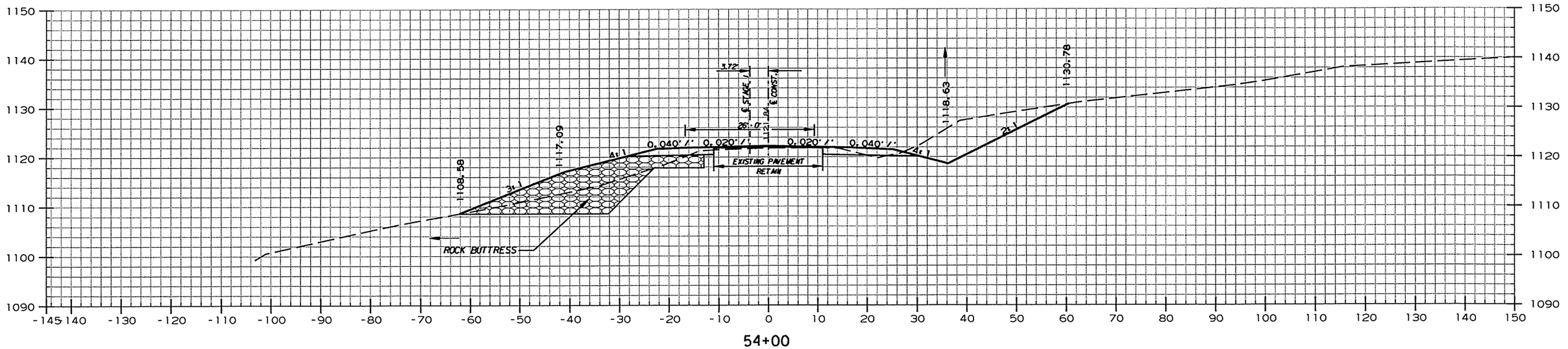
(2) CROSS SECTIONS



55+00

Area Cut : 347.1 (excavation)
Area Fill: 2.0 (embankment)
Area Cut : 357.5 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 1159.7 (excavation)
Volume Fill: 5.6 (embankment)
Volume Cut : 1149.6 (rock buttress)
Volume Fill: 0 (rock fill)



54+00

Area Cut : 279.2 (excavation)
Area Fill: 1.0 (embankment)
Area Cut : 263.2 (rock buttress)
Area Fill: 0 (rock fill)

Volume Cut : 765.0 (excavation)
Volume Fill: 4.9 (embankment)
Volume Cut : 487.5 (rock buttress)
Volume Fill: 0 (rock fill)

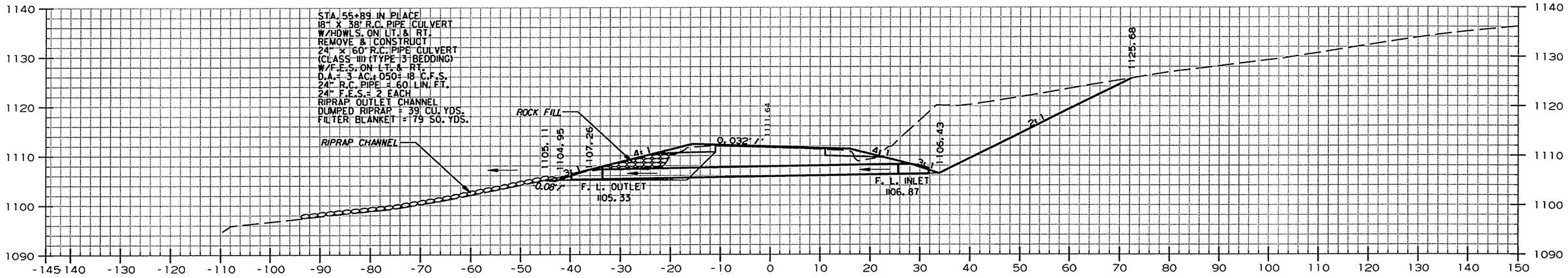
STA. 54+00 TO STA. 55+00

10/28/2014

R090169.CRS

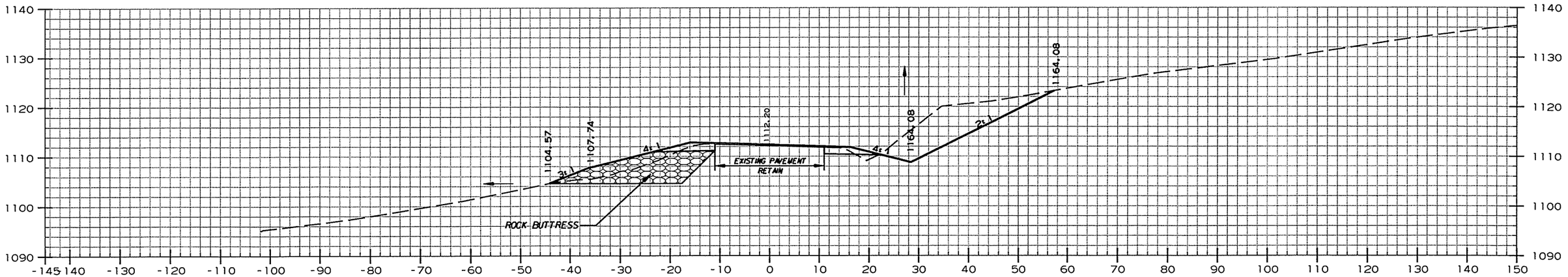
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	127A	128

(2) CROSS SECTIONS



55+89 - FOR INFORMATION PURPOSES ONLY

56+30 - END 50' CONNECTION TO EXISTING
LANES - END 270' LANE ADDITIONAL TAPER FOR LEFT PASSING LANE



55+80 - END JOB 090169 - END NOTCH & WIDENING SECTION -
BEGIN 50' CONNECTION TO EXISTING LANES

Area Cut :	255.5 (excavation)
Area Fill:	2.9 (embankment)
Area Cut :	133.0 (rock buttress)
Area Fill:	0 (rock fill)

Volume Cut :	892.7 (excavation)
Volume Fill:	7.3 (embankment)
Volume Cut :	726.7 (rock buttress)
Volume Fill:	0 (rock fill)

STA. 55+80 TO STA. 55+89

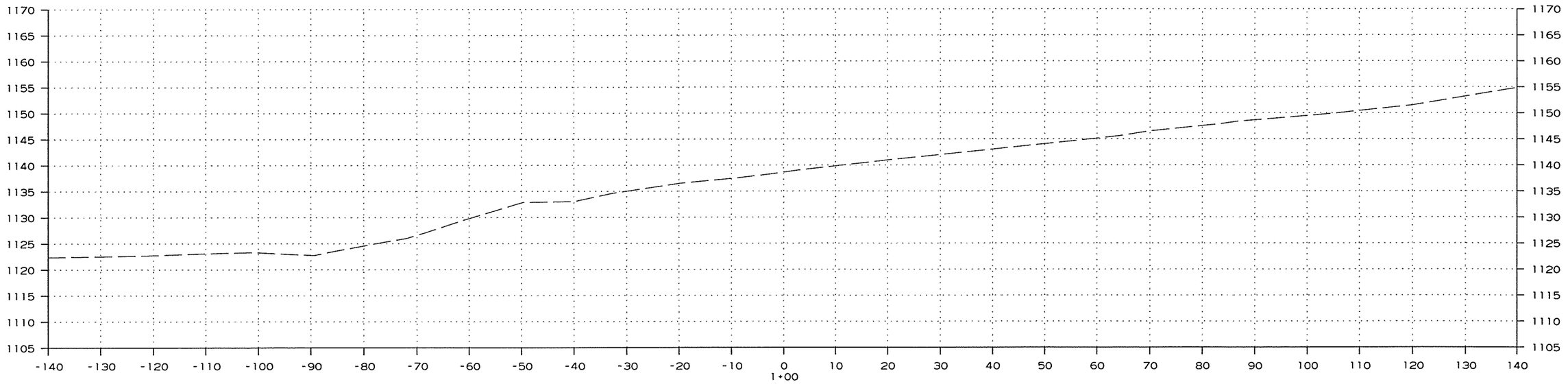
10/28/2014

R090169.CRS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090169	127B	128

(2) CROSS SECTION @ DRIVE STA. 20+00



Area Cut. : 0 (excavation)
Area Fill: 0 (embankment)

Volume Cut. : 0 (excavation)
Volume Fill: 0 (embankment)

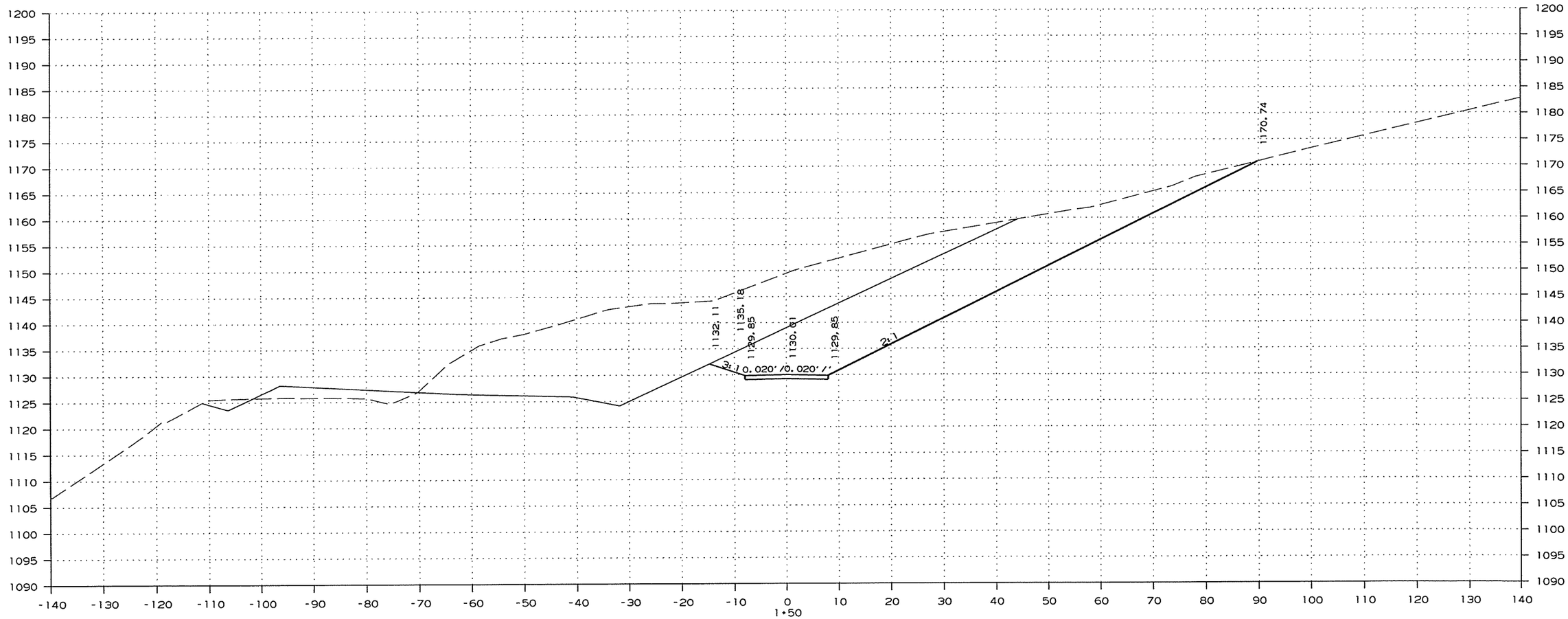
STA. 1+00 TO STA. 1+00

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	127C	128

(2) CROSS SECTION @ DRIVE STA. 20+00



Area Cut : 868.9 (excavation)
Area Fill: 0 (embankment)

Volume Cut. : 804.5 (excavation)
Volume Fill: 0 (embankment)

STA. 1+50 TO STA. 1+50

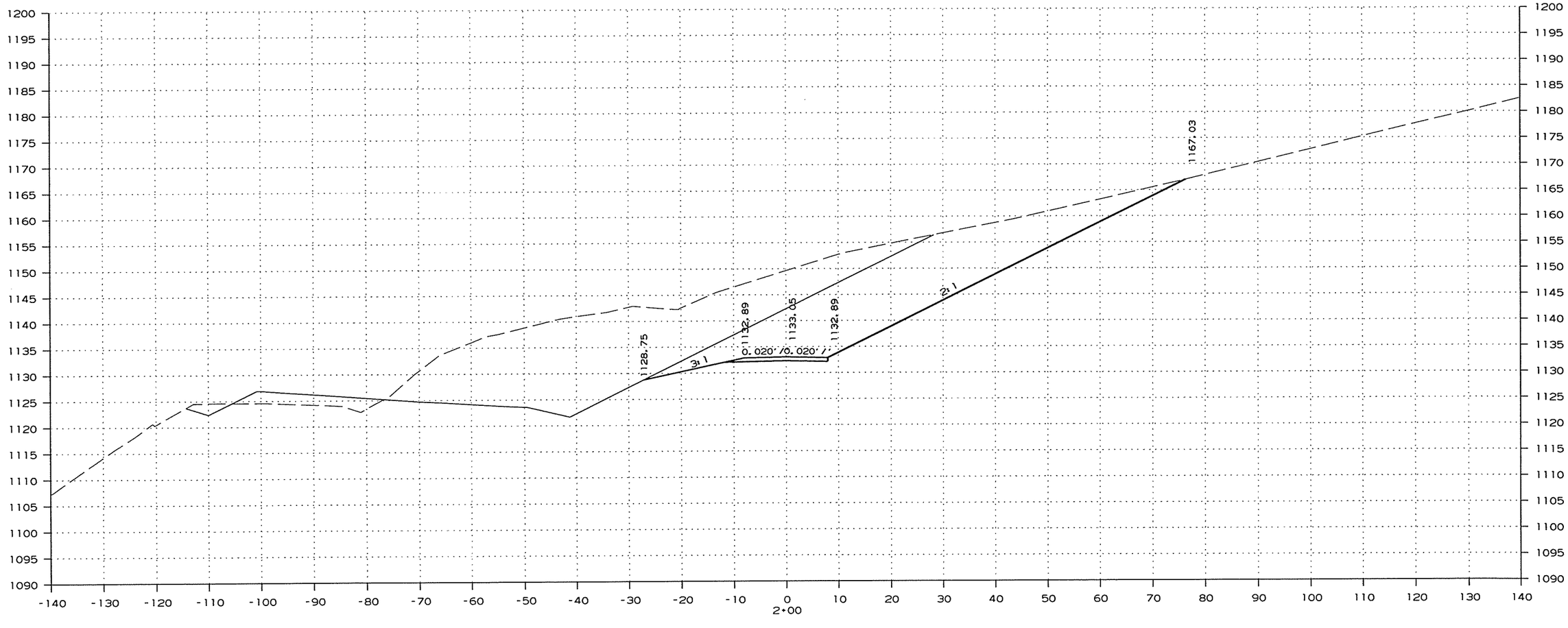
11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		090169	127D	128

(2) CROSS SECTION @ DRIVE STA. 20+00



Area Cut. : 800.7 (excavation)
Area Fill: 0 (embankment)

Volume Cut. : 1545.9 (excavation)
Volume Fill: 0 (embankment)

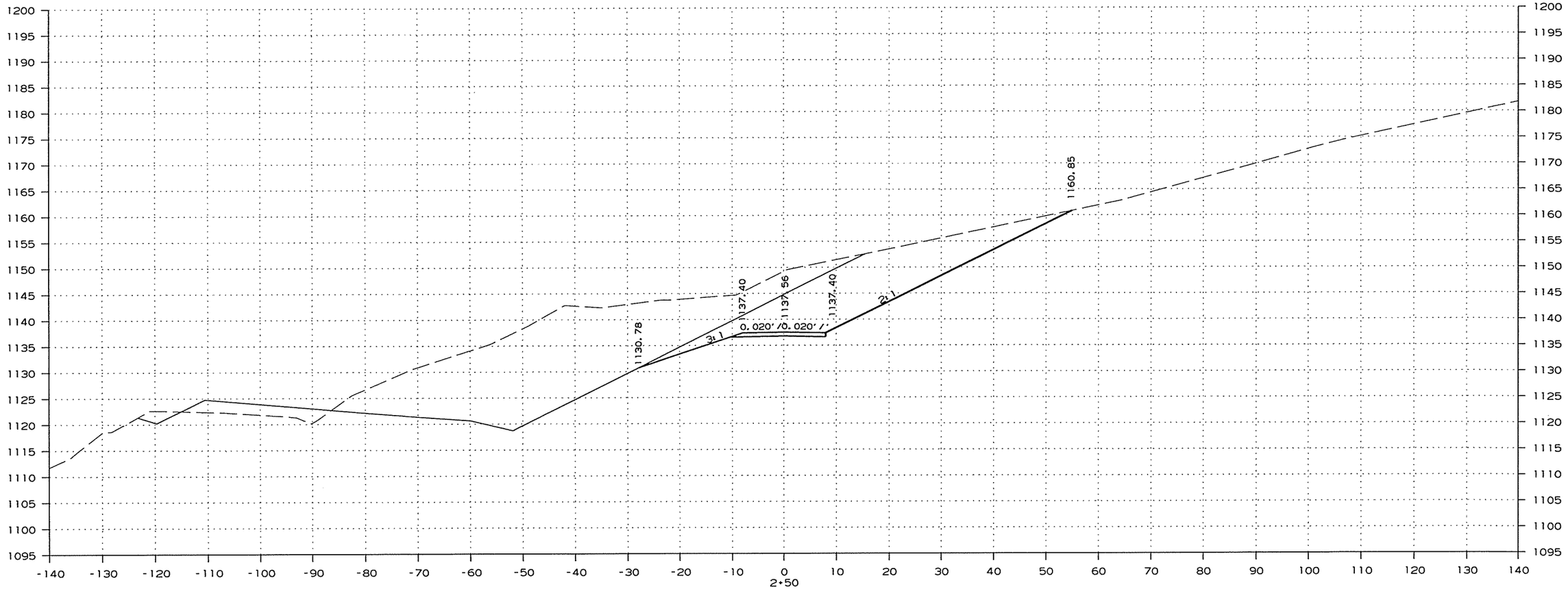
STA. 2+00 TO STA. 2+00

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	127E	128

(2) CROSS SECTION @ DRIVE STA. 20+00



Area Cut : 475.8 (excavation)
Area Fill: 0 (embankment)

Volume Cut : 1182.0 (excavation)
Volume Fill: 0 (embankment)

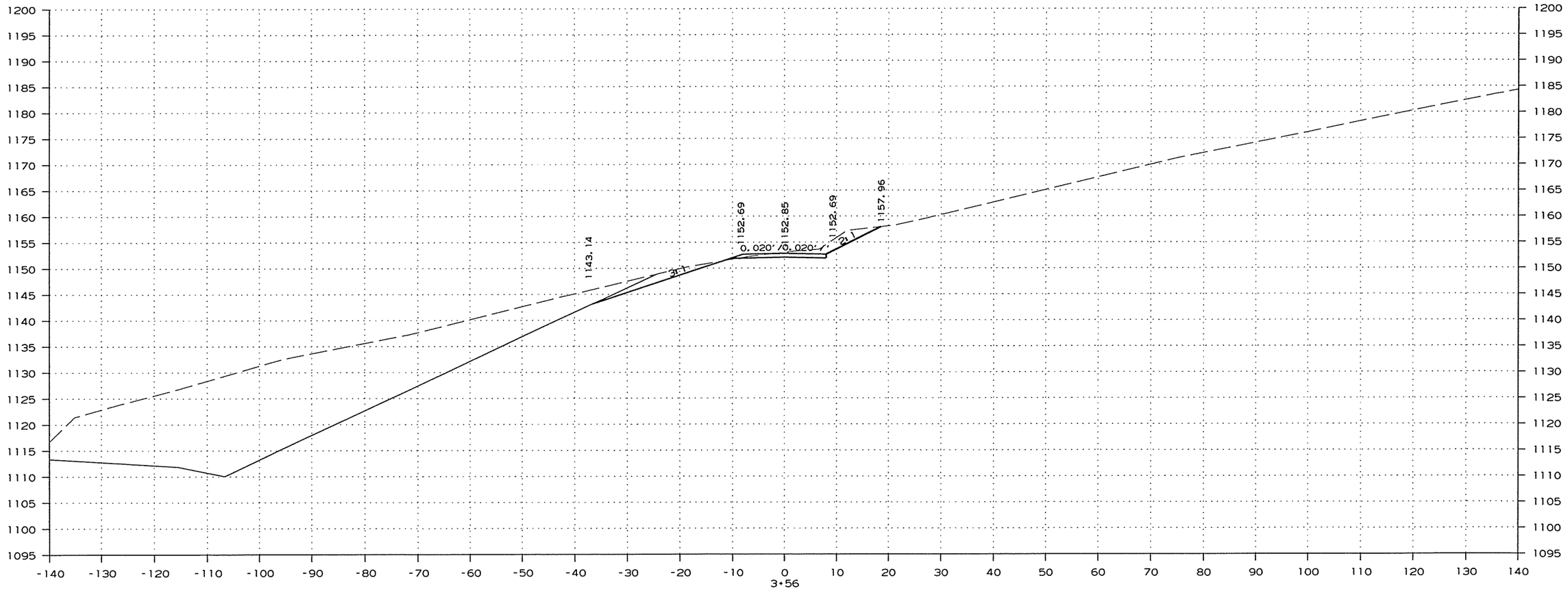
STA. 2+50 TO STA. 2+50

11/8/2011

ZBORDER.CEL

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090169	128	128

(2) CROSS SECTION @ DRIVE STA. 20+00



Area Cut : 50.0 (excavation)
Area Fill: 0.4 (embankment)

Volume Cut : 11.8 (excavation)
Volume Fill: 0.2 (embankment)

STA. 3+56 TO STA. 3+56

11/8/2011

ZBORDER.CEL