DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	1	339
				(2)	HWY. 16-HWY. 67 (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

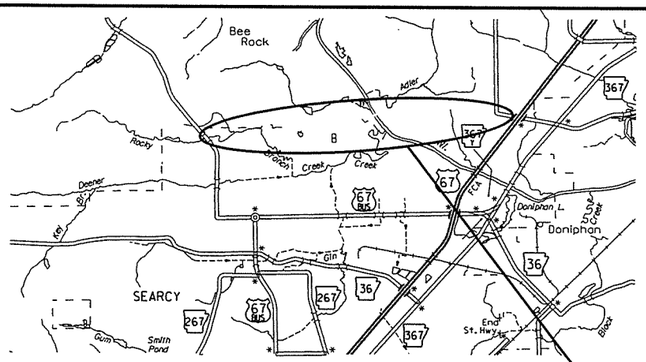
HWY. 16-HWY. 67 (S)

WHITE COUNTY
ROUTE 13

JOB 050251

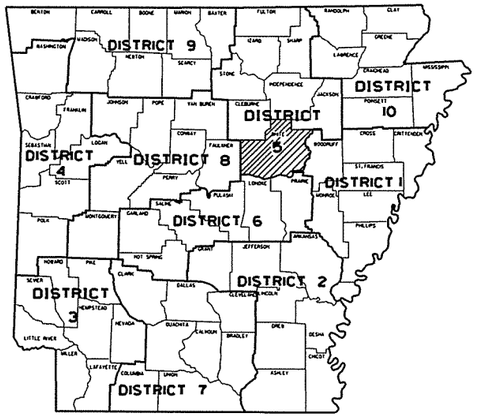
FED. AID PROJ. STP-STPF-9386(22)

NOT TO SCALE



VICINITY MAP

PROJECT LOCATION



ARK. HWY. DIST. NO. 5

STRUCTURES OVER 20'-0" DATA

(1) STA. 117+62 CONST.
TRI. 8' X 5' X 144' R.C. BOX CULVERT
ON 45° LT. FWD. SKEW
WITH 3:1 WINGS LT. AND RT.
SPAN = 35.82'
Q25 = 390 CFS., D.A. = 0.4 SQ. MI.

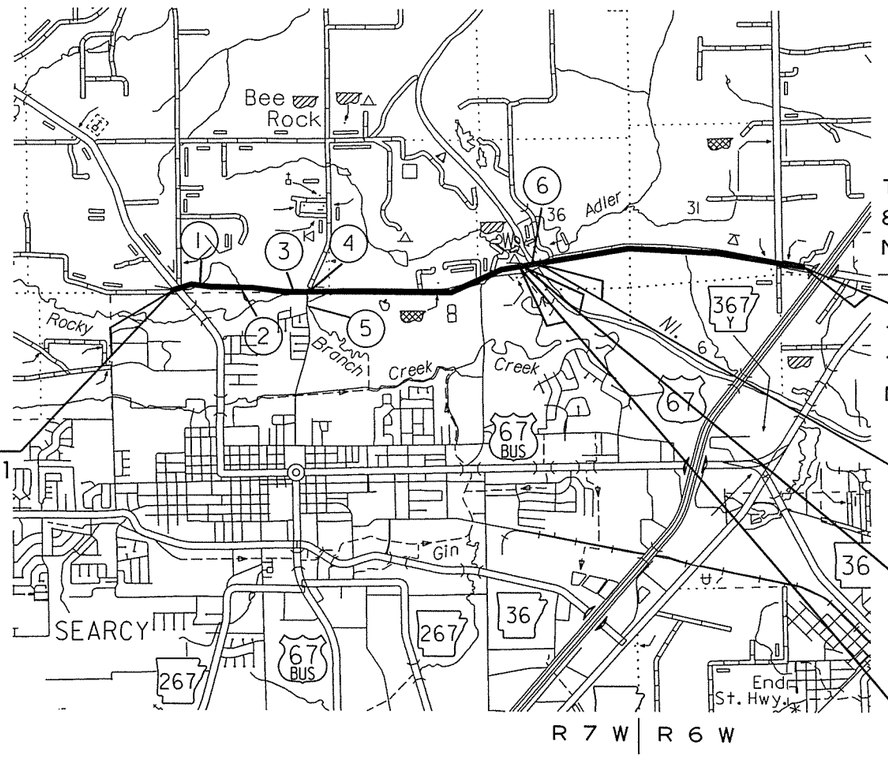
(2) STA. 132+95 CONST.
TRI. 10' X 5' X 84' R.C. BOX CULVERT
ON 15° LT. FWD. SKEW
WITH 3:1 WINGS LT. AND RT.
SPAN = 32.44'
Q25 = 720 CFS., D.A. = 1.9 SQ. MI.

(3) STA. 146+55 CONST.
QUINT. 10' X 5' X 253' R.C. BOX CULVERT
ON 45° LT. FWD SKEW
WITH 3:1 WINGS LT. AND RT.
SPAN = 74.60'
Q25 = 1140 CFS., D.A. = 2.5 SQ. MI.

(4) STA. 155+90.93 CONST. BRIDGE END
BRIDGE NO. 07353
205'-0" CONTINUOUS COMPOSITE
W-BEAM UNIT (55'-95'-55')
40'-0" CLEAR ROADWAY
207'-1¾" BRIDGE LENGTH
STA. 157+98.07 - BRIDGE END

(5) MAIN ST. TIE-IN
STA. 101+70 CONST.
NON. 8' X 4' X 113' R.C. BOX CULVERT
WITH 3:1 WINGS LT. AND RT.
SPAN = 78.33'
Q25 = 1215 CFS., D.A. = 2.8 SQ. MI.

(6) STA. 237+08.03 BRIDGE END
BRIDGE NO. 04548
418'-0" CONTINUOUS COMPOSITE
PLATE GIRDER W/CONCRETE DECK
30'-0" CLEAR ROADWAY
STA. 241+27.64 - BRIDGE END
RETAIN



STA. 106+74.55
BEGIN JOB 050251

STA. 335+00.00
END JOB 050251

STA. 241+27.64
END EXCEPTION

STA. 237+08.03
BEGIN EXCEPTION

STATION EQUATION
STA. 237+06.70 BACK =
STA. 237+06.06 AHEAD

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2035
2015 ADT	4200
2035 ADT	5800
2035 DHV	638
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	8%
DESIGN SPEED	55 MPH (RURAL) 45 MPH (URBAN)

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°16'9.84"	N 35°16'9.12"	N 35°16'9.12"
LONGITUDE	W 91°45'2.52"	W 91°42'47.52"	W 91°40'32.52"

GROSS LENGTH OF PROJECT		22826.09	FEET	OR	4.323	MILES
NET	" " ROADWAY	22056.49	"	"	4.178	"
NET	" " BRIDGES	350.00	"	"	0.066	"
NET	" " PROJECT	22406.49	"	"	4.244	"

P.E. 050198

APPROVED

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

11-2-15

DEPUTY DIRECTOR
AND CHIEF ENGINEER

7/24/2015 r050251.dgn/title sheet

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				6	ARK.			
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(2) INDEX OF SHEETS

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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
11-2-15

7/24/2015

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(2) GOV. SPEC. & GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

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 - TRAINING PROGRAM - JOB 050251
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
108-1_____	LIQUIDATED DAMAGES
400-1_____	TACK COATS
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
JOB 050251__	AIRPORT CLEARANCE REQUIREMENTS
JOB 050251__	ANTENNA SUPPORT
JOB 050251__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 050251__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 050251__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 050251__	CABINET DRAWER ASSEMBLY
JOB 050251__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 050251__	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 050251__	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 050251__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 050251__	EDGE CARD VIDEO PROCESSOR
JOB 050251__	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 050251__	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 050251__	EXPLORATORY HOLES
JOB 050251__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 050251__	HIGH PERFORMANCE PAVEMENT MARKING
JOB 050251__	LED TRAFFIC SIGNAL HEAD
JOB 050251__	LOOP WIRING REVISION 1.4
JOB 050251__	LUMINAIRE ASSEMBLY (CUTOFF TYPE)
JOB 050251__	MANDATORY ELECTRONIC CONTRACT
JOB 050251__	NESTING SITES OF MIGRATORY BIRDS
JOB 050251__	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB 050251__	PARTNERING REQUIREMENTS
JOB 050251__	PLASTIC PIPE
JOB 050251__	REMOVAL AND DISPOSAL OF GUARDRAIL
JOB 050251__	ROCK FILL
JOB 050251__	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 050251__	SHORING FOR CULVERTS
JOB 050251__	SOIL STABILIZATION
JOB 050251__	SPECIAL CLEARING REQUIREMENTS
JOB 050251__	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB 050251__	STORM WATER POLLUTION PREVENTION PLAN
JOB 050251__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 050251__	SYSTEM LOCAL CONTROLLER
JOB 050251__	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES LEFT IN PLACE
JOB 050251__	UTILITY ADJUSTMENTS
JOB 050251__	VALUE ENGINEERING
JOB 050251__	VIDEO DETECTOR (COLOR)
JOB 050251__	WARM MIX ASPHALT

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 STANDARD INDIVIDUAL 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.

7/24/2015

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GOVERNING SPECIFICATIONS & GENERAL NOTES

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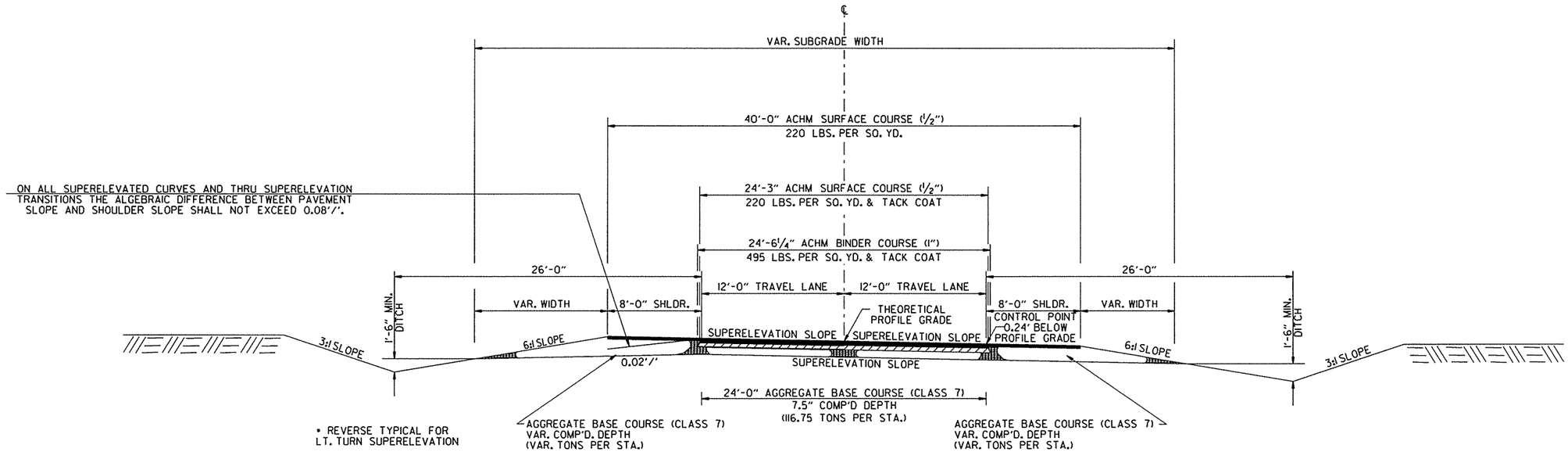
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



SUPERELEVATION SECTION
OPEN SHOULDER FULL DEPTH
HWY. 13

STA. 106+91.18 - STA. 107+86.47
STA. 108+50.34 - STA. 124+33.32
STA. 132+81.36 - STA. 154+97.73
STA. 159+76.65 - STA. 178+46.98
STA. 194+98.96 - STA. 203+84.68
STA. 216+00.00 - STA. 221+95.40
STA. 230+43.83 - STA. 234+13.17
STA. 269+02.33 - STA. 272+50.00

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.

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

7/24/2015

R050251.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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

STATE OF ARKANSAS
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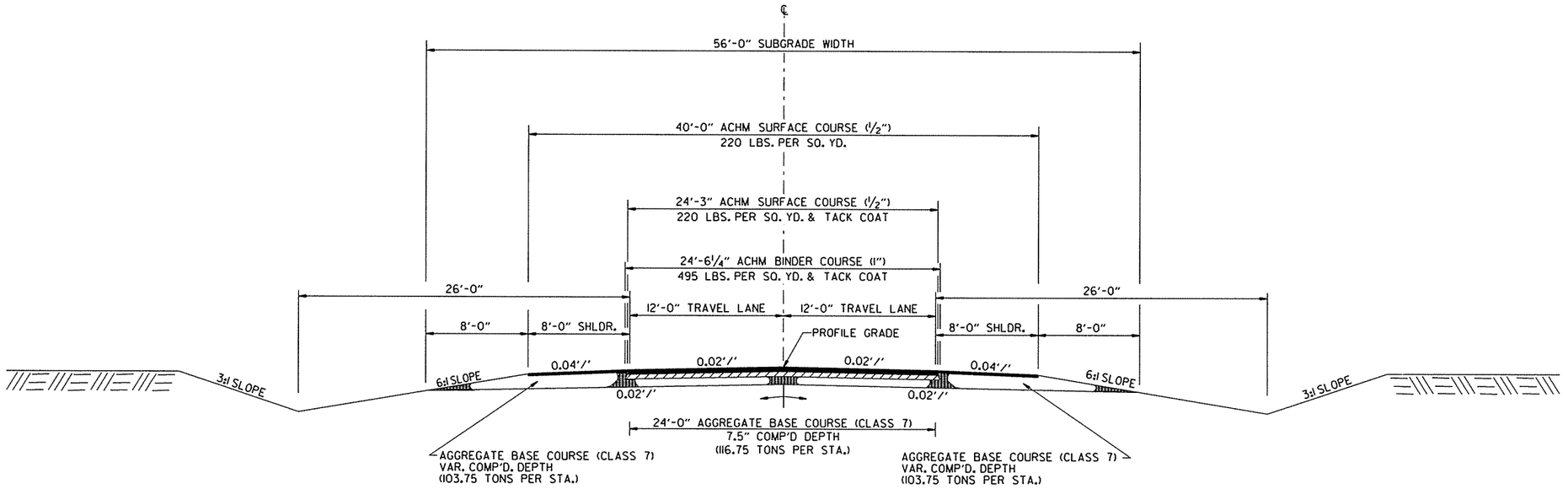

TANGENT SECTION
OPEN SHOULDER FULL DEPTH
HWY. 13

STA. 124+33.32 - STA. 132+81.36
STA. 154+97.73 - STA. 155+90.93 B.E.
STA. 157+98.07 B.E. - STA. 159+76.65
STA. 178+46.98 - STA. 194+98.96
STA. 207+14.58 - STA. 210+00.00
STA. 255+03.46 - STA. 269+02.33
STA. 288+28.04 - STA. 299+40.21

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.

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

7/24/2015

R050251.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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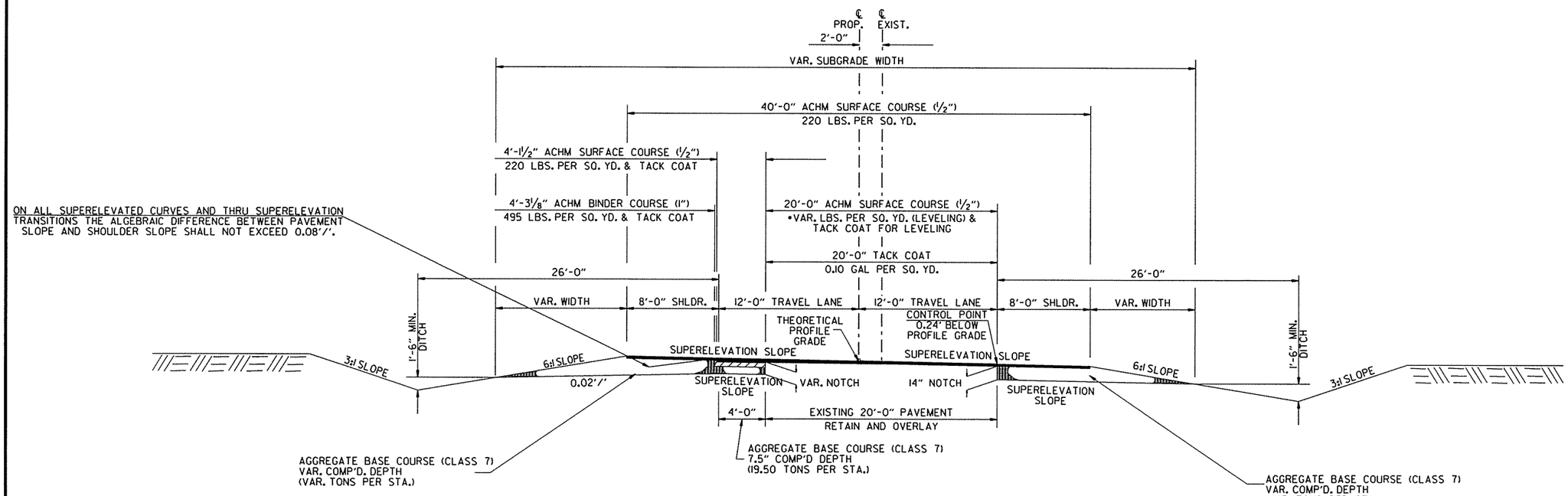
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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

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

•• REVERSE TYPICAL FOR LT. TURN SUPERELEVATION

SUPERELEVATION SECTION
OPEN SHOULDER NOTCH & WIDENING
HWY. 13

STA. 203+84.68 - STA. 206+00.21
STA. 211+37.45 - STA. 216+00.00
STA. 221+95.40 - STA. 230+43.83
STA. 234+13.17 - STA. 237+07.80
STA. 242+31.60 - STA. 250+69.95
STA. 272+50.00 - STA. 276+64.44
STA. 279+30.49 - STA. 288+14.70
STA. 300+39.17 - STA. 306+65.50

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 SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS PAY 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.

7/24/2015

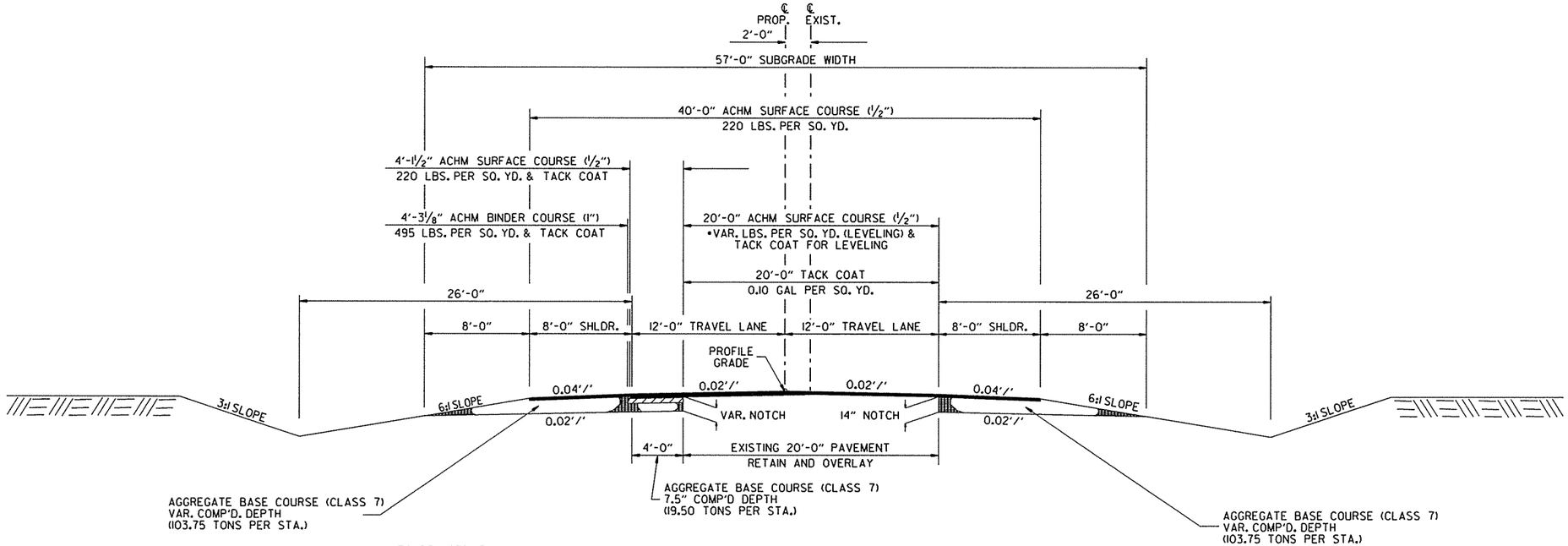
R050251.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	7	339

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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

TANGENT SECTION
OPEN SHOULDER NOTCH & WIDENING
HWY. 13

STA. 206+00.21 - STA. 207+14.58
STA. 210+00.00 - STA. 211+37.45
STA. 237+07.80 - STA. 237+08.03 B.E.
STA. 241+27.64 B.E. - STA. 242+31.60
STA. 250+69.95 - STA. 255+03.46
STA. 276+64.44 - STA. 279+30.49
STA. 288+14.70 - STA. 288+28.04
STA. 299+40.21 - STA. 300+39.17

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

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

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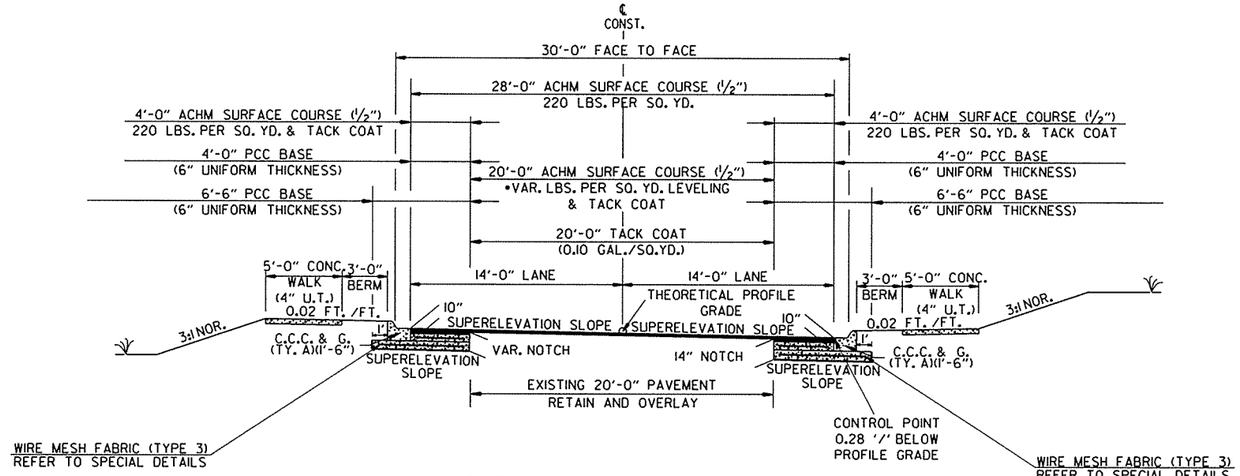
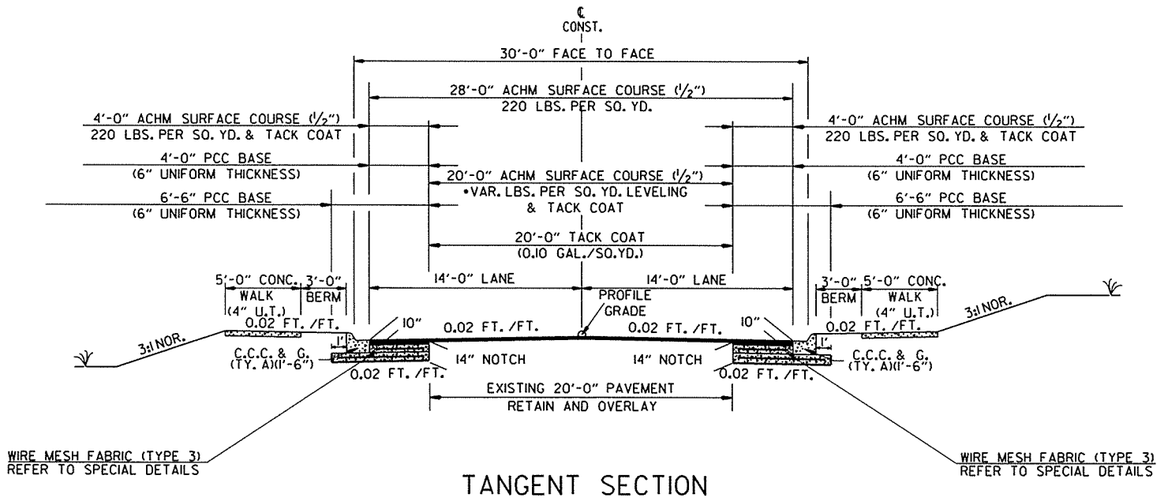


• TO BE USED IF & WHERE DIRECTED BY THE ENGINEER.

•• REVERSE TYPICAL FOR LT. TURN SUPERELEVATION

SUPERELEVATION SECTION
CURB & GUTTER NOTCH & WIDENING
HWY. 13
STA. 306+65.50 - STA. 310+45.30



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

TANGENT SECTION
CURB & GUTTER NOTCH & WIDENING
HWY. 13
STA. 310+45.30 - STA. 335+00.00

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.

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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.

REFER TO PLAN SHEETS FOR SIDEWALK LOCATIONS.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB OR GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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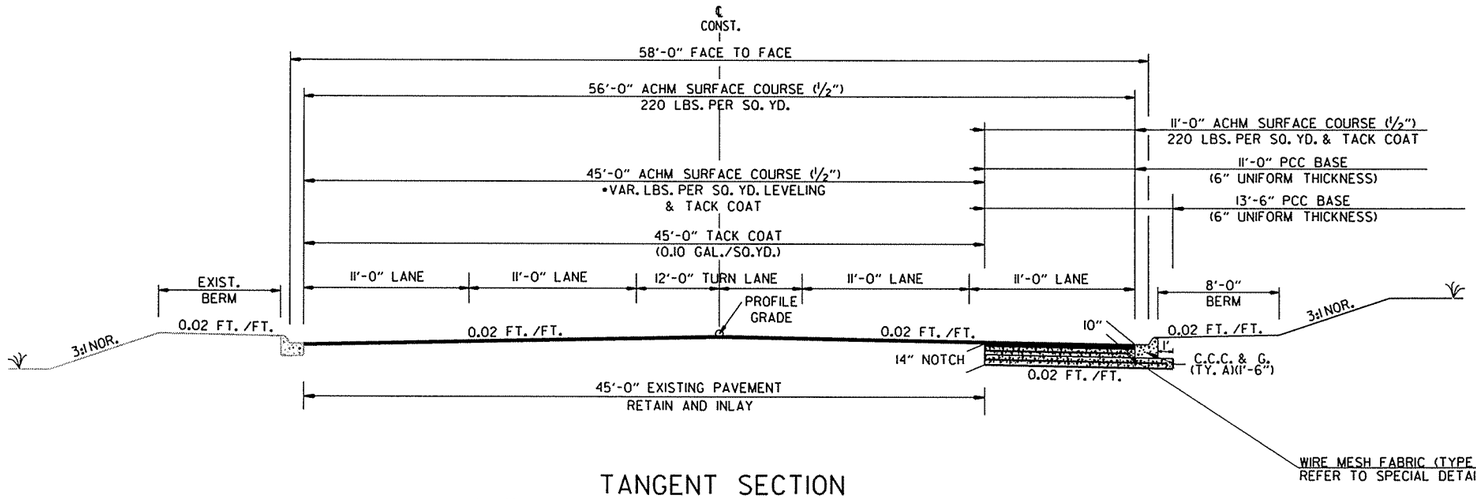
				JOB NO.		050251	9	339

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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

TANGENT SECTION
CURB & GUTTER NOTCH & WIDENING
HWY. 16
STA. 501+40.95 - STA. 513+57.59

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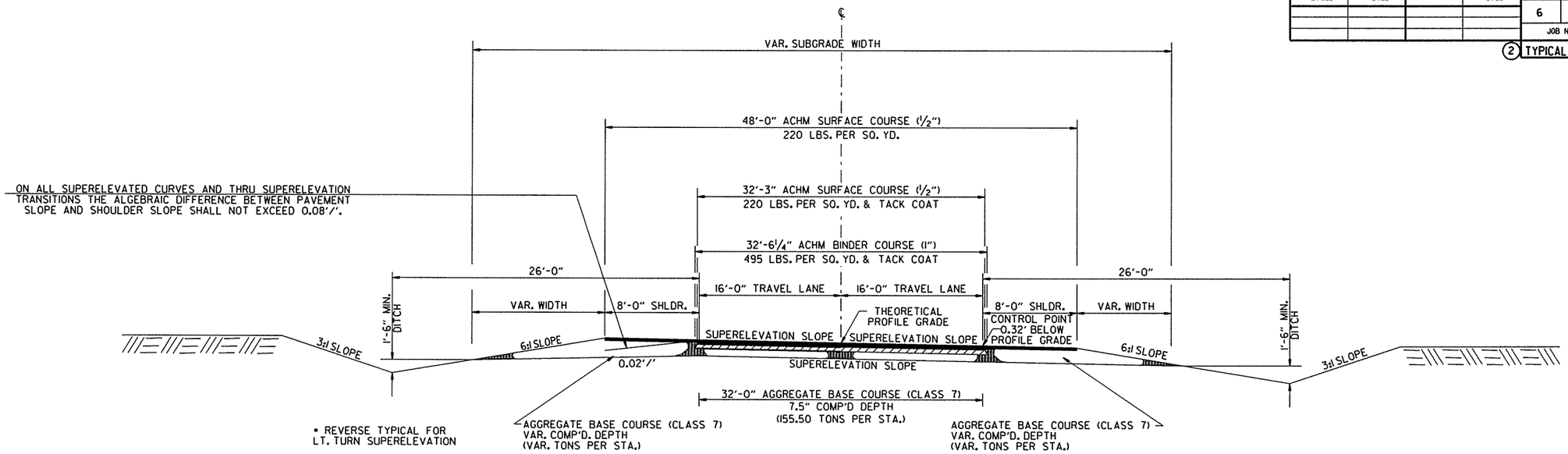
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



SUPERELEVATION SECTION
OPEN SHOULDER FULL DEPTH
MAIN ST. TIE-IN
STA. 101+69.16 - STA. 104+19.16
STA. 104+19.16 - STA. 107+19.54
STA. 101+41.80 - STA. 108+63.60

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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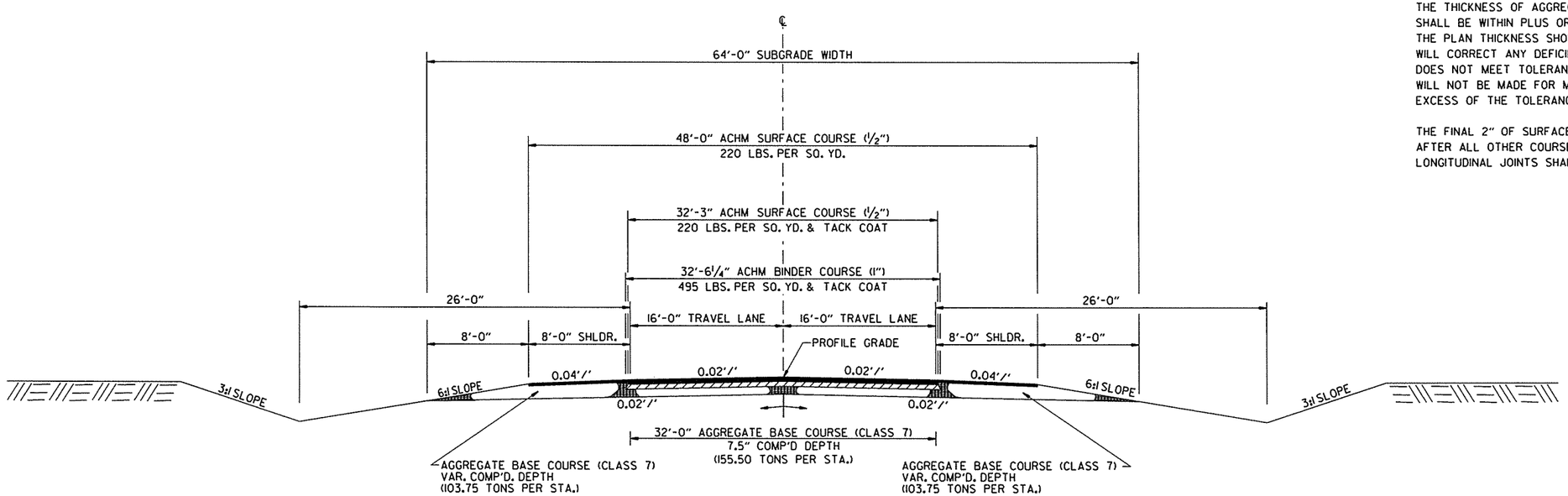

TANGENT SECTION
OPEN SHOULDER FULL DEPTH
MAIN ST. TIE-IN
STA. 101+21.81 - STA. 107+01.27

7/24/2015

R050251.DGN

TYPICAL SECTIONS OF IMPROVEMENT

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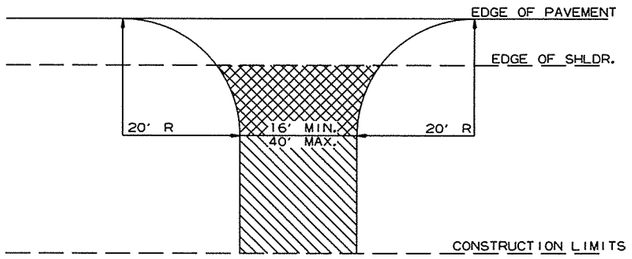
(2) SPECIAL DETAILS

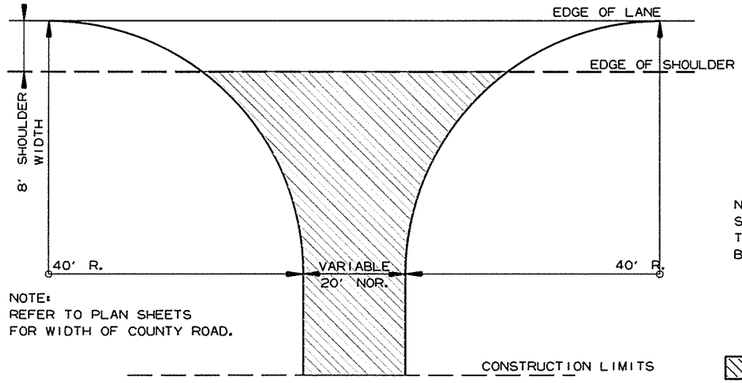
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



ASPHALT CONCRETE HOT MIX SURFACE COURSE (220 LBS. PER SQ. YD.)
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT DRIVE EXIST OR
6" CONCRETE IF CONCRETE DRIVE EXIST.

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

DETAIL FOR DRIVEWAY TURNOUTS

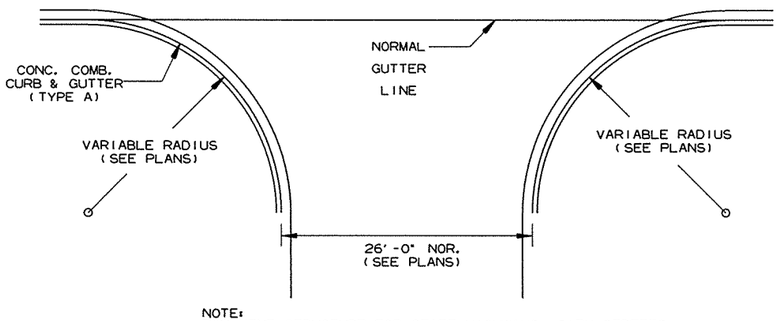


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION

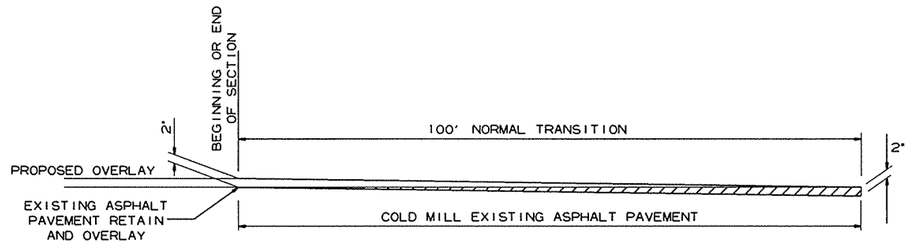
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

A.C.H.M. SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

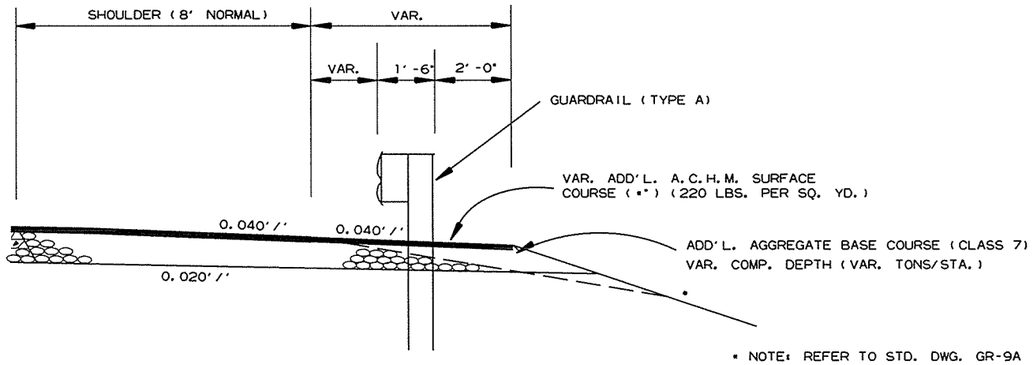


NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS, & COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF ASPHALT STREETS, COUNTY ROADS, & STATE HIGHWAYS CURB & GUTTER SECTION



DETAIL FOR TRANSITIONS



• NOTE: REFER TO STD. DWG. GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.

WIDENING FOR GUARDRAIL

7/24/2015

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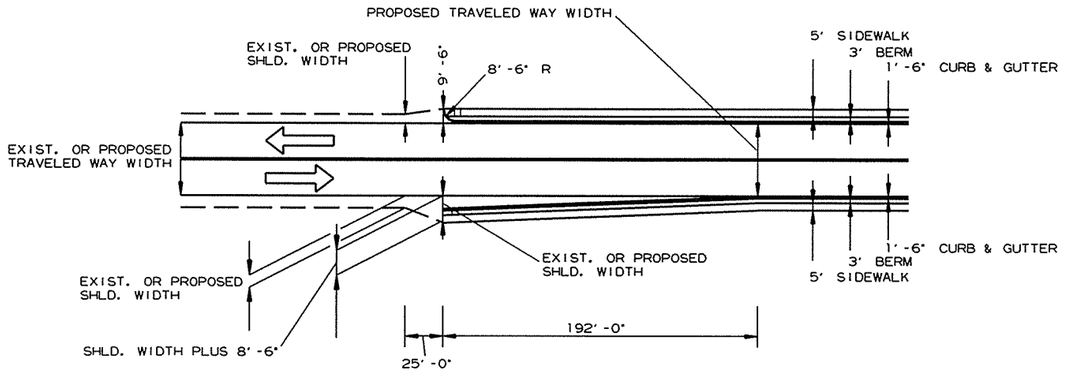
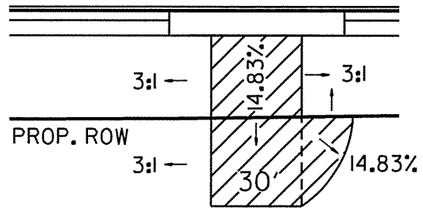
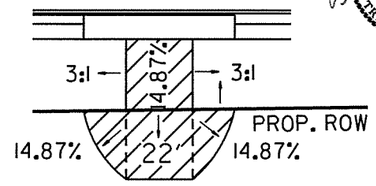
(2) SPECIAL DETAILS



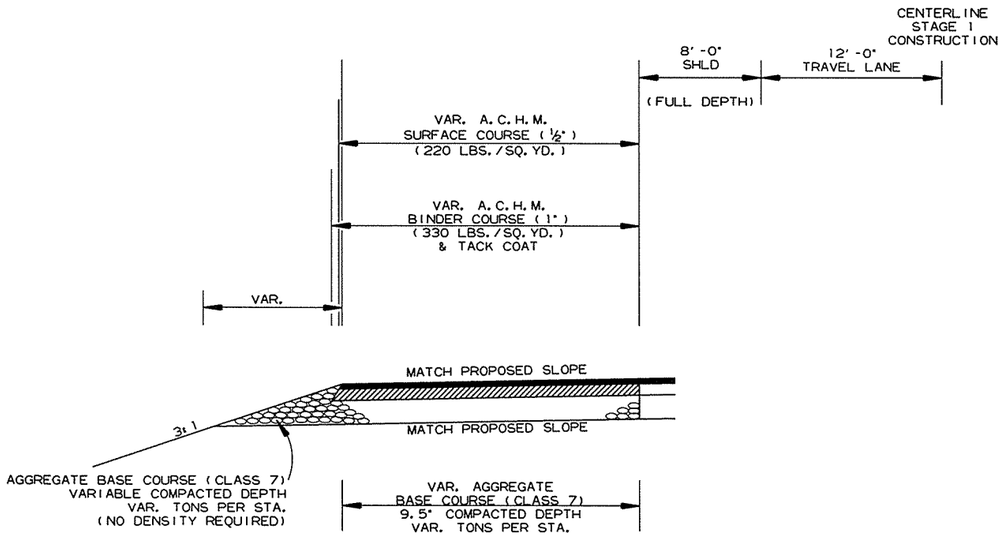
TRANSITION FROM OPEN SHOULDER
TO CURB & GUTTER SECTION



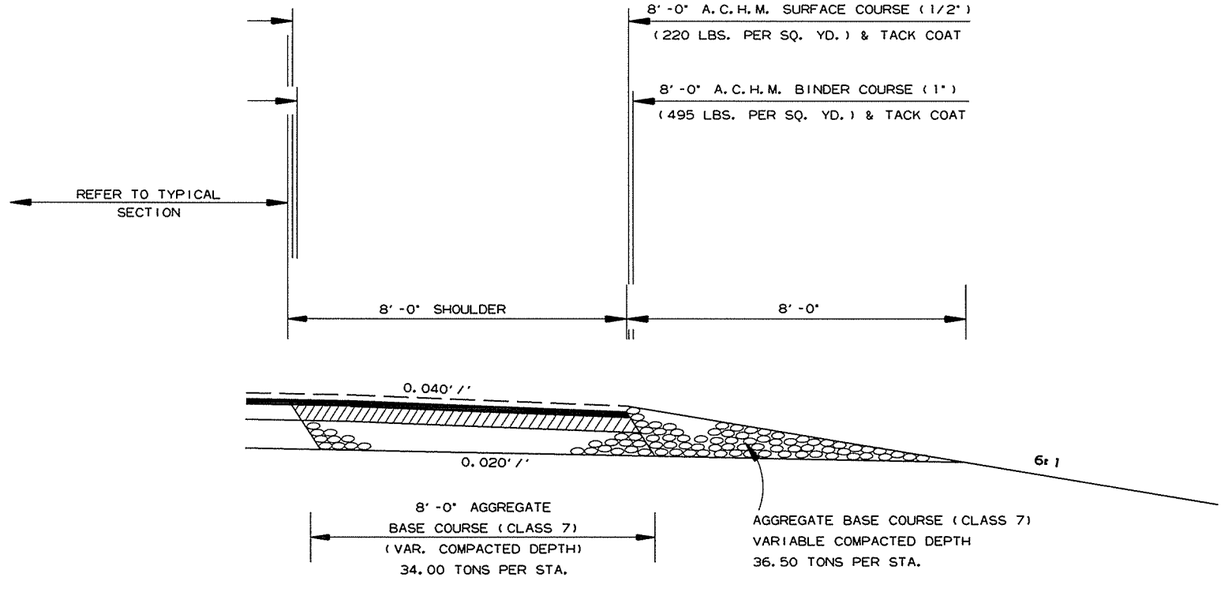
DRIVE @ STA. 323+50 RT.



DRIVE @ STA. 326+16 RT.



TEMPORARY WIDENING FOR MAINTENANCE OF TRAFFIC



FULL DEPTH SHOULDER
FOR MAINTENANCE OF TRAFFIC

STA. 171+00 - STA. 178+00
STA. 207+00 - STA. 210+00
STA. 215+00 - STA. 219+00
STA. 255+00 - STA. 272+00
STA. 289+00 - STA. 298+00

SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

7/24/2015

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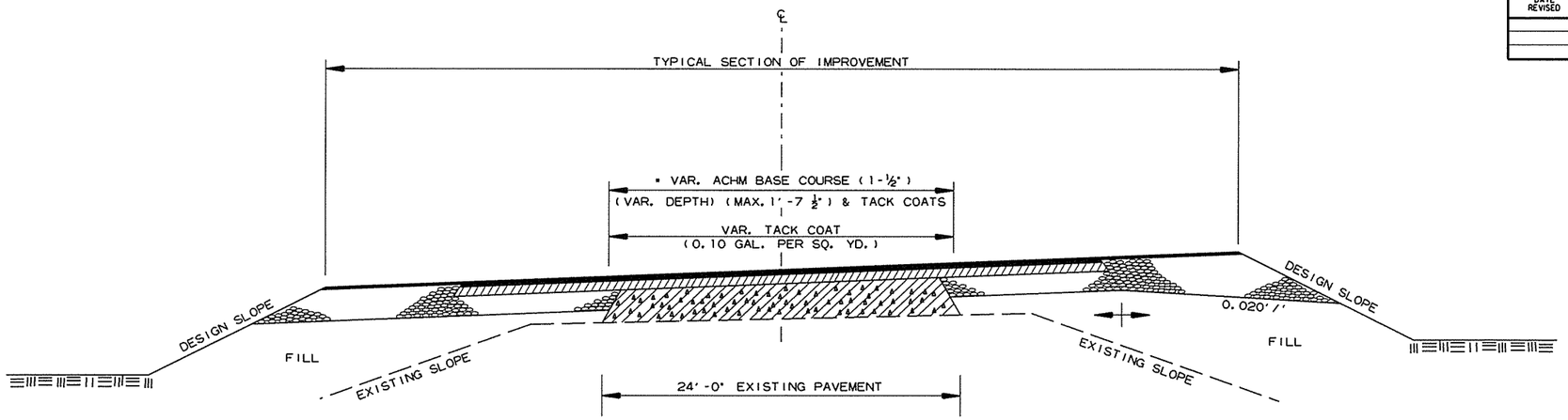


▪ 7½" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH A.C.H.M. BASE COURSE (1-½")

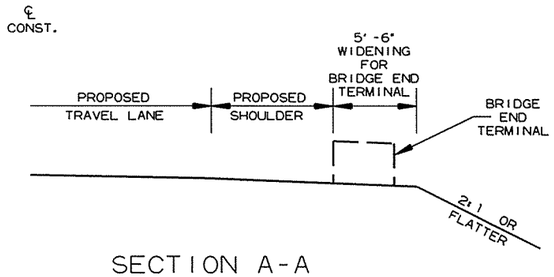
METHOD OF RAISING GRADE

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.

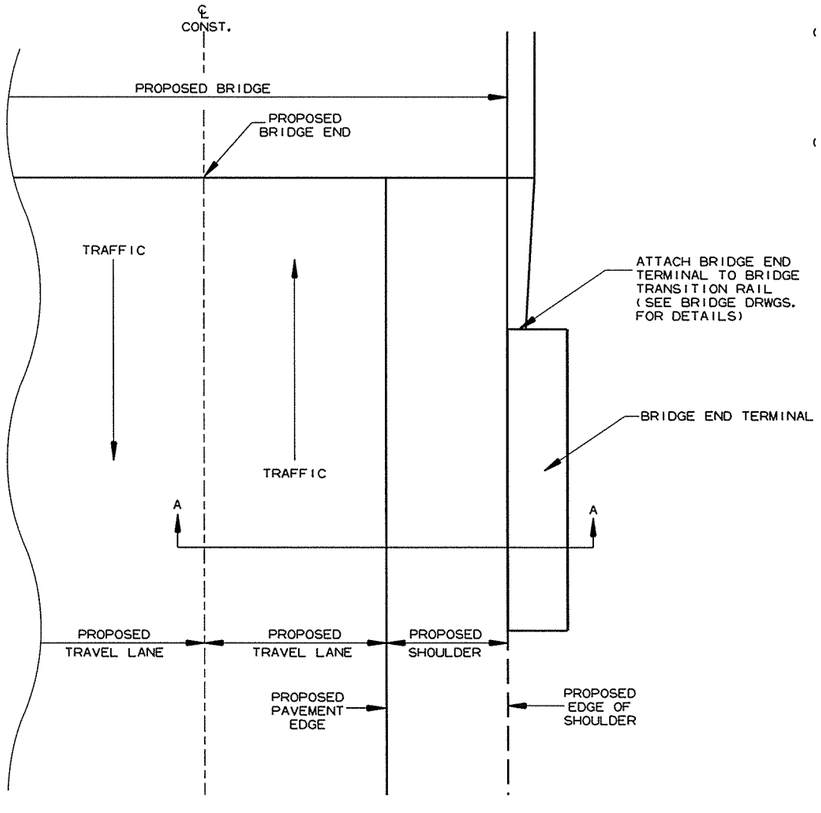
(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS.



SECTION A-A

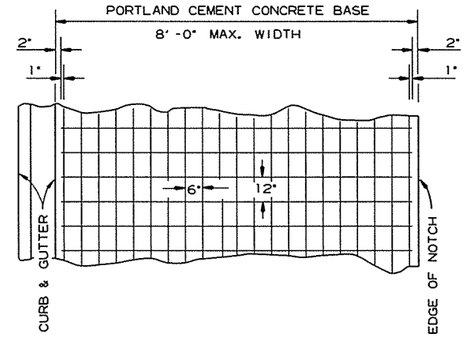
NOTE:
ELIMINATE OR MODIFY APPROACH CURB SECTION TO FIT BRIDGE END TERMINAL. NO PAYMENT SHALL BE MADE FOR ELIMINATING OR MODIFYING THIS CURB, BUT SHALL BE CONSIDERED IN PAYMENT MADE FOR APPROACH GUTTERS OF THE TYPE SPECIFIED.

NOTE:
BRIDGE END TERMINAL SHALL CONFORM TO THE FOLLOWING:
-MAXIMUM LENGTH: 20'
-MAXIMUM HEIGHT: 2.75'
-DESIGN SPEED: 60 MPH



PLAN VIEW

BRIDGE END TERMINAL DETAILS



6" X 12" MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ. YD.

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (10" U.T.)

DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)

7/24/2015

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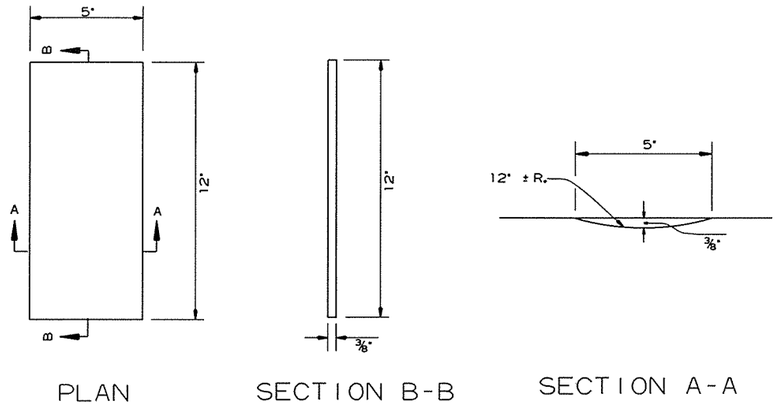
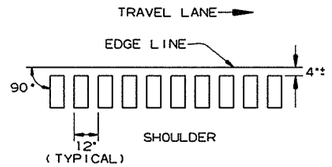
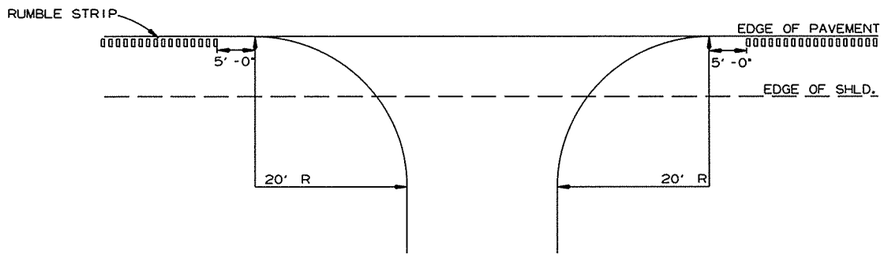


PLAN SECTION B-B SECTION A-A

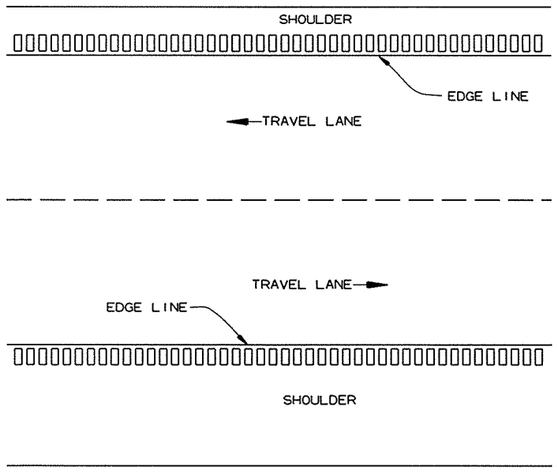
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



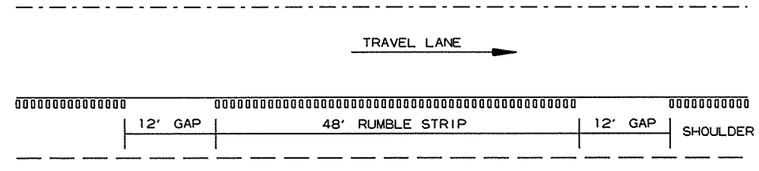
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



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.



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

7/24/2015

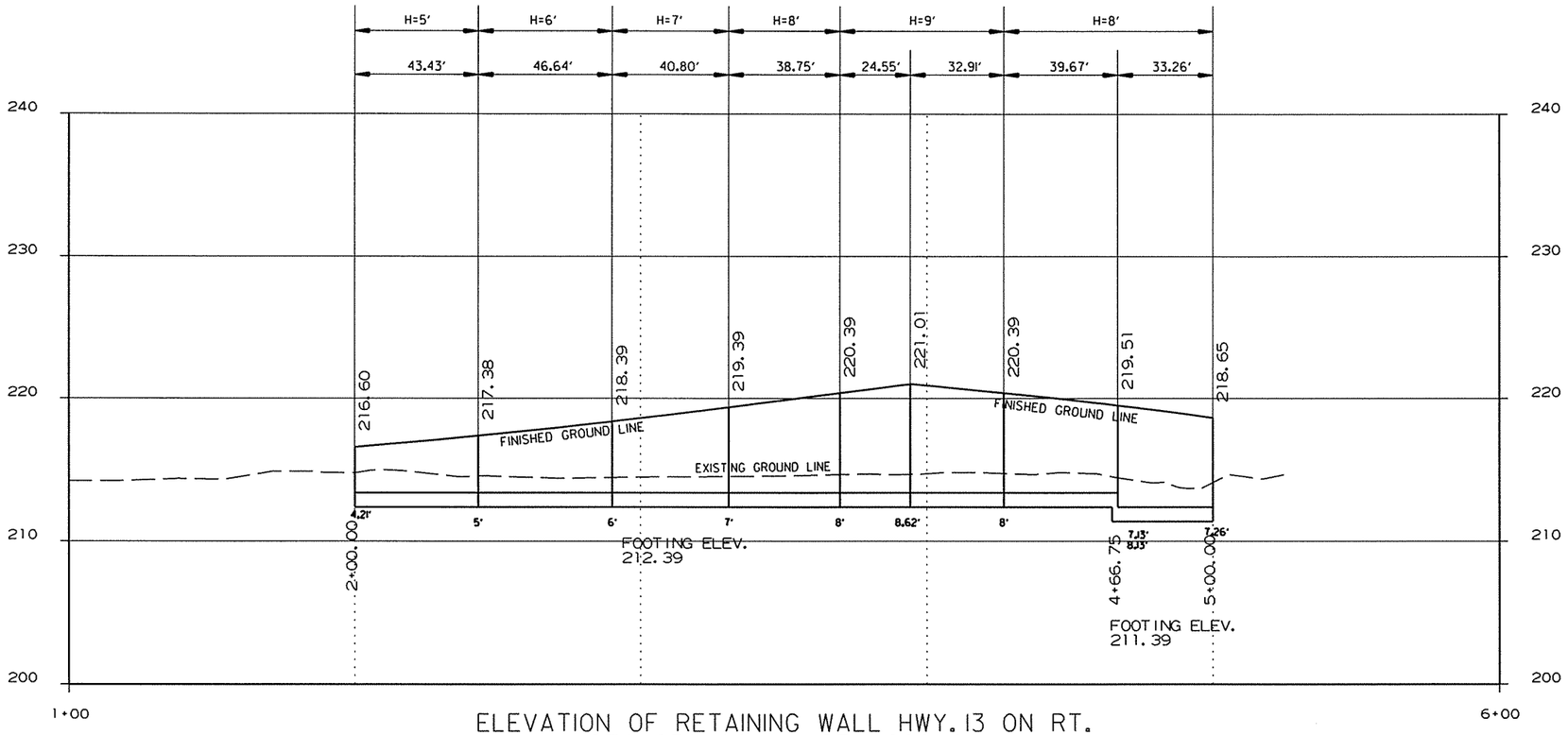
R050251.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	15	339

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



ELEVATION OF RETAINING WALL HWY. 13 ON RT.
(STA. 258+00 to STA. 260+98)

CLASS S CONCRETE - ROADWAY	REINFORCING STEEL - ROADWAY (GRADE 60)	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY
CU. YD.	POUND	CU. YD.
FOR INFORMATION ONLY		
145.12	17629	332

NOTE: REFER TO STANDARD DRAWING NO. SI-2 FOR ADDITIONAL RETAINING WALL DETAILS.

7/24/2015

R050251.DGN

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	16	339

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
26'-4"	5'-0"	0'-9"	0'-8"	45	3:1	35'-9 7/8"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	13'-5 1/2"	29'-3 1/2"	9.43	816

| WING | F1 BAR SIZE | F1 MAX. SPACING | F1 NO. REQ'D | F1 LENGTHS VARY | | | F2 BAR SIZE | F2 SPACING | F2 NO. REQ'D | F2 LENGTHS | | | F3 BAR SIZE | F3 SPACING | F3 NO. REQ'D | F3 LENGTHS | | | F4 BAR SIZE | F4 SPACING | F4 NO. REQ'D | F4 LENGTHS VARY | | | F5 BAR SIZE | F5 SPACING | F5 NO. REQ'D | F5 LENGTHS | F6 BAR SIZE | F6 SPACING | F6 NO. REQ'D | F6 LENGTHS VARY | | | F7 BAR SIZE | F7 NO. REQ'D | F7 LENGTHS | F8 BAR SIZE | F8 SPACING | F8 NO. REQ'D | F8 LENGTHS VARY | | | F9 BAR SIZE | F9 SPACING | F9 NO. REQ'D | F9 LENGTHS | | | F10 BAR SIZE | F10 NO. REQ'D | F10 LENGTHS | F11 BAR SIZE | F11 NO. REQ'D | F11 LENGTHS | F12 BAR SIZE | F12 SPACING | F12 NO. REQ'D | F12 LENGTHS | | | REINF. STEEL QTY. PER WING (LBS) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	17	339

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

TABULAR DATA BY: CMW DATE: 06/24/2015
CHECKED BY: BHS DATE: 7/21/15

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
26'-4"	5'-0"	0'-9"	0'-8"	45	3:1	35'-9 7/8"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	13'-5 1/2"	29'-3 1/2"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
10.71	816

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	13	L	Min	2'-8"				L -				L -	4	18	4	Min	4	18	2	12'-2"	4	18	9	L	Min	3'-3"	4	6	14'-4"	4	18	8	Min	-	-	-	Min	4	2	12'-8"	4	2	13'-4"	6	12	5	L	3'-4"	266
					Max	7'-3"												6'-8"									Max	7'-3"							1'-8"													
				X	Min	0'-9"	-	-	-	X -	-	-	-	X -				Min								X	Min	1'-4"							-	-	-	-								X	1'-8"	
					Max	1'-4"												10'-10"									Max	1'-4"							Max													
				Y	Min	2'-0"				Y -				Y -												Y	Min	2'-0"								-												
					Max	6'-0"																					Max	6'-0"							2'-2"													
WING B	4	12	25	L	Min	2'-8"				L -				L -	4	18	6	Min	4	18	2	24'-8"	4	18	17	L	Min	3'-3"	4	6	30'-2"	4	18	18	Min	4	18	2	37'-3"	4	2	24'-10"	4	2	28'-10"	6	12	5	L	3'-4"	550
					Max	7'-9"												3'-10"									Max	7'-3"							1'-8"													
				X	Min	0'-9"	-	-	-	X -	-	-	-	X -				Min								X	Min	1'-4"							-	-	-	-								X	1'-8"	
					Max	1'-10"												Max									Max	1'-4"							Max													
				Y	Min	2'-0"				Y -				Y -												Y	Min	2'-0"								-												
					Max	6'-0"												21'-10"									Max	6'-0"							2'-9"													

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINFORCING STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINFORCING STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
45	3:1	10	8	5	15'-2"	8	3	9	6	8	26'-4"	6'-5"	4	4.5	Max 26'-0" / Min 2'-1" / 26'-0"	64 / 6	5	7	Max 26'-0" / Min 2'-1" / 26'-0"	42 / 4	4	4.5	Max 26'-0" / Min 2'-1" / 26'-0"	64 / 6	4	5.5	Max 26'-0" / Min 2'-1" / 26'-0"	53 / 5	4	6	61	6'-1"	4	12	64	6'-1"	4	12	53	Max 28'-2" / Min 1'-10"	4	12	53	Max 28'-2" / Min 1'-10"	4	12	5	LONG 27'-10" / SHORT 2'-2"	4	12	10	LONG 19'-4" / SHORT 10'-8"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
28.26	5091

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
5	36'-11"	6	5	36'-11"	6	4	1'-7"	0'-7"	39

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	S	H	T	B	C	W	OW	OH	SL																																									

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

TRIPLE BARREL BOX CULVERT
Sta. 117+62

SPECIAL DETAILS

Ver. 1.11 b050251_cl.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	18	339

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
32'-4"	5'-0"	0'-9"	0'-8"	15	3:1	32'-5 1/4"	1'-0"	5'-10"	1'-8"	15	45	2'-2"	2'-9 1/2"	3'-1"	0'-10 3/4"	1'-0"	12'-6"	17'-6"	14'-4 5/8"	19'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
7.68	626

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F4 LENGTHS	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8 LENGTHS	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	13	L Min	2'-8"				L -				L -	4	18	4	Min		4	18	2	12'-2"	4	18	9	L Min	3'-3"	4	6	15'-3"	4	18	8	Min		-	-	-	Min	4	2	12'-8"	4	2	13'-8"	6	12	5	L	3'-4"	268
				L Max	7'-4"				L -				L -				6'-4"									L Max	7'-3"							1'-8"				-									
				X Min	0'-9"				X -				X -				Min									X Min	1'-4"							Max				Max								X	1'-8"	
				X Max	1'-5"				X -				X -				10'-10"									X Max	1'-4"							2'-3"				-									
				Y Min	2'-0"				Y -				Y -													Y Min	2'-0"																					
				Y Max	6'-0"				Y -				Y -													Y Max	6'-0"																					
WING B	4	12	18	L Min	2'-8"				L -				L -	4	18	6	Min		4	18	2	17'-2"	4	18	12	L Min	3'-4"	4	6	20'-3"	4	18	12	Min		-	-	-	Min	4	2	17'-6"	4	2	19'-10"	6	12	5	L	3'-4"	358
				L Max	7'-7"				L -				L -				2'-8"									L Max	7'-3"							1'-8"				-									
				X Min	0'-9"				X -				X -				Min									X Min	1'-4"							Max				Max								X	1'-8"	
				X Max	1'-8"				X -				X -				15'-3"									X Max	1'-4"							2'-7"				-									
				Y Min	2'-0"				Y -				Y -													Y Min	2'-1"																					
				Y Max	6'-0"				Y -				Y -													Y Max	6'-0"																					

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

③ MID-SECTION

BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft.- 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

TABULAR DATA BY: CMW DATE: 06/24/2015
CHECKED BY: BWS DATE: 7/30/15

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINFORCING STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINFORCING STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
15	3:1	5	10	5	6'-4"	10	3	10	6	8	32'-4"	6'-8"	5	5	Max 32'-0" Min 5'-11" 32'-0"	17 5	8	8.5	Max 32'-0" Min 5'-11" 32'-0"	10 3	4	5	Max 32'-0" Min 5'-11" 32'-0"	17 5	4	6	Max 32'-0" Min 5'-11" 32'-0"	14 4	4	6	26	6'-4"	4	12	28	6'-4"	4	11	71	Max 10'-6" Min 1'-10"	4	11	71	Max 10'-6" Min 1'-10"	4	12	5	LONG 10'-5" SHORT 1'-11"	4	12	10	LONG 7'-7" SHORT 4'-9"

CLASS "S" CONCRETE (Includes HDWL)	②REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
16.05	3094

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
4	33'-2"	6	4	33'-2"	6	4	1'-9"	0'-9"	35

INLET SLOPE SECTION(S)

R.C. BOX SECTION D	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	c SPACING	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	f SPACING	f NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	"h" BARS Y	"h" BARS LENGTH	"h" BARS NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	②ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION D	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	c SPACING	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	f SPACING	f NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
A	5	10	5	10	10	6	8	32'-4"	6'-8"	71.33	4	32'-0"	8	32'-6"	6	32'-0"	13	65	4	32'-0"	5	32'-5"	4	32'-0"	13	65	4	6	284	6'-4"	4	12	284	6'-4"	4	11	71	4	11	71	4	12	10	4	12	20

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS PER LIN. FT.	③ADTL. STEEL PER LONG. LAP LOCATION (S) LBS.
2.43	364	201

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 132+95

SPECIAL DETAILS

LRFD

Ver. Ll14 b050251_c2.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	19	339

① SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

TABULAR DATA BY: CMW DATE: 06/24/2015
CHECKED BY: BHS DATE: 7/2/15

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
32'-4"	5'-0"	0'-9"	0'-8"	15	3:1	32'-5 1/4"	1'-0"	5'-10"	1'-8"	15	45	2'-2"	2'-9 1/2"	3'-1"	0'-10 3/4"	1'-0"	12'-6"	17'-6"	14'-4 5/8"	19'-4 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
8.80	626

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F8 LENGTHS	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	13	L Min	2'-8"												Min								L Min	3'-3"							Min															L	3'-4"	268
				L Max	7'-4"				L -				L -				6'-8"				12'-2"				Max	7'-3"							1'-8"	-															
				X Min	0'-9"	-	-	-	X -	-	-	-	X -	4	18	4		4	18	2		4	18	9	X Min	1'-4"	4	6	15'-3"	4	18	8			-	-	-	Min	4	2	12'-8"	4	2	13'-8"	6	12	5	X	1'-8"	
				X Max	1'-5"																				Max	1'-4"							Max																
				Y Min	2'-0"				Y -				Y -				10'-10"								Y Min	2'-0"							2'-3"																
				Y Max	6'-0"																				Max	6'-0"																							
WING B	4	12	18	L Min	2'-8"												Min								L Min	3'-4"							Min															L	3'-4"	358
				L Max	7'-7"				L -				L -				2'-8"				17'-2"				Max	7'-3"							1'-8"	-															
				X Min	0'-9"	-	-	-	X -	-	-	-	X -	4	18	6		4	18	2		4	18	12	X Min	1'-4"	4	6	20'-3"	4	18	12			-	-	-	Min	4	2	17'-6"	4	2	19'-10"	6	12	5	X	1'-8"	
				X Max	1'-8"																				Max	1'-4"							Max																
				Y Min	2'-0"				Y -				Y -				15'-3"								Y Min	2'-1"							2'-7"																
				Y Max	6'-0"																				Max	6'-0"																							

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

| SKEW (DEGREE) | SLOPE | DESIGN FILL DEPTH (FT.) | CLEAR SPAN (FT.) | CLEAR HEIGHT (FT.) | SECTION LENGTH | TOP SLAB THK. | HDWL THK. | BOTTOM SLAB THK. | SIDE WALL THK. | INTERIOR WALL THK. | OVER ALL WIDTH | OVER ALL HEIGHT | TOP SLAB REINFORCING STEEL a SIZE | a SPACING | a LENGTHS VARY | a LENGTHS | a NO. REQ'D | TOP SLAB REINFORCING STEEL c SIZE | c SPACING | c LENGTHS VARY | c LENGTHS | c NO. REQ'D | BOTTOM SLAB REINFORCING STEEL d SIZE | d SPACING | d LENGTHS VARY | d LENGTHS | d NO. REQ'D | BOTTOM SLAB REINFORCING STEEL f SIZE | f SPACING | f LENGTHS VARY | f LENGTHS | f NO. REQ'D | SIDE WALL REINFORCING STEEL f0 SIZE | f0 SPACING | f0 NO. REQ'D | f0 LENGTH | INTERIOR WALL REINFORCING STEEL f1 SIZE | f1 SPACING | f1 NO. REQ'D | f1 LENGTH | TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE | g SPACING | g NO. REQ'D | g LENGTHS VARY | BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE | e SPACING | e NO. REQ'D | e LENGTHS VARY | SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE | d1 SPACING | d1 NO. REQ'D | d1 LENGTH | INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE | d2 SPACING | d2 NO. REQ'D | d2 LENGTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	20	339

SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
53'-11"	5'-0"	0'-9"	0'-8"	45	3:1	74'-7 1/4"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	13'-4 1/8"	28'-11 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
11.69	871

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTH	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTH	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTH	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTH
WING A	4	12	13	L	Min 2'-8"	-	-	-	-	-	-	-	-	4	18	4	Min	4	18	2	12'-2"
					Max 7'-3"												6'-4"				
				X	Min 0'-9"				L -				L -				Max				
					Max 1'-4"				X -				X -				10'-10"				
				Y	Min 2'-0"				Y -				Y -								
					Max 6'-0"																
WING B	4	12	25	L	Min 2'-8"	-	-	-	-	-	-	-	-	4	18	6	Min	4	18	2	24'-8"
					Max 7'-9"												3'-10"				
				X	Min 0'-9"				L -				L -				Max				
					Max 1'-10"				X -				X -				21'-10"				
				Y	Min 2'-0"				Y -				Y -								
					Max 6'-0"																

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTH	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	9	L	Min 3'-3"	4	14'-2"	4	18	8	Min	-	-	-	Min	4	2	12'-8"	4	2	13'-4"	6	12	5	L 3'-4"	294
					Max 7'-3"						1'-8"				-											
				X	Min 1'-4"						Max				Max										X 1'-8"	
					Max 1'-4"						2'-2"				-											
				Y	Min 2'-0"																					
					Max 6'-0"																					
WING B	4	18	17	L	Min 3'-3"	4	29'-10"	4	18	18	Min	4	18	2	Min	4	2	24'-10"	4	2	28'-10"	6	12	5	L 3'-4"	577
					Max 7'-3"						1'-8"				37'-3"											
				X	Min 1'-4"						Max				Max										X 1'-8"	
					Max 1'-4"						2'-9"				37'-3"											
				Y	Min 2'-0"																					
					Max 6'-0"																					

③ MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

TABULAR DATA BY: CMW DATE: 06/24/2015
CHECKED BY: BHS DATE: 8/3/15

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.
For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE) SK	SLOPE SL	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	SECTION LENGTH LL	TOP SLAB THK. T	HDWL THK. HW	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVERALL WIDTH OW	OVERALL HEIGHT OH
45	3:1	20	10	5	28'-11"	15	3	16	7.5	8	53'-11"	7'-7"

TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D
5	6	Max 53'-7" / Min 2'-2"	103	7	7	Max 53'-7" / Min 2'-2"	89
		53'-7"	4			53'-7"	4

BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D
6	5	Max 53'-7" / Min 2'-2"	124	4	4	Max 53'-7" / Min 2'-2"	155
		53'-7"	5			53'-7"	6

SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH
5	6	116	7'-3"

INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH
4	12	240	7'-3"

TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY
5	11	119	Max 55'-9" / Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY
4	6.5	199	Max 55'-9" / Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH
4	12	5	LONG 55'-4"
		5	SHORT 2'-4"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
4	12	10	LONG 45'-0"
		20	MID 34'-2"
		10	SHORT 12'-7"

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
6	39'-3"	12	6	39'-3"	12	4	2'-2"	1'-2"	78

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	① REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
172.27	29424

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

INLET SLOPE SECTION(S)

R.C. BOX SECTION .	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL THK. HW	ADDITIONAL REINF FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION .	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL
C	20	10	5	15	16	8	8	54'-0"	7'-7"	195.17

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D
4	53'-8"	8	55'-8"	8	53'-8"	14	167

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D
4	53'-8"	7	55'-9"	7	53'-8"	11	212

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
5	6	780	7'-3"

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH
4	12	1560	7'-3"

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D
5	11	119

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	6.5	199

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	10

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	12	40

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	③ ADTL. REINF. PER LONG. LAP LOCATION (S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.
5.91	923	560	39

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
QUINTUPLE BARREL BOX CULVERT
Sta. 146+55

SPECIAL DETAILS

Ver. 1.9 I4 b050251_c3.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	21	339

① SPECIAL DETAILS

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-3-15

TABULAR DATA BY: CMW DATE: 06/24/2015
CHECKED BY: BHS DATE: 8/31/15

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	OUTLET	OUTLET
53'-11"	5'-0"	0'-9"	0'-8"	45	3:1	74'-7 1/4"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	13'-4 1/8"	28'-11 5/8"	CU.YD	LBS.
																					13.93	871

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	13	L	Min 2'-8"	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	12'-2"	4	18	9	L Min 3'-3"	4	6	14'-2"	4	18	8	Min	-	-	-	Min	4	2	12'-8"	4	2	13'-4"	6	12	5	L	3'-4"	294
					Max 7'-3"												6'-4"								Max 3'-3"							1'-8"				-											
				X	Min 0'-0"				X -				X -				Max								X Min 1'-4"							Max				Max									X	1'-8"	
					Max 1'-4"												10'-10"								Max 1'-4"							2'-2"				-											
				Y	Min 2'-0"				Y -				Y -												Y Min 2'-0"																						
					Max 6'-0"																				Max 6'-0"																						
WING B	4	12	25	L	Min 2'-8"	-	-	-	L -	-	-	-	L -	4	18	6	Min	4	18	2	24'-8"	4	18	17	L Min 3'-3"	4	6	29'-10"	4	18	18	Min	4	18	2	Min	4	2	24'-10"	4	2	28'-10"	6	12	5	L	3'-4"	577
					Max 7'-9"												3'-10"								Max 7'-3"							1'-8"				37'-3"											
				X	Min 0'-0"				X -				X -				Max								X Min 1'-4"							Max				Max									X	1'-8"	
					Max 1'-10"												21'-10"								Max 1'-4"							2'-9"				37'-3"											
				Y	Min 2'-0"				Y -				Y -												Y Min 2'-0"																						
					Max 6'-0"																				Max 6'-0"																						

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE) SK	SLOPE SL	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	SECTION LENGTH FL	TOP SLAB THK. T	HDWL THK. HW	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVERALL WIDTH OW	OVERALL HEIGHT OH
45	3:1	20	10	5	28'-11"	15	3	16	7.5	8	53'-11"	7'-7"

TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D
5	6	Max 53'-7" / Min 2'-2"	103	7	7	Max 53'-7" / Min 2'-2"	89
		53'-7"	4			53'-7"	4

BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D
6	5	Max 53'-7" / Min 2'-2"	124	4	4	Max 53'-7" / Min 2'-2"	155
		53'-7"	5			53'-7"	6

SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH
5	6	116	7'-3"

INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH
4	12	240	7'-3"

TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY
5	11	119	Max 55'-9" / Min 1'-10"

BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY
4	6.5	199	Max 55'-9" / Min 1'-10"

SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH
4	12	5	LONG 55'-4"
		5	SHORT 2'-4"

INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
4	12	10	LONG 45'-0"
		20	MID 34'-2"
		10	SHORT 12'-7"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	② REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
172.27	29424

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
6	39'-3"	12	6	39'-3"	12	4	2'-2"	1'-2"	78

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bentb SIZE	Bentb L	c SIZE	c L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bentb1 SIZE	Bentb1 L	f SIZE	f L	SPACING	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
QUINTUPLE BARREL BOX CULVERT
Sta. 146+55

SPECIAL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	22	339

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
78'-4"	4'-0"	0'-9"	0'-8"	0	3:1	77'-4"	1'-0"	4'-10"	1'-4"	30	30	2'-2"	2'-5 3/4"	2'-5 3/4"	0'-4 3/8"	0'-4 3/8"	12'-0"	12'-0"	13'-10 5/8"	13'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
8.62	538

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	12	L	Min	2'-6"												Min				
					Max	6'-0"												3'-10"				
				X	Min	0'-9"	-	-	-	L -	-	-	-	L -	4	18	4	Max	4	18	2	11'-8"
					Max	1'-1"				X -				X -				9'-0"				
				Y	Min	1'-10"				Y -				Y -								
					Max	5'-0"																
WING B	4	12	12	L	Min	2'-6"												Min				
					Max	6'-0"												3'-10"				
				X	Min	0'-9"	-	-	-	L -	-	-	-	L -	4	18	4	Max	4	18	2	11'-8"
					Max	1'-1"				X -				X -				9'-0"				
				Y	Min	1'-10"				Y -				Y -								
					Max	5'-0"																

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A				L	Min	3'-2"							Min				Min										L	3'-4"	
					Max	6'-3"							1'-8"				-												
	4	18	8	X	Min	1'-4"	4	6	14'-9"	4	18	8	Max	-	-	-	Max	4	2	12'-0"	4	2	13'-4"	6	12	4			269
					Max	1'-4"							2'-0"				-										X	1'-8"	
				Y	Min	1'-11"																							
					Max	5'-0"																							
WING B				L	Min	3'-2"							Min				Min										L	3'-4"	
					Max	6'-3"							1'-8"				-												
	4	18	8	X	Min	1'-4"	4	6	14'-9"	4	18	8	Max	-	-	-	Max	4	2	12'-0"	4	2	13'-4"	6	12	4			269
					Max	1'-4"							2'-0"				-										X	1'-8"	
				Y	Min	1'-11"																							
					Max	5'-0"																							

③ MID-SECTION

BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
3-3-15

TABULAR DATA BY: CMW DATE: 06/24/2015
CHECKED BY: BHS DATE: 7/30/15

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.
For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINFORCING STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINFORCING STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH																				
															Max				Max				Max				Max					
															Min				Min				Min				Min					

INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
							Max				Max				LONG				LONG
							Min				Min				SHORT				MID
																			SHORT

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	①REINFORCING STEEL (GR 60) (Includes HDWL) LBS.

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK B	SIDE WALL THK C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	b1 L	f SIZE	f L	SPACING	NO. REQ'D
	10	8	4																								

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D
3"	107	4	0'-10"	1'-10"	80

④ For sketch of Bent bars "b" and "b1", See Sheet 2 of 2.

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	②ADTL. REINF. PER LONG. LAP LOCATION(S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.
				0.73	201

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK. B	SIDE WALL THK. C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	b1 L	f SIZE	f L	SPACING	NO. REQ'D
A	10	8	4	11	11	6	8	78'-4"	5'-10"	113	4	78'-0"	5	81'-3"	4	78'-0"	15	90	4	78'-0"	5	80'-10"	4	78'-0"	11	123

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
4	7	386	5'-6"	4	12	1552	5'-6"	4	10	197	4	10	197	4	12	8	4	12	64

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS PER LIN. FT.	③ADTL. REINF. PER LONG. LAP LOCATION(S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.
6.26	706	545	8

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
NINE BARREL BOX CULVERT
Sta. 101+70

SPECIAL DETAILS

LRFD

Ver. Ui14 b050251_c4.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	23	339

① SPECIAL DETAILS

STATE OF ARKANSAS
CHARLES R. ELLIS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

TABULAR DATA BY: CMW DATE: 06/24/2015
CHECKED BY: BNS DATE: 7/23/15

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
78'-4"	4'-0"	0'-9"	0'-8"	0	3:1	77'-4"	1'-0"	4'-10"	1'-4"	30	30	2'-2"	2'-5 3/4"	2'-5 3/4"	0'-4 3/8"	0'-4 3/8"	12'-0"	12'-0"	13'-10 5/8"	13'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
10.79	538

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	12	L	Min 2'-6"	-	-	-	L -	-	-	-	L -	4	18	4	Min
					Max 6'-0"												3'-10"
				X	Min 0'-9"				X -				X -				Max
					Max 1'-1"												9'-0"
				Y	Min 1'-10"				Y -				Y -				
					Max 5'-0"												
WING B	4	12	12	L	Min 2'-6"	-	-	-	L -	-	-	-	L -	4	18	4	Min
					Max 6'-0"												3'-10"
				X	Min 0'-9"				X -				X -				Max
					Max 1'-1"												9'-0"
				Y	Min 1'-10"				Y -				Y -				
					Max 5'-0"												

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS
WING A	4	18	2	11'-8"	4	18	8	L Min 3'-2"		4	6	14'-9"	4	18	8	Min	-	-	-	Min
								Max 6'-3"								1'-8"				-
								X Min 1'-4"								Max				Max
								Max 1'-4"								2'-0"				-
								Y Min 1'-11"												
								Max 5'-0"												
WING B	4	18	2	11'-8"	4	18	8	L Min 3'-2"		4	6	14'-9"	4	18	8	Min	-	-	-	Min
								Max 6'-3"								1'-8"				-
								X Min 1'-4"								Max				Max
								Max 1'-4"								2'-0"				-
								Y Min 1'-11"												
								Max 5'-0"												

WING	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	2	12'-0"	4	2	13'-4"	6	12	4	L 3'-4"	269
										X 1'-8"	
WING B	4	2	12'-0"	4	2	13'-4"	6	12	4	L 3'-4"	269
										X 1'-8"	

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINFORCING STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH								
															Max				Max	
															Min				Min	

BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINFORCING STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH
		Max				Max									
		Min				Min									

TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
			Max				Max				LONG				LONG
			Min				Min				SHORT				MID
															SHORT

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D

CLASS "S" CONCRETE (Includes HDWL.)	① REINFORCING STEEL (GR 60) (Includes HDWL.)
CU. YDS.	LBS.

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION DESIGN FILL DEPTH (FT.) D	CLEAR SPAN (FT.) S	CLEAR HEIGHT (FT.) H	TOP SLAB THK. T	BOTTOM SLAB THK B	SIDE WALL THK C	INTERIOR WALL THK. W	OVER ALL WIDTH OW	OVER ALL HEIGHT OH	SECTION LENGTH (FT.) SL
10	8	4							

TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D

BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH

TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D

BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D

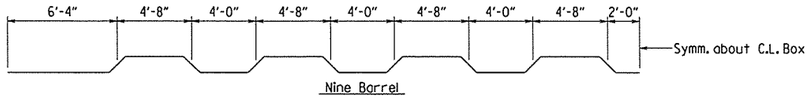
SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D

INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D

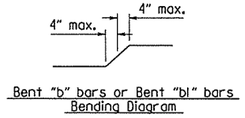
HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D
3"	107	4	0'-10"	1'-10"	80

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION(S) LBS.	ADTL. REINF. FOR TRANS. LAP LBS. PER LIN. FT.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.
				0.73	201

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.



Bent "b" bars or Bent "b1" bars sketch



Bent "b" bars or Bent "b1" bars Bending Diagram

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

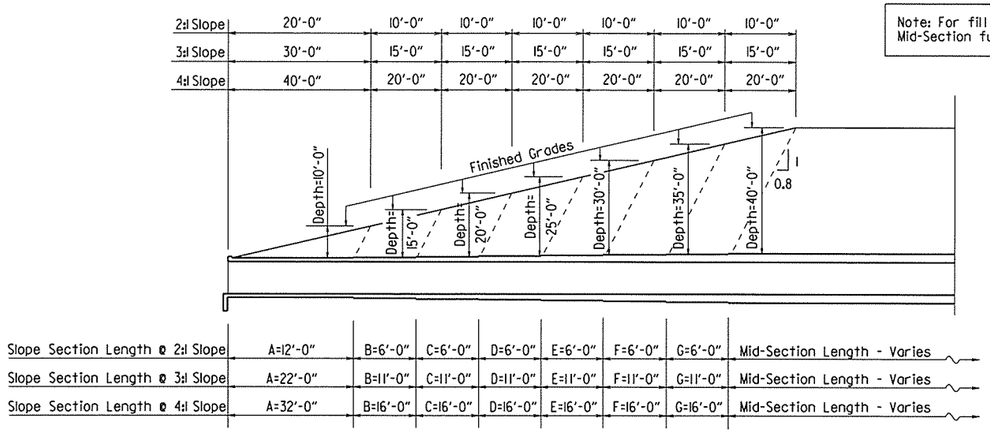
SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT
NINE BARREL BOX CULVERT
Sta. 101+70

SPECIAL DETAILS

Ver. 1.14 b050251_c4.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	24	339

(1) SPECIAL DETAILS

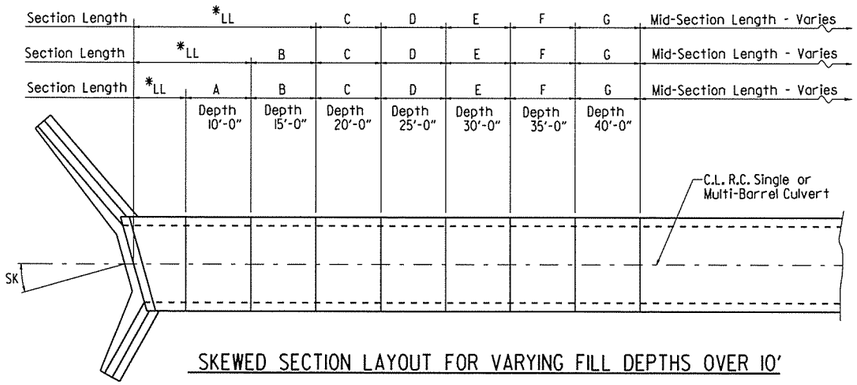


Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes

*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.



SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.

VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

WINGWALL & CULVERT DRAINAGE DETAIL

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

Reinforcing Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES &
LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

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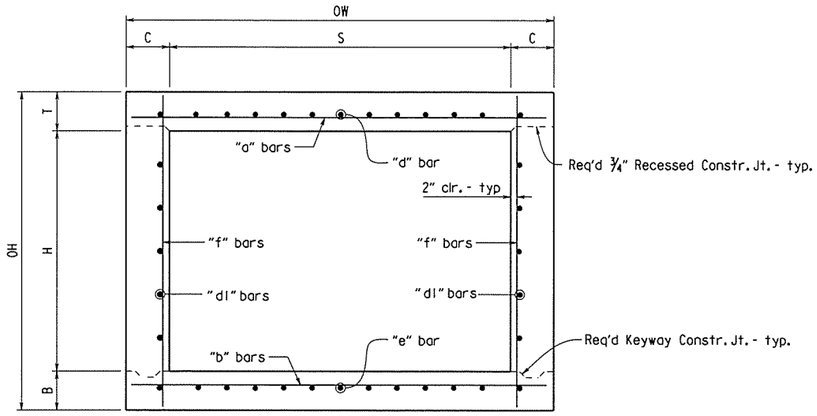
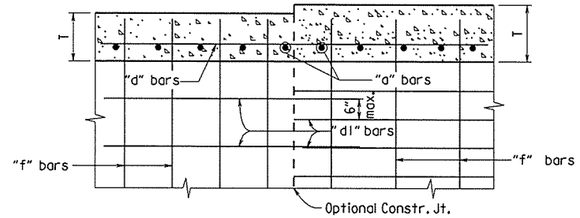
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	25	339

(1) SPECIAL DETAILS

Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



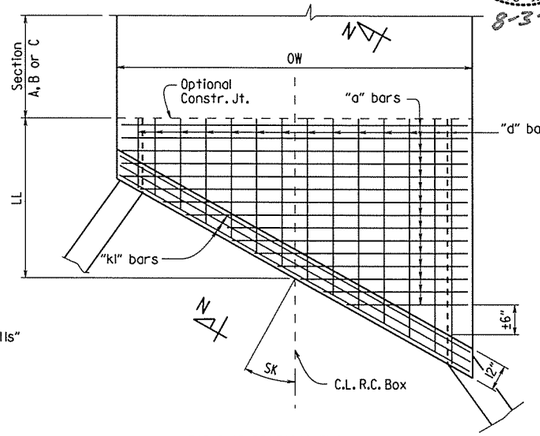
TYPICAL SECTION M-M



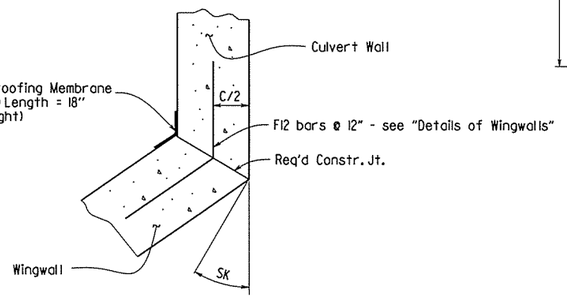
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

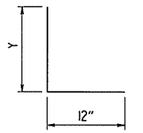


TOP SLAB REINFORCEMENT

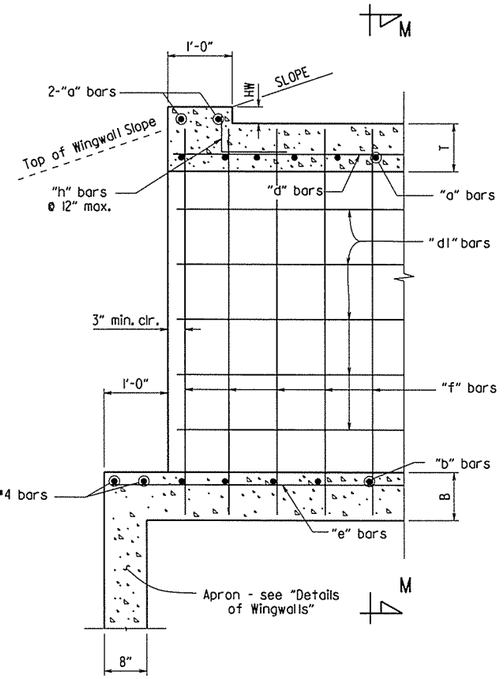


WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.

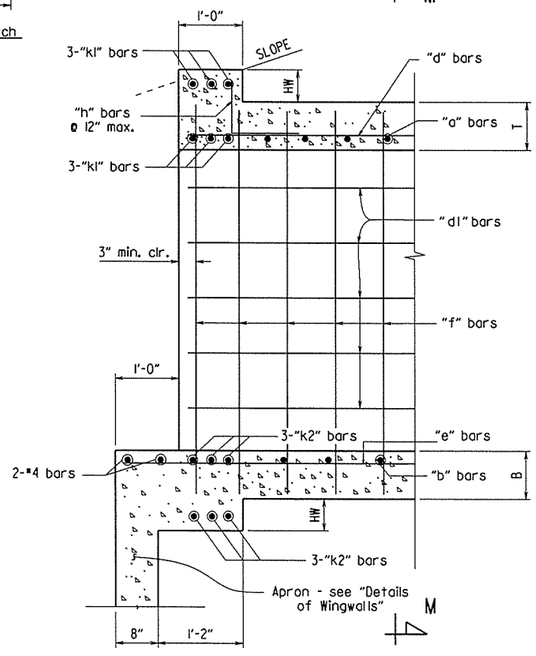


"h" bars sketch



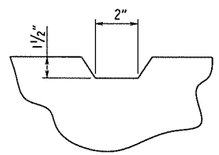
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



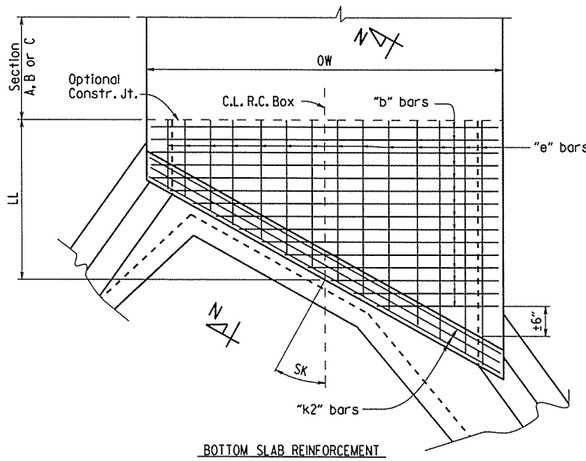
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

SHEET 2 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

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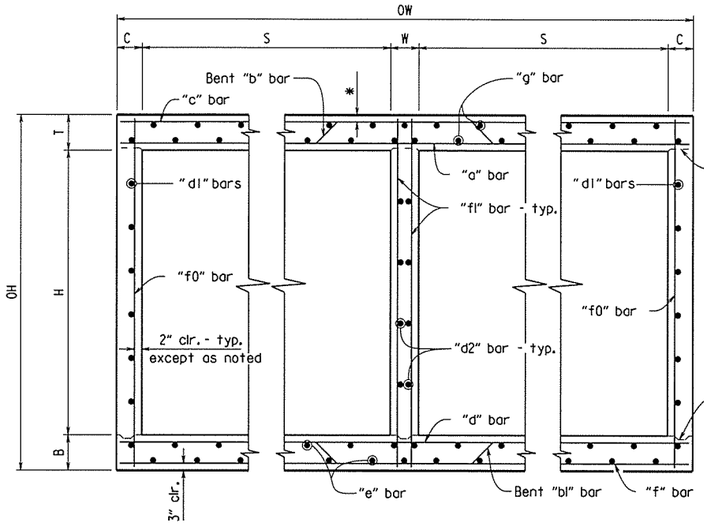
DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	26	339

(1) SPECIAL DETAILS

*2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.

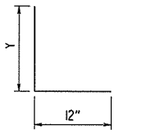
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



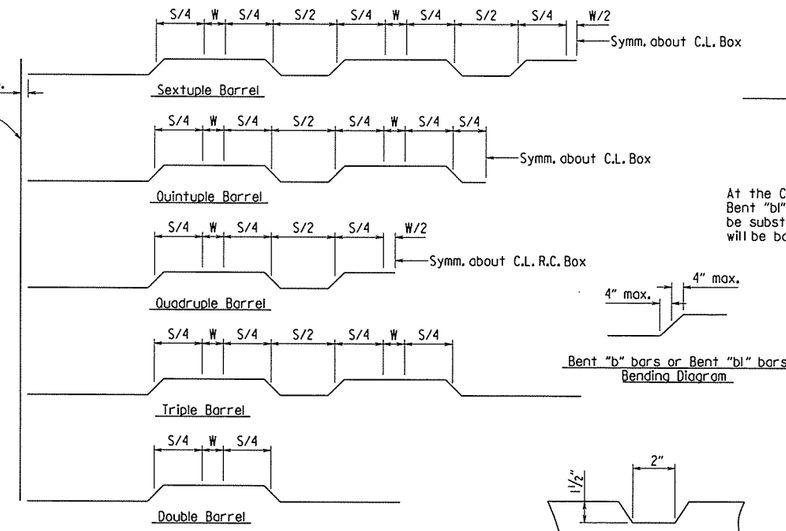
TYPICAL SECTION M-M

Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

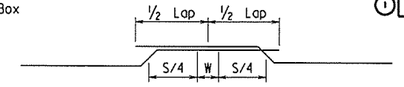
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



"h" bars sketch



Bent "b" bars or Bent "b1" bars sketch



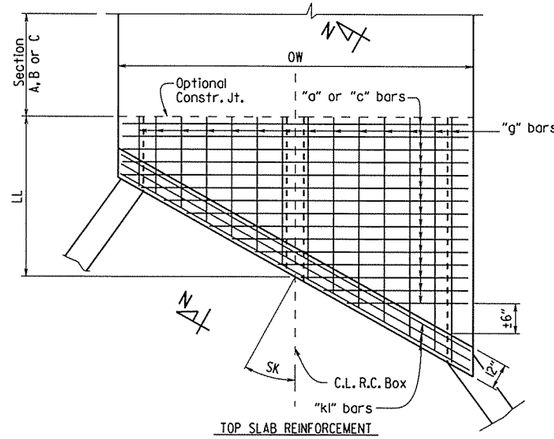
Lap Detail
For Bent "b" bars and Bent "b1" bars

At the Contractor's option in lieu of providing Bent "b" or Bent "b1" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "b1" bar.

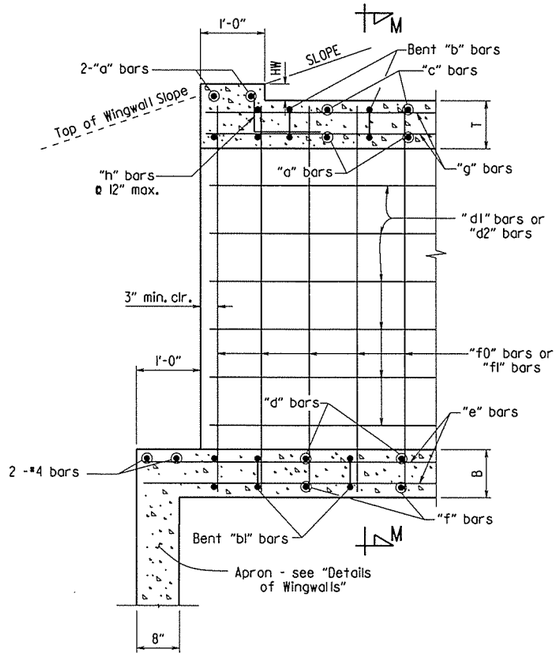
Bent "b" bars or Bent "b1" bars Bending Diagram

TYPICAL KEYWAY DETAIL

(All Construction Joints)

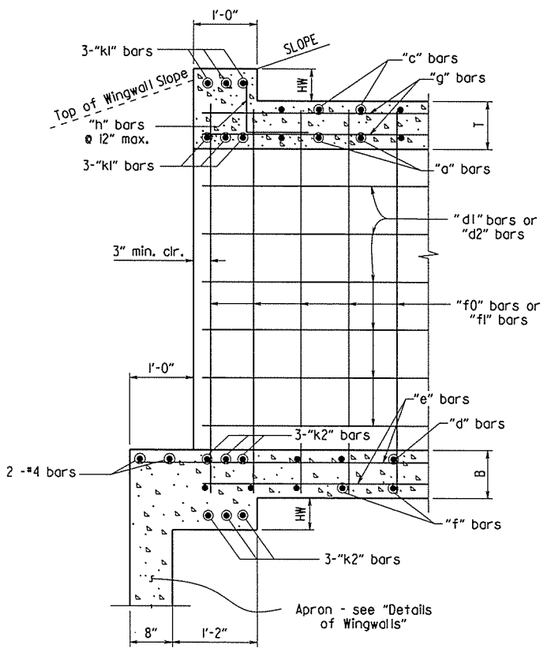


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



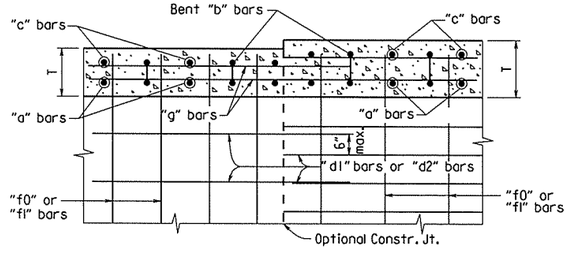
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

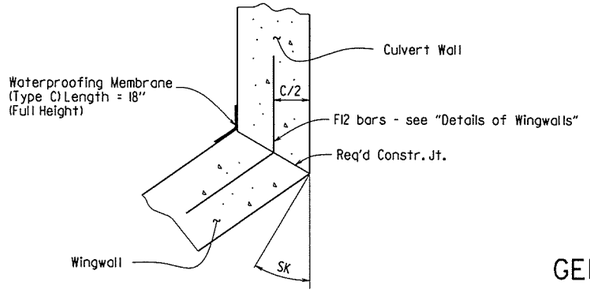
(Skewed Ends)



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

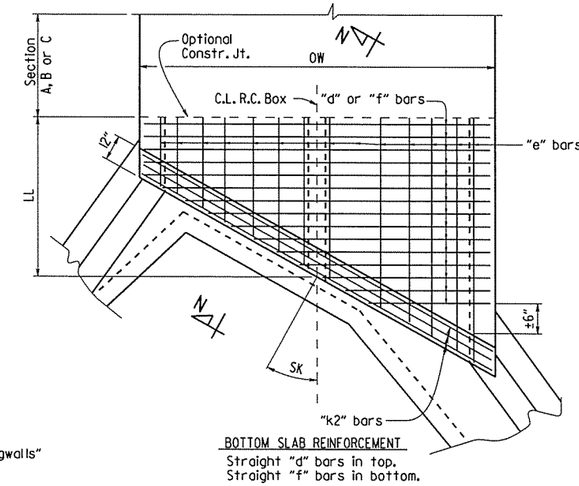
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.



BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

SKEWED END SECTION DETAILS

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

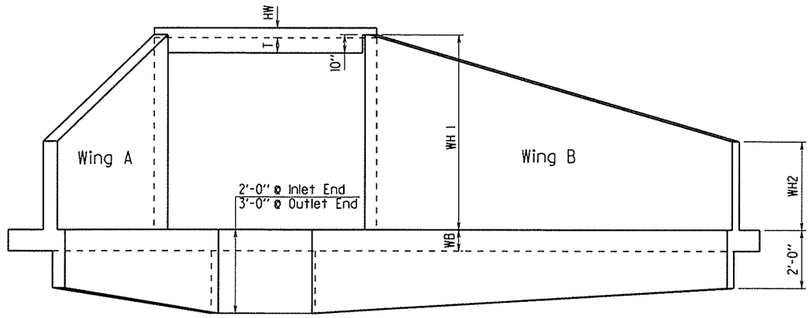
SPECIAL DETAILS

LRFD

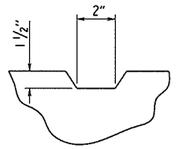
b050251_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	27	339

SPECIAL DETAILS

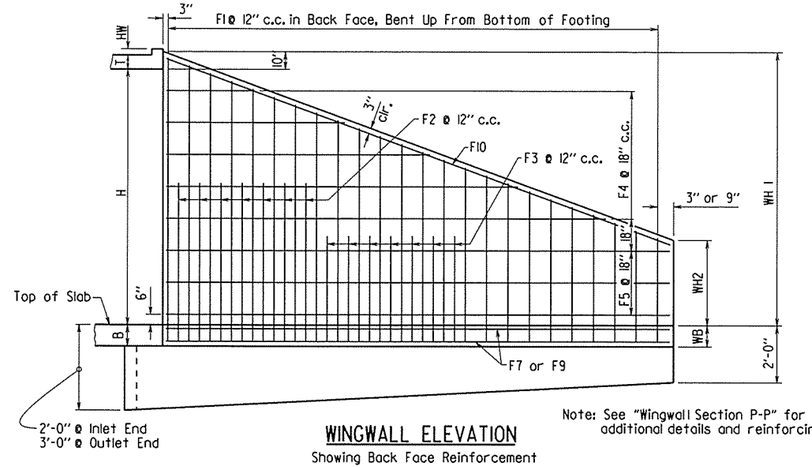


END ELEVATION
Flared Wingwalls Shown



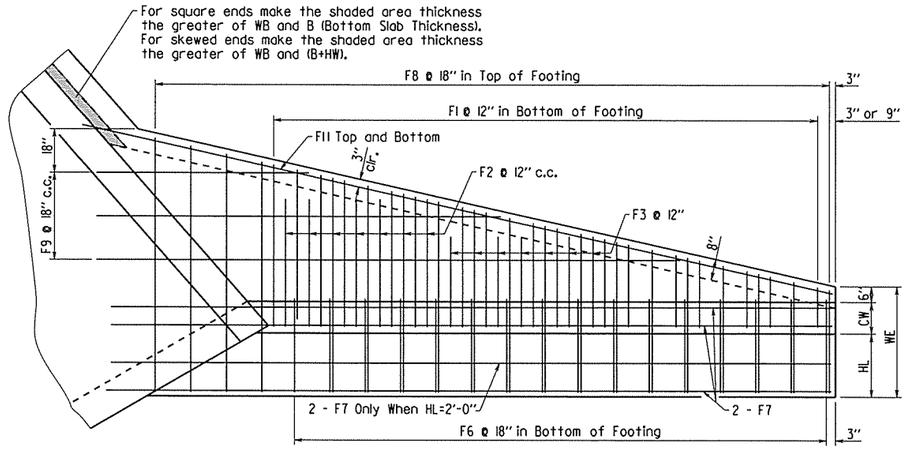
TYPICAL KEYWAY DETAIL
All Construction Joints

PART PLAN - FLARED WINGWALLS

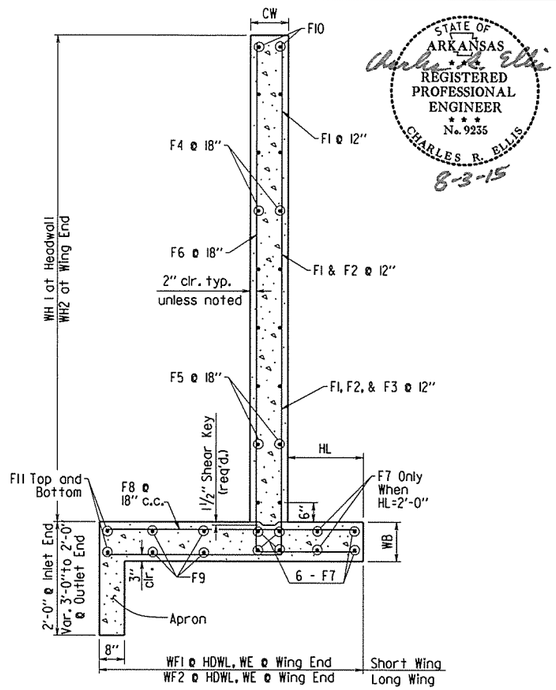


WINGWALL ELEVATION
Showing Back Face Reinforcement

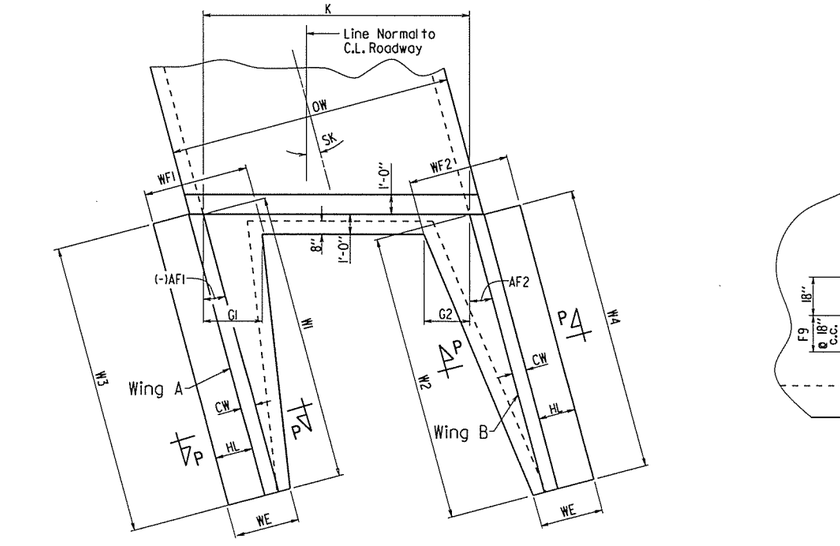
Note: See "Wingwall Section P-P" for additional details and reinforcing.



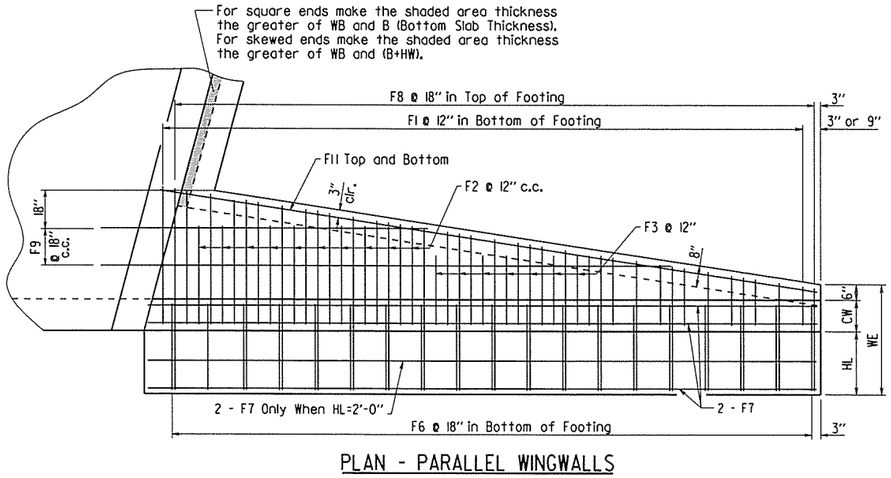
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



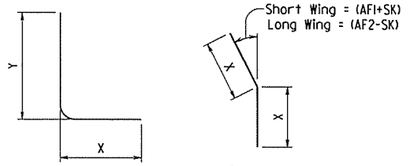
WINGWALL SECTION P-P



PART PLAN - PARALLEL WINGWALLS



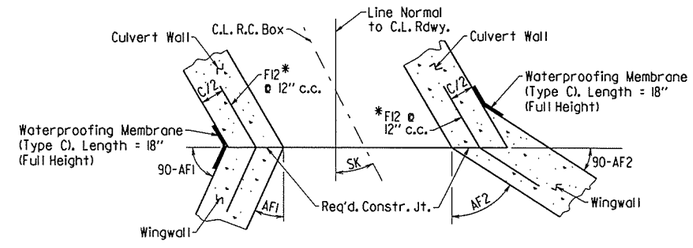
PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



F1, F2, F3, & F6 BARS

*F12 BAR

*F12 is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS
Flared Wingwalls Shown

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-3-15

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

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				6	ARK.			
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(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

E-5	SAND BAG DITCH CHECKS
E-6	ROCK DITCH CHECKS
E-7	DROP INLET SILT FENCE
E-11 ··· E-11	SILT FENCE

TEMPORARY EROSION CONTROL GENERAL NOTES:

1) THE QUANTITIES AND LOCATIONS OF THE TEMPORARY EROSION CONTROL DEVICES SHOWN IN THE PLANS ARE ESTIMATED AND MAY BE ALTERED IF AND WHERE DIRECTED BY THE ENGINEER TO MAXIMIZE THEIR EFFECTIVENESS. THE DEVICES ARE TO BE INSTALLED IN AN AREA ONLY WHEN THE SOIL DISTURBING ACTIVITY IN THAT AREA BEGINS.

2) REFER TO SECT. 110 OF STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH
11-2-15

STA. 504+00 - STA. 509+00 RT.
INSTALL E-11 = 590 LIN. FT.

P.I. 505+80.75
P.T. 506+39.16
P.T. 104+59.45
P.I. 104+13.08
P.C. 103+65.96
P.I. 110+24.86
P.I. 101+47.58
P.I. 100+85.68
P.C. 100+22.79
P.C. 104+57.44
P.C. 514+70.46
P.I. 515+97.58
P.T. 115+60.38

HWY 13 - STA. 108+22.47
HWY 16 - STA. 510+36.71
Δ = 59°06' 23"

HWY. 13 - STA. 111+50.16
FAIRVIEW RD. - STA. 100+00.00
Δ = 91°30' 08"

STA. 510+30 - STA. 512+40 RT.
INSTALL E-11 = 242 LIN. FT.

STA. 109+75 - STA. 110+20 RT.
INSTALL E-11 = 104 LIN. FT.

STA. 111+50 - STA. 116+75 RT.
INSTALL E-11 = 515 LIN. FT.

STA. 106+74.55
BEGIN JOB 050251
BEGIN GRADING

STA. 106+91.18
BEGIN PAVING
END JOB 050249

REVISIONS

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STAGE I - TEMPORARY EROSION CONTROL DETAILS

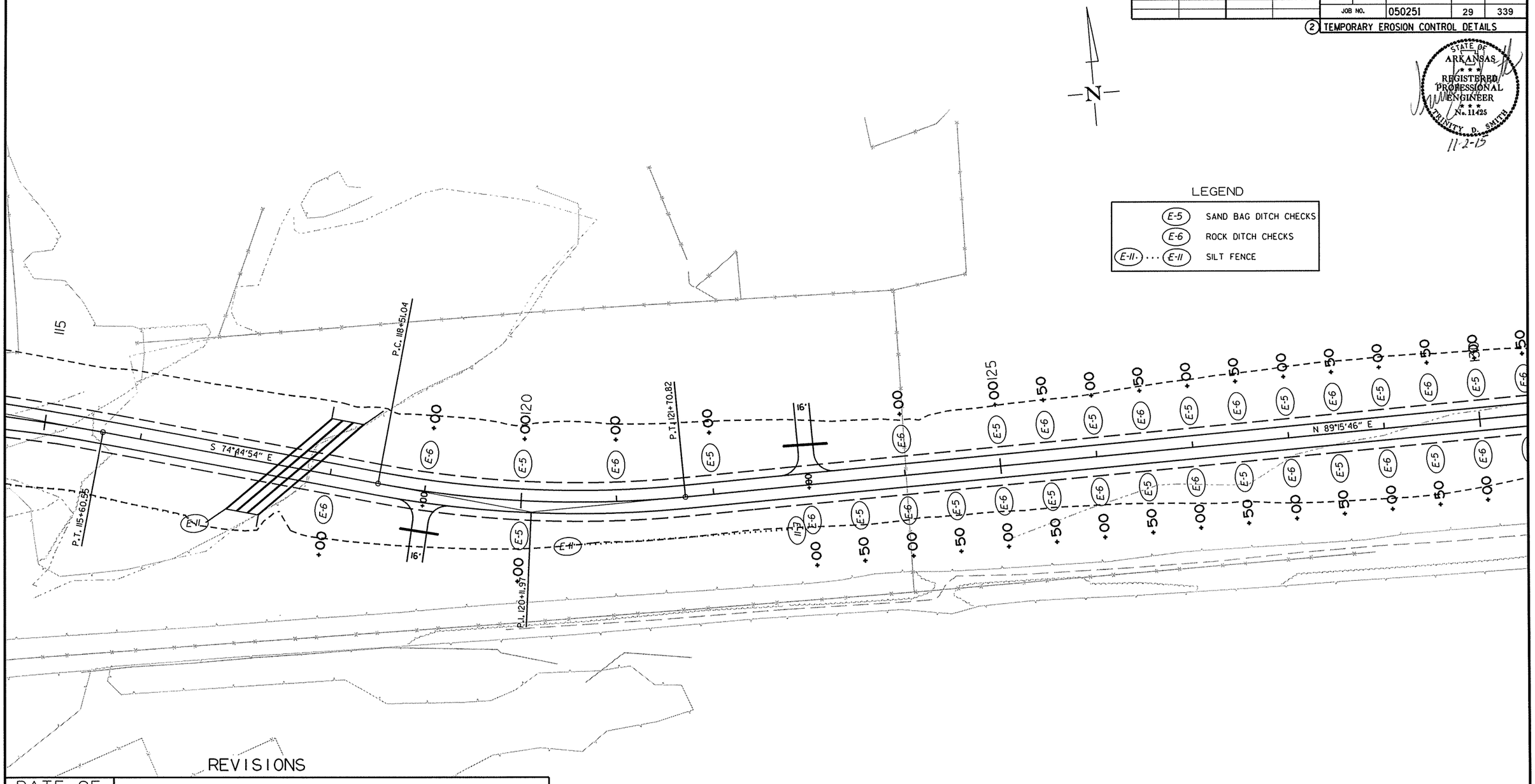
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	29	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-11) ··· (E-11) SILT FENCE



REVISIONS

DATE OF REVISION	REVISION

STA. 120+50 - STA. 123+00 RT.
INSTALL E-11 = X LIN. FT.

STAGE I - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

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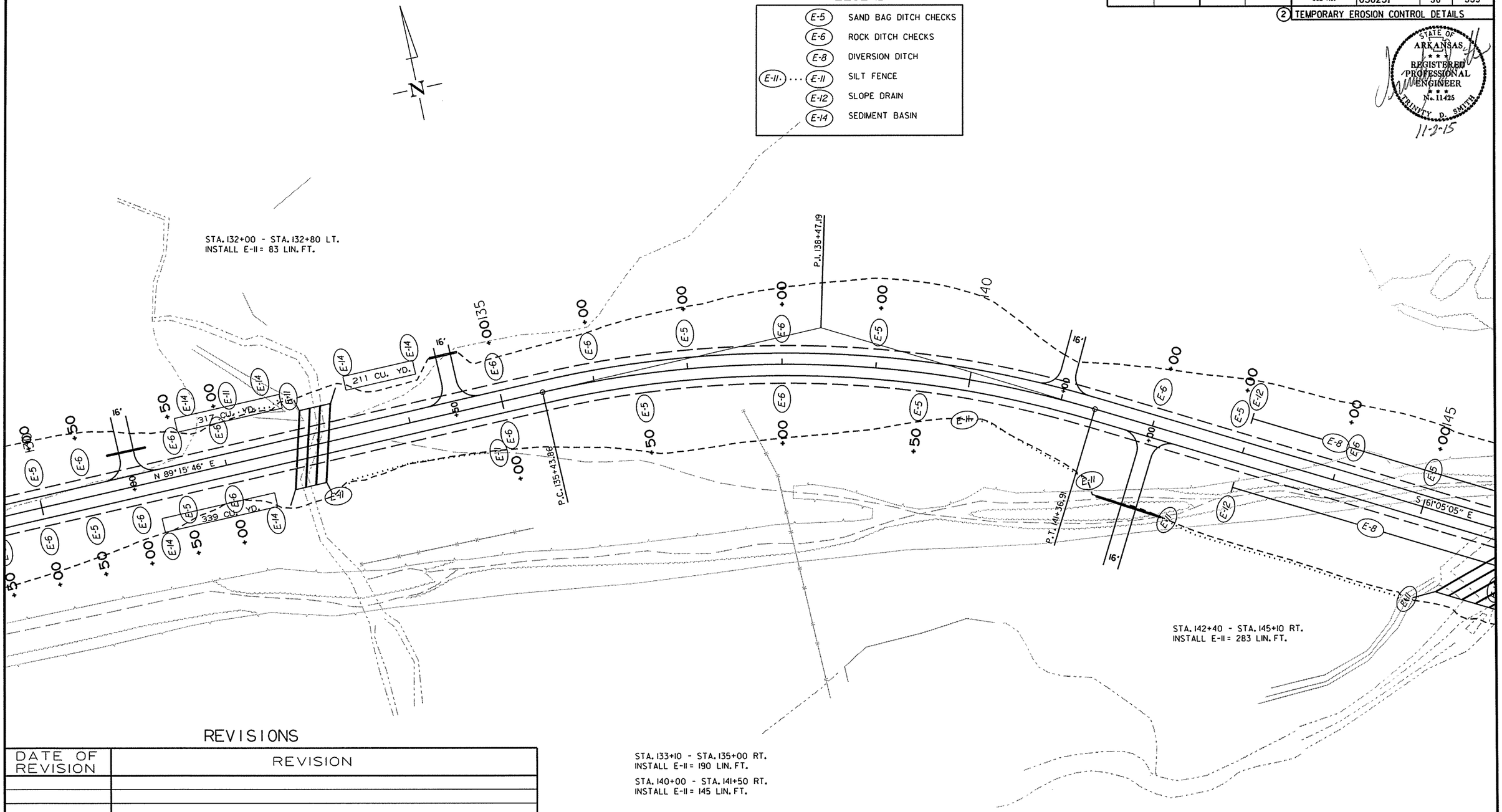
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	30	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

LEGEND

	E-5	SAND BAG DITCH CHECKS
	E-6	ROCK DITCH CHECKS
	E-8	DIVERSION DITCH
E-11	E-11	SILT FENCE
	E-12	SLOPE DRAIN
	E-14	SEDIMENT BASIN



REVISIONS

DATE OF REVISION	REVISION

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STAGE I - TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	31	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

STA. 148+30 - STA. 151+80 LT.
INSTALL E-11 = 323 LIN. FT.

STA. 152+20 - STA. 152+90 LT.
INSTALL E-11 = 74 LIN. FT.

STA. 153+20 - STA. 154+82 LT.
INSTALL E-11 = 166 LIN. FT.

STA. 155+25 - STA. 156+30 LT.
INSTALL E-11 = 193 LIN. FT.

STA. 157+55 - STA. 158+30 LT.
INSTALL E-11 = 123 LIN. FT.

STA. 157+55 - STA. 158+00 RT.
INSTALL E-11 = 113 LIN. FT.

STA. 152+70 - STA. 156+60 RT.
INSTALL E-11 = 157 LIN. FT.

LEGEND

E-5	SAND BAG DITCH CHECKS
E-6	ROCK DITCH CHECKS
E-8	DIVERSION DITCH
E-11	SILT FENCE
E-12	SLOPE DRAIN
E-14	SEDIMENT BASIN

REVISIONS

DATE OF REVISION	REVISION

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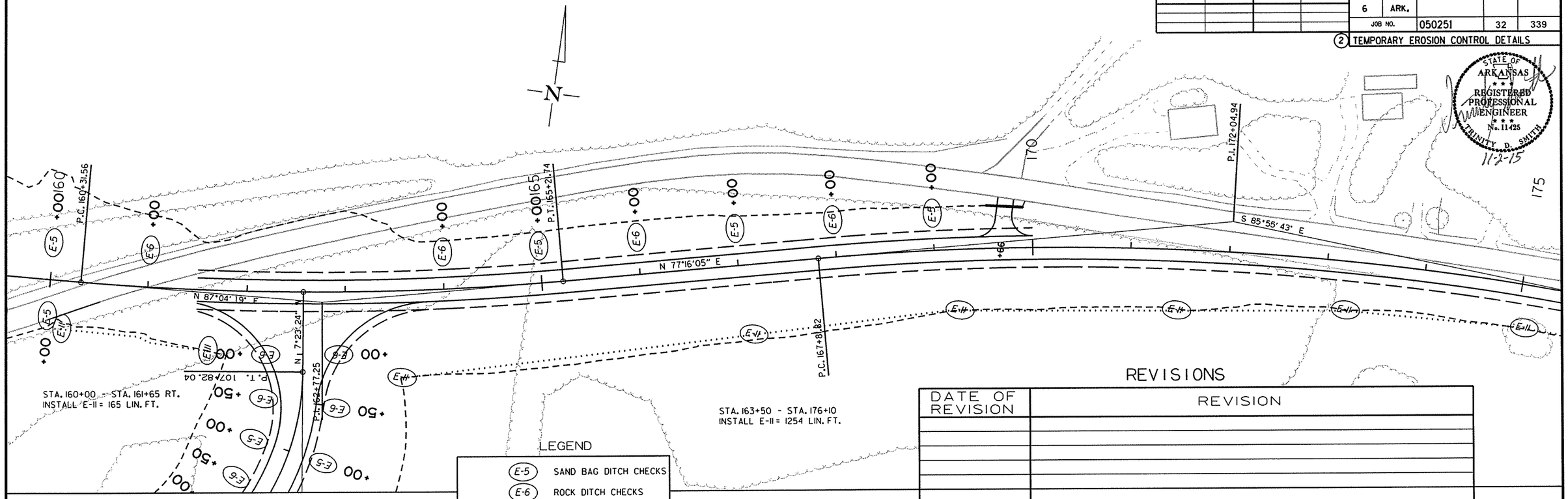
STAGE I - TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	32	339

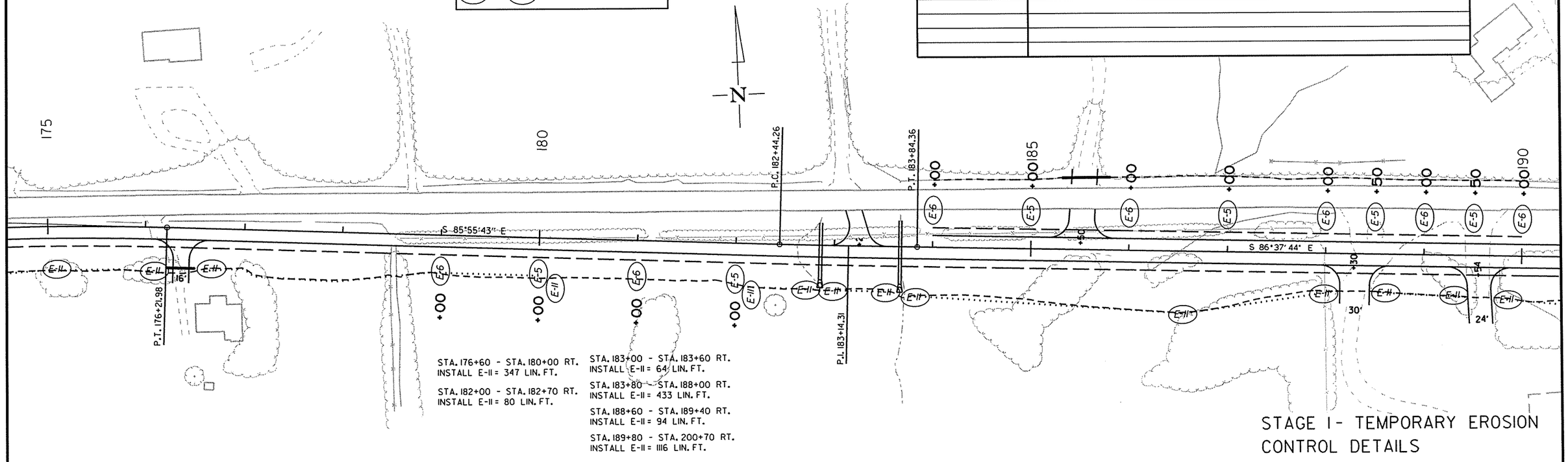
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



REVISIONS

DATE OF REVISION	REVISION



STAGE I - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

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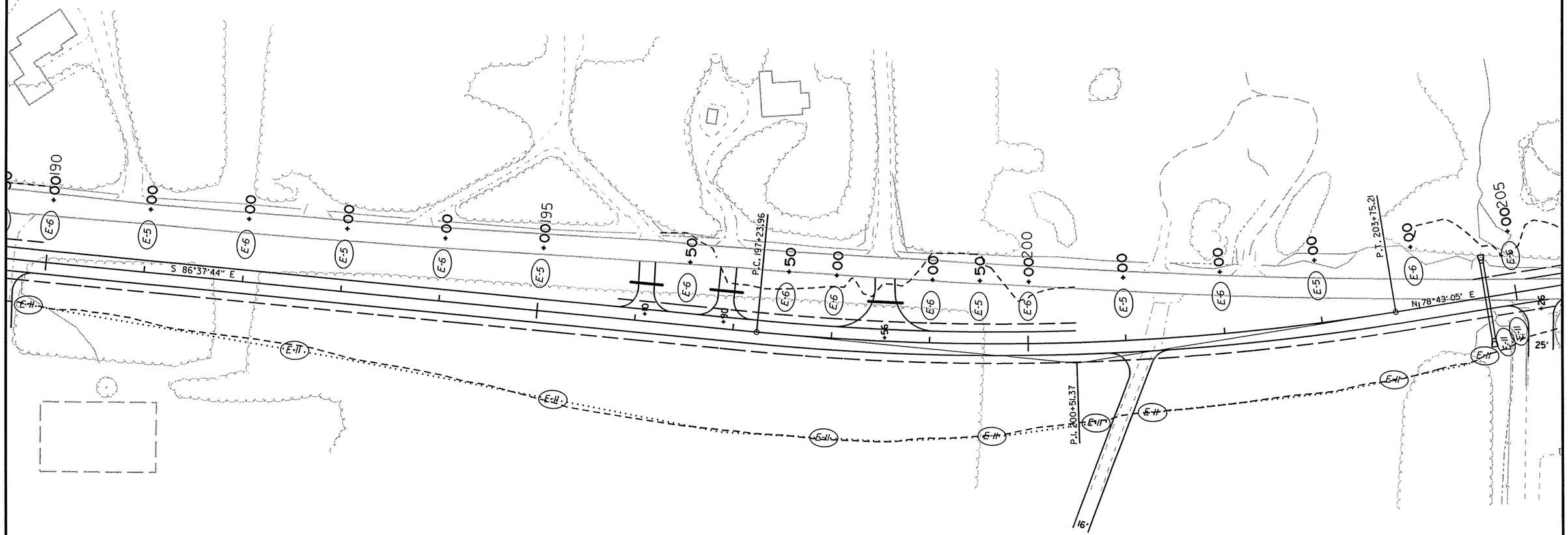
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	33	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

LEGEND

E-5	SAND BAG DITCH CHECKS
E-6	ROCK DITCH CHECKS
E-11 ... E-11	SILT FENCE



REVISIONS

DATE OF REVISION	REVISION

STA. 201+20 - STA. 204+60
INSTALL E-11 = 356 LIN. FT.

STA. 204+80 - STA. 205+00
INSTALL E-11 = 25 LIN. FT.

STAGE I - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

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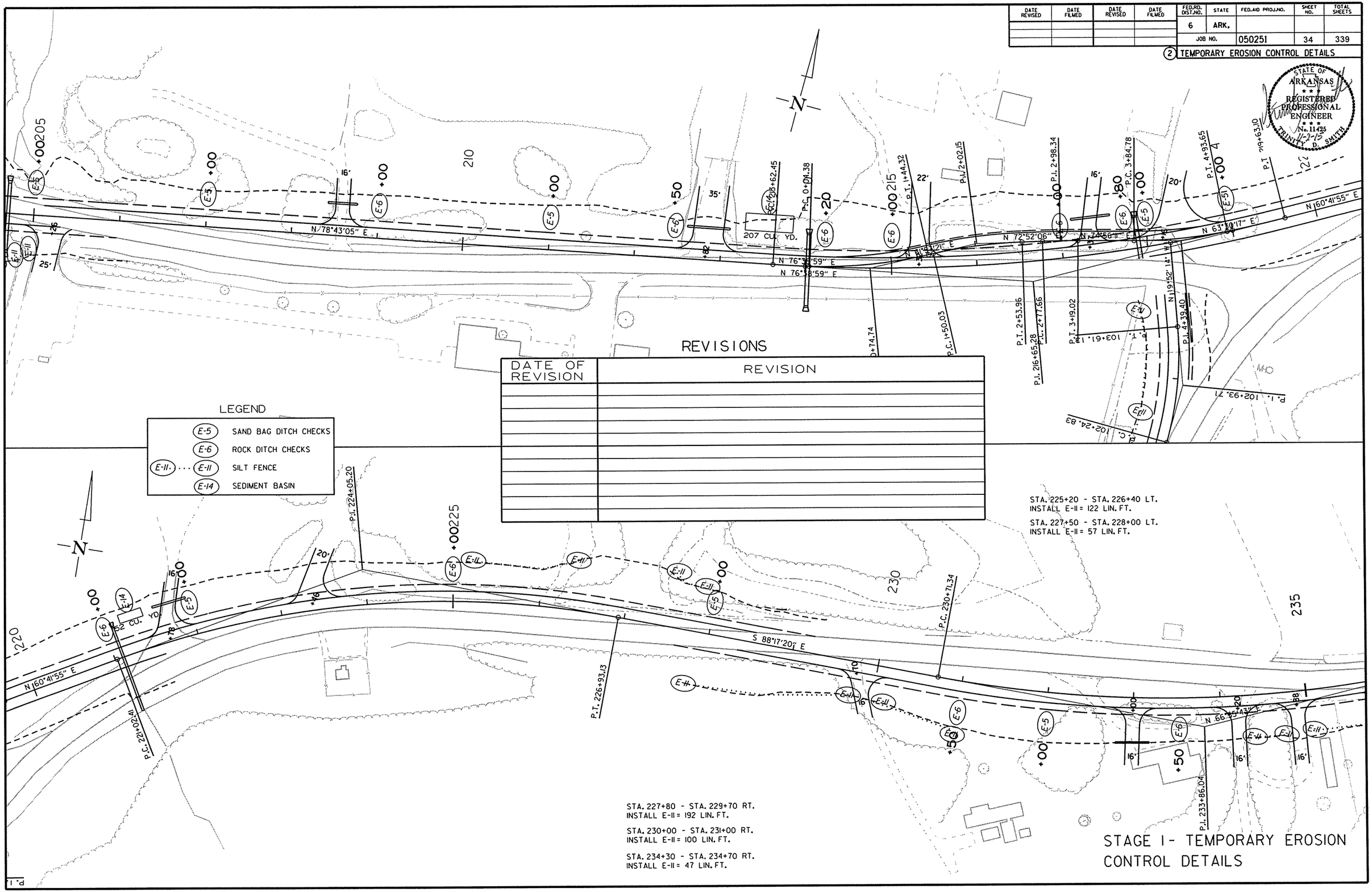
				6	ARK.			
				JOB NO.		050251	34	339

(2) TEMPORARY EROSION CONTROL DETAILS

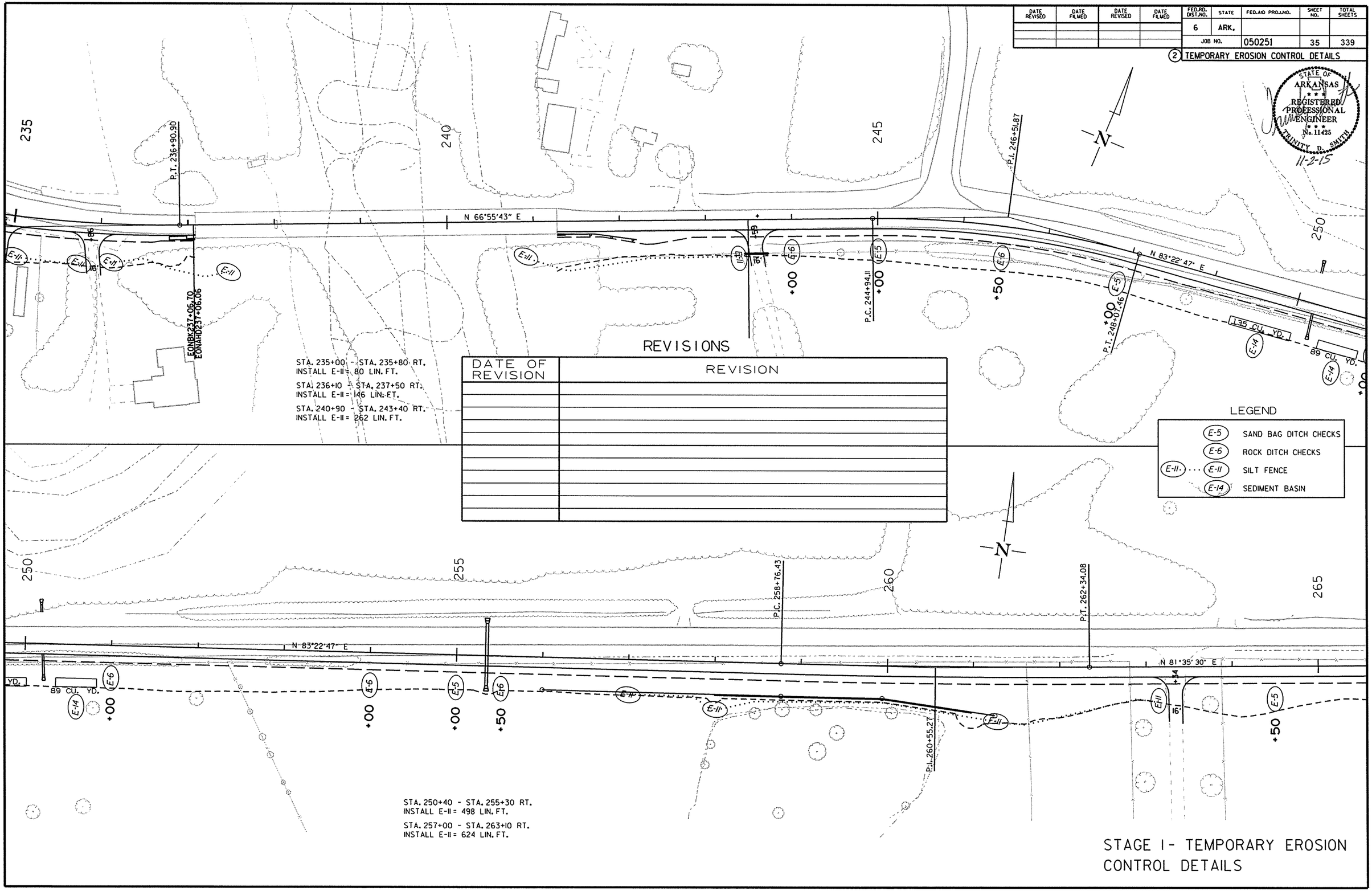
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
11-2-15
TRINITY D. SMITH


N
210
215
220
225
230
235
E-5 +00
E-6 +00
E-5 +00
E-6 +50
E-6 +00
E-6 +00
E-5 +00
E-5 +00
E-5

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	35	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



STA. 235+00 - STA. 235+80 RT.
INSTALL E-11 = 80 LIN. FT.

STA. 236+10 - STA. 237+50 RT.
INSTALL E-11 = 146 LIN. FT.

STA. 240+90 - STA. 243+40 RT.
INSTALL E-11 = 262 LIN. FT.

STA. 250+40 - STA. 255+30 RT.
INSTALL E-11 = 498 LIN. FT.

STA. 257+00 - STA. 263+10 RT.
INSTALL E-11 = 624 LIN. FT.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

STAGE I - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

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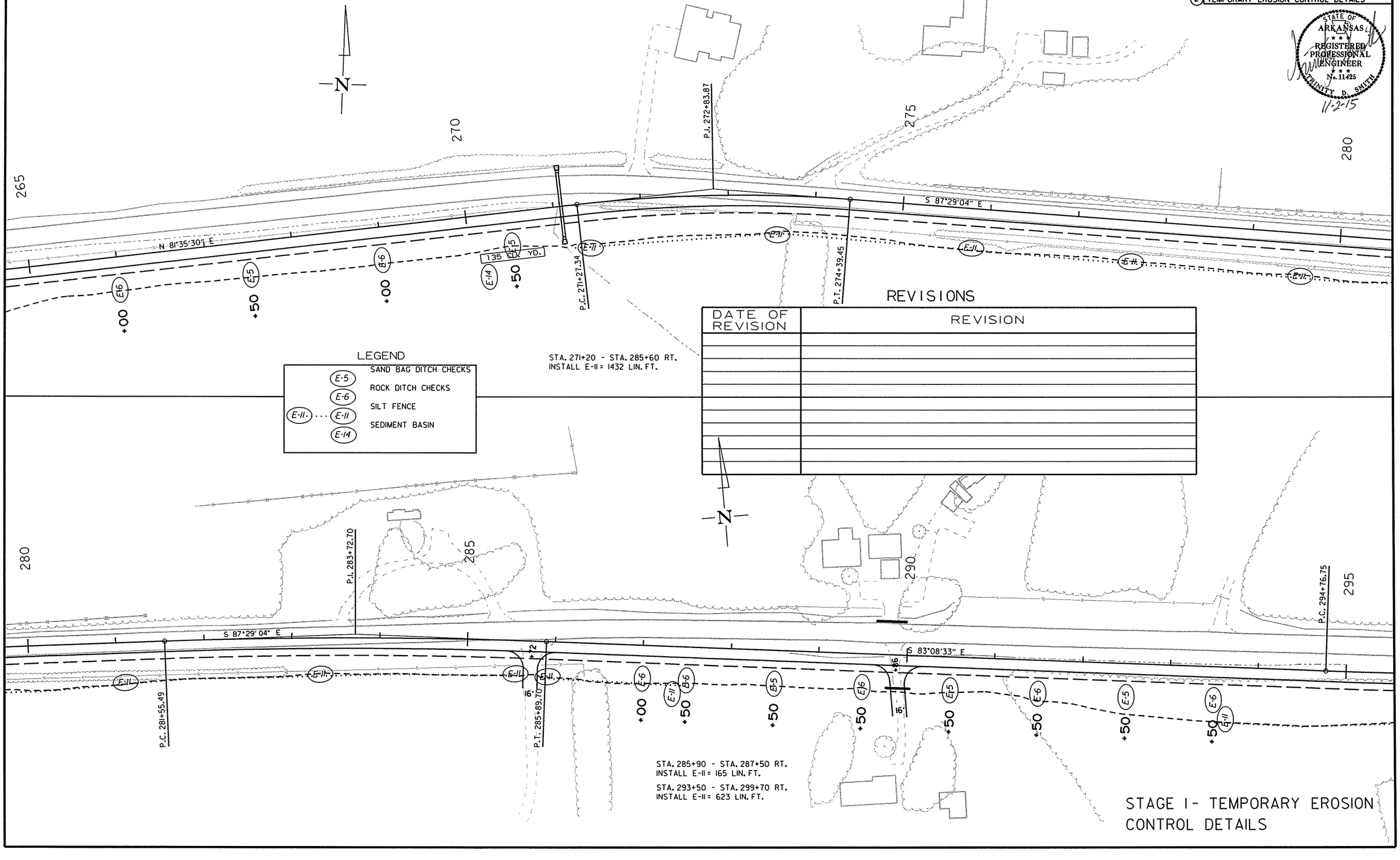
				6	ARK.			
				JOB NO.		050251	36	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15


N
265
270
275
280
P.I. 272+83.87
S 87°29'04" E
N 81°35'30" E
E-16
E-5
+00
+50
+00
E-6
E-14
135 CU. YD.
E-5
+50
P.C. 271+27.34
E-11
E-11
E-11
E-11
P.T. 274+39.45
E-11
E-11
E-11
E-11

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	37	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

295 300 305 310 315 320 325

P.T. 299+97.54
P.I. 305+42.74
P.I. 297+37.19
P.C. 302+64.18
T. 308+20.31

S 83°08'33" E
S 85°44'47" E
S 77°24'16" E

LEGEND

E-5	SAND BAG DITCH CHECKS
E-6	ROCK DITCH CHECKS
E-7	DROP INLET SILT FENCE
E-11 ··· E-11	SILT FENCE

STA. 300+30 - STA. 301+00 RT.
INSTALL E-11 = 74 LIN. FT.

STA. 301+40 - STA. 301+70 RT.
INSTALL E-11 = 40 LIN. FT.

STA. 302+00 - STA. 303+00 RT.
INSTALL E-11 = 107 LIN. FT.

STA. 303+30 - STA. 304+60 RT.
INSTALL E-11 = 139 LIN. FT.

STA. 304+90 - STA. 307+30 RT.
INSTALL E-11 = 249 LIN. FT.

STA. 307+50 - STA. 307+60 RT.
INSTALL E-11 = 22 LIN. FT.

STA. 307+90 - STA. 308+20 RT.
INSTALL E-11 = 44 LIN. FT.

STA. 308+50 - STA. 311+80 RT.
INSTALL E-11 = 337 LIN. FT.

STA. 307+50 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 308+00 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 308+73 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 309+36 RT. INSTALL
E-7 = 25 LIN. FT.

REVISIONS

DATE OF REVISION	REVISION

STA. 312+10 - STA. 313+00 RT.
INSTALL E-11 = 104 LIN. FT.

STA. 313+60 - STA. 315+90 RT.
INSTALL E-11 = 243 LIN. FT.

STA. 316+20 - STA. 317+10 RT.
INSTALL E-11 = 97 LIN. FT.

STA. 317+25 - STA. 318+70 RT.
INSTALL E-11 = 155 LIN. FT.

STA. 319+00 - STA. 320+65 RT.
INSTALL E-11 = 170 LIN. FT.

STA. 320+80 - STA. 321+20 RT.
INSTALL E-11 = 49 LIN. FT.

STA. 321+50 - STA. 323+30 RT.
INSTALL E-11 = 181 LIN. FT.

STA. 323+80 - STA. 324+60 RT.
INSTALL E-11 = 88 LIN. FT.

STA. 311+19 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 312+25 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 313+00 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 313+60 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 314+20 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 315+06 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 317+16 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 320+72 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 323+00 RT. INSTALL
E-7 = 25 LIN. FT.

STAGE I - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

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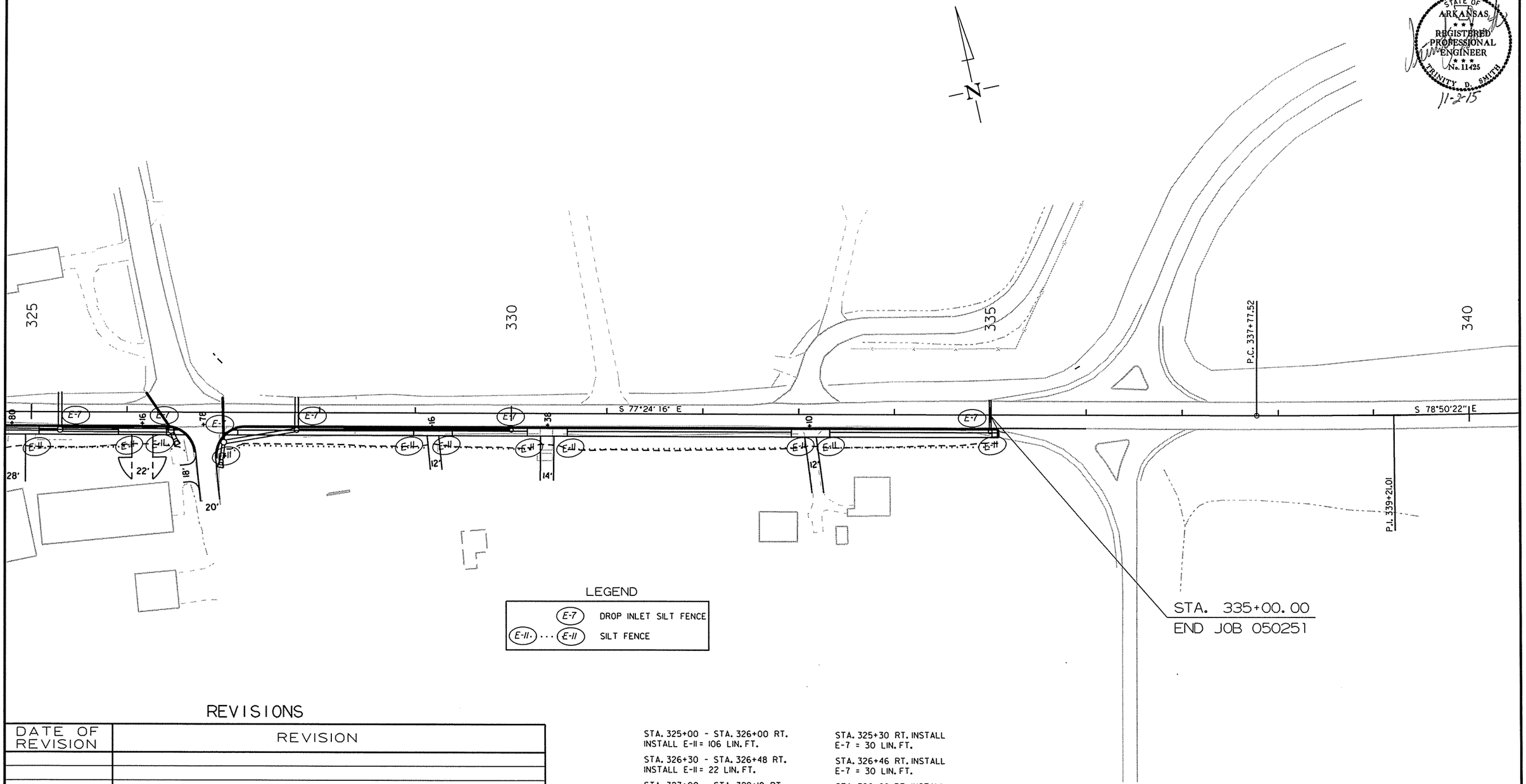
				6	ARK.			
				JOB NO.		050251	38	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



LEGEND

E-7 DROP INLET SILT FENCE

E-11 SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

STA. 325+00 - STA. 326+00 RT.
INSTALL E-11 = 106 LIN. FT.

STA. 326+30 - STA. 326+48 RT.
INSTALL E-11 = 22 LIN. FT.

STA. 327+00 - STA. 329+10 RT.
INSTALL E-11 = 211 LIN. FT.

STA. 329+30 - STA. 330+20 RT.
INSTALL E-11 = 91 LIN. FT.

STA. 330+60 - STA. 333+00 RT.
INSTALL E-11 = 248 LIN. FT.

STA. 333+30 - STA. 335+00 RT.
INSTALL E-11 = 169 LIN. FT.

STA. 325+30 RT. INSTALL
E-7 = 30 LIN. FT.

STA. 326+46 RT. INSTALL
E-7 = 30 LIN. FT.

STA. 326+98 RT. INSTALL
E-7 = 30 LIN. FT.

STA. 327+76 RT. INSTALL
E-7 = 30 LIN. FT.

STA. 330+00 RT. INSTALL
E-7 = 25 LIN. FT.

STA. 334+97 RT. INSTALL
E-7 = 25 LIN. FT.

STAGE I- TEMPORARY EROSION CONTROL DETAILS

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				6	ARK.			
				JOB NO.		050251	39	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

DATE OF REVISION	REVISION

REVISIONS

STA. 504+00 - STA. 509+00
INSTALL E-11 = 590 LIN. FT.

STA. 505+50 INSTALL
E-7 = 25 LIN. FT.

STA. 508+25 INSTALL
E-7 = 25 LIN. FT.

HWY 13 - STA. 108+22.47
HWY 16 - STA. 510+36.71
Δ = 59°06'23"

STA. 510+30 - STA. 512+40
INSTALL E-11 = 242 LIN. FT.

LEGEND

E-5	SAND BAG DITCH CHECKS
E-6	ROCK DITCH CHECKS
E-7	DROP INLET SILT FENCE
E-11 ... E-11	SILT FENCE

HWY. 13 - STA. 111+50.16
FAIRVIEW RD. - STA. 100+00.00
Δ = 91°30'08"

STAGE I - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	40	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH
11-2-15

159 CU. YD.

N 87°04' 19" E

HWY 13 - STA. 162+57.28
MAIN ST. TIE IN - STA. 108+63.60
Δ = 90°03' 09"

P.I. 162+77.25

P.T. 107+82.04

P.I. 106+42.41

117 CU. YD.

S 89°33' 12" E

P.C. 103+56.66

STA. 102+30 - STA. 105+50 RT.
INSTALL E-11 = 418 LIN. FT.

STA. 100+50 - STA. 101+10
INSTALL E-11 = 105 LIN. FT.

LEGEND

- E-5 — SAND BAG DITCH CHECKS
- E-6 — ROCK DITCH CHECKS
- E-11 — SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

STA. 101+00 - STA. 103+90
INSTALL E-11 = 290 LIN. FT.

P.T. 2+53.96
P.I. 216+65.28
P.C. 2+77.66

P.I. 2+98.34

P.T. 3+19.02

P.C. 3+84.78

P.T. 4+93.65

P.T. 219+63.10

220

POB 100+00.00

N 0°34' 28" E

P.C. 102+24.83

P.T. 103+61.13

N 19°52' 14" W

P.I. 4+39.40

P.I. 102+93.71

N 63°38' 17" E

N 160°41' 55" E

P.C. 221+02.41

HWY 13 - STA. 218+26.73
DAVIS RD. - STA. 104+59.95
Δ = 84°39' 37"

STA. 100+90 - 103+50
INSTALL E-11 = 312 LIN. FT.

STAGE I - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	41	339

(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
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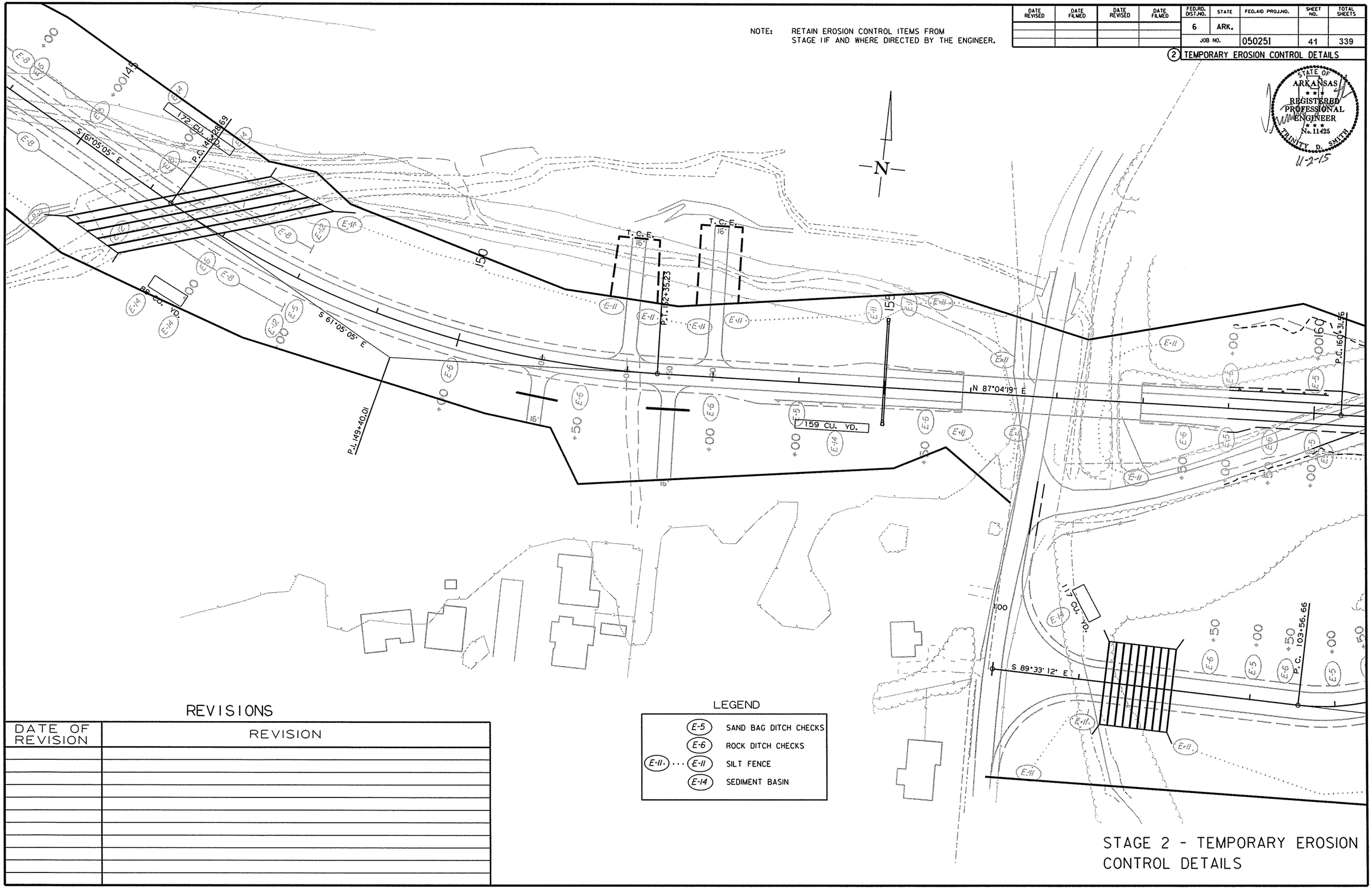
TRINITY D. SMITH
11-2-15



REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	42	339

(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
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P.C. 160+31.96
P.T. 165+21.74
N 87°04' 19" E
N 77°16'05" E
N 7°23' 24" W
P.T. 107+82.04
P.I. 162+77.25
P.C. 161+81.82
P.I. 172+04.94
S 85°55' 43" E

LEGEND

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

REVISIONS

DATE OF REVISION	REVISION

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

P.T. 176+21.98
P.C. 182+44.26
P.T. 183+84.36
P.I. 183+14.31
295 CU. YD.
200 CU. YD.
S 85°55'43" E
S 86°37' 44" E
T.C.E.

STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

10/30/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	43	339

(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
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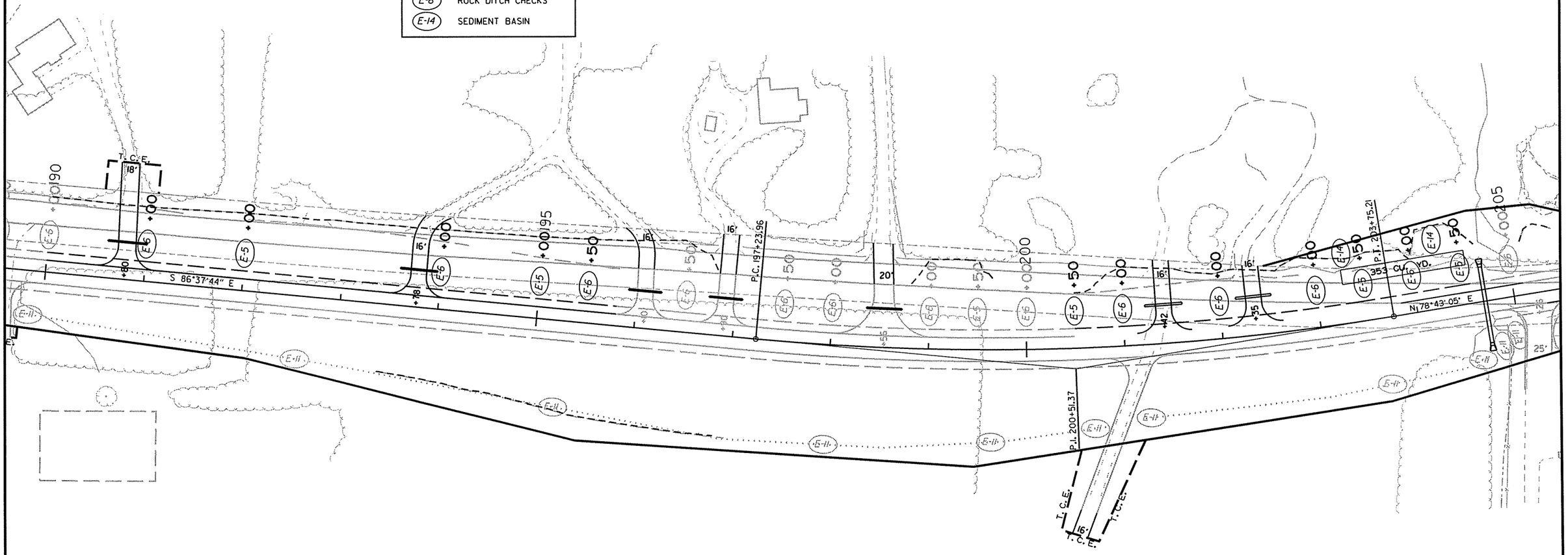
No. 11425
TRINITY D. SMITH
11-2-15

LEGEND

E-5	SAND BAG DITCH CHECKS
E-6	ROCK DITCH CHECKS
E-14	SEDIMENT BASIN

N



REVISIONS

DATE OF REVISION	REVISION

10/30/2015

R050251.DGN

STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	44	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
11-2-15
TRINITY D. SMITH

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

STA. 226+00 - STA. 227+80 RT.
INSTALL E-11 = 192 LIN. FT.

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

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STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	45	339

(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

STA. 235+30 - STA. 237+30 LT.
INSTALL E-II = 206 LIN. FT.

STA. 241+00 - STA. 242+60 LT.
INSTALL E-II = 162 LIN. FT.

STA. 243+00 - STA. 245+40 LT.
INSTALL E-II = 255 LIN. FT.

STA. 249+40 - STA. 250+00 LT.
INSTALL E-II = 90 LIN. FT.

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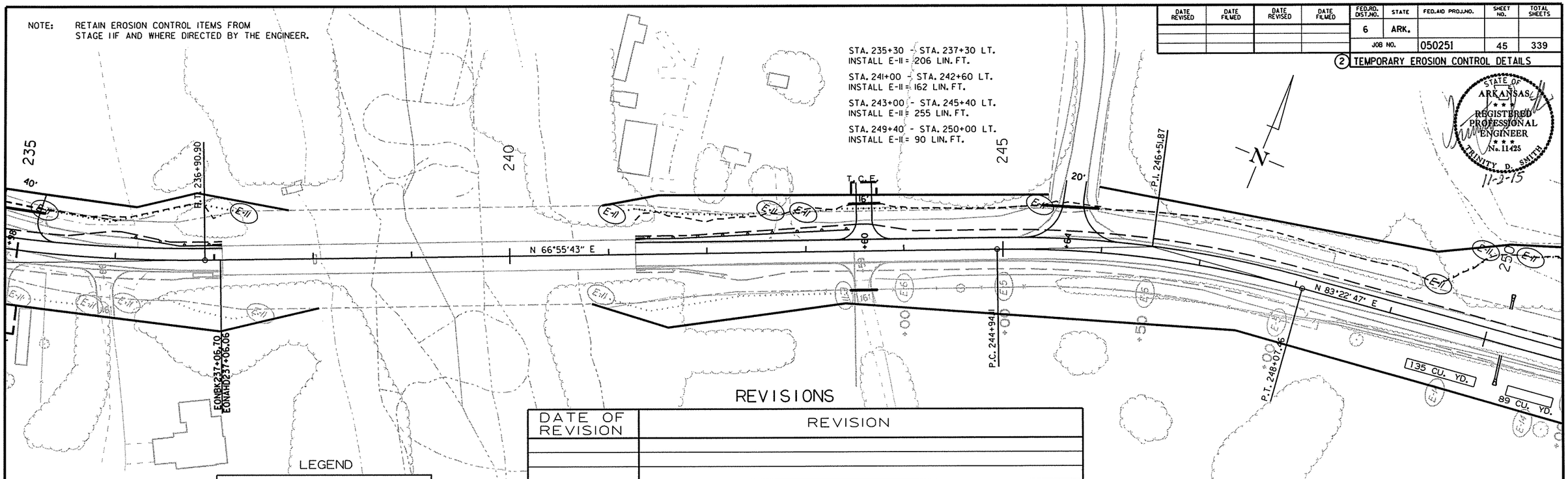


LEGEND

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

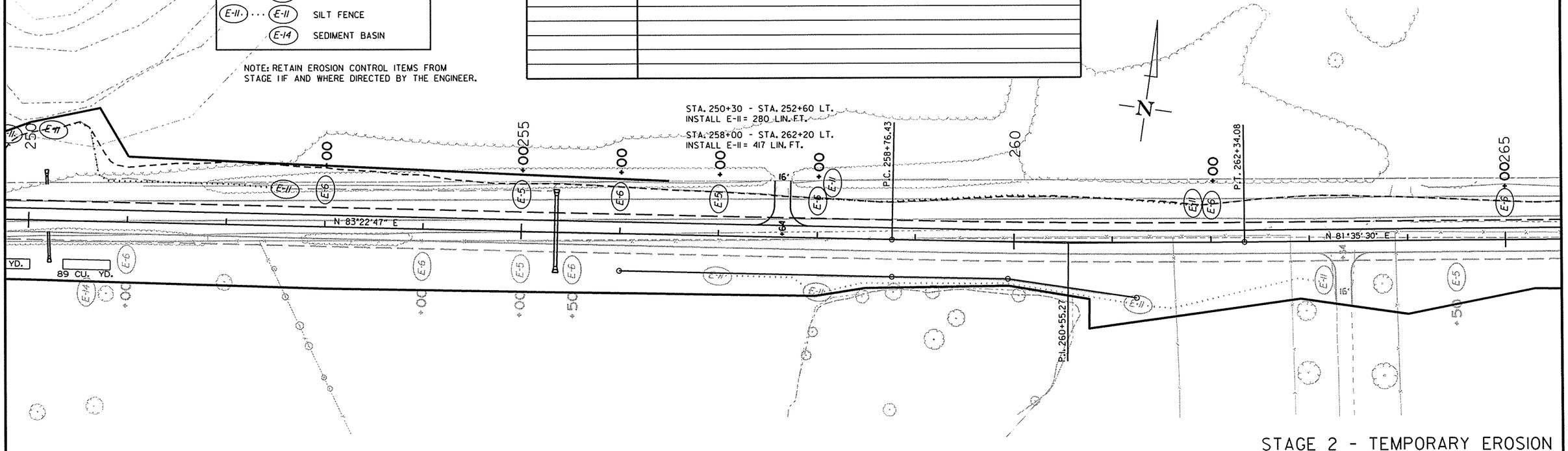
NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

REVISIONS

DATE OF REVISION	REVISION

STA. 250+30 - STA. 252+60 LT.
INSTALL E-II = 280 LIN. FT.

STA. 258+00 - STA. 262+20 LT.
INSTALL E-II = 417 LIN. FT.



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STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	46	339

(2) TEMPORARY EROSION CONTROL DETAILS

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No. 11425
TRINITY D. SMITH
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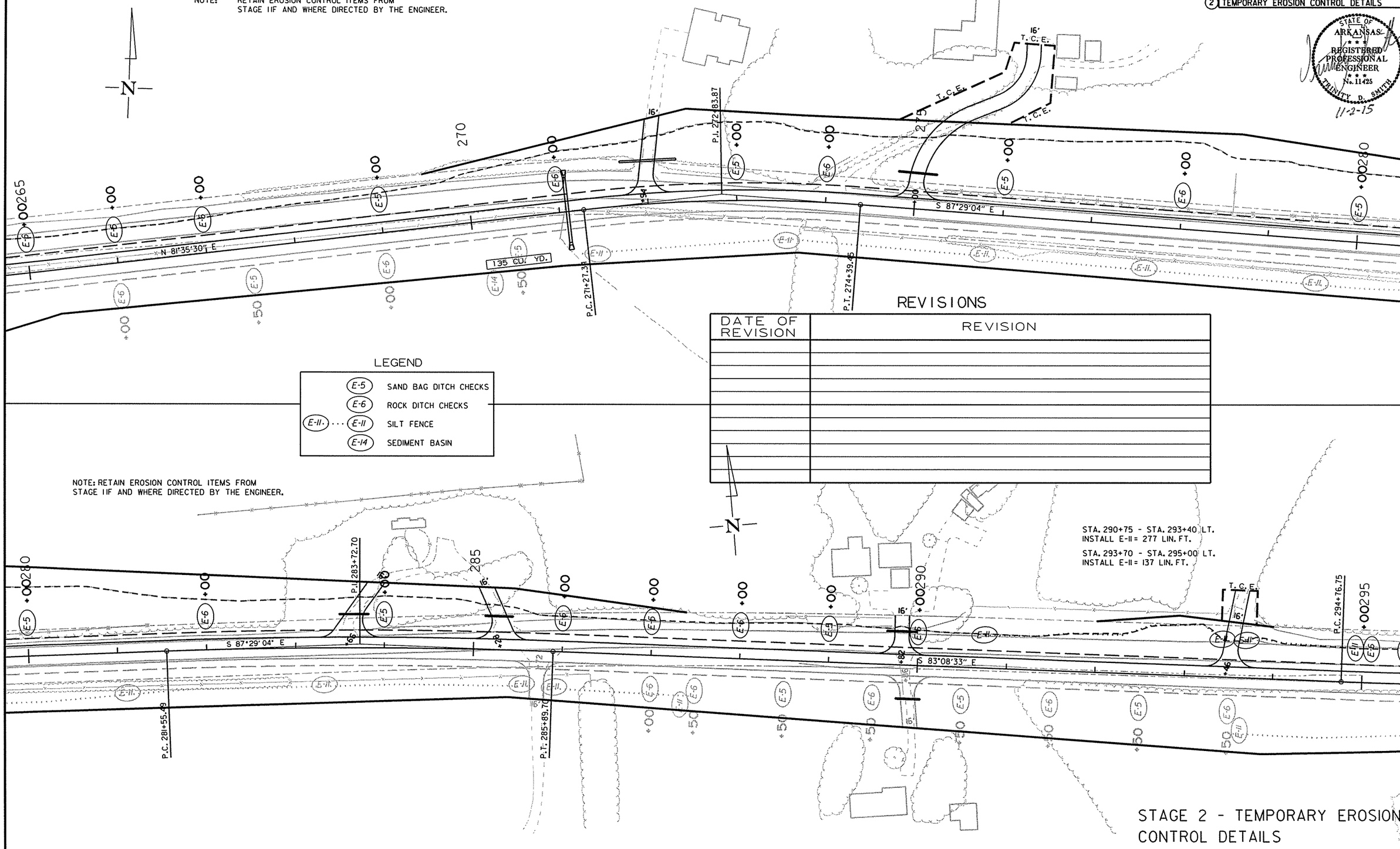
NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 1IF AND WHERE DIRECTED BY THE ENGINEER.



REVISIONS

DATE OF REVISION	REVISION

LEGEND

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

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 1IF AND WHERE DIRECTED BY THE ENGINEER.

STA. 290+75 - STA. 293+40 LT.
INSTALL E-11 = 277 LIN. FT.

STA. 293+70 - STA. 295+00 LT.
INSTALL E-11 = 137 LIN. FT.

STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	47	339

(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

STA. 307+08 LT. INSTALL E-7 = 25 LIN. FT.

STA. 308+50 LT. INSTALL E-7 = 25 LIN. FT.

STA. 309+70 LT. INSTALL E-7 = 25 LIN. FT.

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P.I. 299+97.54
P.I. 305+42.74
P.I. 297+37.19
P.C. 302+64.18
T. 308+20.31
S 83°08' 33" E
S 85°44' 47" E
S 77°24' 16" E
T. C. E.
E-5 SAND BAG DITCH CHECKS
E-6 ROCK DITCH CHECKS
E-7 DROP INLET SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

STA. 311+19 LT. INSTALL E-7 = 25 LIN. FT.
STA. 312+25 LT. INSTALL E-7 = 25 LIN. FT.
STA. 313+00 LT. INSTALL E-7 = 25 LIN. FT.
STA. 313+54 LT. INSTALL E-7 = 25 LIN. FT.
STA. 314+20 LT. INSTALL E-7 = 25 LIN. FT.
STA. 315+06 LT. INSTALL E-7 = 25 LIN. FT.
STA. 317+16 LT. INSTALL E-7 = 25 LIN. FT.
STA. 318+72 LT. INSTALL E-7 = 25 LIN. FT.
STA. 320+72 LT. INSTALL E-7 = 25 LIN. FT.
STA. 323+00 LT.INSTALL E-7 = 25 LIN. FT.

225' TAPER

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STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	48	339

(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER.

STA. 325+30 LT. INSTALL
E-7 = 30 LIN. FT.

STA. 327+00 LT. INSTALL
E-7 = 25 LIN. FT.

STA. 327+76 LT. INSTALL
E-7 = 30 LIN. FT.

STA. 330+00 LT. INSTALL
E-7 = 30 LIN. FT.

STA. 330+50 LT. INSTALL
E-7 = 25 LIN. FT.

STA. 331+50 LT. INSTALL
E-7 = 25 LIN. FT.

STA. 332+68 LT. INSTALL
E-7 = 25 LIN. FT.

STA. 335+00 LT. INSTALL
E-7 = 25 LIN. FT.

LEGEND

E-7 DROP INLET SILT FENCE

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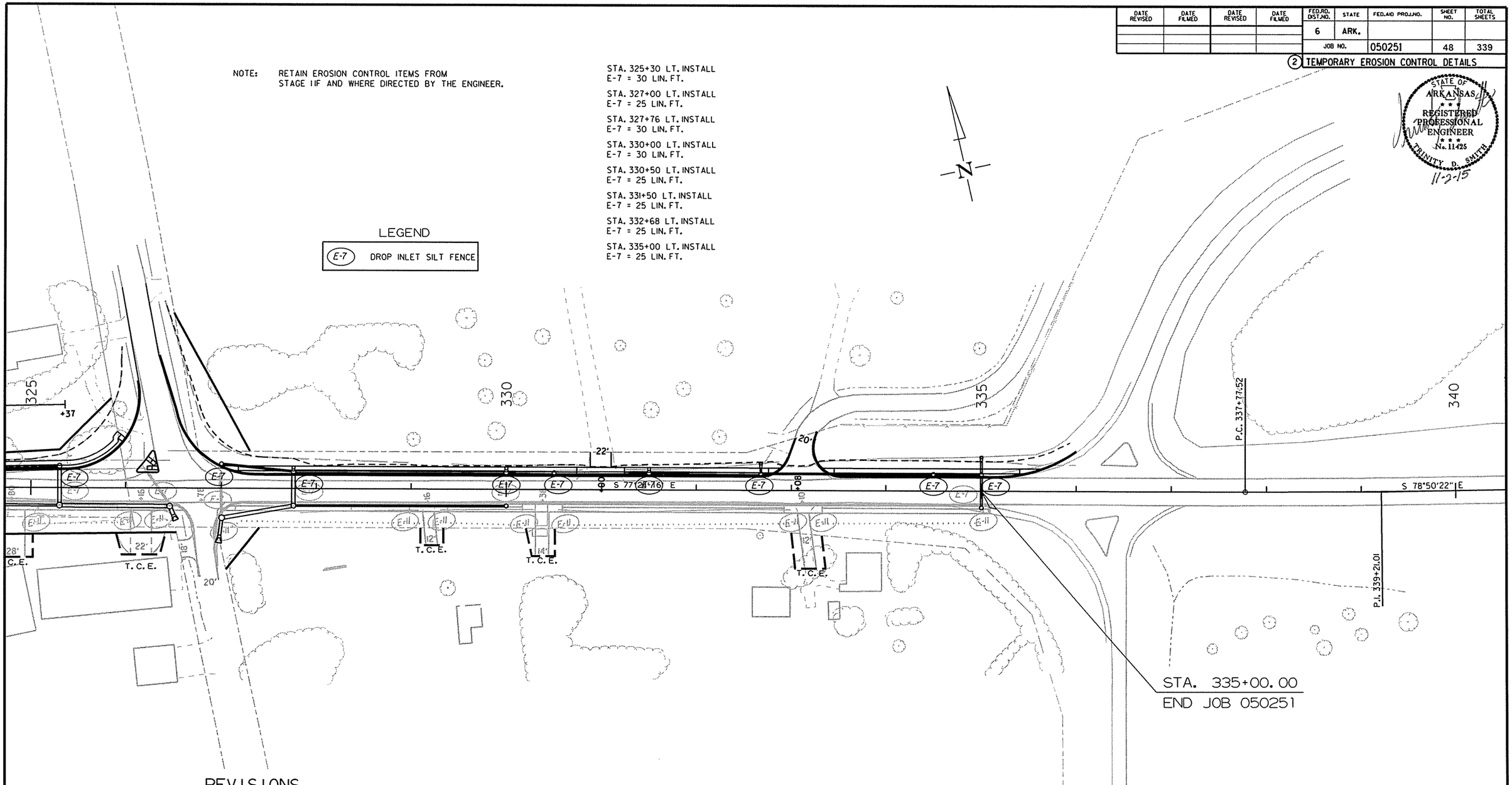

REVISIONS

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STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	49	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
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TRINITY D. SMITH
11-2-15

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-6) ROCK DITCH CHECKS
- (E-7) DROP INLET SILT FENCE

STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	50	339

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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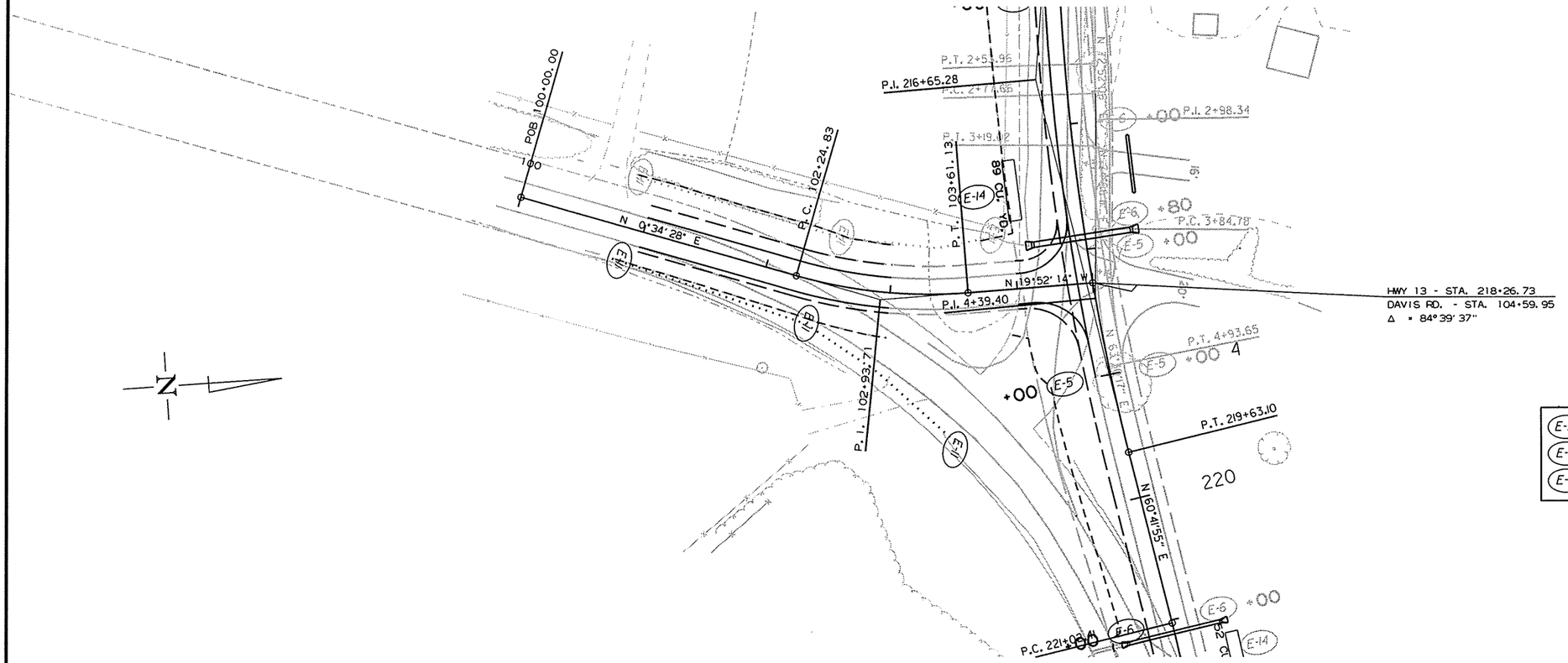
TRINITY D. SMITH
11-2-15



LEGEND

E-5	SAND BAG DITCH CHECKS
E-6	ROCK DITCH CHECKS
E-7	DROP INLET SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

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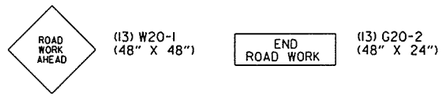
STAGE 2 - TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	51	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



SIGN PLACEMENT ON ALL CITY STREETS & COUNTY ROADS & HWY. 67 EXIT RAMP
ALL STAGES

STAGE 1:

MAINTENANCE OF TRAFFIC ON EXISITING ROADS.

CONSTRUCT HWY. 13 ON NEW LOCATION:
STA. 106+74.55 - STA. 159+00
STA. 161+50 - STA. 170+00
STA. 185+00 - STA. 188+00
STA. 195+80 - STA. 200+50

CONSTRUCT RT. SIDE OF HWY. 13:
STA. 170+00 - STA. 185+00
STA. 188+00 - STA. 195+80
STA. 200+50 - STA. 204+70
STA. 228+50 - STA. 237+08.03
STA. 241+27.64 - STA. 335+00

CONSTRUCT LT. SIDE OF HWY. 13:
STA. 204+70 - STA. 228+50

CONSTRUCT FULL DEPTH SHOULDERS:
STA. 171+00 - STA. 178+00
STA. 207+00 - STA. 210+00
STA. 215+00 - STA. 219+00
STA. 255+00 - STA. 272+00
STA. 289+00 - STA. 303+00

NOTCH & WIDEN HWY. 16 TO RT.

CONSTRUCT MAIN ST. TIE IN

CONSTRUCT FAIRVIEW RD. ON NEW LOCATION:
STA. 100+30 - STA. 103+00

CONSTRUCT RT. SIDE OF FAIRVIEW RD.:
STA. 103+00 - STA. 104+96.80

CONSTRUCT LT. SIDE OF DAVIS DR.:
STA. 101+00 - STA. 104+00

CONSTRUCT TEMPORARY WIDENING ON LT.:
STA. 215+00 - STA. 218+00

STAGE 2:

MOVE TRAFFIC TO MAIN ST. TIE IN
& NEW PAVEMENT (STA. 163+00 - 335+00)

CONSTRUCT HWY. 13:
STA. 159+00 - STA. 161+50

CONSTRUCT LT. SIDE OF HWY. 13:
STA. 170+00 - STA. 185+00
STA. 188+00 - STA. 195+80
STA. 200+50 - STA. 204+70
STA. 228+50 - STA. 237+08.03
STA. 241+27.64 - STA. 335+00

CONSTRUCT RT. SIDE OF HWY. 13:
STA. 204+70 - STA. 228+50

CONSTRUCT DAVIS DR.
STA. 101+00 - STA. 103+00
STA. 104+00 - STA. 104+47.90

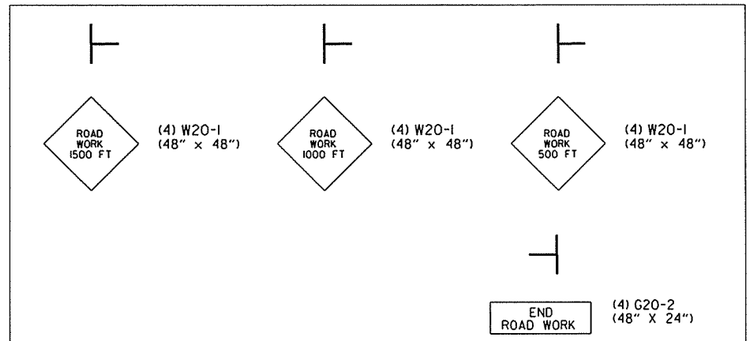
CONSTRUCT LT. SIDE OF FAIRVIEW RD.
STA. 103+00 - STA. 104+96.80

HWY. 16 INSTALL NEW CURB & GUTTER ON LT.

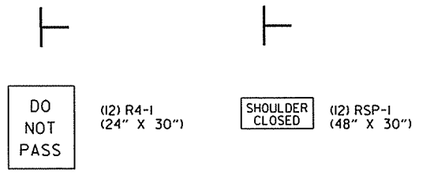
END OF JOB:

FINAL 2" ACHM SURFACE COURSE

FINAL STRIPING



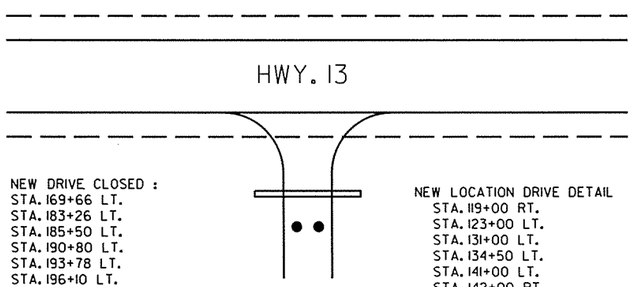
ALL STAGES INSTALL ADVANCE WARNING SIGNS:
HWY. 13 - AT THE END OF PROJECT
HWY. 16 - BEFORE & AFTER INTERSECTION
HWY. 385 - BEFORE INTERSECTION



TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER
ALL STAGES

VERTICAL PANELS
TRAFFIC DRUMS

ALL STAGES:
TRAFFIC DRUMS (2 PER LOCATION) = 10 EACH



NEW DRIVE CLOSED :
STA. 169+66 LT.
STA. 183+26 LT.
STA. 185+50 LT.
STA. 190+80 LT.
STA. 193+78 LT.
STA. 196+10 LT.
STA. 196+90 LT.
STA. 198+56 LT.
STA. 217+37 LT.

TRAFFIC DRUMS (2 PER LOCATION)
= 18 EACH

NEW LOCATION DRIVE DETAIL
STA. 119+00 RT.
STA. 123+00 LT.
STA. 131+00 LT.
STA. 134+50 LT.
STA. 141+00 LT.
STA. 142+00 RT.
STA. 151+00 RT.
STA. 152+00 LT.
STA. 152+50 RT.
STA. 153+00 LT.

ALL STAGES
MAINTENANCE OF TRAFFIC

11/2/2015

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				6	ARK.			
				JOB NO.		050251	52	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

TRAFFIC DRUMS (@ 35' O.C.):
STA. 101+00 - 105+00 = 12 EACH
FAIRVIEW RD.

CONSTRUCTION PAVEMENT MARKINGS
(HWY. 16)
STA. 501+75 - 512+35 = 4240 LIN. FT.

(1) RII-2
(48" X 30")
16' BARR.
TYP. III LT.

ROAD CLOSED

(3) RII-2
(48" X 30")
(3) 24' BARR.
TYP. III RT.
(3) 24' BARR.
TYP. III LT.

STA. 110+53 INSTALL
18" x 30' TEMPORARY PIPE
& CONST. TEMP. APPROACH
ON LT. = 5 CU. YDS.

HWY. 13 - STA. 111+50.16
FAIRVIEW RD. - STA. 100+00.00
Δ = 91°30'08"

TRAFFIC DRUMS (@ 35' O.C.):
STA. 509+00 - 511+50 = 8 EACH
HWY. 16

VERTICAL PANELS (@ 35' O.C.):
STA. 501+65 - 513+00 = 33 EACH
HWY. 16

CONSTRUCTION PAVEMENT MARKINGS
(HWY. 13)
STA. 204+00 - 207+00 = 1200 LIN. FT.
STA. 210+00 - 215+32 = 2128 LIN. FT.
STA. 222+00 - 224+00 = 800 LIN. FT.
STA. 226+00 - 231+00 = 2000 LIN. FT.
STA. 234+00 - 237+08.03 = 1232 LIN. FT.
STA. 241+27.64 - 244+00 = 1088 LIN. FT.
STA. 249+00 - 255+35 = 2540 LIN. FT.
STA. 273+00 - 279+00 = 2400 LIN. FT.
STA. 298+00 - 335+00 = 14800 LIN. FT.

HWY. 13 - STA. 108+22.47
HWY. 16. - STA. 510+36.71
Δ = 59°06'23"

TRAFFIC DRUMS (@ 35' O.C.) = 16 EACH

STA. 110+45 INSTALL
18" x 28' TEMPORARY PIPE
& CONST. TEMP. APPROACH
ON RT. = 5 CU. YDS.

•TO BE LEFT IN PLACE UPON COMPLETION OF PROJECT.

ROAD CLOSED

(3) RII-2
(48" X 30")
(3) 24' BARR.
TYP. III RT.
(3) 24' BARR.
TYP. III LT.

NOTE: ONLY ONE SIDE OF HWY. 16 SHALL BE ALLOWED TO BE NOTCHED AT A TIME.

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

STA. 106+91.18
BEGIN PAVING
END JOB 050249

STA. 106+74.55
BEGIN JOB 050251
BEGIN GRADING

STAGE I
MAINTENANCE OF TRAFFIC

11/2/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	53	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

N

ROAD CLOSED
(2) R11-2 (48" X 30")
16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

155
160
P.C. 160+31.56
165
P.T. 165+21.74
170
+66

N 87°04'19" E
HWY. 13
N 77°16'05" E
N 87°04'19" E
N 7°23'24" E
P.T. 107+82.04
P.I. 162+77.25
P.C. 167+81.82

NORTH BYPASS ROAD

ROAD CLOSED
(2) R11-2 (48" X 30")
(2) 16' BARR. TYP. III RT.
(2) 16' BARR. TYP. III LT.

NORTH MAIN STREET
100
105
S 89°33'12" E
MAIN ST. TIE IN
P.C. 103+56.66
P.I. 106+42.41

ROAD CLOSED
(2) R11-2 (48" X 30")
(2) 24' BARR. TYP. III RT.
(2) 24' BARR. TYP. III LT.

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

STAGE I
MAINTENANCE OF TRAFFIC

11/2/2015
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	54	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

STA. 175+50 - 204+70
TRAFFIC DRUMS (@ 45' O.C.)
= 65 EACH

(I) RII-2
(48" X 30")
24' BARR.
TYP. III LT.

ROAD CLOSED

VERTICAL PANELS (@ 45' O.C.):
STA. 173+00 - 175+50= 6 EACH

(I) RII-2
(48" X 30")
24' BARR.
TYP. III LT.

ROAD CLOSED

TRAFFIC DRUMS
@ 20' O.C. ON TURNOUTS
(8 PER LOCATION FOR 41
LOCATIONS) = 328 EACH

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

VERTICAL PANELS (@ 45' O.C.):
STA. 204+70 - 215+00 = 23 EACH

ROAD CLOSED

(I) RII-2
(48" X 30")
24' BARR.
TYP. III RT.

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

STAGE I
MAINTENANCE OF TRAFFIC

11/2/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	55	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
11-2-15

TRAFFIC DRUMS (@ 45' O.C.):
STA. 215+00 - 221+00 = 14 EACH
STA. 228+50 - 234+00 = 13 EACH
STA. 256+50 - 271+50 = 34 EACH
STA. 288+50 - 297+50 = 20 EACH

END ROAD WORK

(1) G20-2 (48" X 24")

ROAD WORK AHEAD

(1) W20-1 (48" X 48")

P.I. 1+44.32
P.I. 2+02.15
P.I. 2+98.34
P.C. 3+84.78
P.T. 4+93.65
P.T. 219+63.10
P.I. 224+05.20
P.C. 221+02.41
P.T. 226+93.13
P.I. 0+74.74
P.C. 1+50.03
P.T. 2+53.96
P.C. 2+77.66
P.I. 216+65.28
P.T. 3+19.02
P.I. 4+39.40
P.T. 103+61.13
P.T. 102+93.71
P.C. 102+24.83

N 72°52'06" E
N 74°56'11" E
N 63°10'17" E
N 60°41'55" E
S 88°17'20" E
N 19°52'14" W

NORTH BYPASS ROAD
CW ROAD

STA. 221+10 INSTALL
21" x 15" x 14' ARCH TEMP. PIPE

VERTICAL PANELS (@ 45' O.C.):
STA. 221+00 - 228+50 = 17 EACH
STA. 234+00 - 237+08.03 = 7 EACH
STA. 241+27.64 - 256+50 = 34 EACH
STA. 271+50 - 288+50 = 38 EACH

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

VERTICAL PANELS (@ 45' O.C.):
STA. 297+50 - 306+66 = 21EACH

VERTICAL PANELS (@ 35' O.C.):
STA. 306+66 - 335+00= 81EACH

P.I. 305+42.74

S 77°24'16" E

+60.50
192' TAPER
+57.50

P.T. 308+20.31

STA. 307+50 IN PLACE
18" x 30' STEEL PIPE CULVERT
RETAIN & EXTEND WITH
18" x 6' TEMPORARY PIPE
CONNECT TO D.I. @ 307+50 RT.
FILL & ABANDON PIPE IN STAGE 2

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

STA. 313+00 INSTALL
18" x 32' TEMPORARY PIPE
CONNECT TO D.I. @ 313+00 RT.
FOR STAGE 1&
IN STAGE 2 REMOVE 3' ON LT.
& FILL & ABANDON

STAGE 1
MAINTENANCE OF TRAFFIC

11/2/2015

R050251.DGN

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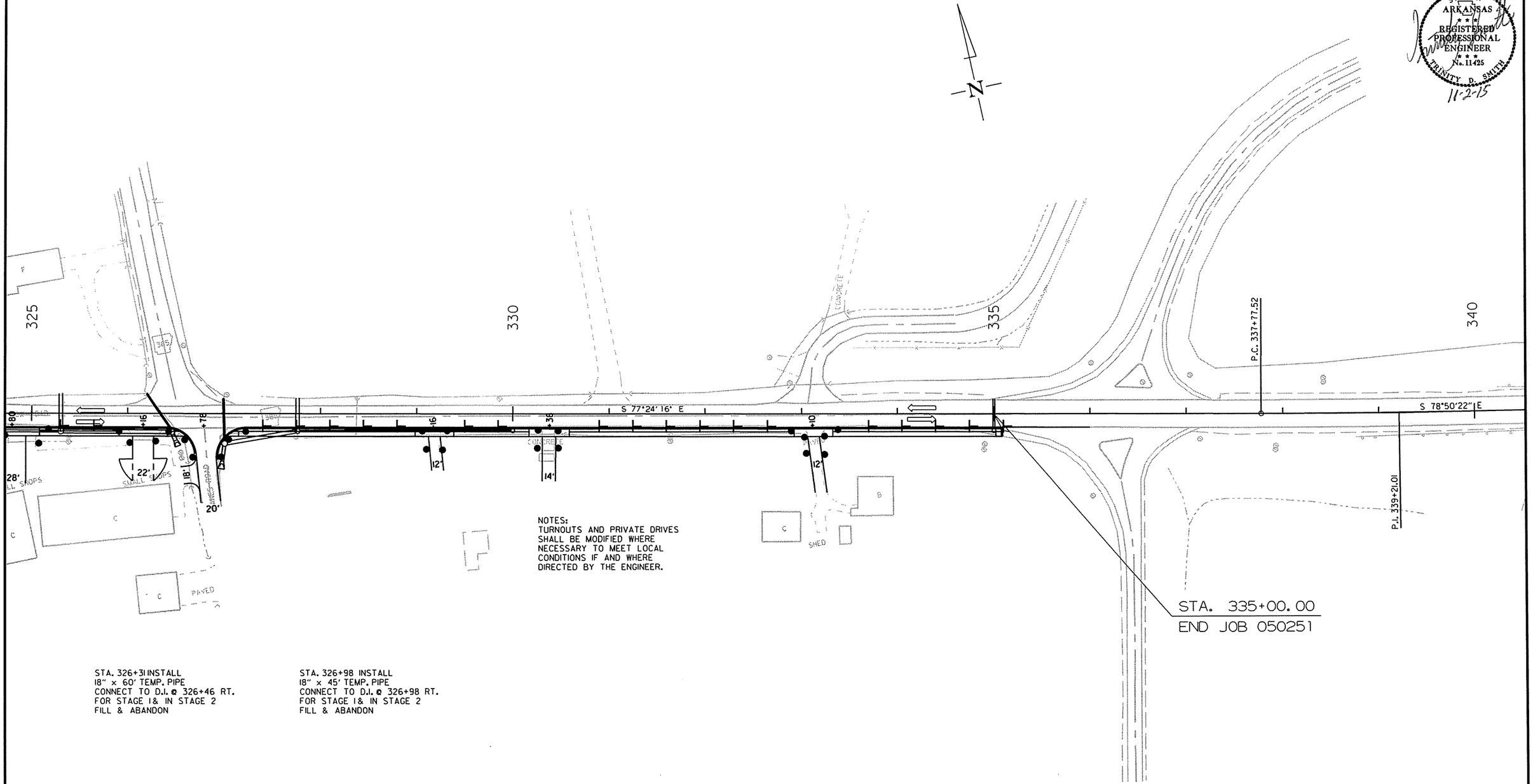
				6	ARK.			
				JOB NO.		050251	56	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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

STA. 326+31 INSTALL
18" x 60' TEMP. PIPE
CONNECT TO D.I. @ 326+46 RT.
FOR STAGE I& IN STAGE 2
FILL & ABANDON

STA. 326+98 INSTALL
18" x 45' TEMP. PIPE
CONNECT TO D.I. @ 326+98 RT.
FOR STAGE I& IN STAGE 2
FILL & ABANDON

STA. 335+00.00
END JOB 050251

STAGE I
MAINTENANCE OF TRAFFIC

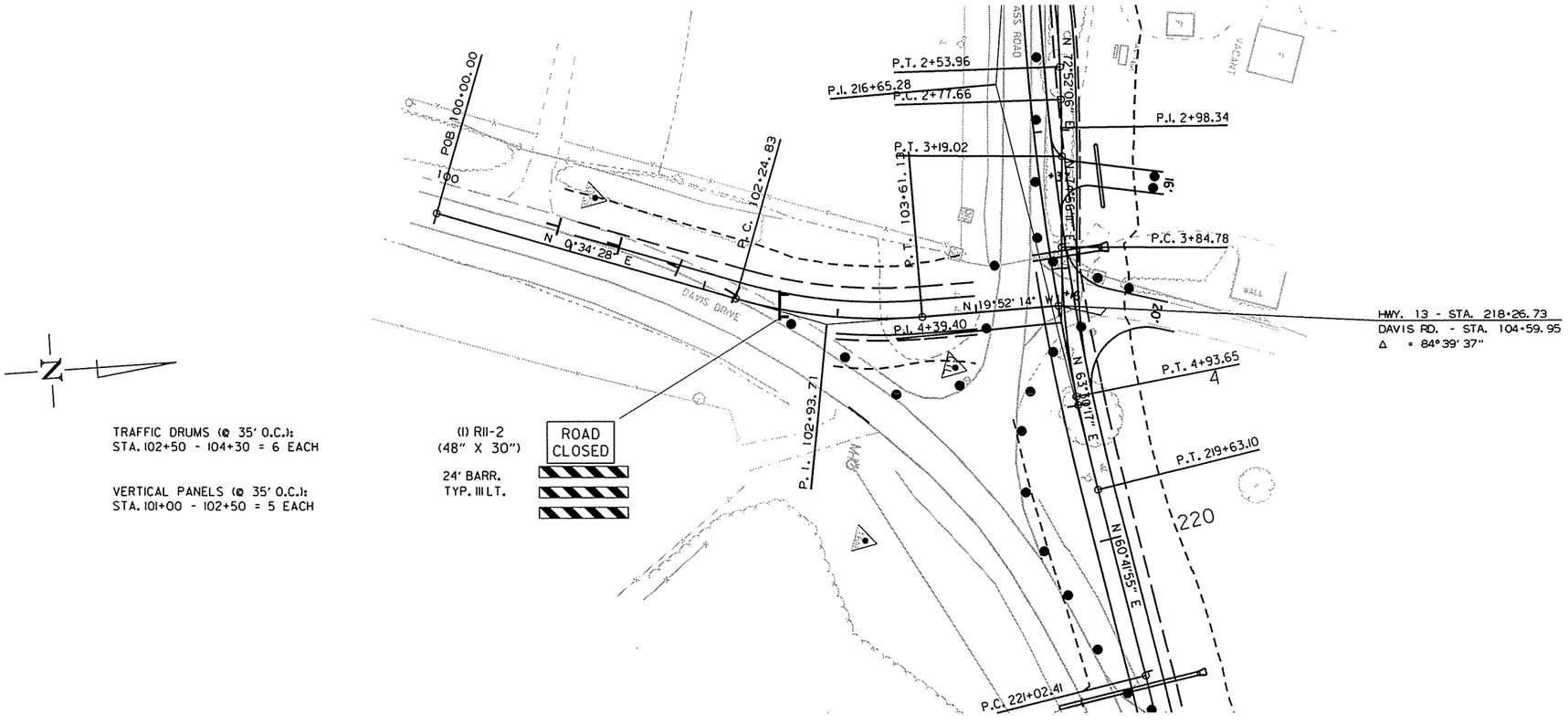
11/2/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	57	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



TRAFFIC DRUMS (@ 35' O.C.):
STA. 102+50 - 104+30 = 6 EACH

VERTICAL PANELS (@ 35' O.C.):
STA. 101+00 - 102+50 = 5 EACH

(1) RII-2
(48" X 30")

24' BARR.
TYP. III LT.

ROAD CLOSED

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

STAGE I
MAINTENANCE OF TRAFFIC

11/2/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	58	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

CONSTRUCTION PAVEMENT MARKINGS
(HWY. 13)
STA. 162+55 - 306+35 = 57640 LIN. FT.
STA. 306+65 - 335+00 = 8505 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
(HWY. 16)
STA. 501+75 - 512+35 = 4240 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS
(MAIN ST. TIE IN)
STA. 100+00 - 108+65 = 3460 LIN. FT.

N

ROAD CLOSED
(1) R11-2 (48" X 30")
(1) W1-6 (48" X 24")
24' BARR. TYP. III RT.

TRAFFIC DRUMS
@ 20' O.C. ON TURNOUTS
(8 PER LOCATION FOR 49 LOCATIONS) = 392 EACH

155
160
P.C. 160+31.56
165
P.T. 165+21.74
170
16'
N 87°04'19" E
N 87°04' 19" E
N 77°16'05" E
NORTH BYPASS ROAD
N 17°23'24" W
P.T. 107+82.04
P.C. 167+81.82
P.T. 162+77.25

ROAD CLOSED
(1) R11-2 (48" X 30")
16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

NORTH MAIN STREET
100
105
S 89°33' 12" E
P.C. 103+56.66
P.T. 106+42.41

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

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (HWY. 13)
STA. 207+00 - 208+00 = 400 LIN. FT.
STA. 210+00 - 212+00 = 800 LIN. FT.
STA. 222+00 - 228+00 = 2400 LIN. FT.
STA. 229+70 - 231+00 = 520 LIN. FT.
STA. 251+00 - 256+00 = 2000 LIN. FT.
STA. 285+46 - 289+84 = 1752 LIN. FT.
STA. 298+00 - 303+00 = 2000 LIN. FT.

REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (HWY. 16)
STA. 501+75 - 512+35 = 4240 LIN. FT.

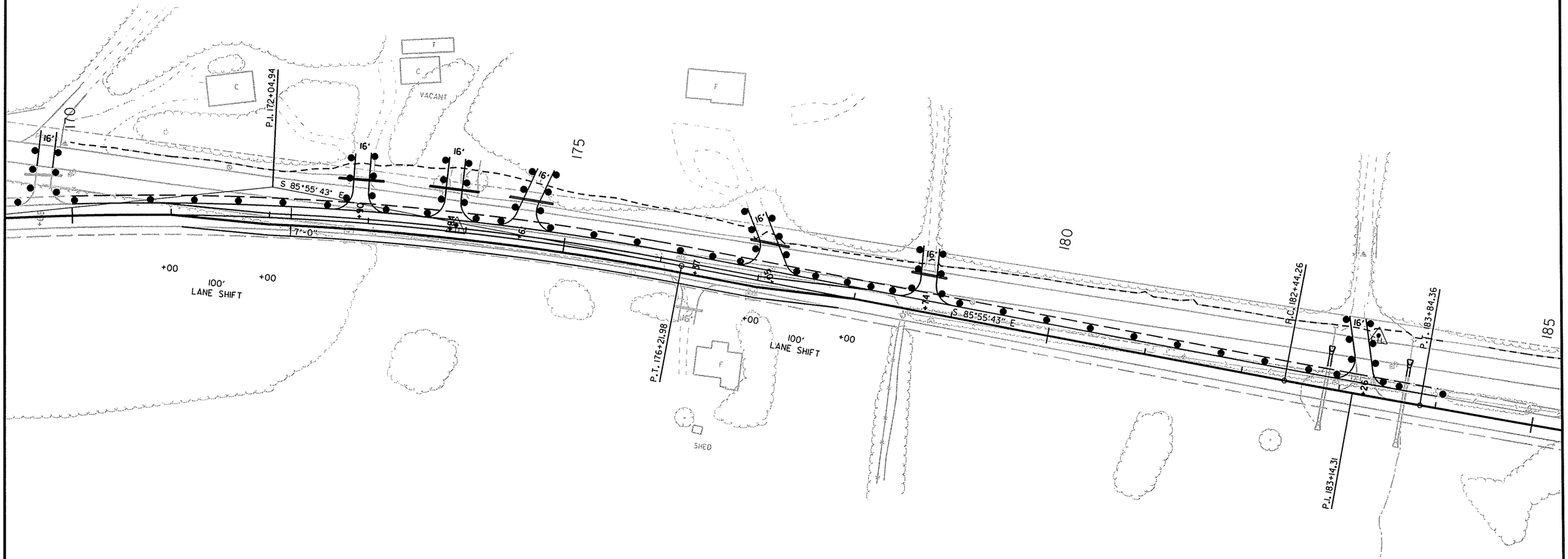
STAGE 2
MAINTENANCE OF TRAFFIC

11/2/2015
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	59	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



VERTICAL PANELS (@ 45' O.C.):
STA. 204+70 - 207+00 = 5 EACH
STA. 222+00 - 228+50 RT= 50 EACH
STA. 228+50 - 230+00 RT. = 4 EACH
STA. 234+00 - 237+08.03 = 7 EACH
STA. 241+27.64 - 245+00 = 9 EACH
STA. 249+00 - 256+00 = 16 EACH
STA. 273+00 - 289+50 = 37 EACH
STA. 298+00 - 306+66 = 20 EACH

TRAFFIC DRUMS (@ 45' O.C.):
STA. 170+00 - 185+00 = 34 EACH
STA. 188+00 - 195+80 = 18 EACH
STA. 200+50 - 204+70 = 10 EACH
STA. 207+00 - 222+00 = 34 EACH
STA. 230+00 - 234+00 = 9 EACH
STA. 245+00 - 249+00 = 9 EACH
STA. 256+00 - 259+00 = 8 EACH
STA. 264+00 - 273+00 = 20 EACH
STA. 289+50 - 298+00 = 19 EACH

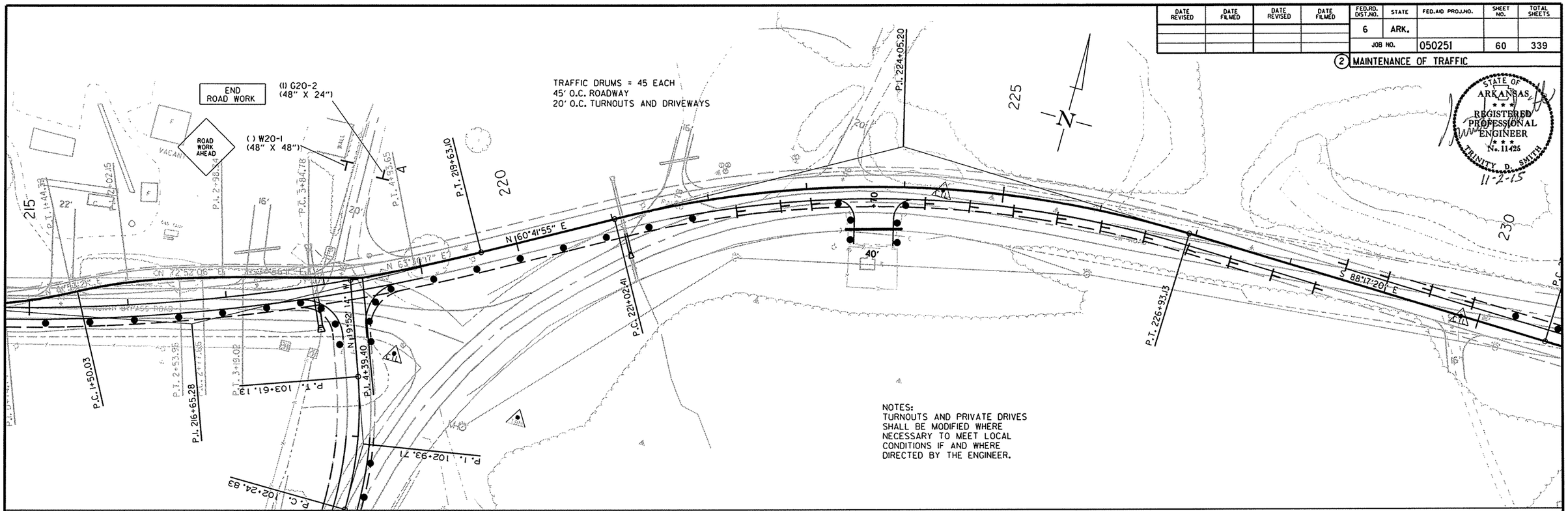
NOTES:
TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS IF AND WHERE DIRECTED BY THE ENGINEER.

STAGE 2
MAINTENANCE OF TRAFFIC

11/2/2015
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	60	339

(2) MAINTENANCE OF TRAFFIC



STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 11-2-15

STAGE 2
MAINTENANCE OF TRAFFIC

R050251.DGN 11/2/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	61	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

VERTICAL PANELS (@ 35' O.C.):
STA. 306+66 - 335+00 = 81EACH

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

295 300 305 310

P.T. 299+97.54
P.I. 297+37.19
P.C. 302+64.18
P.I. 305+42.74
P.T. 308+20.31

S 83°08'33" E
S 85°44'47" E
S 77°24'16" E

16' 16' 16' 16' 20' 16'

7'-0"

+00 100' LANE SHIFT +00

+60.50 192' TAPER +57.50

SHED SHED CANOPY

STAGE 2
MAINTENANCE OF TRAFFIC

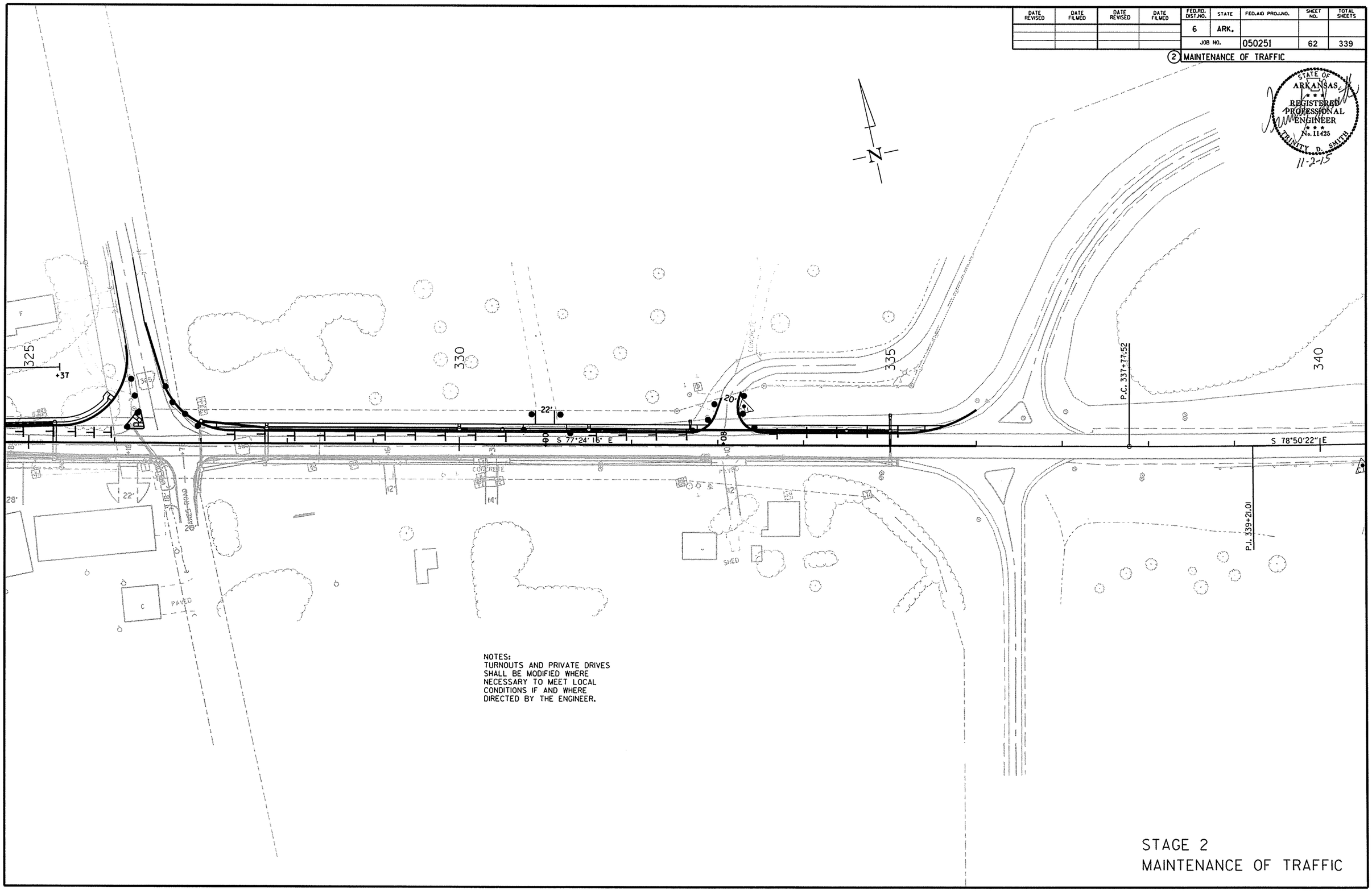
11/2/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	62	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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

STAGE 2
MAINTENANCE OF TRAFFIC

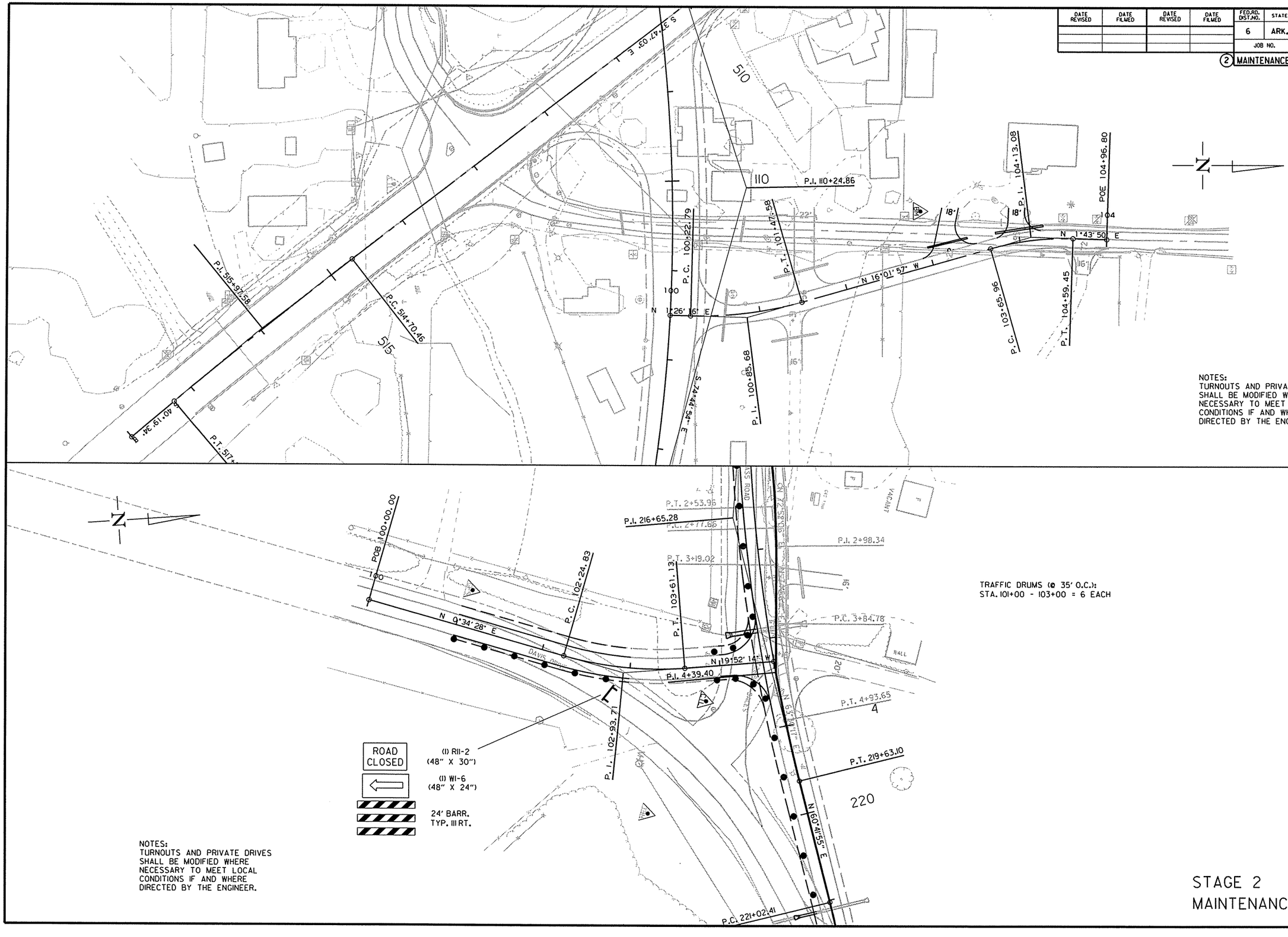
11/2/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	63	339

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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

TRAFFIC DRUMS (@ 35' O.C.):
STA. 101+00 - 103+00 = 6 EACH

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

STAGE 2
MAINTENANCE OF TRAFFIC

11/2/2015
R050251.DGN

PERMANENT PAVEMENT MARKING DETAILS QUANTITIES

HWY. 13:
THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 41029 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 44618 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (8") = 1132 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10") = 299 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (24") = 60 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING (YIELD LINE) = 32 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING (ARROW) = 2 EACH
THERMOPLASTIC PAVEMENT MARKING (WORD) = 2 EACH
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4") = 1254

HWY 16:
THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 2041 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 2404 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (24") = 47 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING (ARROW) = 4 EACH
THERMOPLASTIC PAVEMENT MARKING (WORD) = 4 EACH

FAIRVIEW RD:
THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 918 LIN. FT.

MAIN ST. TIE IN:
THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 1919 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 1569 LIN. FT.

DAVIS DR.:
THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 740 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 690 LIN. FT.

HWY. 385:
THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 178 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 384 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (8") = 128 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10") = 76 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (24") = 12 LIN. FT.

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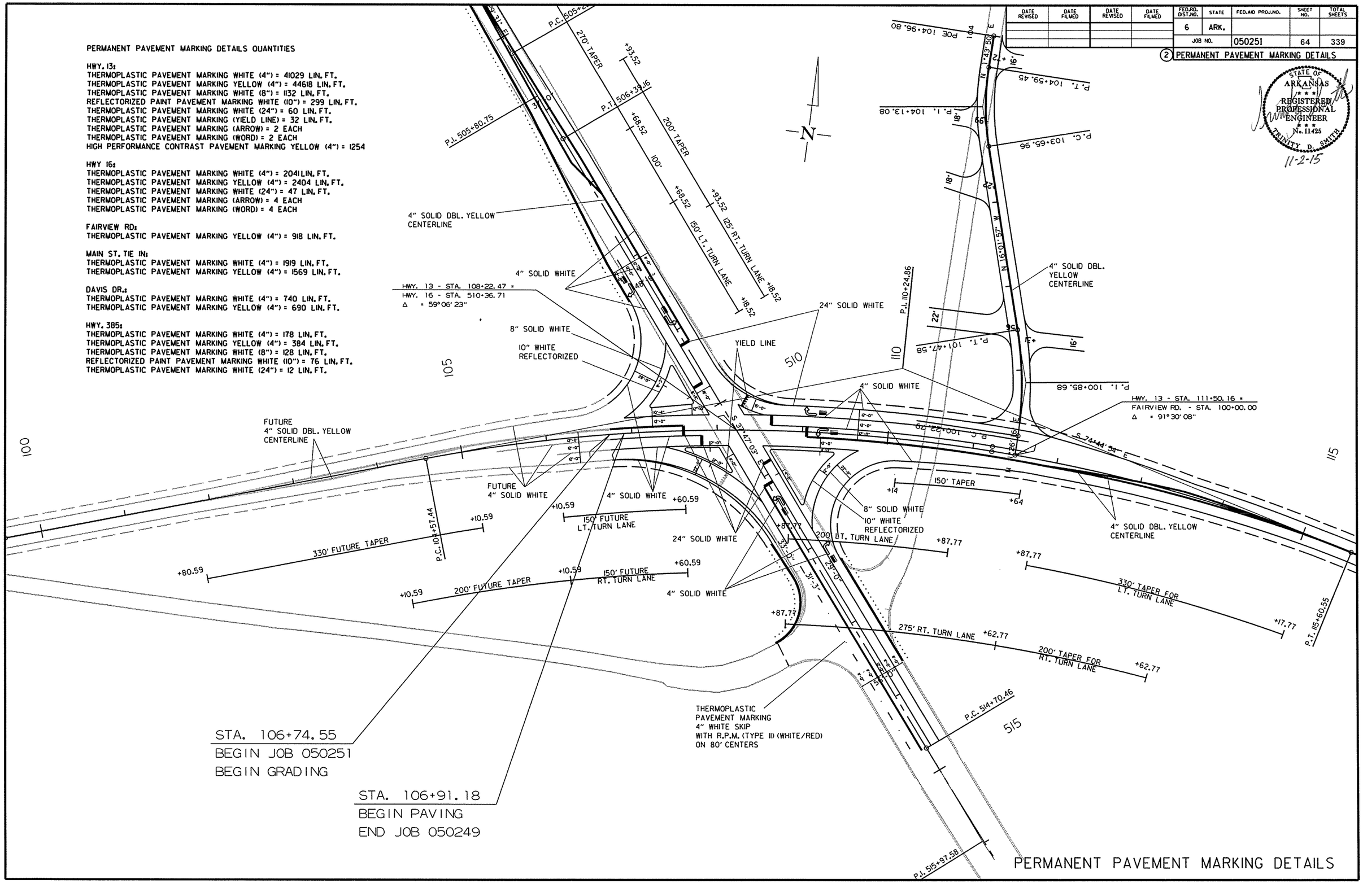
				6	ARK.			
				JOB NO.		050251	64	339

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



PERMANENT PAVEMENT MARKING DETAILS

10/30/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	65	339

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

N

155

HIGH PERFORMANCE CONTRAST PAVEMENT MARKING 4" SOLID DBL. YELLOW CENTERLINE

THERMOPLASTIC 4" SOLID WHITE

N 87°04'19" E

160

P.C. 160+31.56

HWY. 13 - STA. 162+57.28 =
MAIN ST. TIE IN - STA. 108+63.60
Δ = 90°03'09"

165

P.T. 165+21.74

N 77°16'05" E

170

16'

+66

N 87°04'19" E

N 17°23'24" E

P.T. 107+82.04

P.T. 162+77.25

THERMOPLASTIC 4" SOLID WHITE

P.C. 167+81.82

THERMOPLASTIC 4" SOLID DBL. YELLOW CENTERLINE

4" SOLID WHITE

100

105

P.C. 103+56.66

S 89°33'12" E

4" SOLID DBL. YELLOW CENTERLINE

P.T. 106+42.41

10/30/2015

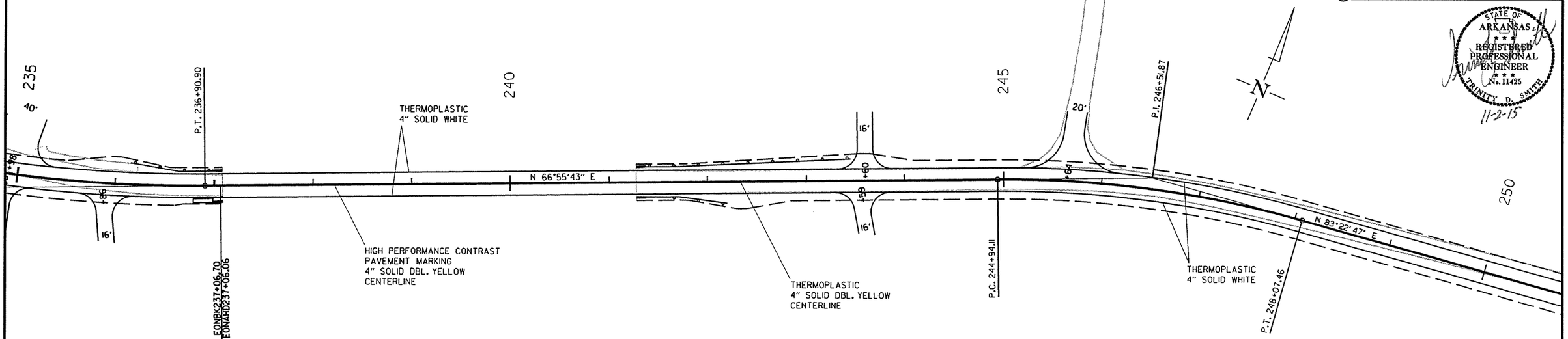
R050251.DGN

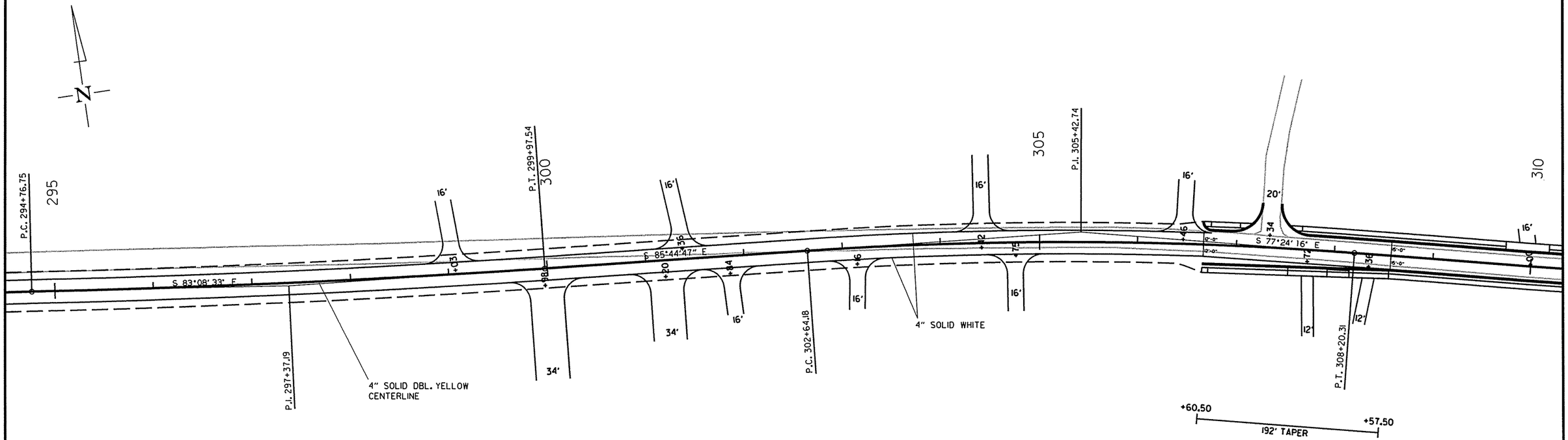
PERMANENT PAVEMENT MARKING DETAILS

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.		050251	66	339

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15





PERMANENT PAVEMENT MARKING DETAILS

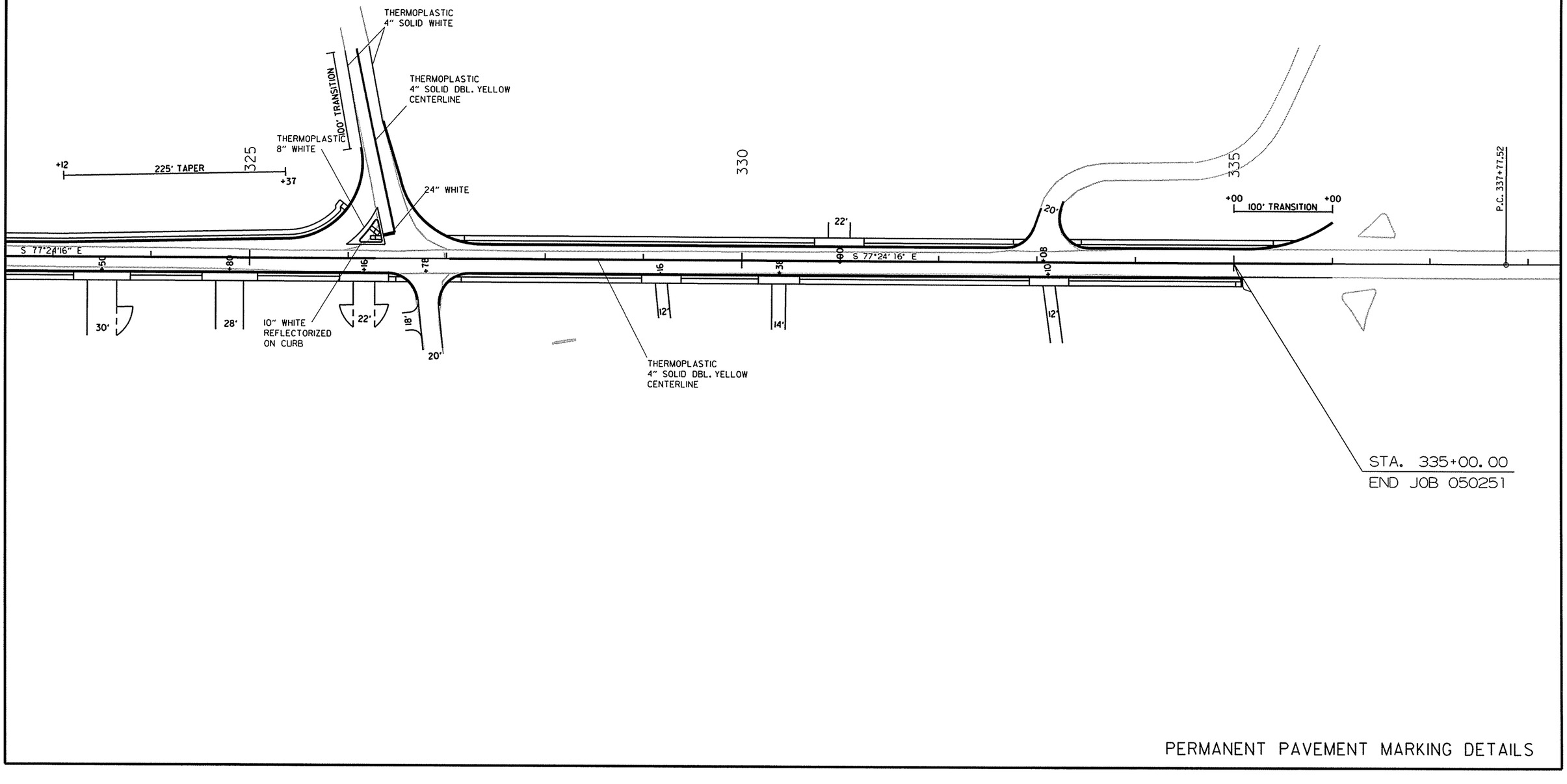
10/30/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	67	339

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



10/30/2015

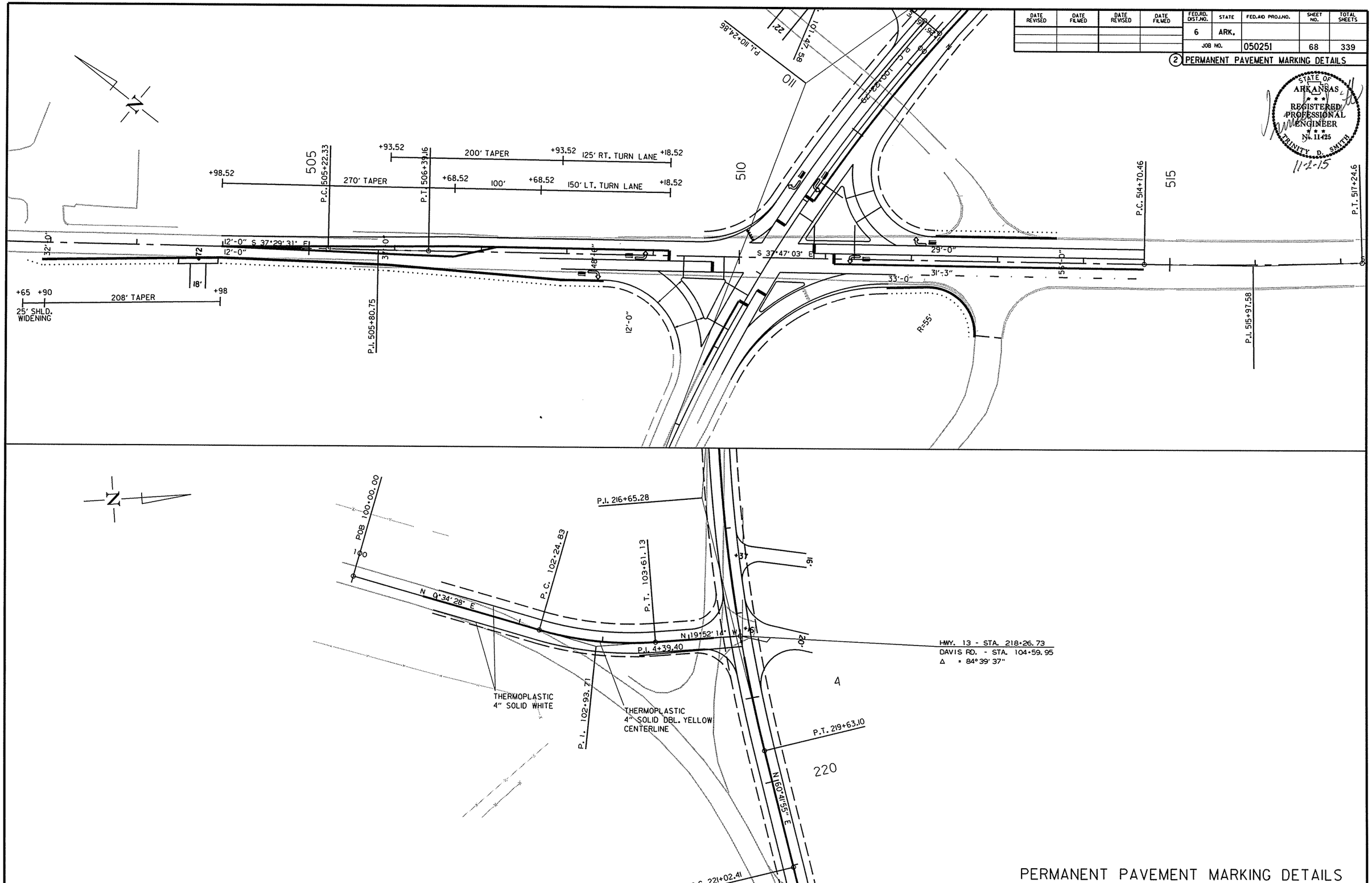
R050251.DGN

PERMANENT PAVEMENT MARKING 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.		050251	68	339

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



PERMANENT PAVEMENT MARKING DETAILS

10/30/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-24-15				6	ARK.			
				JOB NO.		050251	69	339

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-24-15

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	BARRICADES LEFT IN PLACE (TYPE III)		TOTAL SIGNS LEFT IN PLACE REQUIRED	
			LIN. FT. - EACH				NO.	SQ. FT.	EACH		RIGHT	LEFT	LIN. FT.	RIGHT	LEFT	NO.	SQ. FT.
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4	4	4	64.0									
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4	4	4	64.0									
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4	4	4	64.0									
W20-1	ROAD WORK AHEAD	48"x48"	13	13	13	13	13	208.0									
G20-2	END ROAD WORK	48"x24"	17	17	17	17	17	136.0									
R11-2	ROAD CLOSED	48"x30"	12	12	12	12	12	120.0									
OM-3L	OBJECT MARKER	12"x36"			3	3	3	9.0									
OM-3R	OBJECT MARKER	12"x36"			3	3	3	9.0									
R4-1	DO NOT PASS	24"x30"	12	12	12	12	12	60.0									
RSP-1	SHOULDER CLOSED	48"x30"	12	12	12	12	12	120.0									
	VERTICAL PANELS		175	63		175			175								
	TRAFFIC DRUMS		599	542		599				599							
	TYPE III BARRICADE-RT. (16')		12			12					192						
	TYPE III BARRICADE-LT. (16')		12			12						192					
	TYPE III BARRICADE LEFT IN PLACE-RT. (24')		3			3									72		
	TYPE III BARRICADE LEFT IN PLACE-LT. (24')		3			3								72			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			426		426							426				
RII-2	ROAD CLOSED (LEFT IN PLACE)	48"x30"	3			3										3	30
TOTALS:								854.0	175	599	192	192	426	72	72	3	30

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	THERMOPLASTIC PAVEMENT MARKING							HIGH PERFORMANCE CONTRAST PAVEMENT
					ARROWS			4" WHITE	4" YELLOW	8" WHITE	12" WHITE	24" WHITE	WORDS	ARROWS	4" YELLOW
	LIN. FT. - EACH			LIN. FT.	EACH	LIN. FT.		LIN. FT.					EACH		LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS	34828	73845		108673											
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	1				1										
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		14112				14112									
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		1680					1680								
THERMOPLASTIC PAVEMENT MARKING WHITE (4")			44338					44338							
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")			49645						49645						
THERMOPLASTIC PAVEMENT MARKING WHITE (8")			625							625					
THERMOPLASTIC PAVEMENT MARKING WHITE (12")			280								280				
THERMOPLASTIC PAVEMENT MARKING WHITE (24")			138									138			
THERMOPLASTIC PAVEMENT MARKING WORDS			6										6		
THERMOPLASTIC PAVEMENT MARKING ARROWS			6											6	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			1254												1254
TOTALS:				108673	1	14112	1680	44338	49645	625	280	138	6	6	1254

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

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.

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	ROCK FILL	* SOIL STABILIZATION
			CU. YD.			TON
ENTIRE	PROJECT	STAGE 1-MAIN LANES	71248	230977	1715	
ENTIRE	PROJECT	STAGE 2-MAIN LANES	34804	12764		
ENTIRE	PROJECT	FAIRVIEW RD.	609	1479		
ENTIRE	PROJECT	HWY. 16	147	810		
ENTIRE	PROJECT	MAIN ST. TIE IN	269	55601		
ENTIRE	PROJECT	DAVIS RD.	136	995		
ENTIRE	PROJECT	APPROACHES	995	11305		
215+00	218+00	TEMPORARY WIDENING		49		
ENTIRE	PROJECT	ADDITIONAL FOR BRIDGE	715			
307+34		JACOB ST.		5		
326+53		HWY. 385		105		
326+78		RAINES RD.		80		
157+15	158+52	CHANNEL CHANGE (MAIN ST. TIE IN)	900	918		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE				500
		DIRECTED BY THE ENGINEER				
TOTALS:			109823	315088	1715	500

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)	MAILBOX SUPPORTS (DOUBLE)
		EACH	
ENTIRE PROJECT	44	38	3
TOTALS:	44	38	3

7/24/2015

R050251.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	70	339

(2) QUANTITIES

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
110+00	35	16	10.20	91	44	58.60	CL	0-5	21	5	A-4 (0)	BROWN
117+00	35	16	9.10	91	44	50.30	CL	0-3.5Z	20	4	A-4 (0)	BROWN
126+00	35	16	8.40	91	44	39.60	CL	0-5	26	9	A-4 (3)	BROWN
134+00	35	16	8.50	91	44	29.90	CL	0-0.7Z	26	10	A-2-4 (0)	BR/GR
142+00	35	16	6.80	91	44	20.70	CL	0-3.5Z	24	6	A-4 (1)	BROWN
158+00	35	16	3.60	91	44	2.30	CL	0-3.0Z	ND	NP	A-1-B (0)	BROWN
166+00	35	16	4.50	91	43	52.80	CL	0-4.0Z	30	12	A-6 (7)	BROWN
174+00	35	16	5.80	91	43	42.40	5' RT	0-5	23	8	A-4 (1)	BROWN
174+00	35	16	5.70	91	43	42.40	18' RT	0-5	24	8	A-4 (1)	BROWN
182+00	35	16	5.60	91	43	33.20	4' LT	0-5	33	16	A-6 (4)	BROWN
182+00	35	16	5.70	91	43	33.20	15' LT	0-5	41	22	A-7-6 (15)	BR/GR
190+00	35	16	5.10	91	43	23.40	4' RT	0-4.0Z	24	10	A-4 (0)	BR/GR
190+00	35	16	5.00	91	43	23.40	18' RT	0-5	47	28	A-7-6 (18)	BROWN
198+00	35	16	4.90	91	43	14.10	5' LT	0-5	25	10	A-4 (2)	BROWN
198+00	35	16	5.00	91	43	14.10	16' LT	0-5	50	29	A-7-6 (26)	BROWN
206+00	35	16	5.00	91	43	3.20	5' RT	0-5	36	19	A-6 (11)	BROWN
206+00	35	16	4.90	91	43	3.20	18' RT	0-5	37	17	A-6 (10)	BROWN
215+00	35	16	6.90	91	42	54.00	5' LT	0-5	29	12	A-6 (3)	BR/GR
215+00	35	16	7.00	91	42	54.10	17' LT	0-5	ND	NP	A-1-B (0)	GRAY
230+00	35	16	10.70	91	42	36.00	6' RT	0-5	ND	NP	A-4 (0)	BR/GR
230+00	35	16	10.50	91	42	36.00	20' RT	0-5	ND	NP	A-4 (0)	BROWN
243+00	35	16	14.00	91	42	21.90	5' LT	0-5	ND	NP	A-2-4 (0)	BROWN
243+00	35	16	14.20	91	42	22.00	26' LT	0-5	18	3	A-4 (0)	BROWN
251+00	35	16	15.70	91	42	14.10	5' RT	0-5	20	3	A-4 (0)	BROWN
251+00	35	16	15.60	91	42	14.10	16' RT	0-5	23	7	A-4 (2)	BROWN
259+00	35	16	16.90	91	42	4.40	5' LT	0-5	22	4	A-4 (1)	BROWN
259+00	35	16	17.00	91	42	4.40	16' LT	0-5	24	6	A-4 (2)	BROWN
267+00	35	16	17.80	91	41	54.80	5' RT	0-5	21	4	A-4 (1)	BROWN
267+00	35	16	17.80	91	41	54.70	16' RT	0-5	22	6	A-4 (2)	BROWN
275+00	35	16	18.50	91	41	44.50	5' LT	0-3.5Z	22	5	A-4 (0)	BROWN
275+00	35	16	18.60	91	41	44.50	15' LT	0-3.0Z	30	14	A-6 (3)	BROWN
283+00	35	16	18.00	91	41	34.50	5' RT	0-5	29	13	A-6 (7)	BROWN
283+00	35	16	17.90	91	41	34.50	17' RT	0-5	30	13	A-6 (8)	BROWN
291+00	35	16	17.40	91	41	24.70	5' LT	0-5	20	5	A-4 (0)	BROWN
291+00	35	16	17.60	91	41	24.70	15' LT	0-5	22	5	A-4 (1)	BROWN
299+00	35	16	16.50	91	41	15.40	5' RT	0-5	53	30	A-7-6 (26)	BR/GR
299+00	35	16	16.40	91	41	15.40	17' RT	0-5	53	29	A-7-6 (27)	BR/GR
307+00	35	16	15.50	91	41	5.70	5' LT	0-3.0Z	23	8	A-4 (1)	BROWN
307+00	35	16	15.60	91	41	5.70	16' LT	0-3.0Z	ND	NP	A-4 (0)	BROWN
315+00	35	16	13.70	91	40	56.50	5' RT	0-5	19	3	A-4 (0)	BROWN
315+00	35	16	13.50	91	40	56.50	18' RT	0-5	23	8	A-4 (1)	BROWN
323+00	35	16	11.90	91	40	46.30	6' LT	0-1.5Z	ND	NP	A-2-4 (0)	BROWN
323+00	35	16	12.00	91	40	46.30	19' LT	0-5	ND	NP	A-2-4 (0)	BROWN
331+00	35	16	10.10	91	40	37.30	6' RT	0-5	22	7	A-4 (1)	BROWN
331+00	35	16	9.90	91	40	37.40	23' RT	0-5	24	8	A-4 (3)	BROWN
182+00	35	16	5.70	91	43	33.20	15' LT	0-5	43	21	A-7-6 (5)	BR/GR
198+00	35	16	5.00	91	43	14.10	16' LT	0-5	54	30	A-7-6 (19)	BROWN
230+00	35	16	10.50	91	42	36.00	20' RT	0-5	ND	NP	A-4 (0)	BROWN
291+00	35	16	17.60	91	41	24.70	15' LT	0-5	22	5	A-4 (1)	BROWN

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
109+00	111+50	HWY. 13 ON RT.	250.0	222.2
120+00	124+00	HWY. 13 ON LT.	400.0	355.6
134+00	142+00	HWY. 13 ON LT.	800.0	711.1
134+00	140+00	HWY. 13 ON RT.	600.0	533.3
150+00	155+91	HWY. 13 ON RT.	591.0	525.3
168+00	175+00	HWY. 13 ON LT.	700.0	622.2
175+00	177+00	HWY. 13 ON RT.	200.0	177.8
188+00	196+00	HWY. 13 ON LT.	800.0	711.1
204+70	215+00	HWY. 13 ON RT.	1030.0	915.6
205+00	212+00	HWY. 13 ON LT.	700.0	622.2
222+00	227+00	HWY. 13 ON RT.	500.0	444.4
231+00	234+90	HWY. 13 ON RT.	390.0	346.7
233+00	236+00	HWY. 13 ON RT.	300.0	266.7
243+00	247+00	HWY. 13 ON RT.	400.0	355.6
251+00	253+00	HWY. 13 ON LT.	200.0	177.8
255+35	259+00	HWY. 13 ON LT.	365.0	324.4
264+00	269+00	HWY. 13 ON LT.	500.0	444.4
264+00	269+00	HWY. 13 ON RT.	500.0	444.4
270+00	271+00	HWY. 13 ON RT.	100.0	88.9
271+09	275+00	HWY. 13 ON LT.	391.0	347.6
285+00	291+00	HWY. 13 ON RT.	600.0	533.3
286+00	289+84	HWY. 13 ON RT.	384.0	341.3
291+00	294+00	HWY. 13 ON RT.	300.0	266.7
297+00	307+00	HWY. 13 ON LT.	1000.0	888.9
102+00	108+00	MAIN ST. TIE IN ON LT.	600.0	533.3
105+00	108+00	MAIN ST. TIE IN ON RT.	300.0	266.7
TOTAL:				11467.5

NOTE: AVERAGE WIDTH = 8'-0"

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
204+70	HWY. 13	10.25	21	12
214+03	HWY. 13	10.83	20	12
221+10	HWY. 13	7.92	23	10
269+00	HWY. 13	7.92	21	11
291+00	HWY. 13	7.92	21	11
308+50	HWY. 13	7.92	21	11
313+00	HWY. 13	7.92	21	12
314+20	HWY. 13	7.92	20	12
325+30	HWY. 13	10.25	21	16
326+31	HWY. 13	7.92	42	24
326+98	HWY. 13	7.92	24	14
327+76	HWY. 13	10.25	22	17
335+00	HWY. 13	7.92	28	16
TOTAL:				178

AVG. DEPTH = 11"

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	BRIDGE END TERMINAL	TERMINAL ANCHOR POST (TYPE 1)
			LIN. FT.	EACH		
153+62.78	155+81.53	LT. SIDE	75	1		1
154+87.78	155+81.53	RT. SIDE	200	1		1
158+07.47	160+26.22	LT. SIDE	200	1		1
158+07.47	159+01.22	RT. SIDE	75	1		1
236+05.52	236+99.27	LT. SIDE	75	1		1
236+79.27	236+99.27	RT. SIDE			1	
241+37.04	243+55.79	LT. SIDE	200	1		1
241+37.04	242+30.79	RT. SIDE	75	1		1
TOTALS:			900	7	1	7

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
269+00	HWY. 13	14.14
291+00	HWY. 13	14.14
307+50	HWY. 13	9.42
313+00	HWY. 13	7.59
326+31	HWY. 13	15.71
326+98	HWY. 13	11.78
TOTAL:		72.78

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL											
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	DIVERSION DITCH (E-8)	SLOPE DRAIN (E-12) PIPE FOR SLOPE DRAINS	SLOPE DRAIN (E-12) DUMPED RIPRAP	SEDIMENT BASIN (E-14)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU. YD.	CU. YD.
ENTIRE	PROJECT	ENTIRE JOB	37.40	74.80	37.40	3814.8	37.40													
ENTIRE	PROJECT	STAGE 1				14.6		1157	1.81	1.81	36.9	1518	279	545	15404	1000	188	6	2021	753
ENTIRE	PROJECT	STAGE 2				9.4		748				748	138	540	2016				1112	175
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.						3.8		300	90.00	90.00	1836.0	440	87	250	2000	250	50	4	500	83
TOTALS:			37.40	74.80	37.40	3842.6	37.40	2205	91.81	91.81	1872.9	2706	504	1335	19420	1250	238	10	3633	1011

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

7/24/2015

R050251.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-24-15				6	ARK.			
				JOB NO.		050251	71	339

(2) QUANTITIES

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
110+00	115+00	HWY. 13	5	5
118+00	156+00	HWY. 13	38	38
158+00	188+00	HWY. 13	30	30
189+00	200+00	HWY. 13	11	11
204+00	210+00	HWY. 13	6	6
211+00	215+00	HWY. 13	4	4
216+00	218+00	HWY. 13	2	2
219+00	220+00	HWY. 13	1	1
223+00	230+00	HWY. 13	7	7
232+00	235+00	HWY. 13	3	3
236+00	237+00	HWY. 13	1	1
242+00	243+00	HWY. 13	1	1
244+00	257+00	HWY. 13	13	13
270+00	283+00	HWY. 13	13	13
284+00	287+00	HWY. 13	3	3
291+00	315+00	HWY. 13	24	24
317+00	326+00	HWY. 13	9	9
506+00	512+00	HWY. 16	6	6
100+00	103+00	FAIRVIEW RD.	3	3
101+00	102+00	DAVIS DR.	1	1
TOTALS:			181	181

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
108+90	155+91	HWY. 13 LT.	3997.9
108+90	155+91	HWY. 13 RT.	4316.4
157+98	237+08	HWY. 13 LT.	6256.0
157+98	237+08	HWY. 13 RT.	6657.9
241+28	306+66	HWY. 13 LT.	5435.5
241+28	306+66	HWY. 13 RT.	5905.0
TOTAL:			32568.7

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
117+62	HDWL. OF R.C. BOX CULVERT ON LT.	1
132+95	HDWL. OF R.C. BOX CULVERT ON RT.	1
146+55	HDWL. OF R.C. BOX CULVERT ON LT.	1
155+91	BRIDGE END ON LT.	1
237+08	BRIDGE END ON LT.	1
312+25	TOP OF DROP INLET ON RT.	1
101+70	MAIN ST. TIE IN HDWL. OF R.C. BOX CULVERT ON RT.	
TOTAL:		5

NOTE: SHOWN FOR INFORMATION ONLY. BENCH MARKS

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND
			SQ.YD.
107+50	HWY. 13-HWY. 16 INTERSECTION	B	136
108+00	HWY. 13-HWY. 16 INTERSECTION	B	74
109+10	HWY. 13-HWY. 16 INTERSECTION	B	253
326+25	HWY. 13 ON LT.	A	99
TOTAL:			562

STATE OF ARKANSAS
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TRINITY D. SMITH
11-24-15

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
235+00	237+08	HWY. 13 - EXIST. BRIDGE END	22	508.44
241+28	242+43	HWY. 13 - EXIST. BRIDGE END	22	281.11
335+00	336+00	HWY. 13	28	311.11
501+65	504+00	HWY. 16	25	652.78
504+00	507+94	HWY. 16	48.5	2123.22
507+94	516+00	HWY. 16	56	5015.11
TOTAL:				8891.77

NOTE: AVERAGE MILLING DEPTH 1".

RETAINING WALLS

STATION	STATION	LOCATION	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY
			CU.YDS.	POUNDS	CU.YDS.
258+00	260+98	HWY. 13 ON RT.	145.12	17629	332
TOTALS:			145.12	17629	332

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
110+82	113+32	RT.	274	
111+90	114+63	LT.	283	
123+99	124+04	LT. & RT.	139	
137+56	137+81	RT.	53	
156+58	156+96	RT.	291	
157+00	158+00	RT.	112	
169+71	174+12	LT. & RT.	448	
178+50	178+50	RT.	47	
178+58	181+09	LT. & RT.	251	
181+18	187+88	LT.	674	
187+94	188+00	LT. & RT.	62	
199+52	202+19	RT.	461	1
204+83	205+03	RT.	42	
205+04	205+33	RT.		1
205+34	206+63	RT.	130	
209+67	211+52	RT.	185	
211+55	211+84	RT.		1
211+86	217+75	RT.	887	
217+94	218+06	LT.		1
223+58		GATE ON LT.		1
232+94	233+76	RT.	85	
240+99	243+47	RT.	261	
243+67	252+34	RT.	870	
252+34	261+60	LT. & RT.	979	
261+61	262+81	LT. & RT.	268	
263+67	285+59	LT. & RT.	2202	1
275+32	281+37	LT.	611	
285+84	286+34	RT.	63	
288+50	290+03	LT.	132	1
293+40	293+51	LT.	17	
293+52	293+65	LT.		1
307+37	307+93	RT.	56	1
307+60	307+87	LT.	27	
307+65	307+81	RT.		1
309+76	310+03	RT.	34	
102+25	104+55	FAIRVIEW RD. ON RT.	376	1
TOTALS:			10320	11

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	108	216
DIRECTED BY THE ENGINEER		
TOTALS:	108	216

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB	CURB AND GUTTER	SIGN FOUNDATIONS	GUARDRAIL	POSTS	CATTLE GUARD	SIGNS	STORM CELLAR	WAGON WHEELS	BRICK WALLS	BUILDINGS	COLUMNS	LUMINAIRE POLE & FOUNDATION	PLANTERS
			LIN. FT.	LIN. FT.	EACH	LIN. FT.	EACH	EACH	EACH	EACH	EACH	LIN. FT.		EACH	EACH	EACH
110+28		HWY. 13 ON LT.													1	2
111+35		HWY. 13 ON RT.											1			
112+40		HWY. 13 ON RT.											1			
160+61		HWY. 13 ON LT.							1							
165+38	168+58	HWY. 13 ON LT.							4							
171+58		HWY. 13 ON LT.							1							
179+18		HWY. 13 ON LT.							1							
188+00	198+00	HWY. 13 ON RT.					24									
201+11	201+53	HWY. 13 ON LT.							3							
217+82		HWY. 13 ON LT.							1							
218+50		HWY. 13 ON LT.							1							
218+67		HWY. 13 ON RT.							1							
222+18	222+24	HWY. 13 ON LT.							1							
226+13	227+39	HWY. 13 ON LT. & RT.				125										
234+61	234+66	HWY. 13 ON LT.	7													
235+26	236+22	HWY. 13 ON LT.	97													
236+30		HWY. 13 ON RT.														1
236+31	237+08	HWY. 13 ON LT. & RT.				152										
241+50	241+91	HWY. 13 ON LT.				41										
251+28	242+05	HWY. 13 ON LT. & RT.				152										
245+41		HWY. 13 ON LT.							1							
285+62	285+80	HWY. 13 ON RT.						1								
286+95		HWY. 13 ON LT.							1							
288+00	290+20	HWY. 13 ON LT.					21									
289+74		HWY. 13 ON LT.									1					
289+90		HWY. 13 ON LT.									1					
292+78		HWY. 13 ON LT.							1							
306+62		HWY. 13 ON LT.								1						
309+33		HWY. 13 ON LT.			1				1							
310+24		HWY. 13 ON LT.			1				1							
311+30	311+44	HWY. 13 ON LT.										14				
311+44		HWY. 13 ON LT.												1		
311+85	312+00	HWY. 13 ON LT.												1		
311+86	312+00	HWY. 13 ON LT.										14				
324+06		HWY. 13 ON RT.			1				1							
324+53		HWY. 13 ON RT.			1				1							
325+40		HWY. 13 ON RT.			1				2							
326+23	327+03	HWY. 13 ON LT.			2				3							
326+35	326+57	HWY. 13 ON RT.							4							
327+74		HWY. 13 ON RT.							1							
329+86		HWY. 13 ON LT.							1							
331+64		HWY. 13 ON RT.							1							
501+90	504+07	HWY. 16 ON RT.														
509+58	512+57	HWY. 16 ON LT.		321												
512+15	512+75	HWY. 16 ON RT.		96												
512+43	512+94	HWY. 16 ON LT.							5							
512+89	513+69	HWY. 16 ON LT.		98												
TOTALS:			104	515	7	470	45	1	38	1	2	28	2	2	1	3

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-18-15				6	ARK.			
11-24-15				JOB NO.		050251	72	339

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-24-15

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
157+22	X" x 47' PIPE CULVERT	1
157+30	X" x 46' PIPE CULVERT	1
157+68	18" x 20' PIPE CULVERT	1
172+92	18" x 24' PIPE CULVERT	1
173+86	18" x 24' PIPE CULVERT	1
174+60	18" x 24' PIPE CULVERT	1
176+11	18" x 24' PIPE CULVERT	1
177+05	18" x 25' PIPE CULVERT	1
177+65	18" x 11' PIPE CULVERT	1
178+70	12" x 11' PIPE CULVERT	1
182+86	24" x 36' CMP PIPE CULVERT CROSS DRAIN	1
183+67	24" x 34' CMP PIPE CULVERT CROSS DRAIN	1
185+55	18" x 30' PIPE CULVERT	1
190+82	18" x 30' PIPE CULVERT	1
193+78	12" x 24' PIPE CULVERT	1
196+06	15" x 25' PIPE CULVERT	1
196+90	18" x 25' PIPE CULVERT	1
198+50	18" x 30' PIPE CULVERT	1
201+40	24" x 22' PIPE CULVERT	1
202+33	24" x 23' PIPE CULVERT	1
204+70	24" x 46' CMP PIPE CULVERT CROSS DRAIN	1
208+58	24" x 26' PIPE CULVERT	1
211+75	24" x 74' PIPE CULVERT	1
212+90	24" x 61' PIPE CULVERT	1
214+03	36" x 30' CMP PIPE CULVERT CROSS DRAIN	1
217+91	18" x 37' STEEL PIPE CULVERT CROSS DRAIN	1
221+10	18" x 42' CMP PIPE CULVERT CROSS DRAIN	1
223+70	18" x 63' PIPE CULVERT	1
242+78	18" x 29' PIPE CULVERT	1
243+57	18" x 28' PIPE CULVERT	1
245+68	18" x 37' PIPE CULVERT	1
250+20	24" x 48' STEEL PIPE CULVERT CROSS DRAIN	1
255+33	18" x 45' CMP PIPE CULVERT CROSS DRAIN	1
271+10	24" x 31' STEEL PIPE CULVERT CROSS DRAIN	1
272+00	18" x 30' PIPE CULVERT	1
274+07	18" x 40' PIPE CULVERT	1
283+58	12" x 21' PIPE CULVERT	1
285+34	18" x 21' PIPE CULVERT	1
289+82	18" x 19' PIPE CULVERT	1
289+85	18" x 20' PIPE CULVERT	1
299+03	18" x 24' PIPE CULVERT	1
301+38	12" x 19' PIPE CULVERT	1
304+08	18" x 30' PIPE CULVERT	1
306+45	X" x 33' PIPE CULVERT	1
307+36	18" x 26' PIPE CULVERT	1
310+00	18" x 24' PIPE CULVERT	1
310+62	18" x 27' PIPE CULVERT	1
311+74	18" x 40' PIPE CULVERT	1
311+94	10" x 17' PIPE CULVERT	1
312+64	18" x X' PIPE CULVERT	1
312+98	18" x 30' CMP PIPE CULVERT CROSS DRAIN	1
313+00	SIDE DRAIN ON RT.	1
313+86	18" x 25' PIPE CULVERT	1
314+19	18" x 30' STEEL PIPE CULVERT CROSS DRAIN	1
315+90	18" x 25' PIPE CULVERT	1
316+04	18" x 25' PIPE CULVERT	1
321+12	18" x 31' PIPE CULVERT	1
323+50	18" x 40' PIPE CULVERT	1
324+80	18" x 33' PIPE CULVERT	1
326+16	18" x 24' PIPE CULVERT	1
326+17	18" x 24' PIPE CULVERT	1
326+37	18" x 61' CMP PIPE CULVERT CROSS DRAIN	1
326+99	18" x 50' RCP PIPE CULVERT CROSS DRAIN	1
328+38	18" x 32' RCP PIPE CULVERT CROSS DRAIN	1
329+16	18" x 19' PIPE CULVERT	1
330+38	18" x 24' PIPE CULVERT	1
331+00	12" x 40' PIPE CULVERT	1
332+95	18" x 40' PIPE CULVERT	1
TOTAL:		68

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	300
DIRECTED BY THE ENGINEER	
TOTAL:	300

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

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 3	TYPE 4
		SQ.YD.	
306+69	HWY. 13 ON RT.	3.3	
306+71	HWY. 13 ON LT.	3.9	
307+06	HWY. 13 ON LT.	5.4	
307+63	HWY. 13 ON LT.	5.4	
311+39	HWY. 13 ON LT.	5.4	
311+97	HWY. 13 ON LT.	5.4	
325+96	HWY. 13 ON LT.	3.4	
326+25	HWY. 13 ON LT. - ISLAND		2.7
326+30	HWY. 13 ON LT. - ISLAND		2.9
326+52	HWY. 13 ON RT.	5.4	
327+12	HWY. 13 ON RT.	5.4	
327+15	HWY. 13 ON LT.	7.2	
332+80	HWY. 13 ON LT.	5.4	
333+42	HWY. 13 ON LT.	5.4	
334+97	HWY. 13 ON RT.	3.3	
335+45	HWY. 13 ON LT.	8.6	
TOTALS:		72.9	5.6

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ.YD.
306+66	307+53	HWY. 13 ON RT.	87	48
306+74	307+03	HWY. 13 ON LT.	29	16
307+66	309+73	HWY. 13 ON LT.	207	115
307+94	308+16	HWY. 13 ON RT.	22	12
308+56	311+74	HWY. 13 ON RT.	318	177
310+18	310+43	HWY. 13 ON LT.	25	14
310+83	311+36	HWY. 13 ON LT.	53	29
312+00	312+45	HWY. 13 ON LT.	45	25
312+14	313+06	HWY. 13 ON RT.	92	51
312+87	313+62	HWY. 13 ON LT.	75	42
313+54	315+85	HWY. 13 ON RT.	231	128
314+10	315+66	HWY. 13 ON LT.	156	87
316+14	320+90	HWY. 13 ON LT.	476	264
316+25	318+70	HWY. 13 ON RT.	245	136
319+10	321+12	HWY. 13 ON RT.	202	112
321+30	325+95	HWY. 13 ON LT.	465	264
321+53	323+21	HWY. 13 ON RT.	168	93
323+79	324+52	HWY. 13 ON RT.	73	41
325+08	325+91	HWY. 13 ON RT.	83	46
326+41	326+48	HWY. 13 ON RT.	7	4
TOTAL:				1704

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.
112+00	120+00	HWY. 13 ON LT.	800.00	9	800.00	355.56	4.48
117+00	118+00	HWY. 13 ON RT.	100.00	9	100.00	44.44	0.56
123+00	132+00	HWY. 13 ON RT.	900.00	9	900.00	400.00	5.04
124+00	131+70	HWY. 13 ON LT.	770.00	13.5	1155.00	342.22	4.31
142+00	148+00	HWY. 13 ON LT.	600.00	13.5	900.00	266.67	3.36
146+00	150+00	HWY. 13 ON RT.	400.00	13.5	600.00	177.78	2.24
165+00	168+00	HWY. 13 ON LT.	300.00	13.5	450.00	133.33	1.68
175+00	188+00	HWY. 13 ON LT.	1300.00	9	1300.00	577.78	7.28
196+00	205+00	HWY. 13 ON LT.	900.00	9	900.00	400.00	5.04
228+00	229+00	HWY. 13 ON LT.	100.00	9	100.00	44.44	0.56
245+64	250+00	HWY. 13 ON LT.	436.00	9	436.00	193.78	2.44
250+20		HWY. 13 ON LT. (SIDE SLOPE)	50.00	9	50.00	22.22	0.28
271+00	271+09	HWY. 13 ON RT.	9.00	13.5	13.50	4.00	0.05
295+00	297+00	HWY. 13 ON LT.	200.00	13.5	300.00	88.89	1.12
TOTALS:					8004.50	3051.11	38.44

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
306+66	307+26	HWY. 13 ON LT.	60
306+66	326+71	HWY. 13 ON RT.	2020
307+44	311+58	HWY. 13 ON LT.	456
311+76	326+15	HWY. 13 ON LT.	1521
326+35	332+97	HWY. 13 ON LT.	747
326+92	335+00	HWY. 13 ON RT.	846
333+22	336+00	HWY. 13 ON LT.	313
501+90	508+44	HWY. 16 ON RT.	654
511+74	512+76	HWY. 16 ON RT.	139
512+27	513+69	HWY. 16 ON LT.	142
TOTAL:			6898

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	300
ENGINEER	
TOTAL:	300

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

APPROACH GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE A)	REINFORCING STEEL-RDWY. (GR. 60)
			CU.YD.	POUND
155+80.93	155+90.93	LT. SIDE	7.55	665
155+80.93	155+90.93	RT. SIDE	7.55	665
157+98.07	158+08.07	LT. SIDE	7.55	665
157+98.07	158+08.07	RT. SIDE	7.55	665
TOTALS:			30.20	2660

NOTE: USE T =17" FOR 8' SHOULDER.

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE	
				AVG. WID.	6" U.T.
			FEET	FEET	SQ. YD.
306+65.50	323+12.00	HWY. 13 ON LT.	1646.50	10.50	1920.92
306+65.50	308+57.50	HWY. 13 ON RT.	192.00	16.50	352.00
308+57.50	324+40.00	HWY. 13 ON RT.	1582.50	10.50	1846.25
323+12.00	325+37.00	HWY. 13 ON LT.	225.00	17.50	437.50
324+40.00	324+54.59	HWY. 13 ON RT.	14.59	6.50	10.54
324+54.59	328+00.00	HWY. 13 ON RT.	345.41	2.50	95.95
325+37.00	326+21.54	HWY. 13 ON LT.	84.54	24.50	230.14
326+50.00		HWY. 385 LT. & RT.		WIDTH VAR.	648.32
326+90.11	332+50.00	HWY. 13 ON LT.	559.89	12.50	777.63
328+00.00	335+09.00	HWY. 13 ON RT.	709.00	3.50	275.72
332+50.00	335+13.75	HWY. 13 ON LT.	263.75	6.50	190.49
335+13.75	336+00.00	HWY. 13 ON LT.	86.25	2.50	23.96
501+40.95	503+98.52	HWY. 16 ON RT.	257.57	9.50	271.88
503+98.52	505+93.52	HWY. 16 ON RT.	195.00	13.00	281.67
505+93.52	507+93.52	HWY. 16 ON RT.	200.00	9.00	200.00
507+93.52	512+75.00	HWY. 16 ON RT.	517.10	8.00	459.64
TOTAL:					8022.61

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D)	WIRE FENCE (TYPE D-1)	* 6' CHAIN LINK FENCE	* 16'-0" GATES
			LIN. FT.				EACH
110+90	111+57	LT.		220			
112+04	117+90	LT.		623			1
118+43	124+04	LT/		544			
112+74	113+34	RT.		1188			
178+50	188+00	RT.	954				
199+46	202+10	RT.				210	1
223+58		LT.					1
273+71	286+34	RT.			1270		1
275+98	281+37	LT.	545				
293+40	293+65	LT.					1
307+37	307+91	RT.		54			
102+25	104+55	FAIRVIEW RD. - RT.		220			
103+40		FAIRVIEW RD. - RT.					1
223+46	104+55	DRIVE ON LT.					1
TOTALS:			1499	2849	1270	210	7

* DENOTES ALTERNATE BID ITEM.

7/24/2015

R050251.DGN

QUANTITIES

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS			STANDARD DRAWINGS
										18"	24"	21"X15"	
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.			
119+00	RT.	HWY. 13	16				100.46	11.05	41.02	40			PCC-1, PCM-1, PCP-1, PCP-2
123+00	LT.	HWY. 13	16				119.31	13.12	48.72	46			PCC-1, PCM-1, PCP-1, PCP-2
131+00	LT.	HWY. 13	16				102.95	11.32	42.04	42			PCC-1, PCM-1, PCP-1, PCP-2
134+50	LT.	HWY. 13	16				95.38	10.49	38.95	32			PCC-1, PCM-1, PCP-1, PCP-2
141+00	LT.	HWY. 13	16				98.49	10.83	40.22				
142+00	RT.	HWY. 13	16				245.53	27.01	100.26	72			PCC-1, PCM-1, PCP-1, PCP-2
151+00	RT.	HWY. 13	16				102.63	11.29	41.91	48			PCC-1, PCM-1, PCP-1, PCP-2
152+00	LT.	HWY. 13	16				244.57	26.90	99.87				
152+50	RT.	HWY. 13	16				185.41	20.40	75.71	62			PCC-1, PCM-1, PCP-1, PCP-2
153+00	LT.	HWY. 13	16				281.78	31.00	115.06				
169+66	LT.	HWY. 13	16				123.75	13.61	50.53	38			PCC-1, PCM-1, PCP-1, PCP-2
172+90	LT.	HWY. 13	16				24.73	2.72	46.87	40			PCC-1, PCM-1, PCP-1, PCP-2
173+84	LT.	HWY. 13	16				24.73	2.72	50.47	42			PCC-1, PCM-1, PCP-1, PCP-2
174+61	LT.	HWY. 13	16				24.73	2.72	51.67	42			PCC-1, PCM-1, PCP-1, PCP-2
176+37	RT.	HWY. 13	16				24.73	2.72	32.76	28			PCC-1, PCM-1, PCP-1, PCP-2
177+05	LT.	HWY. 13	16				24.73	2.72	51.94	40			PCC-1, PCM-1, PCP-1, PCP-2
178+74	LT.	HWY. 13	16				24.73	2.72	42.11	36			PCC-1, PCM-1, PCP-1, PCP-2
183+26	LT.	HWY. 13	16				24.73	2.72	54.00				
185+50	LT.	HWY. 13	26				38.04	4.18	92.34	11			PCC-1, PCM-1, PCP-1, PCP-2
188+30	RT.	HWY. 13	30				43.36	4.77	52.21				
189+54	RT.	HWY. 13	24				35.39	3.89	66.95				
190+80	LT.	HWY. 13	18				27.40	3.01	102.65	40			PCC-1, PCM-1, PCP-1, PCP-2
193+78	LT.	HWY. 13	16				24.73	2.72	72.36	38			PCC-1, PCM-1, PCP-1, PCP-2
196+10	LT.	HWY. 13	16				24.73	2.72	77.42	34			PCC-1, PCM-1, PCP-1, PCP-2
196+90	LT.	HWY. 13	16				24.73	2.72	76.70	34			PCC-1, PCM-1, PCP-1, PCP-2
198+56	LT.	HWY. 13 - BUSTER RD.	20				268.44	29.53	109.61	44			PCC-1, PCM-1, PCP-1, PCP-2
201+28	RT.	HWY. 13	16				24.73	2.72	173.95				
201+42	LT.	HWY. 13	16				24.73	2.72	59.18		38		PCC-1, PCM-1, PCP-1, PCP-2
202+35	LT.	HWY. 13	16				24.73	2.72	46.39		36		PCC-1, PCM-1, PCP-1, PCP-2
205+26	RT.	HWY. 13	25				130.05	14.31	53.10				
208+58	LT.	HWY. 13	16				24.73	2.72	42.92		34		PCC-1, PCM-1, PCP-1, PCP-2
211+72	RT.	HWY. 13	28				149.78	16.48	61.16		44		PCC-1, PCM-1, PCP-1, PCP-2
212+82	LT.	HWY. 13	35				50.02	5.50	132.92		50		PCC-1, PCM-1, PCP-1, PCP-2
215+32	LT.	HWY. 13	22				32.73	3.60	99.91				
217+37	LT.	HWY. 13	16				129.09	14.20	52.71	46			PCC-1, PCM-1, PCP-1, PCP-2
218+16	LT.	HWY. 13 - BERRY LN.	20				92.98	10.23	37.97				
221+78	LT.	HWY. 13	16				97.21	10.69	39.69	40			PCC-1, PCM-1, PCP-1, PCP-2
223+56	LT.	HWY. 13	40				56.68	6.23	126.25				
223+70	RT.	HWY. 13	40				56.68	6.23	84.53	58			PCC-1, PCM-1, PCP-1, PCP-2
229+70	RT.	HWY. 13	16				24.73	2.72	38.30				
233+00	RT.	HWY. 13	16				24.73	2.72	54.05	40			PCC-1, PCM-1, PCP-1, PCP-2
234+20	RT.	HWY. 13	16				24.73	2.72	57.77				
234+88	RT.	HWY. 13	16				24.73	2.72	60.03				
234+98	LT.	HWY. 13	40				181.57	19.97	74.14	54			PCC-1, PCM-1, PCP-1, PCP-2
235+86	RT.	HWY. 13	16				24.73	2.72	36.71				
243+59	LT.	HWY. 13	16				65.81	7.24	26.87	28			PCC-1, PCM-1, PCP-1, PCP-2
243+60	RT.	HWY. 13	16				24.73	2.72	64.08	28			PCC-1, PCM-1, PCP-1, PCP-2
245+64	LT.	HWY. 13 - SALEM CHURCH RD.	20				150.62	16.57	61.50	38			PCC-1, PCM-1, PCP-1, PCP-2
257+64	LT.	HWY. 13	16				24.73	2.72	34.19				
263+34	RT.	HWY. 13	16				83.75	9.21	34.20				
271+94	LT.	HWY. 13	16				24.73	2.72	72.17		60		PCC-1, PCM-1, PCP-1, PCP-2
275+00	LT.	HWY. 13	16				24.73	2.72	213.44	44			PCC-1, PCM-1, PCP-1, PCP-2
283+66	LT.	HWY. 13	16				24.73	2.72	58.34	34			PCC-1, PCM-1, PCP-1, PCP-2
285+28	LT.	HWY. 13	16				24.73	2.72	49.59	32			PCC-1, PCM-1, PCP-1, PCP-2
285+72	RT.	HWY. 13	16				24.73	2.72	30.84				
289+82	LT.	HWY. 13	16				67.56	7.43	27.59	28			PCC-1, PCM-1, PCP-1, PCP-2
289+86	RT.	HWY. 13	16				24.73	2.72	45.98	28			PCC-1, PCM-1, PCP-1, PCP-2
293+46	LT.	HWY. 13	16				24.73	2.72	73.53				
299+03	LT.	HWY. 13	16				24.73	2.72	51.31	36			PCC-1, PCM-1, PCP-1, PCP-2
299+98	RT.	HWY. 13	34				48.69	5.36	180.67				
301+20	RT.	HWY. 13	34				48.69	5.36	118.34				
301+36	LT.	HWY. 13	16				115.38	12.69	47.11	40			PCC-1, PCM-1, PCP-1, PCP-2
301+84	RT.	HWY. 13	16				24.73	2.72	36.16				
303+16	RT.	HWY. 13	16				24.73	2.72	38.73				
304+42	LT.	HWY. 13	16				128.00	14.08	52.27	44			PCC-1, PCM-1, PCP-1, PCP-2
304+75	RT.	HWY. 13	16				24.73	2.72	45.48				
306+46	LT.	HWY. 13	16				24.73	2.72	41.56	36			PCC-1, PCM-1, PCP-1, PCP-2
307+72	RT.	HWY. 13	12	307+52	307+92	35.56	86.01	9.46	35.12				DR-1
308+36	RT.	HWY. 13	12	308+16	308+56	35.56	65.23	7.18	26.64				DR-1
310+00	LT.	HWY. 13	16	309+78	310+22	39.11			10.75				DR-1
310+62	LT.	HWY. 13	12	310+42	310+82	35.56	22.01	2.42	8.99				DR-1
311+92	RT.	HWY. 13	12	311+72	312+12	35.56	63.55	6.99	25.95				DR-1
312+66	LT.	HWY. 13	14	312+45	312+87	37.33			21.64				DR-1
313+28	RT.	HWY. 13	20	313+04	313+52	42.67			126.20	38			DR-1, PCC-1, PCM-1, PCP-1, PCP-2
313+86	LT.	HWY. 13	20	313+62	314+10	42.67	41.11	4.52	16.79				DR-1
315+90	LT.	HWY. 13	20	315+66	316+14	42.67	223.67	24.60	91.33				DR-1
316+04	RT.	HWY. 13	12	315+84	316+24	35.56	90.12	9.91	36.80				DR-1
318+94	RT.	HWY. 13	12	318+74	319+14	35.56	99.37	10.93	40.58				DR-1
321+12	LT.	HWY. 13	12	320+92	321+32	35.56			25.66				DR-1
321+28	RT.	HWY. 13	12	321+08	321+48	35.56	87.51	9.63	35.73				DR-1
323+50	RT.	HWY. 13	30	323+21	323+79	51.56	188.33	20.72	76.90				DR-1
324+80	RT.	HWY. 13	28	324+52	325+08	49.78	154.00	16.94	62.88				DR-1
326+16	RT.	HWY. 13	22	325+91	326+41	44.44	113.67	12.50	46.42				DR-1
329+16	RT.	HWY. 13	12	328+96	329+36	35.56			24.97				DR-1
330+38	RT.	HWY. 13	14	330+17	330+59	37.33	72.33	7.96	29.53				DR-1
331+00	LT.	HWY. 13	22	330+75	331+25	44.44			20.48				DR-1
333+10	RT.	HWY. 13	12	332+90	333+30	35.56	48.68	5.35	19.88				DR-1
503+72	RT.	HWY. 16	18	503+49	503+95	40.89	55.22	6.07	22.55				DR-1
101+31	RT.	FAIRVIEW RD.	16				106.29	11.69	43.40	52			PCC-1, PCM-1, PCP-1, PCP-2
101+56	LT.	FAIRVIEW RD.	22				227.76	25.05	93.00	66			PCC-1, PCM-1, PCP-1, PCP-2
103+22	LT.	FAIRVIEW RD.	18				100.19	11.02	40.91	45			PCC-1, PCM-1, PCP-1, PCP-2
103+99	LT.	FAIRVIEW RD.	18				60.93	6.70	24.88			54	PCC-1, PCM-1
104+72	RT.	FAIRVIEW RD.	16				52.12	5.73	21.28			38	PCC-1, PCM-1
* ENTIRE PROJECT TEMPORARY DRIVES									940.00				
TOTALS:						828.49	6572.37	722.91	6379.24	1664	262	92	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

* 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.

QUANTITIES

STATE OF ARKANSAS
TIMOTHY D. HAINES
REGISTERED PROFESSIONAL ENGINEER
No. 11425
11-24-15

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
11-24-15			

(2) QUANTITIES

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		73	339

JOB NO. 050251

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	74	339

(2) QUANTITIES

STRUCTURES (OPEN SHOULDER SECTION)

STATION	DESCRIPTION	PIPE CULVERT ALTERNATES															FLARED END SECTION ALTERNATES FOR PIPE CULVERT ALTERNATES						SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		ALT. 1 (CLASS III)			ALT. 2-6	ALT. 2-4		ALT. 1 (CLASS IV)				ALT. 2-6		ALT. 2-5	ALT. 2-4	*ALT. 1-3	ALT. 1 (CLASS III)															
		24"	36"x23"	51"x31"	24"	35"x24"	49"x33"	30"	36"	42"	51" x 31"	30"	36"	42"	49"x33"	24"	24"	30"	36"	42"	36"x23"	51"x31"									
		LIN. FT.															EACH						LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL	
155+00	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.	112			118												2												16	0.20	PCC-1, FES-1, FES-2, PCM-1, PCP-1, PCP-2
182+86	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.								72				78						2										34	0.43	PCC-1, FES-1, FES-2, PCM-1, PCP-1, PCP-2
183+67	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.								74				80						2										34	0.43	PCC-1, FES-1, FES-2, PCM-1, PCP-1, PCP-2
204+70	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.									78				84						2									46	0.58	PCC-1, FES-1, FES-2, PCM-1, PCP-1
214+03	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.			84			88															2							46	0.58	PCC-1, FES-1, FES-2, PCM-1
217+90	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.										78				82							2							46	0.58	PCC-1, FES-1, FES-2, PCM-1
221+10	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.							74				78						2											26	0.33	PCC-1, FES-1, FES-2, PCM-1, PCP-1, PCP-2
250+20	EXTEND PIPE CULVERT WITH FES LT. & RT.															88	2												16	0.20	FES-1, FES-2, PCM-1
255+35	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.		74			80															2								26	0.33	PCC-1, FES-1, FES-2, PCM-1
271+09	CONSTRUCT PIPE CULVERT WITH FES LT. & RT.								74				80						2										34	0.43	PCC-1, FES-1, FES-2, PCM-1, PCP-1, PCP-2
SUBTOTALS:		112	74	84	118	80	88	74	220	78	78	78	238	84	82	88	4	2	6	2	2	4							324	4.09	
117+62	TRI. 8' x 5' x 144' R.C. BOX CULVERT																						8	5	144	297.24	45119	38	33	0.42	RCB-1, RCB-2, SPECIAL DETAILS
132+95	TRI. 10' x 5' x 86' R.C. BOX CULVERT																						10	5	86	221.92	33606	82	28	0.35	RCB-1, RCB-2, SPECIAL DETAILS
146+55	QUINT. 10' x 5' x 242' R.C. BOX CULVERT																						10	5	242	1523.60	251140	275	50	0.63	RCB-1, RCB-2, SPECIAL DETAILS
101+70	NON. 8' x 4' x 106' R.C. BOX CULVERT																						8	4	106	728.25	83250	79	45	0.57	RCB-1, RCB-2, SPECIAL DETAILS
SUBTOTALS:																										2771.01	413115	474	156	1.97	
TOTALS:		112	74	84	118	80	88	74	220	78	78	78	238	84	82	88	4	2	6	2	2	4				2771.01	413115	474	480	6.06	

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

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

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

* C.M. PIPE CULVERT ALTERNATES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

STRUCTURES (CURB AND GUTTER SECTION)

STATION	DESCRIPTION	PIPE CULVERT STORM DRAIN ALTERNATES 1, 2, 3, & 4							REINFORCED CONCRETE PIPE CULVERT (CLASS III)				FLARED END SECTIONS FOR R.C. PIPE CULVERTS				DROP INLETS			SOLID SODDING	WATER	STD. DWG. NOS.
		ALT. 1 (CLASS III)				ALT. 1 (CLASS IV)											TYPE	EXT.				
		18"	24"	30"	*44"x27"	18"	*22"x14"	*44"x27"	18"	24"	36"	44"x27"	18"	24"	36"	44"x27"	MO	4'	8'			
		LIN. FT.							LIN. FT.				EACH							SQ.YD.	M.GAL	
307+08	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK	139															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
307+50	D.I. ON RT. W/ R.C. PIPE CULVERT OUTLET									24				1			1			8	0.10	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1
308+00	D.I. ON RT. W/ PIPE CULVERT		46														1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
308+50	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK					38											1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
308+73	D.I. ON RT. W/ PIPE CULVERT		69														1		1			FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
309+36	D.I. ON RT. W/ PIPE CULVERT	59															1	1				FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
309+70	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK	116															1	1				FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
311+19	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK	102															1	1				FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
311+19	D.I. ON RT. W/ PIPE CULVERT	102															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
312+25	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK	71															1		1			FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
312+25	D.I. ON RT. W/ PIPE CULVERT	71															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
313+00	D.I. ON LT. W/ R.C. PIPE CULVERT & OPENING IN BACK	31															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
313+00	D.I. ON RT. W/ PIPE CULVERT OUTLET								18				1				1			5	0.06	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1
313+54	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK	62															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
313+60	D.I. ON RT. W/ R.C. PIPE CULVERT OUTLET								14				1				1			5	0.06	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1
314+20	D.I. ON LT. W/ PIPE CULVERT					31											1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
314+20	D.I. ON RT. W/ PIPE CULVERT	56															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
315+06	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK	82															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
315+06	D.I. ON RT. W/ PIPE CULVERT	206															1	1	1			FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
317+16	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK	152															1	1				FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
317+16	D.I. ON RT. W/ R.C. PIPE OUTLET								17				1				1			5	0.06	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1
318+72	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK	196															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
320+72	D.I. ON LT. W/ R.C. PIPE CULVERT & OPENING IN BACK		224														1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
320+72	D.I. ON RT. W/ PIPE CULVERT OUTLET								15				1				1			5	0.06	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1
323+00	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK		226														1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
323+00	D.I. ON RT. W/ PIPE CULVERT	226															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
325+30	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK							31									1					FPC-9M, FPC-9E, PCC-1, PCM-1
325+30	D.I. ON RT. W/ PIPE CULVERT				110												1					FPC-9M, FPC-9E, PCC-1, PCM-1
326+46	D.I. ON RT. W/ R.C. PIPE CULVERT OUTLET											8				1	1			17	0.21	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1, PCM-1
326+55	D.I. ON LT. W/ PIPE CULVERT	69															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
326+98	D.I. ON RT. W/ R.C. PIPE CULVERT OUTLET										18				1		1			17	0.21	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1, PCM-1
327+00	D.I. ON LT. W/ PIPE CULVERT	72															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
327+76	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK							31									1		1			FPC-9M, FPC-9E, PCC-1, PCM-1
327+76	D.I. ON RT. W/ PIPE CULVERT				73												1	1				FPC-9M, FPC-9E, PCC-1, PCM-1
330+00	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK			219													1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
330+00	D.I. ON RT. W/ PIPE CULVERT	220															1		1			FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
330+50	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK		46														1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
331+50	D.I. ON LT. W/ PIPE CULVERT & OPENING IN BACK		96														1	1				FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
332+68	D.I. ON LT. W/ PIPE CULVERT & INLET		114						4				1				1			5	0.06	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
334+50	D.I. ON LT. W/ PIPE CULVERT	178															1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
335+00	D.I. ON RT. W/ PIPE CULVERT						31										1					FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
335+00	D.I. ON LT. W/ PIPE CULVER & INLET	46							11				1				1			5	0.06	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1, PCM-1
505+50	D.I. ON RT. W/ PIPE CULVERT OUTLET								8				1				1			5	0.06	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1, PCM-1, PCP-1, PCP-2
508+25	D.I. ON RT. W/ PIPE CULVERT OUTLET (HWY. 16)								8				1				1			5	0.06	FES-1, FES-2, FPC-9M, FPC-9E, PCC-1
TOTALS:		2256	821	219	183	69	31	62	95	24	18	8	8	1	1	1	44	7	5	82	1.00	

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

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

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

7/24/2015

R050251.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	75	339

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

BASE AND SURFACING (BOX 1 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")										TOTAL	TOTAL
				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	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	TOTAL PG 64-22	TOTAL PG 70-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON	FEET			TON	TON			
MAIN LANES																														
106+91.18	107+86.47	HWY. 13 - FULL DEPTH	95.29	VAR.	915.55	VAR.	2684.61	0.03	80.54					VAR.	1344.70	495.00	332.81	VAR.	1339.91	220.00		147.39	VAR.	1430.62	220.00		157.37		304.76
108+50.34	115+17.77	HWY. 13 - FULL DEPTH	667.43	VAR.	3126.58	VAR.	7691.44	0.03	230.74					VAR.	3856.21	495.00	954.41	VAR.	3835.23	220.00		421.88	VAR.	4819.57	220.00		530.15		952.03
115+17.77	155+90.93	HWY. 13 - FULL DEPTH	4073.16	324.25	13207.22	48.77	22072.00	0.03	662.16					24.52	11097.10	495.00	2746.53	24.25	10974.90	220.00	1207.24		40.00	18102.93	220.00	1991.32		3198.56	
157+98.07	203+84.68	HWY. 13 - FULL DEPTH	4586.61	324.25	14872.08	48.77	24854.33	0.03	745.63					24.52	12495.96	495.00	3092.75	24.25	12358.37	220.00	1359.42		40.00	20384.93	220.00	2242.34		3601.76	
203+84.68	207+14.58	HWY. 13 - N&W	329.90	VAR.	687.89	VAR.	980.79	0.03	29.42					VAR.	493.05	495.00	122.03	VAR.	487.74	220.00	53.65		40.00	1466.22	220.00	161.28		214.93	
207+14.58	210+00.00	HWY. 13 - FULL DEPTH	285.42	324.25	925.47	48.77	1546.66	0.03	46.40					24.52	777.61	495.00	192.46	24.25	769.05	220.00	84.60		40.00	1268.53	220.00	139.54		224.14	
210+00.00	216+00.00	HWY. 13 - N&W	600.00	VAR.	1384.38	VAR.	1337.92	0.03	40.14					VAR.	664.66	495.00	164.50	VAR.	673.26	220.00	74.06		40.00	2666.67	220.00	293.33		367.39	
216+00.00	221+95.40	HWY. 13 - FULL DEPTH	595.40	324.25	1930.58	48.77	3226.41	0.03	96.79					24.52	1622.13	495.00	401.48	24.25	1604.27	220.00	176.47		40.00	2646.22	220.00	291.08		467.55	
221+95.40	230+43.83	HWY. 13 - N&W	848.43	VAR.	1760.49	VAR.	3216.18	0.03	96.49					VAR.	1616.02	495.00	399.96	VAR.	1600.16	220.00	176.02		40.00	3770.80	220.00	414.79		590.81	
230+43.83	234+13.17	HWY. 13 - FULL DEPTH	369.34	324.25	1197.58	48.77	2001.41	0.03	60.04					24.52	1006.25	495.00	249.05	24.25	995.17	220.00	109.47		40.00	1641.51	220.00	180.57		290.04	
234+13.17	237+08.03	HWY. 13 - N&W	294.86	VAR.	664.94	VAR.	600.53	0.03	18.02					VAR.	300.56	495.00	74.39	VAR.	299.97	220.00	33.00		40.00	1310.49	220.00	144.15		177.15	
241+27.64	255+03.46	HWY. 13 - N&W	1375.82	VAR.	3092.19	VAR.	2713.96	0.03	81.42					VAR.	1370.30	495.00	339.15	VAR.	1343.66	220.00	147.80		40.00	6114.76	220.00	672.62		820.42	
255+03.46	272+50.00	HWY. 13 - FULL DEPTH	1746.54	324.25	5663.16	48.77	9464.31	0.03	283.93					24.52	4758.35	495.00	1177.69	24.25	4705.96	220.00	517.66		40.00	7762.40	220.00	853.86		1371.52	
272+50.00	288+28.04	HWY. 13 - N&W	1578.04	VAR.	3612.19	VAR.	2610.03	0.03	78.30					VAR.	1323.99	495.00	327.69	VAR.	1286.04	220.00	141.46		40.00	7013.51	220.00	771.49		912.95	
288+28.04	299+40.21	HWY. 13 - FULL DEPTH	1112.17	324.25	3606.21	48.77	6026.73	0.03	180.80					24.52	3030.05	495.00	749.94	24.25	2996.68	220.00	329.63		40.00	4942.98	220.00	543.73		873.36	
299+40.21	306+40.50	HWY. 13 - N&W	700.29	VAR.	1664.53	VAR.	1951.21	0.03	58.54					VAR.	987.70	495.00	244.46	VAR.	963.51	220.00	105.99		40.00	3112.40	220.00	342.36		448.35	
306+40.50	306+65.50	HWY. 13 - N&W TRANSITION TO C&G	27.50	VAR.	57.79	10.39	139.63	0.03	4.19					5.26	70.19	495.00	17.37	5.13	69.44	220.00	7.64		46.50	126.98	220.00	13.97		21.61	
306+65.50	308+57.50	HWY. 13 - N&W TRANSITION FROM OS	192.00			31.00	234.67	0.03	7.04									11.00	234.67	220.00		25.81	31.00	661.33	220.00		72.75		98.56
308+57.50	323+12.00	HWY. 13 - N&W	1454.50			28.00	1292.89	0.03	38.79									8.00	1292.89	220.00		142.22	28.00	4525.11	220.00		497.76		639.98
323+12.00	324+40.00	HWY. 13 - N&W	128.00			30.50	163.56	0.03	4.91									11.50	163.56	220.00		17.99	30.50	433.78	220.00		47.72		65.71
324+40.00	324+54.59	HWY. 13 - N&W	14.59			30.50	15.40	0.03	0.46									9.50	15.40	220.00		1.69	30.50	49.44	220.00		5.44		7.13
324+54.59	325+37.00	HWY. 13 - N&W	82.41			30.50	68.68	0.03	2.06									7.50	68.68	220.00		7.55	30.50	279.28	220.00		30.72		38.27
325+37.00	326+21.54	HWY. 13 - N&W	84.54			33.00	103.33	0.03	3.10									11.00	103.33	220.00		11.37	33.00	309.98	220.00		34.10		45.47
326+21.54	326+90.11	HWY. 13 - N&W	68.57			28.00		0.03												220.00			28.00	213.33	220.00		23.47		23.47
326+90.11	328+00.00	HWY. 13 - N&W	109.89			28.00	61.05	0.03	1.83									5.00	61.05	220.00		6.72	28.00	341.88	220.00		37.51		44.33
328+00.00	332+50.00	HWY. 13 - N&W	450.00			28.00	275.00	0.03	8.25									5.50	275.00	220.00		30.25	28.00	1400.00	220.00		154.00		184.25
332+50.00	335+09.00	HWY. 13 - N&W	259.00			28.00	71.94	0.03	2.16									2.50	71.94	220.00		7.91	28.00	805.78	220.00		88.64		96.55
335+09.00	335+13.75	HWY. 13 - N&W	4.75			28.00	1.06	0.03	0.03									2.00	1.06	220.00		0.12	28.00	14.78	220.00		1.63		1.75
335+13.75	336+00.00	HWY. 13 - N&W	86.25			28.00		0.10															28.00	268.33	220.00		29.52		29.52
308+57.50	335+00.00	HWY. 13 - N&W	2642.50			VAR.	2034.60	0.03	61.04									VAR.	2034.60	220.00		223.81	28.00	8221.11	220.00		904.32		1128.13
335+00.00	336+00.00	HWY. 13 - N&W	100.00																				28.00	311.11	220.00		34.22		34.22
501+92.00	513+68.60	HWY. 16 - N&W	1176.60			VAR.	480.36	0.03	14.41									VAR.	480.36	220.00		52.84	VAR.	6260.44	220.00		688.65		741.49
512+90.00		COVINGTON ROAD (TURNOUT)	58.30			VAR.	357.17	0.03	10.72														VAR.	357.17	220.00	39.29		39.29	
100+30.00	100+77.48	FAIRVIEW RD. (TURNOUT)	47.48	VAR.	89.48																		VAR.	178.51	220.00	19.64		19.64	
100+77.48	104+96.80	FAIRVIEW RD.	419.32	109.75	460.20																		20.00	931.82	220.00	102.50		102.50	
100+10.17	101+21.81	MAIN ST. (TURNOUT)	111.64	VAR.	442.97	VAR.	2043.57	0.03	61.31					VAR.	1025.04	495.00	253.70	VAR.	1018.53	220.00	112.04		VAR.	1386.52	220.00	152.52		264.56	
101+21.81	107+01.27	MAIN ST.	579.46	363.00	2103.44	64.77	4170.18	0.03	125.11					32.52	2093.78	495.00	518.21	32.25	2076.40	220.00	228.40		48.00	3090.45	220.00	339.95		568.35	
107+01.27	108+51.60	MAIN ST. (TURNOUT)	150.33	VAR.	429.43	VAR.	1977.78	0.03	59.33					VAR.	991.47	495.00	245.39	VAR.	986.31	220.00	108.49		VAR.	1300.64	220.00	143.07		251.56	
101+00.00	104+03.69	DAVIS RD.	303.69	176.75	536.77																		38.00	1282.25	220.00	141.05		141.05	
104+03.69	104+47.90	DAVIS RD. (TURNOUT)	44.21	VAR.	81.27																		VAR.	192.18	220.00	21.14		21.14	
307+34.00		JACOB ST.	31.44	VAR.	58.95	VAR.	108.70	0.03	3.26					VAR.	108.70	495.00	26.90	VAR.	108.70	220.00		11.96	VAR.	108.70	220.00		11.96		23.92
311+74.00		MATTHEW ST.	36.47	VAR.	65.34	VAR.	120.60	0.03	3.62					VAR.	120.60	495.00	29.85	VAR.	120.60	220.00		13.27	VAR.	120.60	220.00		13.27		26.54
326+78.00		RAINES RD.	78.42	VAR.	115.89	VAR.	220.65	0.03	6.62					VAR.	220.65	495.00	54.61	VAR.	220.65	220.00		24.27	VAR.	220.65	220.00		24.27		48.54
333+08.00			44.60	VAR.	82.44	VAR.	154.29	0.03	4.63					VAR.	154.29	495.00	38.19	VAR.	154.29	220.00		16.97	VAR.	154.29	220.00		16.97		33.94
326+53.00		HWY. 385			1.00	VAR.	321.20	0.03	9.64									VAR.	321.20	220.00		35.33	VAR.	733.65	220.00		80.70		116.03
ADDITIONAL FOR LEVELING																													
203+84.68	207+14.58	HWY. 13	329.90			VAR.	619.87	0.10	61.99														VAR.	619.87	220.00	68.19		68.19	
210+00.00	216+00.00	HWY. 13	600.00			VAR.	1216.62	0.10	121.66														VAR.	1216.62	220.00	133.83		133.83	
221+95.40	230+43.83	HWY. 13	848.43			VAR.	674.37	0.10	67.44														VAR.	674.27	220.00	74.17		74.17	
234+13.17	237+08.03	HWY. 13	294.86			VAR.	632.39	0.10	63.24														VAR.	632.39	220.00	69.56		69.56	
241+27.64	255+03.46	HWY. 13	1375.82			VAR.	3009.40	0.10	300.94														VAR.	3009.40	220.00	331.03		331.03	
272+50.00	288+28.04	HWY. 13	1578.04			VAR.	3303.56	0.10	330.36														VAR.	3302.50	220.00	363.28		363.28	
299+40.21	306+65.50	HWY. 13	725.29			VAR.	1429.96	0.10	143.00														VAR.	1429.96	220.00	157.30		157.30	
306+65.50	335+00.00	HWY. 13	2834.50			20.00	6298.89	0.10	629.89														20.00	6298.89	220.00		692.88		692.88
326+50.00		HWY. 385				VAR.	429.27	0.10	42.93														VAR.	429.27	220.00		47.22		47.22
		HWY. 16 - LEVELING				VAR.	5988.95	0.10	598.90														VAR.	5988.95	220.00		658.78		658.78
ADDITIONAL FOR GRADE RAISE																													
203+84.68	207+14.58	HWY. 13	329.90			VAR.	1195.23	0.03	35.86	VAR.	591.88	1244.64	368.34	VAR.	603.35	492.19	148.48												
210+00.00	216+00.00	HWY. 13	600.00			VAR.	1929.67	0.03	57.89	VAR.	860.72	948.83	408.34	VAR.	1068.95	448.48	239.70												
221+95.40	230+43.83	HWY. 13	848.43			VAR.	1466.89	0.03	44.01	VAR.	545.59	382.30	104.29	VAR.	921.30	430.26	198.20												
234+13.17	237+08.03	HWY. 13	294.86			VAR.		0.03		VAR.	0.00	0.00	0.00	VAR.	0.00	0.00	0.00												
241+27.63	255+03.46	HWY. 13	1375.83			VAR.	4206.86	0.03	126.21	VAR.	1816.89	1268.61	1152.46	VAR.	2389.97	431.68	515.85												
272+00.00	288+28.04	HWY. 13	1628.04			VAR.	6068.00	0.03	182.04	VAR.	2752.28	635.68	874.78	VAR.	3315.72	467.14	774.46												
299+40.21	306+66.15	HWY. 13	725.94			VAR.	2441.26	0.03	73.24	VAR.	1115.57	360.41	201.03	VAR.	1325.69	445.17	295.08												
306+66.15	335+00.00	HWY. 13	2833.85			VAR.	6988.78	0.03	209.66	VAR.	1592.89	193.46	154.08	VAR.	5395.89	316.26	853.24												
ADDITIONAL FOR GUARDRAIL WIDENING																													
153+08.78	153+53.78	RT. SIDE (6:1 TAPER)	45.00	23.00	10.35																		3.75	18.75	220.00	2.06		2.06	
153+53.78	153+63.78	RT. SIDE (10' BEYOND GUARDRAIL)	10.00	46.00	4.60																		7.50	8.33	220.00	0.92		0.92	
153+63.78	155+37.78	RT. SIDE (25:1 TAPER)	174.00	34.25	59.60																		5.50	106.33	220.00	11.70		11.70	
155+37.78	155+81.53	RT. SIDE	43.75	22.50	9.84																		3.50	17.01	220.00	1.87		1.87	
154+32.78	154+77.78	LT. SIDE (6:1 TAPER)	45.00	23.00	10.35																		3.75	18.75	220.00	2.06		2.06	
154+77.78	154+87.78	LT. SIDE (10' BEYOND GUARDRAIL)	10.00	46.00	4.60																		7.50	8.33	220.00	0.92		0.92	
154+87.78	155+87.78	LT. SIDE (25:1 TAPER)	100.00	34.25	34.25																		5.50	61.11	220.00	6.72		6.72	
155+37.22	155+81.53	LT. SIDE	44.31	22.50	9.97																		3.50	17.23	220.00	1.90		1.90	
158+07.47	158+51.22	RT. SIDE	43.75	22.50	9.84																		3.50	17.01	220.00	1.87		1.87	
158+51.22	159+01.22	RT. SIDE (25:1 TAPER)	50.00	34.25	17.13																		4.50	25.00	220.00	2.75		2.75	
159+01.22	159+11.22	RT. SIDE (10' BEYOND GUARDRAIL)	10.00	46.00	4.60																		5.50	6.11	220.00	0.67		0.67	
159+11.22	159+56.22	RT. SIDE (6:1 TAPER)	45.00	23.00	10.35																		3.67	18.35	220.00	2.02		2.02	
158+07.47	158+51.22	LT. SIDE	43.75	22.50	9.84																		3.50	17.01	220.00	1.87		1.87	
158+51.22	160+26.22	LT. SIDE (25:1 TAPER)	175.00	34.25	59.94																		4.50	87.50	220.00	9.63		9.63	
160+26.22	160+36.22	LT. SIDE (10' BEYOND GUARDRAIL)	10.00	46.00	4.60																		5.50	6.11	220.00	0.67		0.67	
160+36.22	160+81.22	LT. SIDE (6:1 TAPER)	45.00	23.00	10.35																		3.67	18.35	220.00	2.02		2.02	
235+50.52	235+95.52	LT. SIDE (6:1 TAPER)	45.00	23.00	10.35																		3.75	18.75	220.00	2.06		2.06	
235+95.52	236+05.52	LT. SIDE (10' BEYOND GUARDRAIL)	10.00	46.00	4.60																		7.50	8.33	220.00	0.92		0.92	
236+05.52	236+55.52	LT. SIDE (TAPER WITH GUARDRAIL)	50.00	18.25	9.13																		3.00	16.67	220.00	1.83		1.83	
241+80.79	242+30.79	RT. SIDE (TAPER WITH GUARDRAIL)	50.00	18.25	9.13																		3.67	20.39	220.00	2.24		2.24	
242+30.79	242+40.79	RT. SIDE (10' BEYOND GUARDRAIL)	10.00	46.00	4.60																		5.50	6.11	220.00	0.67		0.67	
242+40.79	242+85.79	RT. SIDE (6:1 TAPER)	45.00	23.00	10.35																		3.67	18.35	220.00	2.02		2.02	
241+80.79	243+55.79	LT. SIDE (TAPER WITH GUARDRAIL)	175.00	18.25	31.94																		3.67	71.36	220.00	7.85		7.85	
243+55.79	243+65.79	LT. SIDE (10' BEYOND GUARDRAIL)	10.00	46.00	4.60																		5.50	6.11	220.00	0.67		0.67	
243+65.79	244+10.79	LT. SIDE (6:1 TAPER)	45.00	23.00	10.35																		3.67	18.35	220.00	2.02		2.02	
SUBTOTALS (BOX 1 OF 2):					63201.27		155294.80		6311.13		9275.82		3263.32		66550.23		15778.53		56112.54		4973.04	1199.35		146972.45		11282.88	4884.12	16255.92	6083.47

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....94.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....95.6% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.9% MIN. AGGR.....95.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

7/24/2015

R050251.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	76	339

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

BASE AND SURFACING (BOX 2 OF 2)

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				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	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	PG 70-22	TOTAL PG 64-22	TOTAL PG 70-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON	FEET			TON	TON	TON	TON
ADDITIONAL FOR SUPERELEVATION																													
106+91.18	108+04.80	SUPER TRANSITION (MATCH HWY. 16)	113.62	117.75	133.79																								
108+50.34	109+58.25	SUPER TRANSITION (MATCH HWY. 16)	107.91	117.75	127.06																								
109+58.25	113+60.93	FULL SUPER (0.067 '/')	402.68	137.25	552.68																								
113+60.93	116+60.93	SUPER TRANSITION	300.00	68.75	206.25																								
116+60.93	120+10.93	SUPER TRANSITION	350.00	93.88	328.58																								
120+10.93	120+83.32	FULL SUPER (0.091 '/')	72.39	187.75	135.91																								
120+83.32	124+33.32	SUPER TRANSITION	350.00	93.88	328.58																								
132+81.36	136+31.36	SUPER TRANSITION	350.00	93.88	328.58																								
136+31.36	140+32.80	FULL SUPER (0.091 '/')	401.44	187.75	753.70																								
140+32.80	143+82.80	SUPER TRANSITION	350.00	93.88	328.58																								
143+82.80	147+32.80	SUPER TRANSITION	350.00	96.00	336.00																								
147+32.80	151+47.73	FULL SUPER (0.093 '/')	414.93	192.00	796.67																								
151+47.73	154+97.73	SUPER TRANSITION	350.00	96.00	336.00																								
159+76.65	162+76.65	SUPER TRANSITION	300.00	52.75	158.25																								
162+76.65	163+51.78	FULL SUPER (0.048 '/')	75.13	105.50	79.26																								
163+51.78	166+51.78	SUPER TRANSITION	300.00	52.75	158.25																								
166+51.78	169+51.78	SUPER TRANSITION	300.00	52.75	158.25																								
169+51.78	175+46.98	FULL SUPER (0.048 '/')	595.20	105.50	627.94																								
175+46.96	178+46.98	SUPER TRANSITION	300.02	52.75	158.26																								
194+98.96	197+98.96	SUPER TRANSITION	300.00	56.75	170.25																								
197+98.96	203+00.21	FULL SUPER (0.053 '/')	501.25	113.50	568.92																								
203+00.21	206+00.21	SUPER TRANSITION	300.00	56.75	170.25																								
211+37.45	214+37.45	SUPER TRANSITION	300.00	68.75	206.25																								
214+37.45	217+35.53	FULL SUPER (0.067 '/')	298.08	137.25	409.11																								
217+35.53	220+35.53	SUPER TRANSITION	300.00	68.75	206.25																								
220+35.53	223+85.53	SUPER TRANSITION	350.00	96.00	336.00																								
223+85.53	225+44.19	FULL SUPER (0.093 '/')	158.66	192.00	304.63																								
225+44.19	228+94.19	SUPER TRANSITION	350.00	96.00	336.00																								
228+94.19	231+94.19	SUPER TRANSITION	300.00	84.50	253.50																								
231+94.19	234+08.44	FULL SUPER (0.083 '/')	214.25	168.75	361.55																								
234+08.44	237+07.80	SUPER TRANSITION	299.36	84.50	252.96																								
242+31.60	245+81.60	SUPER TRANSITION	350.00	96.00	336.00																								
245+81.60	247+19.95	FULL SUPER (0.093 '/')	138.35	192.00	265.63																								
247+19.95	250+69.95	SUPER TRANSITION	350.00	96.00	336.00																								
269+02.33	272+02.33	SUPER TRANSITION	300.00	77.25	231.75																								
272+02.33	273+64.44	FULL SUPER (0.076 '/')	162.11	154.50	250.46																								
273+64.44	276+64.44	SUPER TRANSITION	300.00	77.25	231.75																								
101+69.16	104+19.16	MAIN ST. - SUPER TRANSITION	250.00	96.25	240.63																								
104+19.16	107+19.54	MAIN ST. - FULL SUPER (0.099 '/')	300.38	192.25	577.48																								
101+41.80	108+63.60	MAIN ST. - SUPER TRANSITION	721.80	96.25	694.73																								
ADDITIONAL FOR MOT																													
171+00.00	178+00.00	FULL DEPTH SHOULDER RT. SIDE	700.00	-33.25	-232.75	16.00	1244.44	0.03	37.33					8.00	622.22	495.00	154.00	8.00	622.22	220.00	68.44							68.44	
207+00.00	210+00.00	FULL DEPTH SHOULDER LT. SIDE	300.00	-33.25	-99.75	16.00	533.33	0.03	16.00					8.00	266.67	495.00	66.00	8.00	266.67	220.00	29.33							29.33	
214+32.00	218+65.00	TEMPORARY WIDENING LT. SIDE	433.00	VAR.	206.99	VAR.	1173.94	0.03	35.22					VAR.	586.97	385.00	112.99						VAR.	586.97	220.00	64.57		64.57	
215+00.00	219+00.00	FULL DEPTH SHOULDER LT. SIDE	400.00	-33.25	-133.00	16.00	711.11	0.03	21.33					8.00	355.56	495.00	88.00	8.00	355.56	220.00	39.11							39.11	
255+00.00	272+00.00	FULL DEPTH SHOULDER RT. SIDE	1700.00	-33.25	-565.25	16.00	3022.22	0.03	90.67					8.00	1511.11	495.00	374.00	8.00	1511.11	220.00	166.22							166.22	
289+00.00	298+00.00	FULL DEPTH SHOULDER RT. SIDE	900.00	-33.25	-299.25	16.00	1600.00	0.03	48.00					8.00	800.00	495.00	198.00	8.00	800.00	220.00	88.00							88.00	
SUBTOTALS (BOX 1 OF 2):					**63201.27**		**155294.80**		**6311.13**		**9275.82**		**3263.32**		**66550.23**		**15778.53**		**56112.54**		**4973.04**	**1199.35**		**146972.45**		**11282.88**	**4884.12**	**16255.92**	**6083.47**
SUBTOTALS (BOX 2 OF 2):					**11649.68**		**8285.04**		**248.55**						**4142.53**		**992.99**		**3555.56**		**391.10**			**586.97**		**64.57**		**455.67**	
TOTALS:					**74850.95**		**163579.84**		**6559.68**		**9275.82**		**3263.32**		**70692.76**		**16771.52**		**59668.10**		**5364.14**	**1199.35**		**147559.42**		**11347.45**	**4884.12**	**16711.59**	**6083.47**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

7/24/2015

R050251.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050251	77	339
① 07353		QUANTITIES		57291

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 050251

BRIDGE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	802	802	803	804	804	805	805	SP & 807	808	809	812	816	SP JOB 050251
		ITEM	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S (AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① STEEL PILING (HP 12x53)	PREBORING ②	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	EXPLORATORY HOLES ②
		UNIT	CU. YD	CU. YD	CU. YD	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	CU. YD.	LIN. FT.
07353 NORTH MAIN STREET	BENT 1			31.07		0.3	3,158		50	23	825	1,305			67	10
	BENT 2		68	66.24			10,100					2,340				
	BENT 3		117	70.54			10,764					2,340				
	BENT 4			31.05		0.3	3,158		130		825	1,305			70	
	205'-0" CONT. COMP. W-BEAM UNIT				265.00	21.5		61,790			221,240		86	1		
	TOTALS FOR JOB NO. 050251		③185	198.90	265.00	22.1	27,180	61,790	180	23	222,890	7,290	86	1	137	10

① These steel piles shall be Grade 50 and are required to have special driving points which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 12x53)". All piles shall conform to Std. Dwg. No. 55020.

② The Quantities shown for Exploratory Holes and Preboring are for estimating and bidding purposes only. Actual Quantities to be determined in the field.

③ Includes approximately 57 cubic yards of rock excavaction.

KYLE YEARY
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HWY. 16 - HWY. 67 (S)
WHITE COUNTY

ROUTE 13 SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 5/22/2014 FILENAME: b050251_ql.dgn
CHECKED BY: KWY DATE: 8/11/15 SCALE:
DESIGNED BY: DATE:

BRIDGE NO. 07353 DRAWING NO. 57291

PRINT DATE: 8/11/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-18-15				6	ARK.			
11-24-15				JOB NO.		050251	78	339

(2) SUMMARY OF QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-24-15

SUMMARY OF QUANTITIES (BOX 1 OF 4)

ITEM NUMBER	ITEM		QUANTITY	UNIT
SP & 201	CLEARING		181	STATION
201	GRUBBING		181	STATION
202	REMOVAL AND DISPOSAL OF CURB		104	LIN. FT.
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER		515	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE		10320	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES		11	EACH
202	REMOVAL AND DISPOSAL OF POSTS		45	EACH
202	REMOVAL AND DISPOSAL OF BRICK WALLS		28	LIN. FT.
202	REMOVAL AND DISPOSAL OF COLUMNS		2	EACH
202	REMOVAL AND DISPOSAL OF WAGON WHEELS		2	EACH
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		7	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		68	EACH
SP & 202	REMOVAL AND DISPOSAL OF GUARDRAIL		470	LIN. FT.
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLE AND FOUNDATION		1	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS		2	EACH
202	REMOVAL AND DISPOSAL OF STORM CELLAR		1	EACH
202	REMOVAL AND DISPOSAL OF CATTLE GUARD		1	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		38	EACH
202	REMOVAL AND DISPOSAL OF PLANTERS		3	EACH
206	FLOWABLE SELECT MATERIAL		73	CU. YD.
210	UNCLASSIFIED EXCAVATION		109823	CU. YD.
210	COMPACTED EMBANKMENT		315088	CU. YD.
SP & 210	ROCK FILL		1715	TON
SP & 210	SOIL STABILIZATION		500	TON
303	AGGREGATE BASE COURSE (CLASS 7)		81253	TON
309	PORTLAND CEMENT CONCRETE BASE (6" UNIFORM THICKNESS)		8023	SQ. YD.
SS & 401	TACK COAT		6776	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		3129	TON
SP & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")		134	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		16034	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		738	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		22253	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		942	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		329	TON
412	COLD MILLING ASPHALT PAVEMENT		8892	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		108	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY		300	TON
504	APPROACH GUTTERS		30.20	CU. YD.
505	PORTLAND CEMENT CONCRETE DRIVEWAY		828.49	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SS & 604	SIGNS		854	SQ. FT.
SP, SS, & 604	SIGNS LEFT IN PLACE		30	SQ. FT.
SS & 604	BARRICADES		384	LIN. FT.
SP, SS, & 604	BARRICADES LEFT IN PLACE		144	LIN. FT.
SS & 604	TRAFFIC DRUMS		599	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		426	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		108673	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		1	EACH
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		1680	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		14112	LIN. FT.
SS & 604	VERTICAL PANELS		175	EACH
605	CONCRETE DITCH PAVING (TYPE B)		8005	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		95	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	2256	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	2256	LIN. FT.
* SP & 606	18" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 3)	2256	LIN. FT.
* SP & 606	18" PVC PIPE	(ALTERNATE NO. 4)	2256	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	69	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	69	LIN. FT.
* SP & 606	18" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 3)	69	LIN. FT.
* SP & 606	18" PVC PIPE	(ALTERNATE NO. 4)	69	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		24	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	112	LIN. FT.
* 606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	118	LIN. FT.
* 606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	118	LIN. FT.
* 606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 4)	118	LIN. FT.
* SP & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	118	LIN. FT.
* SP & 606	24" PVC PIPE	(ALTERNATE NO. 6)	118	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	821	LIN. FT.
* 606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	821	LIN. FT.
* SP & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 3)	821	LIN. FT.
* SP & 606	24" PVC PIPE	(ALTERNATE NO. 4)	821	LIN. FT.
* 606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 1)	88	LIN. FT.
* 606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	88	LIN. FT.
* 606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	88	LIN. FT.
* 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	219	LIN. FT.
* 606	30" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	219	LIN. FT.
* SP & 606	30" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 3)	219	LIN. FT.
* SP & 606	30" PVC PIPE	(ALTERNATE NO. 4)	219	LIN. FT.
* 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	74	LIN. FT.
* 606	30" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	78	LIN. FT.
* 606	30" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	78	LIN. FT.
* 606	30" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (16 GAUGE)	(ALTERNATE NO. 4)	78	LIN. FT.
* SP & 606	30" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	78	LIN. FT.
* SP & 606	30" PVC PIPE	(ALTERNATE NO. 6)	78	LIN. FT.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		18	LIN. FT.
* 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	220	LIN. FT.
* 606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	238	LIN. FT.
* 606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	238	LIN. FT.
* 606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	238	LIN. FT.
* SP & 606	36" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	238	LIN. FT.
* SP & 606	36" PVC PIPE	(ALTERNATE NO. 6)	238	LIN. FT.
* 606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	78	LIN. FT.
* 606	42" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	84	LIN. FT.
* 606	42" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	84	LIN. FT.
* 606	42" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	84	LIN. FT.
* SP & 606	42" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	84	LIN. FT.

* DENOTES ALTERNATE BID ITEMS.

SUMMARY OF QUANTITIES (BOX 2 OF 4)

ITEM NUMBER	ITEM		QUANTITY	UNIT
* 606	22" X 14" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	31	LIN. FT.
* 606	21" X 15" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	31	LIN. FT.
* 606	36" X 23" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	74	LIN. FT.
* 606	35" X 24" ASPHALT COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	80	LIN. FT.
* 606	35" X 24" ALUMINUM COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	80	LIN. FT.
* 606	35" X 24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	80	LIN. FT.
606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)		8	LIN. FT.
* 606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	183	LIN. FT.
* 606	42" X 29" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	183	LIN. FT.
* 606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	62	LIN. FT.
* 606	42" X 29" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	62	LIN. FT.
* 606	51" X 31" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	84	LIN. FT.
* 606	49" X 33" ASPHALT COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	88	LIN. FT.
* 606	49" X 33" ALUMINUM COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	88	LIN. FT.
* 606	49" X 33" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	88	LIN. FT.
* 606	51" X 31" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	78	LIN. FT.
* 606	49" X 33" ASPHALT COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	82	LIN. FT.
* 606	49" X 33" ALUMINUM COATED CORRUGATED STEEL ARCH PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	82	LIN. FT.
* 606	49" X 33" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	82	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		1664	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		262	LIN. FT.
SS & 606	21" X 15" SIDE DRAIN		92	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		8	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		1	EACH
* 606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
* 606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	4	EACH
* 606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* 606	30" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		1	EACH
* 606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	6	EACH
* 606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	6	EACH
* 606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* 606	42" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
* 606	36" X 23" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* 606	35" X 24" FLARED END SECTIONS FOR CORRUGATED STEEL ARCH PIPE CULVERT	(ALTERNATE NO. 2)	2	EACH
606	44" X 27" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS		1	EACH
* 606	51" X 31" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	(ALTERNATE NO. 1)	4	EACH
* 606	49" X 33" FLARED END SECTIONS FOR CORRUGATED STEEL ARCH PIPE CULVERTS	(ALTERNATE NO. 2)	4	EACH
606	SELECTED PIPE BEDDING		300	CU. YD.
609	DROP INLETS (TYPE MO)		44	EACH
609	DROP INLET EXTENSIONS (4')		7	EACH
609	DROP INLET EXTENSIONS (8')		5	EACH
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)		178	TON
617	GUARDRAIL (TYPE A)		900	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)		7	EACH
617	THRIE BEAM GUARDRAIL TERMINAL		7	EACH
619	WIRE FENCE (TYPE C)		1499	LIN. FT.
619	WIRE FENCE (TYPE D)		2849	LIN. FT.
619	WIRE FENCE (TYPE D-1)		1270	LIN. FT.
* 619	6' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)	210	LIN. FT.
* 619	6' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)	210	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO. 1)	7	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	7	EACH
620	LIME		75	TON
620	SEEDING		37.40	ACRE
SS & 620	MULCH COVER		129.21	ACRE
620	WATER		5761.0	M.GAL.
621	TEMPORARY SEEDING		91.81	ACRE
621	SILT FENCE		19420	LIN. FT.
621	SAND BAG DITCH CHECKS		2706	BAG
621	DIVERSION DITCH		1250	LIN. FT.
621	DROP INLET SILT FENCE		1335	LIN. FT.
621	SEDIMENT BASIN		3633	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		1011	CU. YD.
621	PIPE FOR SLOPE DRAINS		238	LIN. FT.
621	ROCK DITCH CHECKS		504	CU. YD.
623	SECOND SEEDING APPLICATION		37.40	ACRE
624	SOLID SODDING		5818	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)		11468	SQ. YD.
632	CONCRETE ISLAND		562	SQ. YD.
633	CONCRETE WALKS		1704	SQ. YD.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		6898	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		44	EACH
637	MAILBOX SUPPORTS (SINGLE)		38	EACH
637	MAILBOX SUPPORTS (DOUBLE)		3	EACH
641	WHEELCHAIR RAMPS (TYPE 3)		73	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 4)		6	SQ. YD.
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		32569	LIN. FT.

* DENOTES ALTERNATE BID ITEMS.

7/24/2015

R050251.DGN

SUMMARY OF QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-18-15				6	ARK.			
11-24-15				JOB NO.		050251	79	339
				(2) SUMMARY OF QUANTITIES AND REVISIONS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-24-15

SUMMARY OF QUANTITIES (BOX 3 OF 4)

ITEM NUMBER	ITEM		QUANTITY	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2 (8 PHASES)		1	EACH
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)		1	EACH
SP	LOCAL RADIO WITH ANTENNA		1	EACH
704	VEHICLE DETECTOR-RACK MOUNT		2	EACH
SP	LOOP WIRING CLASS III (1C/16 A.W.G.)		512	LIN. FT.
704	FEEDER WIRE		1888	LIN. FT.
SP	ANTENNA CABLE (TYPE 6)		75	LIN. FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)		12	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)		4	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)		689	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)		335	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)		848	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)		629	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)		266	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)		31	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES		1112	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")		20	LIN. FT.
710	NON-METALLIC CONDUIT (1")		616	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")		73	LIN. FT.
710	NON-METALLIC CONDUIT (2")		306	LIN. FT.
710	NON-METALLIC CONDUIT (3")		554	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2)		2	EACH
711	CONCRETE PULL BOX (TYPE 1 HD)		7	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)		5	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (46')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (70')		1	EACH
SP	LUMINAIRE ASSEMBLY		4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)		1	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		44338	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")		625	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")		280	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")		138	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		49645	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)		6	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)		6	EACH
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	1254	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	1254	LIN. FT.
733	VIDEO CABLE		1171	LIN. FT.
SP & 733	VIDEO DETECTOR (CLR)		5	EACH
733	VIDEO MONITOR (CLR)		1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)		5	EACH
SP & 733	VEHICLE DETECTOR RACK (24 CHANNEL)		1	EACH
734	BRIDGE END TERMINAL		1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		332	CU. YD.
802	CLASS S CONCRETE-ROADWAY		145.12	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)		20289	POUND
816	DUMPED RIPRAP		10	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

SUMMARY OF QUANTITIES (BOX 4 OF 4)

ITEM NUMBER	ITEM	QUANTITY	UNIT
	STRUCTURES OVER 20' SPAN		
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	185	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	474	CU. YD.
802	CLASS S CONCRETE-BRIDGE	198.90	CU. YD.
802	CLASS S CONCRETE-ROADWAY	2771.01	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE	265.00	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	22.1	GAL.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	413115	POUND
804	REINFORCING STEEL-BRIDGE (GRADE 60)	27180	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	61790	POUND
805	STEEL PILING (HP 12X53)	180	LIN. FT.
805	PREBORING	23	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	222890	POUND
808	ELASTOMERIC BEARINGS	7290	CU. IN.
809	SILICONE JOINT SEALANT	86	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	CONCRETE RIPRAP	137	CU. YD.
SP	EXPLORATORY HOLES	10	LIN. FT.

REVISIONS

DATE	REVISION	SHEET NUMBER
11/18/2015	REVISED "FENCING" QUANTITY, REVISED "SYSTEM LOCAL CONTROLLER" SPECIAL PROVISION	72, 78, 79, 105, 106, 107
11/24/2015	REVISED "CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")" QUANTITY, REVISED "MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")" QUANTITY, REVISED "AGGREGATE BASE COURSE" QUANTITY, REVISED "ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE" QUANTITY, ADDED "REMOVAL AND DISPOSAL OF BUILDINGS" QUANTITY, REVISED DRIVE RADII AND WIDTH AT STATION 223+56, AND REVISED "COMPACTED EMBANKMENT" QUANTITY	69, 71, 72, 73, 78, 79, 104, 253

7/24/2015

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	050251		80	339

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES
Project Name: 050198
Date: 6/9/2015
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *730027A, 730028-730028A*
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	340055.7510	0.0040	1391727.4617	0.0030	224.61	0.006	CTL	PD:STD.AHTD MON STAMPED PN:1
2	340227.9041	0.0185	1392143.4231	0.0105	251.94	0.006	CTL	PD:STD.AHTD MON STAMPED PN:2
3	340444.1909	0.0323	1392720.3877	0.0151	261.58	0.007	CTL	PD:STD.AHTD MON STAMPED PN:3
4	340419.1265	0.0443	1393395.4740	0.0167	261.19	0.007	CTL	PD:STD.AHTD MON STAMPED PN:4
5	340417.7890	0.0502	1394338.2004	0.0175	242.36	0.007	CTL	PD:STD.AHTD MON STAMPED PN:5
6	340354.9514	0.0486	1395097.7970	0.0158	269.33	0.007	CTL	PD:STD.AHTD MON STAMPED PN:6
7	340362.3454	0.0473	1395688.3225	0.0150	257.73	0.007	CTL	PD:STD.AHTD MON STAMPED PN:7
8	340317.4265	0.0328	1396542.5488	0.0125	227.42	0.008	CTL	PD:STD.AHTD MON STAMPED PN:8
9	340502.8656	0.0193	1397245.3621	0.0101	221.00	0.008	CTL	PD:STD.AHTD MON STAMPED PN:9
10	340595.7041	0.0050	1397844.0621	0.0050	213.93	0.007	CTL	PD:STD.AHTD MON STAMPED PN:10
11	340903.0248	0.0238	1398338.2994	0.0180	213.75	0.007	CTL	PD:STD.AHTD MON STAMPED PN:11
12	340917.1386	0.0455	1398879.3461	0.0208	213.55	0.007	CTL	PD:STD.AHTD MON STAMPED PN:12
13	340991.9364	0.0693	1399524.0274	0.0242	223.35	0.007	CTL	PD:STD.AHTD MON STAMPED PN:13
14	341256.6966	0.0843	1400066.6524	0.0283	221.92	0.007	CTL	PD:STD.AHTD MON STAMPED PN:14
15	341414.7504	0.0912	1400454.0394	0.0304	218.34	0.007	CTL	PD:STD.AHTD MON STAMPED PN:15
16	341557.8378	0.1028	1401432.9772	0.0311	216.98	0.008	CTL	PD:STD.AHTD MON STAMPED PN:16
17	341631.0757	0.1087	1402163.5717	0.0308	228.14	0.008	CTL	PD:STD.AHTD MON STAMPED PN:17
18	341762.6534	0.1136	1403180.5060	0.0294	225.76	0.007	CTL	PD:STD.AHTD MON STAMPED PN:18
19	341666.6968	0.1213	1404341.1807	0.0305	227.17	0.007	CTL	PD:STD.AHTD MON STAMPED PN:19
20	341602.9390	0.1234	1404903.7770	0.0313	215.69	0.007	CTL	PD:STD.AHTD MON STAMPED PN:20
21	341569.0046	0.1205	1405674.8284	0.0312	243.28	0.007	CTL	PD:STD.AHTD MON STAMPED PN:21
22	341462.7668	0.1096	1406492.6246	0.0306	251.39	0.007	CTL	PD:STD.AHTD MON STAMPED PN:22
23	341283.6487	0.0957	1407253.8420	0.0287	249.49	0.007	CTL	PD:STD.AHTD MON STAMPED PN:23
24	341062.5052	0.0738	1408102.1264	0.0245	246.52	0.007	CTL	PD:STD.AHTD MON STAMPED PN:24
25	340912.7534	0.0415	1409047.3942	0.0186	246.96	0.007	CTL	PD:STD.AHTD MON STAMPED PN:25
26	340690.8208	0.0136	1409734.8957	0.0104	257.68	0.007	CTL	PD:STD.AHTD MON STAMPED PN:26
27	340506.7280	0.0010	1410667.5681	0.0010	241.78	0.007	CTL	PD:STD.AHTD MON STAMPED PN:27
28	340352.8177	0.0020	1411683.5071	0.0010	238.21	0.007	CTL	PD:STD.AHTD MON STAMPED PN:28
29	340179.5300	0.0020	1412569.6498	0.0020	234.27	0.008	CTL	PD:STD.AHTD MON STAMPED PN:29
30	339953.0638	0.0010	1413116.4359	0.0010	231.03	0.008	CTL	PD:STD.AHTD MON STAMPED PN:30
31	340275.1012	0.0100	1391662.6134	0.0060	228.77	0.002	CTL	PD:STD.AHTD MON STAMPED PN:31
32	340280.0685	0.0160	1391406.6621	0.0110	235.40	0.003	CTL	PD:STD.AHTD MON STAMPED PN:32
33	340367.2463	0.0180	1390782.9754	0.0120	235.66	0.004	CTL	PD:STD.AHTD MON STAMPED PN:33
34	340466.2838	0.0200	1390185.0811	0.0120	249.26	0.004	CTL	PD:STD.AHTD MON STAMPED PN:34
35	340499.5357	0.0170	1389732.6029	0.0110	273.79	0.005	CTL	PD:STD.AHTD MON STAMPED PN:35
36	340549.1684	0.0150	1389046.6747	0.0100	282.86	0.005	CTL	PD:STD.AHTD MON STAMPED PN:36
37	340548.1164	0.0210	1388345.6077	0.0110	289.90	0.005	CTL	PD:STD.AHTD MON STAMPED PN:37
38	340555.3058	0.0160	1387794.6470	0.0090	306.53	0.006	CTL	PD:STD.AHTD MON STAMPED PN:38
39	339056.8953	0.0060	1388485.9035	0.0040	297.41	0.007	CTL	PD:STD.AHTD MON STAMPED PN:39
40	340032.7467	0.0060	1387598.3951	0.0040	296.85	0.006	CTL	PD:STD.AHTD MON STAMPED PN:40
41	340548.3954	0.0130	1387157.2435	0.0070	300.17	0.006	CTL	PD:STD.AHTD MON STAMPED PN:41
42	341338.8474	0.0140	1386638.7207	0.0120	326.59	0.006	CTL	PD:STD.AHTD MON STAMPED PN:42
43	340577.1312	0.0650	1386380.9621	0.0460	320.34	0.007	CTL	PD:STD.AHTD MON. STAMPED PN:43
44	340554.6083	0.0500	1385575.2358	0.0400	343.23	0.007	CTL	PD:STD.AHTD MON. STAMPED PN:44
45	340597.9615	0.0470	1385034.0840	0.0370	347.48	0.007	CTL	PD:STD.AHTD MON. STAMPED PN:45
46	340572.4600	0.0520	1384725.1024	0.0410	356.45	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:46
47	340716.3381	0.0510	1384241.7745	0.0400	368.30	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:47
48	340907.2824	0.0480	1383818.2837	0.0410	389.22	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:48
49	340425.3643	0.0590	1384598.7116	0.0510	325.61	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:49
50	340429.8267	0.0550	1384078.1570	0.0440	305.21	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:50
51	340444.7392	0.0510	1383372.1251	0.0440	303.40	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:51
52	340459.9768	0.0690	1382705.8183	0.0540	296.46	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:52
53	340577.6333	0.0480	1382272.3949	0.0440	295.10	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:53
54	340783.8160	0.0480	1381854.0871	0.0470	303.13	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:54
55	340782.1816	0.0510	1381347.1111	0.0470	317.34	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:55
56	340765.3304	0.0197	1380940.4940	0.0145	338.72	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:56
57	340811.0055	0.0560	1380546.6792	0.0480	372.25	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:57
58	340856.5122	0.0730	1380357.4334	0.0520	382.95	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:58
59	340940.9896	0.0500	1380083.7083	0.0390	392.37	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:59
60	340986.2193	0.0460	1379604.9412	0.0420	389.50	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:60
61	340549.4747	0.0510	1379510.5748	0.0450	432.13	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:61
62	340788.8636	0.0390	1378963.8460	0.0370	400.99	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:62
63	340925.0217	0.0550	1378546.7093	0.0430	366.03	0.007	CTL	PD:STD.AHTD MON. STAMPED PN:63
64	341270.1036	0.0450	1378225.1268	0.0400	354.19	0.006	CTL	PD:STD.AHTD MON. STAMPED PN:64
65	341518.6826	0.0360	1377701.1394	0.0320	382.55	0.006	CTL	PD:STD.AHTD MON. STAMPED PN:65
66	341000.2401	0.0540	1377852.7137	0.0480	359.14	0.006	CTL	PD:STD.AHTD MON. STAMPED PN:66
67	340719.3547	0.0550	1377792.6278	0.0500	369.40	0.006	CTL	PD:STD.AHTD MON. STAMPED PN:67
68	340792.3287	0.0258	1377021.4345	0.0195	409.85	0.006	CTL	PD:STD.AHTD MON. STAMPED PN:68
69	340767.4535	0.0610	1376632.8444	0.0480	425.24	0.005	CTL	PD:STD.AHTD MON. STAMPED PN:69
70	340562.6088	0.0267	1376791.7677	0.0185	420.09	0.005	CTL	PD:STD.AHTD MON. STAMPED PN:70
71	340369.3161	0.0650	1376404.7296	0.0510	414.99	0.005	CTL	PD:STD.AHTD MON. STAMPED PN:71
72	340180.2408	0.0640	1376165.2058	0.0460	406.34	0.004	CTL	PD:STD.AHTD MON. STAMPED PN:72
73	339862.8387	0.0410	1375605.7100	0.0350	429.24	0.002	CTL	PD:STD.AHTD MON. STAMPED PN:73
74	340317.6954	0.0510	1375564.3181	0.0450	423.58	0.002	CTL	PD:STD.AHTD MON. STAMPED PN:74
75	339499.4628	0.0510	1374967.8142	0.0380	441.81	0.003	CTL	PD:STD.AHTD MON. STAMPED PN:75
76	339176.0525	0.0520	1374382.5598	0.0400	405.05	0.004	CTL	PD:STD.AHTD MON. STAMPED PN:76
77	338688.0081	0.0470	1374057.6671	0.0410	334.54	0.005	CTL	PD:STD.AHTD MON. STAMPED PN:77
78	337921.5380	0.0430	1374479.0851	0.0380	308.63	0.007	CTL	PD:STD.AHTD MON. STAMPED PN:78
79	337874.0368	0.0420	1373970.7601	0.0360	306.48	0.007	CTL	PD:STD.AHTD MON. STAMPED PN:79
80	337851.5035	0.0460	1372934.7963	0.0400	313.73	0.007	CTL	PD:STD.AHTD MON. STAMPED PN:80
81	337176.6631	0.0580	1373964.6632	0.0500	285.14	0.007	CTL	PD:STD.AHTD MON. STAMPED PN:81
82	336222.5624	0.0540	1373791.6760	0.0500	272.73	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:82
83	335686.6571	0.0600	1373767.9656	0.0440	274.94	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:83
84	335234.3631	0.0610	1373944.9963	0.0630	285.20	0.008	CTL	PD:STD.AHTD MON. STAMPED PN:84
85	334598.3592	0.0490	1373910.1634	0.0460	288.61	0.009	CTL	PD:STD.AHTD MON. STAMPED PN:85
86	334192.0324	0.0154	1373947.0089	0.0222	297.94	0.009	CTL	PD:STD.AHTD MON. STAMPED PN:86
87	333688.9879	0.0153	1374074.6280	0.0195	302.12	0.009	CTL	PD:STD.AHTD MON. STAMPED PN:87
88	333321.2749	0.0340	1374142.3761	0.0330	309.55	0.010	CTL	PD:STD.AHTD MON. STAMPED PN:88
89	332698.5727	0.0580	1374128.9457	0.0530	321.36	0.010	CTL	PD:STD.AHTD MON. STAMPED PN:89
100	336040.5584	0.0000	1388587.1431	0.0000	227.91	0.000	GPS	PD:AHTD GPS MON. 730026
101	337795.0062	0.0000	1388545.8481	0.0000	230.06	0.000	GPS	PD:AHTD GPS MON.730026A
103	340312.2341	0.0001	1397794.1728	0.0001	212.65	0.008	GPS	PD:AHTD GPS 730027A
104	341625.4675	0.0001	1410523.1275	0.0001	249.80	0.008	GPS	PD:AHTD GPS 730028
105	340623.4747	0.0001	1410074.9466	0.0001	259.11	0.007	GPS	PD:AHTD GPS 730028A
106	339625.4950	0.0000	1375347.9597	0.0000	437.08	0.000	GPS	PD:AHTD GPS MON.730036
107	340566.3757	0.0000	1375216.6048	0.0000	435.37	0.000	GPS	PD:AHTD GPS MON.730036A
108	332616.2482	0.0000	1379087.0577	0.0000	295.42	0.000	GPS	PD:AHTD GPS MON.730014
109	332862.9517	0.0000	1380896.9718	0.0000	288.80	0.000	GPS	PD:AHTD GPS MON.730014A
900	331949.3346	30.0000	1389961.5847	30.0000	251.49	0.000	BM	
901	333973.2833	30.0000	1390619.7773	30.0000	264.28	0.004	BM	PD:NGS MARK H 8
902	336805.9020	30.0000	1391192.7762	30.0000	211.91	0.005	TBM	PD:BRIDGE ABUTTMENT
903	339537.1991	30.0000	1391683.0095	30.0000	223.49	0.006	TBM	PD:CHISELED SQ.WEST CON.HW
904	340346.0761	30.0000	1391680.8284	30.0000	224.51	0.006	TBM	PD:DRAINAGE AREA
905	340355.6757	30.0000	1395163.5873	30.0000	273.03	0.007	TBM	PD:GROUND
906	340258.5693	30.0000	1396573.5638	30.0000	227.38	0.008	TBM	PD:AT SEWAGE TREATMENT PLANT
907	340565.9684	30.0000	1397982.3733	30.0000	214.65	0.007	TBM	PD:CON.SEWER MH
908	341076.1458	30.0000	1399556.3959	30.0000	223.79	0.007	TBM	PD:CHISELED SQ.NW CON.BR.COR
909	341178.4875	30.0000	1399970.6990	30.0000	223.88	0.007	TBM	PD:BR.CORNER STAMPED "22366"
910	341589.4274	30.0000	1402125.3969	30.0000	229.44	0.008	TBM	PD:CATTLE GUARD
911	341697.7154	30.0000	1404446.8212	30.0000	224.62	0.007	TBM	PD:FH PAINTED WHITE
912	341302.5094	30.0000	1407350.2929	30.0000	249.98	0.007	TBM	PD:CPS IN N EP
913	340703.7180	30.0000	1409756.9859	30.0000	259.56	0.007	TBM	PD:BR AT HWY 67
914	340106.5338	30.0000	1412578.3950	30.0000	234.77	0.007	TBM	PD:HWY 367/385
915	342833.9567	30.0000	1411822.8489	30.0000	263.24	0.006	TBM	PD:SIGN BASE
916	345165.1314	30.0000	1413473.1678	30.0000	291.43	0.006	TBM	PD:CPS IN E ASP SH HWY 67
917	346581.5213	30.0000	1413717.0153	30.0000	340.74	0.005	TBM	PD:AND CEDAR CREST RD
918	349513.6996	30.0000	1413706.9068	30.0000	373.77	0.004	TBM	PD:CPS IN S EDGE ASP DW
919	352041.7263	30.0000	1413781.0829	30.0000	417.62	0.004	TBM	PD:MISSILE BASE RD
920	354873.0840	30.0000	1413854.1960	30.0000	410.47	0.002	TBM	PD:RR SPIKE IN E EP
921	356187.5112	30.0000	1413849.6577	30.0000	410.75	0.000	BM	PD:NGS MARK Q 205
922	340605.3666	30.0000	1410586.5410	30.0000	246.78	0.007	TBM	PD:HWY 67\385 OVERPASS
923	340299.7554	0.0710	1391729.2335	0.0630	224.51	0.001	TBM	PD:CHISELED SQ.SE BRIDGE CORNER
929	340373.6169	0.0850	1390724.0079	0.0850	237.16	0.004	TBM	PD:CPS IN PP 15'N OF CREEK ON PWRLINE RW
930	340549.4899	0.0710	1389026.3845	0.0660	283.93	0.005	TBM	PD:CPS IN PP 6'E OF 4 BARB FE ON PWR LINE RW
931	340608.2273	0.0760	1387214.5864	0.0850	297.68	0.005	TBM	PD:ALUM DISK SET IN N END OF HW
932	339959.5635	0.0810	1387739.0554	0.0650	288.99	0.006	TBM	PD:CHISELED SQ. S END DI
933	341346.6209	0.0710	1386644.8408	0.0710	329.73	0.006	TBM	PD:BOLT HEAD IN FH WITH FILED "X"

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Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
934	340573.9423	0.0920	1385937.0968	0.0490	334.81	0.006	TBM	PD:CPS IN PP
935	340536.7627	0.0760	1384753.8491	0.0770	353.40	0.006	TBM	PD:CPS IN PP E SIDE GRAVEL RD
936	340902.9471	0.0750	1383730.5639	0.0720	388.98	0.007	TBM	PD:CPS IN CP E SIDE GRAVEL RD
937	340493.1573	0.0810	1383712.6240	0.0790	311.12	0.006	TBM	PD:BOLT HEAD ON FH WITH FILED "X"
938	340566.6315	0.0910	1382257.8191	0.0930	296.94	0.006	TBM	PD:
939	340754.5603	0.0730	1381389.0413	0.0590	314.35	0.007	TBM	PD:
940	340810.7168	0.0730	1380552.0824	0.0590	372.72	0.007	TBM	PD:
941	340937.8933	0.1050	1380083.7853	0.0880	393.61	0.006	TBM	PD:
942	340723.8878	0.0880	1379199.0143	0.0820	409.66	0.007	TBM	PD:
943	341340.8372	0.0650	1378031.7451	0.0580	359.05	0.005	TBM	PD:
944	340743.4649	0.0890	1376862.4982	0.0620	418.02	0.005	TBM	PD:
945	339625.1315	0.0860	1375400.6212	0.0700	440.78	0.001	TBM	PD:
946	338831.2440	0.0630	1374248.3181	0.0720	348.72	0.004	TBM	PD:
947	337850.8576	0.0960	1373466.2722	0.0660	305.34	0.006	TBM	PD:
948	337884.5120	0.1100	1374465.0458	0.0630	309.11	0.005	TBM	PD:
949	335844.6409	30.0000	1373770.5586	30.0000	274.39	0.007	BM	PD:CPS IN OAK
950	334600.4721	0.0800	1374078.6391	0.0750	292.62	0.007	TBM	PD:
951	332690.4266	0.0980	1374308.6409	0.0980	320.08	0.008	TBM	PD:

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

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

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

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

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

Positional Accuracy:
- Horizontal - GPS (1.0 cm± 1PPM) *PN: 100-109*
- Horizontal - Primary (2.0cm± 20PPM): *PN:1-89*
- Horizontal - Secondary (3 cm ± 50PPM): *PN:N/A*
- Vertical - NGS 1st Order (±4mm x Vdist in km) *PN:900-901*
- Vertical - NGS 2nd Order (±6mm x Vdist in km) *PN:N/A*
- Vertical - NGS 3rd Order (±8mm x Vdist in km) *PN:902-951*

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: 0.999944321 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: 0.9999855772 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 301.53 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-89, 100-109 From NGS BM: SEARCY RM 1 -Q 205

Basis of Bearing: Grid Bearings based on AHTD GPS points: *730027A, 730028-730028A*
Convergence Angle is: 00 10 37.0 RIGHT at PN: 18
LT: 35-09-42.7 N LG: 091-24-52.3 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.

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				6	ARK.			
				JOB NO.		050251	81	339

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

HWY. 13

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	87+37.27	340535.5794	1384932.6851
8001	PC	93+19.27	340522.3492	1385514.5337
8003	PT	99+57.41	340613.7100	1386143.1029
8004	PC	104+57.44	340766.9100	1386619.0881
8006	PT	115+60.55	340791.4930	1387706.6478
8007	PC	118+54.04	340715.0761	1387986.9102
8009	PT	121+70.82	340674.8115	1388303.1977
8010	PC	135+43.86	340692.4780	1389676.0273
8012	PT	141+36.91	340549.7182	1390244.8394
8013	PC	146+28.69	340311.9362	1390675.3098
8015	PT	152+35.23	340177.3089	1391258.7429
8016	PC	160+31.56	340217.9878	1392054.0320
8018	PT	165+21.74	340284.6862	1392539.0554
8019	PC	167+81.82	340342.0037	1392792.7358
8021	PT	176+21.98	340405.2123	1393627.5049
8022	PC	182+44.26	340361.0297	1394248.2132
8024	PT	183+84.36	340351.9368	1394388.0180
8025	PC	197+23.96	340273.1672	1395725.2968
8027	PT	203+75.21	340317.9692	1396373.2225
8028	PC	213+62.45	340511.1124	1397341.3888
8030	PT	219+63.10	340718.5609	1397902.4421
8031	PC	221+02.41	340786.7415	1398023.9310
8033	PT	226+93.13	340925.8860	1398590.6301
8034	PC	230+71.34	340914.5929	1398968.6694
8036	PT	236+90.90	341028.5199	1399572.7609
8037	PC	a244+94.11	341343.5293	1400312.3174
8039	PT	a248+07.46	341423.5406	1400614.1725
8040	PC	a258+76.43	341546.7790	1401676.0181
8042	PT	a262+34.08	341593.5478	1402030.5795
8043	PC	a271+27.34	341724.1669	1402914.2337
8045	PT	a274+39.45	341740.1860	1403225.4598
8046	PC	a281+55.49	341708.7594	1403940.8143
8048	PT	a285+89.70	341673.2911	1404373.4696
8049	PC	a294+76.75	341567.3763	1405254.1698
8051	PT	a299+97.54	341516.9619	1405772.4719
8052	PC	a302+64.18	341497.1849	1406038.3758
8054	PT	a308+20.31	341415.7800	1406588.0177
8055	PC	a337+77.52	340770.9092	1409471.0591
8057	PT	a340+64.49	340711.8428	1409754.8812
8058	POE	a350+26.90	340525.5592	1410699.0834

HWY. 16

POINT NO.	TYPE	STATION	NORTHING	EASTING
8059	POB	495+65.30	342012.2871	1386079.3520
8060	PC	499+92.48	341672.2105	1386337.8667
8062	PT	500+92.96	341592.3562	1386398.8460
8063	PC	505+22.33	341251.6757	1386660.1844
8065	PT	506+39.16	341159.1587	1386731.5301
8066	PC	514+70.46	340502.1612	1387240.8584
8068	PT	517+24.66	340304.7818	1387401.0079
8069	POE	517+86.46	340257.6697	1387441.9988

FAIRVIEW RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8070	POB	100+00.00	340856.2451	1387302.1977
8071	PC	100+22.79	340879.0316	1387302.7696
8073	PT	101+47.58	341002.3305	1387286.9804
8074	PC	103+65.96	341212.2122	1387226.6685
8076	PT	104+59.45	341304.6045	1387215.0769
8077	POE	104+96.80	341341.9414	1387216.2050

MAIN ST. TIE IN

POINT NO.	TYPE	STATION	NORTHING	EASTING
8078	POB	100+00.00	339879.1395	1391683.6203
8079	PC	103+56.66	339876.3582	1392040.2736
8081	PT	107+82.04	340157.5047	1392289.2590
8082	POE	108+63.60	340238.3823	1392278.7690

DAVIS RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8083	POB	-1+40.18	340204.7076	1397835.2960
8084	PC	0+84.65	340429.5230	1397837.5502
8086	PT	2+20.95	340563.1841	1397814.8277
8087	POE	3+19.77	340656.1211	1397781.2389

RET WALL

POINT NO.	TYPE	STATION	NORTHING	EASTING
8088	POB	0+00.00	341477.1633	1401405.8085
8089	PI	2+77.16	341509.1191	1401681.1217
8090	PI	3+94.51	341523.2460	1401797.6191
8091	POE	5+27.27	341522.0527	1401930.3751

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				6	ARK.			
				JOB NO.		050251	82	339

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
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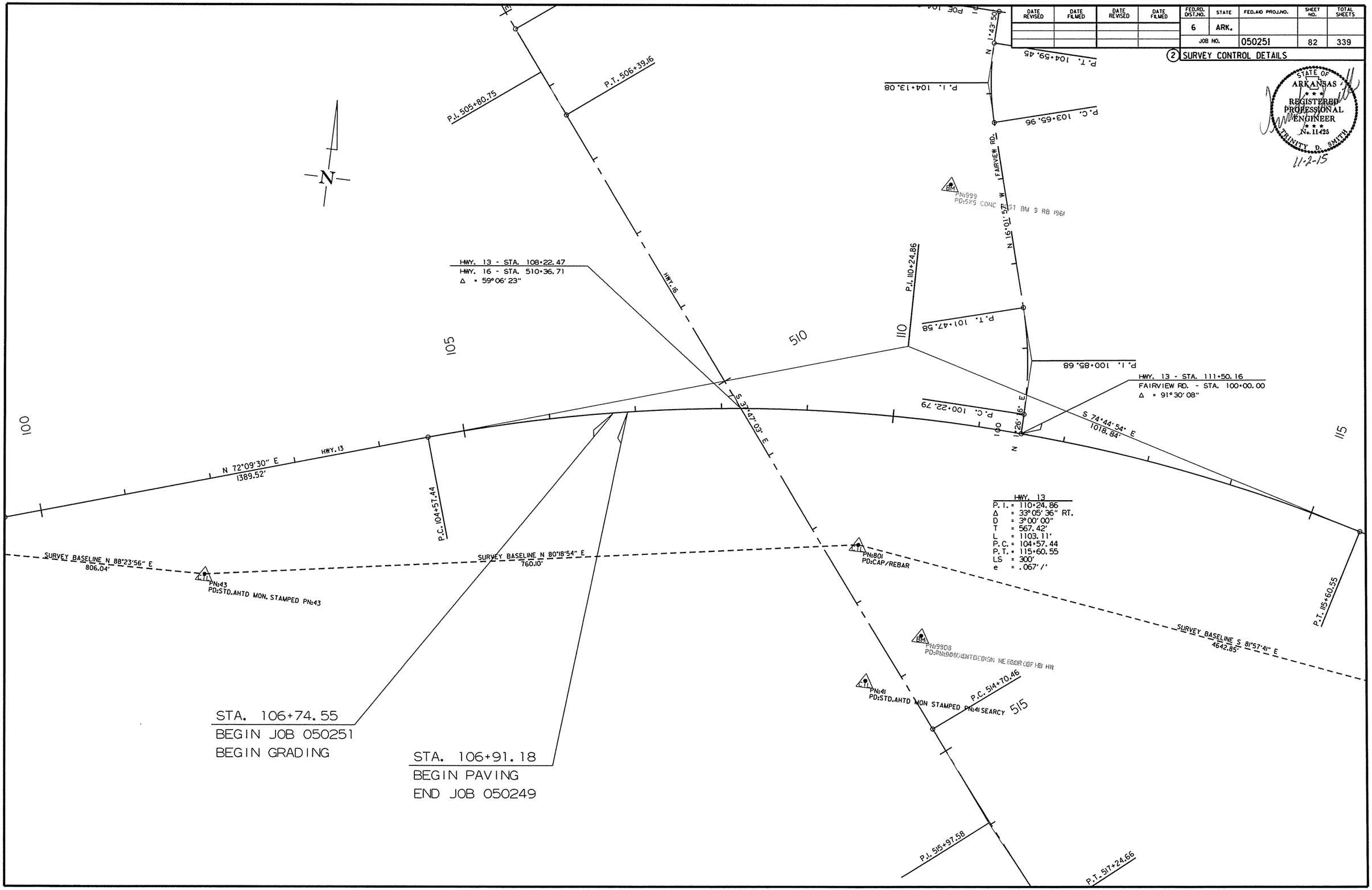
11-2-15



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				6	ARK.			
				JOB NO.		050251	83	339

(2) SURVEY CONTROL DETAILS

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N

P. I. = 120+11.97
Δ = 15°59'20" LT.
D = 5°00'00"
T = 160.93'
L = 319.78'
P. C. = 118+51.04
P. T. = 121+70.82
LS = 350'
e = 0.091'/'

115 | P.C. 118+51.04 | 120 | P.T. 121+70.82 | 125 | 130

S 74°44'54" E
1018.84'

P.T. 115+60.55

HWY. 13

N 89°15'46" E
1837.30'

P.I. 120+11.97

HWY. 13
P. I. = 110+24.86
Δ = 33°05'36" RT.
D = 3°00'00"
T = 567.42'
L = 1103.11'
P. C. = 104+57.44
P. T. = 115+60.55
e = .067'/'
LS = 300'

PN:38
PD:STD.AHTD MON STAMPED PN:38 SEARCY

PN:37
PD:STD.AHTD MON STAMPED PN:37 SEARCY

SURVEY BASELINE S 81°57'41" E
4642.85'

PN:36
PD:STD.AHTD MON STAMPED P

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				6	ARK.			
				JOB NO.		050251	84	339

(2) SURVEY CONTROL DETAILS

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N

130

135

140

145

HWY. 13

N 89°15'46" E
1837.30'

P.C. 135+43.86

P.I. 138+47.19

P. I. = 138+47.19
Δ = 29°39'09" RT.
D = 5°00'00"
T = 303.33'
L = 593.05'
P.C. = 135+43.86
P.T. = 141+36.91
e = 0.091'/'
LS = 350'

P.T. 141+36.91

S 61°05'05" E
1106.44'

PN:35
PD:STD.AHTD MON STAMPED PN:35 JOB 050251

PN:34
PD:STD.AHTD MON STAMPED PN:34 SEARCY

8:36
D:STD:AHTD MON: STAMPED. PN:36 SEARCY

SURVEY BASELINE S 81°57'41" E
4642.85'

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				6	ARK.			
				JOB NO.		050251	85	339

(2) SURVEY CONTROL DETAILS

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145

S 16°05'05" E
1106.44'

P.C. 146+28.69

P. I. = 149+40.01
Δ = 31°50' 36" LT.
D = 5° 15' 00"
T = 311. 33'
L = 606. 54'
P. C. = 146+28. 69
P. T. = 152+35. 23
e = 0. 093' /'
LS = 350'

PN:929
PD:CPS IN PP

PN:33 CHECK ON PWR
PD:STD.AHTD MON STAMPED PN:33 SEARCY

150

S 61°05'05" E

P.I. 149+40.01

P.T. 152+35.23

PN:32
PD:STD.AHTD MON STAMPED PN:32 SEARCY

155

PN:904
PD:DRAINAGE AREA

PN:923
PD:CHISELED DOGE BRIDGE CORNER

PN:31
PD:STD.AHTD MON STAMPED PN:31 SEARCY

160

P.C. 160+31.56

HWY. 13

N 87°04'19" E
1353.35'

SURVEY BASELINE S 81°57'41" E
4642.85'

SURVEY BASELINE N 67°31'01" E
450.18'

PN:1
PD:REBAR/CAP RT SH

100

P.C. 103+56.66

S 89°33' 12" E

MAIN ST. TIE IN

10/30/2015

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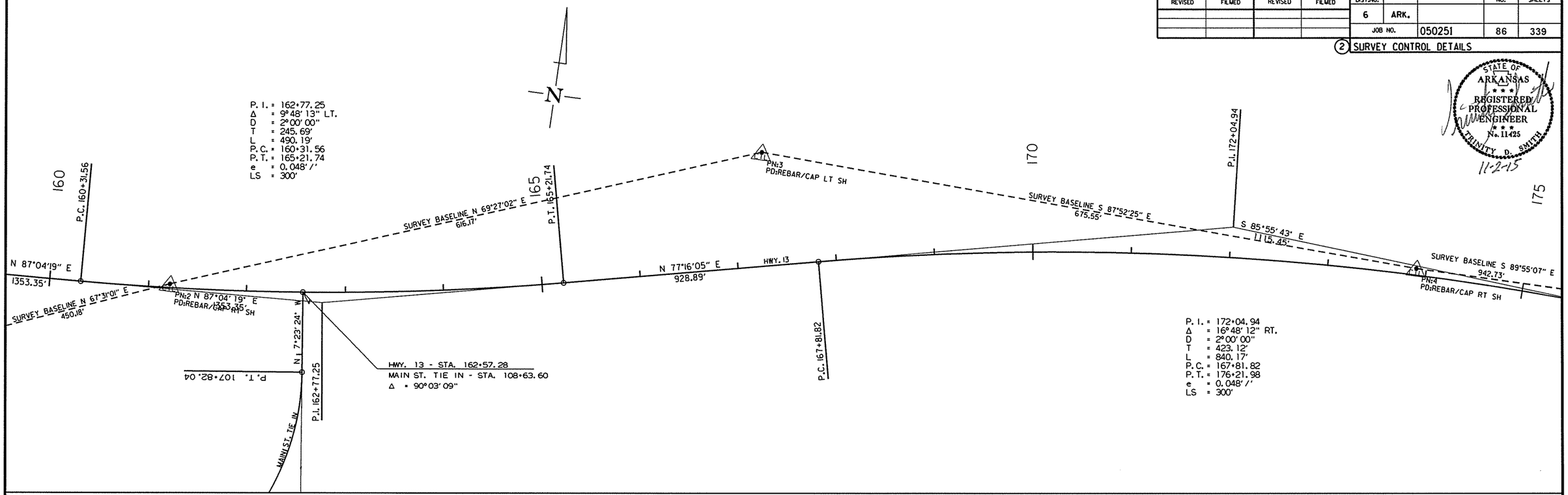
				6	ARK.			
				JOB NO.		050251	86	339

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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				6	ARK.			
				JOB NO.		050251	87	339

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH
11-2-15

N

P.I. = 200+51.37
Δ = 14°39'11" LT.
D = 2°15'00"
T = 327.41'
L = 651.25'
P.C. = 197+23.96
P.T. = 203+75.21
e = 0.053'/'
LS = 300'

190

195

200

205

SURVEY BASELINE S 85°16'16" E
762.19'

PN:6
PD:REBAR/CAP RT SH

PN:305
GROUND

S 86°37'44" E
1737.06'

HWY. 13

SURVEY BASELINE N 89°16'57" E
590.57'

P.C. 197+23.96

PN:7
PD:REBAR/CAP LT SH

SURVEY BASELINE S 86°59'24" E
855.41'

P.I. 203+75.21

N 78°43'05" E
1617.47'

P.I. 200+51.37

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				6	ARK.			
				JOB NO.		050251	88	339

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
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No. 11425
TRINITY D. SMITH
11-2-15

205 210 215 220 225 230 235

N

SURVEY BASELINE S 86°59'24" E 855.41'

PN:8 PD:REBAR/CAP RT SH

PN:9 PD:REBAR/CAP LT SH

N 78°43'05" E 1617.47'

SURVEY BASELINE N 75°13'09" E 726.87'

N 76°38'59" E

P.C. 213+62.45

P.C. 0+04.38

HWY. 13 - STA. 214+00.00
TEMP. WIDENING - STA. 0+00.00
Δ = X°X'X"

HWY. 13 - STA. 218+26.73
DAVIS RD. - STA. 104+59.95
Δ = 84°39'37"

HWY. 13 - STA. 219+00.00
TEMP. WIDNING - STA. 4+99.92
Δ = 84°39'37"

P. I. = 216+65.28
Δ = 18°01'10"
D = 3°00'00"
T = 302.82'
L = 600.65'
P.C. = 213+62.45
P.T. = 219+63.10
e = 0.067'/'
LS = 300'

P.I. 1+44.32

P.I. 2+02.15

P.I. 2+98.34

P.C. 3+84.78

P.T. 4+93.65

P.T. 219+63.10

N 61°57'21" E

N 61°57'21" E

HWY. 13

SURVEY BASELINE N 81°11'08" E 605.86'

N 72°52'06" E

N 74°56'11" E

N 63°30'17" E

N 60°41'55" E 744.92'

SURVEY BASELINE N 58°07'35" E 581.99'

P.I. 0+74.74

P.C. 1+50.03

P.T. 2+53.96

P.C. 2+71.66

P.I. 216+65.28

P.T. 3+19.02

P.T. 103+61.19

N 19°52'14" W 167.70'

P.I. 4+39.40

PN:10 PD:REBAR/CAP RT SH

P.I. 102+93.71

DAVIS RD.

102+24.83

P.I. 224+05.20

P.C. 221+02.41

PN:11 PD:REBAR/CAP LT SH

SURVEY BASELINE N 88°30'21" E 541.23'

S 88°17'20" E 995.70'

P.T. 226+93.13

PN:12 PD:REBAR/CAP RT SH

P.C. 230+71.34

SURVEY BASELINE N 83°22'55" E 649.01'

HWY. 13

N 66°55'43" E 1276.31'

P.I. 233+86.04

P. I. = 224+05.20
Δ = 31°00'45" RT.
D = 5°15'00"
T = 302.79'
L = 590.72'
P.C. = 221+02.41
P.T. = 226+93.13
e = 0.093'/'
LS = 350'

P. I. = 233+86.04
Δ = 24°46'56" LT.
D = 4°00'00"
T = 314.70'
L = 619.56'
P.C. = 230+71.34
P.T. = 236+90.90
e = 0.083'/'
LS = 300'

PN:906 PDI:AT SEWAGE TREATMENT PLANT

PN:907 PDI:CON.SEWER MH

PN:908 PDI:AT SEWER M

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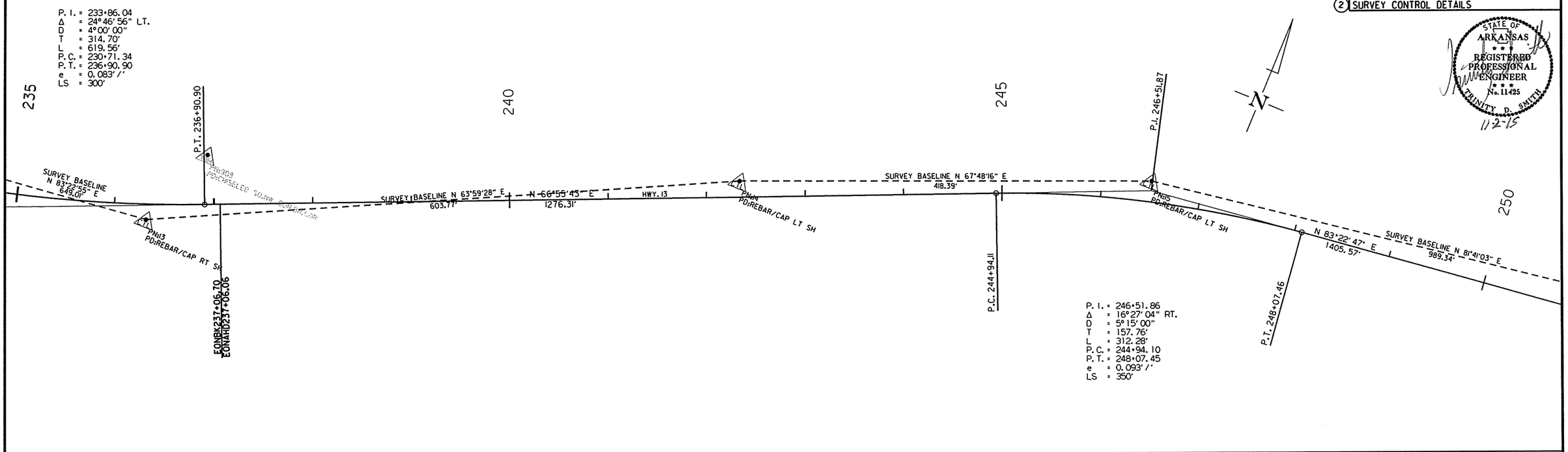
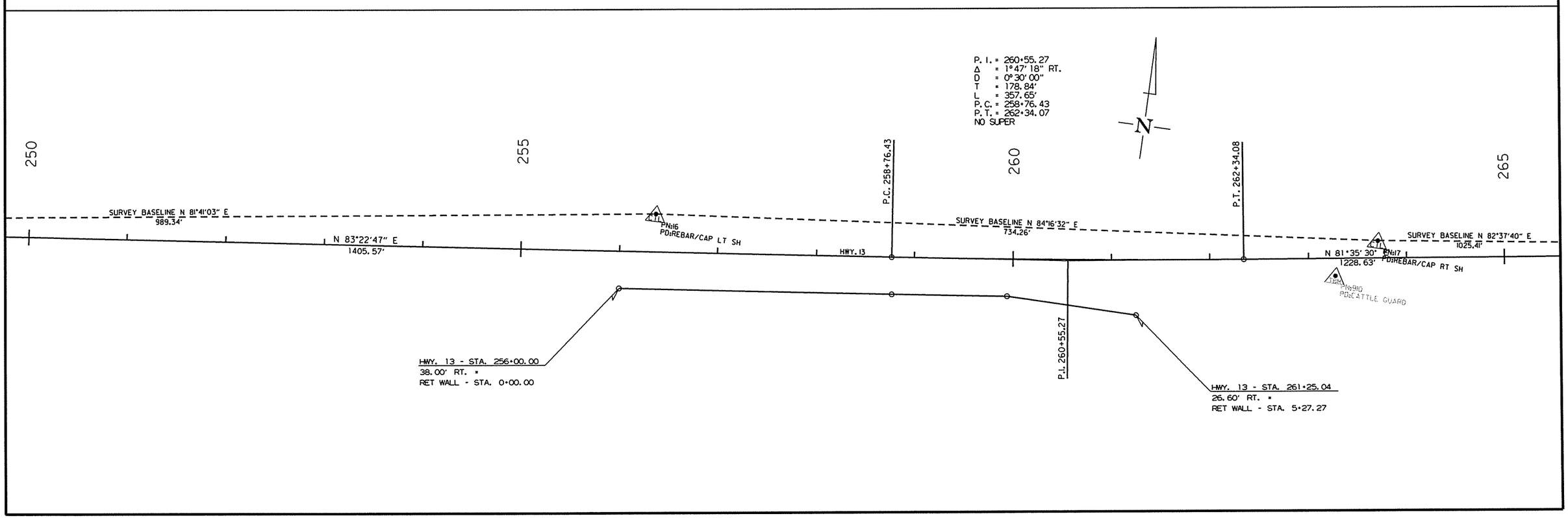
				6	ARK.			
				JOB NO.		050251	89	339

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15





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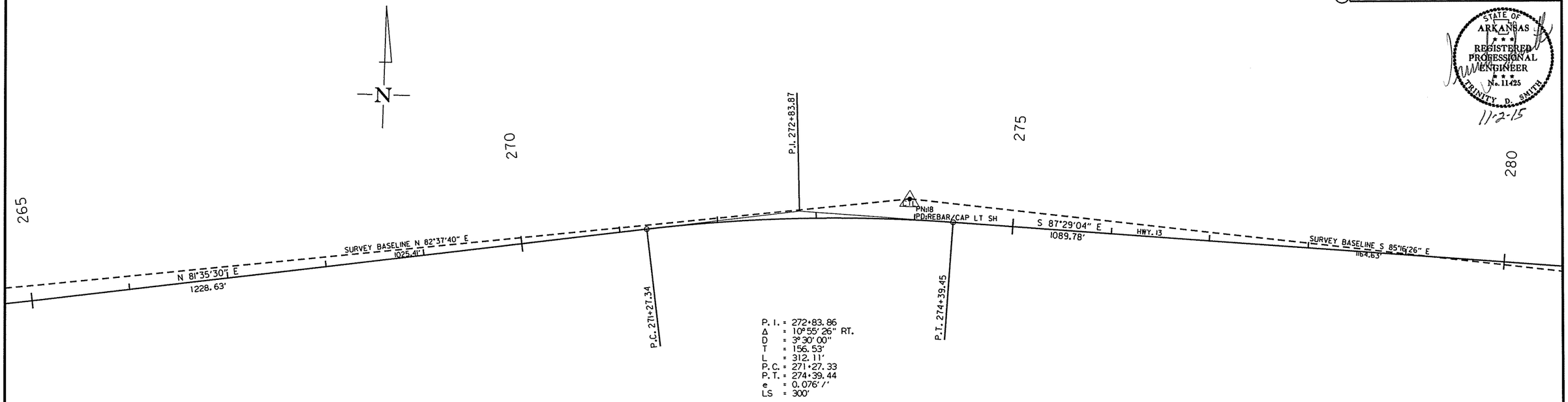
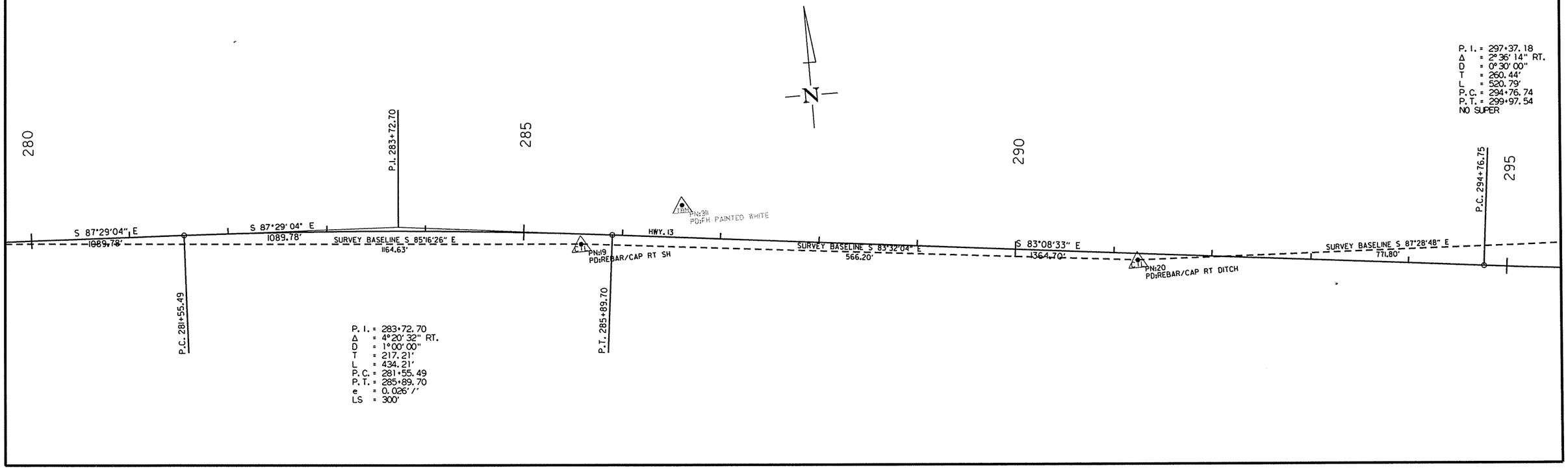
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	90	339

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15





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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.		050251	91	339

(2) SURVEY CONTROL DETAILS

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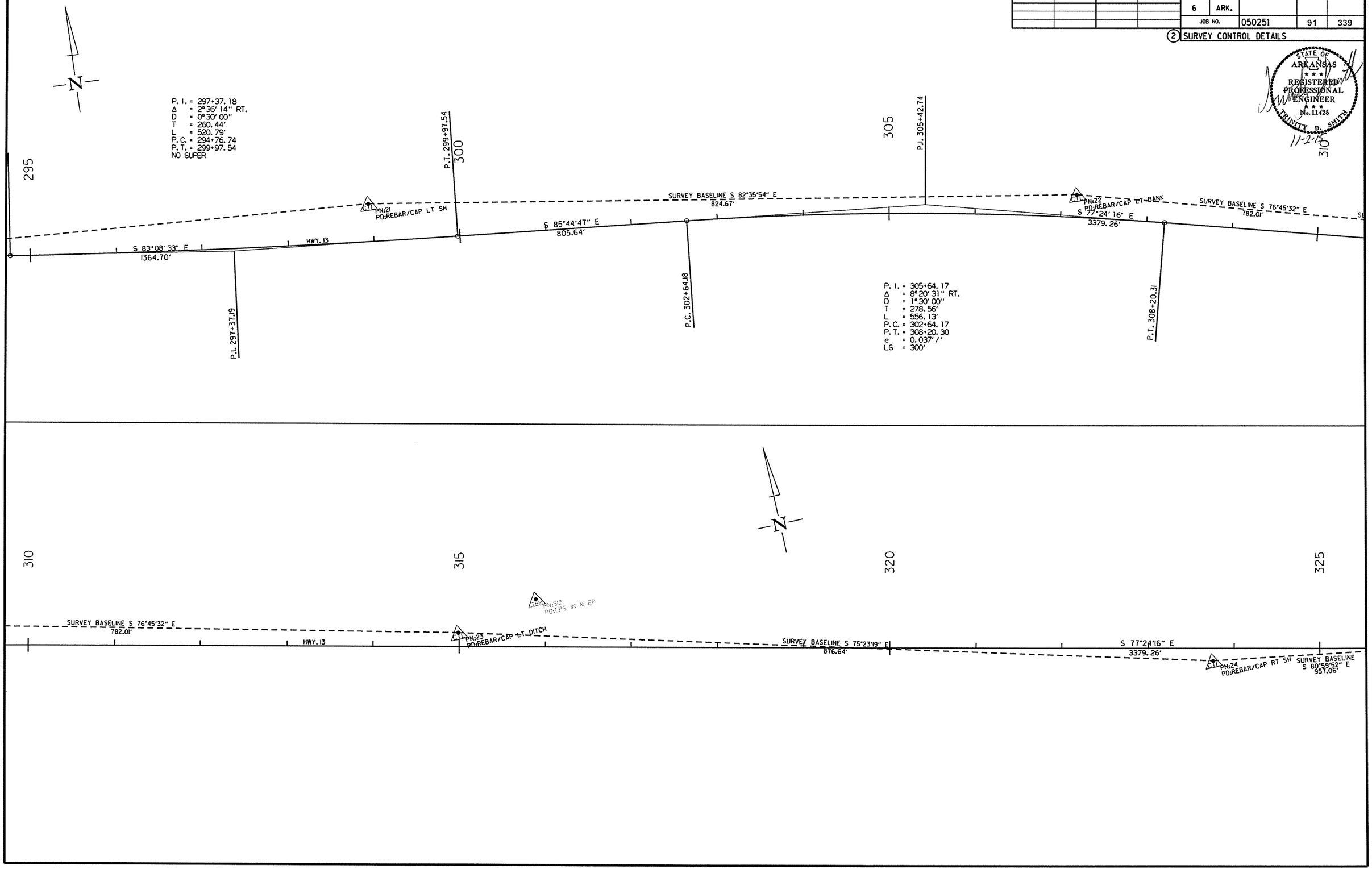
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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				6	ARK.			
				JOB NO.		050251	92	339

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
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11-2-15

P. I. = 339+21.01
Δ = 1°26'06" LT.
D = 0°30'00"
T = 143.49'
L = 286.97'
P. C. = 337+77.52
P. T. = 340+64.49

325 330 335 340

P.C. 337+77.52

SURVEY BASELINE S 80°59'52" E
957.06'

S 77°24'16" E
3379.26'

HWY. 13

PN:29
PD:REBAR/CAP LT SH

SURVEY BASELINE S 72°06'34" E
722.44'

S 78°50'22" E

S 78°50'22" E

P.I. 339+21.01

STA. 335+00.00
END JOB 050251

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				6	ARK.			
				JOB NO.		050251	93	339

(2) SURVEY CONTROL DETAILS

P. I. = 505+80.75
Δ = 0°17' 31" LT.
D = 0°15' 00"
T = 58.42'
L = 116.83'
P.C. = 505+22.33
P.T. = 506+39.16
NO SUPER

P. I. = 515+97.58
Δ = 2°32' 31" LT.
D = 1°00' 00"
T = 127.12'
L = 254.20'
P.C. = 514+70.46
P.T. = 517+24.66
NO SUPER

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P.I. 110+24.86
N 72°09'30" E
P.C. 100+22.79
S 74°44'54" E
101+47.58
N 1°26'16" E
100
110
HWY. 13
510
505
515
S 37°29'31" E
HWY. 16
S 37°47'03" E
P.C. 505+22.33
P.T. 506+39.16
P.I. 505+80.75
PK-NAIL SET
PN-42 SEARCY
PN-42
PDSTD.AHTD MON STAMPED
SURVEY BASELINE S 8°57'41" E
4642.85
PN-80
PDCAP/REBAR
PN-39908
PDCAP/REBAR/MAG/TOP DISC
P.C. 514+70.46
PN-41 SEARCY
PN-41
PDSTD.AHTD MON STAMPED
P.I. 515+97.58
P.T. 517+24.66
40°1
SURVEY BASELINE N 80°18'54" E
760.10'
HWY. 13 - STA. 108+22.47
HWY. 16 - STA. 510+36.71
Δ = 59°06' 23"

SURVEY BASELINE N 80°18'54" E
760.10'
S 37°47'03" E
PN-41
PDSTD.AHTD MON STAMPED
P.I. 515+97.58
P.C. 514+70.46
PN-41 SEARCY
515
40°19'34"
P.T. 511+
PN-80
PDCAP/REBAR
SURVEY BASELINE S 8°57'41" E
4642.85
PN-39908
PDCAP/REBAR/MAG/TOP DISC
N 72°09'30" E
510
HWY. 13
P.C. 100+22.79
100
N 1°26'16" E
P.C. 100+22.79
P.I. 110+24.86
P.T. 101+47.58
S 74°44'54" E
101+47.58
P.I. 100+85.68
PN-999
PDSKS CONC
SET RM 5 FEB 1951
N 16°10'57" W
P.I. 104+13.08
POE 104+96.80
104
N 1°43'50" E
P.C. 103+65.96
P.T. 104+59.45
HWY. 13 - STA. 111+50.16
FAIRVIEW RD. - STA. 100+00.00
Δ = 91°30'08"

P. I. = 100+85.68
Δ = 17°28' 13.5" LT.
D = 14°00' 00.0"
T = 62.88'
L = 124.79'
P.C. = 100+22.79
P.T. = 101+47.58

P. I. = 104+13.08
Δ = 17°45' 47.5" RT.
D = 19°00' 00.0"
T = 47.12'
L = 93.49'
P.C. = 103+65.96
P.T. = 104+59.45

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				JOB NO.		050251	94	339

(2) SURVEY CONTROL DETAILS

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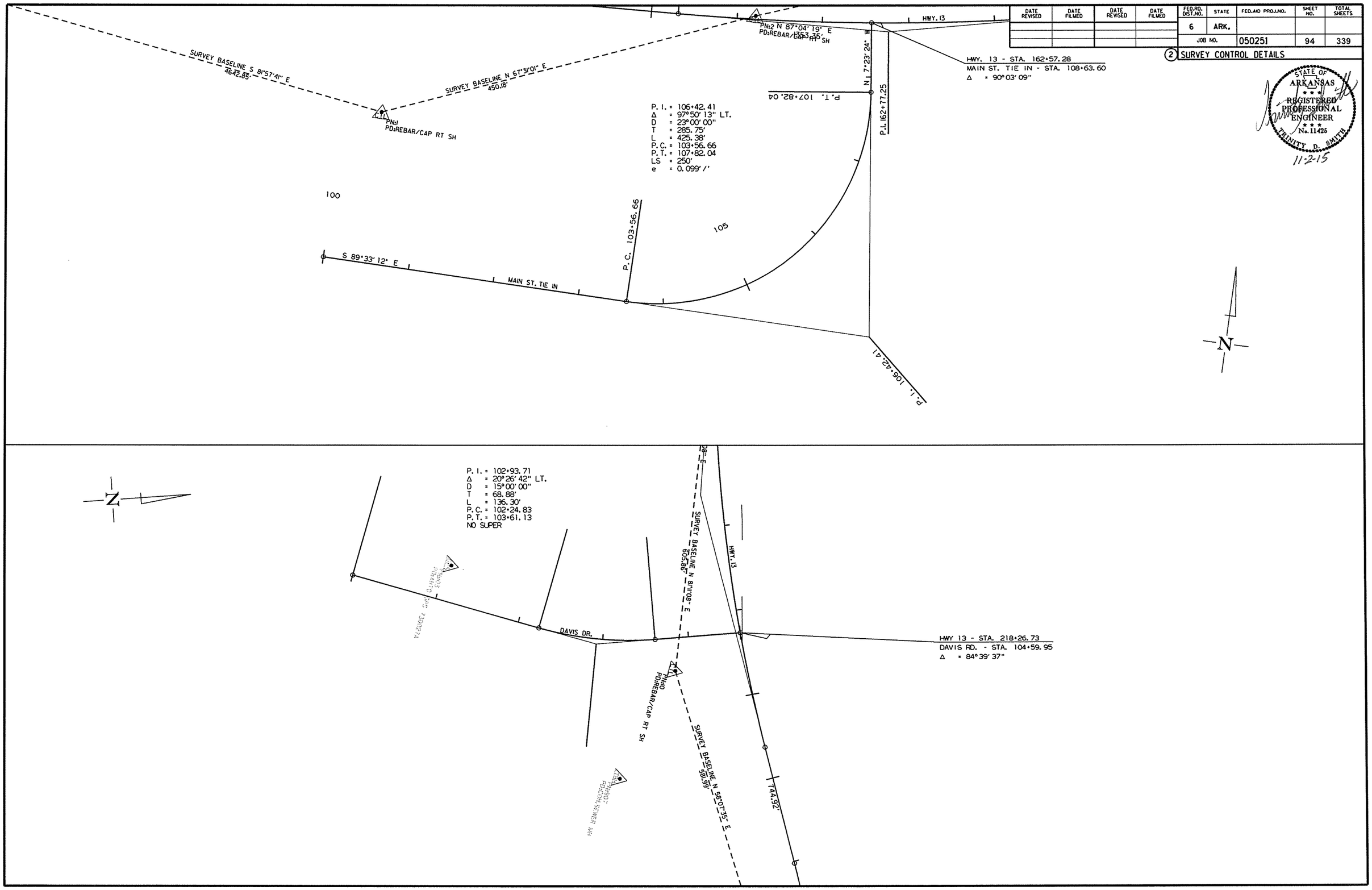
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



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				JOB NO.		050251	95	339

(2) PLAN AND PLOT SHEETS

STATE OF ARKANSAS
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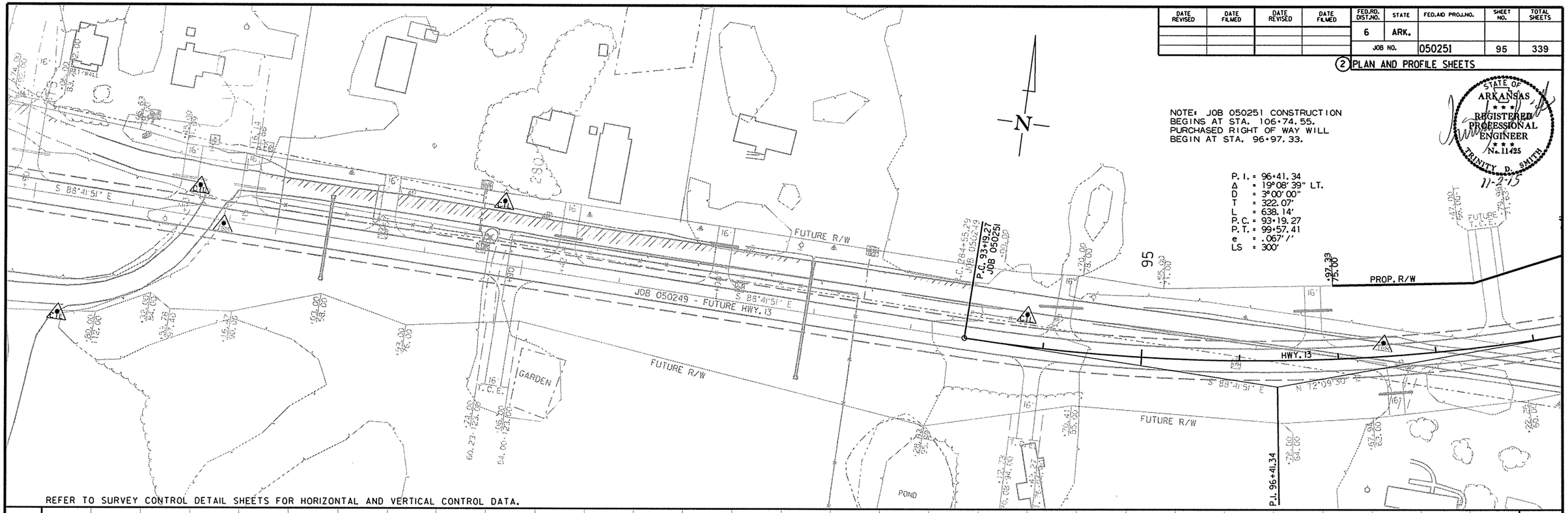
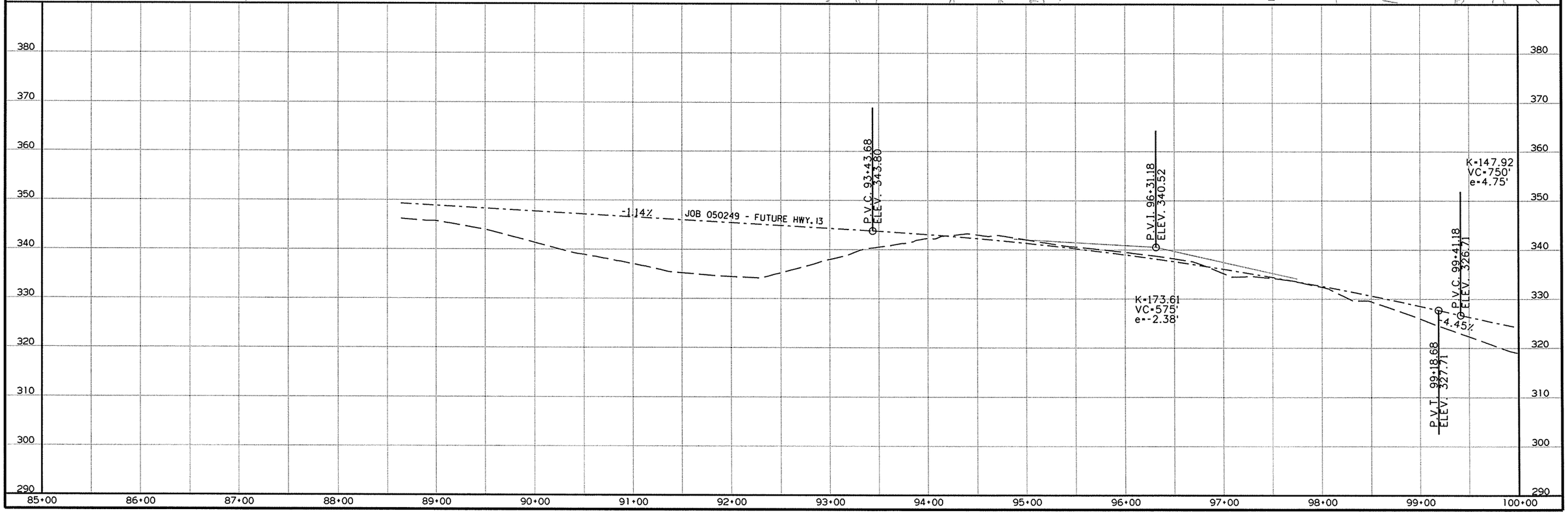
NOTE: JOB 050251 CONSTRUCTION BEGINS AT STA. 106+74.55. PURCHASED RIGHT OF WAY WILL BEGIN AT STA. 96+97.33.

P.I. = 96+41.34
Δ = 19°08'39" LT.
D = 3°00'00"
T = 322.07'
L = 638.14'
P.C. = 93+19.27
P.T. = 99+57.41
e = .067'/'
LS = 300'



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



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				JOB NO.	050251		96	339

(2) PLAN AND PROFILE SHEETS

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
110+82	113+32	RT.	274
111+90	114+63	LT.	283

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
110+90	111+57	LT.	D	220
112+04	124+04	LT.	D	1189
112+74	113+34	RT.	D	1188

HWY. 13 - STA. 108+22.47 =
HWY. 16 - STA. 510+36.71
Δ = 59°06'23"

STA. 111+50 INSTALL 18" x 58' PIPE CULVERT LT. SIDE DRAIN

HWY. 13 - STA. 111+50.16 =
FAIRVIEW RD. - STA. 100+00.00
Δ = 91°30'08"

P. I. = 110+24.86
Δ = 33°05'36" RT.
D = 3°00'00"
T = 567.42'
L = 1103.11'
P. C. = 104+57.44
P. T. = 115+60.55
e = .067'/'
LS = 300'

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

REMOVAL OF EXIST. PAVEMENT

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STA. 106+74.55
BEGIN JOB 050251
BEGIN GRADING

STA. 106+91.18
BEGIN PAVING
END JOB 050249

STA. 106+74.55 MATCH 050249 SUPER (0.067'/')
STA. 106+87.41 MAX. SUPERELEVATION (0.067'/')
STA. 107+95.32 MATCH HWY. 16 GRADE (0.0429'/')
STA. 108+50.34 MATCH HWY. 16 GRADE (0.0429'/')
STA. 109+58.25 MAX. SUPERELEVATION (0.067'/')
STA. 113+60.93 MAX. SUPERELEVATION (0.067'/')
STA. 116+60.93 END SUPERELEVATION

K=147.92
VC=750'
e=4.75'

P.V.I. 103+16.18
ELEV. 310.00

JOB 050249 - FUTURE HWY. 13

6:1

P.V.T. 106+91.18
ELEV. 312.31

0.62%

P.V.I. 108+04.80
ELEV. 313.01

P.V.I. 108+50.34
ELEV. 311.69

-0.49%

+00.00 LT. DT. GR.
LT. ELEV. 309.34

+60.00 RT. DT. GR.
RT. ELEV. 306.58

P.V.C. 110+21.98
ELEV. 310.86

-0.65% LT. DT. GR.

-1.32% RT. DT. GR.

P.V.I. 110+96.98
ELEV. 310.49

K=126.02
VC=150'
e=-0.22'

+25.70 RT. DT. GR.
RT. ELEV. 304.40

P.V.T. 111+71.98
ELEV. 309.23

+00.00 LT. DT. GR.
LT. ELEV. 307.48

-1.68%

P.V.C. 114+48.70
ELEV. 304.60

K=140.82
VC=150'
e=0.20'

350 340 330 320 310 300 290 280 270 260

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00

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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
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CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
112+00	120+00	LT.	B	9	800
117+00	118+00	RT.	B	9	100
123+00	132+00	RT.	B	9	994
124+00	131+70	LT.	B	13.5	1200

P.I. = 120+11.97
Δ = 15°59'20" LT.
D = 5°00'00"
T = 160.93'
L = 319.78'
P.C. = 118+51.04
P.T. = 121+70.82
e = 0.091'/'
LS = 350'

STA. 117+62 CONSTRUCT
TRI. 8' x 5' x 144' R.C. BOX CULVERT
ON 45° LT. FWD SKEW
WITH 3:1 WINGS LT. AND RT.
SPAN = 35.82'
Q25= 390 CFS., D.A. = 0.4 SQ. MI.

STA. 123+00 INSTALL
18" x 46' PIPE CULVERT
LT. SIDE DRAIN
CONST. APROACH = 150 CU. YDS.
UNCLASS. EXCAV. = 5 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
123+99	124+04	LT. & RT.	139

STA. 119+00 INSTALL
18" x 40' PIPE CULVERT
RT. SIDE DRAIN
CONST. APROACH = 90 CU. YDS.
UNCLASS. EXCAV. = 10 CU. YDS.

T.C.E.
PROP. R/W
CONST. LIMITS
P.C. 118+51.04
P.I. 121+70.82
P.T. 115+60.55
S 74°44'54" E
N 89°15'46" E
HWY. 13
8'-0"
12'-0"
12'-0"
8'-0"
16'
115
120
125
130

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

STA. 106+74.55 MATCH 050249 SUPER (0.067'/')
STA. 106+87.41 MAX. SUPERELEVATION (0.067'/')
STA. 107+95.32 MATCH HWY. 16 GRADE (0.0429'/')
STA. 108+50.34 MATCH HWY. 16 GRADE (0.0429'/')
STA. 109+58.25 MAX. SUPERELEVATION (0.067'/')
STA. 113+60.93 MAX. SUPERELEVATION (0.067'/')
STA. 116+60.93 END SUPERELEVATION

UNNAMED TRIBUTARY:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS AN INTERMEDIATE STREAM. THE STREAM BANK ELEVATIONS ARE 288 FT. MSL. SEE SUBSECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 116+60.93 BEGIN SUPERELEVATION
STA. 120+10.93 MAX. SUPERELEVATION (0.091'/')
STA. 120+83.32 MAX. SUPERELEVATION (0.091'/')
STA. 124+33.32 END SUPERELEVATION

K-140.82
VC-150'
e-0.20'
P.V.T. 115+98.70
ELEV. 302.88
P.V.I. 115+23.70
ELEV. 303.34
P.V.C. 119+38.00
ELEV. 300.81
P.V.I. 122+88.00
ELEV. 298.67
K-173.42
VC-700'
e--3.53'
P.V.T. 126+38.00
ELEV. 282.40
P.V.C. 127+59.28
ELEV. 276.76
K-125.24
VC-850'
e-7.21'
-0.61%
-0.36% RT.DT.GR.
4.68% LT.DT.GR.
-1.67% LT.DT.GR.
-3.53% RT.DT.GR.
-4.65%
-70.17 RT.DT.GR. RT.ELEV. 298.86
-62
F.L. INL. 288.30 RT.
F.L. OUT. 285.60 LT.
-00.00 LT.DT.GR. LT.ELEV. 285.60
-00.00 LT.DT.GR. LT.ELEV. 294.95
-85.98 RT.DT.GR. RT.ELEV. 297.71
-47.40 RT.DT.GR. RT.ELEV. 293.62
-00.00 LT.DT.GR. LT.ELEV. 288.27
-00.00 RT.DT.GR. RT.ELEV. 284.71

330 320 310 300 290 280 270 260 250 240

115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+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.		050251	98	339

(2) PLAN AND PROFILE SHEETS

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
142+00	148+00	LT.	B	13.5	900

STA. 131+00 INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONST. APROACH = 70 CU. YDS.
UNCLASS. EXCAV. = 10 CU. YDS.

STA. 132+95 CONSTRUCT
TRI. 10' x 5' x 84' R.C. BOX CULVERT
ON 15° LT. FWD SKEW
WITH 3:1 WINGS LT. AND RT.
SPAN = 32'-4"
Q25= 720 CFS., D.A. = 1.9 SQ. MI.

STA. 134+50 INSTALL
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONST. APROACH = 75 CU. YDS.

STA. 141+00 INSTALL
CONST. APROACH = 105 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
137+56	137+81	RT.	53

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

FLOODPLAIN LIMITS
CONST. LIMITS
PROP. R/W
HWY. 13
N 89°15'46" E
S 61°05'05" E
8'-0"
12'-0"
12'-0"
8'-0"
16'
P.I. 138+47.19
P.C. 135+43.86
P.T. 141+36.91
Δ = 29°39'09" RT.
D = 5°00'00"
T = 303.33'
L = 593.05'
P.C. = 135+43.86
P.T. = 141+36.91
e = 0.091'/'
LS = 350'
C.E.
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 142+00 INSTALL
18" x 72' PIPE CULVERT
RT. SIDE DRAIN
CONST. APROACH = 1075 CU. YDS.

UNNAMED TRIBUTARY:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS AN INTERMEDIATE STREAM. THE STREAM BANK ELEVATIONS ARE 256 FT. MSL. SEE SUBSECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 132+81.36 BEGIN SUPERELEVATION
STA. 136+31.36 MAX. SUPERELEVATION (0.091'/')
STA. 140+32.80 MAX. SUPERELEVATION (0.091'/')
STA. 143+82.80 END SUPERELEVATION

STA. 143.82.80 BEGIN SUPERELEVATION
STA. 147+32.80 MAX. SUPERELEVATION (0.093'/')
STA. 151+47.73 MAX. SUPERELEVATION (0.093'/')
STA. 154+97.73 END SUPERELEVATION

K=125.24
VC=850'
e=7.21'

K=134.07
VC=700'
e=-4.57'

K=147.84
VC=400'
e=1.35'

P.V.I. 131+84.28
ELEV. 257.01

P.V.I. 136+09.28
ELEV. 266.11

P.V.C. 136+74.00
ELEV. 267.49

P.V.I. 140+24.00
ELEV. 274.98

P.V.T. 143+74.00
ELEV. 264.19

P.V.C. 144+25.86
ELEV. 262.60

2.14%
1.76% LT.DT.GR.
1.19% RT.DT.GR.
1.39% RT.DT.GR.
1.59% RT.DT.GR.
0.04% LT.DT.GR.
-3.08%

·95
F.L. INL. 254.10 LT.
F.L. OUT. 252.80 RT.

·00.00 RT.DT.GR.
RT.ELEV. 258.38

·65.00 LT.DT.GR.
LT.ELEV. 261.34

·00.00 RT.DT.GR.
RT.ELEV. 260.77

·00.00 LT.DT.GR.
LT.ELEV. 267.44

·00.00 RT.DT.GR.
RT.ELEV. 264.94

·00.00 RT.DT.GR.
RT.ELEV. 266.53

·00.00 LT.DT.GR.
LT.ELEV. 267.37

300 290 280 270 260 250 240 230 220 210

130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00

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				6	ARK.			
				JOB NO.		050251	99	339

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

S 61°05'05" E 1106.44'

P.C. 149+28.69

FLOODPLAIN LIMITS

P.I. = 149+40.01
Δ = 31°50'36" LT.
D = 5°15'00"
T = 311.33'
L = 606.54'
P.C. = 146+28.69
P.T. = 152+35.23
e = 0.093'/'
LS = 350'

STA. 152+00
CONST. APPROACH = 725 CU. YDS.

STA. 153+00
CONST. APPROACH = 645 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
156+58	156+96	RT.	291
157+00	158+00	RT.	112

STA. 155+00 CONSTRUCT
24" x 112' PIPE CULVERT
WITH FES LT. & RT.
Q25= 2.73 CFS. D.A. = 1.22 ACRES
24" R.C. PIPE (CLASS III) (TYPE 3 BEDDING)= 112 LIN. FT.
24" C.M. AND PLASTIC PIPE (TYPE 2 BEDDING)= 118 LIN. FT.

STA. 155+90.93 BRIDGE END
BRIDGE NO. 07353
205'-0" CONTINUOUS COMPOSITE
W-BEAM UNIT (55'-95'-55')
40'-0" CLEAR ROADWAY
207'-1¾" BRIDGE LENGTH
STA. 157+98.07 - BRIDGE END

STA. 156+98 IN PLACE
SIX 36" x 42' C.M.P.
SIDE DRAIN
RETAIN

N MAIN ST.

PROP. R/W

CONST. LIMITS

S 61°05'05" E

P.I. 152+35.23

HWY. 13

N 87°04'49" E 1353.35'

SURVEY BASELINE N 67°31'01" E 4500.00'

SURVEY BASELINE S 81°57'41" E 4642.85'

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
146+00	150+00	RT.	B	13.5	600

STA. 146+55 CONSTRUCT
QUINT. 10' x 5' x 253' R.C. BOX CULVERT
ON 45° LT. FWD SKEW
WITH 3:1 WINGS LT. AND RT.
SPAN = 74.60'
Q25= 1140 CFS., D.A. = 2.5 SQ. MI.

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	TERMINAL ANCHOR POST (TYPE I) EACH
153+62.78	155+81.53	LT.	75	1	1
154+87.78	155+81.53	RT.	200	1	1
158+07.47	160+26.22	LT.	200	1	1
158+07.47	159+01.22	RT.	75	1	1

STA. 151+00 INSTALL
18" x 48' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 155 CU. YDS.

STA. 152+50 INSTALL
18" x 62' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 410 CU. YDS.
UNCLASS. EXCAV. = 90 CU. YDS.

STA. 157+26 IN PLACE
72" x 46' C.M.P.
RT. SIDE DRAIN
REMOVE

STA. 157+26 IN PLACE
36" x 47' STEEL PIPE
RT. SIDE DRAIN
REMOVE

STA. 157+69 IN PLACE
18" x 20' C.M.P.
RT. SIDE DRAIN
REMOVE

REMOVAL OF EXIST. PAVEMENT

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

ROCKY BRANCH:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS A PERRENIAL STREAM. THE STREAM BANK ELEVATIONS ARE 237 FT. MSL. SEE SUBSECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 143+82.80 BEGIN SUPERELEVATION
STA. 147+32.80 MAX. SUPERELEVATION (0.093'/')
STA. 151+47.73 MAX. SUPERELEVATION (0.093'/')
STA. 154+97.73 END SUPERELEVATION

STA. 159+76.65 BEGIN SUPERELEVATION
STA. 162+76.65 MAX. SUPERELEVATION (0.048'/')
STA. 163+51.78 MAX. SUPERELEVATION (0.048'/')
STA. 166+51.78 END SUPERELEVATION

K=147.84
VC=400'
e=1.35'

P.V.T. 146+25.86
ELEV. 256.43

P.V.T. 148+25.86
ELEV. 255.68

-93.38 RT. DT. GR.
RT. ELEV. 253.70

-.55
F.L. INL. 235.70 RT.
F.L. OUT. 228.60 LT.

-.00
F.L. INL. 248.00 RT.
F.L. OUT. 233.37 LT.

-1.13% RT. DT. GR.

-0.38%

0.81% RT. DT. GR.

-.00 RT. DT. GR.
RT. ELEV. 248.00

BEGIN BRIDGE
STA. 155+90.93
ELEV. 252.80

-80.53 RT. DT. GR.
RT. ELEV. 248.65

END BRIDGE
STA. 157+98.07
ELEV. 252.03

-20.00 LT. DT. GR.
LT. ELEV. 247.06

0.41% LT. DT. GR.

P.V.C. 159+10.96
ELEV. 251.60

K=132.84
VC=250'
e=0.59'

290 280 270 260 250 240 230 220 210 200

145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00

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(2) PLAN AND PROFILE SHEETS

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
165+00	168+00	LT.	B	13.5	450

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
169+71	174+12	LT./RT.	448

REMOVAL OF EXIST. PAVEMENT

STA. 169+66 INSTALL
18" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 75 CU. YDS.

STA. 172+90 IN PLACE
18" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 130 CU. YDS.

STA. 173+84 IN PLACE
18" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 170 CU. YDS.

STA. 174+60 IN PLACE
18" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +61
18" x 42' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

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P. I. = 162+77.25
Δ = 9°48'13" LT.
D = 2°00'00"
T = 245.69'
L = 490.19'
P.C. = 160+31.56
P.T. = 165+21.74
e = 0.048'/'
LS = 300'

HWY. 13 - STA. 162+57.28 =
MAIN ST. TIE IN - STA. 108+63.60
Δ = 90°03'09"

P. I. = 172+04.94
Δ = 16°48'12" RT.
D = 2°00'00"
T = 423.12'
L = 840.17'
P.C. = 167+81.82
P.T. = 176+21.98
e = 0.048'/'
LS = 300'

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

STA. 159+76.65 BEGIN SUPERELEVATION
STA. 162.76.65 MAX. SUPERELEVATION (0.048'/')
STA. 163+51.78 MAX. SUPERELEVATION (0.048'/')
STA. 166+51.78 END SUPERELEVATION

STA. 166+51.78 BEGIN SUPERELEVATION
STA. 169+51.78 MAX. SUPERELEVATION (0.048'/')
STA. 175+46.98 MAX. SUPERELEVATION (0.048'/')
STA. 178+46.98 END SUPERELEVATION

P.V.I. 160+35.96
ELEV. 251.13
K=132.84
VC=250'
e=0.59'
P.V.T. 161+60.96
ELEV. 253.01
0.41% LT.DT.GR.
+00.00 LT.DT.GR.
LT. ELEV. 249.85
1.51%
P.V.C. 168+39.00
ELEV. 263.23
+00.00 LT.DT.GR.
LT. ELEV. 261.38
P.V.I. 171+64.00
ELEV. 268.12
K=148.04
VC=650'
e=-3.57'
-1.49% LT.DT.GR.
-2.89%
+00.00 LT.DT.GR.
LT. ELEV. 256.04
P.V.T. 174+89.00
ELEV. 258.74

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(2) PLAN AND PROFILE SHEETS

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No. 11425
TRINITY D. SMITH
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STA. 177+04 IN PLACE
18" x 25' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +05 F
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.

STA. 178+74 IN PLACE
12" x 11' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
175+00	188+00	LT.	B	9	1300

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
178+50	188+00	RT.	C	954

P. I. = 183+14.31
Δ = 0° 42' 02" LT.
D = 0° 30' 00"
T = 70.05'
L = 140.10'
P.C. = 182+44.26
P.T. = 183+84.36
NO SUPER

STA. 183+26
CONSTRUCT APPROACH = 80 CU. YDS.

STA. 185+50 IN PLACE
18" x 30" P.P.C.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 46' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

P. I. = 172+04.94
Δ = 16° 48' 12" RT.
D = 2° 00' 00"
T = 423.12'
L = 840.17'
P.C. = 167+81.82
P.T. = 176+21.98
e = 0.048'/'
LS = 300'

STA. 176+14 IN PLACE
18" x 24' C.M.P.
RT. SIDE DRAIN
REMOVE AND INSTALL @ +37
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 30 CU. YDS.

STA. 177+64 IN PLACE
18" x 11' R.C.P.
RT. SIDE DRAIN
REMOVE

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
178+50	178+50	RT.	47
178+58	181+09	LT./RT.	251
181+18	187+88	LT.	674
187+94	188+00	LT./RT.	62

STA. 182+86 IN PLACE
24" x 36' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE AND CONSTRUCT
36" x 72' PIPE CULVERT
WITH FES LT. & RT.
Q25=32.70 CFS. D.A.=15.17 ACRES
36" R.C. PIPE (CLASS IV) (TYPE 3 BEDDING)= 72 LIN. FT.
36" C.M. AND PLASTIC PIPE (TYPE 2 BEDDING)= 78 LIN. FT.

STA. 183+67 IN PLACE
24" x 34' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE AND CONSTRUCT
36" x 74' PIPE CULVERT
WITH FES LT. & RT.
Q25=47.90 CFS. D.A.=16.22 ACRES
36" R.C. PIPE (CLASS IV) (TYPE 3 BEDDING)= 74 LIN. FT.
36" C.M. AND PLASTIC PIPE (TYPE 2 BEDDING)= 80 LIN. FT.

STA. 188+30
CONSTRUCT APPROACH = 25 CU. YDS.

STA. 189+54
CONSTRUCT APPROACH = 55 CU. YDS.

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

STA. 166+51.78 BEGIN SUPERELEVATION
STA. 169+51.78 MAX. SUPERELEVATION (0.048'/')
STA. 175+46.98 MAX. SUPERELEVATION (0.048'/')
STA. 178+46.98 END SUPERELEVATION

UNNAMED TRIBUTARY:
THIS STREAM IS CLASSIFIED AS EPHEMERAL.
THE TOP OF CHANNEL ELEVATION IS 239 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE
2014 STANDARD SPECIFICATIONS.

-2.88%
-2.07% RT. DT. GR.
-3.19% LT. DT. GR.
-2.45% LT. DT. GR.
3.80% LT. DT. GR.
3.61%

P.V.C. 178+69.81
ELEV. 247.76

P.V.I. 182+44.81
ELEV. 236.94

K=115.46
VC=750'
e=6.09'

F.L. INL. 237.28 LT.
F.L. OUT. 237.02 RT.

F.L. INL. 238.17 LT.
F.L. OUT. 236.54 RT.

P.V.T. 186+19.81
ELEV. 250.48

P.V.C. 187+12.70
ELEV. 253.84

K=135.81
VC=900'
e=7.46'

-00.00 RT. DT. GR. RT. ELEV. 252.70
-00.00 LT. DT. GR. LT. ELEV. 256.04
-00.00 RT. DT. GR. RT. ELEV. 248.57
-00.00 LT. DT. GR. LT. ELEV. 243.28
-86.00 LT. DT. GR. LT. ELEV. 239.39
-86.00 LT. DT. GR. LT. ELEV. 237.28
-67.00 LT. DT. GR. LT. ELEV. 238.17
-00.00 LT. DT. GR. LT. ELEV. 243.22

175+00 176+00 177+00 178+00 179+00 180+00 181+00 182+00 183+00 184+00 185+00 186+00 187+00 188+00 189+00 190+00

220 230 240 250 260 270 280 290 300 310

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				6	ARK.			
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(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
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TRINITY D. SMITH
No. 11425
11-2-15

STA. 190+80 IN PLACE
18" x 30' P.P.C.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 110 CU. YDS.
UNCLASS. EXCAV. = 65 CU. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
196+00	205+00	LT.	B	9	900

STA. 193+78 IN PLACE
12" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.
UNCLASS. EXCAV. = 15 CU. YDS.

STA. 196+10 IN PLACE
15" x 25' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 65 CU. YDS.
UNCLASS. EXCAV. = 10 CU. YDS.

STA. 196+90 IN PLACE
18" x 25' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

STA. 198+56 IN PLACE
18" x 30' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 160 CU. YDS.

REMOVAL OF EXIST. PAVEMENT

STA. 201+20 IN PLACE
24" x 22' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL ℄+42
24" x 38' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 110 CU. YDS.

P.I. = 200+51.37
Δ = 14°39'11" LT.
D = 2°15'00"
T = 327.41'
L = 651.25'
P.C. = 197+23.96
P.T. = 203+75.21
e = 0.053'/'
LS = 300'

STA. 202+16 IN PLACE
24" x 23' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL ℄+35
24" x 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 105 CU. YDS.

EXIST. R/W
CONST. LIMITS
S 86°37'44" E
HWY. 13
N 78°43'05" E
BUILDING FOUNDATION
P.C. 197+23.96
P.I. 203+75.21
P.I. 200+51.37
T.C.E.
PROP. R/W

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
199+52	202+19	RT.	461
204+83	205+03	RT.	42

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

STA. 194+98.96 BEGIN SUPERELEVATION
STA. 197+98.96 MAX. SUPERELEVATION (0.053'/')
STA. 203+00.21 MAX. SUPERELEVATION (0.053'/')
STA. 206+00.21 END SUPERELEVATION

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
199+46	202+10	RT.	CHAIN	210

STA. 201+28
CONSTRUCT APPROACH = 1010 CU. YDS.

STA. 204+70 IN PLACE
24" x 46' C.M. PIPE CULVERT
REMOVE AND CONSTRUCT
42" x 78' PIPE CULVERT
WITH FES LT. & RT.
Q25=47.90 CFS. D.A.=22.22 ACRES
42" R.C. PIPE (CLASS IV) (TYPE 3 BEDDING)= 78 LIN. FT.
42" C.M. AND PLASTIC PIPE (TYPE 2 BEDDING)= 84 LIN. FT.

P.V.I. 191+62.70
ELEV. 270.09
K=135.81
VC=900'
e=-7.46'
-00.00 LT.DT.GR.
LT. ELEV. 251.33
P.V.T. 196+42.70
ELEV. 256.52
-3.57% LT.DT.GR.
-3.02%
-00.00 LT.DT.GR.
LT. ELEV. 246.19
P.V.C. 199+57.35
ELEV. 246.12
-2.92% LT.DT.GR.
K=548.31
VC=1275'
e=3.71'
-00.00 LT.DT.GR.
LT. ELEV. 234.50
-2.87% LT.DT.GR.
-70.00 LT.DT.GR.
LT. ELEV. 226.74
-70
F.L. INL. 226.74 LT.
F.L. OUT. 224.24 RT.

290 280 270 260 250 240 230 220 210 200

190+00 191+00 192+00 193+00 194+00 195+00 196+00 197+00 198+00 199+00 200+00 201+00 202+00 203+00 204+00 205+00

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				6	ARK.			
				JOB NO.		050251	103	339

(2) PLAN AND PROFILE SHEETS

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
205+34	206+63	RT.	130
209+67	211+52	RT.	185
211+86	217+75	RT.	887

STA. 208+58 IN PLACE
24' x 26' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
24' x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 35 CU. YDS.

STA. 212+82 IN PLACE
24' x 61' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
24' x 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

STA. 215+32
CONSTRUCT APPROACH = 155 CU. YDS.

STA. 217+37 INSTALL
18' x 46' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 165 CU. YDS.
UNCLASS. EXCAV. = 10 CU. YDS.

STA. 218+16
CONSTRUCT APPROACH = 65 CU. YDS.
UNCLASS. EXCAV. = 10 CU. YDS.

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P.I. = 216+65.28
Δ = 18°01'10" LT.
D = 3°00'00"
T = 302.82'
L = 600.65'
P.C. = 213+62.45
P.T. = 219+63.10
e = 0.067'/'
LS = 300'

HWY. 13 STA. 218+26.73 =
DAVIS RD. STA. 104+59.95
Δ = 84°39'37"

STA. 205+26
CONSTRUCT APPROACH = 75 C.Y.

STA. 211+72 IN PLACE
24' x 74' R.C.P.
RT. SIDE DRAIN
REMOVE AND INSTALL
24' x 44' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 135 CU. YDS.

STA. 214+03 IN PLACE
36' x 29' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE AND CONSTRUCT
51' x 31' x 84' ARCH PIPE
WITH FES LT. & RT.
Q25=37.30 CFS. D.A.=17.32 ACRES
51' x 31' R.C. PIPE (CLASS IV) (TYPE 3 BEDDING)= 84 LIN. FT.
49' x 33' C.M. PIPE (TYPE 2 BEDDING)= 88 LIN. FT.

STA. 217+90 IN PLACE
18' x 37' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE AND CONSTRUCT
51' x 31' x 78' ARCH PIPE
WITH FES LT. & RT.
Q25= 23.1 CFS. D.A. = 10.7 ACRES
51' x 31' R.C. PIPE (CLASS IV) (TYPE 3 BEDDING)= 78 LIN. FT.
49' x 33' C.M. PIPE (TYPE 2 BEDDING)= 82 LIN. FT.

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

STA. 194+98.96 BEGIN SUPERELEVATION
STA. 197+98.96 MAX. SUPERELEVATION (0.053'/')
STA. 203+00.21 MAX. SUPERELEVATION (0.053'/')
STA. 206+00.21 END SUPERELEVATION

STA. 211+37.45 BEGIN SUPERELEVATION
STA. 214+37.45 MAX. SUPERELEVATION (0.067'/')
STA. 217+35.53 MAX. SUPERELEVATION (0.067'/')
STA. 220+35.53 END SUPERELEVATION

K=548.31
VC=1275'
e=3.71'

P.V.I. 205+94.85
ELEV. 226.90
-00.00 LT.DT.GR.
LT. ELEV. 225.80
-60.00 RT.DT.GR.
RT. ELEV. 223.10
-00.00 LT.DT.GR.
LT. ELEV. 225.19
-0.40% LT.DT.GR.
-1.22% RT.DT.GR.

P.V.T. 212+32.35
ELEV. 222.49

-03
F.L. INL. 214.81 LT.
F.L. OUT. 214.00 RT.
-03.00 LT.DT.GR.
LT. ELEV. 214.81
-03.00 RT.DT.GR.
RT. ELEV. 214.00
0.15% LT.DT.GR.
-0.26% RT.DT.GR.
-32.00 LT.DT.GR.
LT. ELEV. 215.00
-0.69%
-0.76% LT.DT.GR.
-90
F.L. INL. 213.05 LT.
F.L. OUT. 213.00 RT.
-90.00 LT.DT.GR.
LT. ELEV. 213.05
-90.00 RT.DT.GR.
RT. ELEV. 213.00
-60.00 RT.DT.GR.
RT. ELEV. 215.91
-00.00 LT.DT.GR.
LT. ELEV. 214.32
-2.08% RT.DT.GR.
-1.29% LT.DT.GR.

205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00 220+00
280 270 260 250 240 230 220 210 200 190

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STA. 221+78 INSTALL
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 100 CU. YDS.

STA. 223+56
CONSTRUCT APPROACH = 160 CU. YDS.

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
228+00	229+00	LT.	B	9	100

P. I. = 233+86.04
Δ = 24°46'56" LT.
D = 4°00'00"
T = 314.70'
L = 619.56'
P.C. = 230+71.34
P.T. = 236+90.90
e = 0.083'/'
LS = 300'

STA. 234+98 INSTALL
18" x 52' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 90 CU. YDS.

P. I. = 224+05.20
Δ = 31°00'45" RT.
D = 5°15'00"
T = 302.79'
L = 590.72'
P.C. = 221+02.41
P.T. = 226+93.13
e = 0.093'/'
LS = 350'

STA. 223+70 IN PLACE
18" x 63' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 58'
RT. SIDE DRAIN
CONSTRUCT APPROACH = 115 CU. YDS.

STA. 221+10 IN PLACE
18" x 42' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE AND CONSTRUCT
30" x 74' PIPE CULVERT
WITH FES LT. & RT.
Q25=19.90 CFS. D.A.=9.22 ACRES
30" R/C. PIPE (CLASS IV) (TYPE 3 BEDDING) = 74 LIN. FT.
30" C.M. AND PLASTIC PIPE (TYPE 2 BEDDING) = 78 LIN. FT.

STA. 229+70
CONSTRUCT APPROACH = 40 CU. YDS.

STA. 233+00 INSTALL
18" x 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

STA. 234+20
CONSTRUCT APPROACH = 115 CU. YDS.

STA. 234+88
CONSTRUCT APPROACH = 105 CU. YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
232+94	233+76	RT.	85

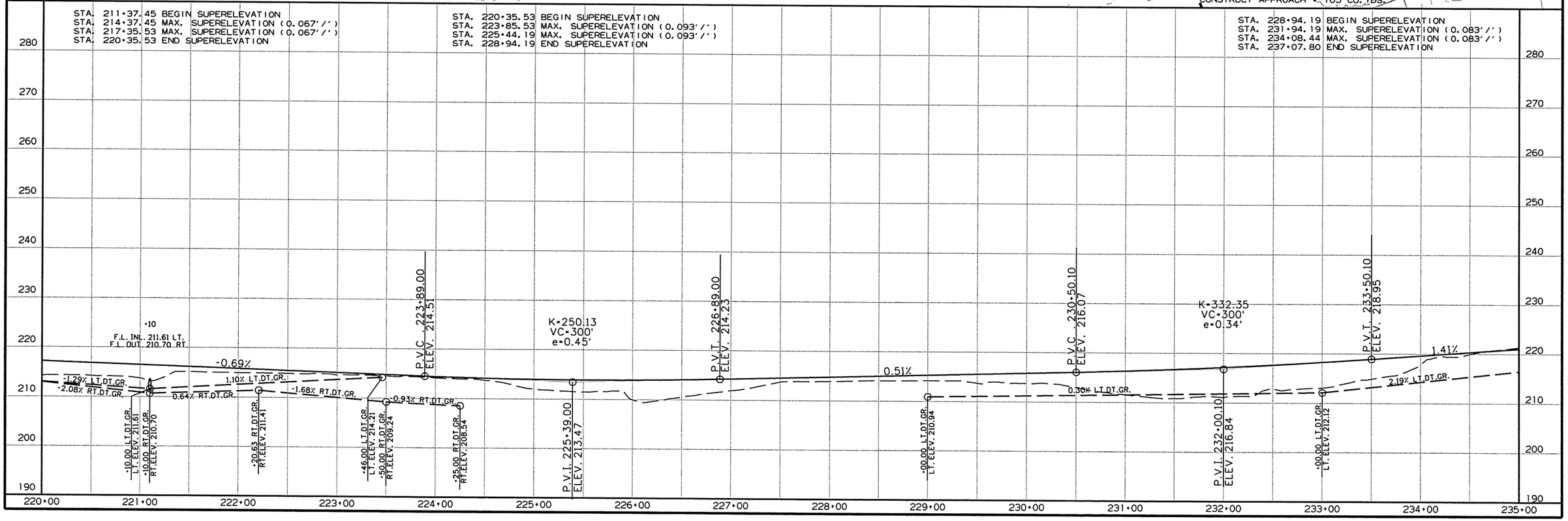
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

REMOVAL OF EXIST. PAVEMENT

STA. 211+37.45 BEGIN SUPERELEVATION
STA. 214+37.45 MAX. SUPERELEVATION (0.067'/')
STA. 217+35.53 MAX. SUPERELEVATION (0.067'/')
STA. 220+35.53 END SUPERELEVATION

STA. 220+35.53 BEGIN SUPERELEVATION
STA. 223+85.53 MAX. SUPERELEVATION (0.093'/')
STA. 225+44.19 MAX. SUPERELEVATION (0.093'/')
STA. 228+94.19 END SUPERELEVATION

STA. 228+94.19 BEGIN SUPERELEVATION
STA. 231+94.19 MAX. SUPERELEVATION (0.083'/')
STA. 234+08.44 MAX. SUPERELEVATION (0.083'/')
STA. 237+07.80 END SUPERELEVATION



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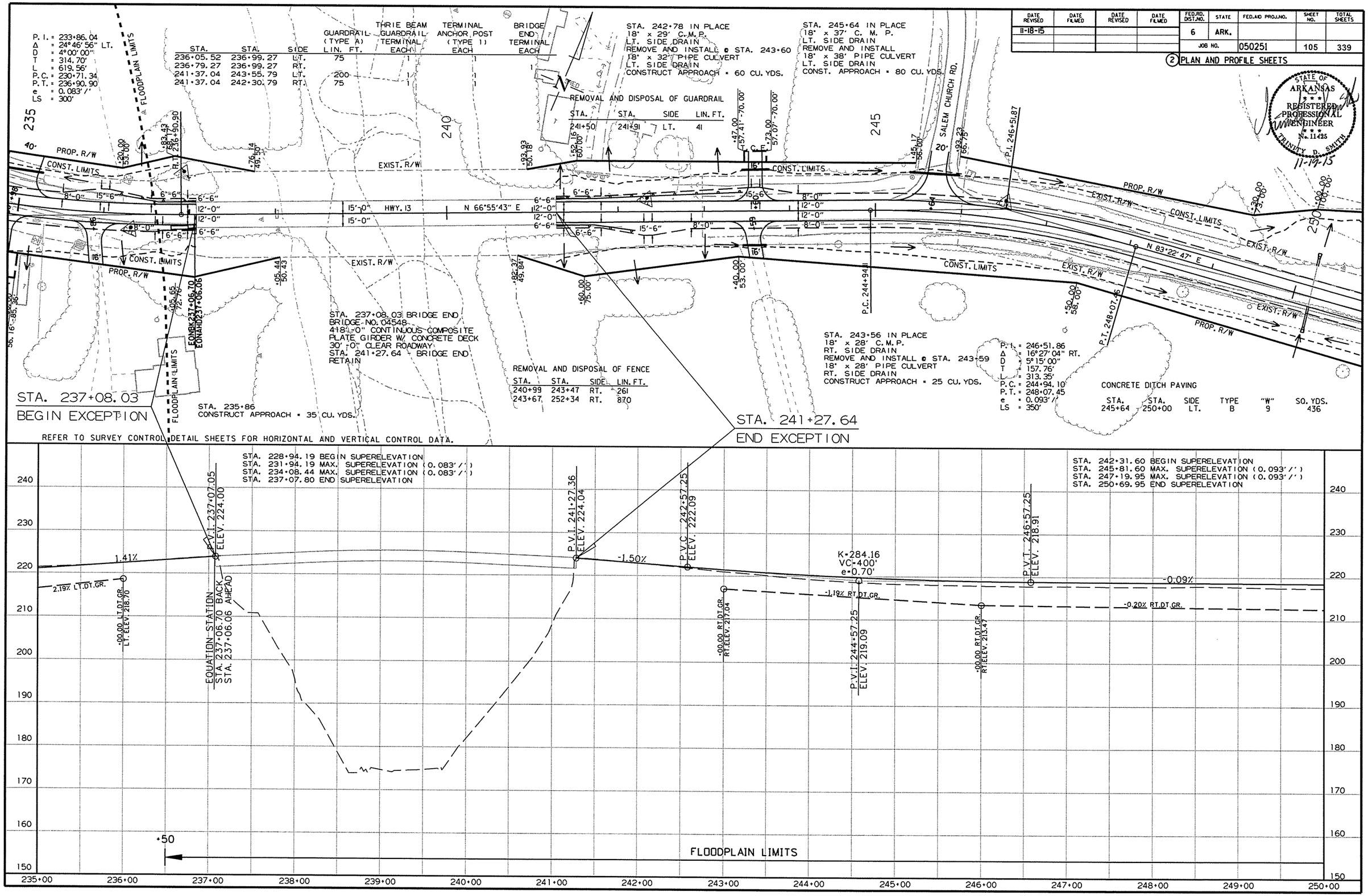
(2) PLAN AND PROFILE SHEETS



STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 11-19-15

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REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
252+34	261+60	LT./RT.	979
261+61	262+81	LT./RT.	268
263+67	285+59	LT./RT.	2202

CONCRETE DITCH PAVING

STA.	SIDE	TYPE	"W"	SQ. YDS.
250+20	LT.	B	13.5	50

STA. 257+64
CONSTRUCT APPROACH = 20 CU. YDS.

P.I. = 260+55.27
Δ = 1°47'18" RT.
D = 0°30'00"
T = 178.84'
L = 357.65'
P.C. = 258+76.43
P.T. = 262+34.07
NO SUPER

STA. 250+20 IN PLACE
24" x 48' C.M. PIPE CULVERT
CROSS DRAIN
RETAIN AND EXTEND
9' LT. & 25' RT.
TO A COMPLETED LENGTH OF 82'
WITH FES LT. & RT.
Q25=11.80 CFS. D.A.=3.9 ACRES
24" C.M. PIPE (TYPE 2 BEDDING)= 42 LIN. FT.

STA. 255+35 IN PLACE
18" x 45' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE AND INSTALL
36" x 23" x 74' ARCH PIPE
WITH FES LT. & RT.
Q25=7.31 CFS. D.A.=3.39 ACRES
36" x 23" R.C. PIPE (CLASS IV) (TYPE 3 BEDDING)= 74 LIN. FT.
35" x 24" C.M. AND PLASTIC PIPE (TYPE 2 BEDDING)= 80 LIN. FT.

STA. 258+00 TO STA. 260+98
CONSTRUCT RETAINING WALL.
SEE SPECIAL DETAILS FOR
ADDITIONAL INFORMATION.

STA. 263+34
CONSTRUCT APPROACH = 25 CU. YDS.

REMOVAL OF EXIST. PAVEMENT

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

STA. 242+31.60 BEGIN SUPERELEVATION
STA. 245+81.60 MAX. SUPERELEVATION (0.093'/')
STA. 247+19.95 MAX. SUPERELEVATION (0.093'/')
STA. 250+69.95 END SUPERELEVATION

FLOODPLAIN LIMITS

F.L. INL. 212.61 RT.
F.L. OUT. 210.44 LT.

-0.09%
-0.20% RT.DT.GR.
0.27% RT.DT.GR.
0.33% LT.DT.GR.

-19.73 RT.DT.GR. RT.ELEV. 212.61
-20.00 LT.DT.GR. LT. ELEV. 210.44
-00.00 RT.DT.GR. RT.ELEV. 213.90
-35.00 LT.DT.GR. LT. ELEV. 212.15

F.L. INL. 213.86 RT.
F.L. OUT. 212.15 LT.

P.V.C. 255+46.30
ELEV. 218.09

K=147.62
VC=400'
e=1.35'

P.V.I. 257+46.30
ELEV. 217.91

P.V.T. 259+46.30
ELEV. 223.14

2.62%

P.V.C. 260+35.45
ELEV. 225.48

P.V.I. 263+10.45
ELEV. 232.67

K=114.62
VC=550'
e=-3.30'

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REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
275+32	281+37	LT.	611

STA. 271+94 IN PLACE
24" x 31' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
24" x 60' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 335 CU. YDS.

STA. 274+03 IN PLACE
18" x 32' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL @275+00
18" x 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 155 CU. YDS.
UNCLASS. EXCAV. = 615 CU. YDS.

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	GATE EACH
275+98	281+37	LT.	C	545	
SHED 273+71	286+34	RT.	D-1	1270	1

STA. 271+09 IN PLACE
24" x 31' STEEL PIPE CULVERT
CROSS DRAIN
REMOVE AND CONSTRUCT
36" x 74' PIPE CULVERT
WITH FES LT. & RT.
Q25=33.40 CFS. D.A.=15.47 ACRES
36" R.C. PIPE (CLASS IV) (TYPE 3 BEDDING)= 74 LIN. FT.
36" C.M. AND PLASTIC PIPE (TYPE 2 BEDDING)= 80 LIN. FT.

P.I. = 272+83.86
Δ = 10°55'26" RT.
D = 3°30'00"
T = 156.53'
L = 312.11'
P.C. = 271+27.33
P.T. = 274+39.44
e = 0.076'/'
Ls = 300'

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
271+00	271+09	RT.	B	13.5	13.5

REMOVAL OF EXIST. PAVEMENT

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

STA. 269+02.33 BEGIN SUPERELEVATION
STA. 272+02.33 MAX. SUPERELEVATION (0.076'/')
STA. 273+64.44 MAX. SUPERELEVATION (0.076'/')
STA. 276+64.44 END SUPERELEVATION

STA. 279+30.49 BEGIN SUPERELEVATION
STA. 282+30.49 MAX. SUPERELEVATION (0.026'/')
STA. 285+14.70 MAX. SUPERELEVATION (0.026'/')
STA. 288+14.70 END SUPERELEVATION

K=114.62
VC=550'
e=-3.30'
-2.18%
P.V.C. 266+58.80
ELEV. 225.08
P.V.T. 265+85.45
ELEV. 226.68
K=131.73
VC=400'
e=1.52'
P.V.I. 268+58.80
ELEV. 220.72
-0.61% LT.DT.GR.
-00.00 LT.DT.GR.
LT. ELEV. 218.47
P.V.T. 270+58.80
ELEV. 222.43
+09
F.L. INL. 217.19 LT.
F.L. OUT. 216.12 RT.
-09.00 LT.DT.GR.
LT. ELEV. 217.19
0.86%
2.00% LT.DT.GR.
P.V.C. 273+27.08
ELEV. 224.72
P.V.I. 274+27.08
ELEV. 225.58
-00.00 LT.DT.GR.
LT. ELEV. 223.00
K=619.39
VC=200'
e=-0.08'
P.V.T. 275+27.08
ELEV. 226.11
0.6% LT.DT.GR.
0.53%
-00.00 LT.DT.GR.
LT. ELEV. 223.47

265+00 266+00 267+00 268+00 269+00 270+00 271+00 272+00 273+00 274+00 275+00 276+00 277+00 278+00 279+00 280+00

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REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
285+84	286+34	RT.	63
288+50	290+03	LT.	132
293+40	293+65	LT.	31

STA. 283+57 IN PLACE
12' x 21' P.P.C.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +66
18" x 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 65 CU. YDS.
UNCLASS. EXCAV. = 5 CU. YDS.

STA. 285+33 IN PLACE
18" x 20' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +28
18" x 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

STA. 289+82 IN PLACE
18" x 19' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YDS.

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
285+84	286+34	RT.	D-1	53

STA. 293+46
CONSTRUCT APPROACH ON LT. = 90 CU. YDS.

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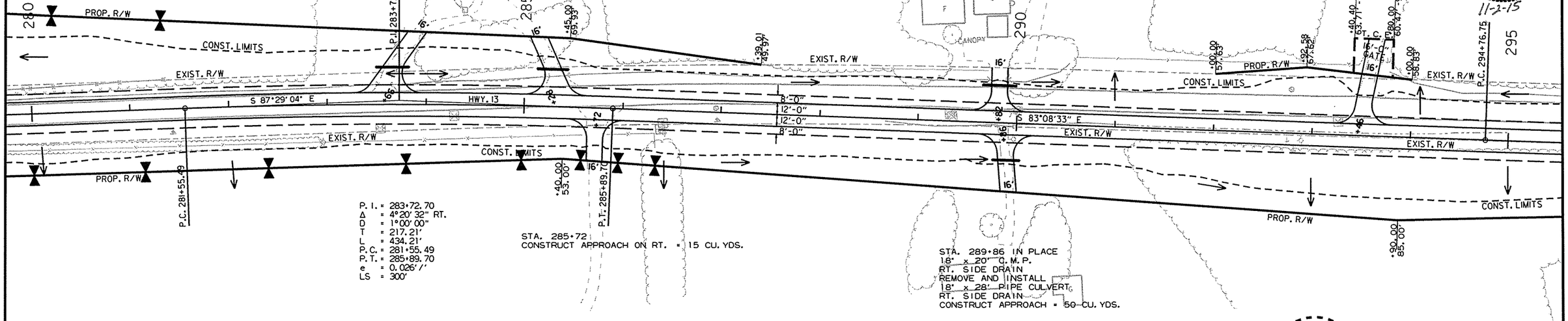


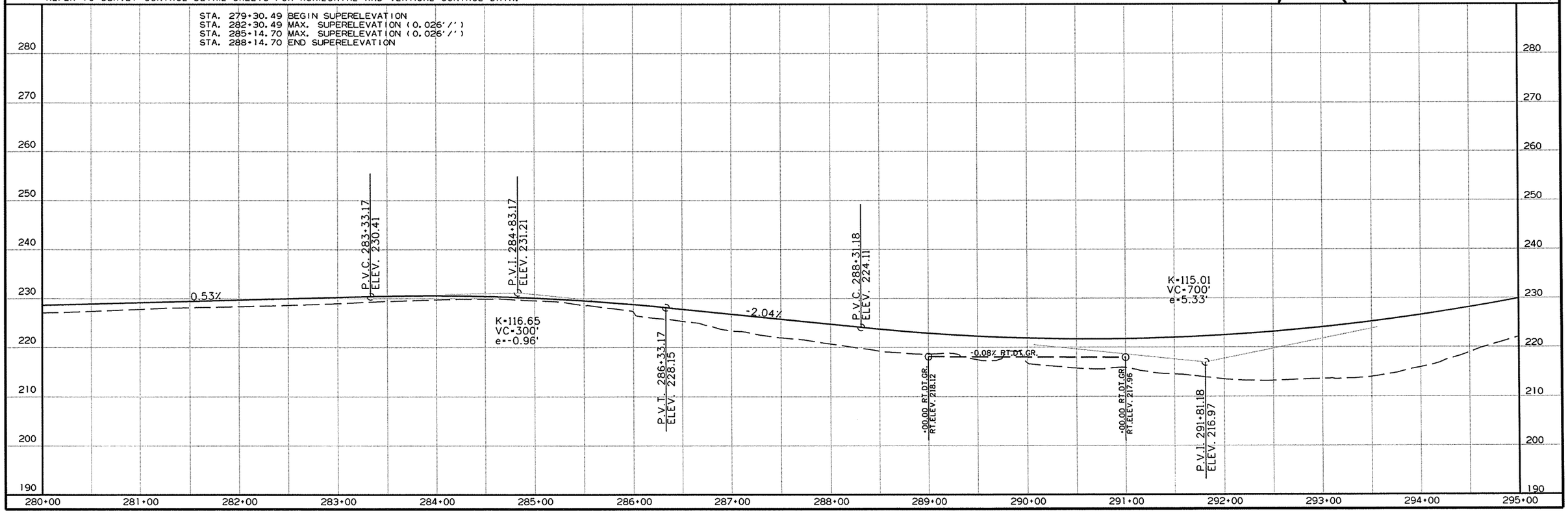
P. I. = 283+72.70
Δ = 4°20'32" RT.
D = 1°00'00"
T = 217.21'
L = 434.21'
P.C. = 281+55.49
P.T. = 285+89.70
e = 0.026'/'
LS = 300'

STA. 285+72
CONSTRUCT APPROACH ON RT. = 15 CU. YDS.

STA. 289+86 IN PLACE
16" x 20' C.M.P.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YDS.

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

STA. 279+30.49 BEGIN SUPERELEVATION
STA. 282+30.49 MAX. SUPERELEVATION (0.026'/')
STA. 285+14.70 MAX. SUPERELEVATION (0.026'/')
STA. 288+14.70 END SUPERELEVATION



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(2) PLAN SHEETS

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REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
307+37	307+93	RT.	56
307+60	307+87	LT.	27
309+76	310+03	RT.	34

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
307+37	307+63	RT.	D	53
307+60	307+87	LT.	D	27

CONCRETE DITCH PAVING

STA.	STA.	SIDE	TYPE	"W"	SQ. YDS.
295+00	297+00	LT.	B	13.5	300

STA. 299+03 IN PLACE
18" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YDS.

STA. 301+38 IN PLACE
12" x 19' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +36
18" x 40' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 120 CU. YDS.

STA. 304+04 IN PLACE
18" x 30' C.M.P.
REMOVE AND INSTALL @ +42
18" x 44' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 95 CU. YDS.
UNCLASS. EXCAV. = 20 CU. YDS.

STA. 306+46 IN PLACE
18" x 20' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 80 CU. YDS.

STA. 306+98 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 18" x 149' PIPE OUTLET
CONNECT TO D. I. @ 308+50 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

STA. 307+34 IN PLACE
18" x 26' C.M.P.
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH = 5 CU. YDS.

STA. 308+50 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 18" x 38' PIPE OUTLET (CLASS IV)
CONNECT TO D. I. @ 308+73 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-2"

STA. 309+70 CONSTRUCT
D. I. ON LT. WITH 4' EXTENSION
& OPENING IN BACK
& 18" x 116' PIPE OUTLET
CONNECT TO D. I. @ 308+50 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-11"

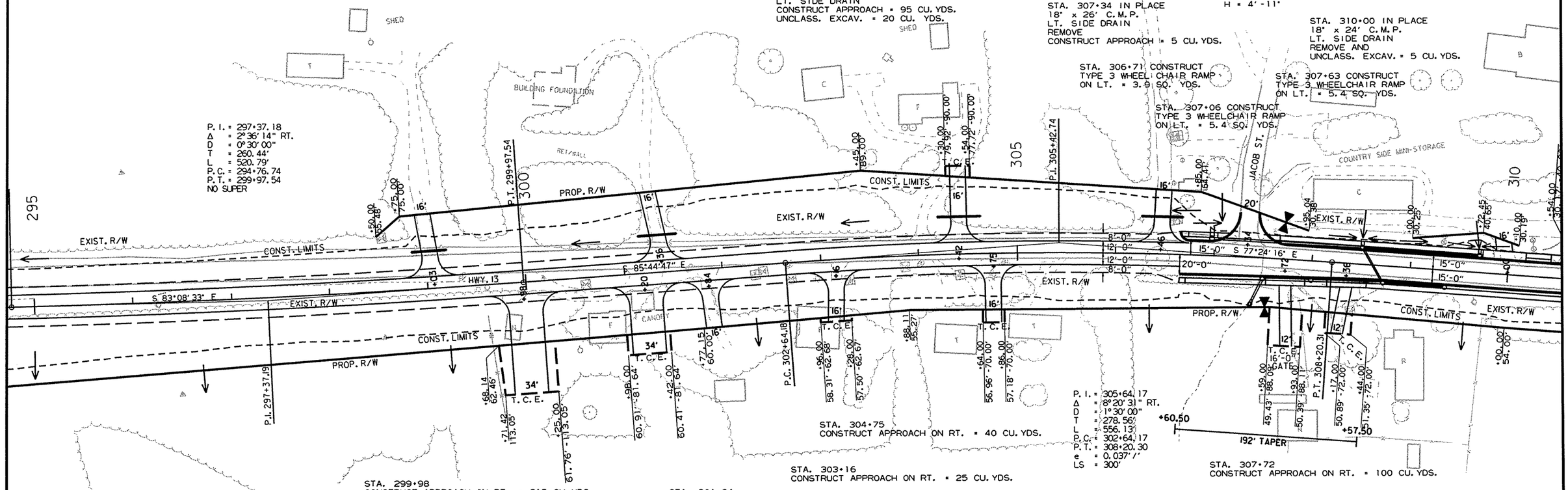
STA. 310+00 IN PLACE
18" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE AND
UNCLASS. EXCAV. = 5 CU. YDS.

STA. 306+71 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP
ON LT. = 3.9 SQ. YDS.

STA. 307+63 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON LT. = 5.4 SQ. YDS.

STA. 307+06 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON LT. = 5.4 SQ. YDS.

P. I. = 297+37.18
Δ = 2°36'14" RT.
D = 0°30'00"
T = 260.44'
L = 520.79'
P. C. = 294+76.74
P. T. = 299+97.54
NO SUPER



STA. 299+98
CONSTRUCT APPROACH ON RT. = 215 CU. YDS.

STA. 301+20
CONSTRUCT APPROACH ON RT. = 45 CU. YDS.

STA. 301+84
CONSTRUCT APPROACH ON RT. = 25 CU. YDS.

STA. 303+16
CONSTRUCT APPROACH ON RT. = 25 CU. YDS.

STA. 304+75
CONSTRUCT APPROACH ON RT. = 40 CU. YDS.

STA. 307+50 IN PLACE
18" x 30' STEEL PIPE CULVERT
CROSS DRAIN
FILL AND ABANDON

STA. 307+72
CONSTRUCT APPROACH ON RT. = 100 CU. YDS.

STA. 308+36
CONSTRUCT APPROACH ON RT. = 55 CU. YDS.

STA. 306+69 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON RT. = 3.3 SQ. YDS.

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

STA. 307+50 CONSTRUCT
D. I. ON RT.
& 24" x 24' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 4'
TY MO = 4' I.D.
H = 6'-6"

STA. 308+00 CONSTRUCT
D. I. ON RT.
& 24" x 46' PIPE OUTLET
CONNECT TO D. I. @ 307+50 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-6"

STA. 308+73 CONSTRUCT
D. I. ON RT. WITH 8' EXTENSION
& 24" x 69' PIPE OUTLET
CONNECT TO D. I. @ 308+00 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

STA. 309+36 CONSTRUCT
D. I. ON RT. WITH 4' EXTENSION
& 18" x 59' PIPE OUTLET
CONNECT TO D. I. @ 308+73 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-10"

10/30/2015

R050251.DGN

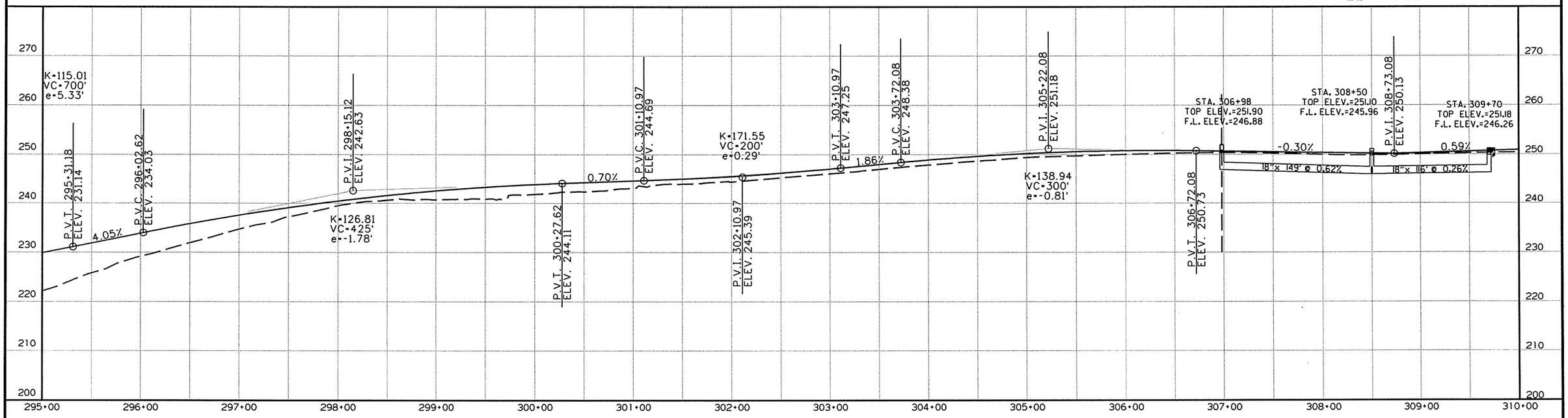
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	110	339

(2) PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

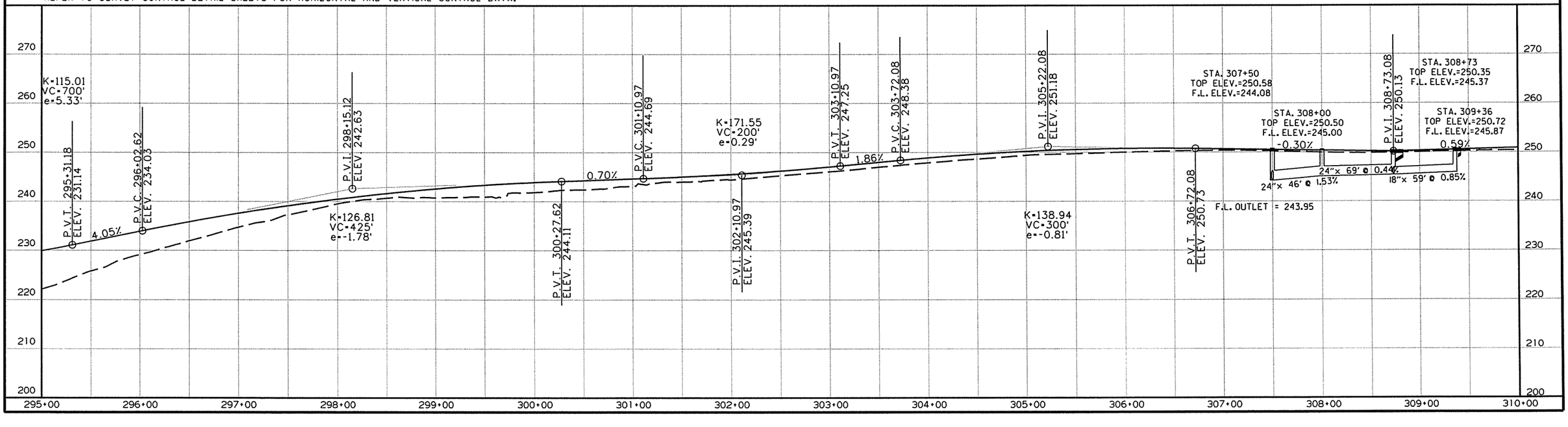
STA. 300+39.17 BEGIN SUPERELEVATION
STA. 303+39.17 MAX. SUPERELEVATION (0.037'/')
STA. 307+45.30 MAX. SUPERELEVATION (0.037'/')
STA. 310+45.30 END SUPERELEVATION

LEFT SIDE OF HWY. 13



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

RIGHT SIDE OF HWY. 13



10/30/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	111	339

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

STA. 311+19 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK AND 4' EXTENSION
& 18" x 102' PIPE OUTLET
CONNECT TO D. I. @ 312+25 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

STA. 312+25 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK AND 8' EXTENSION
& 18" x 71' PIPE OUTLET
CONNECT TO D. I. @ 313+00 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

STA. 313+00 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 18" x 31' PIPE OUTLET
CONNECT TO D. I. @ 313+00 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 6'-0"

STA. 313+54 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 18" x 62' PIPE OUTLET
CONNECT TO D. I. @ 314+20 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 2'-9"

STA. 314+20 CONSTRUCT
D. I. ON LT.
& 18" x 31' PIPE OUTLET (CLASS IV)
CONNECT TO D. I. @ 314+20 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-0"

STA. 314+19 IN PLACE
18" x 30' STEEL PIPE CULVERT
CROSS DRAIN
REMOVE

STA. 315+90 IN PLACE
18" x 25' C.M.P.
LT. SIDE DRAIN
REMOVE AND CONSTRUCT APPROACH
UNCLASS. EXCAV. = 25 CU. YDS.

STA. 318+72 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 18" x 196' PIPE OUTLET
CONNECT TO D. I. @ 320+72 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-9"

STA. 317+16 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK AND 4' EXTENSION
& 18" x 152' PIPE OUTLET
CONNECT TO D. I. @ 318+72 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-0"

STA. 320+72 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 24" x 224' PIPE OUTLET
CONNECT TO D. I. @ 323+00 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 6'-0"

STA. 323+00 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 24" x 226' PIPE OUTLET
CONNECT TO D. I. @ 325+30 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

STA. 310+62 IN PLACE
18" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE AND
UNCLASS. EXCAV. = 5 CU. YDS.

STA. 311+74 IN PLACE
18" x 40' P.P.C.
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH

STA. 313+86 IN PLACE
18" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE AND
UNCLASS. EXCAV. = 10 CU. YDS.

STA. 315+06 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 18" x 82' PIPE OUTLET
CONNECT TO D. I. @ 314+20 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 2'-9"

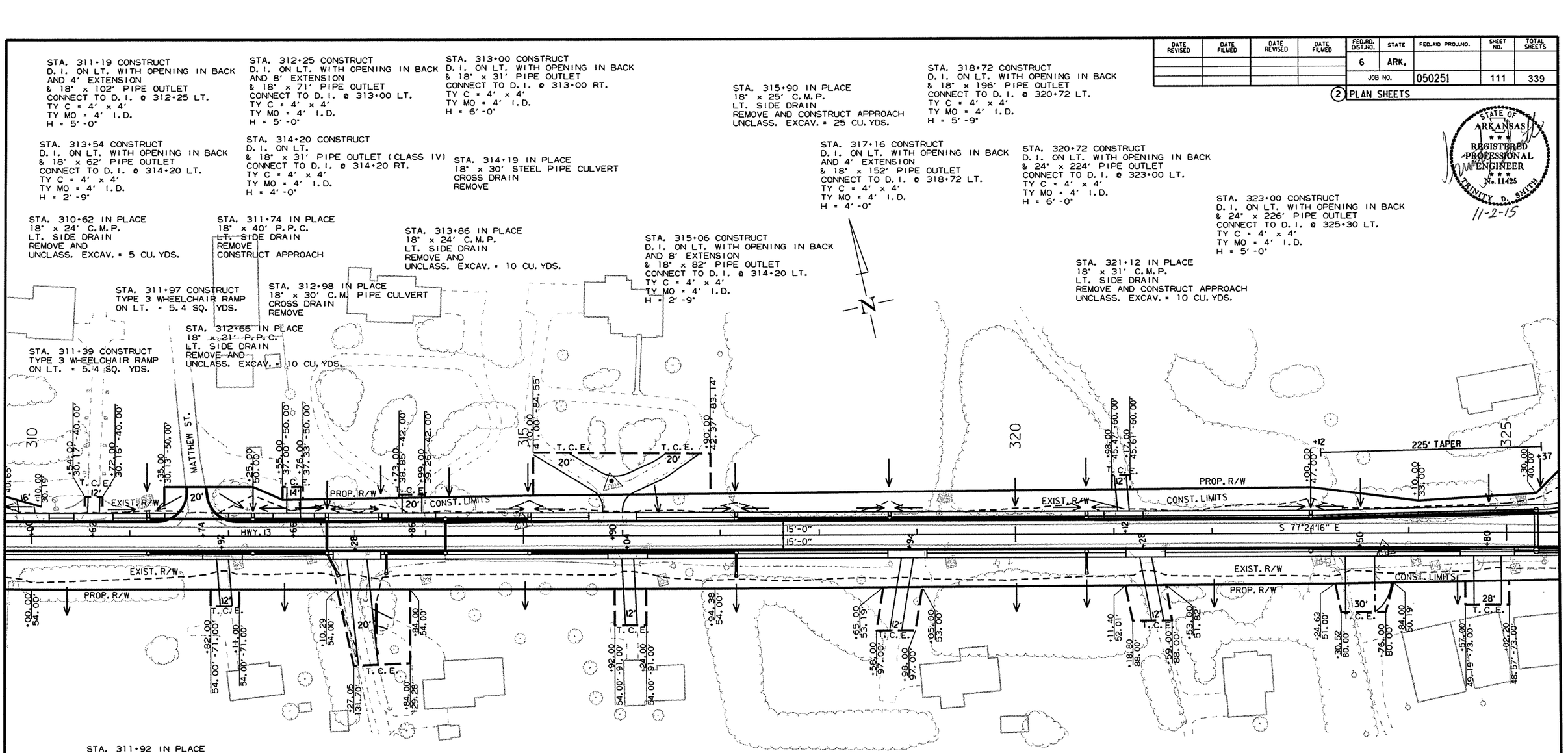
STA. 321+12 IN PLACE
18" x 31' C.M.P.
LT. SIDE DRAIN
REMOVE AND CONSTRUCT APPROACH
UNCLASS. EXCAV. = 10 CU. YDS.

STA. 311+97 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON LT. = 5.4 SQ. YDS.

STA. 312+98 IN PLACE
18" x 30' C.M.P.
CROSS DRAIN
REMOVE

STA. 312+66 IN PLACE
18" x 21' P.P.C.
LT. SIDE DRAIN
REMOVE AND
UNCLASS. EXCAV. = 10 CU. YDS.

STA. 311+39 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON LT. = 5.4 SQ. YDS.



STA. 311+92 IN PLACE
10" x 17' C.M.P.
RT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 45 CU. YDS.

STA. 313+28
CONSTRUCT APPROACH = 280 CU. YDS.

STA. 316+04 IN PLACE
18" x 25' C.M.P.
RT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 85 CU. YDS.

STA. 318+94
CONSTRUCT APPROACH = 150 CU. YDS.

STA. 321+28
CONSTRUCT APPROACH = 100 CU. YDS.

STA. 324+80 IN PLACE
18" x 33' C.M.P.
RT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 95 CU. YDS.

STA. 311+19 CONSTRUCT
D. I. ON RT.
& 18" x 102' PIPE OUTLET
CONNECT TO D. I. @ 312+25 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

STA. 313+00 CONSTRUCT
D. I. ON RT.
& 18" x 18' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 4'
TY MO = 4' I.D.
H = 6'-3"

STA. 314+20 CONSTRUCT
D. I. ON RT.
& 18" x 56' PIPE OUTLET
CONNECT TO D. I. @ 313+60 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-8"

STA. 317+16 CONSTRUCT
D. I. ON RT.
& 18" x 17' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 4'
TY MO = 4' I.D.
H = 6'-6"

STA. 323+50 IN PLACE
18" x 40' C.M.P.
RT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 140 CU. YDS.

STA. 312+25 CONSTRUCT
D. I. ON RT.
& 18" x 71' PIPE OUTLET
CONNECT TO D. I. @ 313+00 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

STA. 313+60 CONSTRUCT
D. I. ON RT.
& 18" x 14' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-7"

STA. 313+42 IN PLACE
18" x 30' C.M.P.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 30' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 5 CU. YDS.

STA. 315+06 CONSTRUCT
D. I. ON RT. WITH 4' EXTENSION
& 18" x 206' PIPE OUTLET
CONNECT TO D. I. @ 317+16 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

STA. 320+72 CONSTRUCT
D. I. ON RT.
& 18" x 15' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 4'
TY MO = 4' I.D.
H = 6'-3"

STA. 323+00 CONSTRUCT
D. I. ON RT.
& 18" x 226' PIPE OUTLET
CONNECT TO D. I. @ 325+30 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 5'-0"

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

10/30/2015

R050251.DGN

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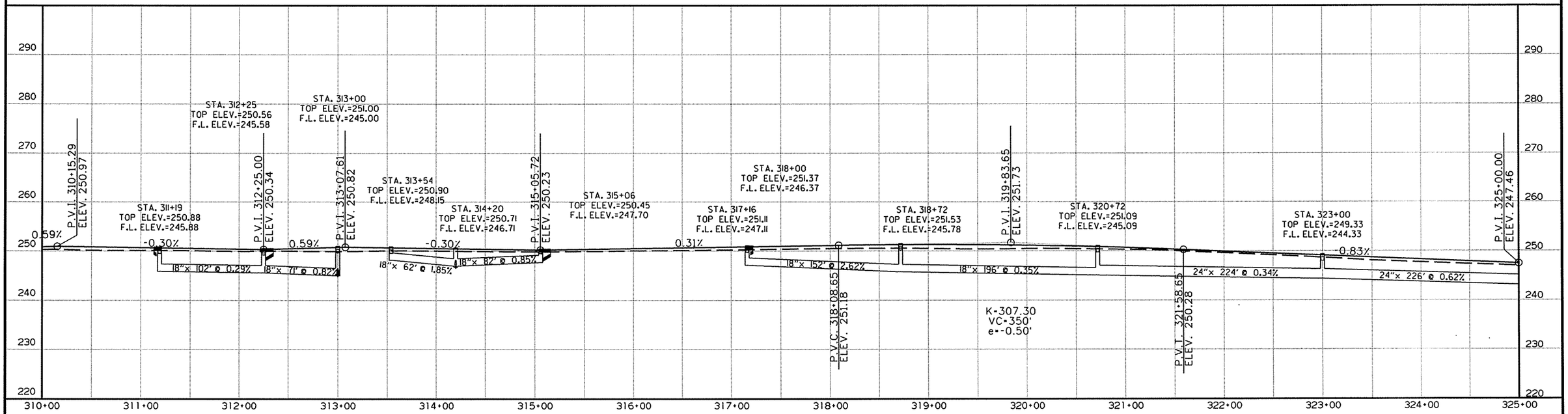
				6	ARK.			
				JOB NO.		050251	112	339

(2) PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

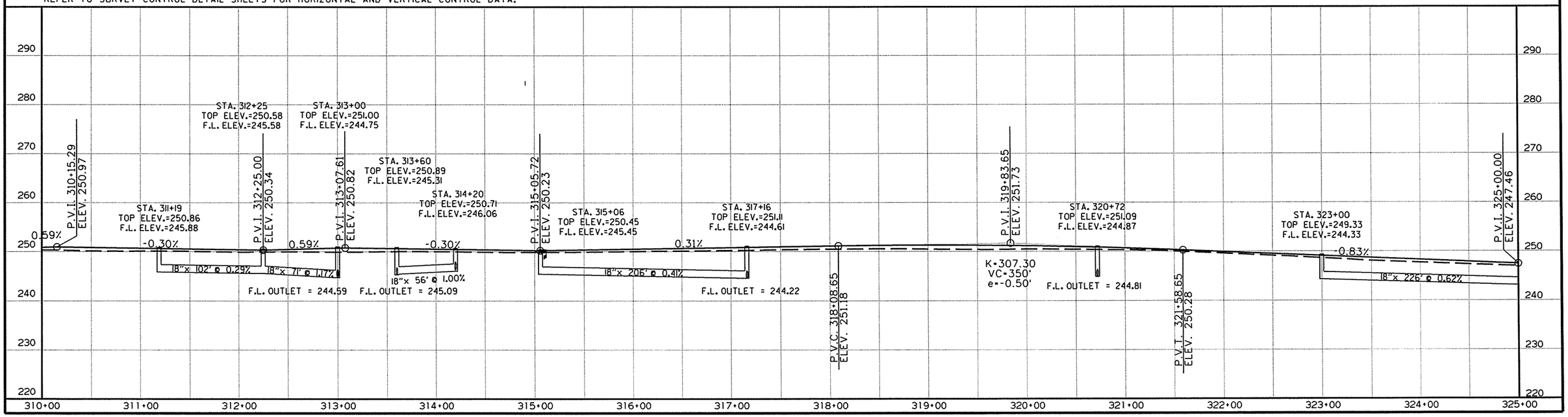
STA. 300+39.17 BEGIN SUPERELEVATION
STA. 303+39.17 MAX. SUPERELEVATION (0.037'/')
STA. 307+45.30 MAX. SUPERELEVATION (0.037'/')
STA. 310+45.30 END SUPERELEVATION

LEFT SIDE OF HWY. 13



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

RIGHT SIDE OF HWY. 13



10/30/2015

R050251.DGN

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				6	ARK.			
				JOB NO.		050251	113	339

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

STA. 326+18 IN PLACE
18" x 24' C.M.P.
LT. SIDE DRAIN
REMOVE

STA. 326+53
CONSTRUCT APPROACH ON LT. = 105 CU. YDS.

STA. 325+30 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 44" x 27" x 31' ARCH PIPE OUTLET (CLASS IV)
CONNECT TO D. I. @ 325+30 RT.
TY C = 5' x 4'
TY MO = 6' I.D.
H = 5'-1"

STA. 326+55 CONSTRUCT
D. I. ON LT.
& 18" x 69' PIPE OUTLET
CONNECT TO D. I. @ STA. 327+00 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 6'-0"

STA. 326+25 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP
ON LT. = 2.7 SQ. YDS.

STA. 327+00 CONSTRUCT
D. I. ON LT.
& 18" x 72' PIPE OUTLET
CONNECT TO D. I. @ STA. 327+76 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-0"

STA. 328+38 IN PLACE
18" x 32' R.C. PIPE CULVERT
CROSS DRAIN
REMOVE

STA. 330+00 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 30" x 219' PIPE OUTLET
CONNECT TO D. I. @ STA. 327+76 LT.
TY C = 4' x 4'
TY MO = 5' I.D.
H = 4'-7"

STA. 330+50 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
& 24" x 46' PIPE OUTLET
CONNECT TO D. I. @ STA. 330+00 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-7"

STA. 331+50 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
AND 4' EXTENSION
& 24" x 96' PIPE OUTLET
CONNECT TO D. I. @ STA. 330+50 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-7"

STA. 332+68 CONSTRUCT
D. I. ON LT. WITH
18" x 4' R.C. PIPE CULVERT
WITH FES
& 24" x 114 PIPE OUTLET
CONNECT TO D. I. @ STA. 331+50 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-8"

STA. 333+08 IN PLACE
18" x 40' C.M.P.
LT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 5 CU. YDS.

STA. 335+00 CONSTRUCT
D. I. ON LT. WITH
18" x 11' R.C. PIPE CULVERT
WITH FES
& 18" x 46' PIPE OUTLET
CONNECT TO D. I. @ STA. 334+50 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 3'-9"

STA. 333+35 IN PLACE
12" x 25' P.P.C.
LT. SIDE DRAIN
RETAIN

STA. 332+85 IN PLACE
12" x 20' P.P.C.
LT. SIDE DRAIN
RETAIN

STA. 333+42 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON LT. = 5.4 SQ. YDS.

STA. 325+96 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON LT. = 3.4 SQ. YDS.

STA. 326+30 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP
ON LT. = 2.9 SQ. YDS.

STA. 327+15 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON LT. = 7.2 SQ. YDS.

STA. 331+00 IN PLACE
18" x 40' P.P.C.
LT. SIDE DRAIN
REMOVE AND CONSTRUCT APPROACH
UNCLASS. EXCAV. = 5 CU. YDS.

STA. 326+39 IN PLACE
18" x 61' C.M. PIPE CULVERT
CROSS DRAIN
REMOVE

STA. 326+99 IN PLACE
18" x 50' R.C. PIPE CULVERT
CROSS DRAIN
REMOVE

STA. 332+80 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP
ON LT. = 5.4 SQ. YDS.

STA. 327+76 CONSTRUCT
D. I. ON LT. WITH OPENING IN BACK
AND 8' EXTENSION
& 44" x 27" x 31' ARCH PIPE OUTLET (CLASS IV)
CONNECT TO D. I. @ STA. 327+76 RT.
TY C = 5' x 4'
TY MO = 6' I.D.
H = 5'-0"

STA. 334+50 CONSTRUCT
D. I. ON LT. WITH
18" x 178' PIPE OUTLET
CONNECT TO D. I. @ STA. 332+68 LT.
TY C = 4' X 4'
TY MO = 4' I.D.
H = 4'-0"

STA. 335+45 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON LT. = 8.6 SQ. YDS.

P.I. = 339+21.01
Δ = 1°26'06" LT.
D = 0°30'00"
T = 143.49'
L = 286.97'
P.C. = 337+77.51
P.T. = 340+64.49

P.C. 337+77.52

P.I. 339+21.01

STA. 335+00.00
END JOB 050251

STA. 326+65 (ON RAINES RD.) IN PLACE
18" x 24' C.M.P.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x X' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = X CU. YDS.

STA. 326+52 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON RT. = 5.4 SQ. YDS.

STA. 327+12 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP
ON RT. = 5.4 SQ. YDS.

STA. 330+38 IN PLACE
18" x 19' R.C.P.
RT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 35 CU. YDS.

STA. 335+00 CONSTRUCT
D. I. ON RT. WITH
22" x 14" x 31' ARCH PIPE OUTLET (CLASS IV)
CONNECT TO D. I. @ STA. 335+00 LT.
TY ST = 4' x 4'
TY MO = 4' I.D.
H = 3'-8"

STA. 325+30 CONSTRUCT
D. I. ON RT.
& 44" x 27" x 110' ARCH PIPE OUTLET
CONNECT TO D. I. @ 326+46 RT.
TY C = 5' x 5'
TY MO = 6' I.D.
H = 5'-2"

STA. 326+78
CONSTRUCT APPROACH ON RT. = 80 CU. YDS.

STA. 333+10
CONSTRUCT APPROACH = 25 CU. YDS.

STA. 326+16 IN PLACE
18" x 24' C.M.P.
RT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 75 CU. YDS.

STA. 326+98 CONSTRUCT
D. I. ON RT.
& 36" x 18' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 5'
TY MO = 6' I.D.
H = 5'-6"

STA. 329+16 IN PLACE
18" x 19' R.C.P.
RT. SIDE DRAIN
REMOVE AND
CONSTRUCT APPROACH = 30 CU. YDS.

STA. 326+46 CONSTRUCT
D. I. ON RT.
& 44" x 27" x 8' R.C. ARCH PIPE OUTLET
WITH FES
TY C = 5' x 5'
TY MO = 6' I.D.
H = 4'-7"

STA. 327+76 CONSTRUCT
D. I. ON RT. WITH 4' EXTENSION
& 44" x 27" x 73' ARCH PIPE OUTLET
CONNECT TO D. I. @ STA. 326+98 RT.
TY C = 5' x 5'
TY MO = 6' I.D.
H = 5'-1"

STA. 330+00 CONSTRUCT
D. I. ON RT. WITH 8' EXTENSION
& 18" x 220' PIPE OUTLET
CONNECT TO D. I. @ STA. 327+76 RT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 3'-9"

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

10/30/2015

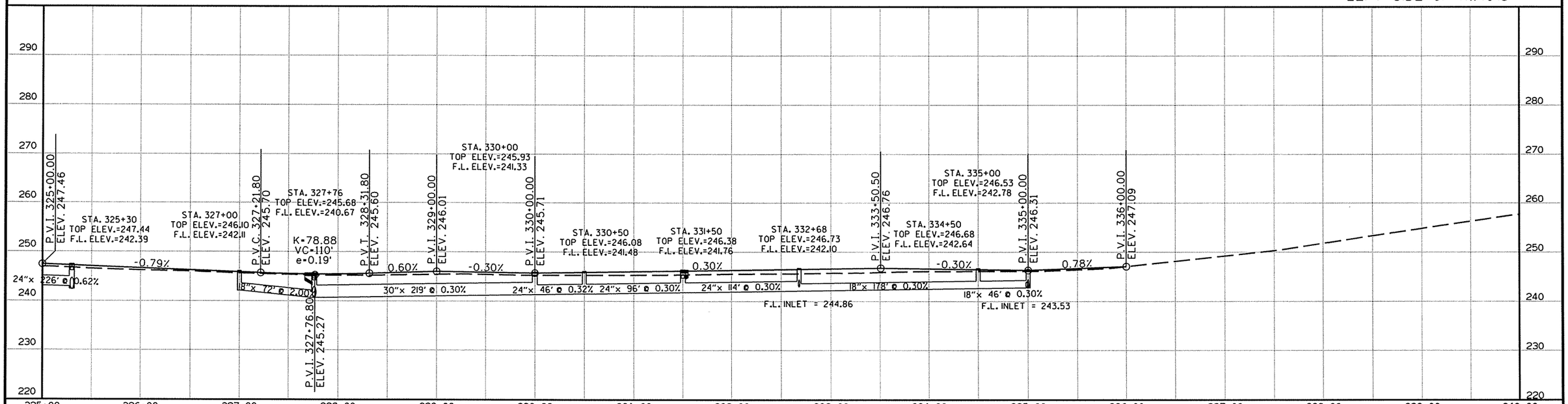
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	114	339

(2) PROFILE SHEETS

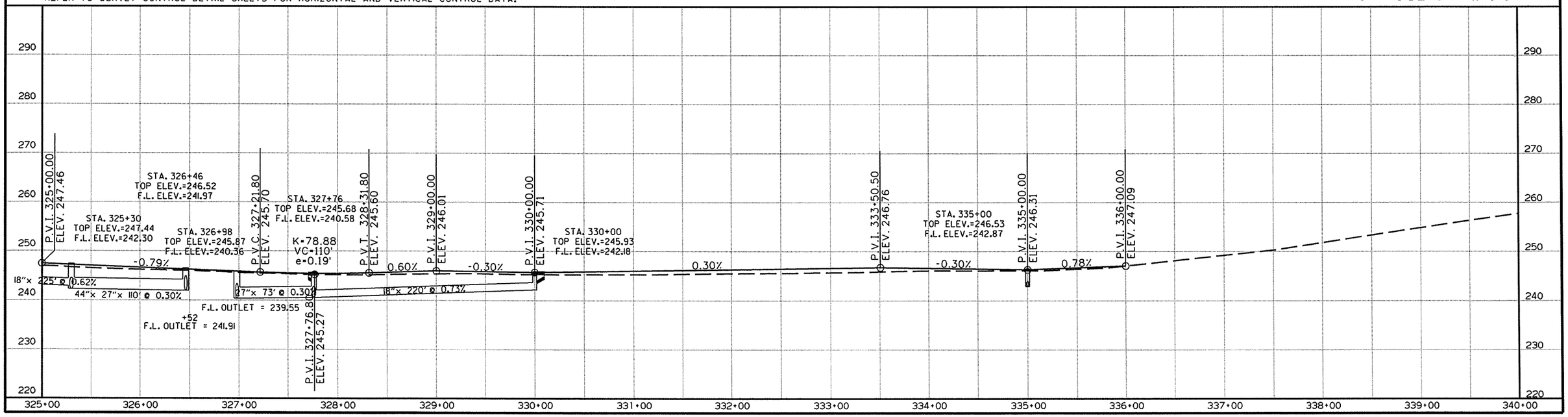
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

LEFT SIDE OF HWY. 13



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

RIGHT SIDE OF HWY. 13



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				6	ARK.			
				JOB NO.		050251	115	339

(2) PLAN AND PROFILE SHEETS

STA. 506+25 IN PLACE
18" x 90' C.M.P.
LT. SIDE DRAIN
RETAIN

PI = 505+80.75
Δ = 0°17'31"LT.
D = 0°15'00"
T = 58.42'
L = 116.83'
PC = 505+22.33
PT = 506+39.16
NO SUPER

STA. 509+55 IN PLACE
D. I. ON LT. WITH
18" x 280' R.C. PIPE INLET
& 18" x 265' R.C. PIPE OUTLET
CONNECTED TO D. I. @ STA. 512+24 LT.
RETAIN

P. I. = 515+97.58
Δ = 2°32'31" LT.
D = 1°00'00"
T = 127.12'
L = 254.20'
P.C. = 514+70.46
P.T. = 517+24.66
NO SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

STA. 512+24 IN PLACE
D. I. ON LT. WITH
36" x 7' R.C. PIPE INLET
WITH FES
& 36" x 139' R.C. PIPE OUTLET
CONNECTED TO R.C. BOX
CULVERT @ STA. 513+20 LT.

P.T. 500+92.96
P.C. 505+22.33
P.T. 506+39.16
P.I. 505+80.75
P.C. 514+70.46
P.I. 515+97.58

+93.52 200' TAPER +93.52 125' RT. TURN LANE +18.52
+98.52 270' TAPER +68.52 100' +68.52
+65 +90 208' TAPER +98
25' SHLD. WIDENING

EXIST. R/W
PROP. R/W
CONST. LIMITS
HWY. 13
HWY. 16
S 37°29'31" E
S 37°47'03" E
12'-0"
29'-0"
31'-3"
33'-0"
56'-0"
32'-10"
37'-0"
48'-16"
18'

STA. 503+72 IN PLACE
36" x 40' C.M.P.
RT. SIDE DRAIN
RETAIN AND
CONST. APPROACH = 5 CU. YDS.

STA. 505+50 CONSTRUCT
D. I. ON RT. WITH
18" x 8' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-0"

STA. 508+25 CONSTRUCT
D. I. ON RT. WITH
18" x 8' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-0"

STA. 513+20 IN PLACE
DBL. 8' x 4' x 205' R.C. BOX CULVERT
RETAIN

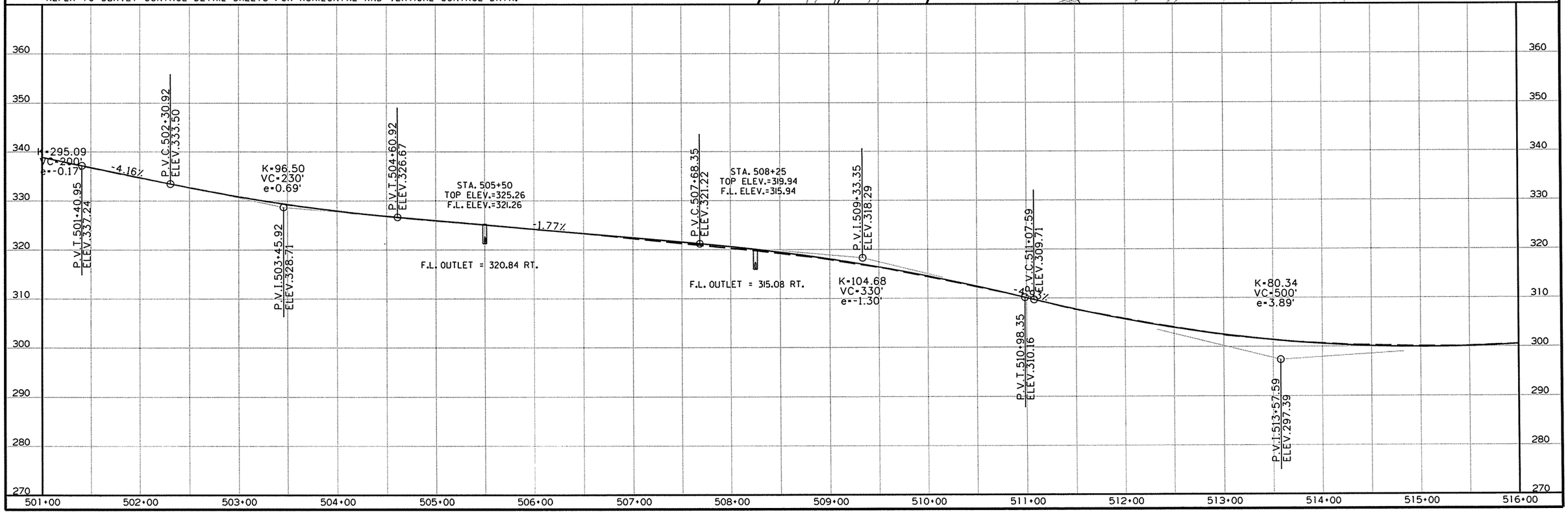
REMOVAL OF EXIST. PAVEMENT

HWY. 13 - STA. 108+22.47 =
HWY. 16 - STA. 510+36.71
Δ = 59°06'23"

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

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

HWY. 16



10/30/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	116	339

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

REMOVAL OF EXIST. PAVEMENT

P.I. = 100+85.68
Δ = 17°28' 13.5" LT.
D = 14°00' 00"
T = 62.88'
L = 124.79'
P.C. = 100+22.79
P.T. = 101+47.58

STA. 101+48 IN PLACE
15" x 34" C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +56
18" x 62' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 405 CU.YDS.

STA. 103+27 IN PLACE
12" x 24' PIPE
LT SIDE DRAIN
REMOVE AND INSTALL @ +22
18" x 45' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 60 CU.YDS.

STA. 103+99 IN PLACE
15" x 33' PIPE
LT. SIDE DRAIN
REMOVE AND INSTALL
21" X 15" X 54' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 10 CU.YDS.

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
102+25	104+55	RT.	376

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
102+25	104+55	RT.	D	220

P.I. = 104+13.08
Δ = 17°45' 47.5" RT.
D = 19°00' 00.0"
T = 47.12'
L = 93.49'
P.C. = 103+65.96
P.T. = 104+59.45

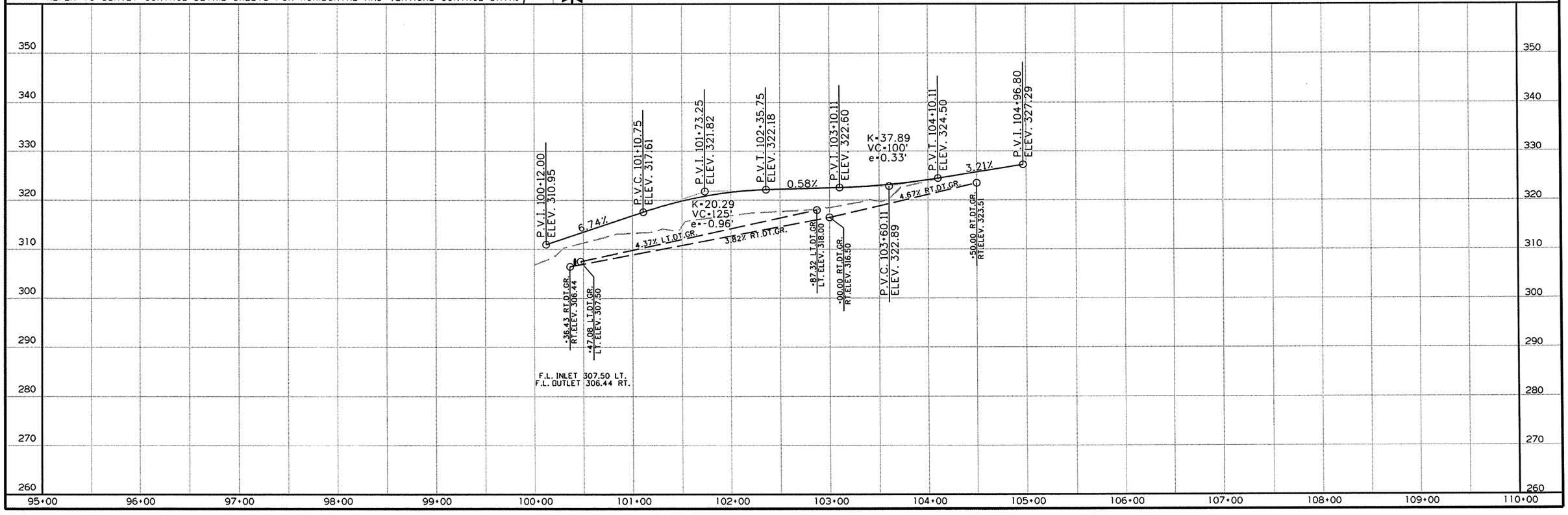
STA. 104+72 INSTALL
21" x 15" x 38' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 20 CU.YDS.

STA. 101+31 INSTALL
18" x 52' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 225 CU.YDS.

HWY. 13 - STA. 111+50.16 =
FAIRVIEW RD. - STA. 100+00.00
Δ = 91°30' 08"

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

FAIRVIEW RD.



7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	117	339

(2) PLAN AND PROFILE SHEETS

HWY. 13 - STA. 162+57.28 =
MAIN ST. TIE IN - STA. 108+63.60
Δ = 90°03'09"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

HWY. 13

N 87°04'19" E

CONST. LIMITS

PROP. R/W

+75.00
65.00

+16.00
92.90

REMOVAL OF EXIST. PAVEMENT

+54.00
125.00

N MAIN ST.

FLOODPLAIN LIMITS

STA. 157+26 IN PLACE
72" x 46' C.M.P.
RT. SIDE DRAIN
REMOVE

STA. 157+26 IN PLACE
36" x 47' STEEL PIPE
RT. SIDE DRAIN
REMOVE

P.I. = 106+42.41
Δ = 97°50'13" LT.
D = 23°00'00"
T = 285.75'
L = 425.38'
P.C. = 103+56.66
P.T. = 107+82.04
e = 0.099'/'
LS = 250'

100' R

110' R

P.T. 107+82.04

N 7°23'24" E

P.I. 102+77.25

CONST. LIMITS

100

105

P.C. 103+56.66

S 89°33'12" E

MAIN ST. TIE IN

8'-0"
16'-0"
16'-0"
8'-0"

120' R

+67.00
104.67

+70.63
169.47

+15.00
95.00

PROP. R/W

N

+18.00
331.00

P.I. 106+42.41

+42.80
445.30

100' R

PROP. R/W

CONST. LIMITS

FLOODPLAIN LIMITS

+60.00
56.00

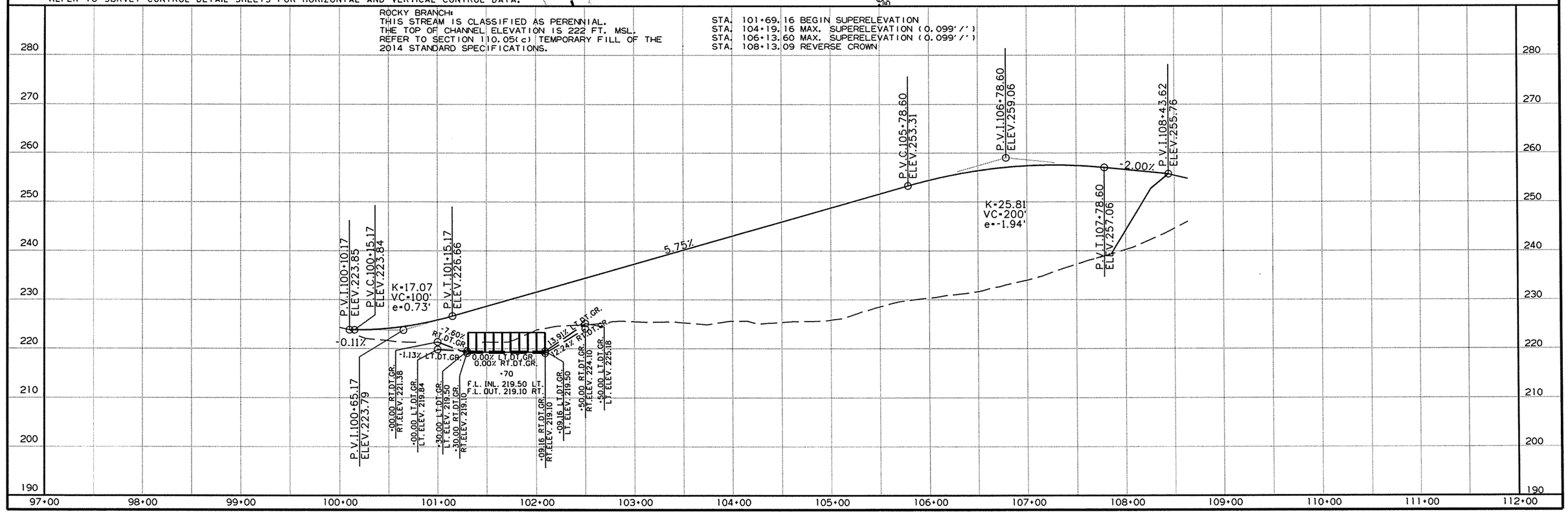
STA. 101+70 CONSTRUCT
NON. 8' x 4' x 113' R.C. BOX CULVERT
WITH 3:1 WINGS LT. AND RT.
SPAN = 78.33'
Q25 = 1215 CFS., D.A. = 2.8 SQ. MI.
CHANNEL CHANGE = 900 CU. YDS. UNCLASS. EXCAV.
= 918 CU. YDS. COMP. EMB.

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

MAIN ST. TIE IN

ROCKY BRANCH:
THIS STREAM IS CLASSIFIED AS PERENNIAL.
THE TOP OF CHANNEL ELEVATION IS 222 FT. MSL.
REFER TO SECTION 110.05(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 101+69.16 BEGIN SUPERELEVATION
STA. 104+19.16 MAX. SUPERELEVATION (0.099'/')
STA. 106+13.60 MAX. SUPERELEVATION (0.099'/')
STA. 108+13.09 REVERSE CROWN



10/30/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	118	339

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

P.I. = 102+93.71
Δ = 20° 26' 42" LT.
D = 15° 00' 00"
T = 68.88'
L = 136.30'
P.C. = 102+24.83
P.T. = 103+61.13
e = 0.086'/'
LS = 250'

P.I. 216+65.28

POB 100+00.00

+66.08
322.55'

PROP. R/W

10'-0"

23'-9"

100

+13.35
345.95'

CONST. LIMITS

P.C. 102+24.83

DAVIS DR. N 9°34' 28" E

10'-0"

12'-0"

12'-0"

+58.52
80.51'

P.T. 103+61.13

EXIST. R/W

CONST. LIMITS

PROP. R/W

16'

VACANT

+59.96
369.16'

+72.25
375.49'

+68

132' TRANSITION

+00

PROP. R/W

+20.00
257.51'

+31.36
231.42'

CONST. LIMITS

P.I. 102+93.71

P.I. 4+39.80

N 19°52' 14" W

+16

+34.00
78.50'

40'

HWY. 13 - STA. 218+26.73 =
DAVIS RD. - STA. 104+59.95
Δ = 84° 39' 37"

4

EXIST. R/W

CONST. LIMITS

EXIST. R/W

HWY. 13

P.T. 219+63.10

220

N 160° 41' 55" E

PROP. R/W

EXIST. R/W

REMOVAL OF EXIST. PAVEMENT

P.C. 221+02.41

DAVIS DR.

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

STA. 99+68.00 MATCH EXIST. SUPERELEVATION
STA. 101+00.00 END SUPERELEVATION

STA. 101+41.80 BEGIN SUPERELEVATION
STA. 102+52.51 MAX. SUPERELEVATION (0.038'/')
STA. 102+92.98 MAX. SUPERELEVATION (0.038'/')
STA. 104+03.69 END SUPERELEVATION

P.V.I. 101+00.00
ELEV. 213.29

1.96%

P.V.I. 104+22.87
ELEV. 219.60

P.V.I. 104+39.87
ELEV. 219.67

P.V.I. 104+47.87
ELEV. 219.28

0.40%

+0.80%

250 240 230 220 210 200 190 180 170 160

96+00 97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00

10/30/2015

R050251.DGN

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				6	ARK.			
				JOB NO.		050251	119	339

(2) TRAFFIC SIGNAL QUANTITIES AND NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

TRAFFIC SIGNAL NOTES:

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 101 (2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.
2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.
3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. THE SERVICE POINT SHALL NOT BE MORE THAN 10 FEET FROM THE CONTROLLER. THE CONTRACTOR SHALL PROVIDE AND INSTALL A TWO CIRCUIT BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.
4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.
5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS OT THE CONTROLLER.
6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.
7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAILS, AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.
8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD MAY BE USED.
9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.
10. PAVEMENT MARKINGS SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.
11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
12. ALL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.
13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.
14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.
15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.
16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDIATION SYSTEM IN THE CITY OF SEARCY.
17. TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY AVOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.
18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF RAODWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY THE FACE OF A NON-BREAKWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.
19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVEING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.
20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND THE HAND-HOLE COVER AT THE BASE OF THE POLE. THE TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT THE POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714-TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.
21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO ISMA STANDARDS.
22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.
23. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.
24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGN, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.
25. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODIFICATION.

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
SP&701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	EACH
704	VEHICLE DETECTOR - RACK MOUNT	2	EACH
704	FEEDER WIRE	1888	LIN. FT.
SP&706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1WAY)	12	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1WAY)	4	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	689	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	335	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	848	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	73	LIN. FT.
710	NON-METALLIC CONDUIT (1")	616	LIN. FT.
710	NON-METALLIC CONDUIT (2")	306	LIN. FT.
710	NON-METALLIC CONDUIT (3")	554	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1HD)	7	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
711	CONCRETE PULL BOX (TYPE 2)	2	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (46')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (70')	1	EACH
733	VIDEO CABLE	1171	LIN. FT.
• SP&733	VIDEO DETECTOR (CLR)	5	EACH
733	VIDEO MONITOR (CLR)	1	EACH
• SP&733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	5	EACH
SP&733	VEHICLE DETECTOR RACK (24 CHANNEL)	1	EACH
SP	ANTENNA CABLE (TYPE 6)	75	LIN. FT.
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)	1	EACH
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	1112	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	629	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	266	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	31	LIN. FT.
SP	LOCAL RADIO WITH ANTENNA	1	EACH
SP	LOOP WIRING CLASS III (1C/16 A.W.G.)	512	LIN. FT.
SP	LUMINAIRE ASSEMBLY	4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH

• ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED.

10-30-15

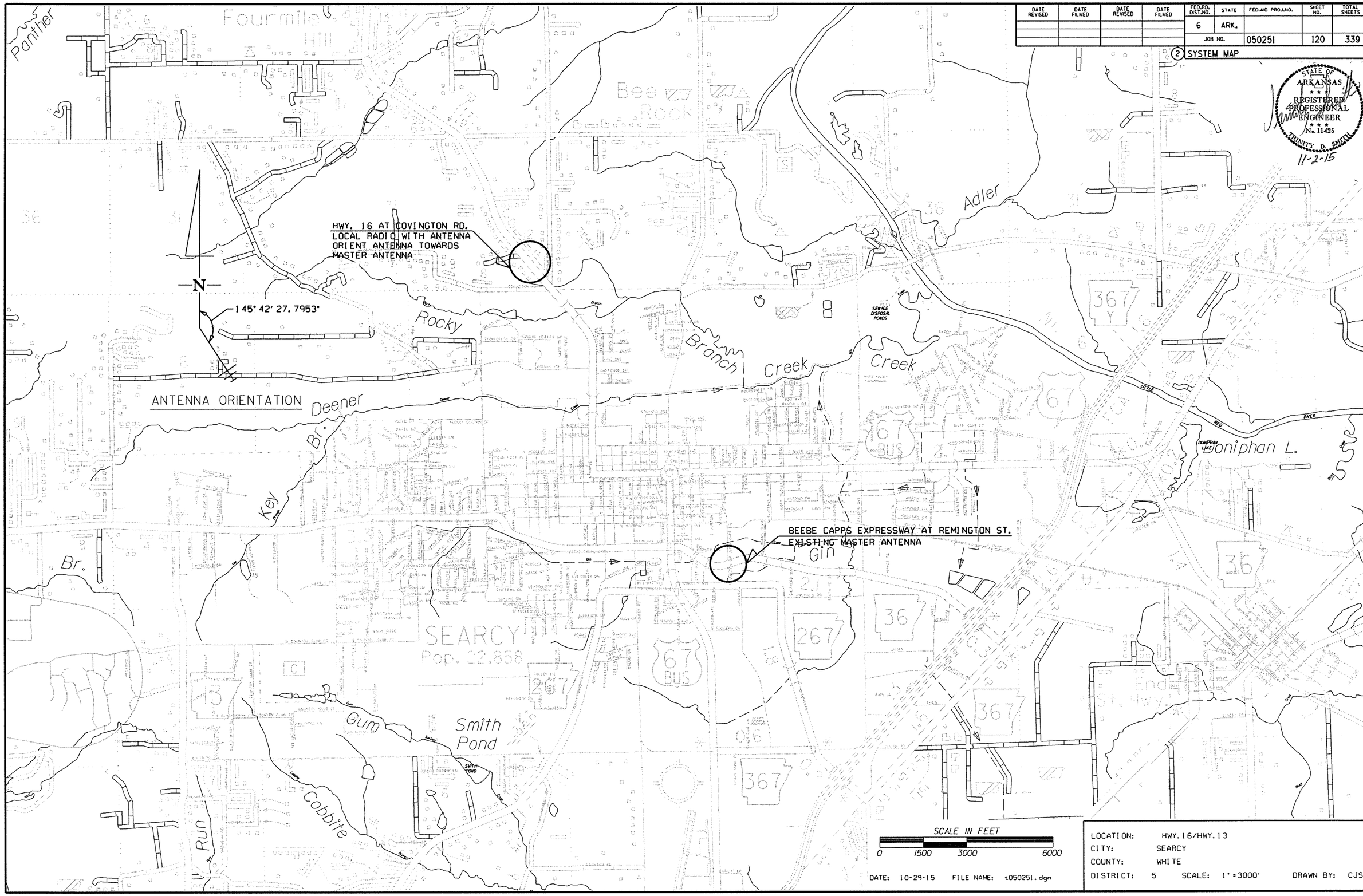
050251.dgn

DATE: 10-30-15 FILE NAME: t050251.dgn

LOCATION: HWY. 16/HWY. 13
CITY: SEARCY
COUNTY: WHITE
DISTRICT: 5 SCALE: N/A DRAWN BY: CJS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	120	339

(2) SYSTEM MAP



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

DATE: 10-29-15 FILE NAME: t050251.dgn

LOCATION: HWY.16/HWY.13
CITY: SEARCY
COUNTY: WHITE
DISTRICT: 5 SCALE: 1"=3000' DRAWN BY: CJS

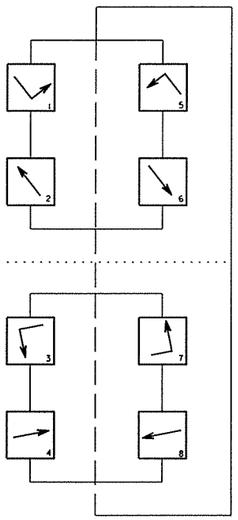
t050251.dgn 10-29-15

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.		050251	121	339

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15

PHASING DIAGRAM



NOTE TO CONTRACTOR:

LOOP WIRE, FEEDER WIRE, CONDUIT, AND PULL BOXES ASSOCIATED WITH ADVANCED PULSE LOOPS ON WEST LEG OF INTERSECTION ARE TO BE CONSTRUCTED AND INSTALLED AT A LATER DATE IN ANOTHER JOB.

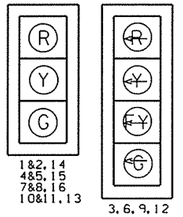
DETECTOR SPACING CHART

HWY. 13		
POSTED SPEED	DISTANCE FROM STOP BAR	
	LEAD LOOP*	LAG VDZ
55 MPH	405'/245'	100'
HWY. 16		
POSTED SPEED	DISTANCE FROM STOP BAR	
	LEAD LOOP	LAG VDZ
45 MPH	260'	115'

*NOTE: L82 IS 213 FT. FROM STOP BAR.

SIGNAL FACES

12" LENSES



NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.

TRAFFIC FLOW DIAGRAM

HWY. 16/HWY. 13 POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 13-STA 107+94.44	81.91' RT.	1386958.33, 340760.23
B	HWY. 13-STA 107+41.71	45.87' LT.	1386887.74, 340878.85
C	HWY. 13-STA 108+39.43	60.02' LT.	1386985.28, 340906.57
D	HWY. 13-STA 109+13.61	45.83' RT.	1387069.14, 340808.03

POLE DIMENSIONS

POLE	MAST ARM(S) LENGTH	MAST ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)
A	70'	270 DEGREES	35'-0"	20'	270 DEGREES
B	46'	180 DEGREES	35'-0"	25'	180 DEGREES
C	50'	180 DEGREES	35'-0"	20'	180 DEGREES
D	48'	270 DEGREES	35'-0"	25'	270 DEGREES

DESIGN PARAMETERS

POSTED SPEED LIMIT:
55 MPH EAST AND WEST APPROACH
45 MPH NORTH AND SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF PAVEMENT MARKINGS SHOWN FOR REFERENCE ONLY.
SEE PAVEMENT MARKING SHEET(S) FOR DETAILS.

MINIMUM CLEAR ZONE DISTANCE
CONTROLLER -
POLE A - 26 FT. EB; 22 FT. SB
POLE B - 22 FT. SB; 26 FT. WB
POLE C - 22 FT. NB; 26 FT. WB
POLE D - 22 FT. NB; 26 FT. EB

SCALE IN FEET
0 40 80 160

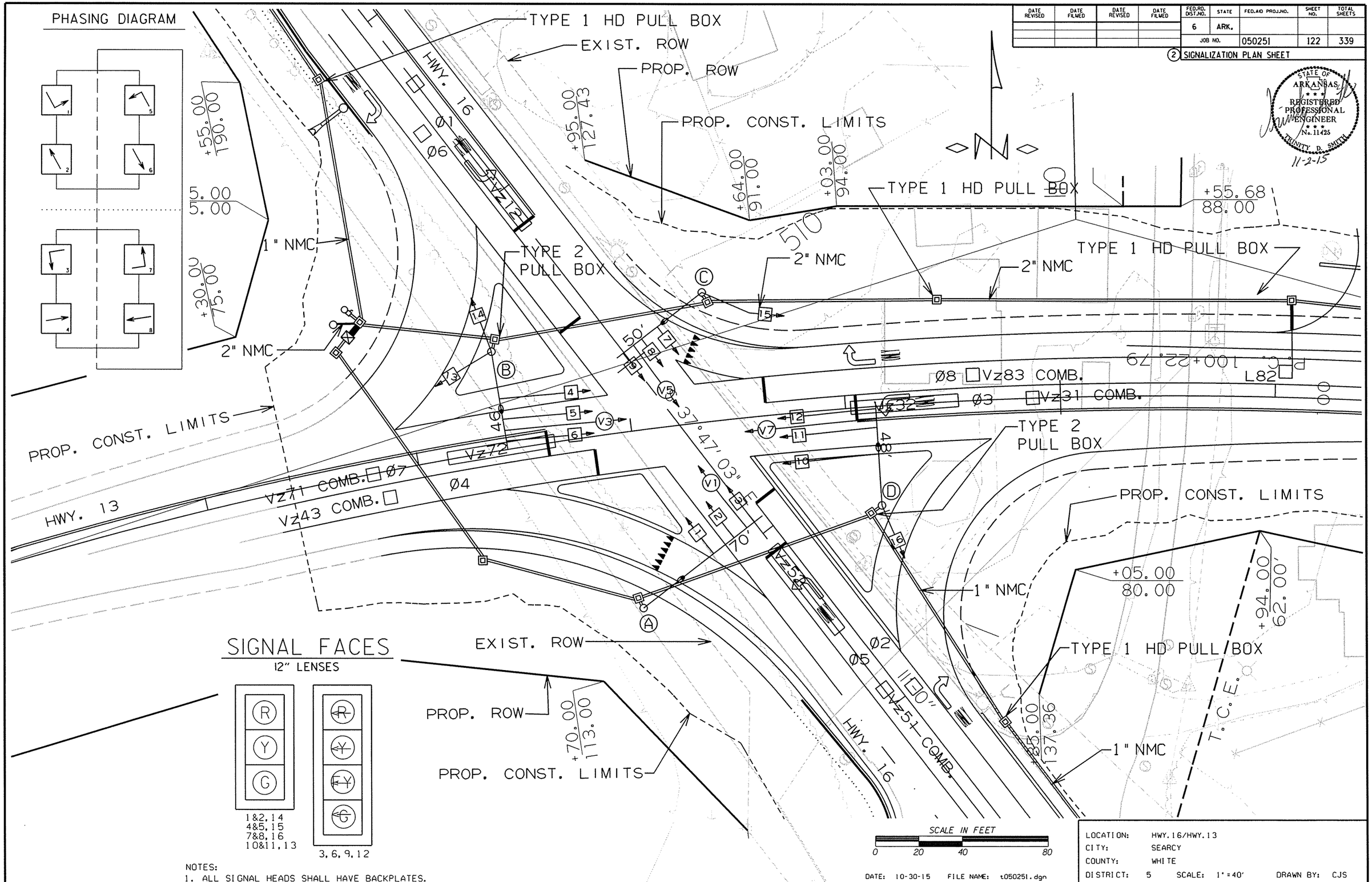
DATE: 10-30-15 FILE NAME: t050251.dgn

LOCATION: HWY. 16/HWY. 13
CITY: SEARCY
COUNTY: WHITE
DISTRICT: 5 SCALE: 1"=80' DRAWN BY: CJS

10-30-15
t050251.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	122	339

(2) SIGNALIZATION PLAN SHEET



NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.

DATE: 10-30-15 FILE NAME: t050251.dgn

LOCATION:	HWY.16/HWY.13
CITY:	SEARCY
COUNTY:	WHITE
DISTRICT:	5 SCALE: 1"=40' DRAWN BY: CJS

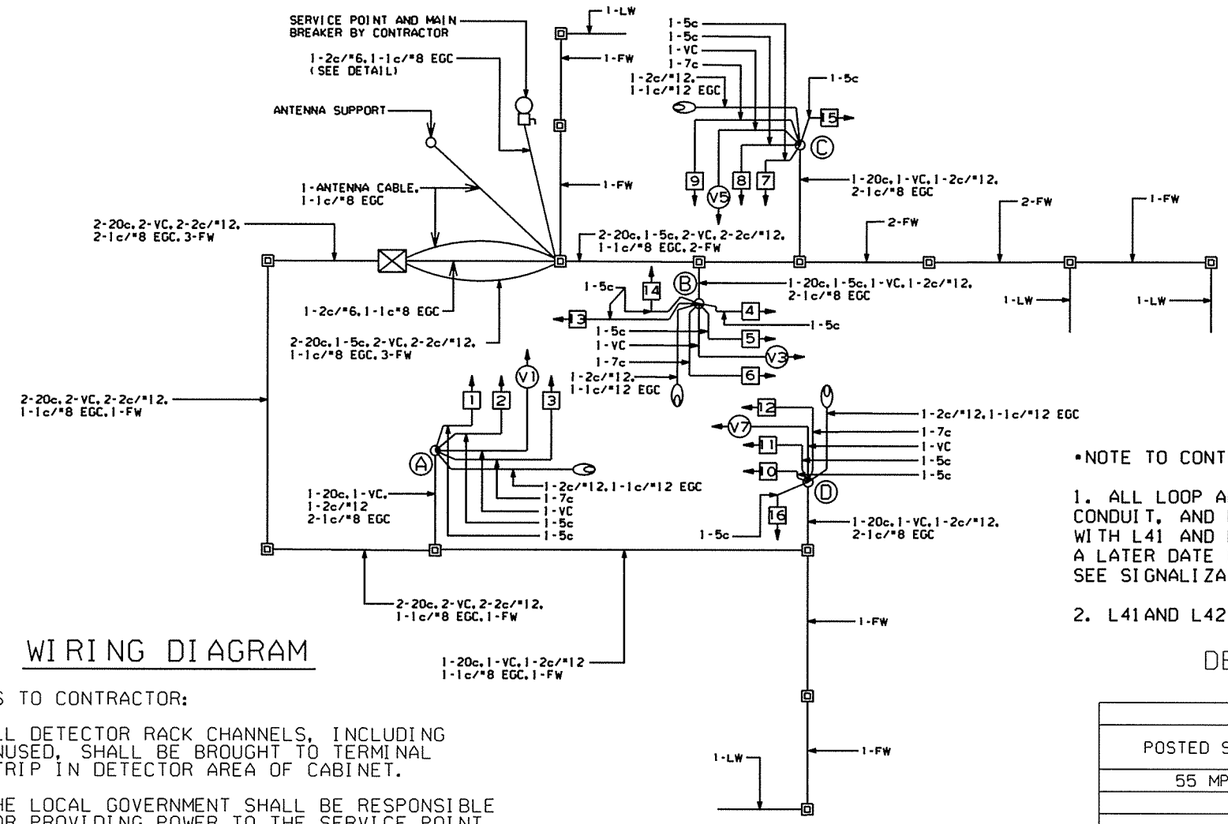
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 11-2-15

10-30-15

1050251.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	123	339
				(2)	SIGNALIZATION PLAN SHEET			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-2-15



WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.

DETECTOR SYSTEM DESCRIPTION: JOB 050251											
HWY.16/HWY.13 DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	COMMENTS	TUBE LENGTHS
DET. ID*	LOCATION DIRECTION	TYPE	DET. #	CAB. TRM #	AMP CHN. #	CON. INP.#	PHS	SYSTEM DET. #			
Vz11	SB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	74'
Vz12	SB LEFT TURN NEAR	LOCAL			2	V1	1			CAMERA V1	74'
L21	NB FAR	LOCAL	2			V2	2				
Vz22	NB NEAR	COMB.			6	V10	2	2		CAMERA V5	74'
Vz31	WB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	74'
Vz32	WB LEFT TURN NEAR	LOCAL			10	V3	3			CAMERA V3	74'
• L41	EB FAR	LOCAL	4			V4	4				
• L42	EB INTERMEDIATE	LOCAL	28			V4	4				
Vz43	EB NEAR	COMB.			14	V12	4	4		CAMERA V7	74'
Vz51	NB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	74'
Vz52	NB LEFT TURN NEAR	LOCAL			8	V5	5			CAMERA V5	74'
L61	SB FAR	LOCAL	6			V6	6				
Vz62	SB NEAR	COMB.			4	V14	6	6		CAMERA V1	74'
Vz71	EB LEFT TURN FAR	COMB.			15	V15	7	7		CAMERA V7	74'
Vz72	EB LEFT TURN NEAR	LOCAL			16	V7	7			CAMERA V7	74'
L81	WB FAR	LOCAL	8			V8	8				
L82	WB INTERMEDIATE	LOCAL	32			V8	8				
Vz83	WB NEAR	COMB.			12	V16	8	8		CAMERA V3	74'
					SPARE AMP. CHN.* = 3, 5, 11, 13						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
O = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: 'AMP CHN=' REFERS TO THE DETECTOR RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9=SYSTEM DETECTOR 1, V10=SYSTEM DETECTOR 2

•NOTE TO CONTRACTOR

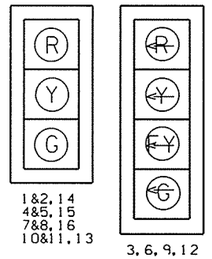
1. ALL LOOP AND FEEDER WIRING, CONDUIT, AND PULL BOXES ASSOCIATED WITH L41 AND L42 ARE TO BE INSTALLED AT A LATER DATE IN ANOTHER JOB. SEE SIGNALIZATION PLAN SHEETS FOR DETAILS.
2. L41 AND L42 WILL BE USED IN THE FUTURE.

DETECTOR SPACING CHART

HWY. 13		
POSTED SPEED	DISTANCE FROM STOP BAR	
	LEAD LOOP	LAG VDZ
55 MPH	405'/245'	100'
HWY. 16		
POSTED SPEED	DISTANCE FROM STOP BAR	
	LEAD LOOP	LAG LOOP
45 MPH	260'	115'

SIGNAL FACES

12" LENSES



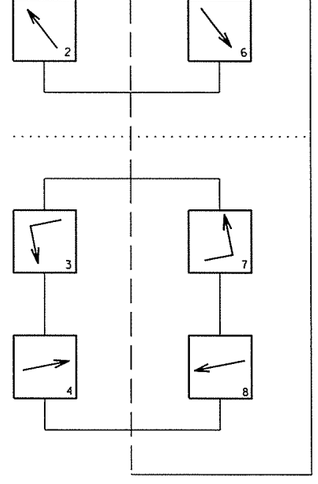
NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.

INTERVAL CHART

SIGNAL FACES	HWY.16/HWY.13																FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3+7	CLR.	3+8	CLR.	4+7	CLR.	4+8	CLR.	
1&2	R	R	G	••	R	R	G	••	R	R	R	R	R	R	R	R	R
3	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
4&5	R	R	R	R	R	R	R	R	R	R	G	••	R	R	G	••	R
6	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~
7&8	R	R	R	R	G	••	G	••	R	R	R	R	R	R	R	R	R
9	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
10&11	R	R	R	R	R	R	R	R	R	R	R	R	G	••	G	••	R
12	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~
13	R	R	R	R	R	R	R	R	R	R	R	R	G	••	G	••	R
14	R	R	G	••	R	R	G	••	R	R	R	R	R	R	R	R	R
15	R	R	R	R	R	R	R	R	R	R	G	••	R	R	G	••	R
16	R	R	R	R	G	••	G	••	R	R	R	R	R	R	R	R	R

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

PHASING DIAGRAM



10-30-15

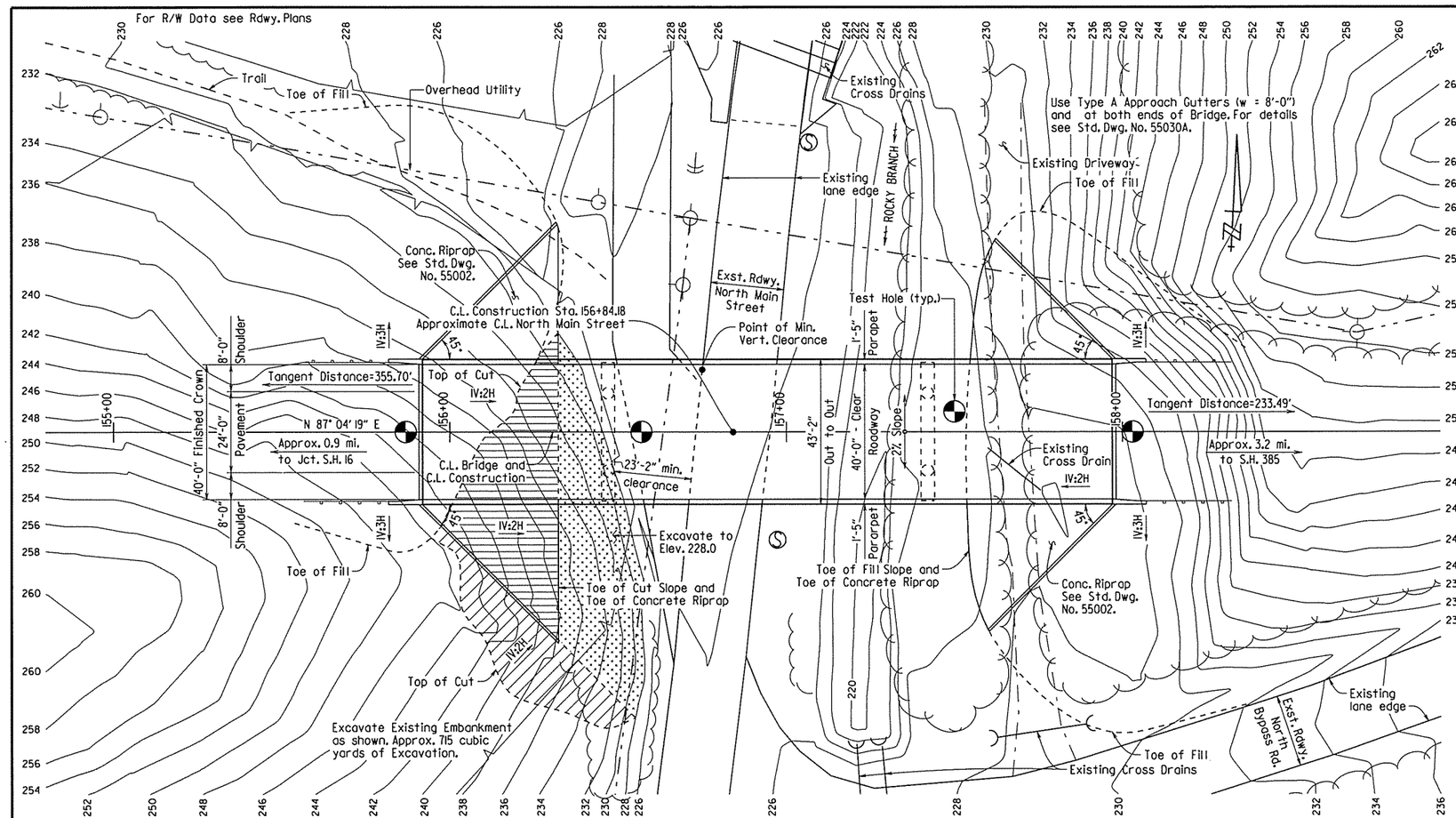
1050251.dgn

DATE: 10-30-15 FILE NAME: t050251.dgn

LOCATION:	HWY. 16/HWY. 13
CITY:	SEARCY
COUNTY:	WHITE
DISTRICT: 5	SCALE: N/A DRAWN BY: CJS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050251	124	339
① 07353	-	LAYOUT	-	57292



PLAN

HYDRAULIC DATA

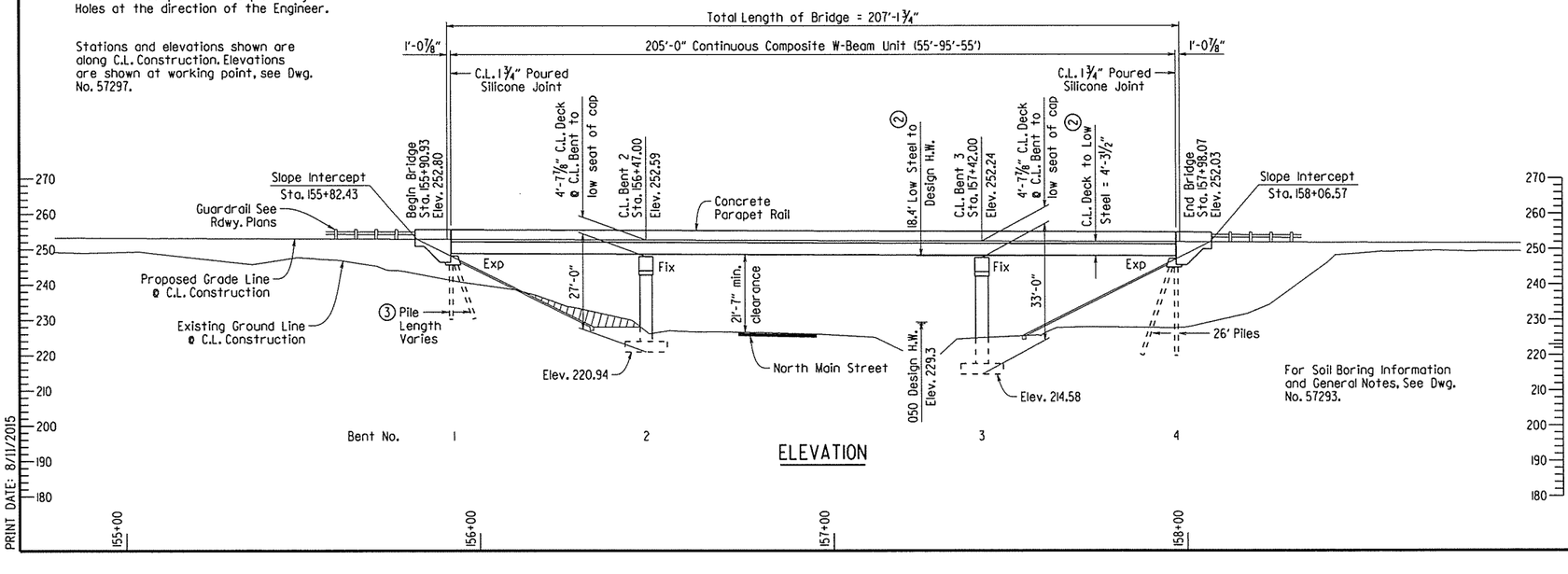
FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	①NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	1,505	228.6	229.3
Base	100	1,837	229.2	229.8
Extreme	500	2,805	230.7	231.0
Overtopping	>500	N/A	N/A	N/A

① Unconstricted water surface without structure or roadway approaches.
Drainage area = 2.8 square miles.
Historical H.W. Elev. = N/A.
0100 Backwater Elev. for existing structure (cross drains) = 230.2 ft.

② Proposed Low Bridge Chord Elev. = 247.74 feet and occurs at Sta. 157+96.00.

③ Pile length to be determined in field after the completion of Exploratory Holes at the direction of the Engineer.

Stations and elevations shown are along C.L. Construction. Elevations are shown at working point, see Dwg. No. 57297.



ELEVATION

For Soil Boring Information and General Notes, See Dwg. No. 57293.

-0.376%
P.V.I. Sta. 148+25.86
Elev. 255.68

VERTICAL ALIGNMENT DATA

Along C.L. Construction

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER NORTH MAIN STREET
HWY. 16 - HWY. 67 (S)
WHITE COUNTY

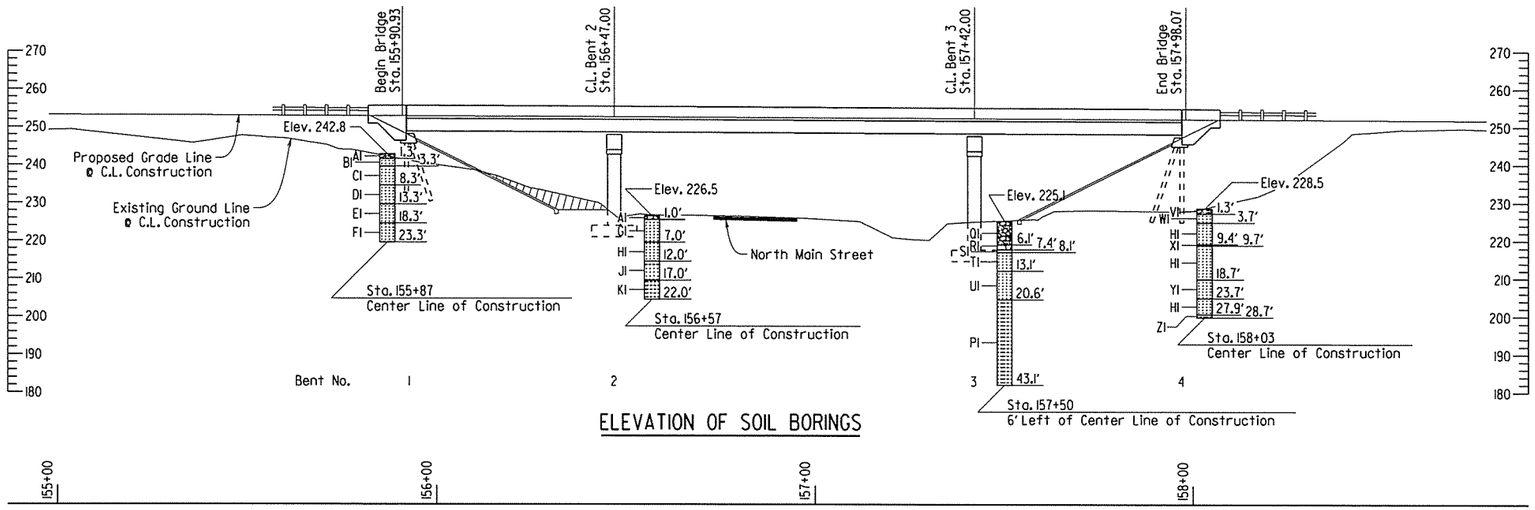
ROUTE 13 SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 06/05/13 FILENAME: b050251_ll.dgn
CHECKED BY: KWV DATE: 8/11/15 SCALE: 1" = 20'
DESIGNED BY: CSC DATE: 5/13

BRIDGE NO. 07353 DRAWING NO. 57292

PRINT DATE: 8/11/2015



ELEVATION OF SOIL BORINGS

BORING LEGEND

AI-Moist, Very Stiff, Gray and Brown Clay with Gravel (Sandstone Fragments) and Cobbles
BI-SANDSTONE - Gray and Brown, Thin Bedded, Slightly Weathered, Cemented, with Moderate Dip and Fractured Layers
CI-SANDSTONE - Gray and Brown, Thick Bedded, Slightly Weathered, Cemented, with Moderate Dip and Fractured Layers
DI-SANDSTONE - Gray and Brown, Medium Bedded, Slightly Weathered, Cemented, with Moderate Dip and Fractured Layers
EI-SANDSTONE - Gray, Thick Bedded, Slightly Weathered, Well-Cemented, with Moderate Dip
FI-SANDSTONE WITH DARK GRAY SHALE AND BROWN CLAY PARTINGS - Gray, Thin Bedded, Slightly Weathered, Cemented, with Moderate Dip
GI-SANDSTONE - Gray and Brown, Medium Bedded, Slightly Weathered, Cemented, with Moderate Dip and Fractured Layers •
HI-SANDSTONE WITH DARK GRAY SHALE PARTINGS - Gray, Thick Bedded, Slightly Weathered, Cemented, with Moderate Dip
JI-SANDSTONE WITH DARK GRAY SHALE LAYERS, SEAMS AND PARTINGS - Gray, Thick Bedded, Slightly Weathered, Cemented, with Moderate Dip
KI-SHALE WITH GRAY SANDSTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Moderate Dip
LI-Wet, Very Dense, Gray and Brown Clayey Sand with Gravel (Sandstone Fragments) and Cobbles
MI-SANDSTONE - Gray, Medium Bedded, Slightly Weathered, Cemented, with Moderate Dip
NI-SANDSTONE WITH DARK GRAY SHALE LAYERS, SEAMS AND PARTINGS - Gray, Thin Bedded, Slightly Weathered, Cemented, with Moderate Dip
PI-SHALE WITH GRAY SANDSTONE LAYERS AND SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Moderate Dip
OI-Wet, Loose, Gray and Brown Clayey Sand with Gravel (Sandstone Fragments) and Cobbles
RI-Boulders
SI-SANDSTONE - Gray, Thin Bedded, Weathered, Cemented, with Moderate Dip
TI-SANDSTONE WITH DARK GRAY SHALE PARTINGS - Gray, Very Thick Bedded, Slightly Weathered, Cemented, with Moderate Dip
UI-SANDSTONE WITH DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Cemented, with Moderate Dip, with Vertically Fract
VI-Moist, Dense, Brown Sand with Gravel (Sandstone Fragments) and Cobbles
WI-SANDSTONE - Gray, Thick Bedded, Weathered, Cemented, with Moderate Dip
XI-SHALE - Dark Gray, Laminated, Weathered, Soft (9.4' to 9.7')
YI-SANDSTONE WITH DARK GRAY SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Cemented, with Moderate Dip
ZI-SHALE WITH GRAY SANDSTONE SEAMS AND LAYERS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Moderate Dip

"N" VALUES

Sta. 155+87 - Center Line of Construction
1.3- 1.3, N=60(.01")

Sta. 156+57 - Center Line of Construction
1.0- 1.0, N=60(.01")

Sta. 157+50 - 6' Left of Center Line of Construction
4.6- 5.6, N=7
6.1- 6.2, N=60(1")

Sta. 158+03 - Center Line of Construction

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	125	339
				(1)	07353 - LAYOUT - 57293			

GENERAL NOTES

BENCH MARK: Horizontal and vertical control data are shown on survey control data sheets.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted on the plans, Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 6th Edition (2012), with 2013 Interim Revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1} = 0.121 SITE CLASS = B

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60, AASHTO M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL PILING: Piling in Bents 1 & 4 shall be HP12X53 (Grade 50), and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into the material designated as Sandstone on the boring legend. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Pile lengths for Bent 1 shall be determined in the field after the completion of Exploratory Holes at the direction of the Engineer. Minimum pile penetration for all piles in Bent 1 shall be 8' below bottom of cap. Piles to be driven after embankment to bottom of cap is in place. On all piling, the Contractor shall use approved steel H-Pile driving points.

EXPLORATORY HOLES: The Contractor shall drill exploratory holes at Bent 1 in accordance with SP Job 050251 "EXPLORATORY HOLES". The quantities of exploratory holes shown are for bidding purposes only. The actual locations, number and depths of exploratory holes are to be determined in the field by the Engineer.

PREBORING: Preboring is required for all piling in Bent 1 if exploratory holes indicate that the depth to rock is less than 8' below the bottom of cap. If preboring is required, prebored holes shall be to a minimum depth of 3' into material designated as Sandstone on the boring legend. The quantities of preboring shown are for bidding purposes only. The actual size and depth of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length of prebored hole shall be backfilled with an approved non-shrink grout or other approved material to completely fill voids. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item "PREBORING".

FOOTINGS: Footings shall be set a minimum of 2'-0" into material designated as Sandstone on the boring legend. The top of the footings at Bents 2 and 3 shall be set 2' below finished ground as determined by the lowest finished ground elevation within the footprint of the footing. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavation shall be made to neat lines of the concrete footing. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock. Excavations shall be backfilled and compacted to the level of the finished ground in accordance with Subsection 801.08.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

DETAIL DRAWINGS:	DRAWING NO.
End Bents	57294 - 57295
Intermediate Bents	57296
205' Cont. Comp. W-Beam Unit	57297 - 57301
Elastomeric Bearings	57302
Type A Approach Gutters	55030A
Concrete Riprap	55002
Steel Piling	55020

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-12-13
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER NORTH MAIN STREET
HWY. 16 - HWY. 67 (S)
WHITE COUNTY

ROUTE 13 SEC.

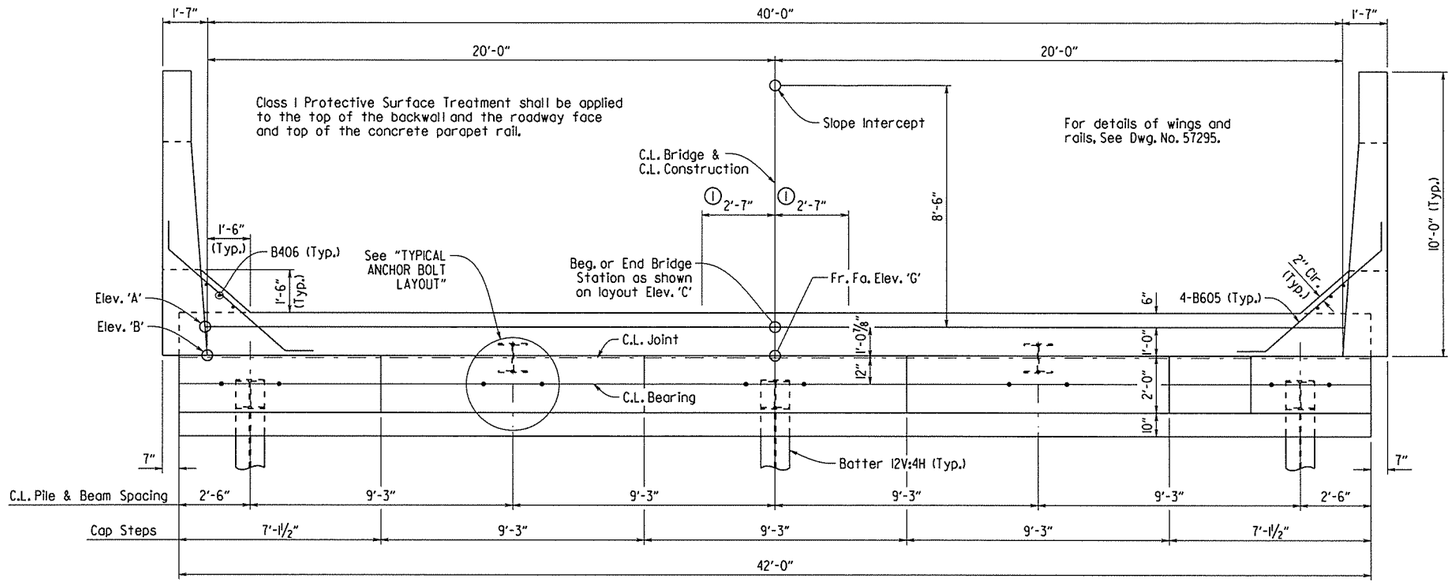
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 06/05/13. FILENAME: b050251_ll.dgn
CHECKED BY: DATE: 8/11/15 SCALE: 1" = 20'
DESIGNED BY: DATE: 5/13

BRIDGE NO. 07353 DRAWING NO. 57293

PRINT DATE: 8/11/2015

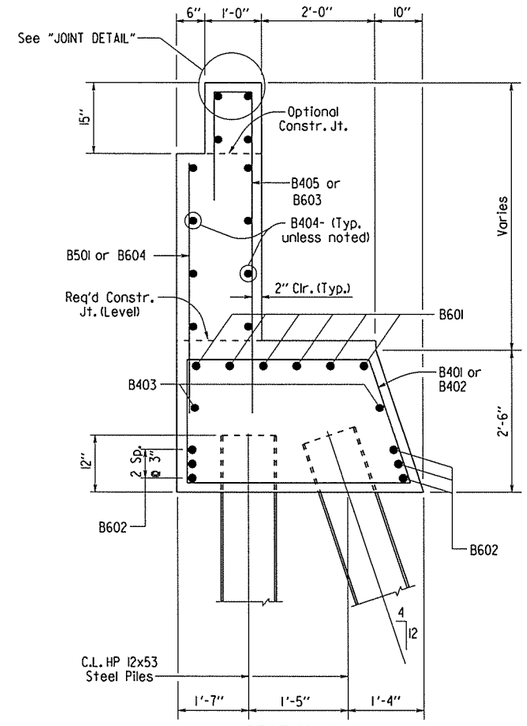
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	126	339
				①	07353 - END BENTS - 57294			



PLAN

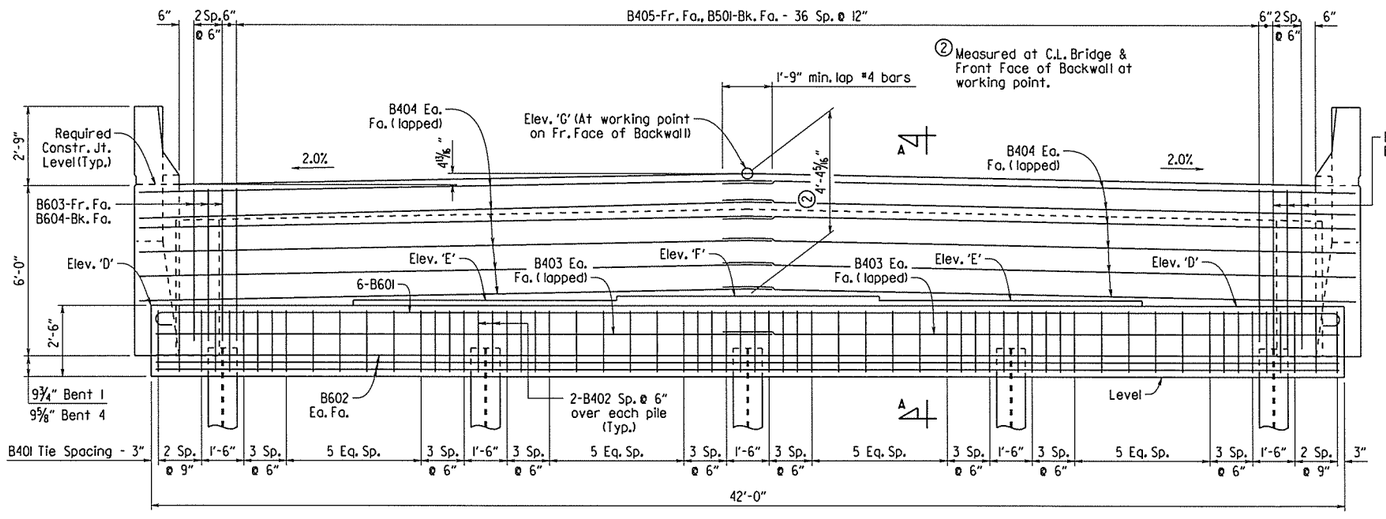
3/8" = 1'-0"

① See "ROUNDING DETAIL" on Dwg. No. 57297.



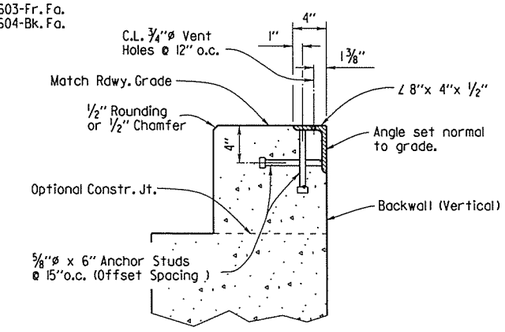
SECTION A-A

No Scale



ELEVATION

3/8" = 1'-0"
Bent 1 - Looking Back
Bent 4 - Looking Ahead



For additional Joint Details See Dwg. No. 57301.

Concrete shall be hand packed under joint armor in the backwall.

JOINT DETAIL

No Scale

GENERAL NOTES

All Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

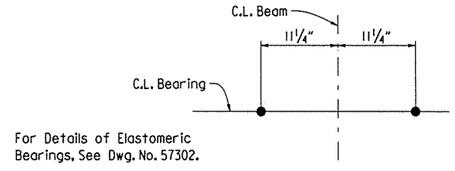
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

All structural steel shall be AASHTO M 270, Gr. 50W. Structural steel in backwall shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

No portion of the backwall shall be poured before beams are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the deck pour has been made. Refer to the "Expansion Device Installation" note, see Dwg. No. 57301.

For additional information see layout.



For Details of Elastomeric Bearings, See Dwg. No. 57302.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES

Bent No.	Elev. 'A'	Elev. 'B'	Elev. 'C'	Elev. 'D'	Elev. 'E'	Elev. 'F'	Elev. 'G'
1	252.40	252.40	252.80	248.09	248.28	248.44	252.80
4	251.62	251.63	252.02	247.33	247.51	247.67	252.03

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENTS 1 AND 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

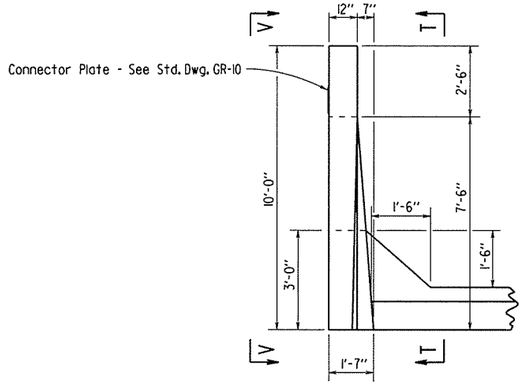
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 5/19/2014 FILENAME: b050251_b1.dgn
CHECKED BY: DATE: 8/12/15 SCALE: As Shown
DESIGNED BY: CMW DATE: 5/14

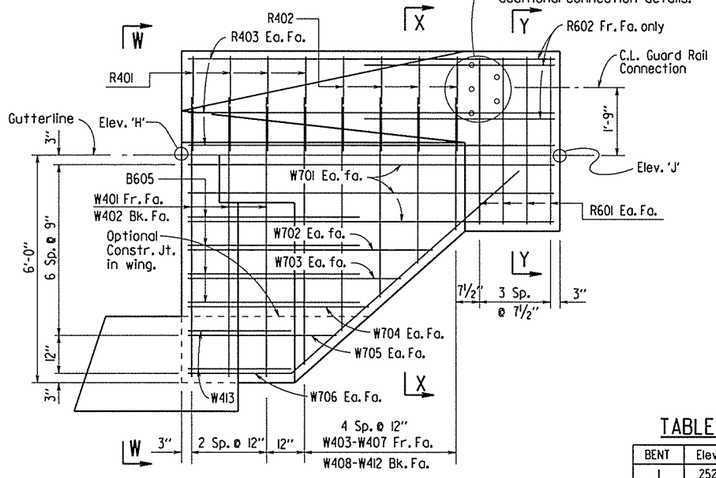
BRIDGE NO. 07353 DRAWING NO. 57294

PRINT DATE: 8/12/2015

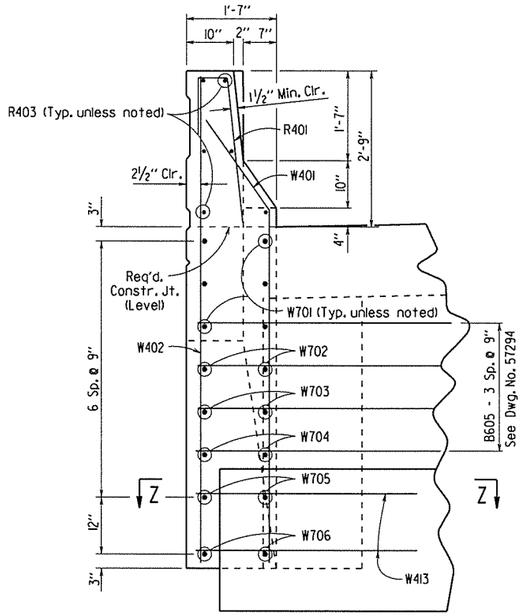
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	127	339
				①	07353 - END BENTS - 57295			



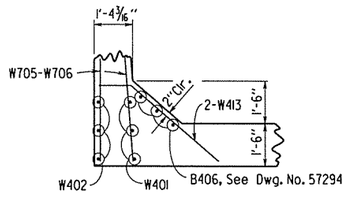
PLAN OF RAIL
3/8" = 1'-0"



VIEW T-T
1/2" = 1'-0"



VIEW W-W
3/4" = 1'-0"



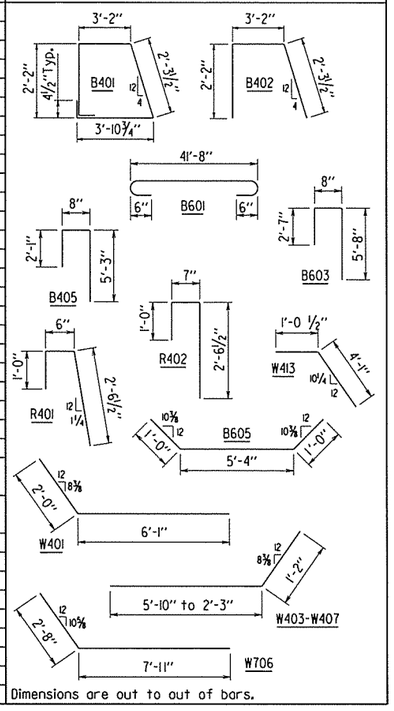
SECTION Z-Z
3/8" = 1'-0"

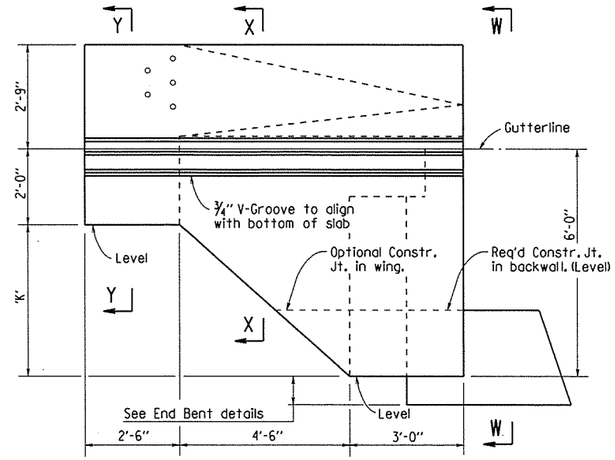
TABLE OF VARIABLES

BENT	Elev. 'H'	Elev. 'J'	'K'
1	252.40	252.44	4'-0 7/16"
4	251.63	251.59	3'-11 5/16"

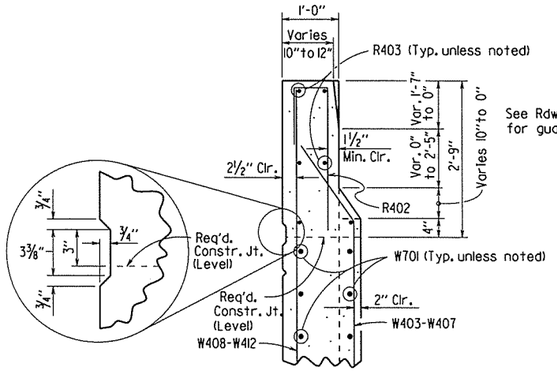
BAR LIST-PER BENT

Mark	No. Req'd.	Length	Pin Dia.	Bending Diagram
B401	54	11'-10"	2"	
B402	10	7'-6"	2"	
B403	4	21'-9"	Str.	
B404	24	22'-4"	Str.	
B405	37	7'-10"	2"	
B406	6	4'-5"	Str.	
B501	37	4'-3"	Str.	
B601	6	43'-0"	4½"	
B602	6	41'-8"	Str.	
B603	6	8'-8"	4½"	
B604	6	4'-6"	Str.	
B605	8	7'-4"	4½"	
R401	8	3'-11"	2"	
R402	8	4'-0"	2"	
R403	12	9'-8"	Str.	
R601	16	4'-5"	Str.	
R602	6	5'-0"	Str.	
W401	6	8'-1"	2"	
W402	6	8'-5"	Str.	
W403-W407	2 ea.	7'-0" to 3'-5"	2"	
W408-W412	2 ea.	8'-1" to 4'-6"	Str.	
W413	4	5'-1"	2"	
W701	12	9'-8"	Str.	
W702	4	6'-5"	Str.	
W703	4	5'-7"	Str.	
W704	4	4'-9"	Str.	
W705	4	3'-11"	Str.	
W706	4	10'-7"	5¼"	



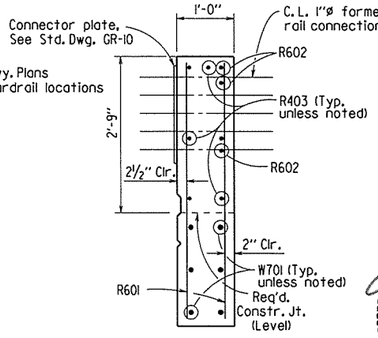


VIEW V-V
1/2" = 1'-0"

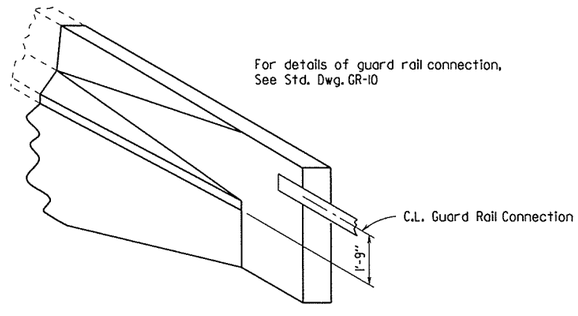


SECTION X-X
3/4" = 1'-0"

See Rdwy. Plans for guardrail locations



SECTION Y-Y
3/4" = 1'-0"



THREE DIMENSIONAL VIEW OF RAIL
No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENTS 1 AND 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 5/21/2014 FILENAME: b050251_bl.dgn
CHECKED BY: KWY DATE: 8/11/15 SCALE: As Shown
DESIGNED BY: CMW DATE: 5/14

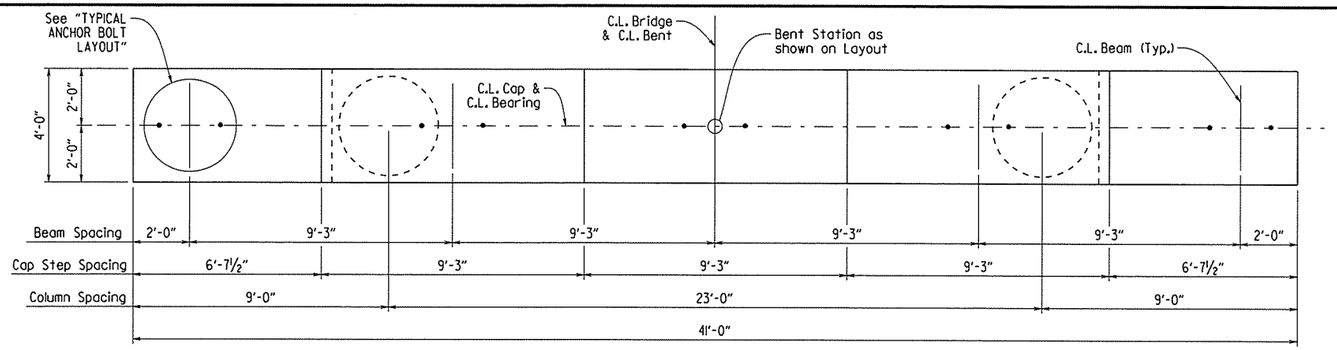
BRIDGE NO. 07353 DRAWING NO. 57295

PRINT DATE: 8/11/2015

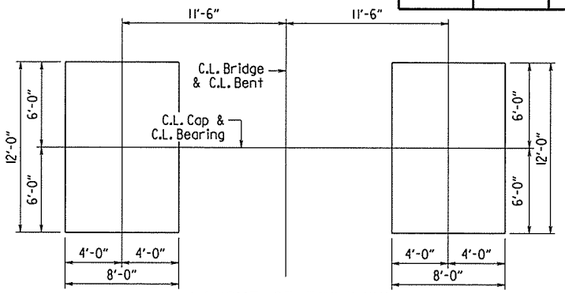
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050251	128	339

(1) 07353 - INT. BENTS - 57296



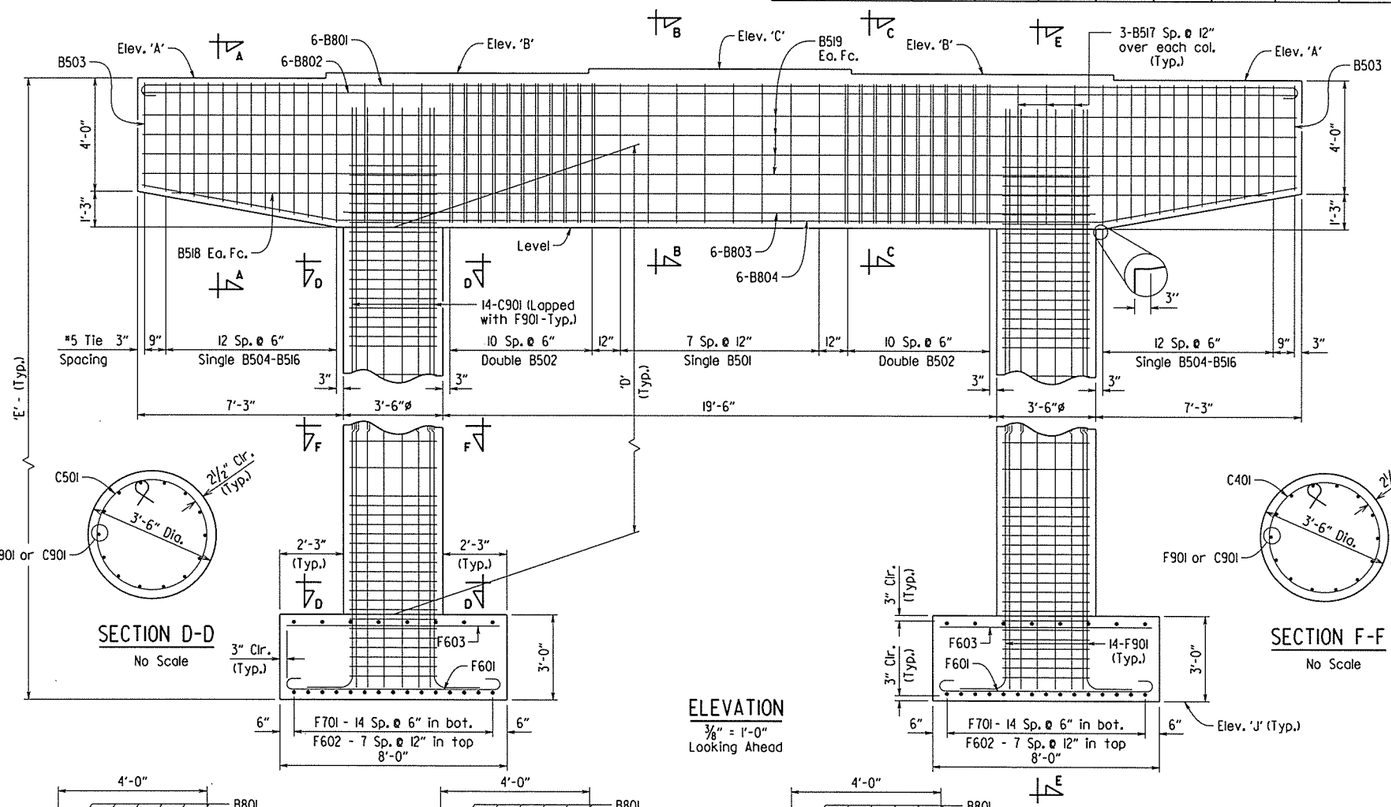
PLAN
3/8" = 1'-0"



LAYOUT OF FOOTINGS
No Scale

TABLE OF VARIABLES

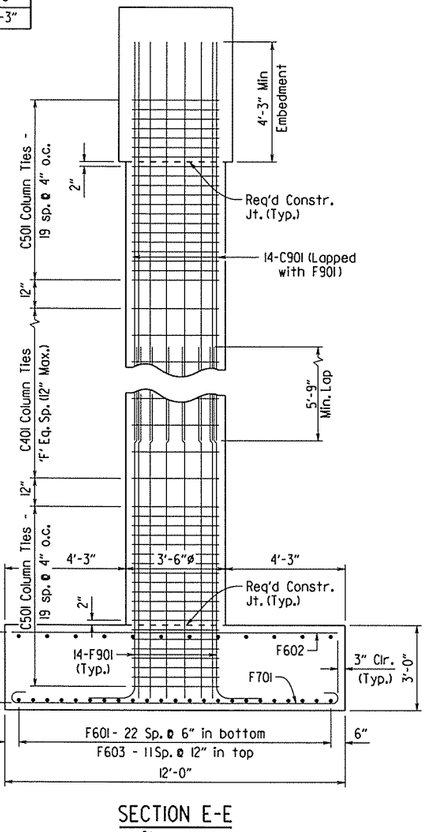
Bent No.	Elev. 'A'	Elev. 'B'	Elev. 'C'	'D'	'E'	'F'	'G'	'H'	Elev. 'J'	'K'	'L'
2	247.94	248.12	248.28	18'-9"	27'-0"	9	20	17'-6"	220.94	15'-10"	17'-3"
3	247.58	247.76	247.92	24'-9"	33'-0"	15	32	20'-6"	214.58	18'-10"	20'-3"



SECTION D-D
No Scale

ELEVATION
3/8" = 1'-0"
Looking Ahead

SECTION F-F
No Scale



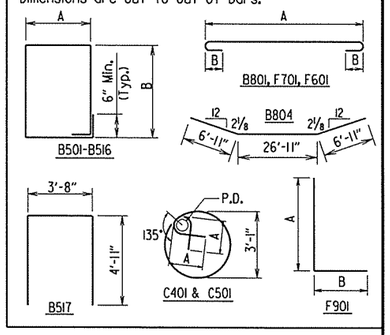
SECTION E-E
3/8" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	A	B	P.D.
B501	8	17'-8"	3'-8"	4'-11"	2½"
B502	44	14'-10"	2'-3"	4'-11"	2½"
B503	2	15'-3"	3'-8"	3'-8½"	2½"
B504-B516	2 each	Var. 15'-6" to 17'-8"	3'-8"	Var. 3'-10" to 4'-11"	2½"
B517	6	13'-4"			2½"
B518	2	38'-7"			Str.
B519	8	40'-8"			Str.
B801	6	42'-6"	40'-8"	8"	6"
B802	6	40'-8"			Str.
B803	6	26'-6"			Str.
B804	6	40'-9"			6"
C401	'G'	10'-9"	5"		3"
C501	40	11'-1"	6¼"		3¾"
C901	28	'H'			Str.
F601	46	8'-10"	7'-6"	6"	4½"
F602	16	11'-6"			Str.
F603	24	7'-6"			Str.
F701	30	13'-2"	11'-6"	7"	5¼"
F901	28	'L'	'K'	1'-8"	9"

BENDING DIAGRAMS

Dimensions are out to out of bars.



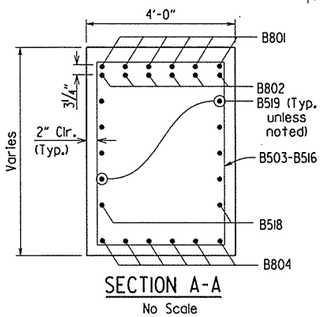
GENERAL NOTES

All Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., and shall be poured in the dry. All exposed corners are to be chamfered ¾" unless otherwise noted.

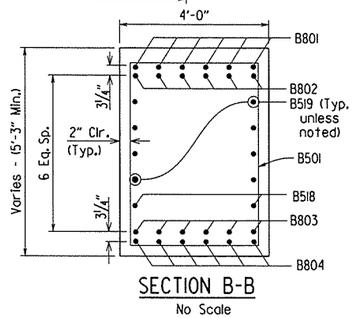
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information see layout.



SECTION A-A
No Scale



SECTION B-B
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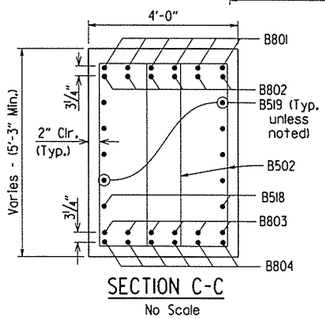

SECTION C-C
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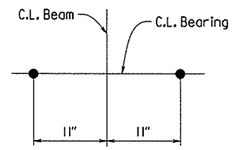


For Details of Elastomeric Bearings, See Dwg. No. 57302.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF BENTS 2 AND 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 4/28/14 FILENAME: b050251_b2.dgn
CHECKED BY: KWW DATE: 8/12/15 SCALE: As Shown
DESIGNED BY: CMW DATE: 5/14

BRIDGE NO. 07353 DRAWING NO. 57296

PRINT DATE: 8/12/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	129	339
				07353 - 205' UNIT - 57297				

Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the front face and top of the Concrete Parapet Rail.

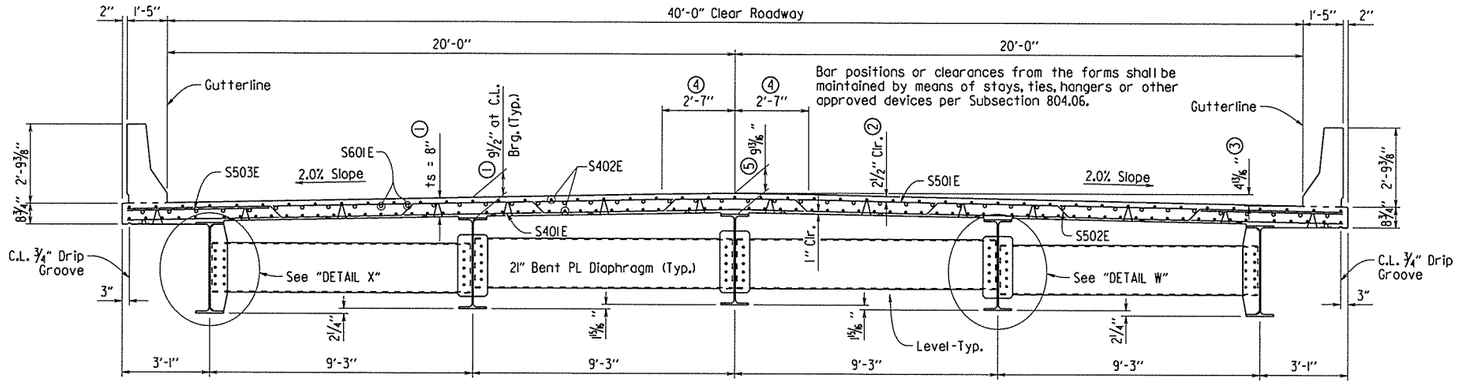
At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

Slab Reinforcing:

Longitudinal: S402E in top and bottom
S601E placed as shown over interior supports (See "REINFORCING PLAN & DECK POURING SEQUENCE" Dwg. No. 57299)

Transverse: S502E @ 12" o.c. bent up over beams — Alternate
S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom
S503E @ 6" o.c. in top of overhang

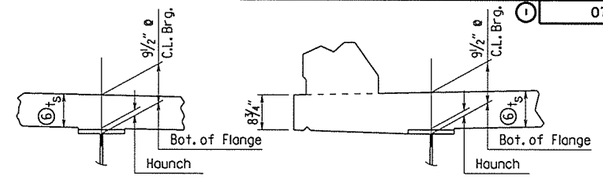
① See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"
② Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance- See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"
③ Working Point to Gutterline
④ See "ROUNDING DETAIL"
⑤ To Working Point @ C.L. Bearing, See "ROUNDING DETAIL".



TYPICAL ROADWAY SECTION

Looking Ahead (W40x149 Shown)
⅜" = 1'-0"

The superstructure details shown are for use when Removable Deck Forming is used and are the basis for measurement of Class S(AE) Concrete.



t_s = slab thickness as shown in "Typical Roadway Section"

⑥ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

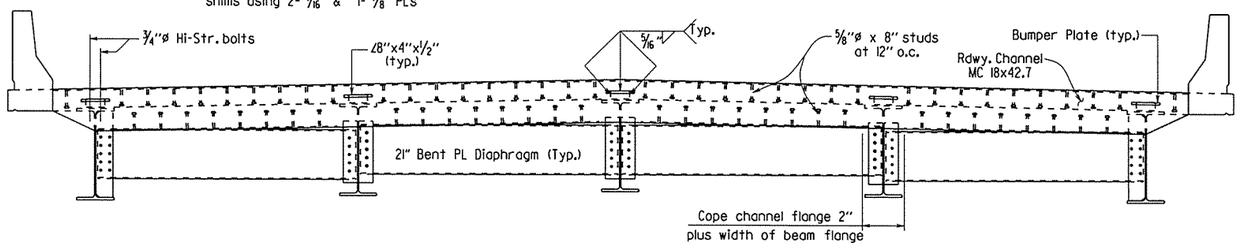
No Scale

NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

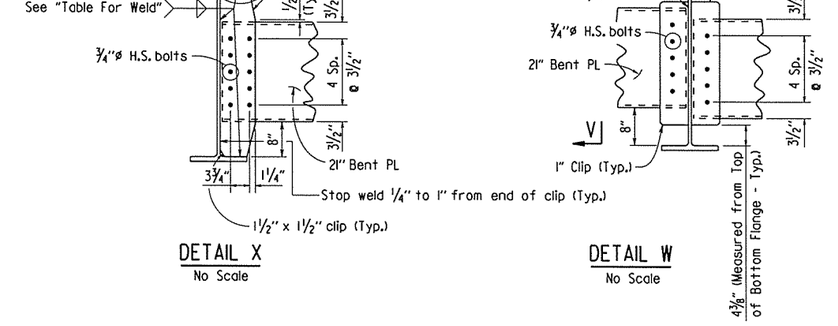
Expansion Device:
Rdwy. Channel - MC 18x42.7
Conn. ∠'s 8"x4"x ½"
Detail Device ⅛" high & provide ¼" shims using 2- 1/16" & 1- ⅛" PLs

For details of poured silicone joint, See Dwg. No. 57301.



SECTION THRU JOINT

Looking Ahead Bent 1 (W40x199 Shown)
⅜" = 1'-0"



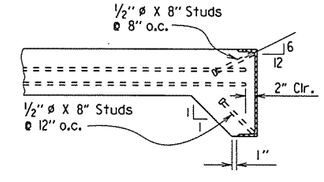
DETAIL X

No Scale

DETAIL W

No Scale

⑦ If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



As an alternate to ⅝" ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of ⅝"ø stud as basis of measurement of structural steel in anchors.

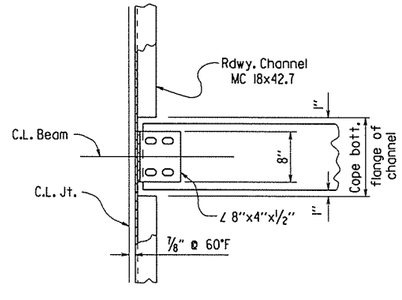
DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale

TABLE FOR WELD

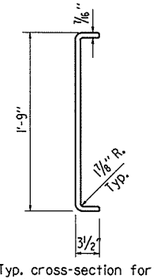
Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅝"	

When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



CHANNEL CONNECTION DETAIL

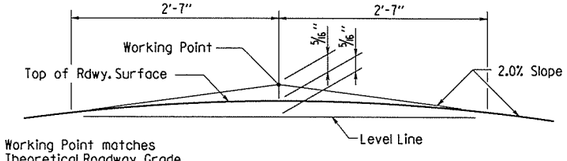
No Scale



Typ. cross-section for all 21" bent plate diaphragms.

SECTION V-V

No Scale



Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

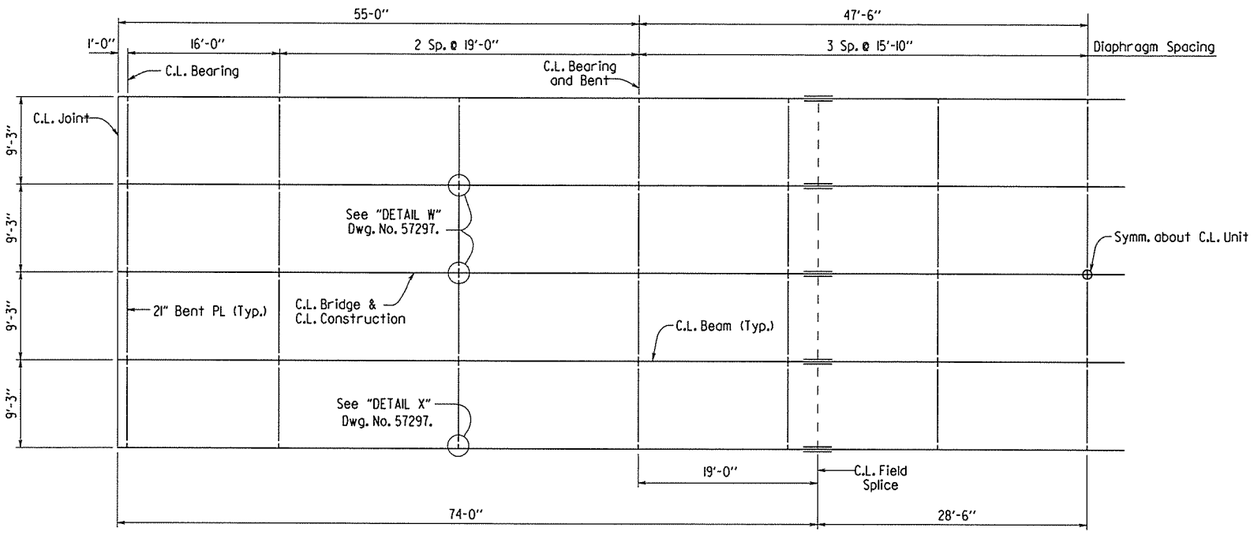
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 7/15/2013 FILENAME: b050251_sl.dgn
CHECKED BY: RWY DATE: 8/11/15 SCALE: As Shown
DESIGNED BY: CMW DATE: 6/13

BRIDGE NO. 07353 DRAWING NO. 57297

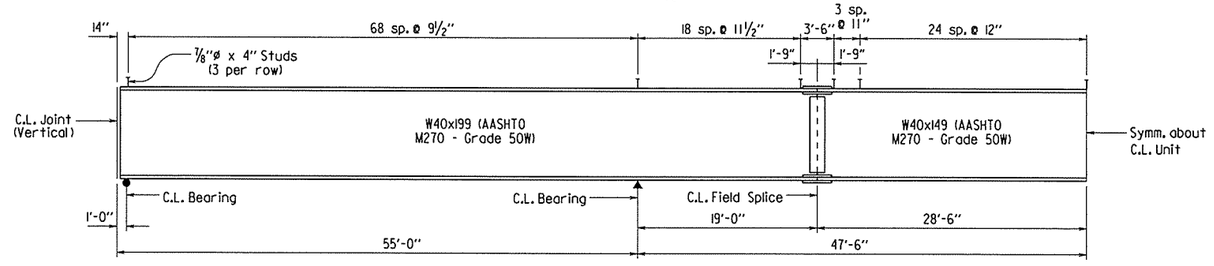
PRINT DATE: 8/11/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	130	339
				①		07353 - 205' UNIT - 57298		



FRAMING PLAN

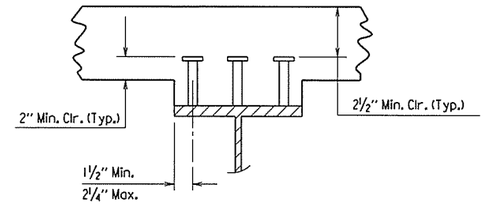
1/8" = 1'-0"



Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

BEAM ELEVATION

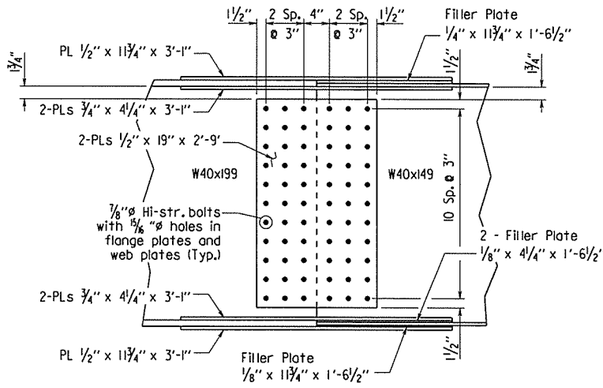
No Scale



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the ⅞"ø studs shown, at the ratio of 1.361 - ¾"ø studs in place of one ⅞"ø stud. ⅞"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24"

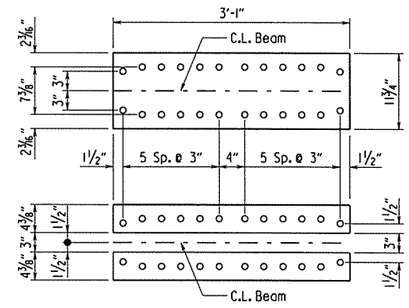
SHEAR CONNECTOR DETAIL

NO SCALE



WEB SPLICE

All splice plates shall be AASHTO M270, Gr. 50W



FLANGE SPLICE

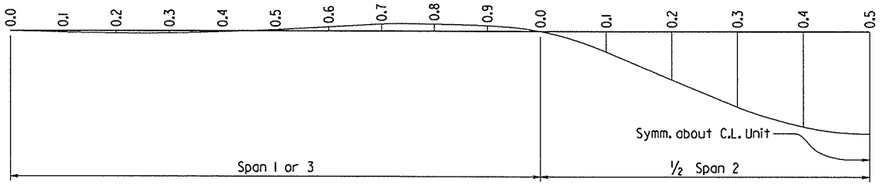
FIELD SPLICE DETAIL

1" = 1'-0"

① TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1 or 3	0	0	0	0	0	0	0
	0.1	0.006	0.006	0.025	0.022	0.026	0.023
	0.2	0.009	0.009	0.040	0.035	0.041	0.036
	0.3	0.011	0.011	0.039	0.034	0.039	0.034
	0.4	0.009	0.009	0.019	0.017	0.017	0.015
	0.5	0.005	0.005	-0.018	-0.015	-0.023	-0.020
	0.6	-0.001	-0.001	-0.065	-0.055	-0.073	-0.063
	0.7	-0.008	-0.008	-0.103	-0.088	-0.113	-0.099
	0.8	-0.011	-0.011	-0.118	-0.101	-0.128	-0.112
	0.9	-0.010	-0.010	-0.091	-0.078	-0.099	-0.086
½ Span 2	0	0	0	0	0	0	0
	0.1	0.044	0.044	0.342	0.293	0.369	0.322
	0.2	0.107	0.107	0.808	0.693	0.872	0.760
	0.3	0.169	0.169	1.268	1.087	1.366	1.191
	0.4	0.215	0.215	1.596	1.369	1.719	1.499
C.L. Unit →	0.5	0.232	0.232	1.715	1.471	1.847	1.610

Table is symmetrical about C.L. Unit



Camber for Dead Load Deflection plus Vertical curve ± ¼" tolerance. Deflections shown are from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.

① Deflections are based on Pouring Sequences shown on Dwg. No. 57299. Deviations from the plans may require adjustment to structural steel camber.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 7/15/2013 FILENAME: b050251_sl.dgn
CHECKED BY: KWY DATE: 8/11/15 SCALE: As Shown
DESIGNED BY: CMW DATE: 6/13

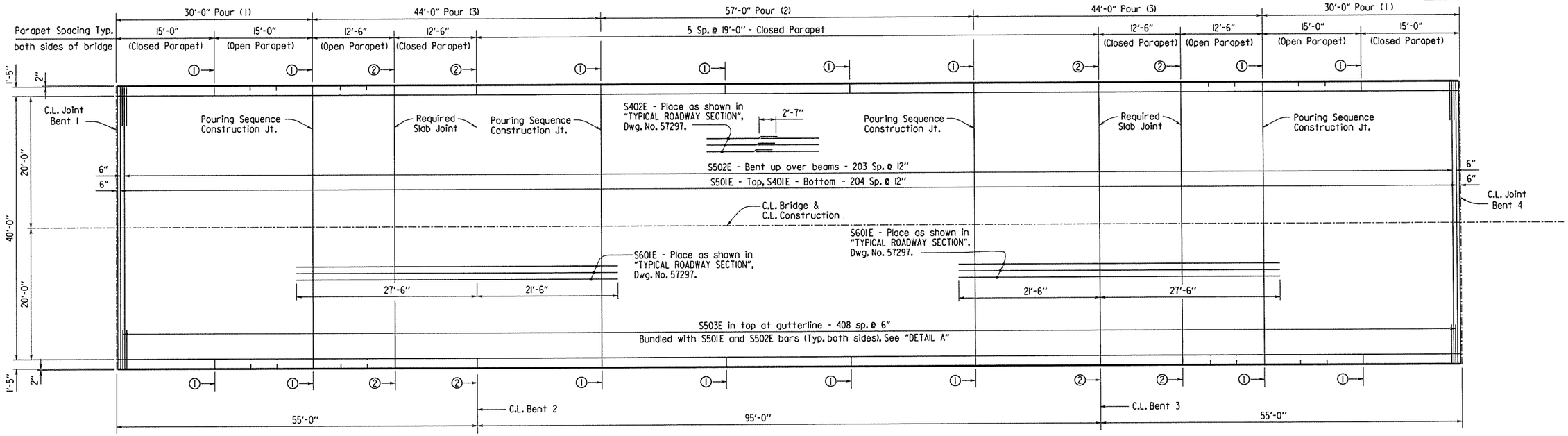
BRIDGE NO. 07353 DRAWING NO. 57298

PRINT DATE: 8/11/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	131	339
				①	07353 - 205' UNIT - 57299			

① C.L. Full-Depth Parapet Joint (1/4" to 1" Max.) Stop 4" from top of slab.

② C.L. Partial-Depth Parapet Joint (1/4" to 1" Max.) Stop 1'-2" from top of slab.



REINFORCING PLAN & DECK POURING SEQUENCE

1/8" = 1'-0"

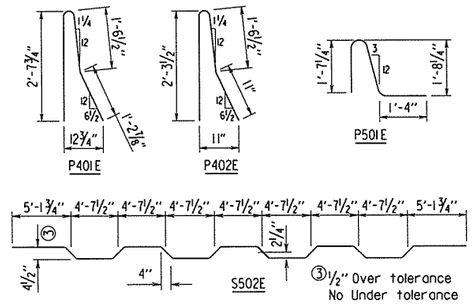
DECK POURING SEQUENCE
Note: Pour (1) must be placed before Pour (2) can be placed. 48 hours shall elapse between the end of Pour (1) and the start of Pour (2). Pour (2) must be placed before Pour (3) can be placed. 72 hours shall elapse between the end of Pour (2) and the start of Pour (3). Pours with the same number may be placed simultaneously or separately.

ALTERNATE POURING SEQUENCE
Note: Pour (1) must be placed before Pour (2) can be placed. 72 hours shall elapse between the end of Pour (1) and the start of Pour (2).

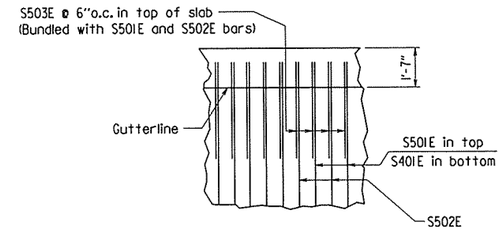
Dead load deflections shown on Dwg. No. 57298 are based on the pouring sequences shown. Deviation from either of the two pouring sequences shown will not be allowed. A single continuous pour will not be allowed. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

BAR LIST

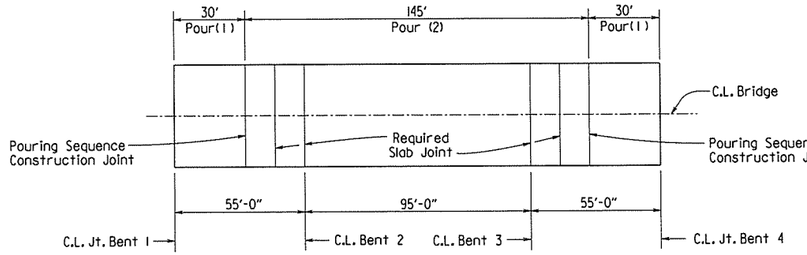
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	205	42'-10"	Str.	Dimensions are out to out of bars.
S402E	726	36'-4"	Str.	
S501E	205	42'-10"	Str.	
S502E	204	43'-6"	3"	
S503E	818	4'-10"	Str.	
S601E	92	49'-0"	Str.	
P401E	774	5'-6"	3"	
P402E	64	4'-10"	3"	
P403E	64	5'-6"	Str.	
P404E	56	12'-2"	Str.	
P405E	56	14'-8"	Str.	
P406E	70	18'-8"	Str.	
P501E	774	4'-9"	3 3/4"	



Bars marked with an "E" suffix shall be epoxy coated.

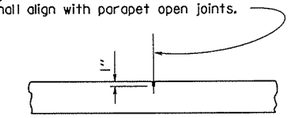


DETAIL A
No Scale



ALTERNATE POURING SEQUENCE
No Scale

Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



SLAB JOINT DETAIL
No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 7/15/2013 FILENAME: b050251_sl.dgn
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BRIDGE NO. 07353 DRAWING NO. 57299

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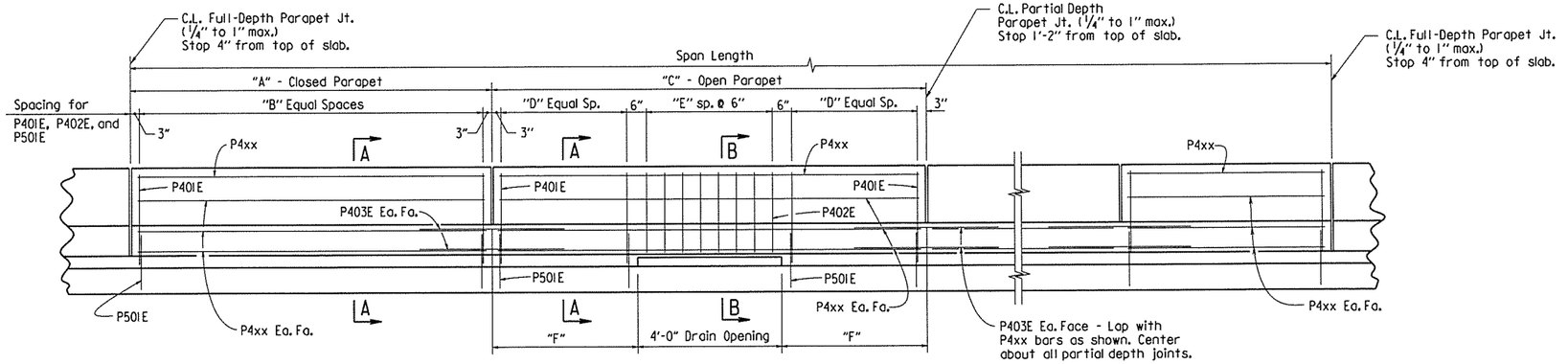
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	132	339
				(1)		07353 - 205' UNIT - 57300		



ELEVATION - CONCRETE PARAPET RAIL

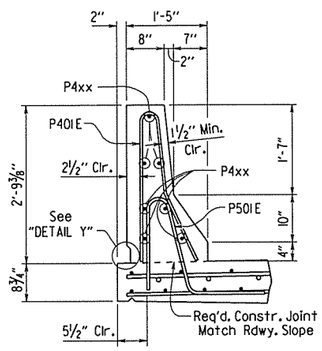
1/2" = 1'-0"

For location of full and partial depth parapet joints, see Dwg. No. 57299.

TABLE OF PARAPET RAIL VARIABLES

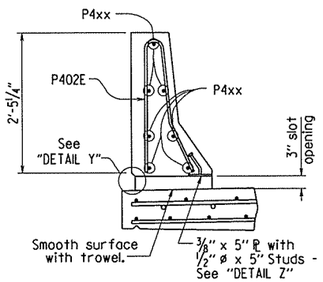
Closed Rail Panels			Open Rail Panels				
"A"	"B"	P4xx Bar	"C"	"D"	"E"	"F"	P4xx Bar
12'-6"	24	P404E	12'-6"	8	7	4'-3"	P404E
15'-0"	30	P405E	15'-0"	10	7	5'-6"	P405E
19'-0"	38	P406E					

For location of Open and Closed Parapet panels, See "REINFORCING PLAN & DECK POURING SEQUENCE", Dwg. No. 57299.



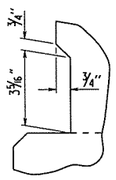
SECTION A-A

3/4" = 1'-0"



SECTION B-B

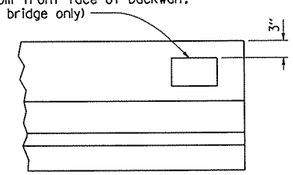
3/4" = 1'-0"



DETAIL Y

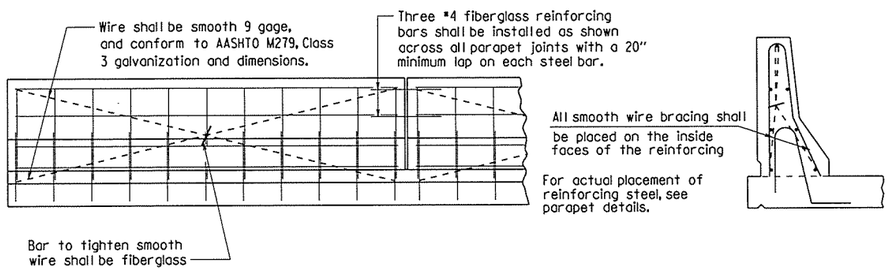
No Scale

Place Type D Bridge Name Plate on right parapet rail approx. 2'-0" from front face of backwall. (Beg. of bridge only)



NAME PLATE DETAIL

No Scale

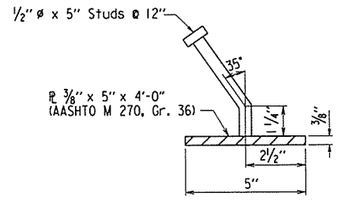


All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practicalto a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



DETAIL Z

No Scale

The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)."

Parapet studs shall be 5" long, granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)."

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 7/15/2013 FILENAME: b050251_sl.dgn
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BRIDGE NO. 07353 DRAWING NO. 57300

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				6	ARK.			
				JOB NO.		050251	133	339
				①		07353 - 205' UNIT - 57301		

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Specifications.

DESIGN SPECIFICATIONS: See Bridge Layout.

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

STRUCTURAL STEEL:
All Structural Steel shall be AASHTO M 270, Gr. 50W unless otherwise noted. All structural steel shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Structural Steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e) unless noted otherwise.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams including web and flange splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr.50W)".

Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

Bent plate diaphragms may be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted, and approval secured before fabrication is begun.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

All beams shall be blocked in their true position in the shop as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings, and opening of joints shall be measured with the beams in their true position and this information shall become part of the permanent record of this job. The component parts shall be match marked in this assembly and those marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F°. A tolerance of 1/4" (plus or minus) is allowed for camber.

Field Connections shall be bolted with high-strength 3/4"ø bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for 3/4"ø high-strength bolts may be 15/16"ø if a washer is supplied for use under both the nut and head of the bolt.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

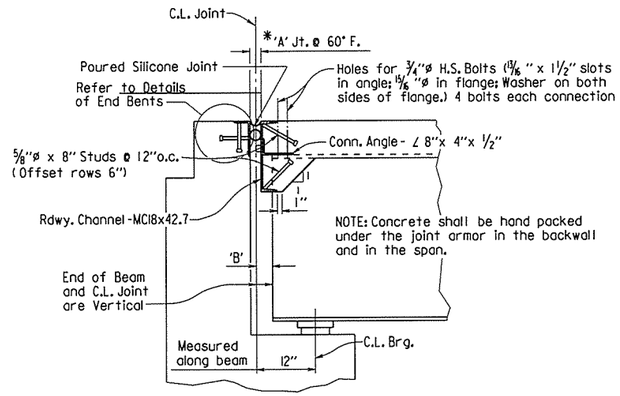
REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports, sufficient in size and number, to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

CONCRETE:
All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4000 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted. Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The superstructure details shown are for use when Removable Deck Forming is used and are the basis for measurement of Class S(AE) Concrete. See Std. Dwg. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

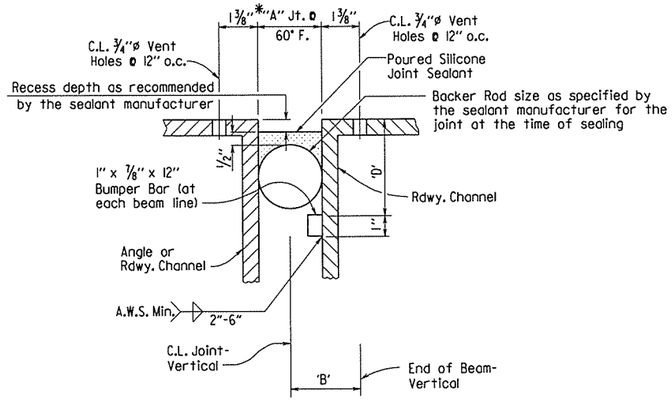
The concrete deck shall be given a Tine Finish in accordance with Subsection 802.19 for Class 5, Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the parapet railing.

A minimum of 72 hours shall elapse between completion of the bridge deck slab and the pouring of the parapet railing. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.



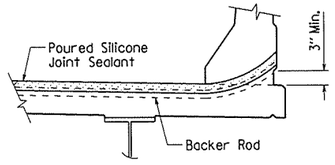
SECTION THRU JOINT AT BENTS 1 & 4

No Scale



DETAIL OF POURED SILICONE JOINT SEAL

No Scale



JOINT SEAL PLACEMENT AT CURB

No Scale

SILICONE JOINT DATA

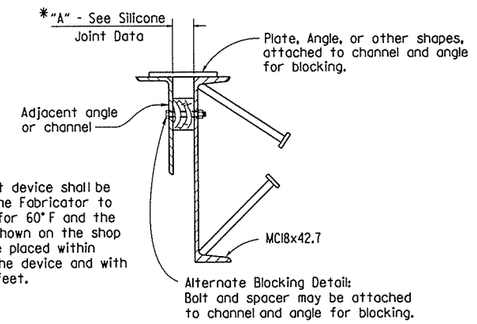
Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of:			"B" Perpendicular to Joint at 60°F	Bumper Plate Size	'D'
	40°F	60°F	80°F			
1 & 4	1 15/16"	1 3/4"	1 9/16"	2 1/8" ±	1" x 7/8"	4 1/4"

* The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

NOTES: The temperature limitations recommended by the sealant manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing. Except as noted, do not install more backer rod that can be sealed in the same day.

The contractor shall verify separation of the backer rod from the joint material after the joint material has set.



NOTE: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

No Scale

EXPANSION DEVICE INSTALLATION

The Contractor may elect to install the expansion device for the end bents using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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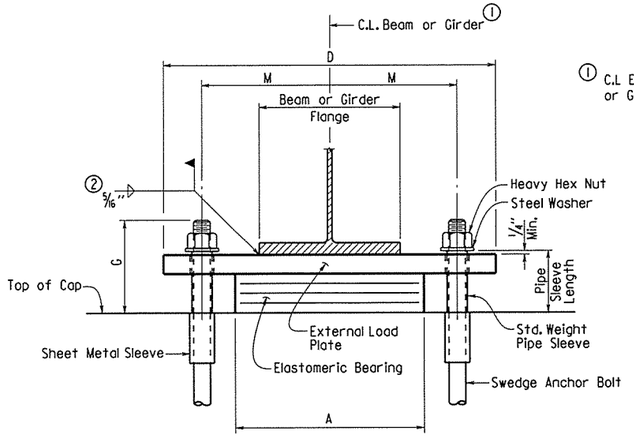
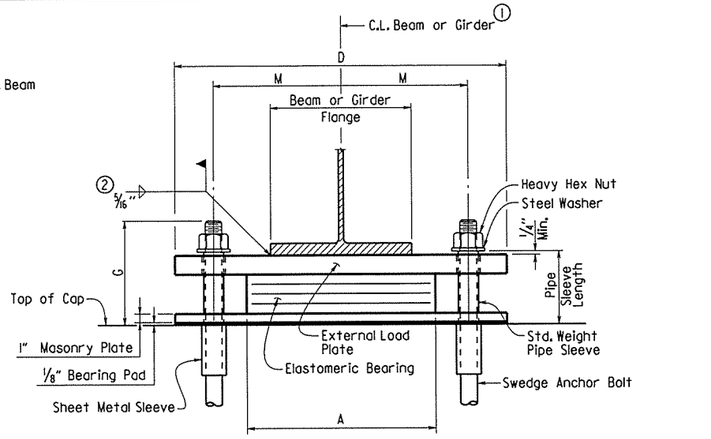
				6	ARK.			
				JOB NO.		050251	134	339
				①		07353 - ELASTO. BEARINGS - 57302		

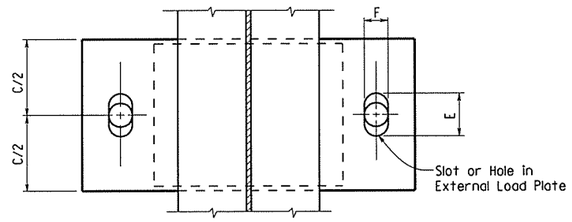


① C.L Elastomeric Pad shall be aligned with C.L. Beam or Girder.

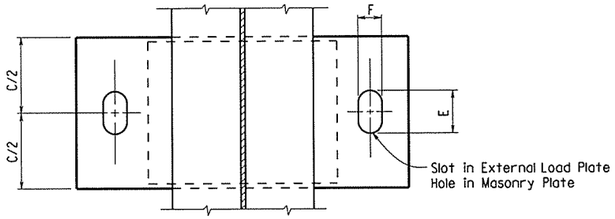
FRONT VIEW - AT BENT NOS. 2 & 3



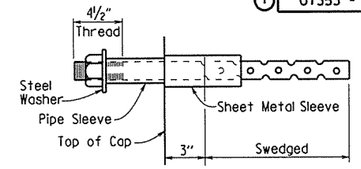
FRONT VIEW - AT BENT NOS. 1 & 4



PLAN VIEW - AT BENT NOS. 2 & 3



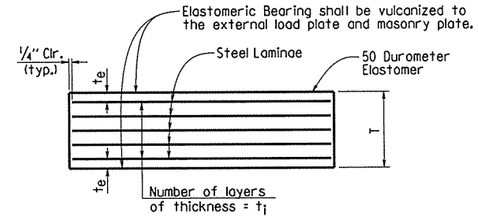
PLAN VIEW - AT BENT NOS. 1 & 4



ANCHOR BOLT DETAIL

Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)"



t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

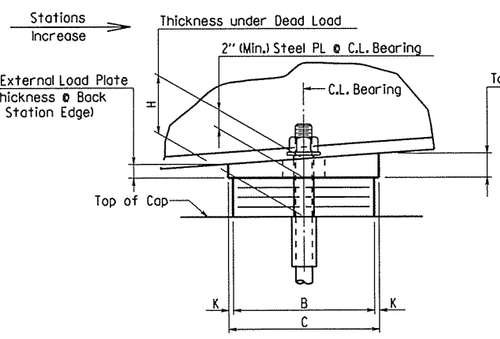
External load plates and masonry plates shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates and masonry plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates, masonry plates and 1/8" bearing pads will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings with masonry plates shall be seated in accordance with Subsection 807.66. Bearings without masonry plates shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

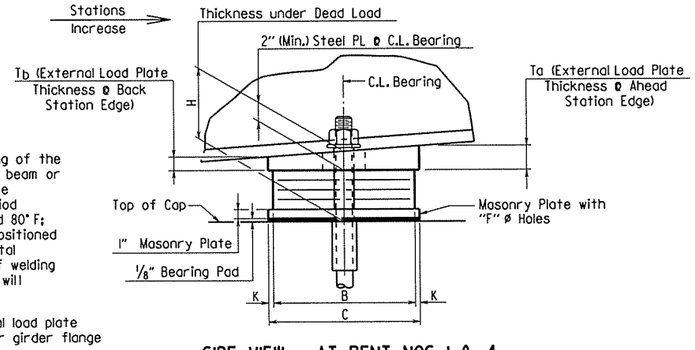


SIDE VIEW - AT BENT NOS. 2 & 3

The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in the "Table of Fabricator Variables".

② Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam or girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.



SIDE VIEW - AT BENT NOS. 1 & 4

TABLE OF FABRICATOR VARIABLES

*Maximum Design Load = Service I Limit State

**Dimension "E" applies to External Load Plates only. "F" ø Holes shall be used in Masonry Plates.

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE: C	D	**E	F	K	M	T_a	T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07353	1 & 4	All	Exp	5	91	7 3/4"	4 15/16"	18"	8"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	9"	28"	3 7/8"	2 1/4"	1/2"	11 1/4"	1.98"	2.02"	1 1/2"ø x 25"	55	1 1/2"ø x 5 1/4"	3"ø x 6"	3"
	2 & 3	All	Fix	5	258	8"	4 3/8"	16"	12"	3	1/2"	1/4"	4 @ 12 Ga.	2 1/16"	13"	28 1/2"	3 1/8"	3 1/8"	1/2"	11"	1.98"	2.02"	2 1/4"ø x 33"	55	2 1/2"ø x 4 5/8"	4"ø x 6"	4"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-12-15
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 5/22/2014 FILENAME: b050251_el.dgn

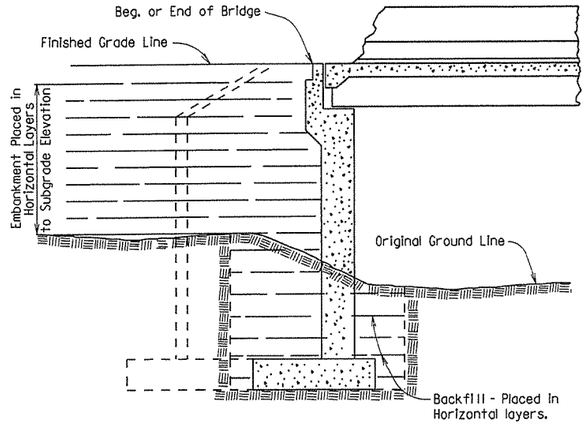
CHECKED BY: KWY DATE: 8/11/15 SCALE: No Scale

DESIGNED BY: CMW DATE: 6/13

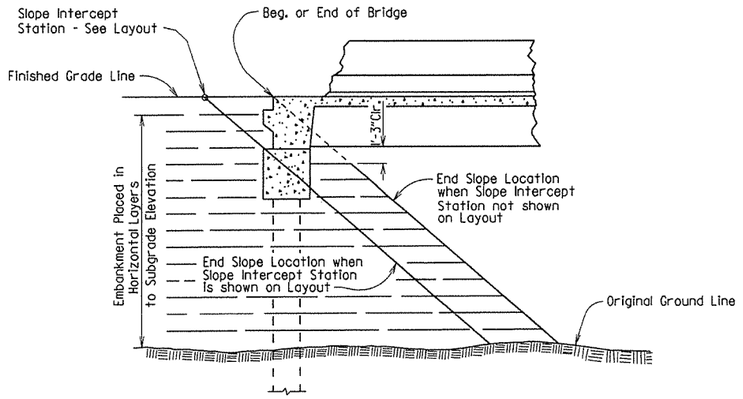
BRIDGE NO. 07353 DRAWING NO. 57302

PRINT DATE: 8/11/2015

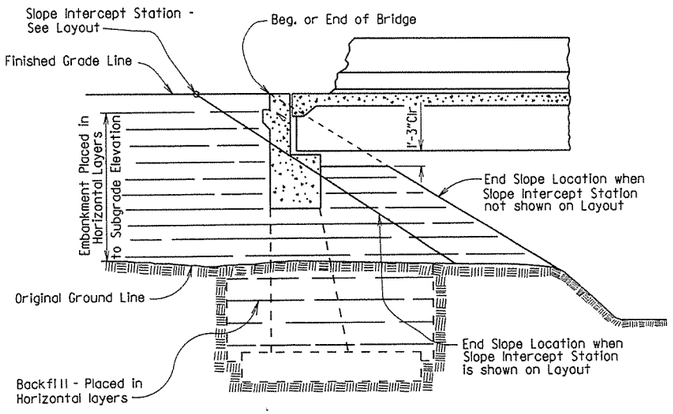
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		135	
				JOB NO.				
				(1) EMBANKMENT & BACKFILL 55000				



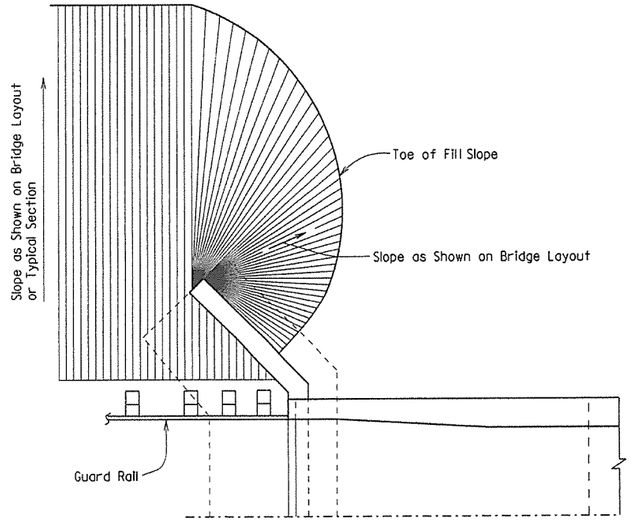
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



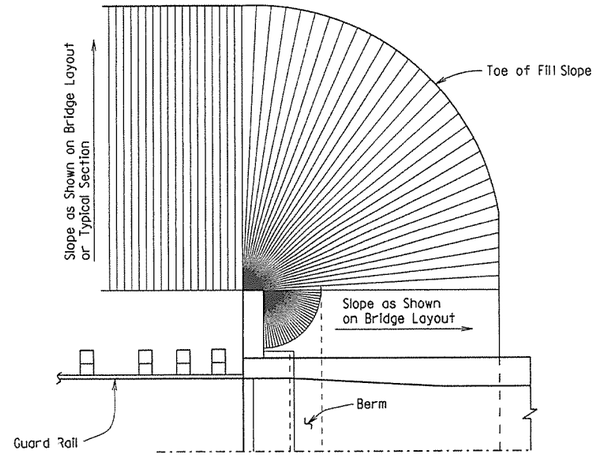
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



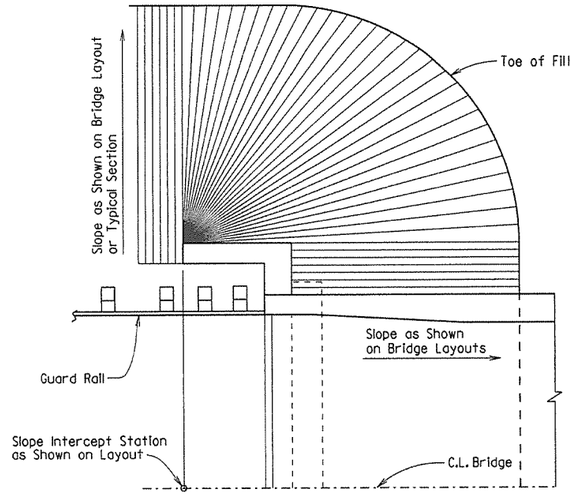
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



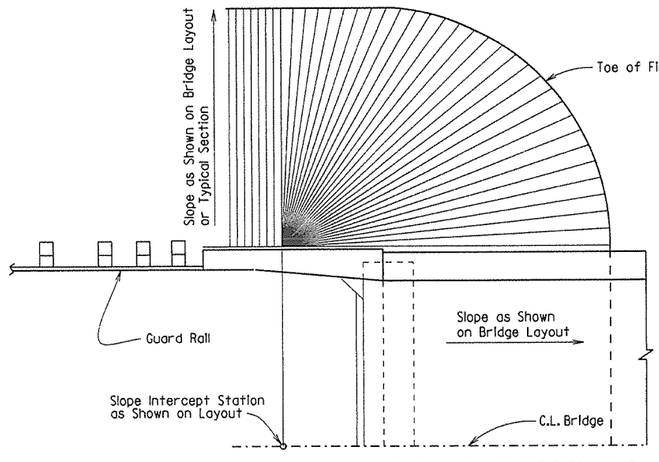
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

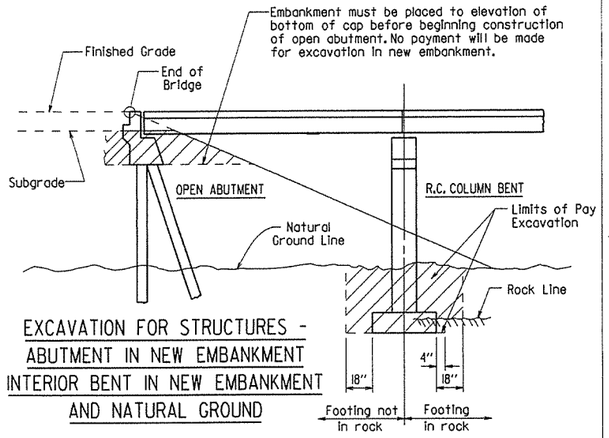
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

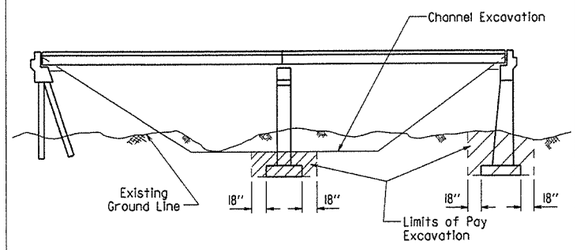
DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		136	
				JOB NO.				

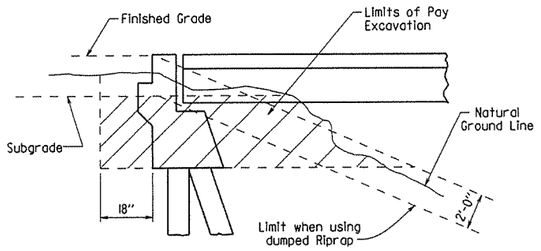
(1) RIPRAP & EXCAV. 55001



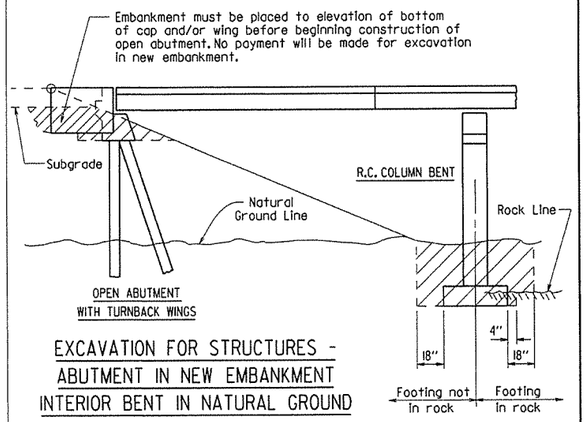
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



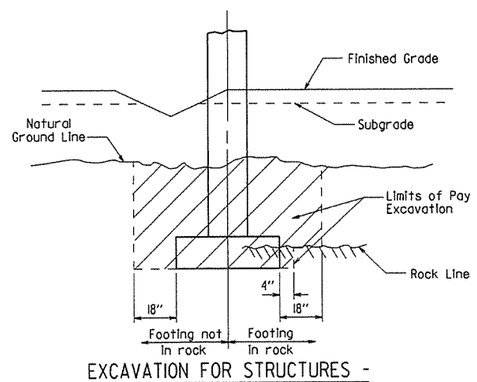
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



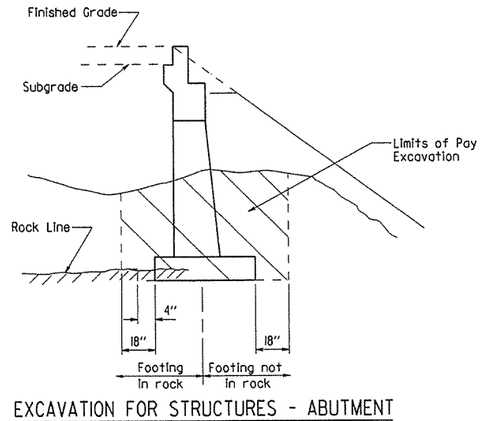
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



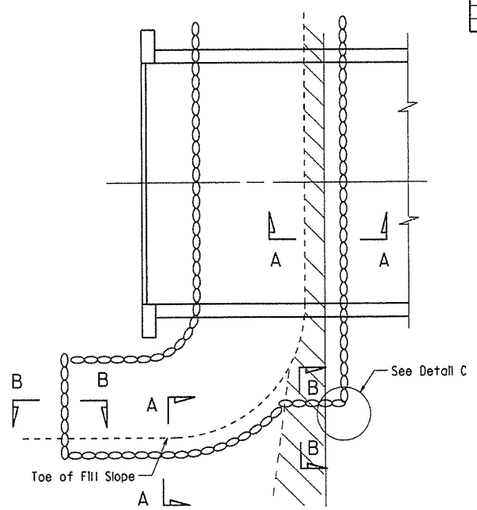
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



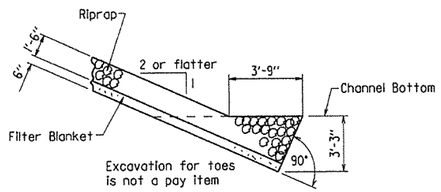
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

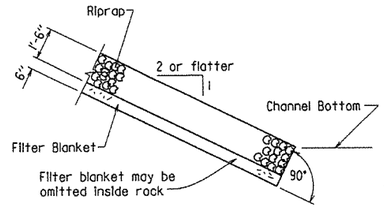


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



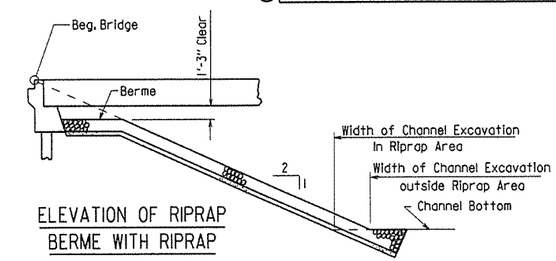
SECTION A-A

(Toe Excavation in Rock)

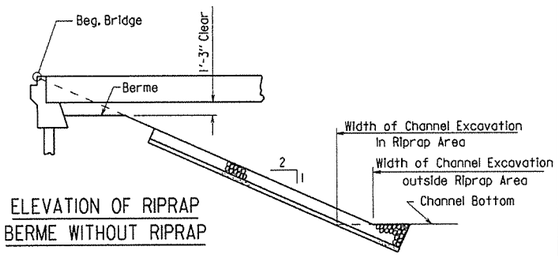
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

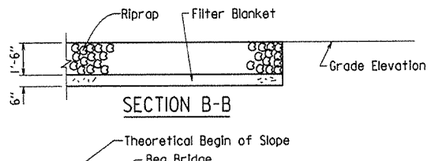
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



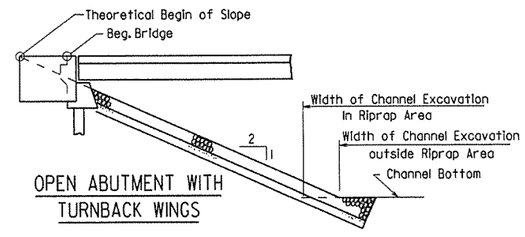
ELEVATION OF RIPRAP BERME WITH RIPRAP



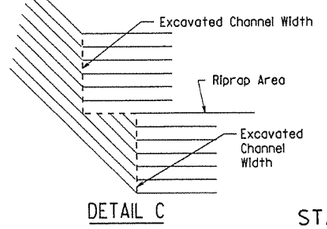
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

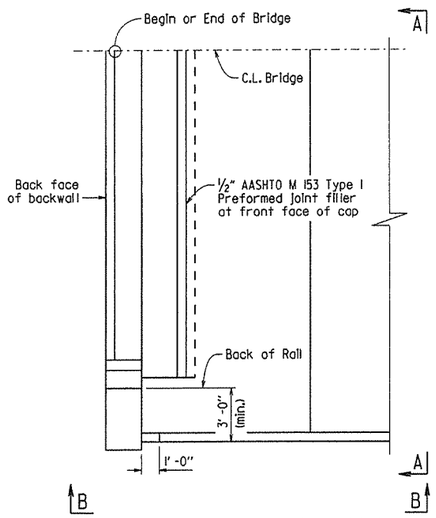
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

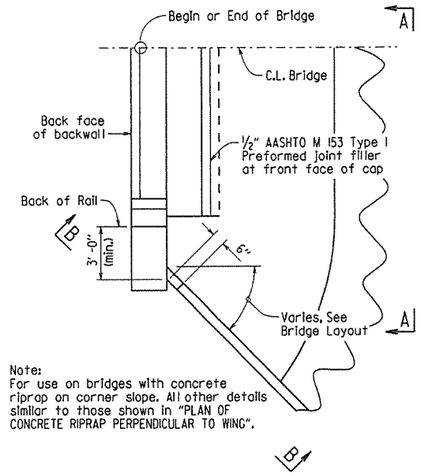
DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		137	
				JOB NO.				
				①	CONCRETE RIPRAP 55002			

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.

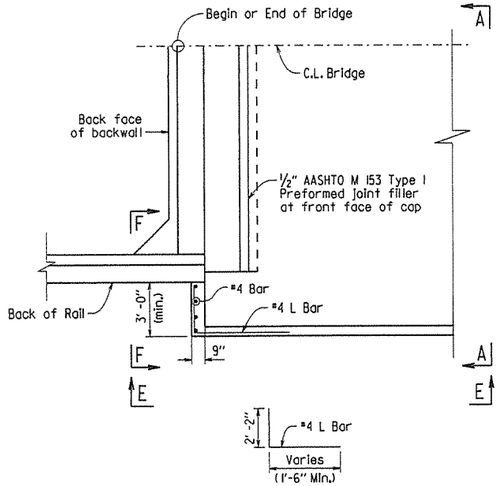


PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING
¼" = 1'-0"

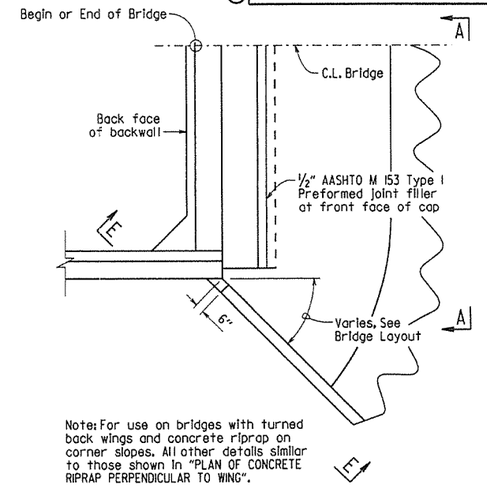


PLAN OF CONCRETE RIPRAP AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

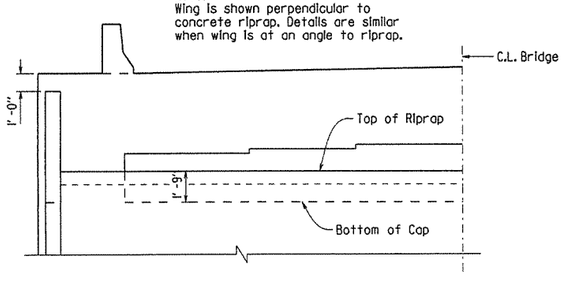


PLAN OF CONCRETE RIPRAP PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



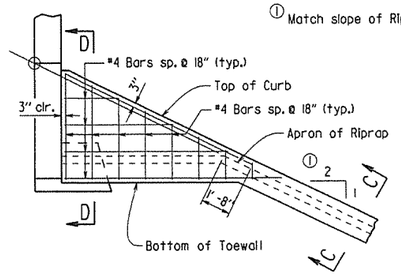
PLAN OF CONCRETE RIPRAP AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.

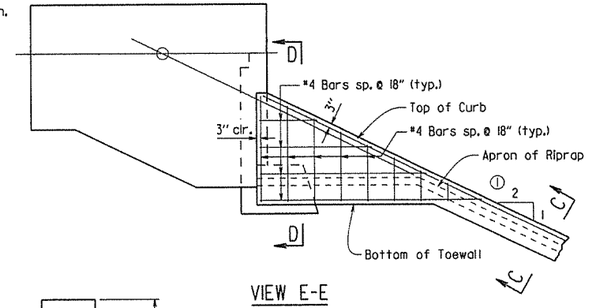


VIEW A-A
¼" = 1'-0"

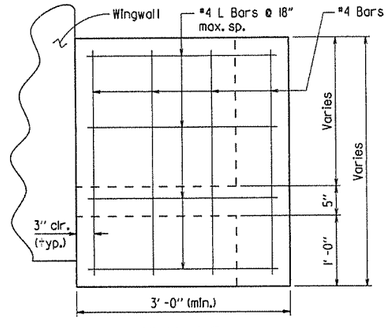
① Match slope of Riprap Apron.



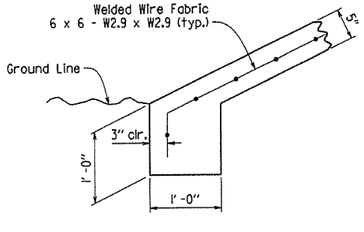
VIEW B-B
¼" = 1'-0"



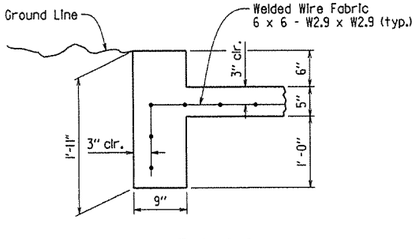
VIEW E-E
¼" = 1'-0"



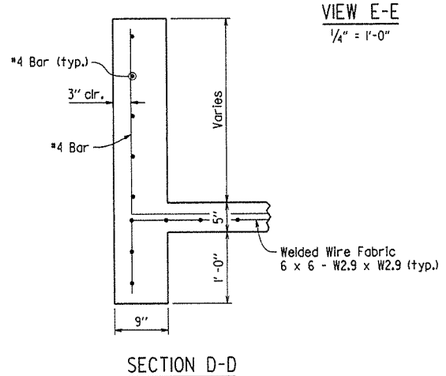
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

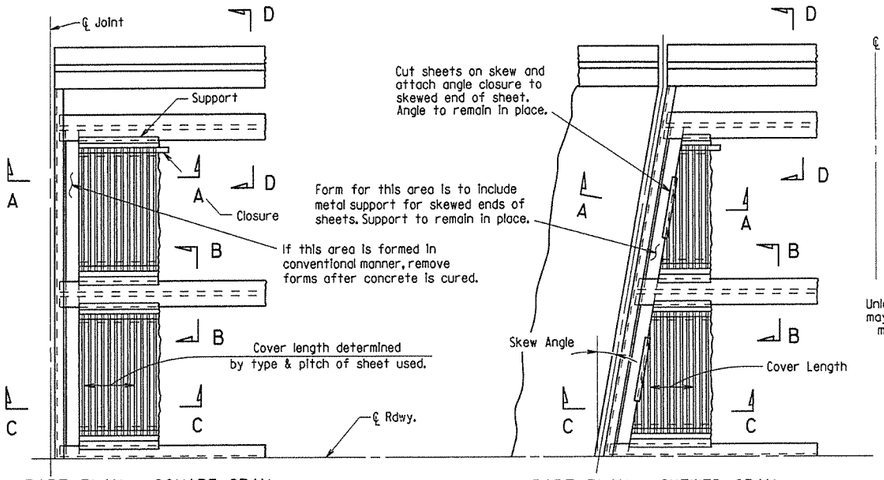
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		138	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

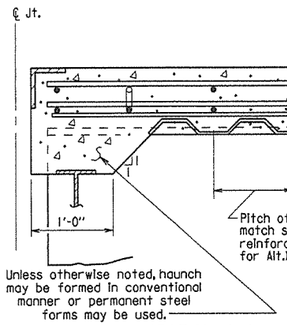


PART PLAN - SQUARE SPAN

⅜" = 1'-0"

PART PLAN - SKEWED SPAN

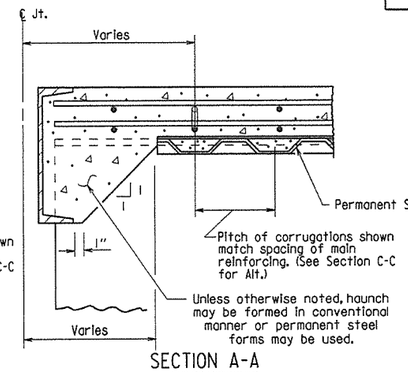
⅜" = 1'-0"



SECTION A-A

N.T.S.

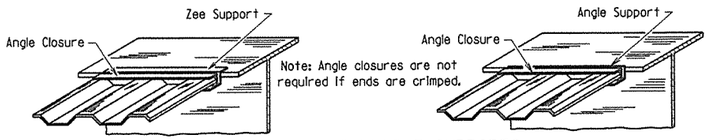
(Angle at end of span)



SECTION A-A

N.T.S.

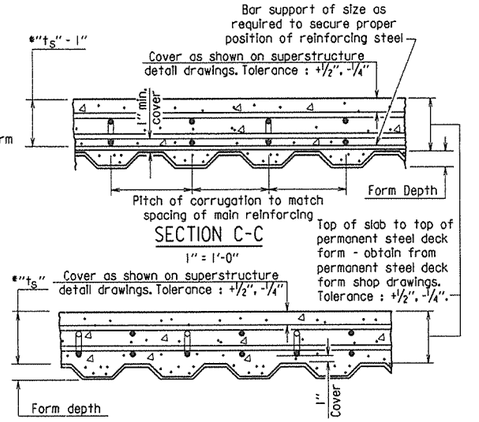
(Channel at end of span)



Note: Angle closures are not required if ends are crimped.

SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.



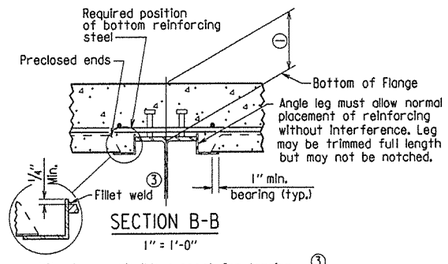
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)

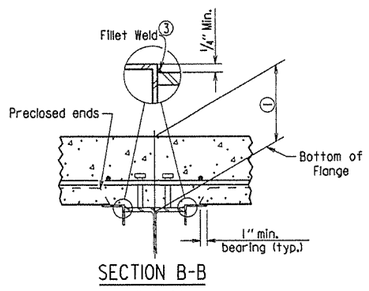


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

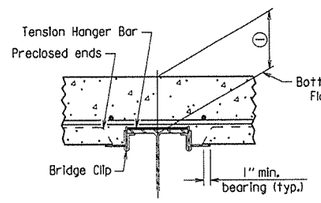
③ Minimum weld: ¼" x 1' @ 18". More weld may be required; maximum length per weld = 1½" (typ.)



SECTION B-B

1" = 1'-0"

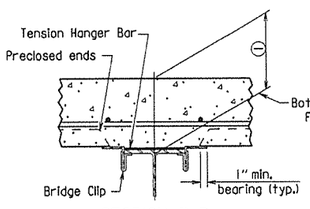
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

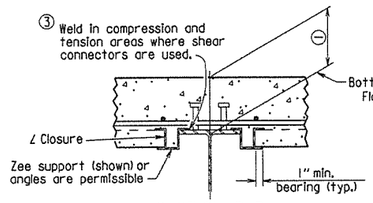
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

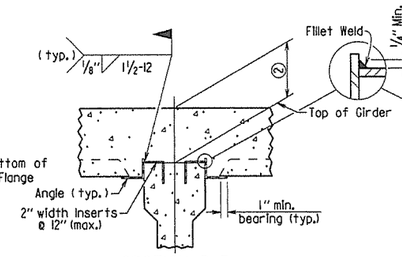
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

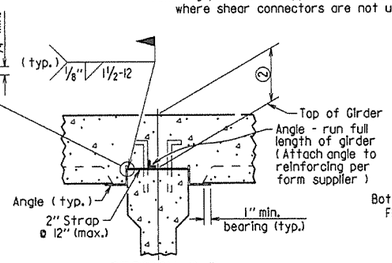


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

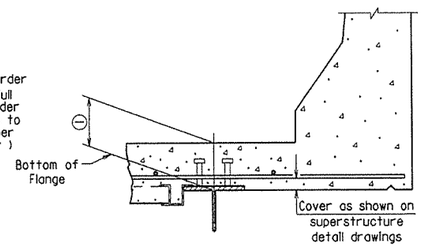


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1¾" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to Subsection 802.14(b). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Engineer.

Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

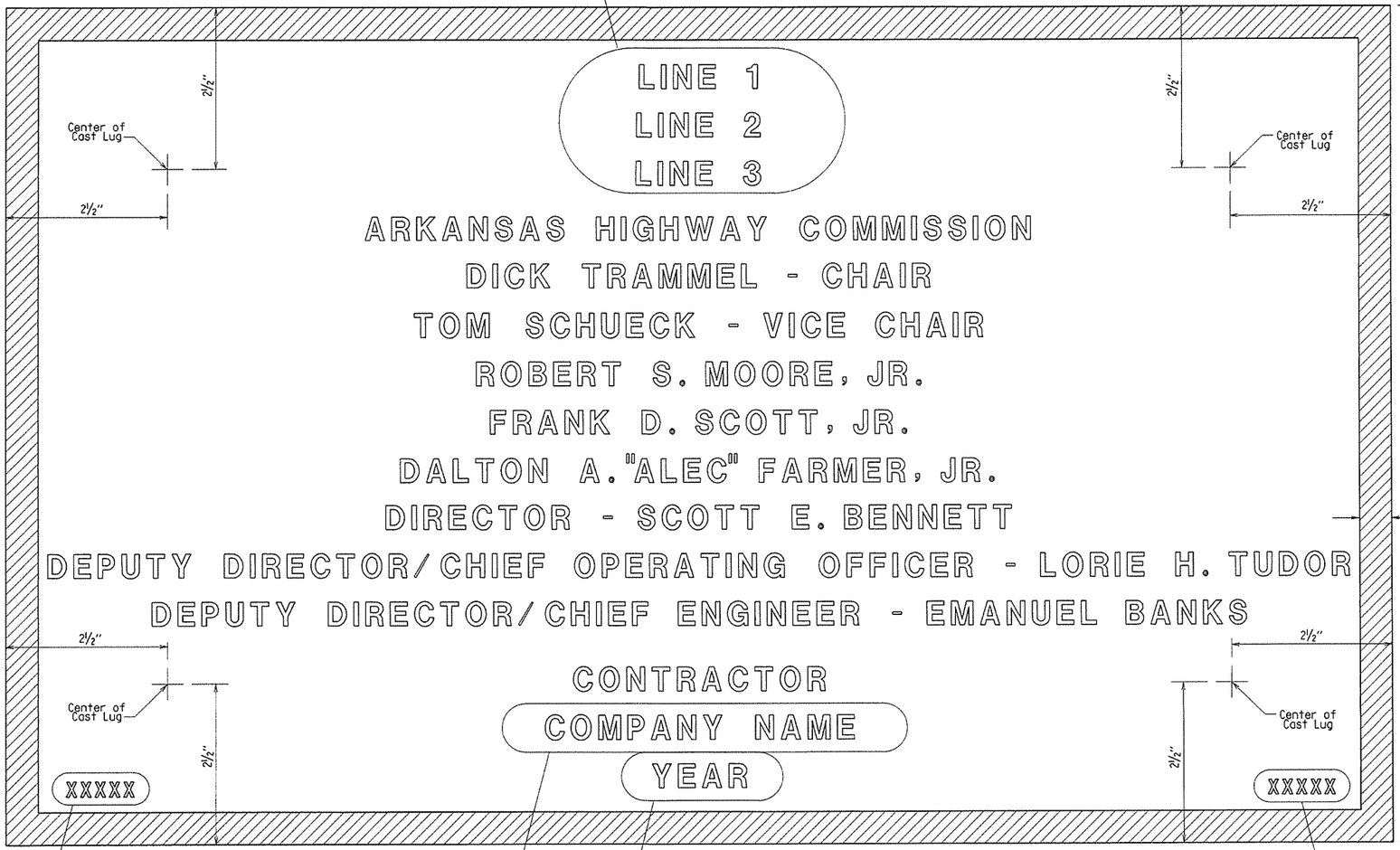
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		139	
1-14-15				JOB NO.				

(1) TYPE D NAME PLATE 55010

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



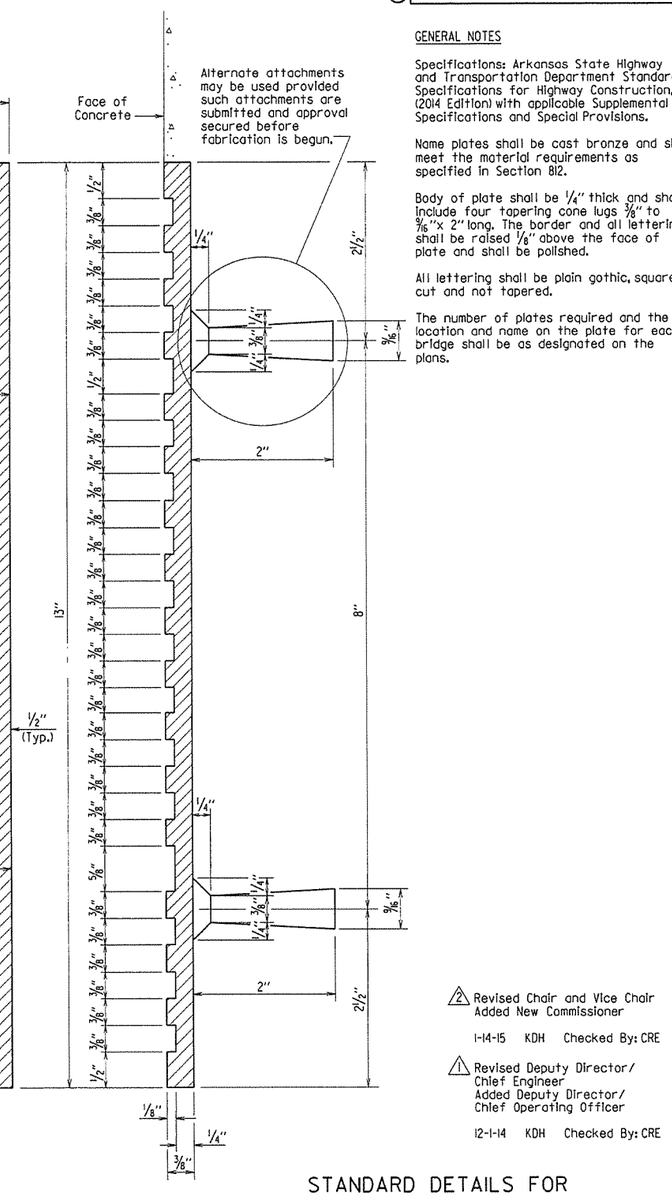
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 9/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

(2) Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE

(1) Revised Deputy Director/ Chief Engineer Added Deputy Director/ Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		140	
				JOB NO.				
				①		STEEL H-PILES		55020

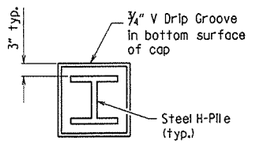
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

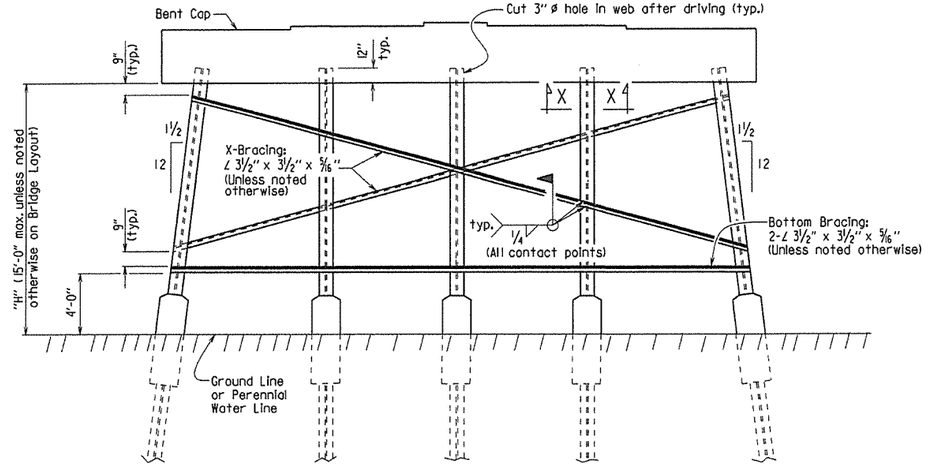
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



VIEW X-X



Notes:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

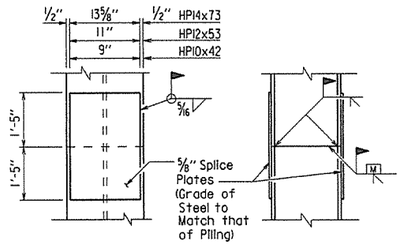
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)

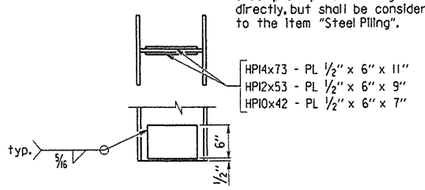


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

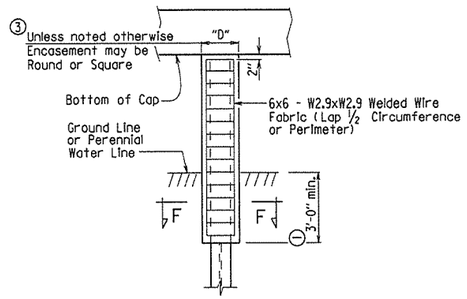
See Bridge Layout for additional notes and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

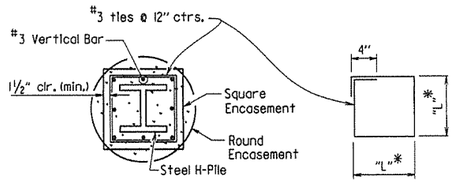
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

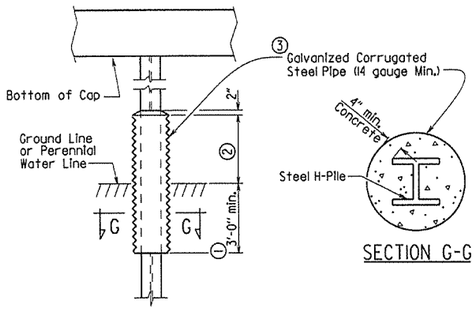


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

⑤ ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

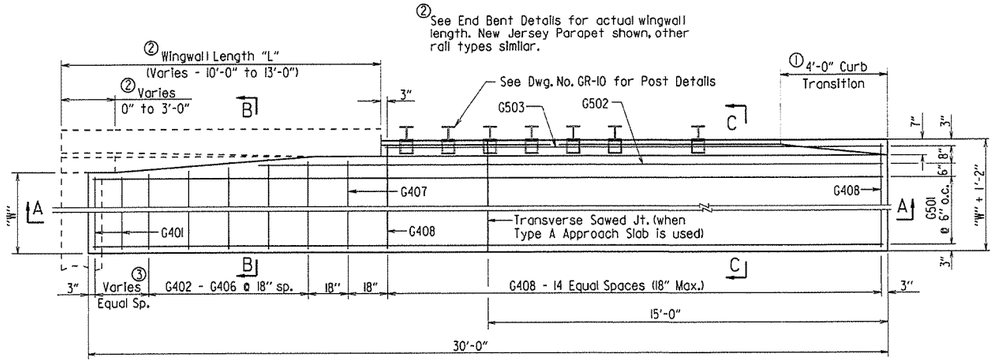
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

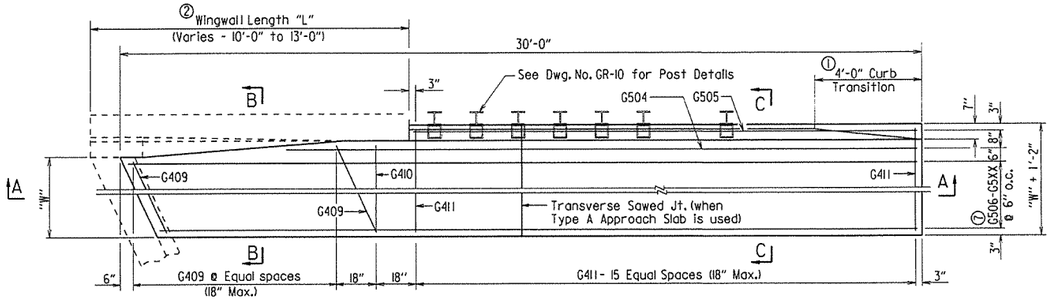
DRAWING NO. 55020

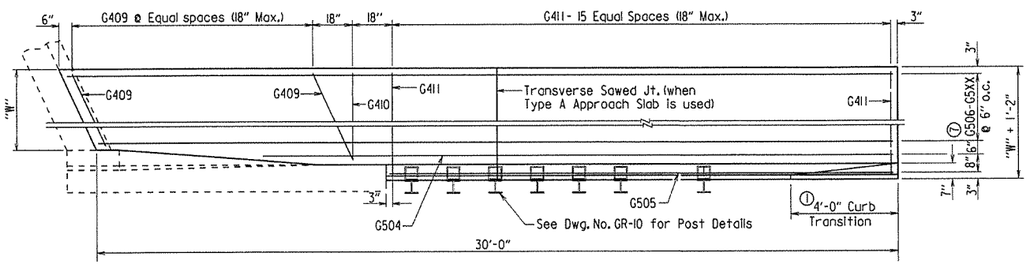
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.		14	
				JOB NO.				
				①	TYPE A GUTTERS		55030A	



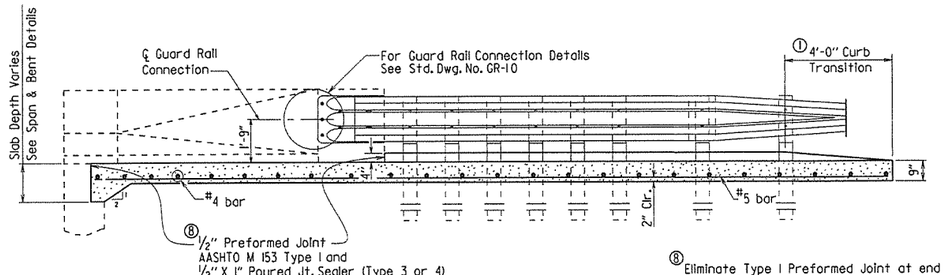
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





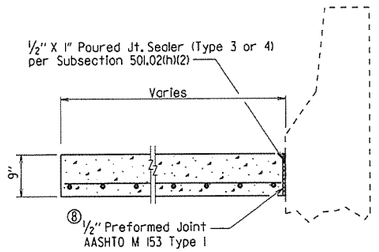
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



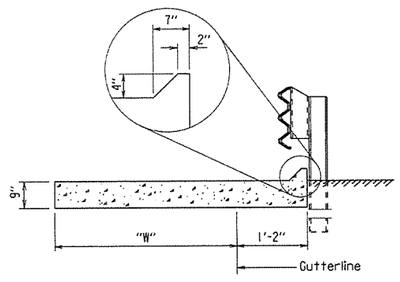
SECTION A-A

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑧ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE A GUTTER

	Mark	No. Req'd, for Width "W" △ 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	④	"W" - 4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	15	15	15	15	15	"W"+ 10"
	G501	4	6	8	12	16	29'-8"
	G502	1	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	1	"W"+3"
	G411	16	16	16	16	16	"W"+ 10"
	G504	1	1	1	1	1	⑤
	G505	1	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	1 each	1 each	1 each	1 each	⑤

④ 0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'

⑦ G509 for "W" = 2' △
G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

⑤ Bar Lengths vary with Skew and Wingwall Length.
⑥ No. Req'd. varies with Skew and Wingwall length.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

△	"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
	2	210	2.55
	3	285	3.40
	4	360	4.25
	6	515	5.90
	8	665	7.55

Quantities are based on "L" = 10'-0".

△ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

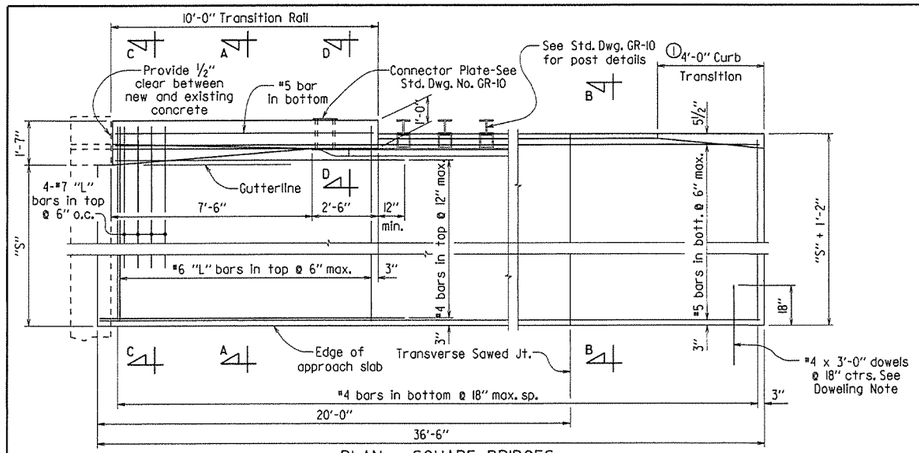
STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030A

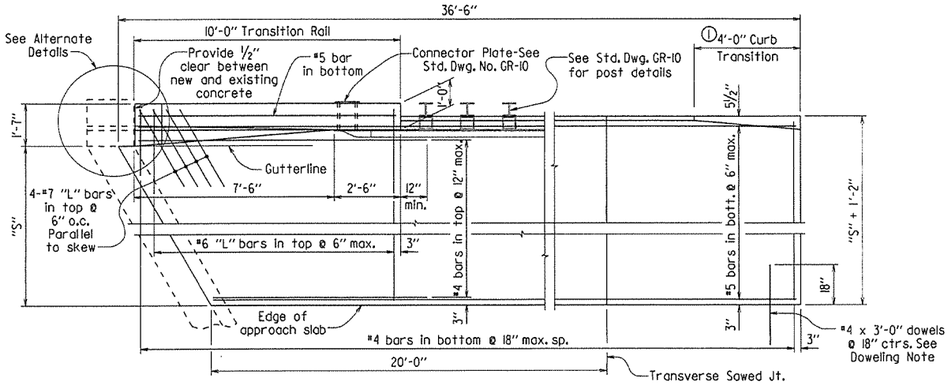
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.		142	
				JOB NO.				
①				TYPE PT GUTTERS			55035	

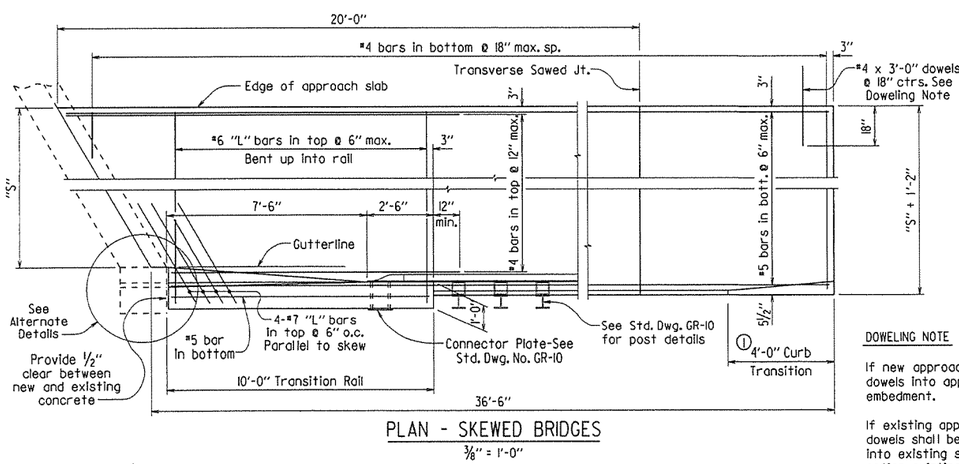


PLAN - SQUARE BRIDGES

⅜" = 1'-0"

"S" = Distance from gutterline to edge of approach slab.

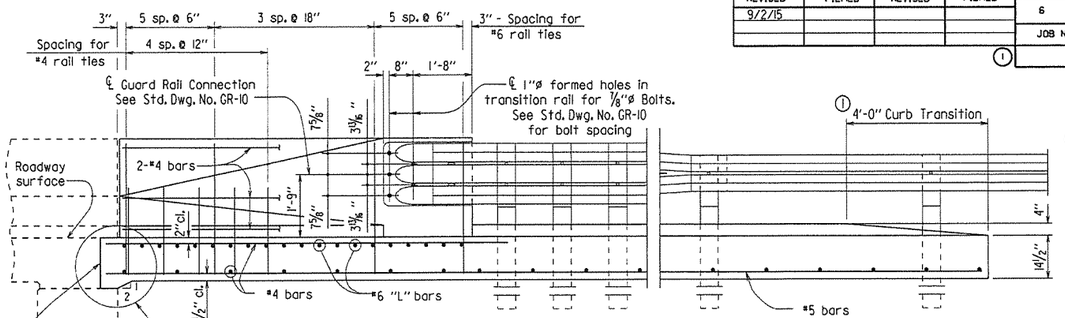




PLAN - SKEWED BRIDGES

⅜" = 1'-0"

⚠ Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



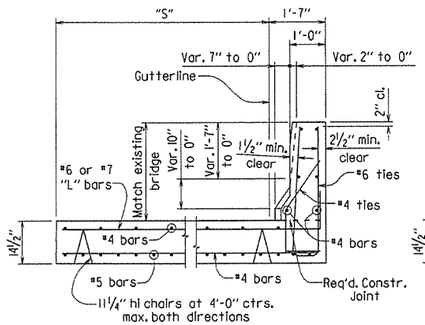
Note: Completely fill existing guard rail connection recess with approved non-shrink grout. Work and material will not be paid for separately but will be considered subsidiary to "Approach Gutters".

① Construct curb with height-transition as shown if drop inlet is not used at end of gutter.

Construct curb full height (no height-transition) if drop inlet is used at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.

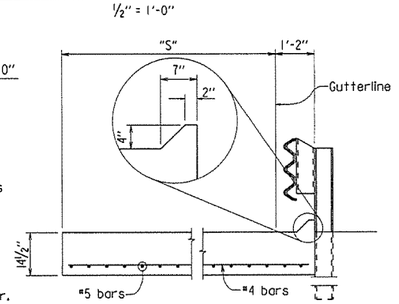
LONGITUDINAL SECTION THRU GUTTER

½" = 1'-0"



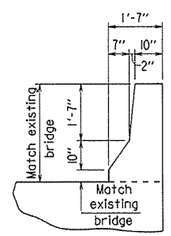
SECTION A-A

½" = 1'-0"



SECTION B-B

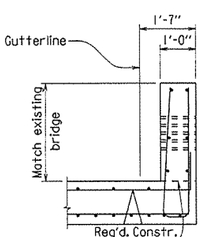
½" = 1'-0"



SECTION C-C

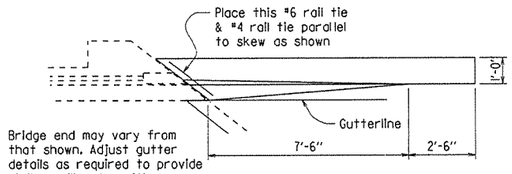
At End of Transition Rail

½" = 1'-0"



SECTION D-D

½" = 1'-0"



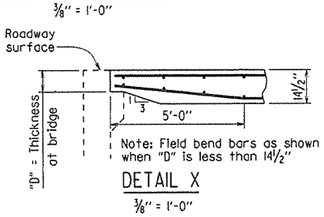
ALTERNATE DETAILS

⅜" = 1'-0"

DOWELING NOTE

If new approach slab is used, place dowels into approach slab using 18" embedment.

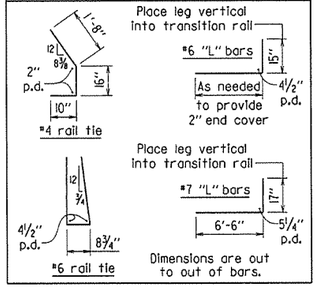
If existing approach slab is retained, dowels shall be drilled and grouted 18" into existing slab. At the Contractor's option, existing dowels may be retained, cleaned and incorporated into new gutters. Work for drilling and grouting, or retaining and cleaning will not be paid for separately but will be considered subsidiary to "Approach Gutters".



DETAIL X

⅜" = 1'-0"

BENDING DIAGRAMS



⚠ Added note for gutters within the limits of horizontal curves. By: AMS
Checked By: KWY 9/2/15

GENERAL NOTES

All concrete shall be Class S or S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports. Fabricate bar lengths to provide 2" minimum cover at each end.

Approach gutters will be measured and paid for in accordance with Section 504.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"S"	Concrete	Reinforcing Steel
5'-6"	12.49 cu.yd.	1227 lb.
5'-9"	12.91 cu.yd.	1276 lb.
6'-0"	13.34 cu.yd.	1296 lb.
9'-6"	19.23 cu.yd.	1746 lb.
9'-9"	19.65 cu.yd.	1795 lb.
10'-0"	20.07 cu.yd.	1815 lb.

STANDARD DETAILS FOR TYPE 'PT' APPROACH GUTTERS (BRIDGES WITH CONCRETE PARAPET RAILING)

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on September 2, 2015. This copy is not a signed and sealed document.

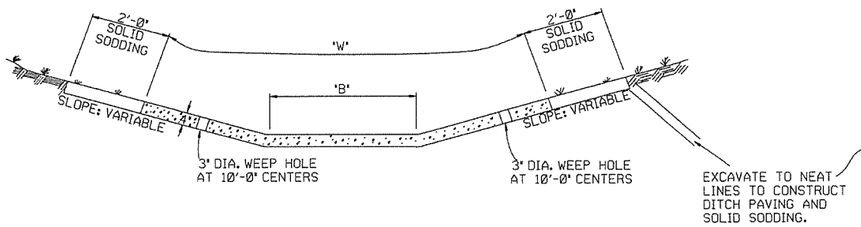
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

DRAWN BY: KDH DATE: 2/27/2014 FILENAME: b55035.dgn
CHECKED BY: KWY DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

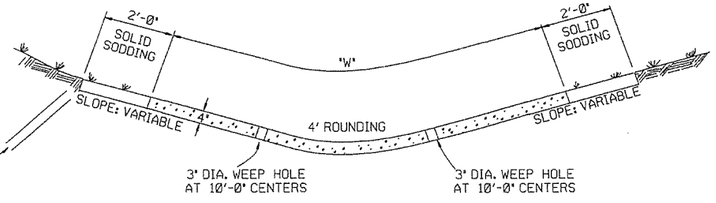
DRAWING NO. 55035

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



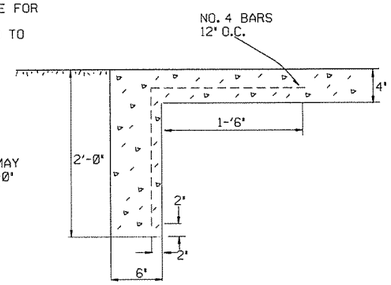
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



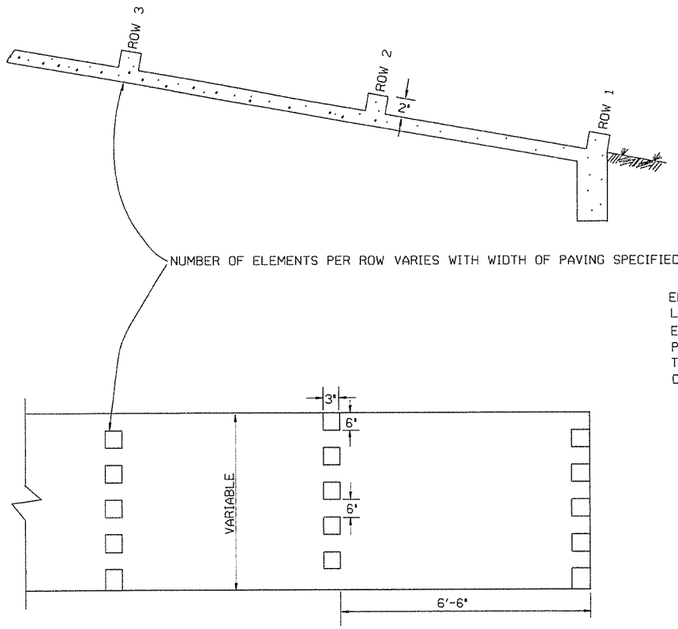
TYPE B

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.

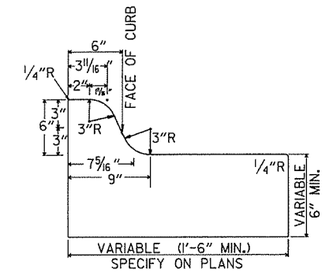
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

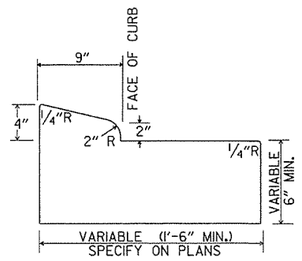
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

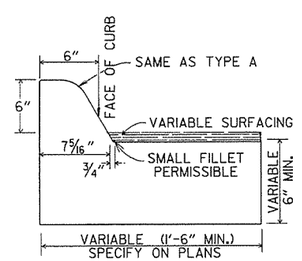
STANDARD DRAWING CDP-1



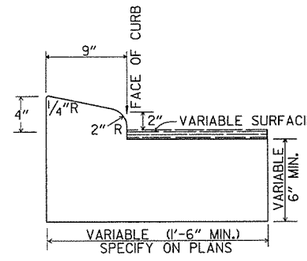
TYPE A



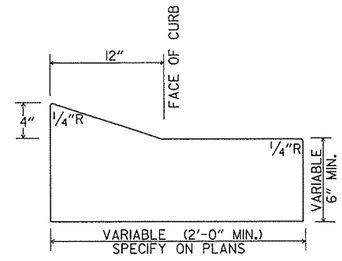
TYPE B-1



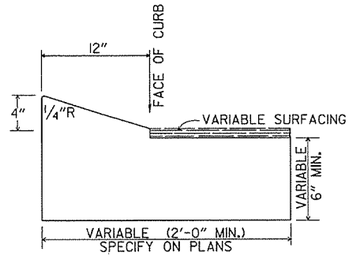
TYPE C



TYPE B-2

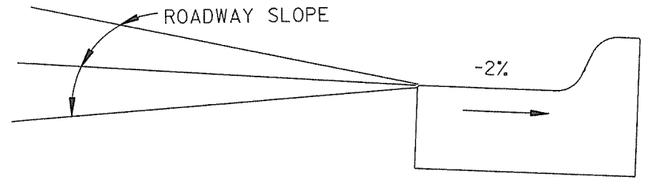


TYPE E-1



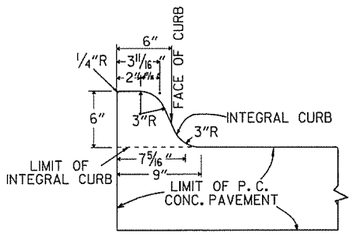
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

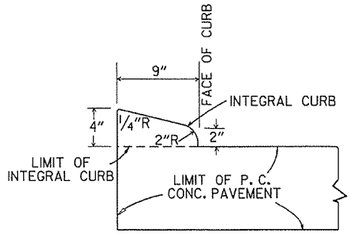


DETAIL OF GUTTER SLOPE

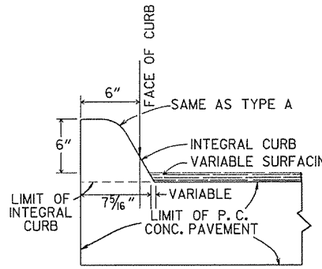
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

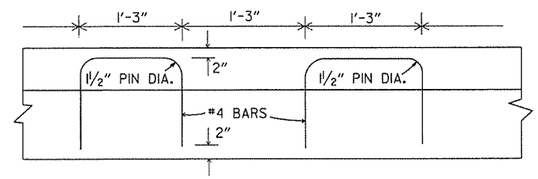


TYPE B

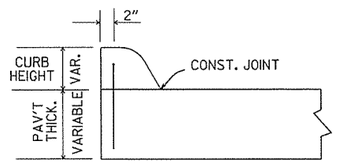


TYPE C

INTEGRAL CURB

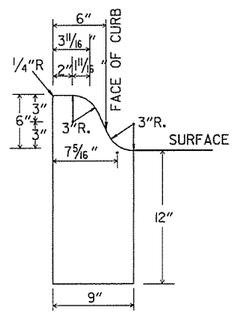


LONGITUDINAL SECTION

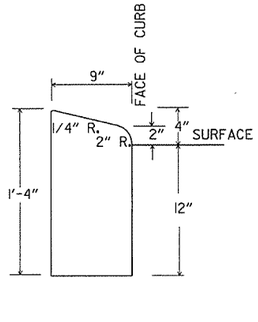


ELEVATION

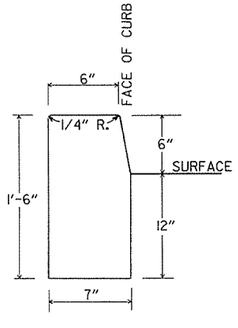
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



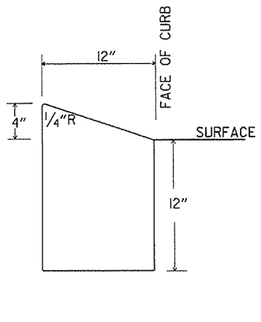
TYPE A



TYPE B

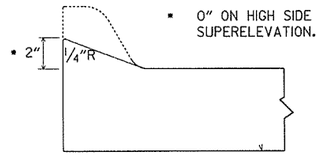


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

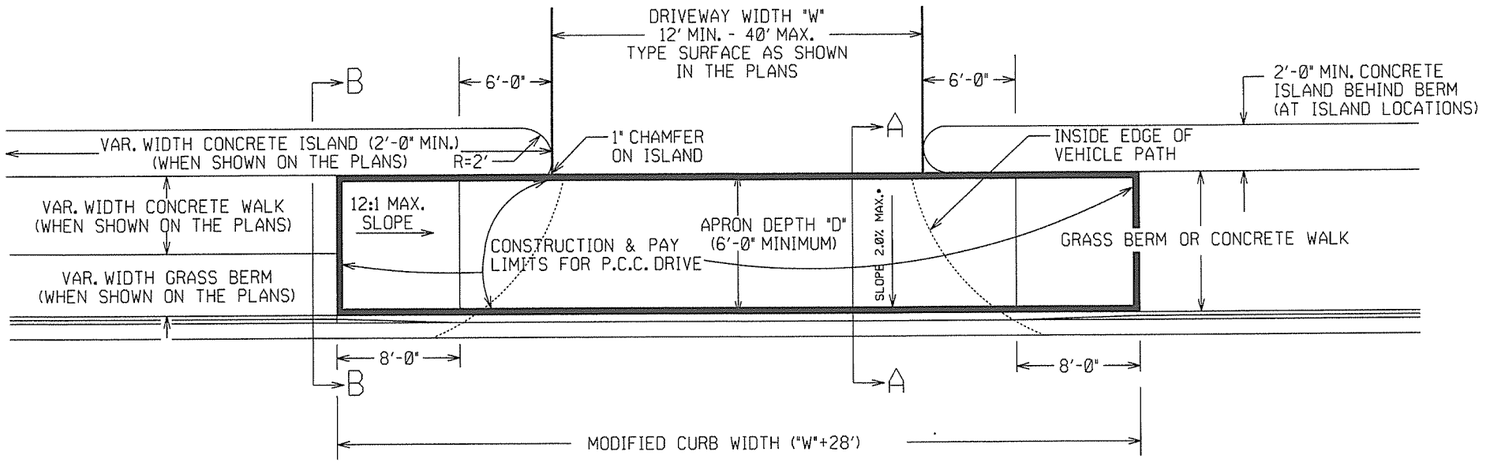
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B 1	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

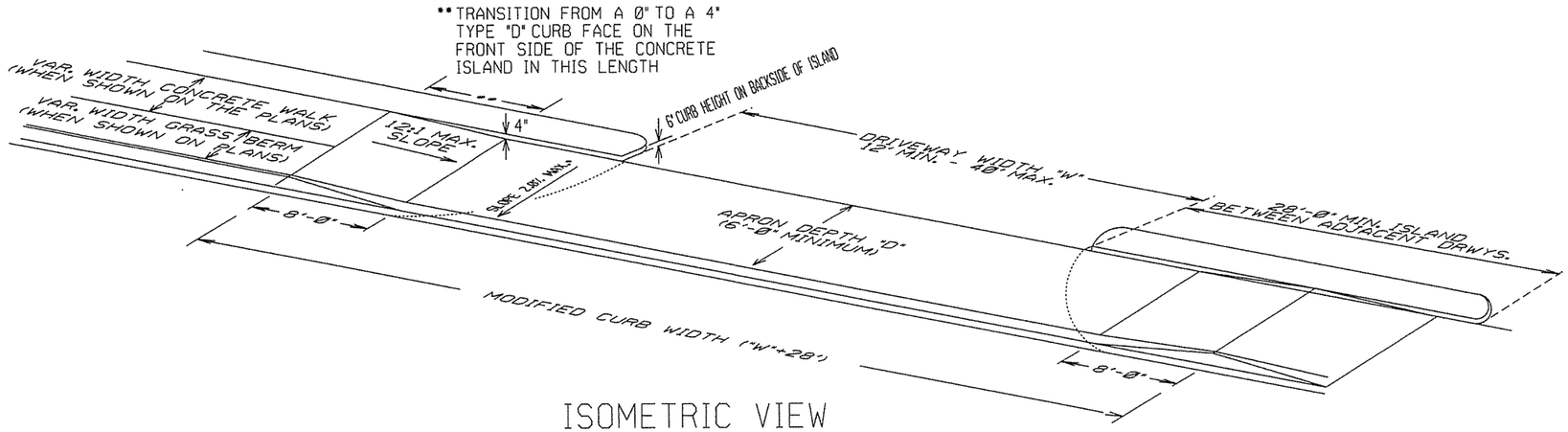
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

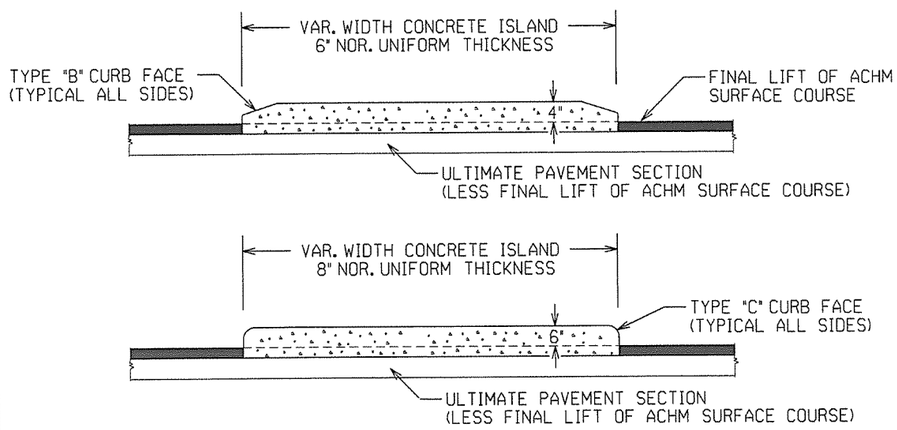
STANDARD DRAWING CG-1



PLAN VIEW

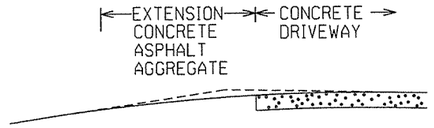


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

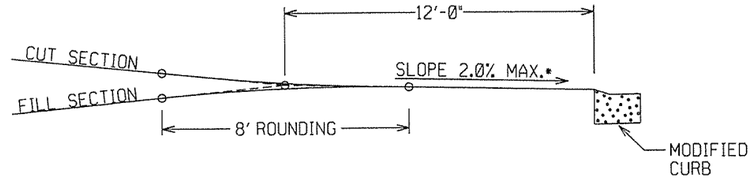
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

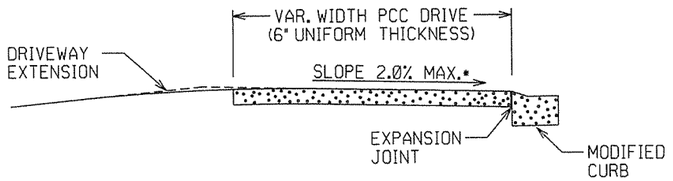
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

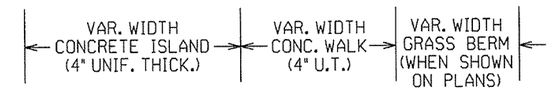


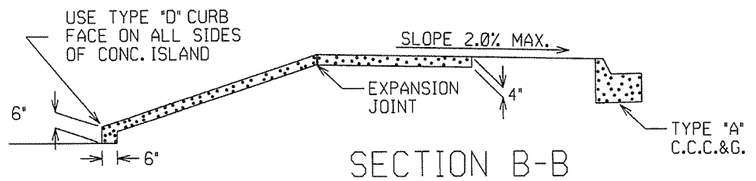
DRIVEWAY VERTICAL ALIGNMENT DETAILS

• NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A

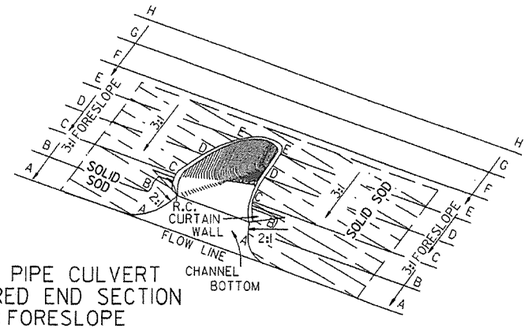




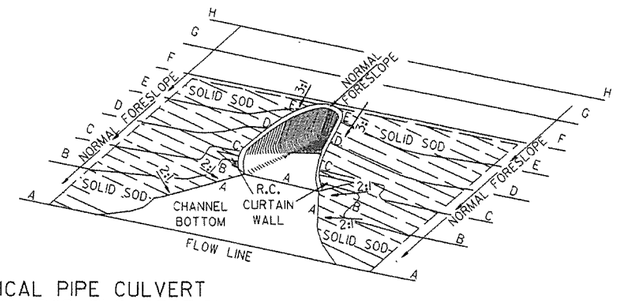
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

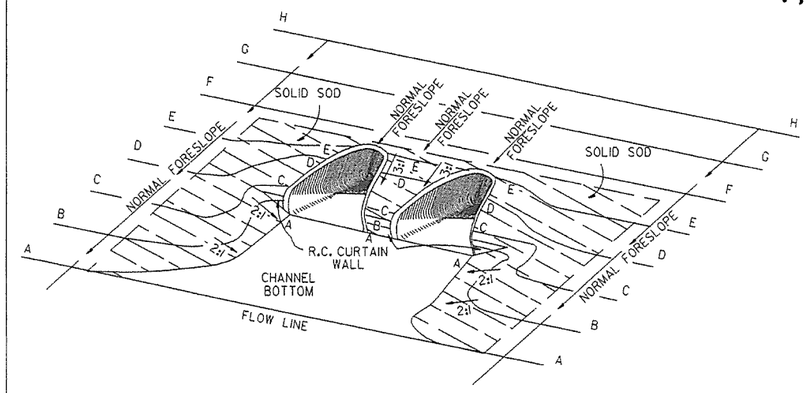
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

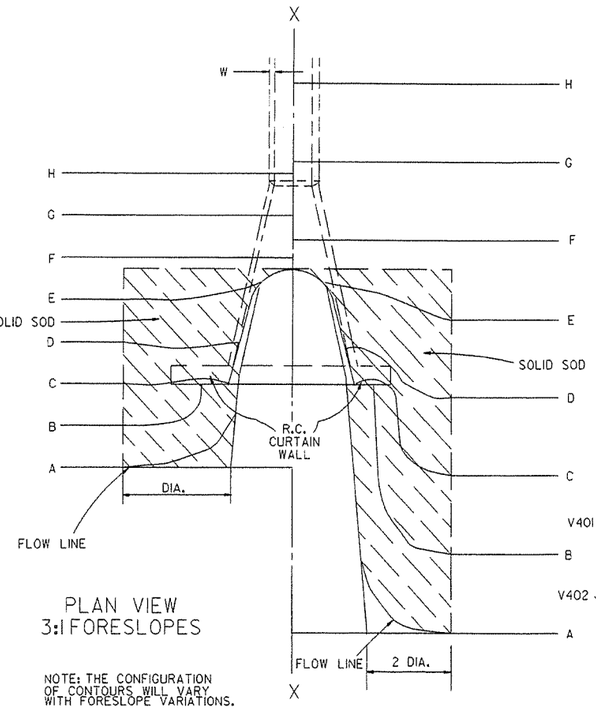
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"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

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

REINFORCING STEEL SCHEDULE

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

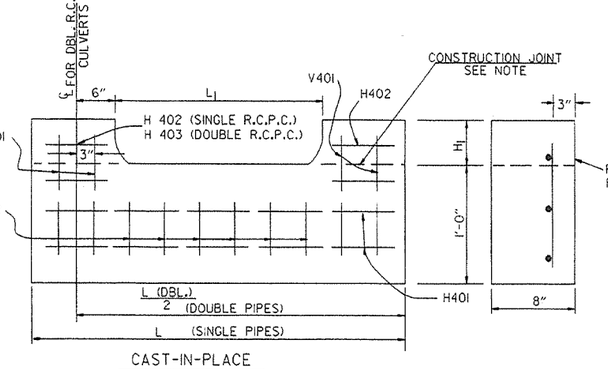
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

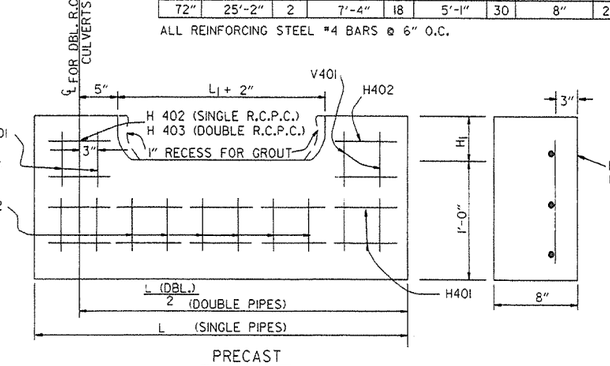
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

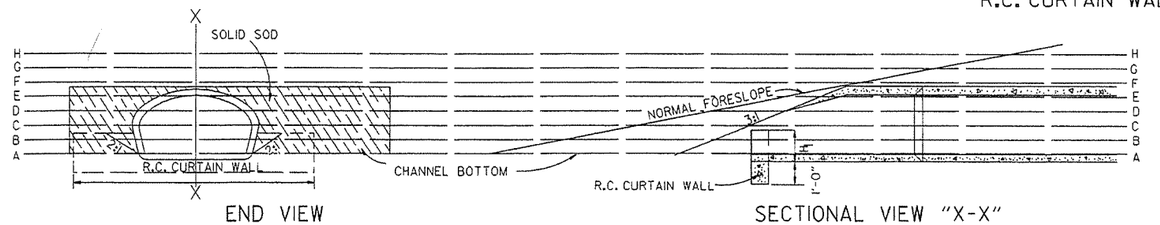
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	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 3/4".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

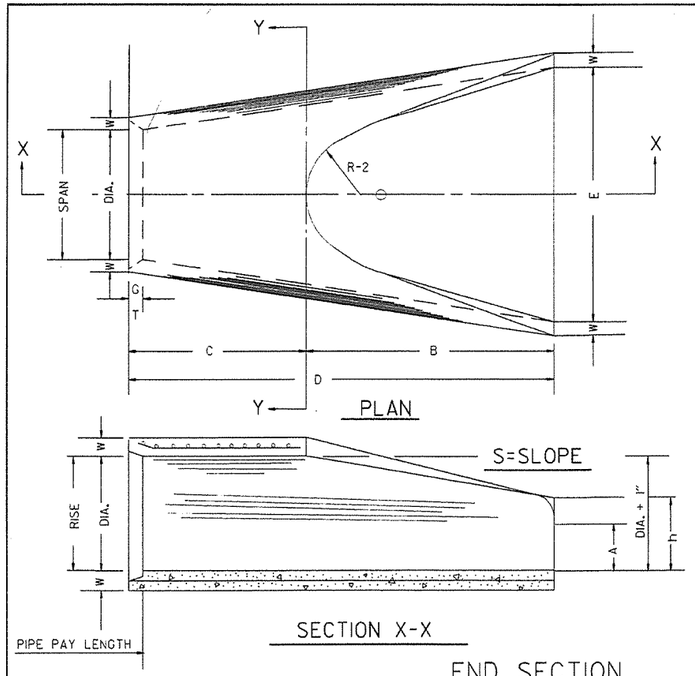
SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

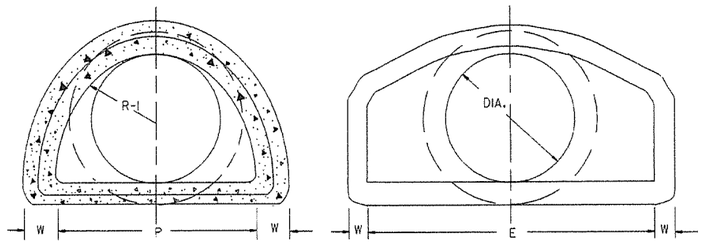
STANDARD DRAWING FES-1



END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. − 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33⅜"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 1/16"	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"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"

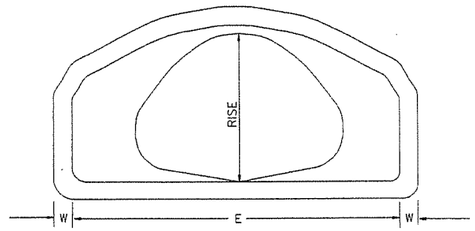


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

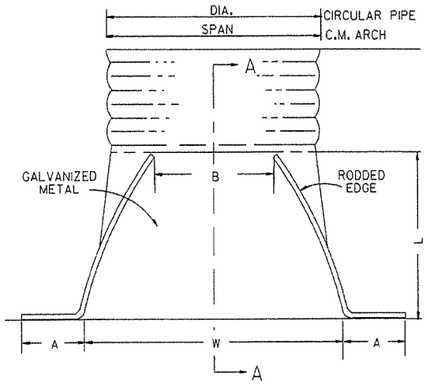
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 13/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2½:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¾:1

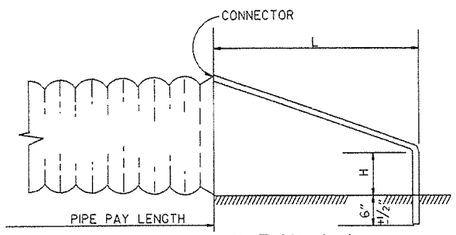
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



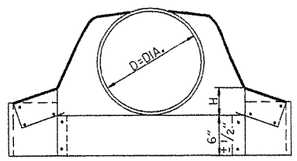
END VIEW
CONCRETE ARCH PIPE



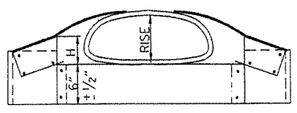
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

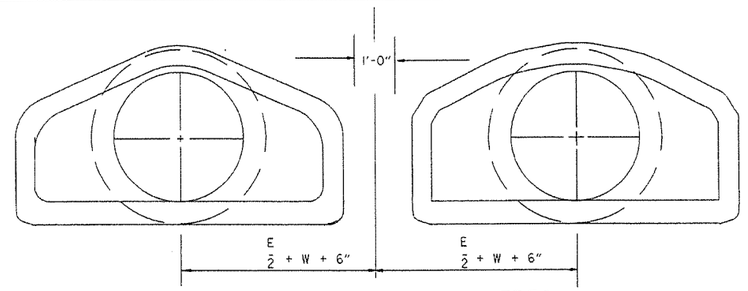
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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

C.M. ARCH PIPE

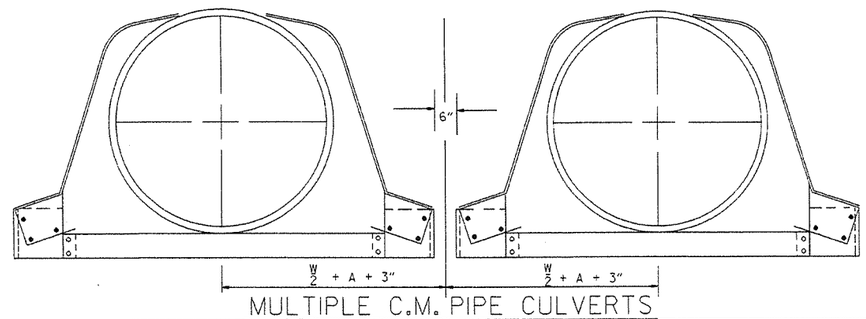
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12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

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



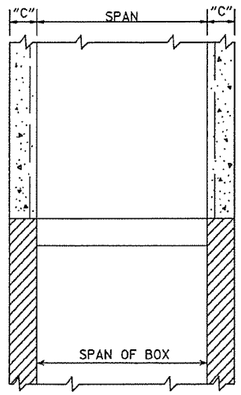
MULTIPLE C.M. PIPE CULVERTS

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

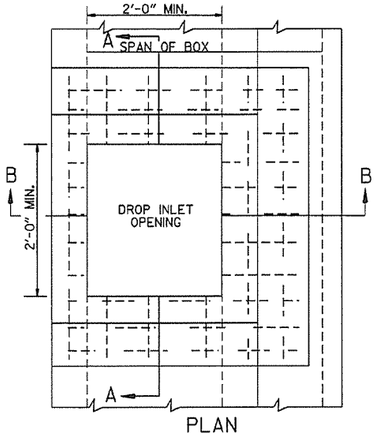
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

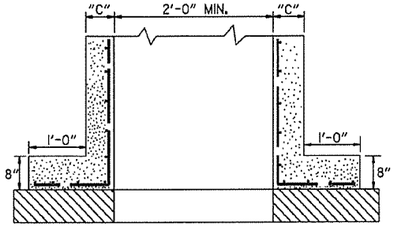
STANDARD DRAWING FES-2



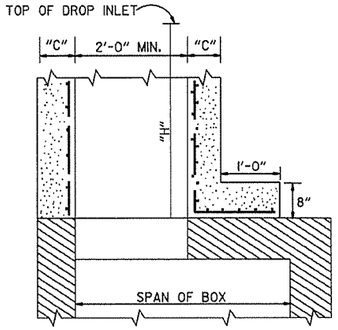
SECTION B-B



PLAN

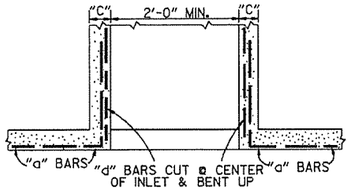


SECTION A-A

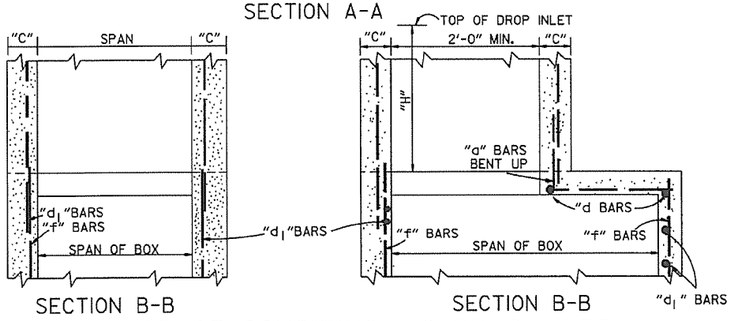


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



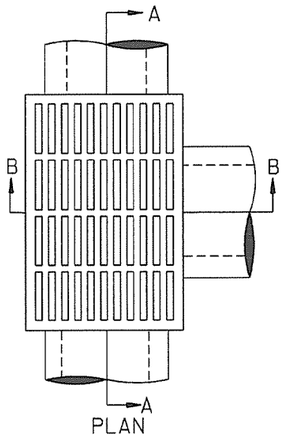
SECTION A-A



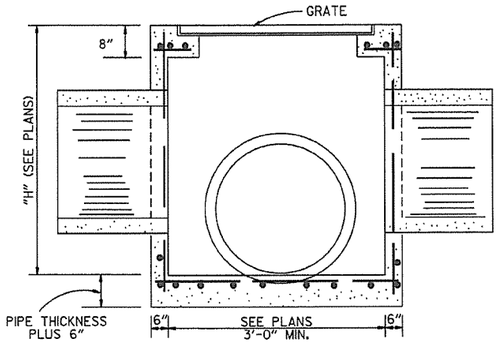
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

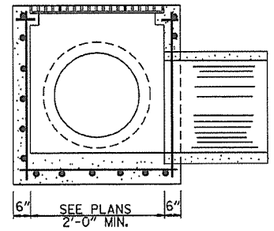


PLAN



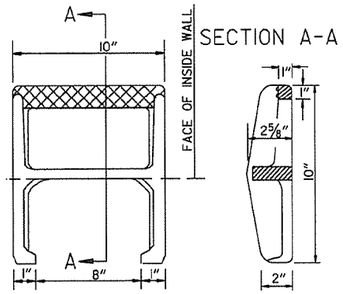
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

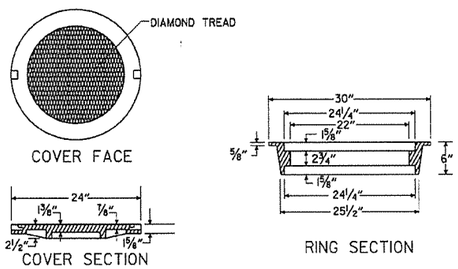


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

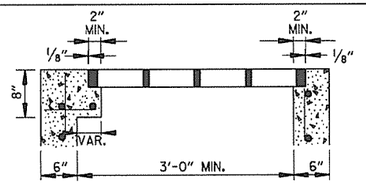
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

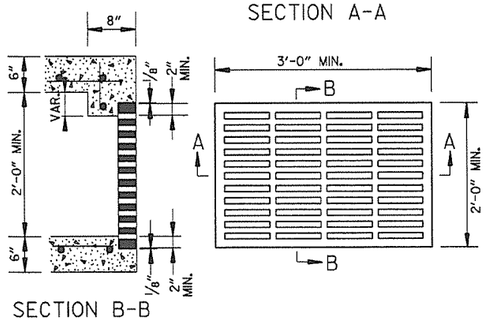


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



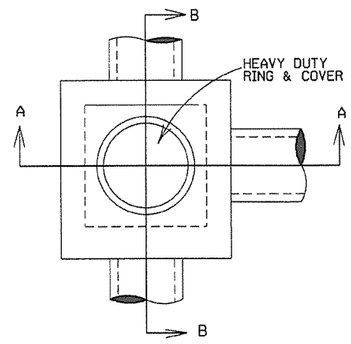
SECTION A-A



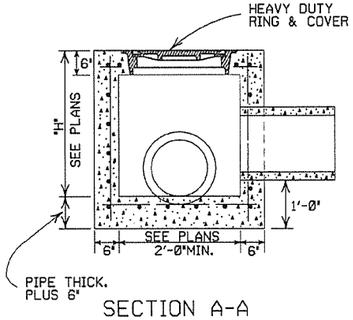
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

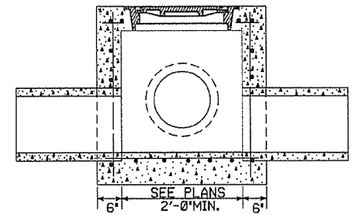


PLAN



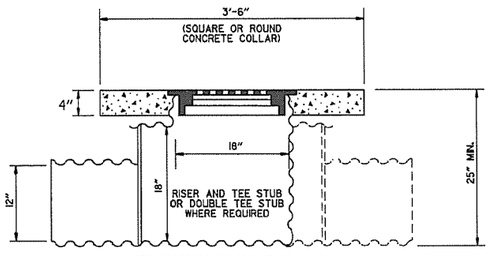
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

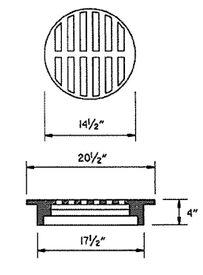


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

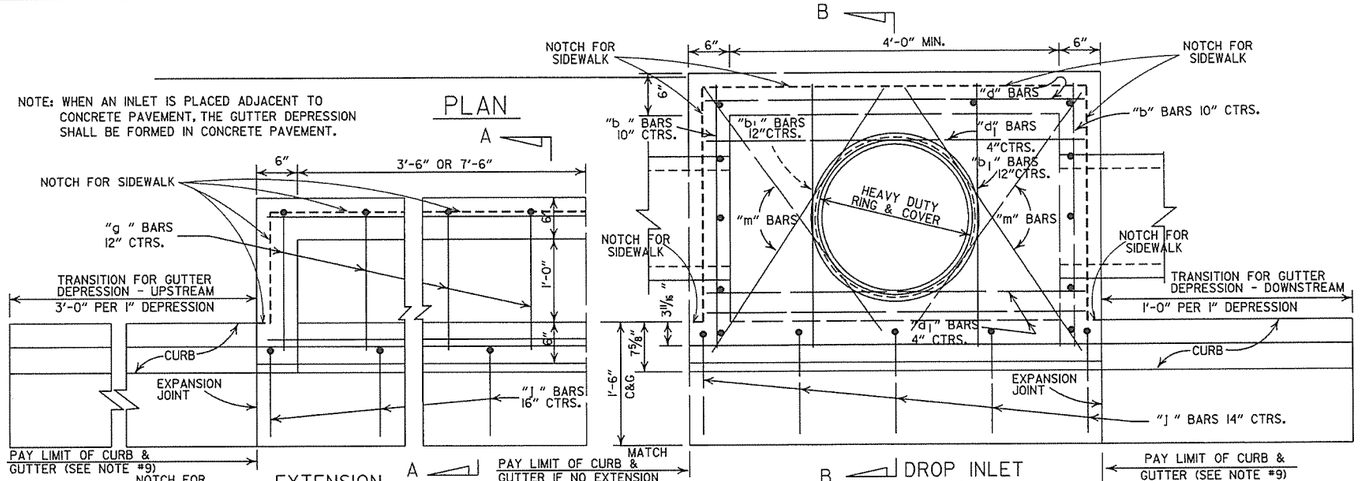
1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9



4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC.	HEIGHT 5'-0" REINF. STEEL	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL
		CU. YDS.	POUNDS	CU. YDS.	POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

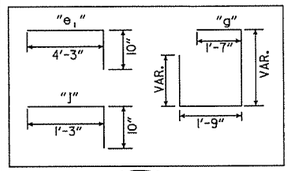
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

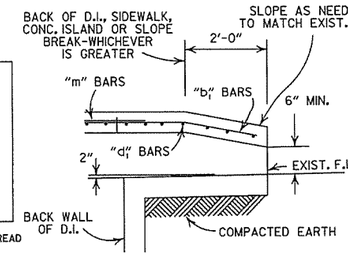
DROP INLET EXTENSION

4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET		
INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

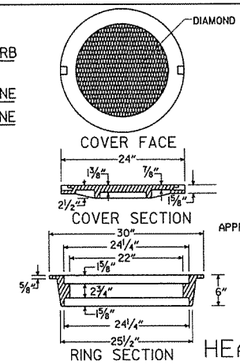
BAR DIAGRAM





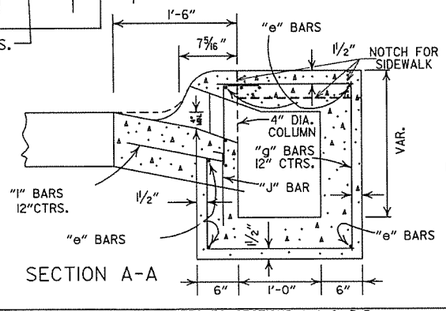
BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



SECTION A-A

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

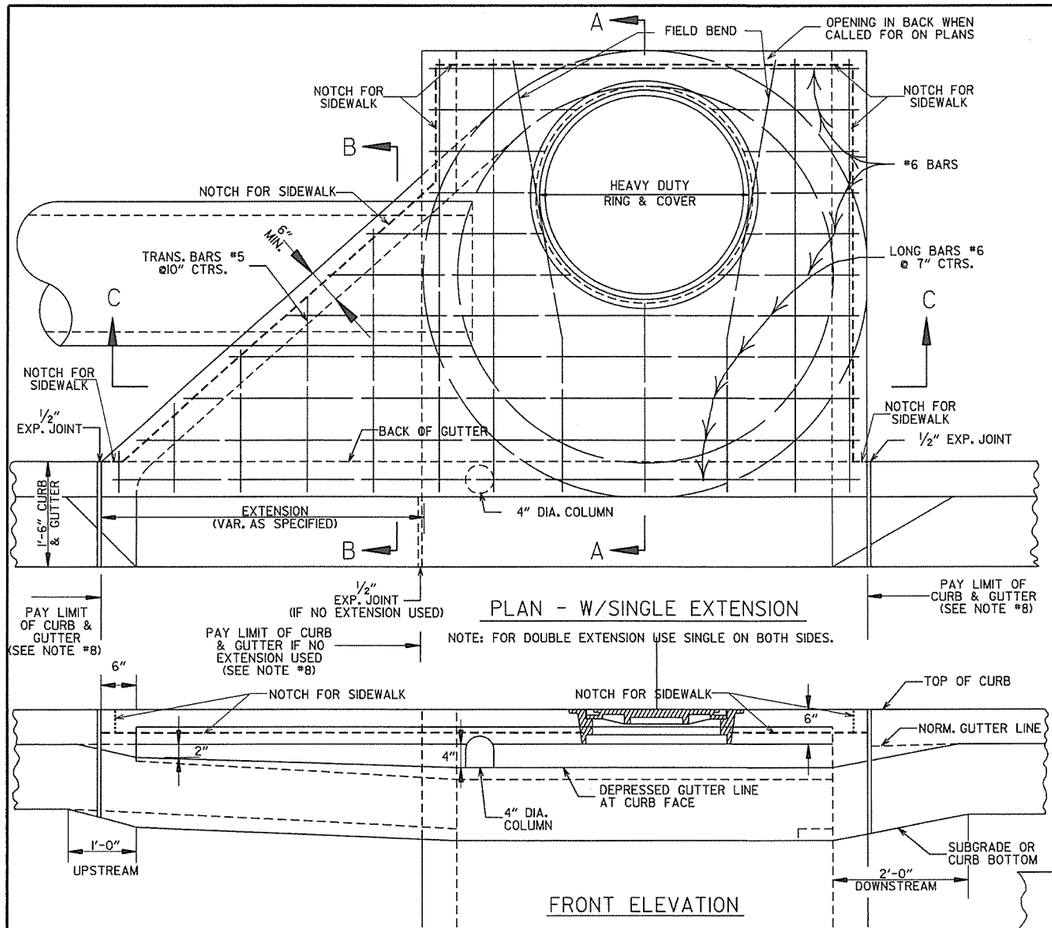
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

(TYPE C)

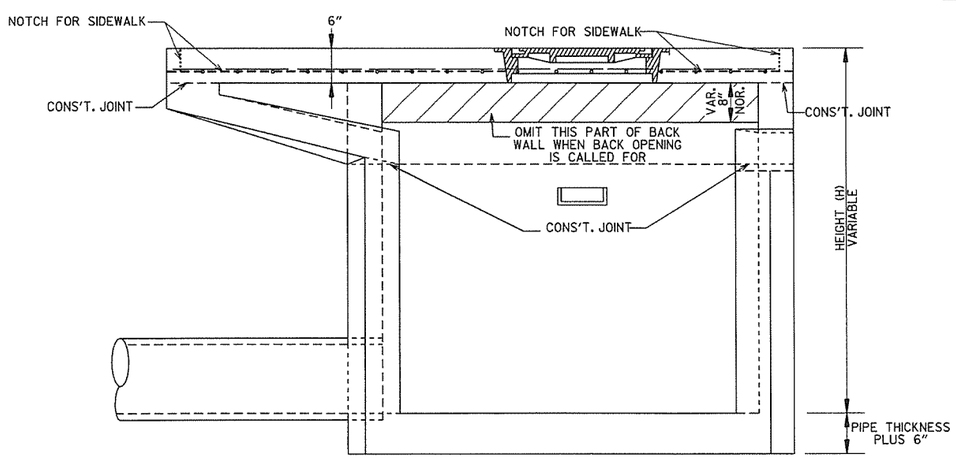
STANDARD DRAWING FPC-9E



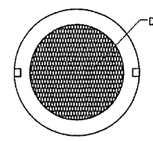
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

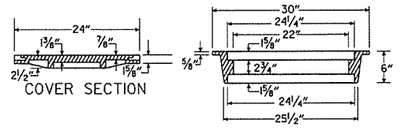
FRONT ELEVATION



SECTION C-C



COVER FACE



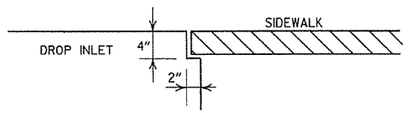
COVER SECTION

RING SECTION

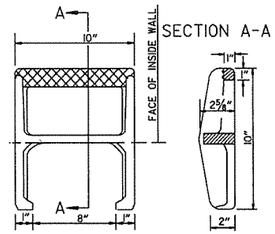
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS



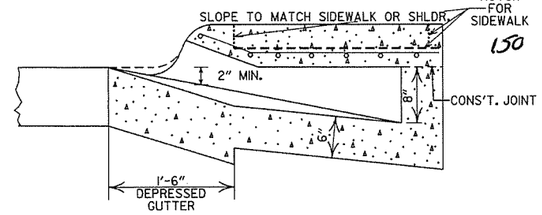
SECTION A-A

APPROX. WEIGHT = 11 LBS. (CAST IRON)

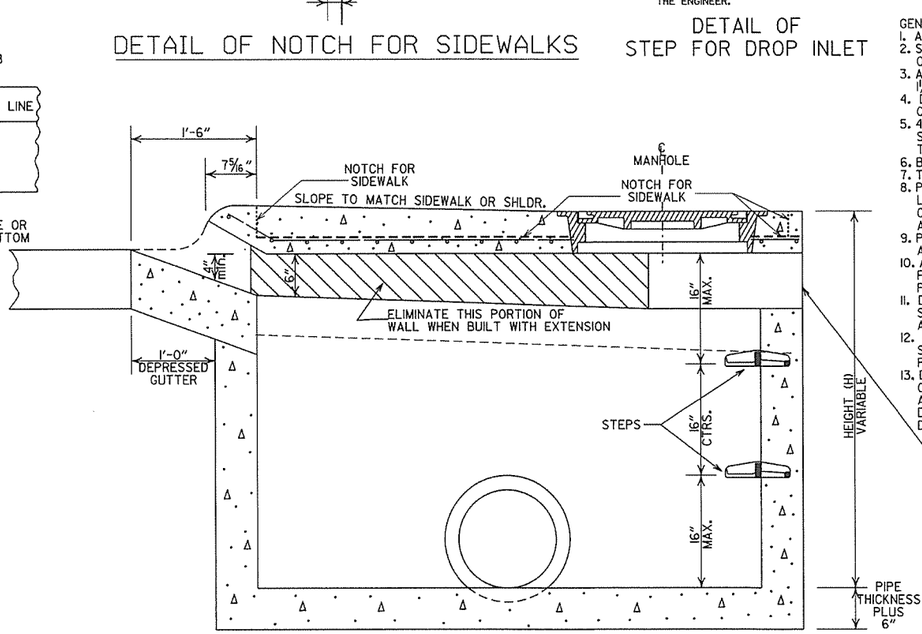
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

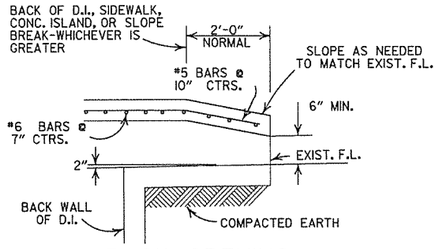
DETAIL OF STEP FOR DROP INLET



SECTION B-B



SECTION A-A



BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

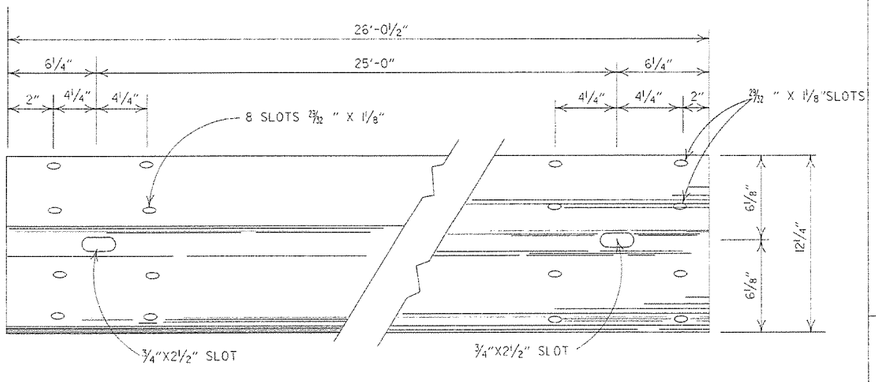
		MINIMUM WALL THICKNESS	
DIA. OF D.I.	DIA. OF OUTLET PIPE	CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

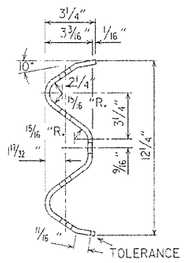
DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11, ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN, BACK DETAIL)	
11-2-94	REVISED GENERAL NOTES	11-3-94
4-11-93	REV. BACK OPEN DETAIL & NOTE	4-11-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	513-5-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	639-7-15-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-12-87

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

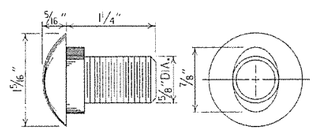
STANDARD DRAWING FPC-9M



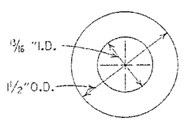


DETAILS OF W-BEAM GUARD RAIL

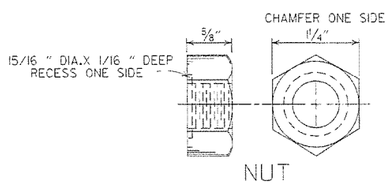
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



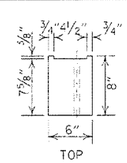
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

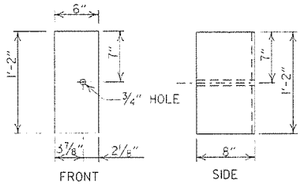


NUT

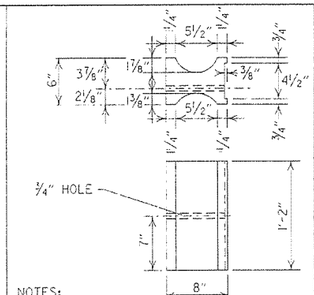


WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

TOP



WOOD BLOCKOUT (W-BEAM)

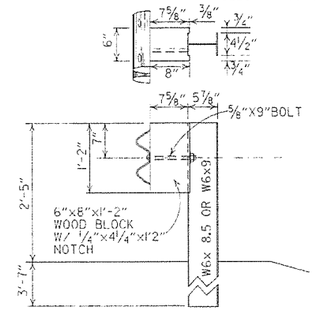


NOTES:

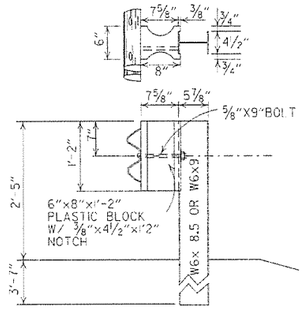
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.

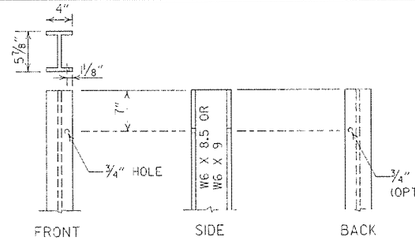


WOOD BLOCKOUT CONNECTIONS

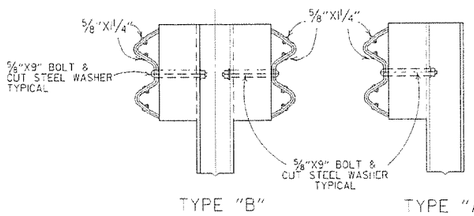


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



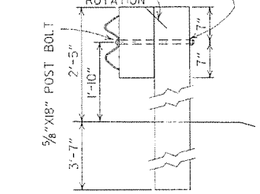
STEEL POST



TYPE "B" TYPE "A"

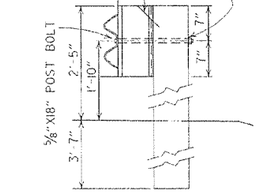
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - 1/4".

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 3/4" 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.

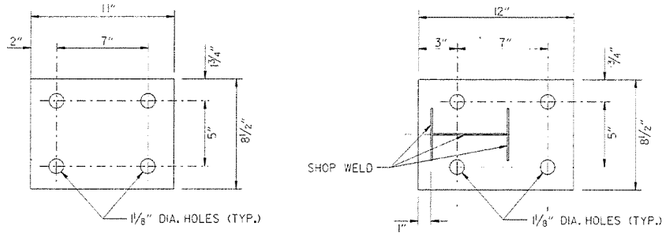
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	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	8-5-91
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
9-9-87	REDRAWN & REVISED	802-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

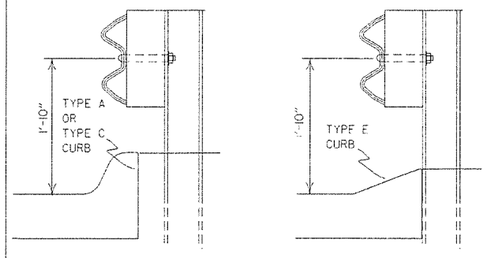
STANDARD DRAWING GR-8



WASHER PLATE

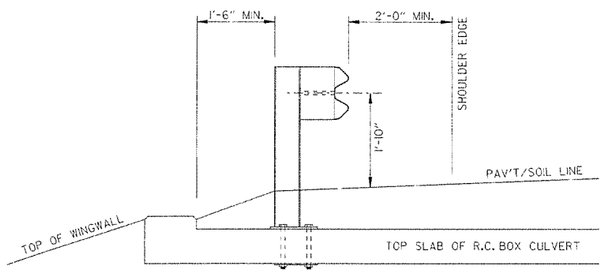
BASE PLATE

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

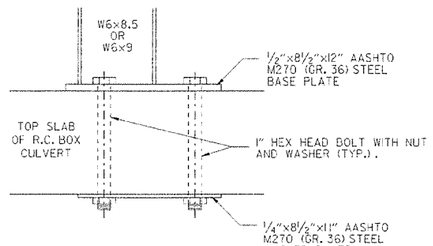


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

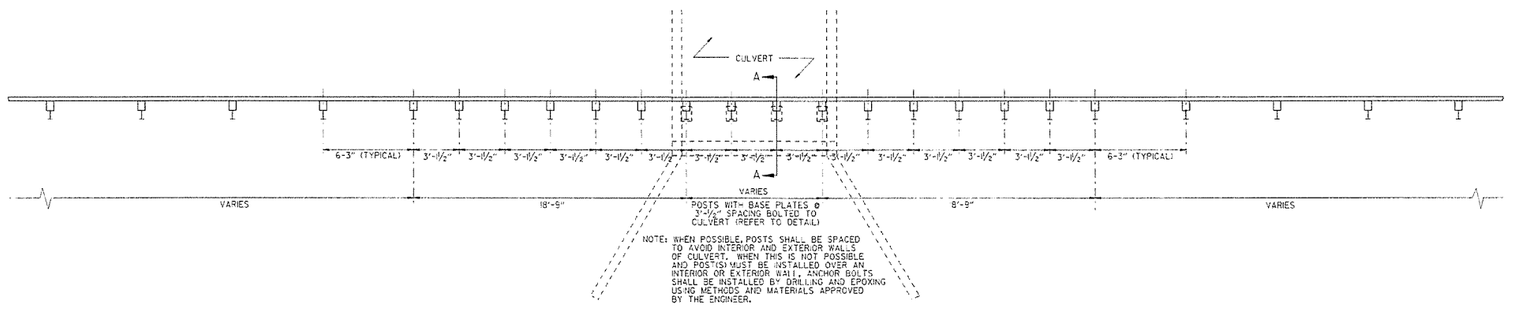
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A



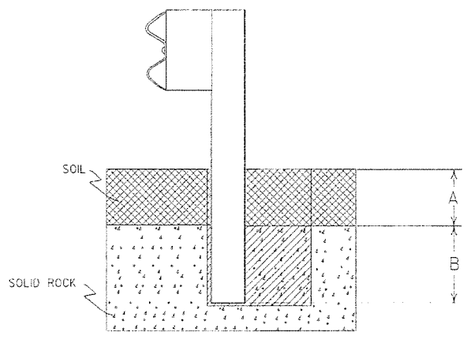
DETAIL OF CONNECTION



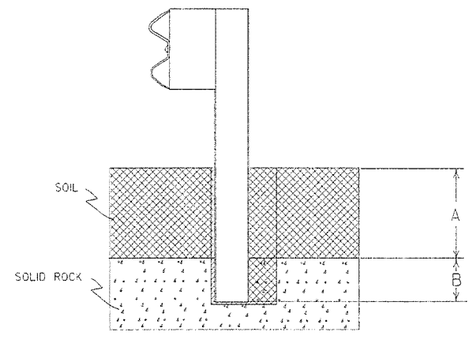
PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

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-8.

Case 1

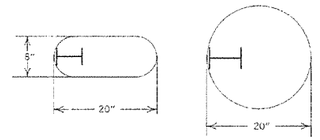


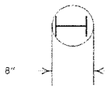
Case 2



Plan View Steel Posts

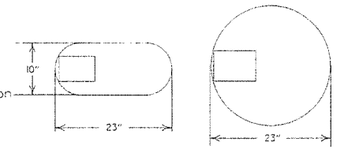
Either hole configuration acceptable

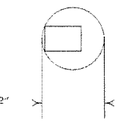




Plan View Wood Posts

Either hole configuration acceptable





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

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

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

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

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

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

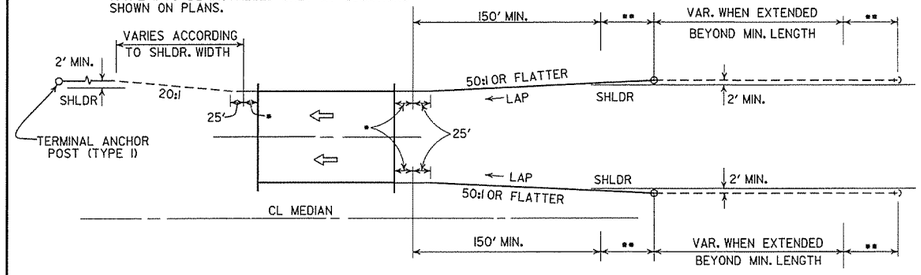
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL 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

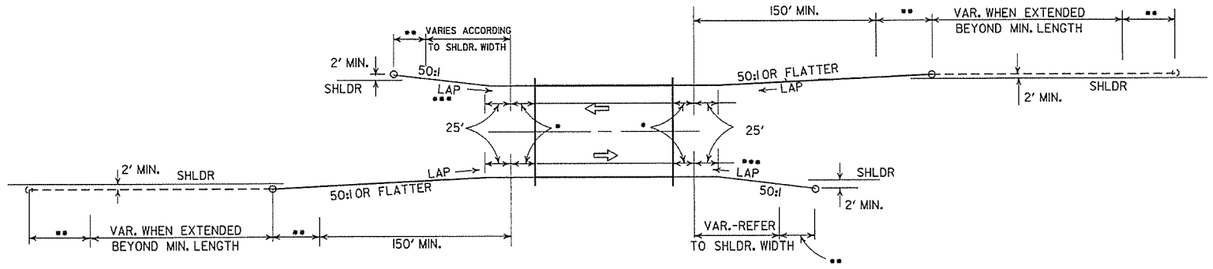
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

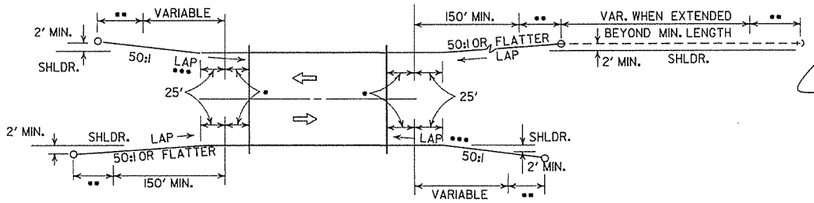
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

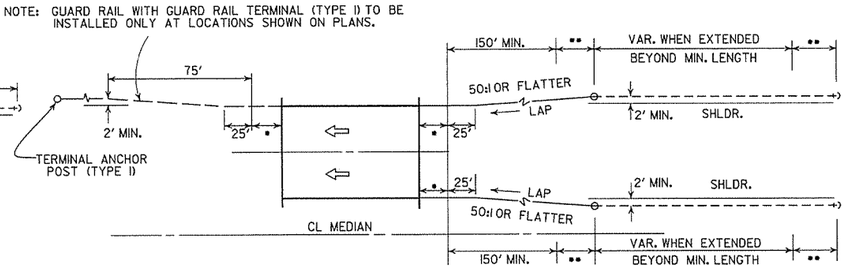
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

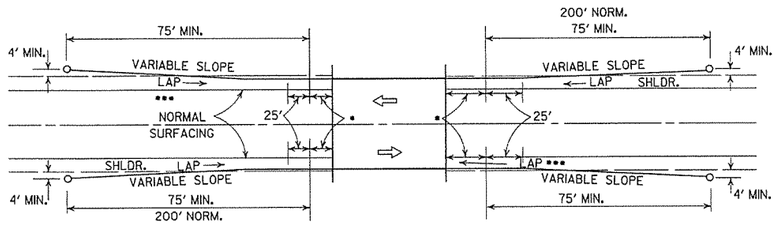
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



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

LEGEND

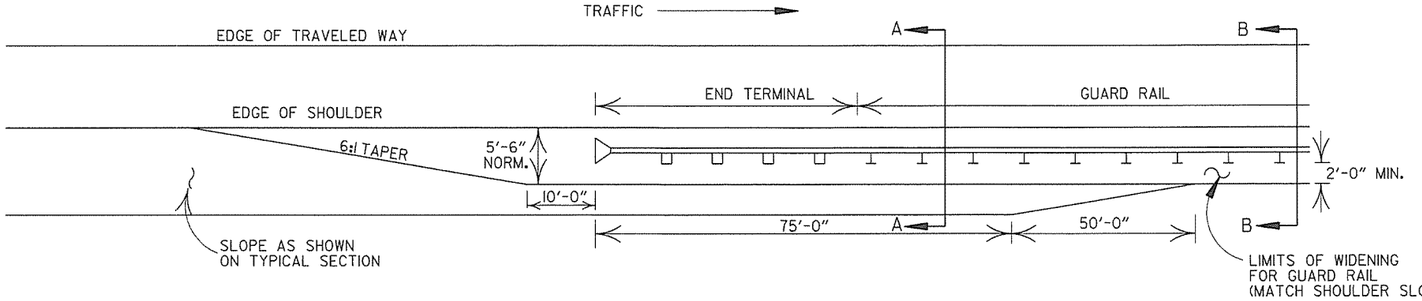
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

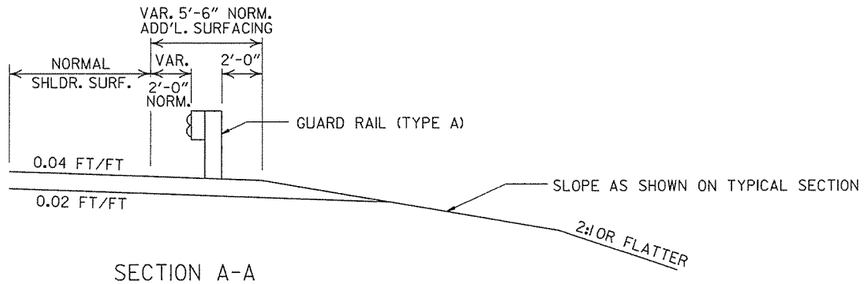
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87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

ARKANSAS STATE HIGHWAY COMMISSION

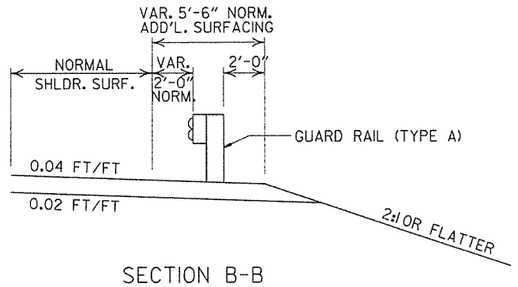
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





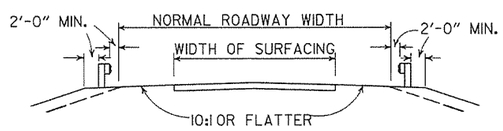
SECTION A-A



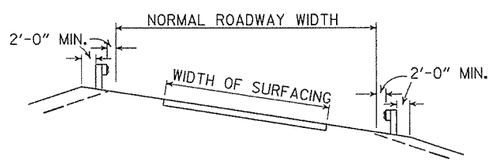
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

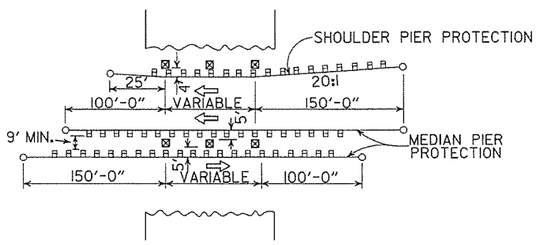


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



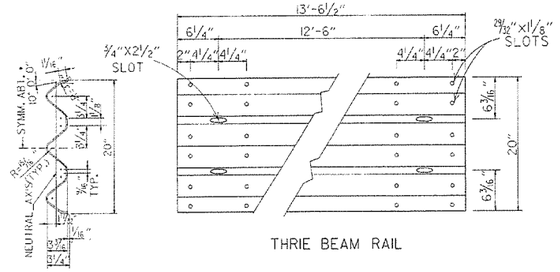
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

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

ARKANSAS STATE HIGHWAY COMMISSION

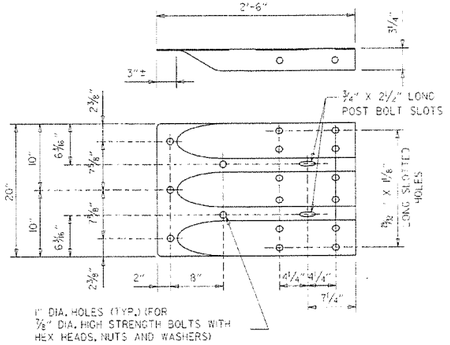
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



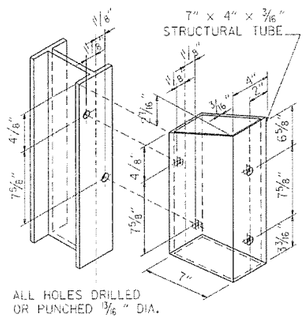
THRIE BEAM RAIL

SECTION THRU
THRIE BEAM RAIL



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

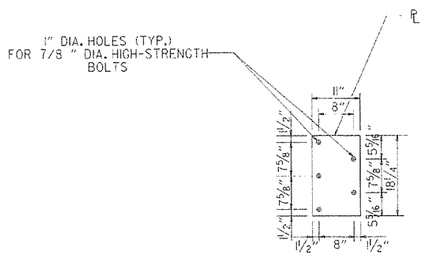
SPECIAL END SHOE



ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

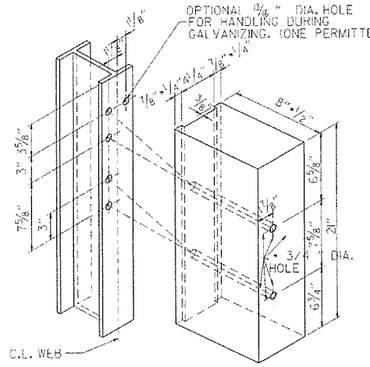
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

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



CONNECTOR PLATE

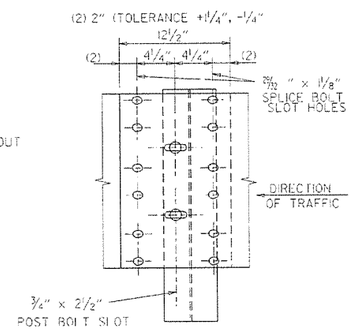
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS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



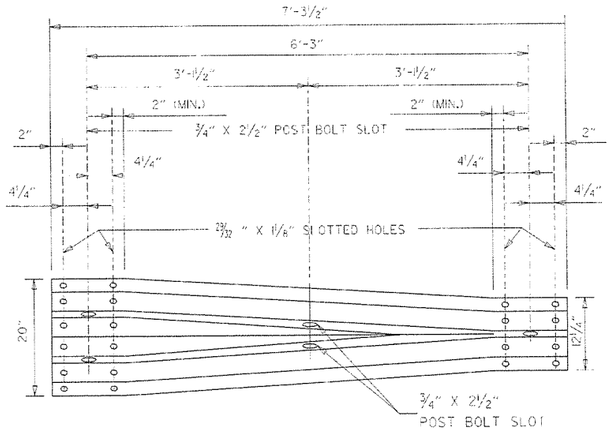
ALL HOLES ¹³/₁₆" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

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

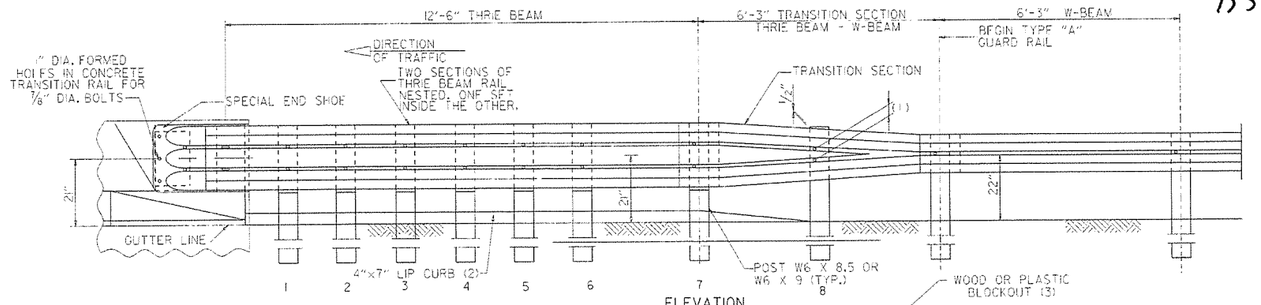


THRIE BEAM RAIL
SPLICE AT POST

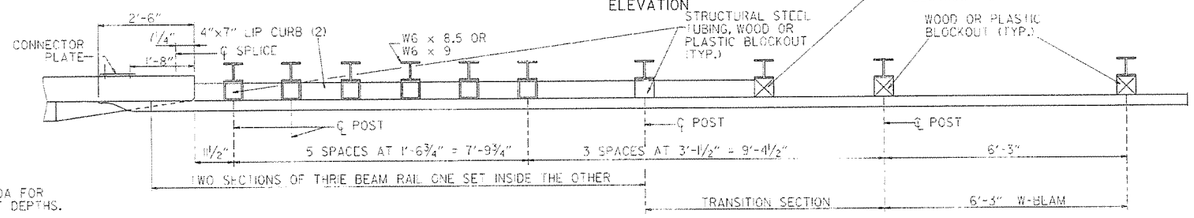


TRANSITION SECTION

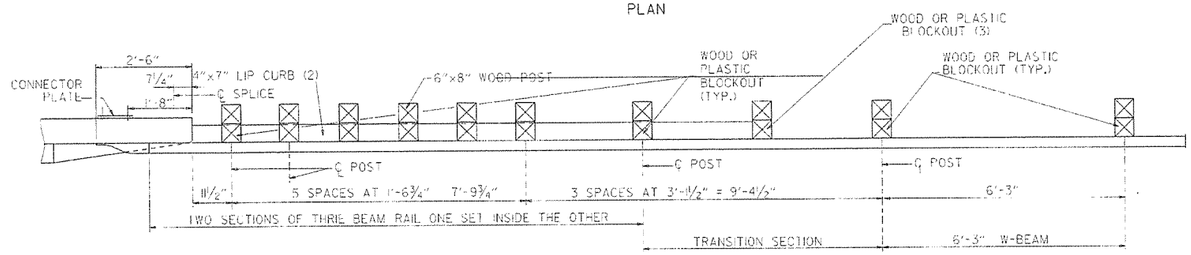
NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



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 II.

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

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

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

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (M00 F) OR NO. 1 (S50 F) SOUTHERN PINE.

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

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

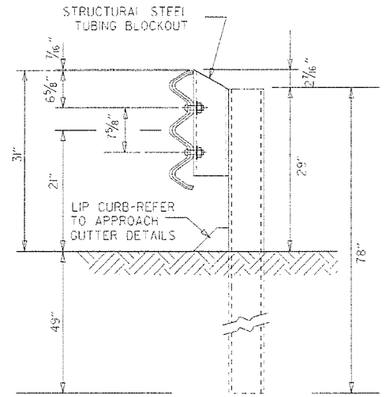
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

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

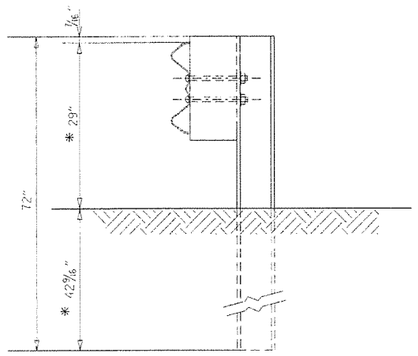
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

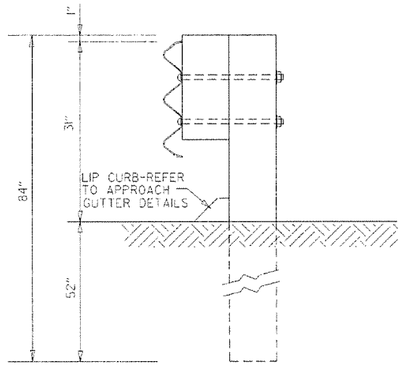


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

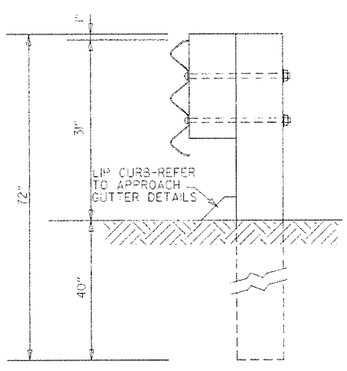


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

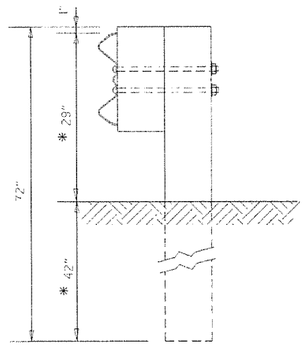
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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



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



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

GENERAL NOTES:

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

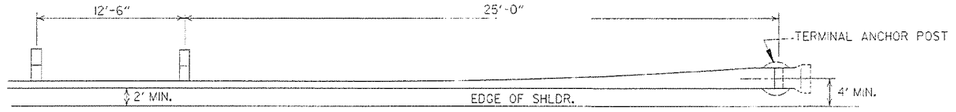
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

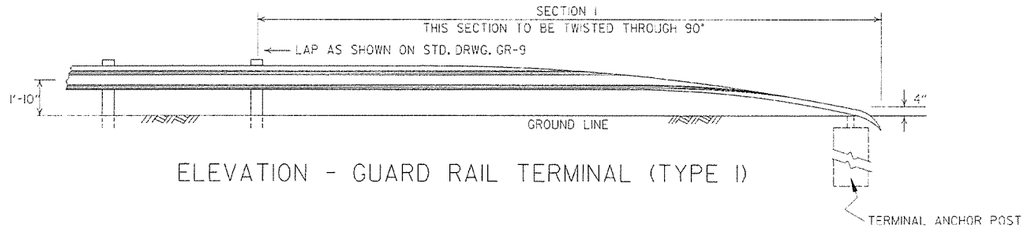
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

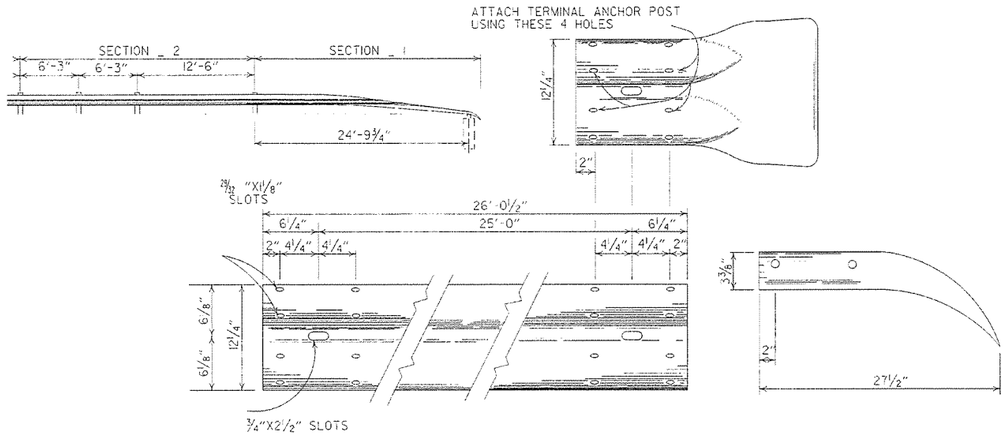


PLAN - GUARD RAIL TERMINAL (TYPE I)



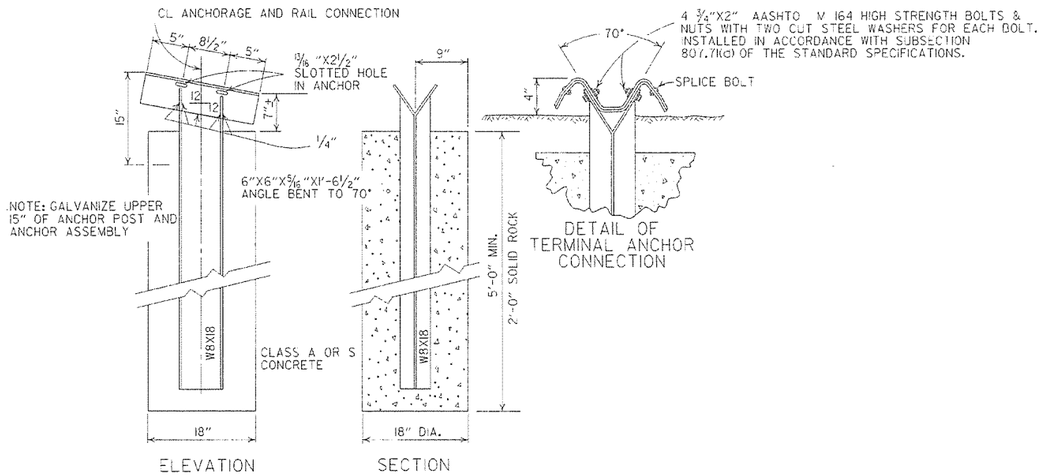
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 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



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.

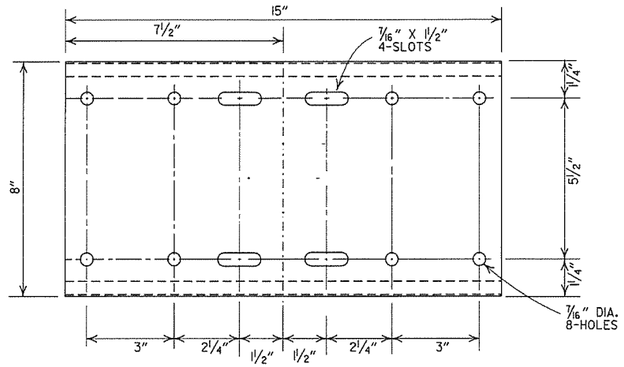
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
6-26-97	REVISED LAP NOTE	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-5-92	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92
DATE	REVISION	DATE FILM

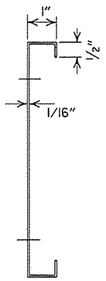
ARKANSAS STATE HIGHWAY COMMISSION

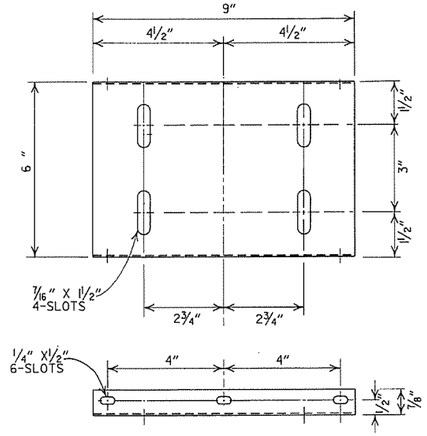
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

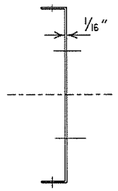


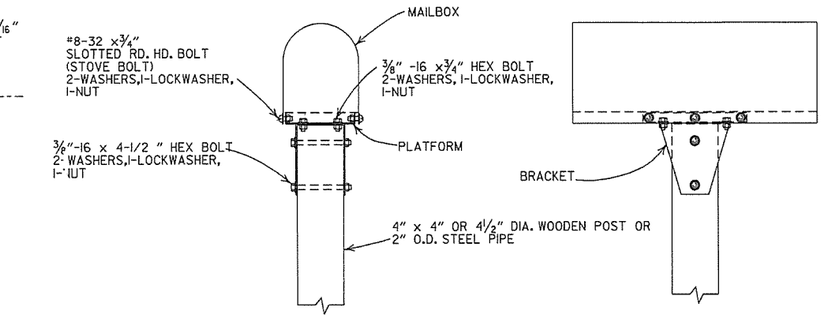
SHELF



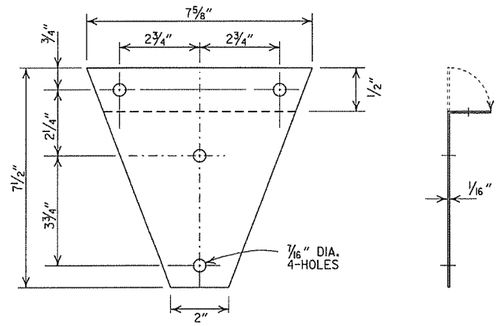


PLATFORM

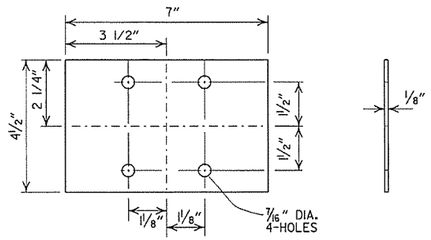




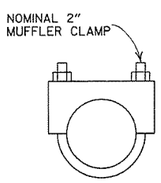
SINGLE INSTALLATION



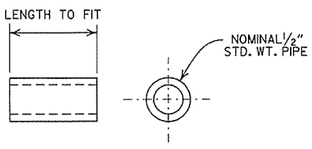
BRACKET



ANTI-TWIST PLATE



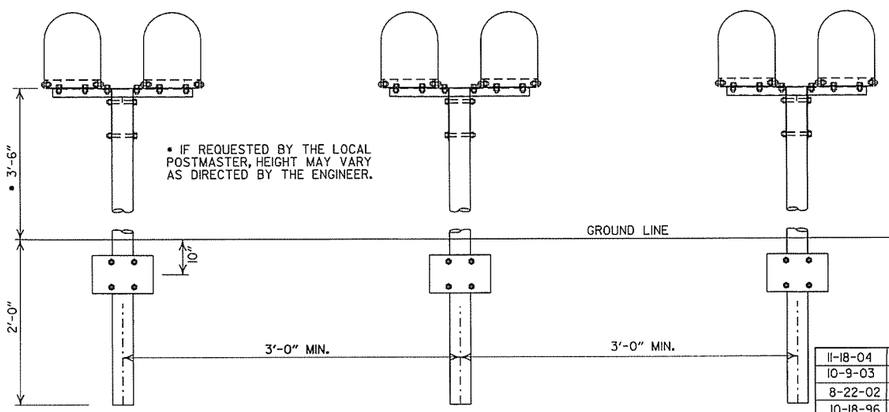
CLAMP



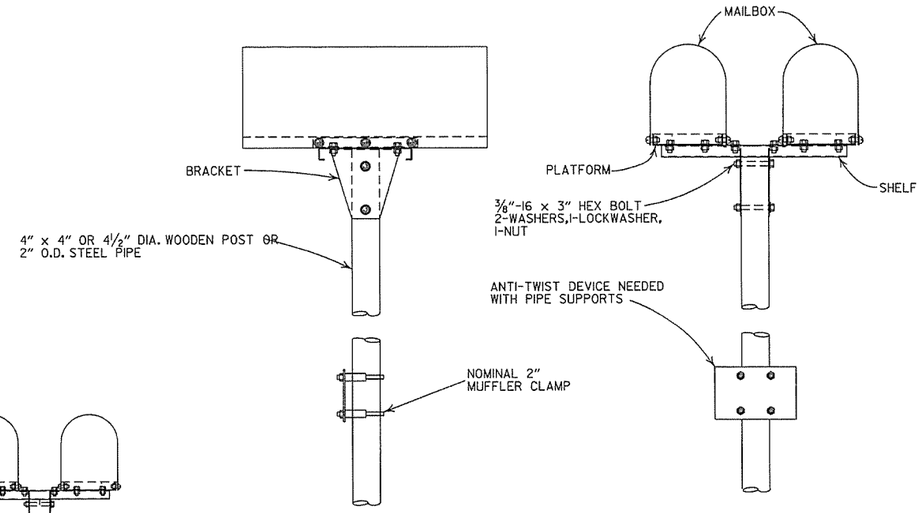
SPACER

GENERAL NOTES

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



SPACING FOR MULTIPLE POST INSTALLATION



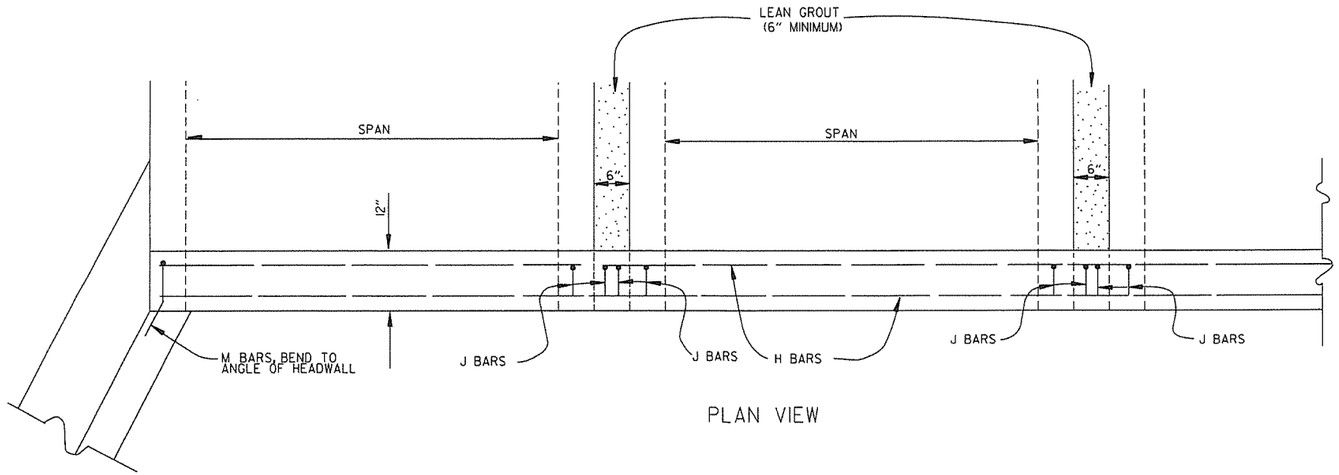
DOUBLE INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

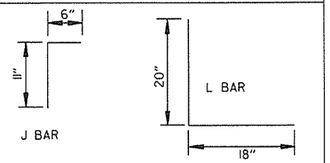
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

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



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

GENERAL NOTES

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

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

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

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

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

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

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

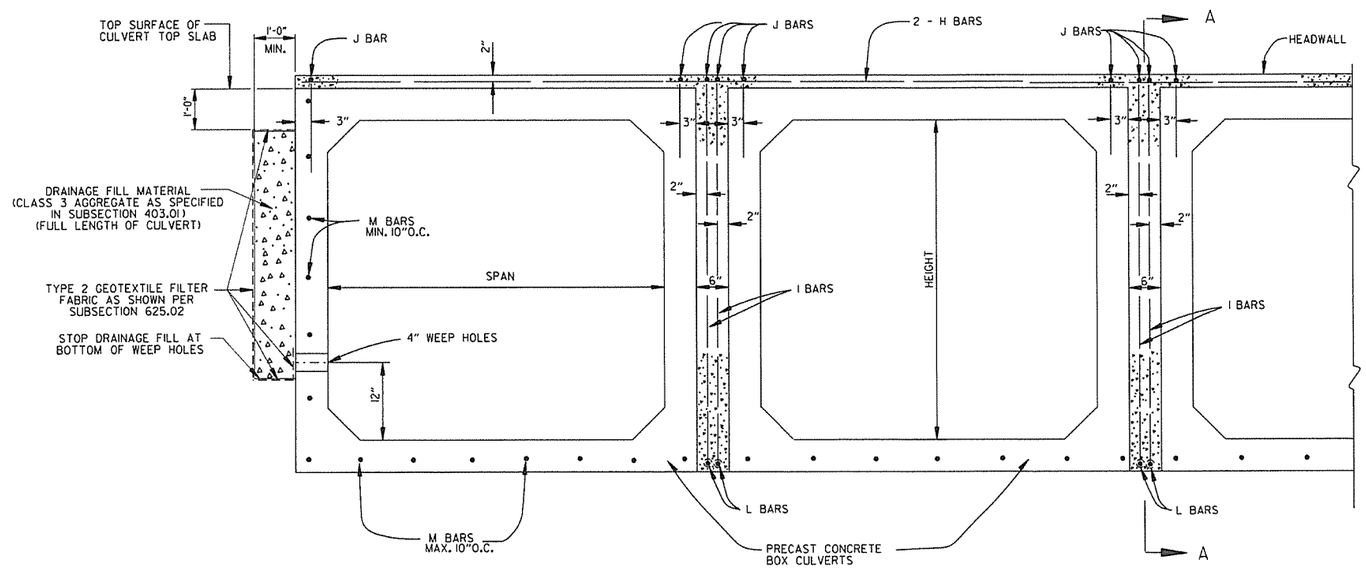
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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

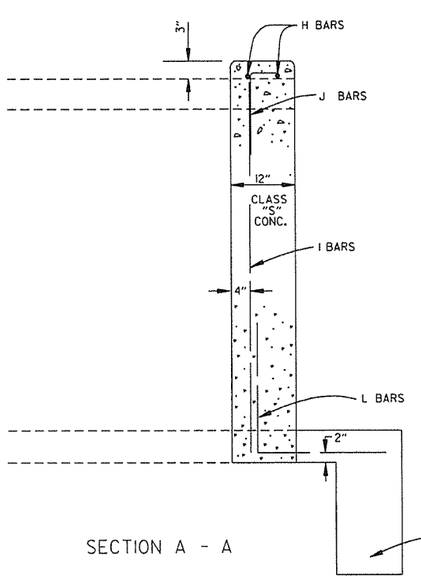
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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

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



END VIEW



SECTION A - A

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

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

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

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

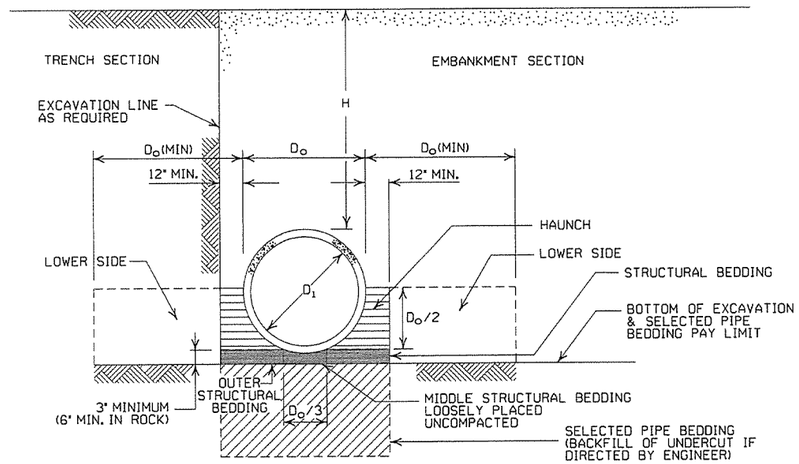
- LEGEND -

D_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

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

CONSTRUCTION SEQUENCE

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

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

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

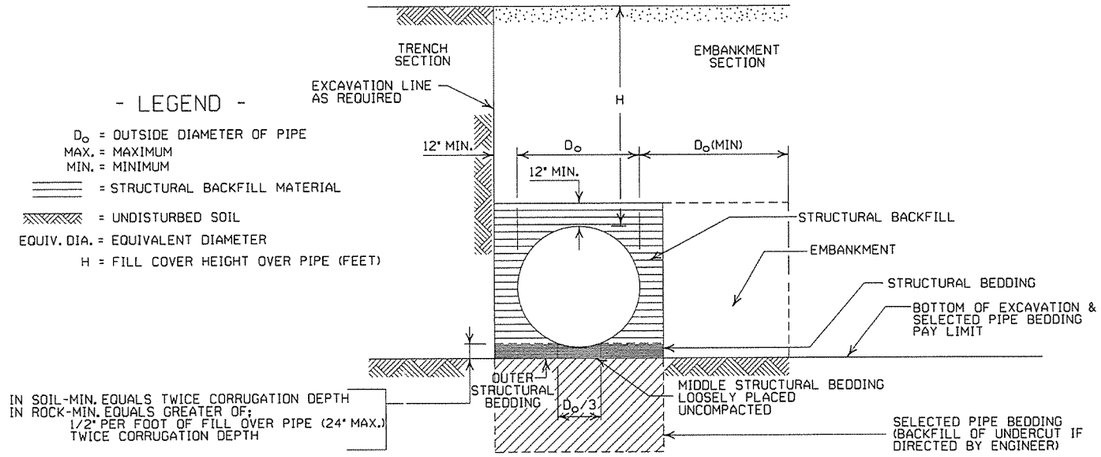
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

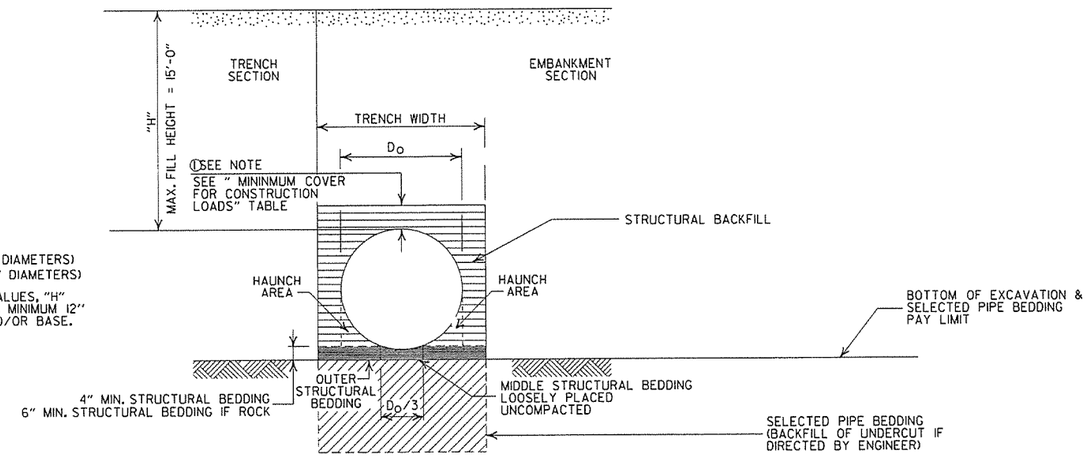
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

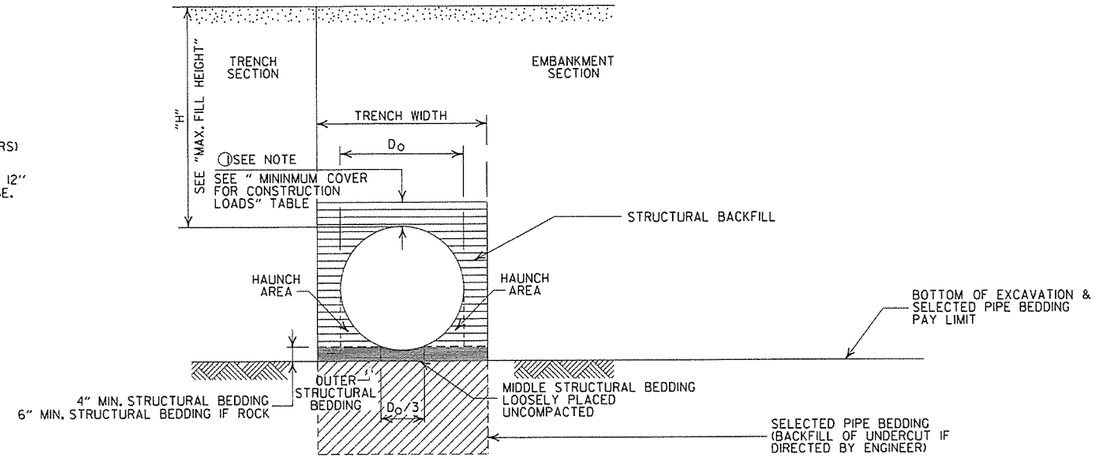
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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	

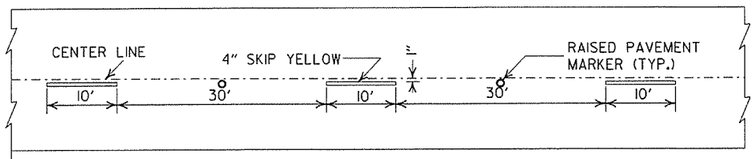
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

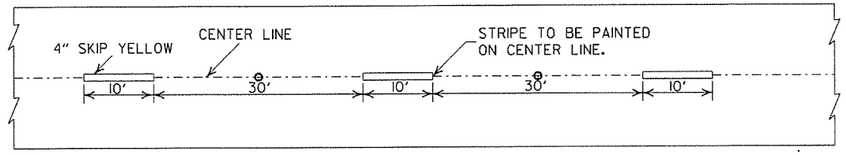
STANDARD DRAWING PCP-2

NOTES:

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

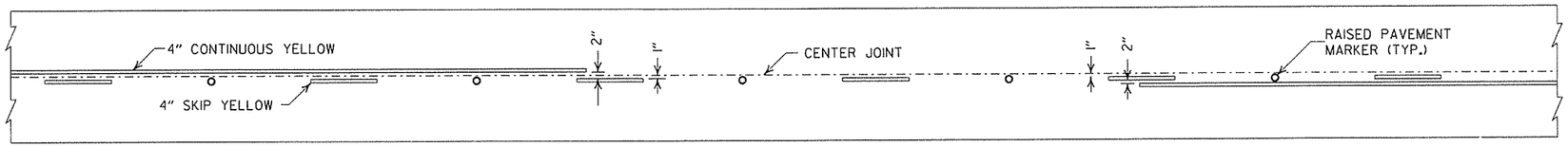


CONCRETE PAVEMENT

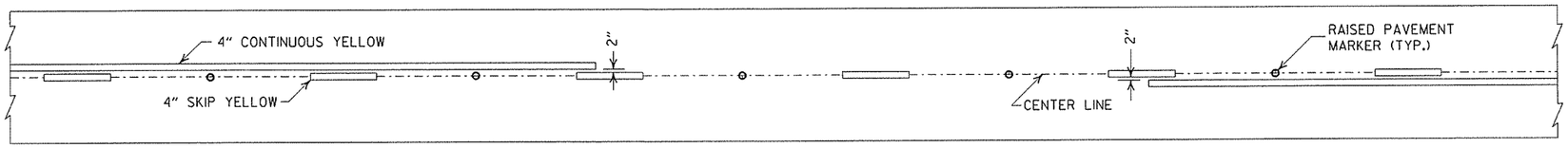


ASPHALT PAVEMENT

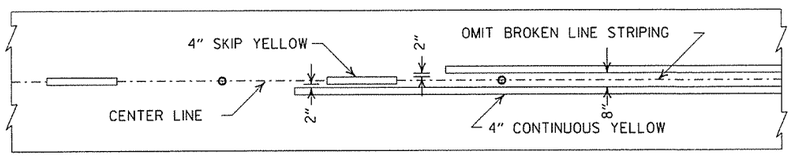
BROKEN LINE STRIPING



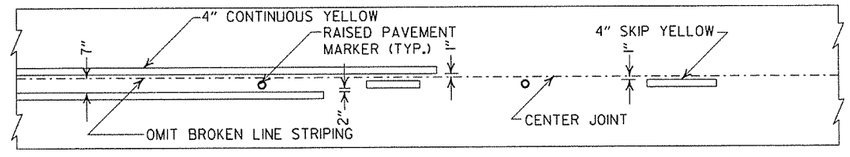
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

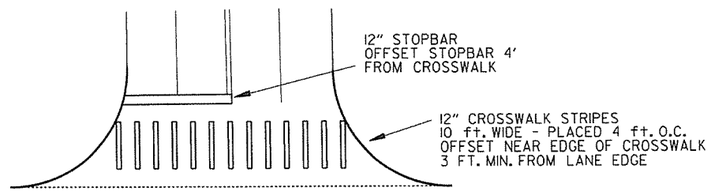


ASPHALT PAVEMENT



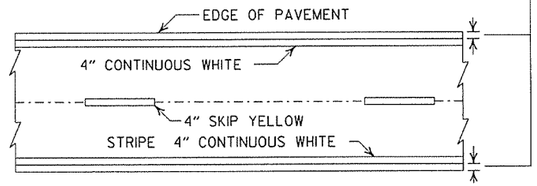
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

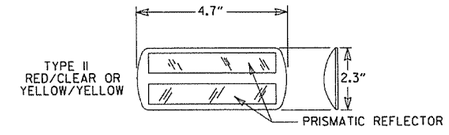


CROSSWALK AND STOPBAR DETAILS

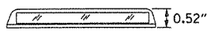
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

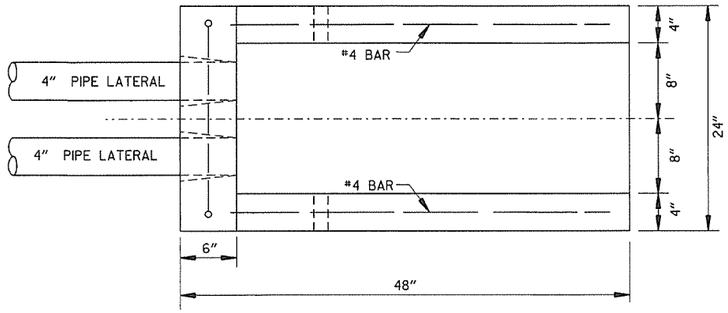
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

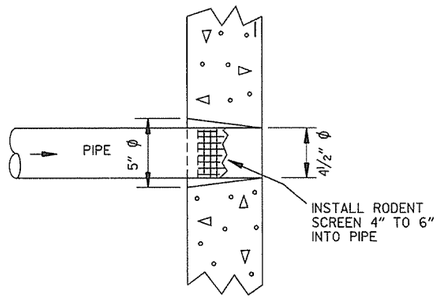
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

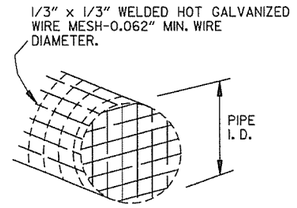
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



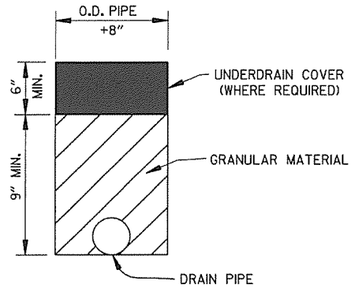
PLAN VIEW

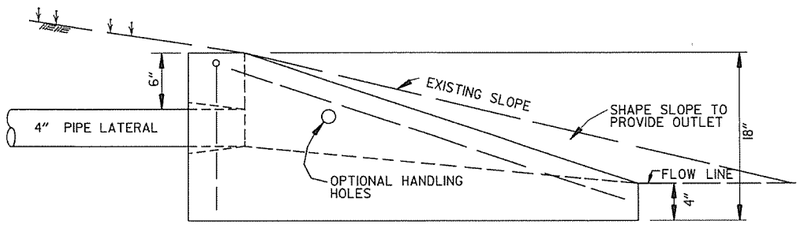


DETAIL OF HOLE FOR 4" PIPE

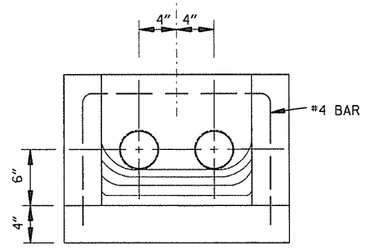


DETAIL OF RODENT SCREEN

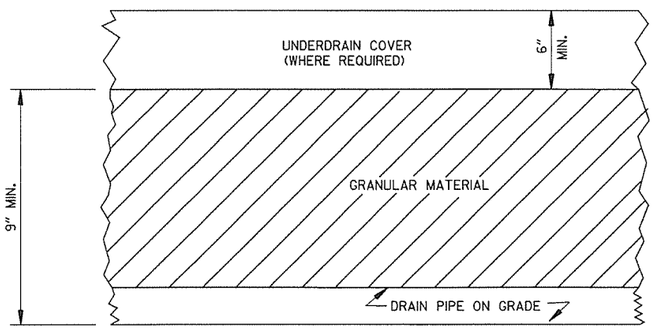




SIDE VIEW

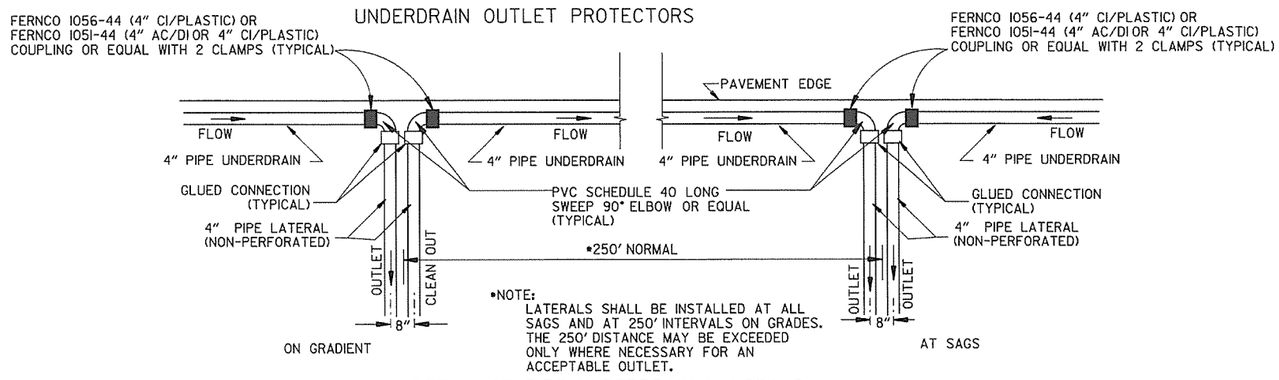


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

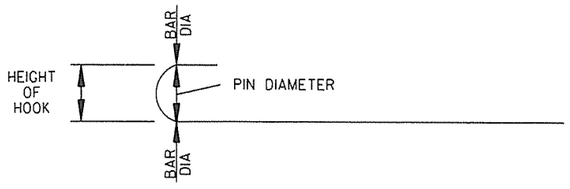
STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

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

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



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

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

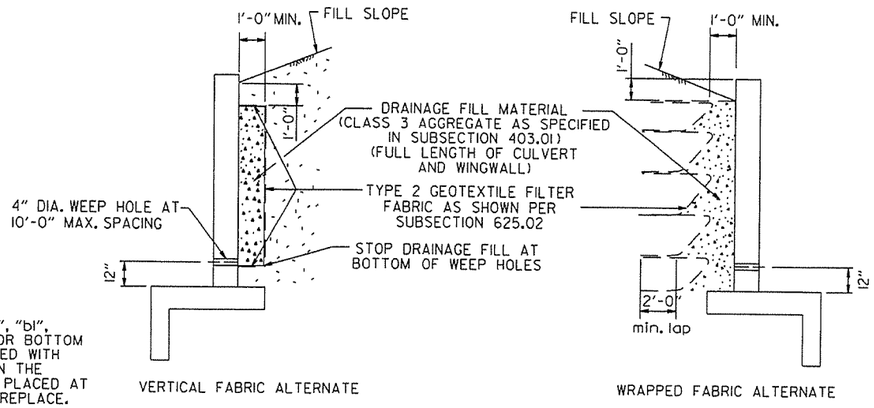
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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

REPLACEMENT BAR LENGTHS TABLE

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

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

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

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

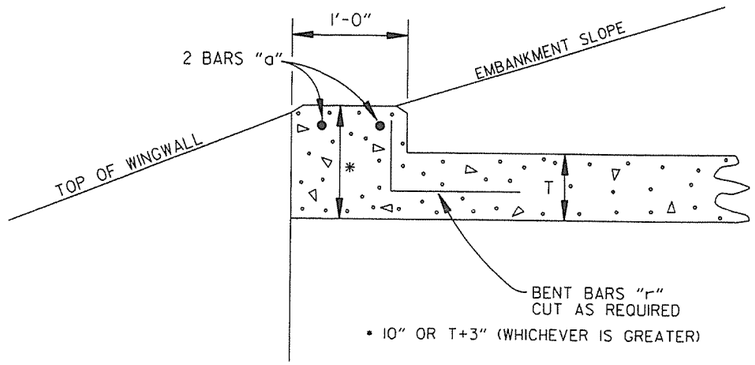
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

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

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

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



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

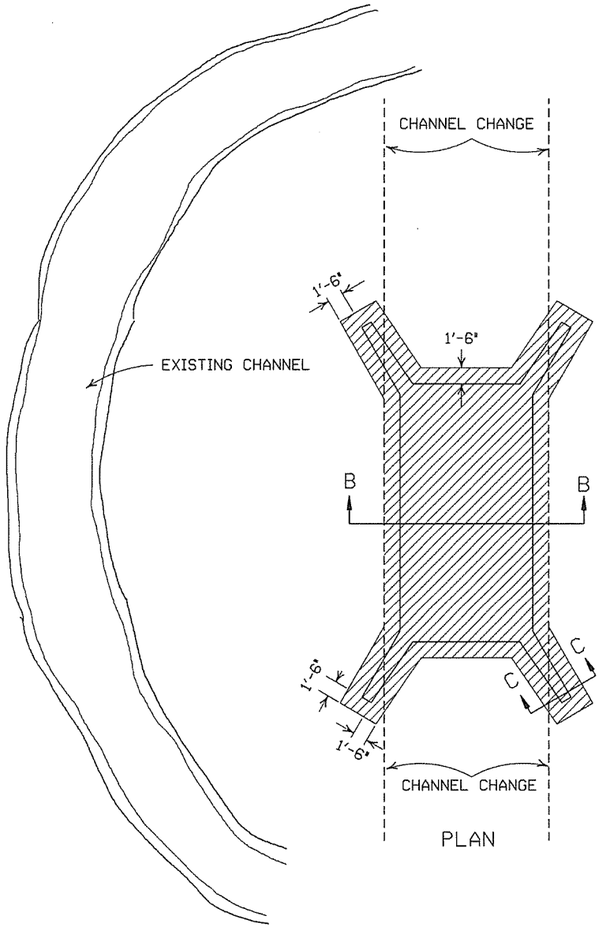
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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

ARKANSAS STATE HIGHWAY COMMISSION

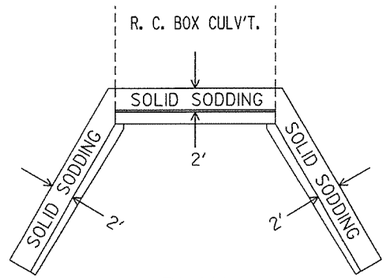
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

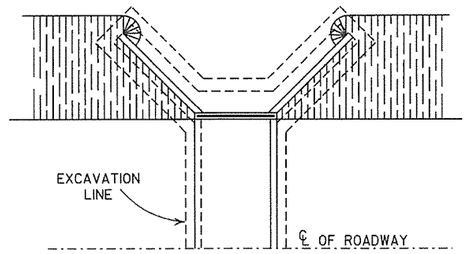
SOLID SODDING



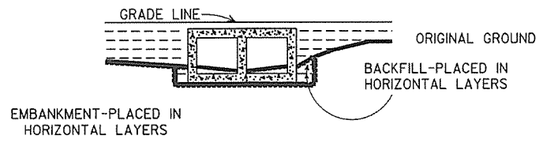
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

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

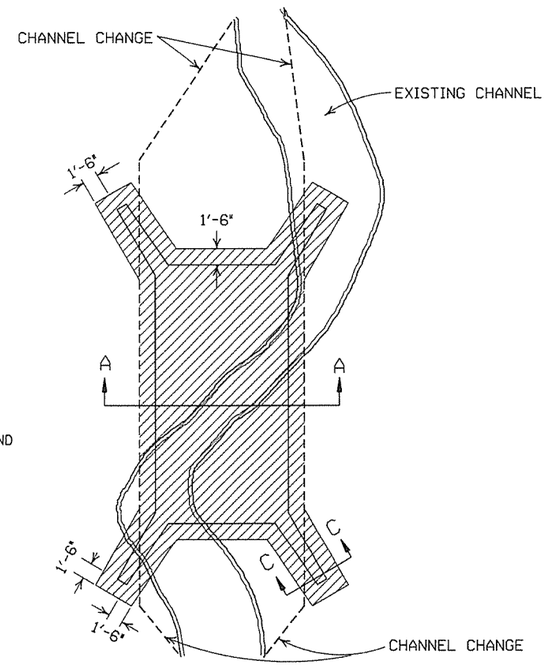


PLAN

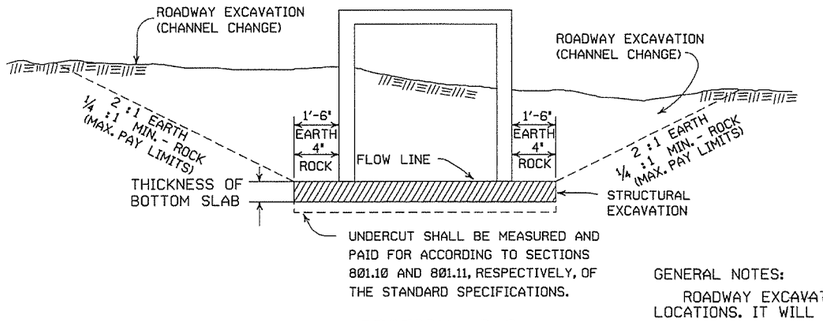


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

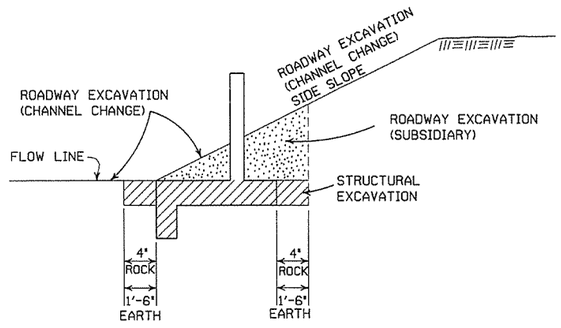


PLAN

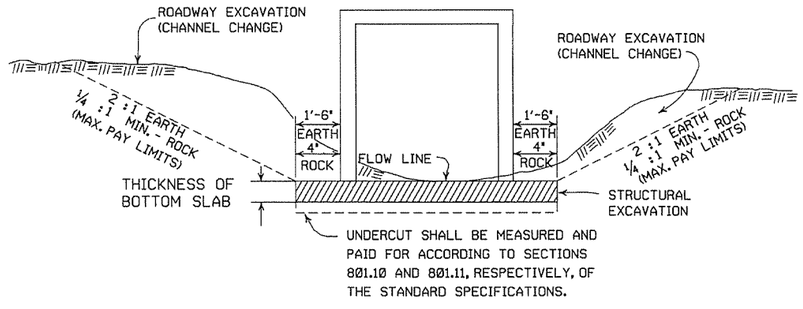


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

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

STANDARD DRAWING RCB-2

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

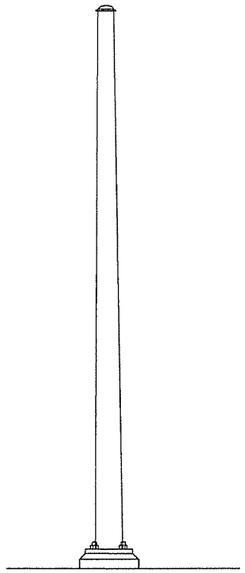
USE FATIGUE CATEGORY II.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH

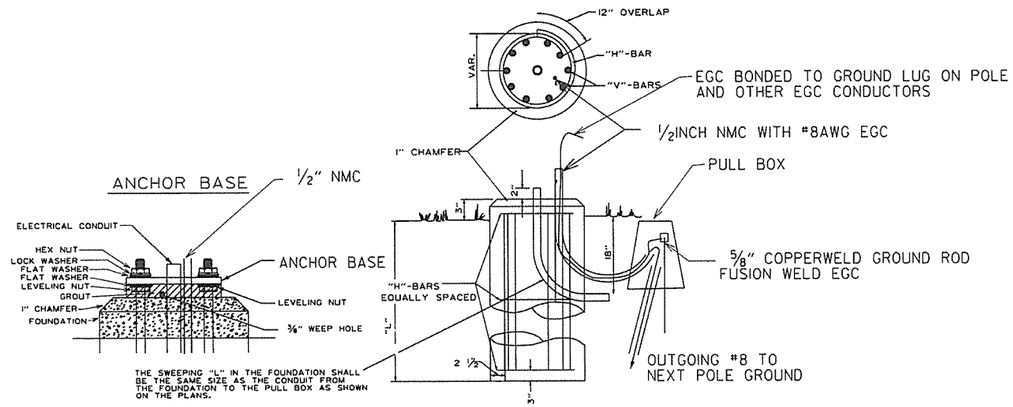
STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN ½" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX PAID FOR SEPARATELY AS SHOWN ON THE PLANS.



ANTENNA POLE

NOTE: COMMUNICATION CABLE SHIELD SHALL BE TIED TO GROUND AT ONLY ONE POINT (MASTER CABINET). THE SHIELD SHALL BE MAINTAINED CONTINUOUS (THROUGH ALL SPLICES). PLEASE REFER TO TESTING PROCEDURES IN SPECIAL PROVISIONS.



TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING.

POLE HEIGHT	FOUNDATION DIAMETER	DEPTH "L"	VERTICAL	HORIZONTAL	TIE SPACING
20.0'	30"	5'-6"	12-#7	#4	5 SP @ 12"
25.0'	30"	6'-0"	12-#7	#4	6 SP @ 11"
30.0'	30"	6'-6"	12-#7	#4	6 SP @ 12"
35.0'	30"	7'-0"	12-#7	#4	7 SP @ 11"
40.0'	30"	7'-6"	12-#7	#4	7 SP @ 12"
45.0'	36"	8'-6"	13-#8	#4	8 SP @ 12"
50.0'	36"	9'-6"	13-#8	#4	9 SP @ 12"
55.0'	36"	10'-0"	13-#8	#4	10 SP @ 11"
60.0'	36"	10'-6"	13-#8	#4	10 SP @ 12"
65.0'	36"	11'-0"	13-#8	#4	12 SP @ 10 ½"
70.0'	36"	11'-6"	13-#8	#4	11 SP @ 12"
75.0'	42"	13'-0"	18-#8	#4	14 SP @ 10 ½"
80.0'	42"	13'-6"	18-#8	#4	13 SP @ 12"
85.0'	42"	14'-6"	18-#8	#4	14 SP @ 12"
90.0'	42"	15'-0"	18-#8	#4	18 SP @ 9 ½"

ALL CONCRETE SHALL BE CLASS "S" WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH F'C=3500 PSI. CONCRETE SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS CHAMFERED ¾" UNLESS NOTED OTHERWISE.

ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31 OR M53, GRADE 40 (YIELD STRENGTH=40,000 PSI).

PROVIDE 3" CLEAR TIES. DETAIL 3" TO FIRST TIE AT TOP OF SHAFT.

DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
9-6-00	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

ANTENNA POLE

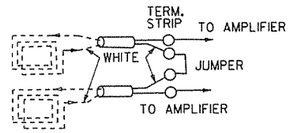
STANDARD DRAWING SD-1

LOOP DETECTOR INSTALLATION AND TESTING

NOTES:

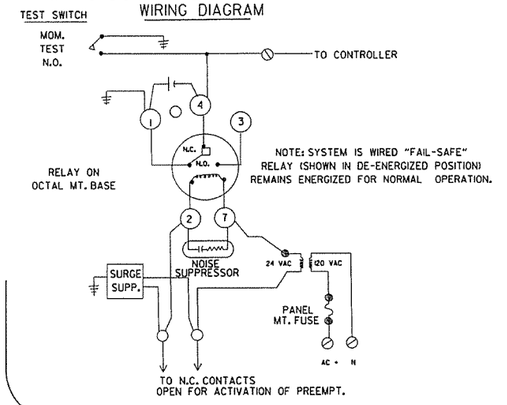
1. LOOPS WITH A PERIMETER GREATER THAN 40′ SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40′ SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICE SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPLICE.
3. THE LOOP TO FEEDER SPLICE, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1"O) CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE, ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

SERIES CONNECTED LOOPS

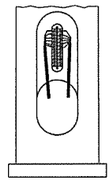


WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.

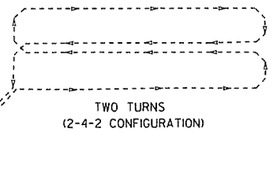
TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM



HANDHOLE TERMINAL

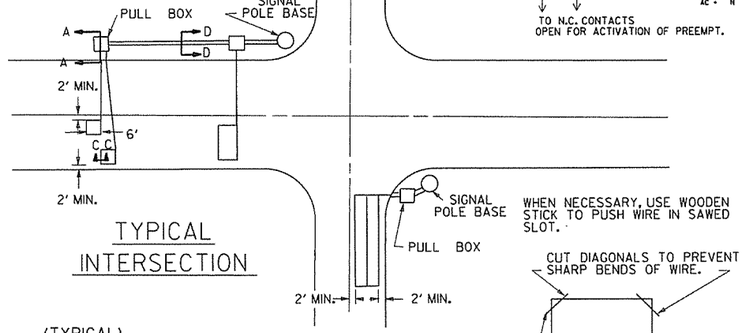


QUADRUPOLE LOOP



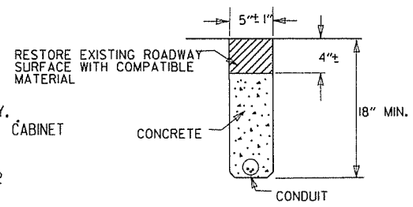
TWO TURNS (2-4-2 CONFIGURATION)

TYPICAL INTERSECTION



TRENCHING DETAIL

(FOR SAW CUT TRENCH IN ROADWAY)

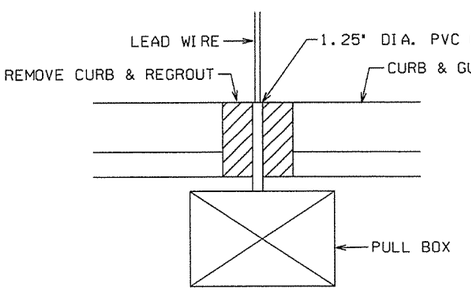


TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING

1. DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3
2. TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM)

   IF TESTS 1& 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1& 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
3. OPEN SPLICE (DO NOT BREAK CONNECTION) REPEAT TEST 1& 2 IF TEST 3 IS BAD , GO TO TEST 4
4. BREAK SPLICE, INSTALL JUMPER IN CABINET, REPEAT TESTS 1& 2 SEPARATELY FOR FEEDER AND FOR LOOP

FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPLICE CONNECTION.



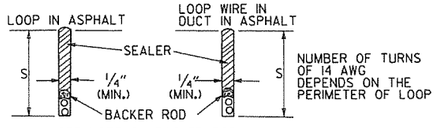
SECTION A-A

1′-6" CONCRETE COMBINATION CURB AND GUTTER

SPECIAL NOTE

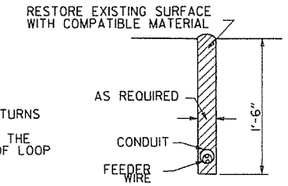
IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS



SECTION C-C

S=2 ½" IN ASPHALT
S=1½" IN CONCRETE



SECTION D-D

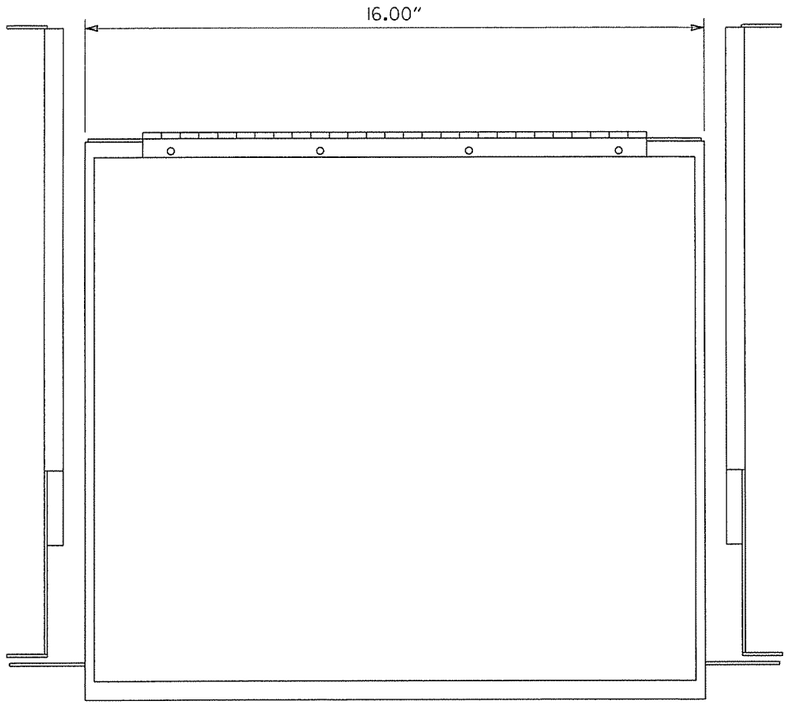
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-17-01	REVISED	
4-11-01	REVISED	
2-4-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

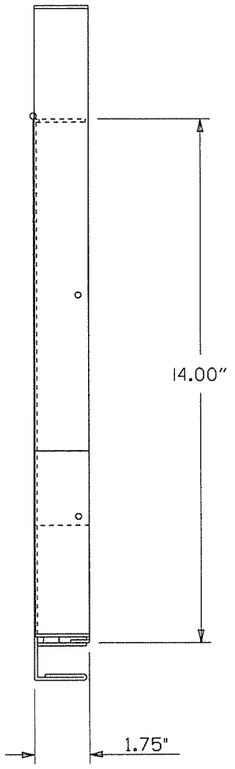
ARKANSAS STATE HIGHWAY COMMISSION

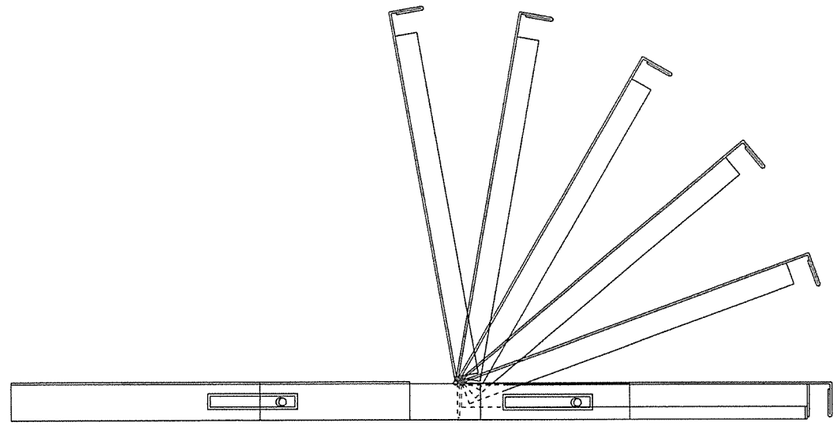
LOOP DETECTOR INSTALLATION

STANDARD DRAWING SD-4

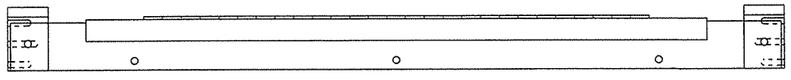
DRAWER PLAN VIEW



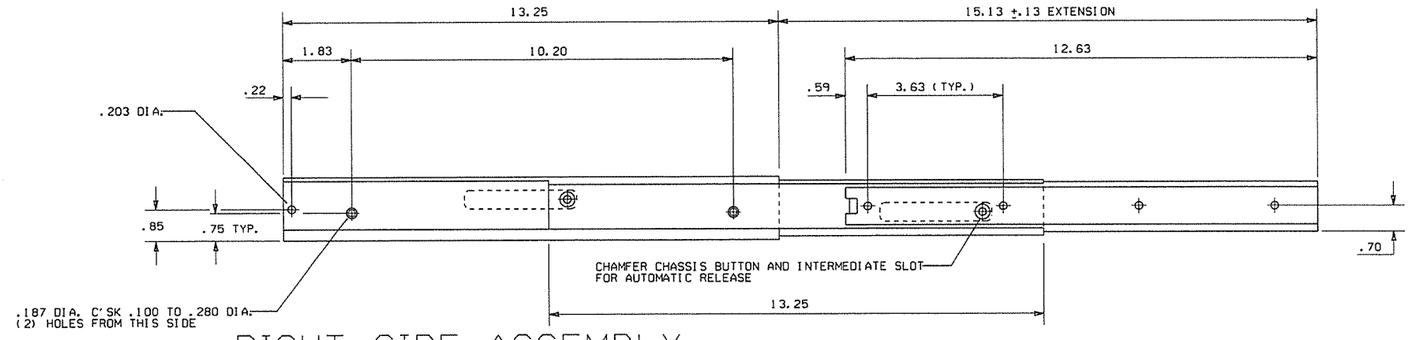




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

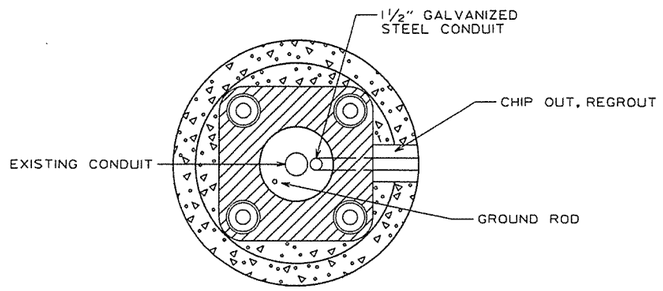
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

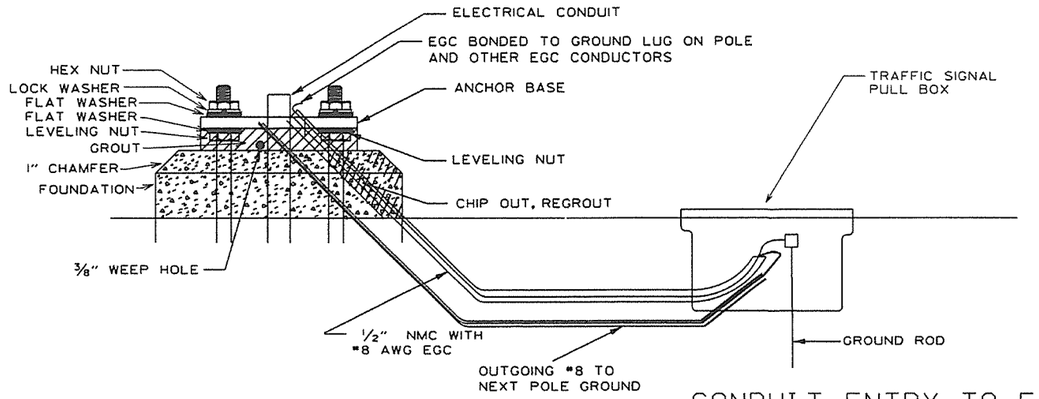
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

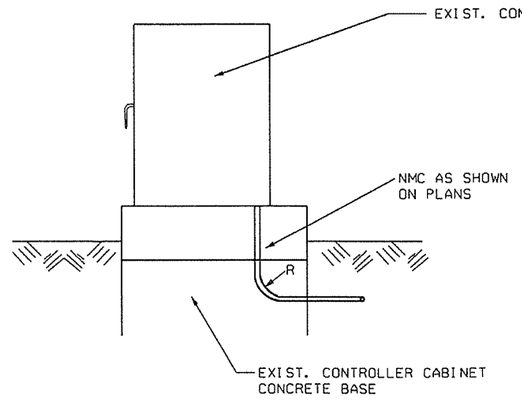
CONDUIT ENTRY TO EXISTING POLE BASE



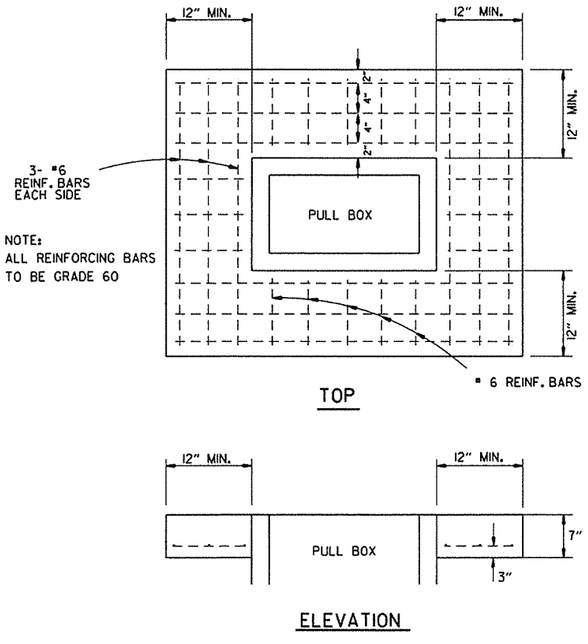
ANCHOR BASE



CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



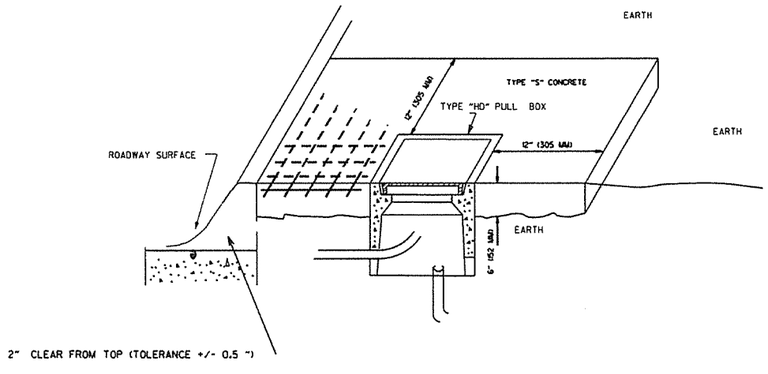
NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.



TOP

ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



NOTE: ALL TYPE 1 AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 7" (178 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S." THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.

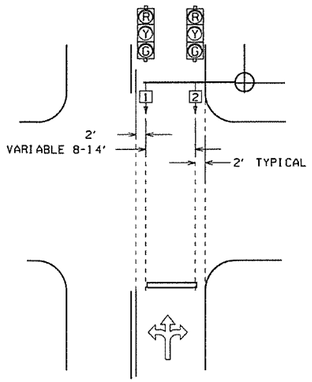
DATE	REVISION	DATE FILM
9-2-15	REVISED PULL BOX DEPTH	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

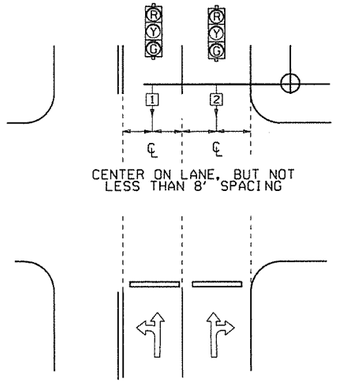
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

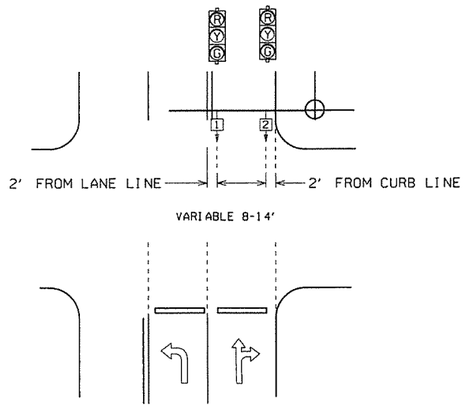
(A)



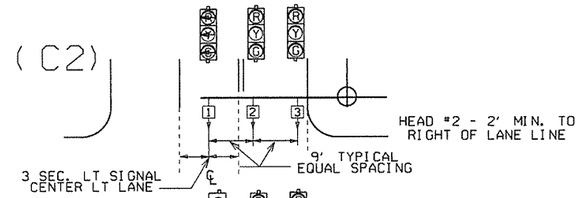
(B)



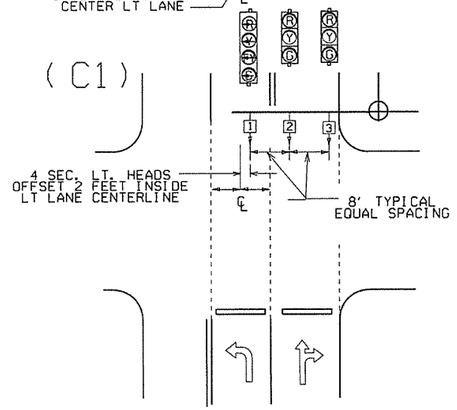
(C)



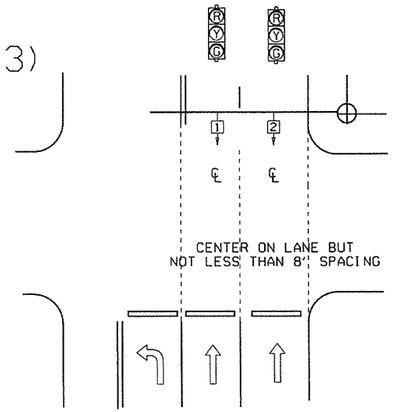
(C2)



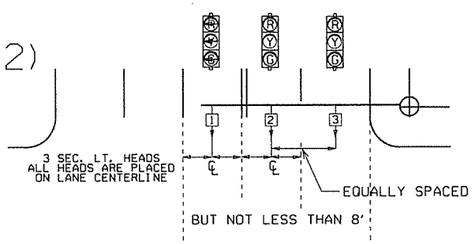
(C1)



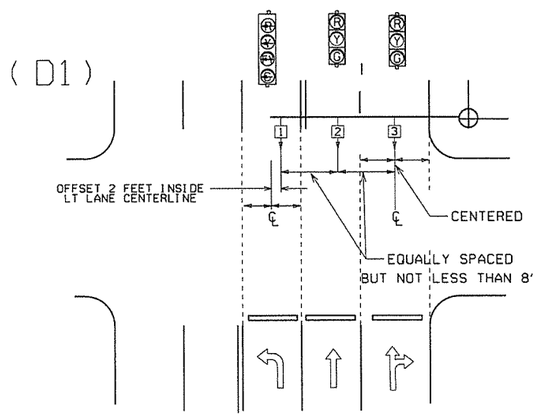
(C3)



(D2)

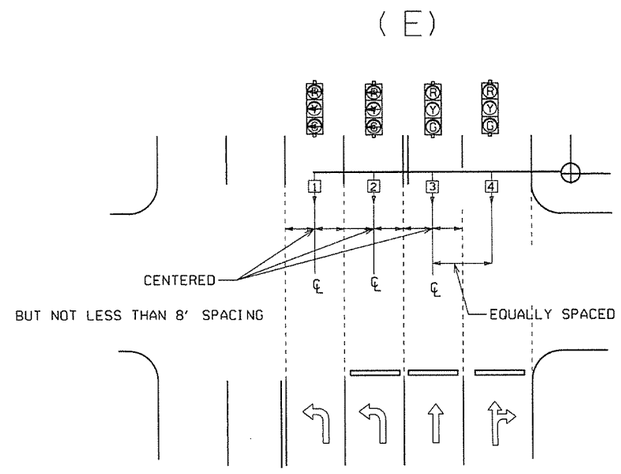


(D1)



NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

(E)



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION 'PROTECTED/PERMISSIVE' LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION 'PROTECTED' LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-1 OF 2009 MUTCD.

9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	
DATE	REVISION	DATE FILM

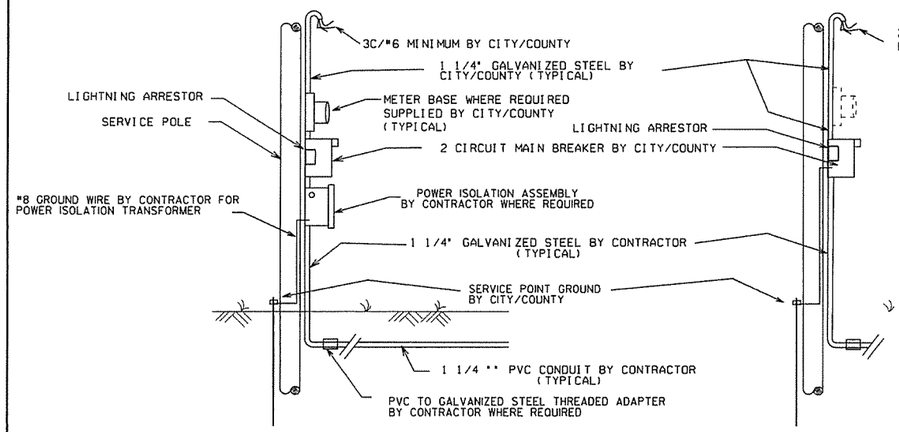
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

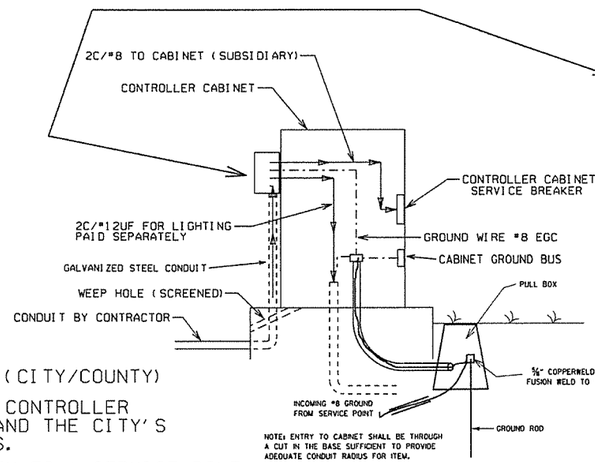
WITH POWER ISOLATION ASSEMBLY

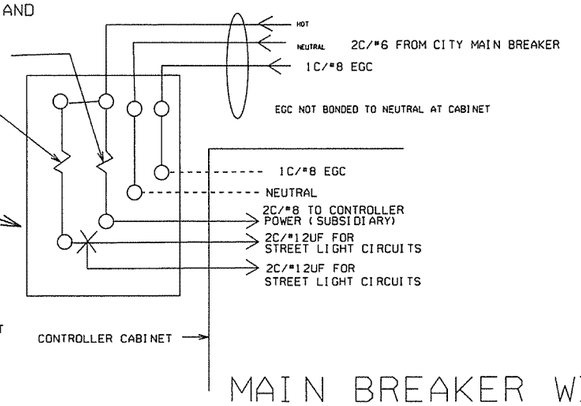


WITHOUT POWER ISOLATION ASSEMBLY

GROUND ROD-A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)





MAIN BREAKER WIRING (TYPICAL)

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY)

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES: MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

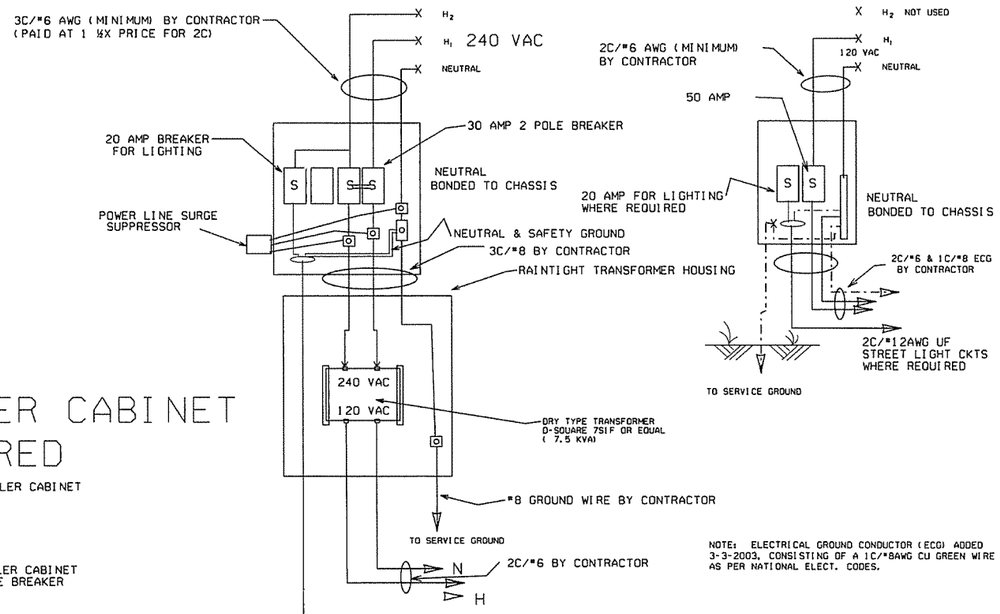
2. MAIN BREAKER NOT NEAR CONTROLLER CABINET: THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

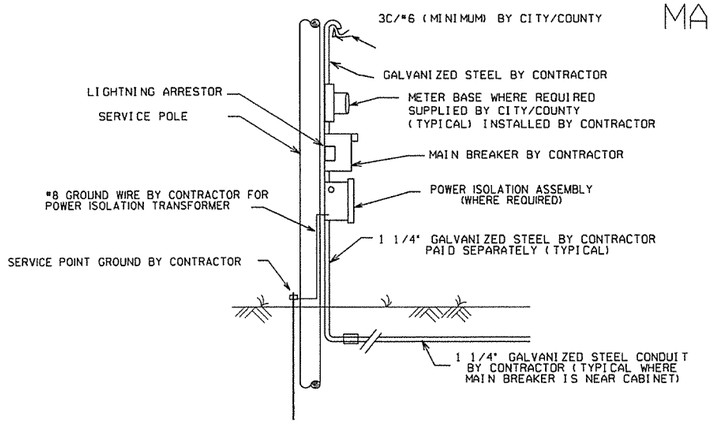
WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

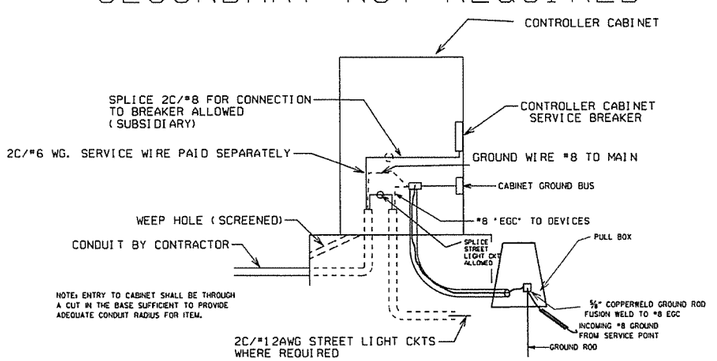
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (ECG) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209. ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS:
DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL * 2' X 0" X 2' * 6", 20 LB. REMAINING HEADS SPACED A 8 FT. * 3 SEC., 56 LB., TWO 5 SEC):
14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING
2 HEADS FOR ARMS 10 TO 16 FT.
2 HEADS FOR ARMS 10 TO 16 FT., INCLUDING LB.
3 HEADS FOR 18 TO 24 FT. ARMS;
4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT
ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) * VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE.
POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

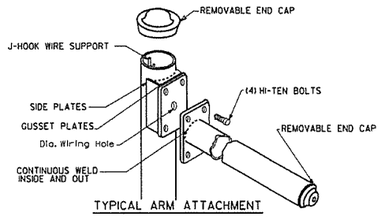
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

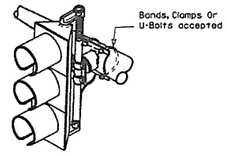
6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

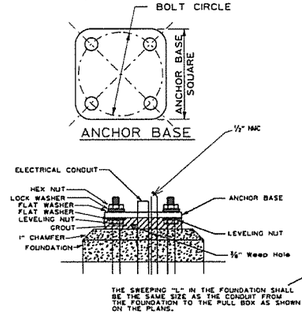
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



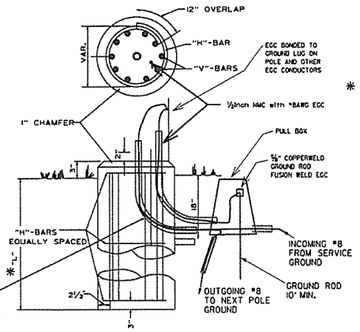
TYPICAL ARM ATTACHMENT



NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



ANCHOR BASE

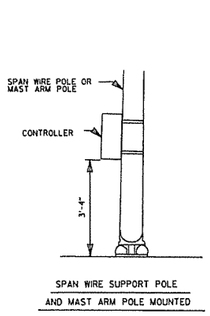


THE GROUND ROD SHALL BE FUSION WELDED TO A 10'/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

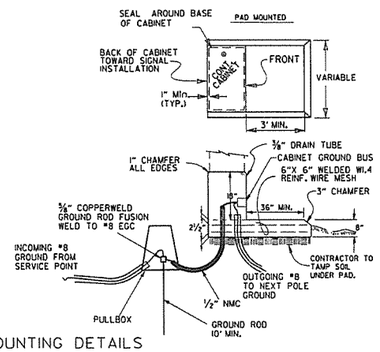
TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH "L" *	STEEL VERT.	STEEL HORZ.	STEEL O/C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44"
2' to 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42"
over 12' to 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66"
over 20' to 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88"
over 35' to 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56"
over 50' to 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74"
Twins to 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76"
Twins over 20' to 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76"
Twins over 44' to 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76"
Twins over 50' to 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64"



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED



CONTROLLER CABINET MOUNTING DETAILS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX. NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A 1/4" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS "S" OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

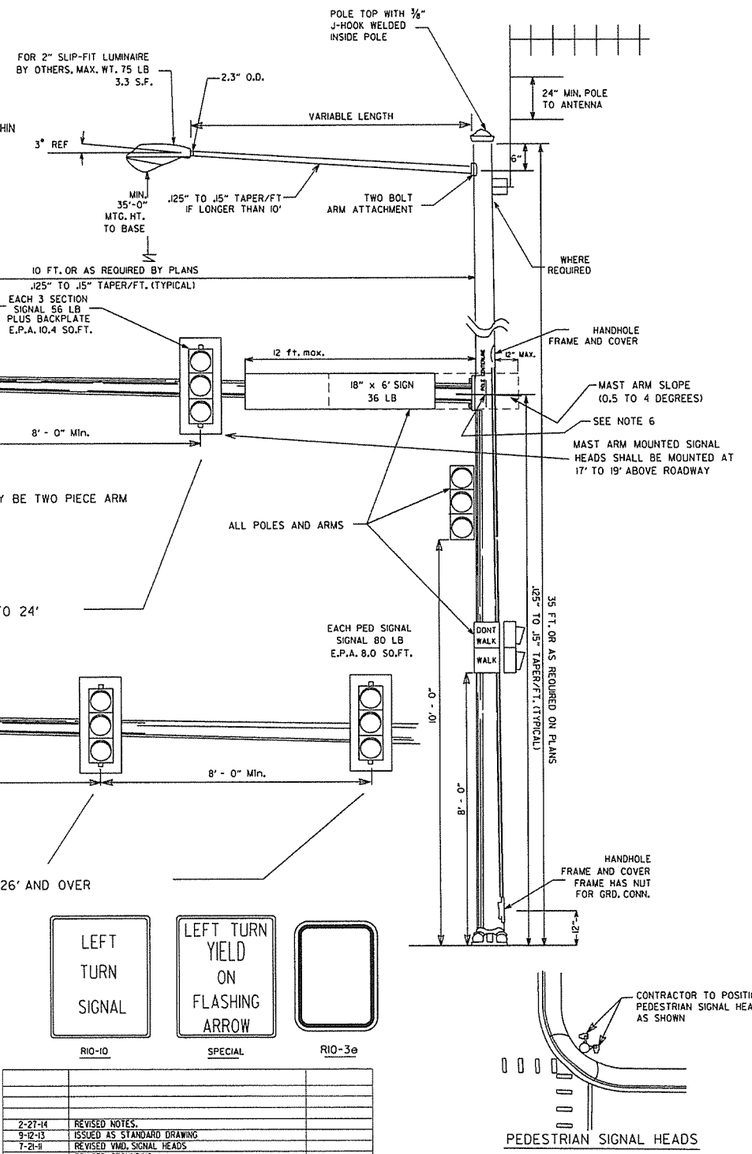
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

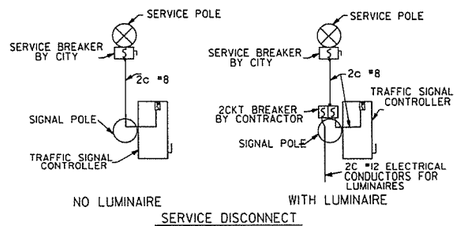
SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"X0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.





SERVICE DISCONNECT

PEDESTRIAN SIGNAL HEADS

DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-11	REVISED VMD, SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-8-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-11-01	REV. NOTES & POLE MAST ARM SLOPE	
4-11-01	REVISED POLE TAPERS	
4-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11

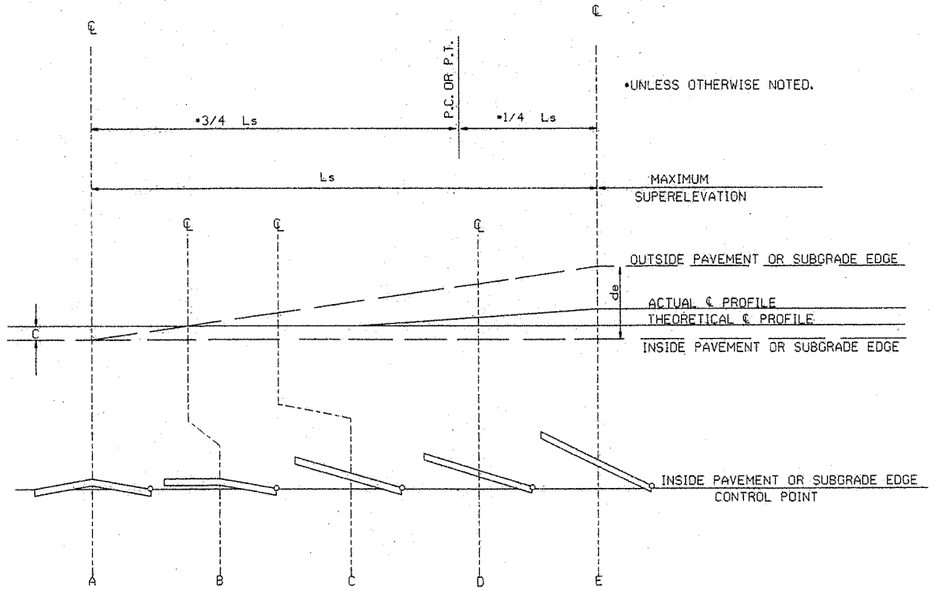
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 30′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 45′	N. C.			N. C.			R. C.			0. 022			0. 023			0. 028		
1° 00′	N. C.			N. C.			0. 021			0. 026			0. 030			0. 037	275	300
1° 15′	N. C.			R. C.			0. 026			0. 032			0. 037			0. 046		
1° 30′	N. C.			0. 021			0. 031	200		0. 037	225		0. 043	250		0. 054		
1° 45′	N. C.			0. 025			0. 036			0. 043		300	0. 049		300	0. 062		
2° 00′	R. C.			0. 028	175		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	D MAX = 3° 30′		
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		D MAX = 5° 15′					
6° 00′	0. 046			0. 070	190		0. 092	270		0. 096	305							
6° 30′	0. 050			0. 074	200		0. 096	280	300	0. 100	315							
7° 00′	0. 053			0. 078	210		0. 098	285		D MAX = 6° 30′								
7° 30′	0. 056			0. 081	215		0. 099	290										
8° 00′	0. 058			0. 084	220		0. 100	290										
8° 30′	0. 061			0. 087	225	250	D MAX = 8° 15′											
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		D MAX = 13° 15′														
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′

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.

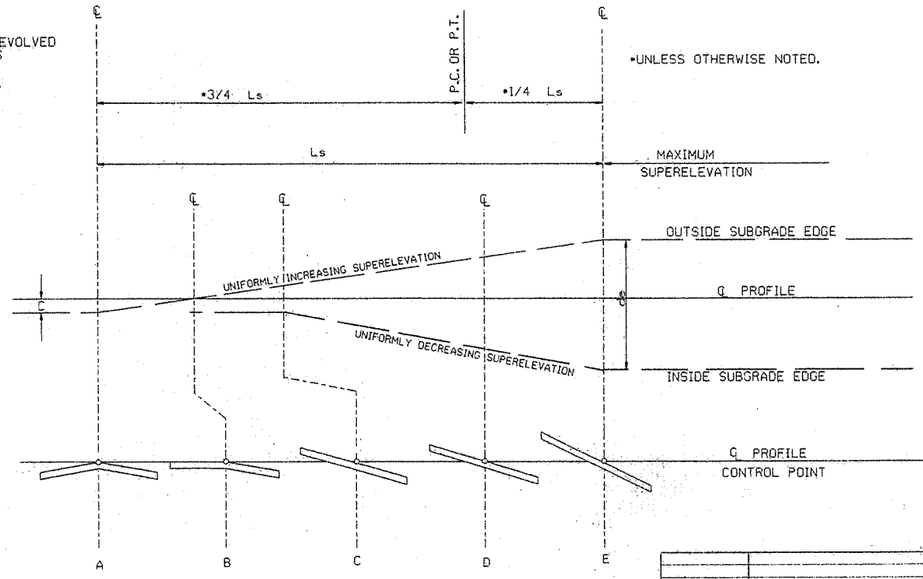
GENERAL NOTES

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

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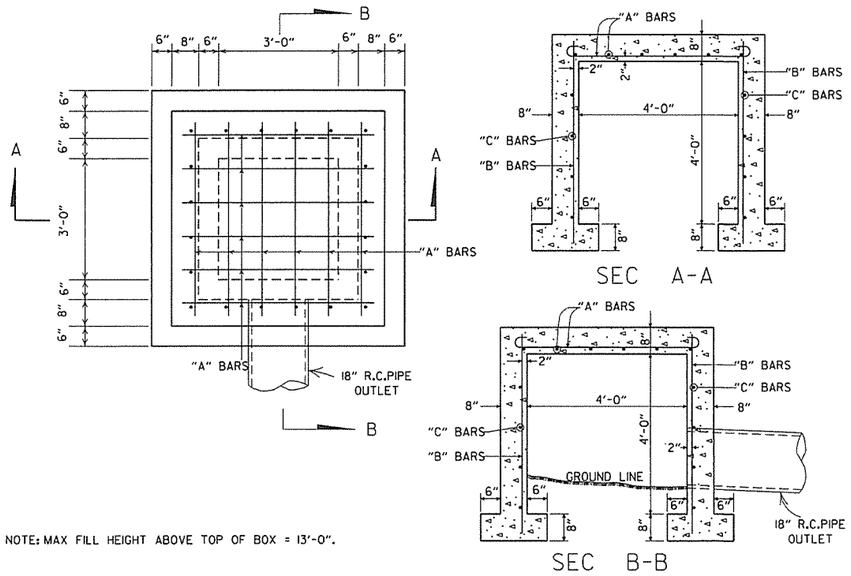
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

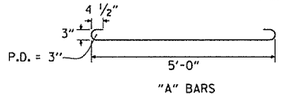


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

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

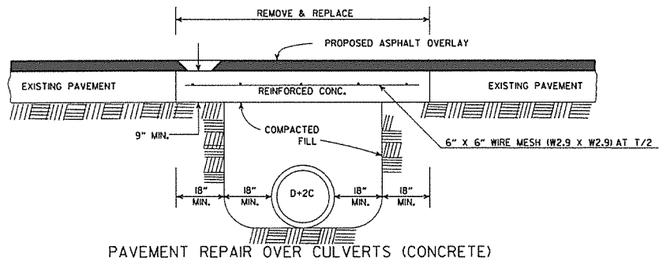


QUANTITIES

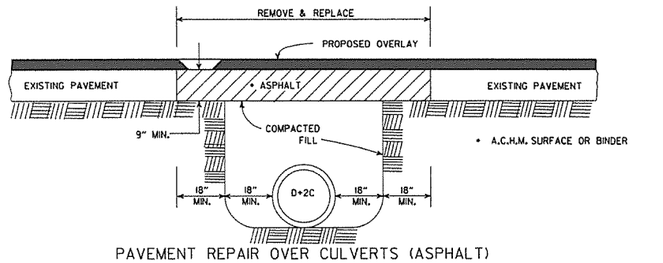
CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

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

REINFORCED CONCRETE SPRING BOX



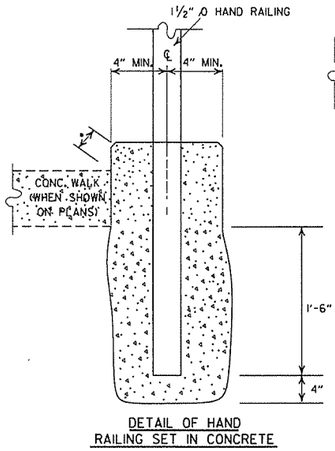
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



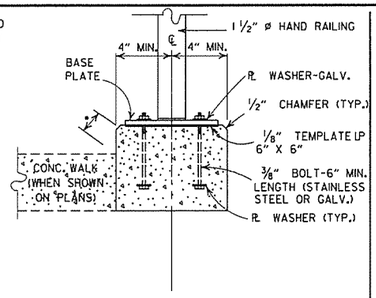
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

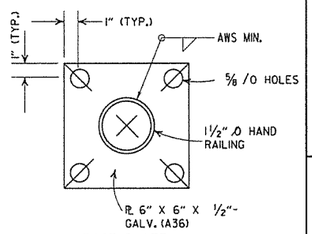
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

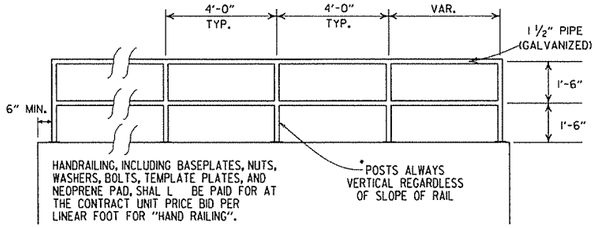


POST CONNECTION TO WALL

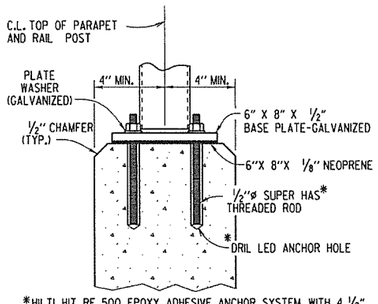


BASE PLATE

POST CONNECTION DETAILS

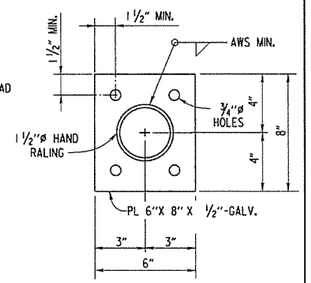


HAND RAILING SHALL CONFORM TO SECTION 633.



*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.

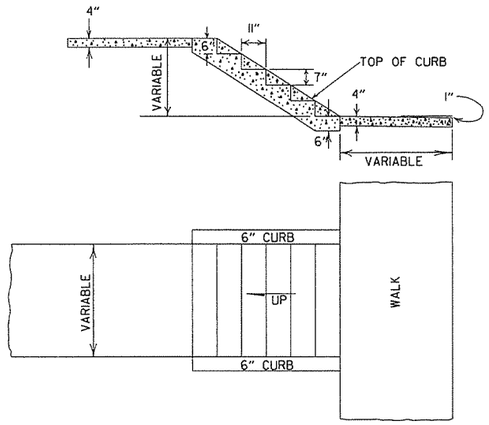
POST CONNECTION TO WALL



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.

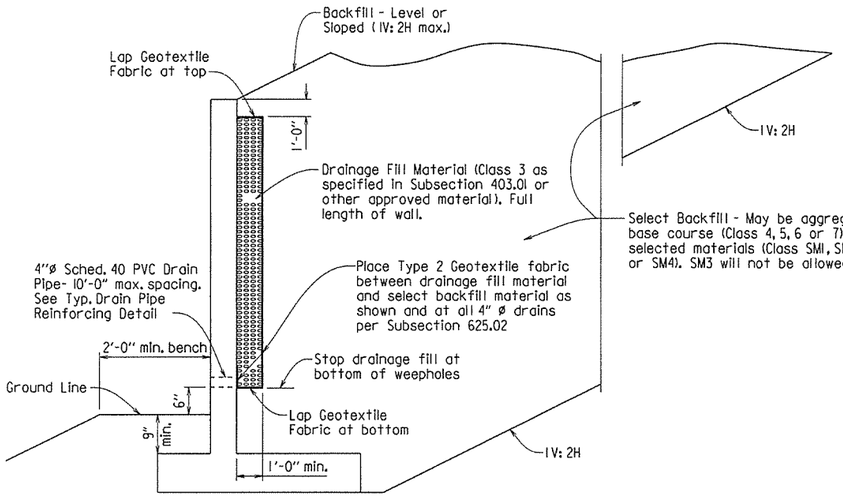
DETAILS OF CONCRETE STEPS & WALKS

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.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

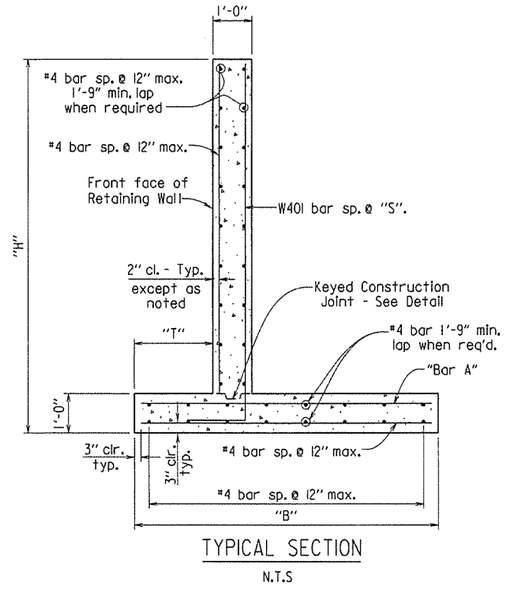
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1



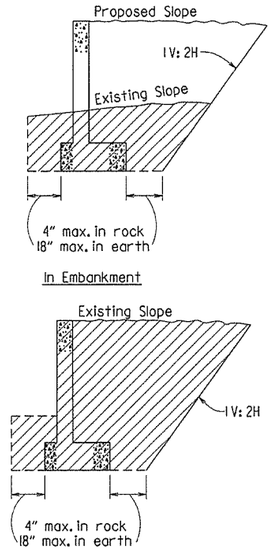
TYPICAL DRAINAGE & BACKFILL DETAILS

N.T.S



TYPICAL SECTION

N.T.S



NOTE: Hatched area denotes maximum limits of pay excavation.

DETAILS OF EXCAVATION

N.T.S

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: 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.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012).

LIVE LOAD: Live Load Surcharge is not included in the design of these walls. Vehicular Live Load shall not be allowed within a distance equal to one-half the height of the wall.

CONCRETE: Concrete shall be poured in the dry and all exposed corners to be chamfered ½". All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. A Class 2 Surface finish shall be used on all surfaces of the concrete unless otherwise noted.

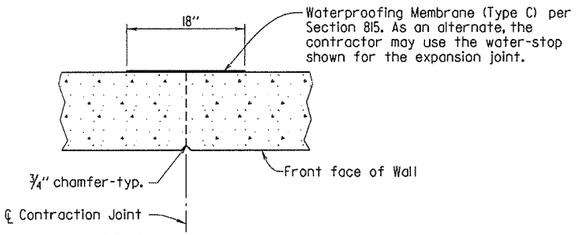
REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 orM53, Grade 60.

Foundations for footings shall be prepared in accordance with subsection 801.04. Backfill for retaining walls shall be in accordance with subsection 801.08.

Waterproof Membrane (Type C), waterstops, preformed joints, weep holes & geotextile fabric shall not be paid for directly, but shall be considered subsidiary to Class S Concrete.

Drainage fill material (Class 3) and select backfill shall be measured and paid for as Compacted Embankment.

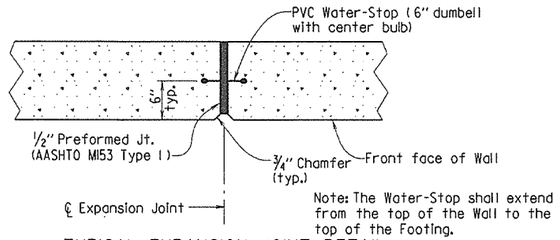
These details are not intended for use along streams or ditches without consideration for scour.



TYPICAL CONTRACTION JOINT DETAIL

N.T.S.

Note: 20'-0" Max. Spacing between Contraction Joints. Horizontal reinforcement shall be continuous through Contraction joints.

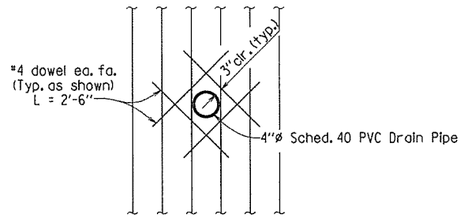


Note: The Water-Stop shall extend from the top of the Wall to the top of the Footing.

TYPICAL EXPANSION JOINT DETAIL

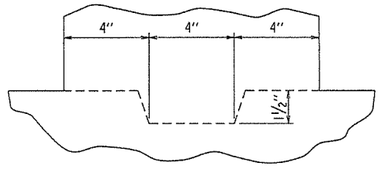
N.T.S.

Note: 60'-0" Max. Spacing between Expansion Joints. Horizontal reinforcing shall stop 2" from ℄ Expansion Joint.



TYPICAL DRAIN PIPE REINFORCING DETAIL

N.T.S



KEYED CONSTRUCTION JOINT DETAIL

N.T.S

SEISMIC ZONE: These walls have been designed for the following site adjusted peak ground accelerations (A_S):
Level Backfill - $A_S \leq .40g$
Sloped Backfill (1V: 2H max.) - $A_S \leq .30g$

TABLE OF RETAINING WALL VARIABLES (LEVEL BACKFILL)

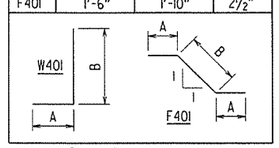
"H"	"T"	"B"	"S"	"Bar A" Size @ Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-0"	12"	#4 @ 12"
6'-0"	9"	4'-6"	12"	#4 @ 12"
7'-0"	9"	5'-6"	12"	#4 @ 10"
8'-0"	9"	6'-0"	12"	#5 @ 10"
9'-0"	1'-0"	7'-0"	12"	#5 @ 6½"

TABLE OF RETAINING WALL VARIABLES (SLOPED BACKFILL) (1V: 2H MAX.)

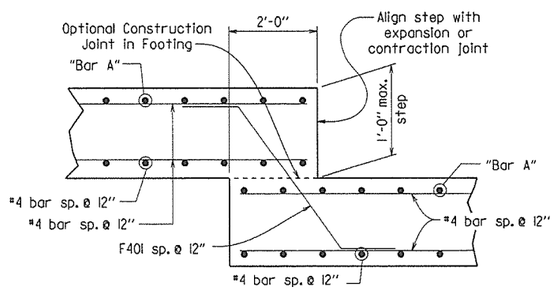
"H"	"T"	"B"	"S"	"Bar A" Size @ Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-6"	12"	#4 @ 12"
6'-0"	9"	5'-6"	12"	#4 @ 6"
7'-0"	9"	6'-6"	12"	#5 @ 6½"
8'-0"	1'-6"	8'-0"	7½"	#6 @ 6"
9'-0"	1'-11"	9'-6"	5"	#8 @ 6"

BENDING DIAGRAMS

MARK	A	B	P.D.
W401	8"	"H" - 6"	3"
F401	1'-6"	1'-10"	2½"



Dimensions are out to out of bars.



FOOTING STEP DETAIL

N.T.S.

DATE	REVISION
2-27-14	REVISED GENERAL NOTES.
7-26-12	DRAWING ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE RETAINING WALL (WITHOUT LIVE LOAD SURCHARGE)

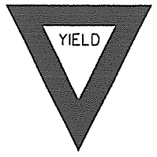
STANDARD DRAWING SI - 2

R1-1



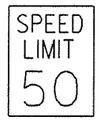
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



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

R2-1



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

W3-5



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

W3-5a



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

R4-1



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

R4-2



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

R5-1



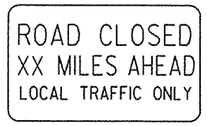
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



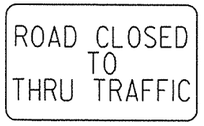
48"X30"

RII-3A



60"X30"

RII-4



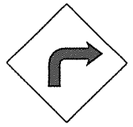
60"X30"

RSP-1



48"X30"

WI-1



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

WI-2



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

WI-3



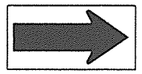
STD. 48"X48"

WI-4



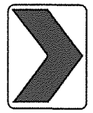
STD. 48"X48"

WI-6



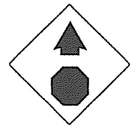
STD. 48"X24"
SPECIAL 60"X30"

WI-8



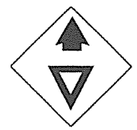
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



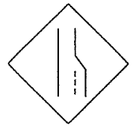
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1



STD. 36"X36"
SPECIAL 48"X48"

W6-3



EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7



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

W9-2



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

WI3-1



STD. 24"X24"

W20-1



STD. 48"X48"

W20-2



STD. 48"X48"

W20-3



STD. 48"X48"

W20-4



STD. 48"X48"

W20-5



STD. 48"X48"

W20-7a



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

W21-2



STD. 30"X30"
SPECIAL 36"X36"

W21-5



STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

WI-4b



STD. 48"X48"

R56-1



STD. 18"X18"

W8-11



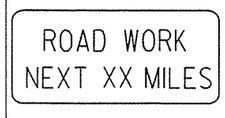
STD. 36"X36"
FWY. 48"X48"

W8-9



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

G20-1



60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

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

M4-10

48"X18"

R55-1

36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

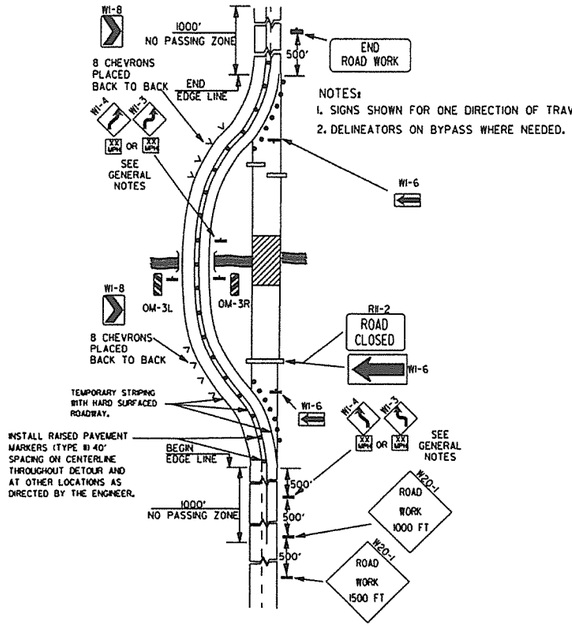
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
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	
8-15-94	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

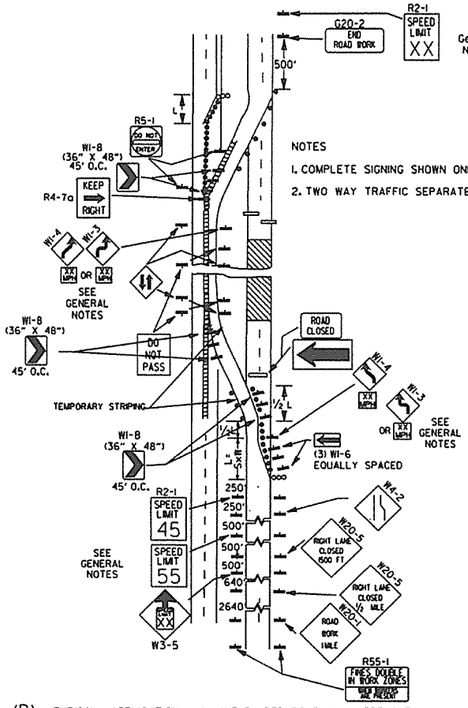
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



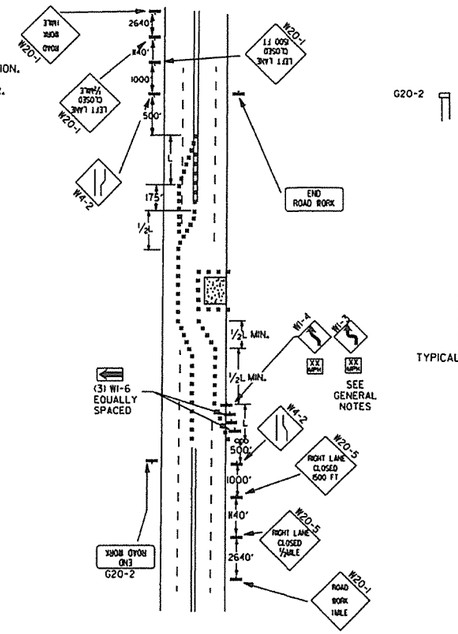
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

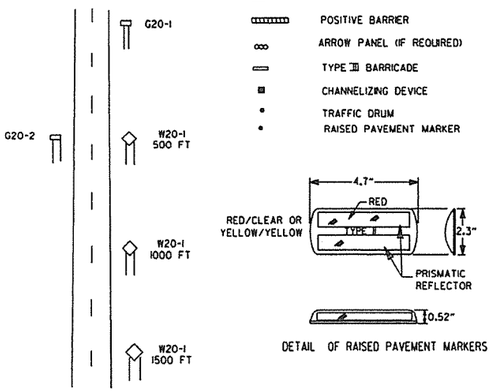


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

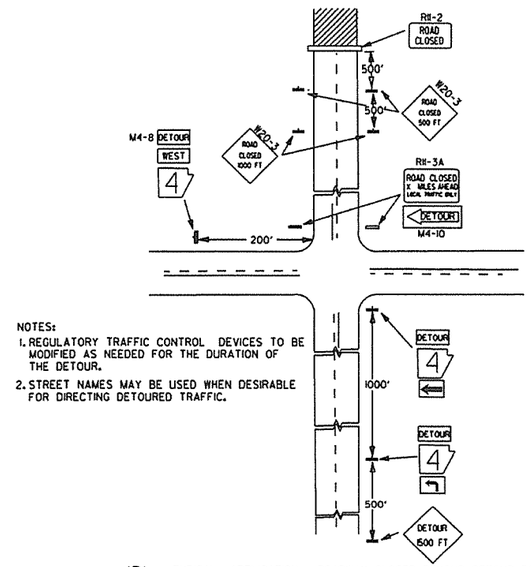
TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

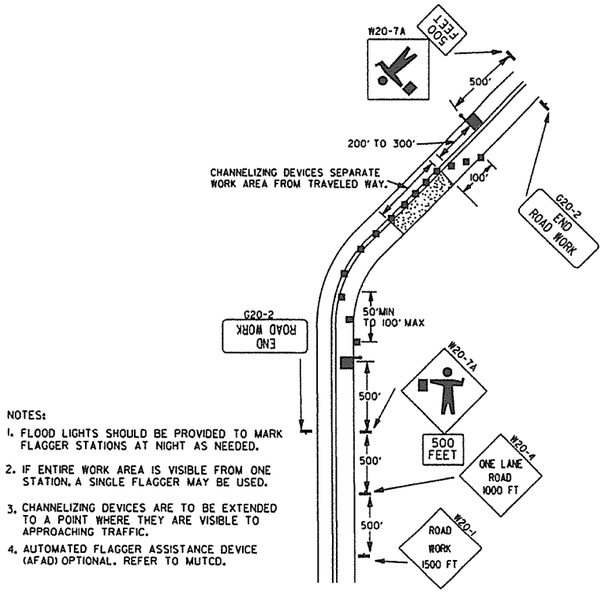
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

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



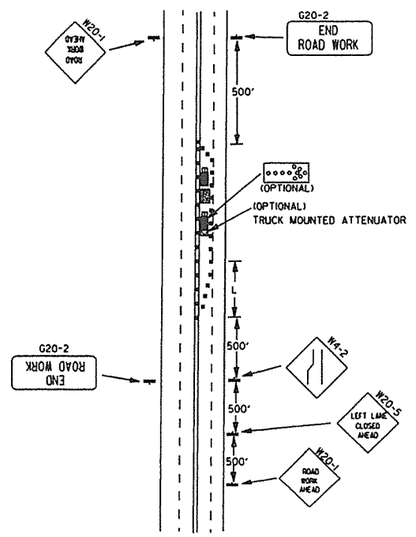
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



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

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



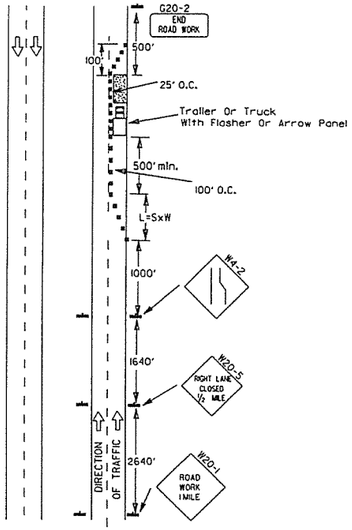
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

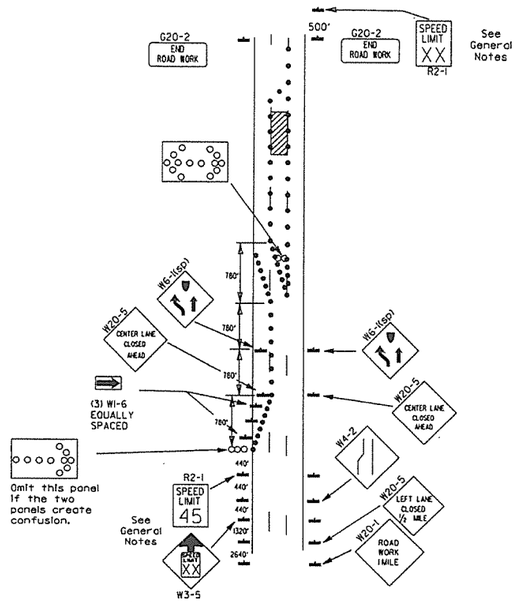
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

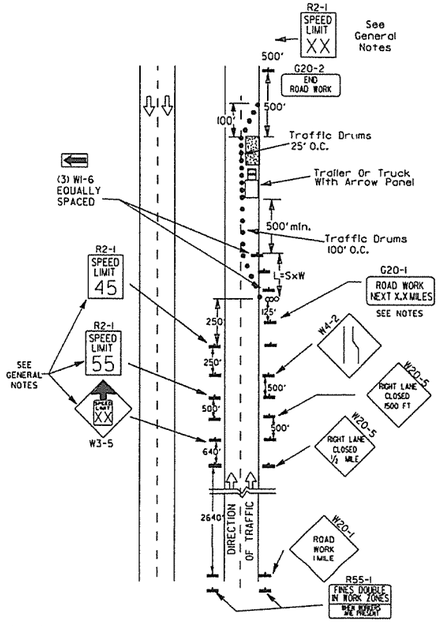
STANDARD DRAWING TC-2



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



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



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

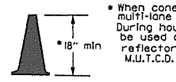
KEY:

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

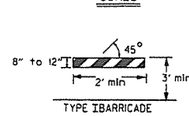
GENERAL NOTES:

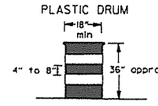
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

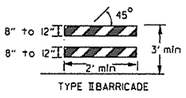
Channelizing devices

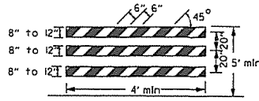


* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

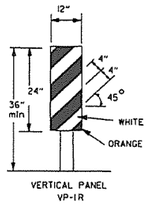


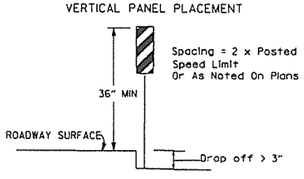






NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



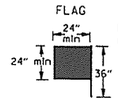


TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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

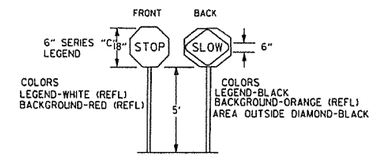
* When shown on the plans concrete barrier will be used.

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



Flag shall be of good grade red material

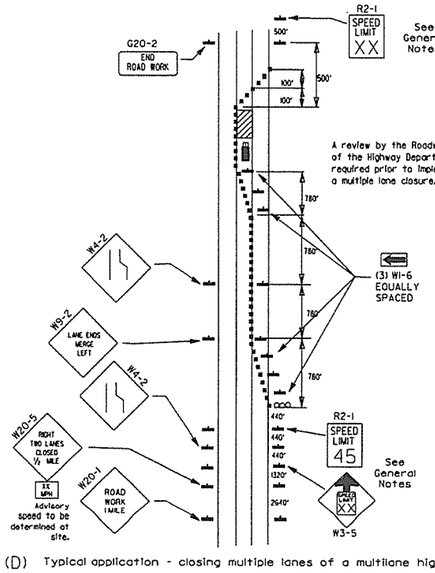
STOP SLOW PADDLE



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.



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

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

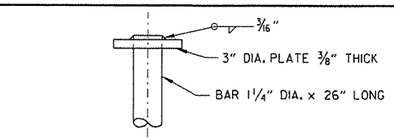
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

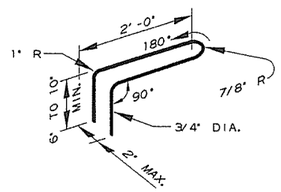
REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2. TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", 90°, 3 3/8" R, LIFTING HOLE
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR; 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9"; 2 3/16" R, 12°, 4 3/8", 2'-1 3/8", 9 1/2"

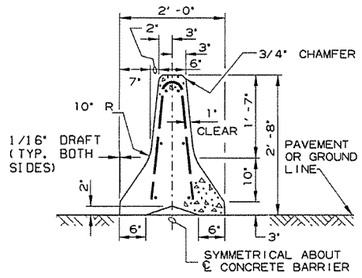


SECTION E-E

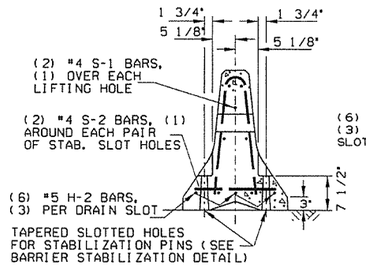
CONNECTION DETAILS



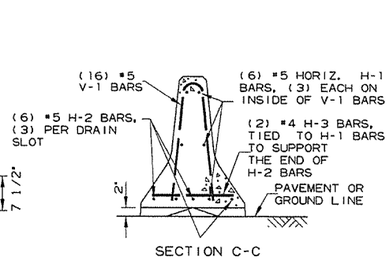
CONNECTION LOOP



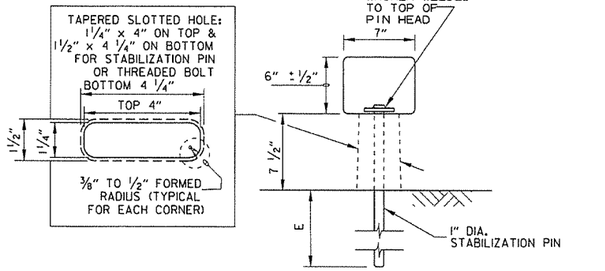
SECTION A-A



SECTION B-B



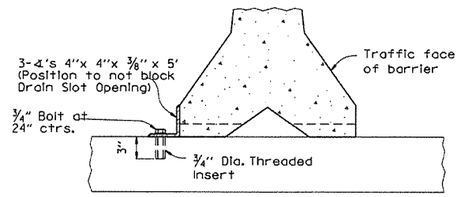
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

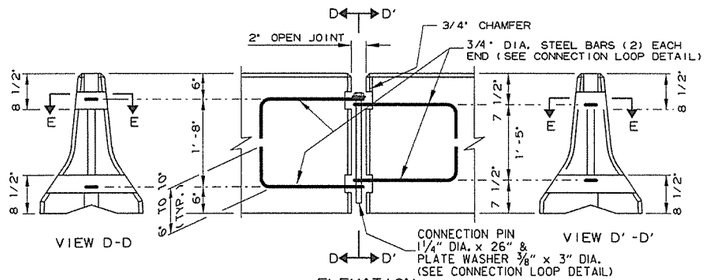
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



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

BARRIER STABILIZATION DETAIL

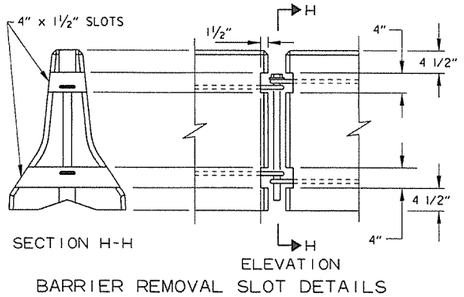
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

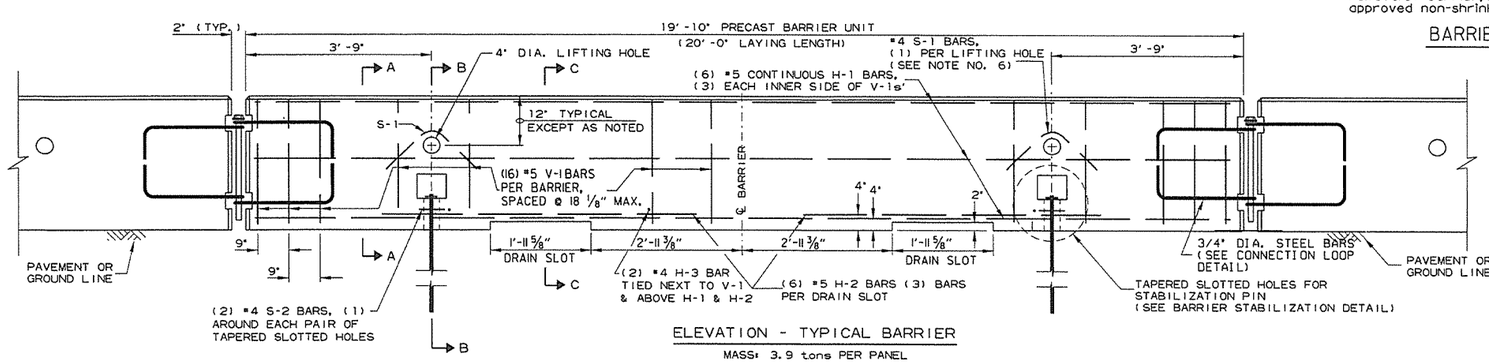
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

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

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

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

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

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

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

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

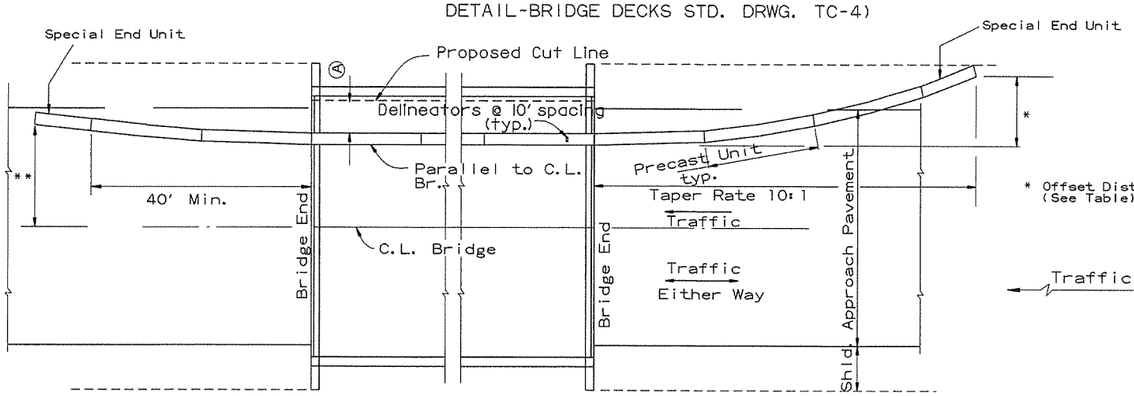
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

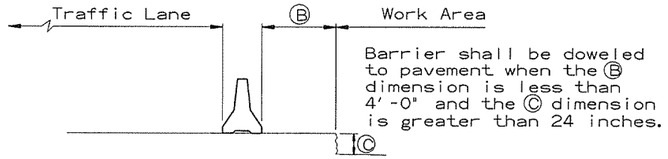
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



* Offset Distance (See Table)

BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

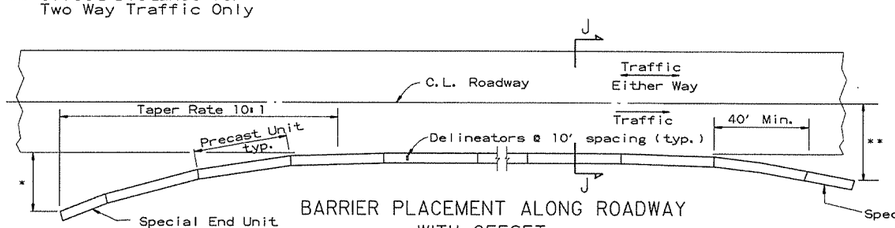


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

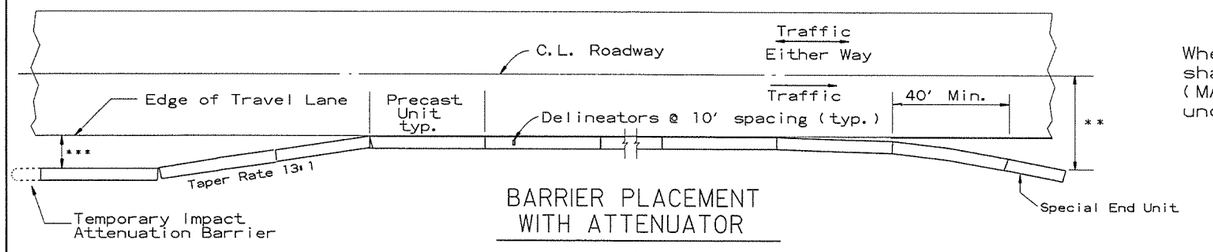
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

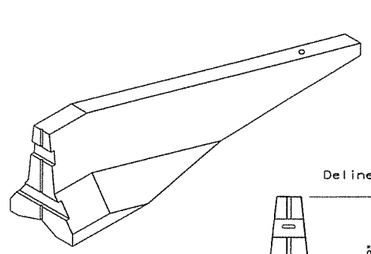


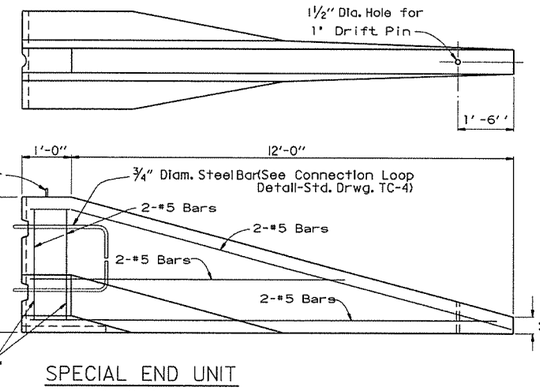
BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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





SPECIAL END UNIT

No Scale

General Notes

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

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

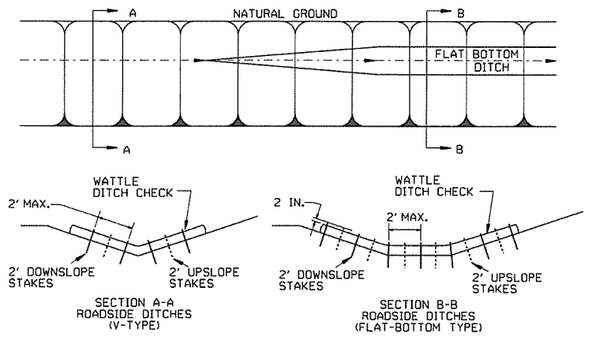
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

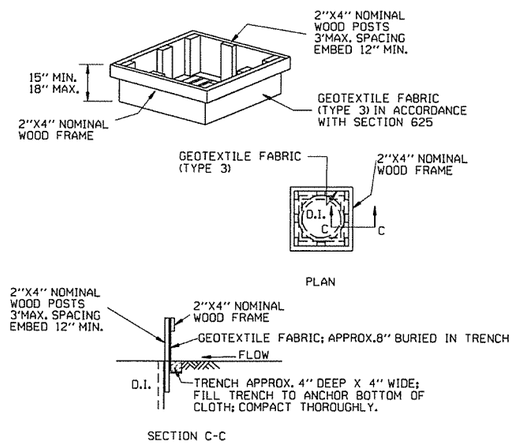
STANDARD DRAWING TC-5

GENERAL NOTES

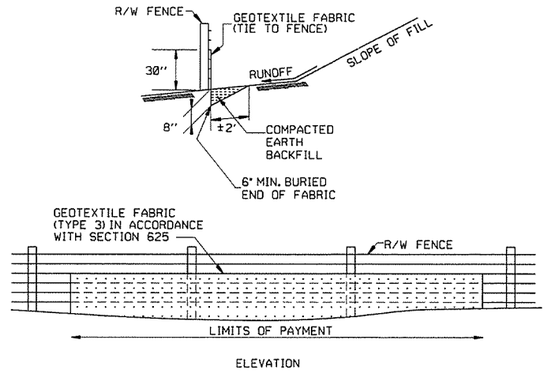
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

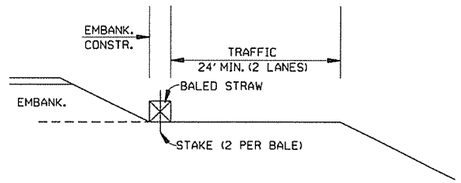
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

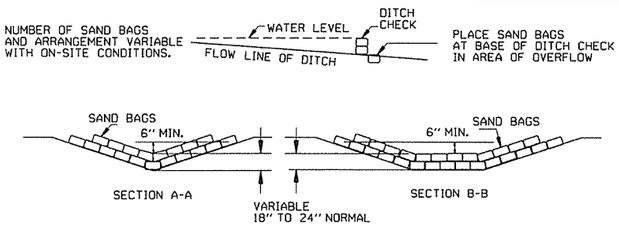
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

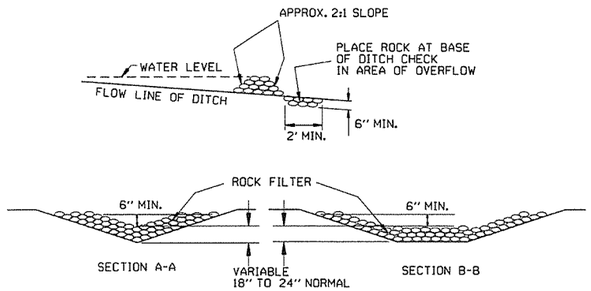
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



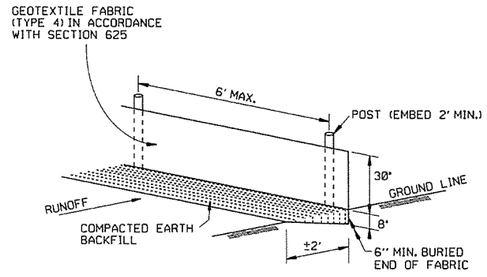
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

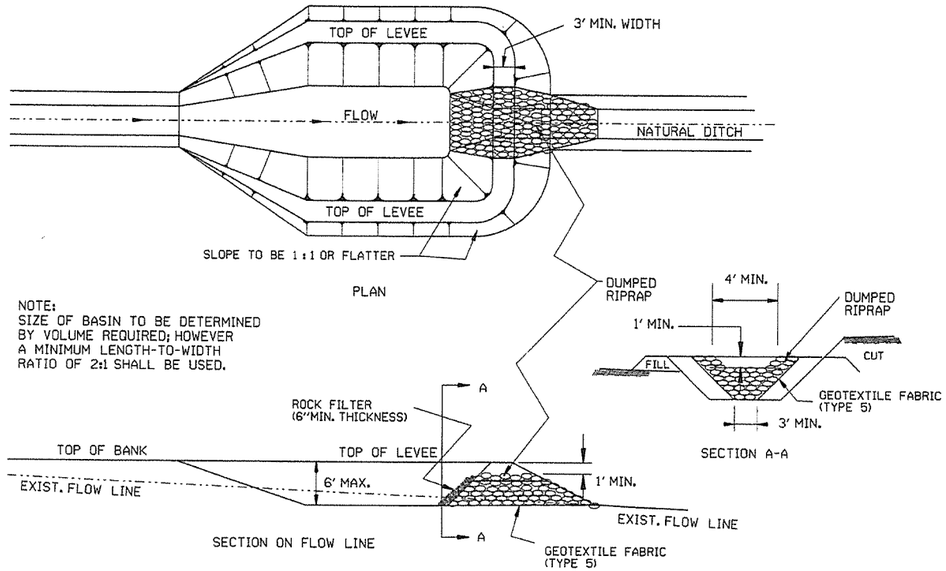
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

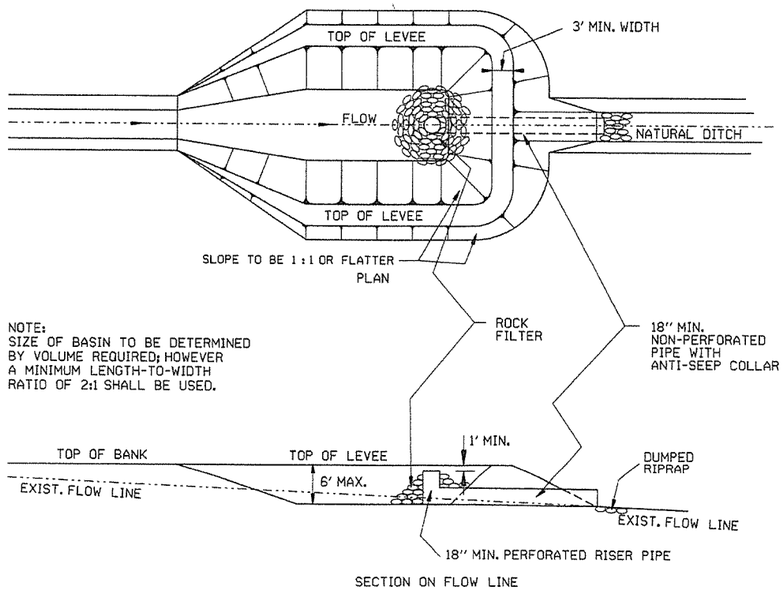
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

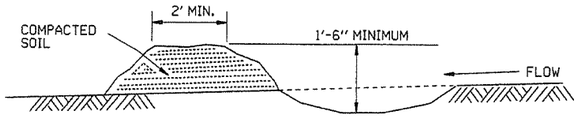
STANDARD DRAWING TEC-1



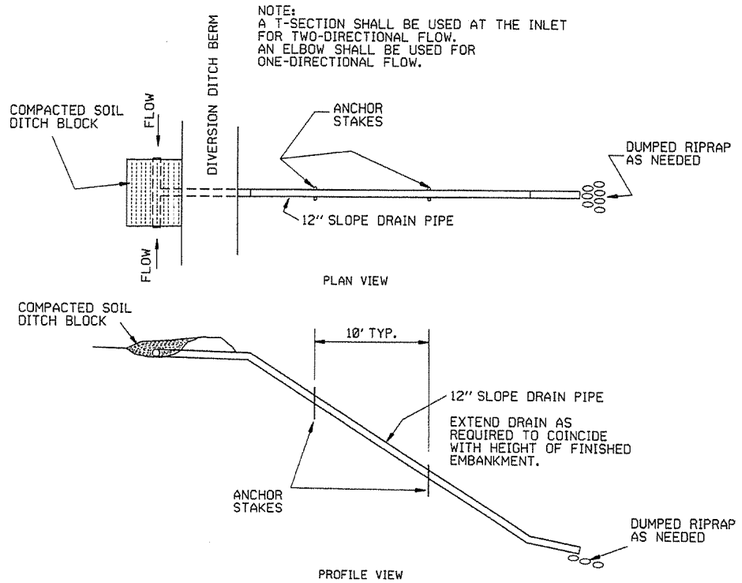
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



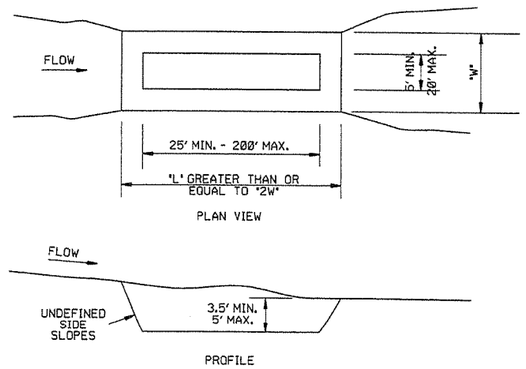
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

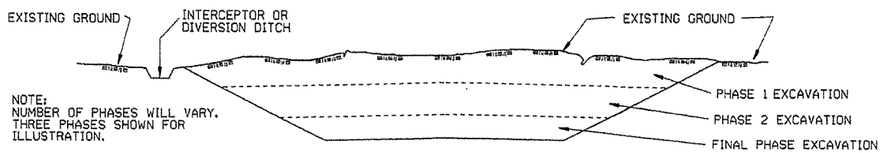
STANDARD DRAWING TEC-2

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



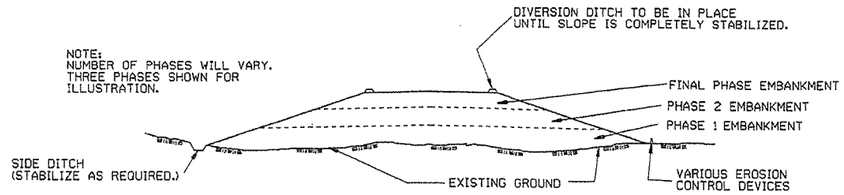
GENERAL NOTE

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.

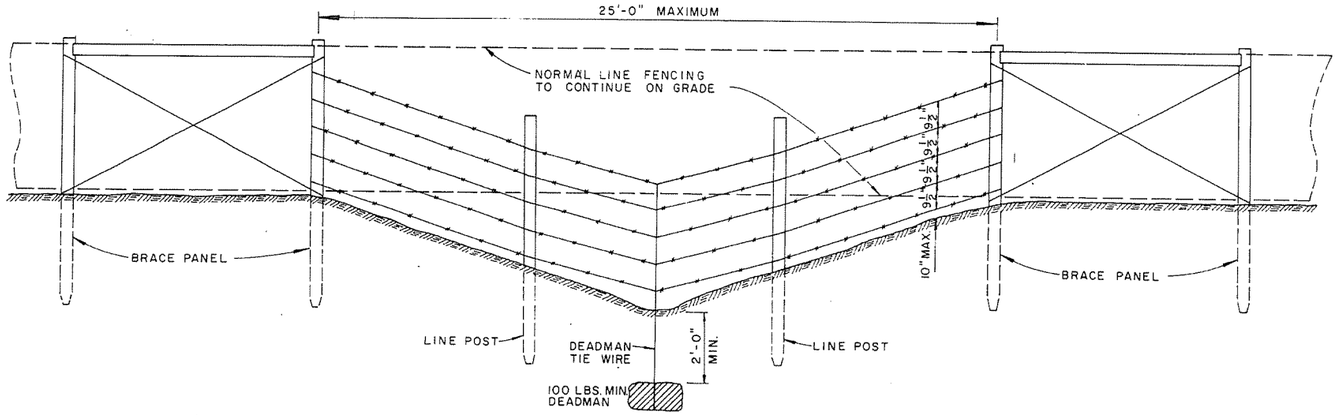
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

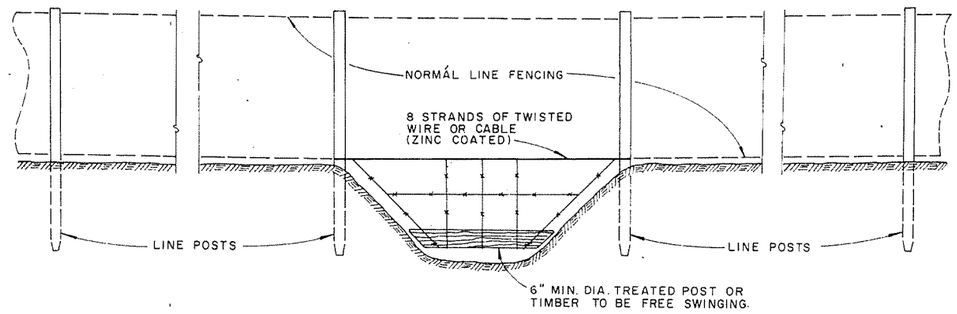
ARKANSAS STATE HIGHWAY COMMISSION

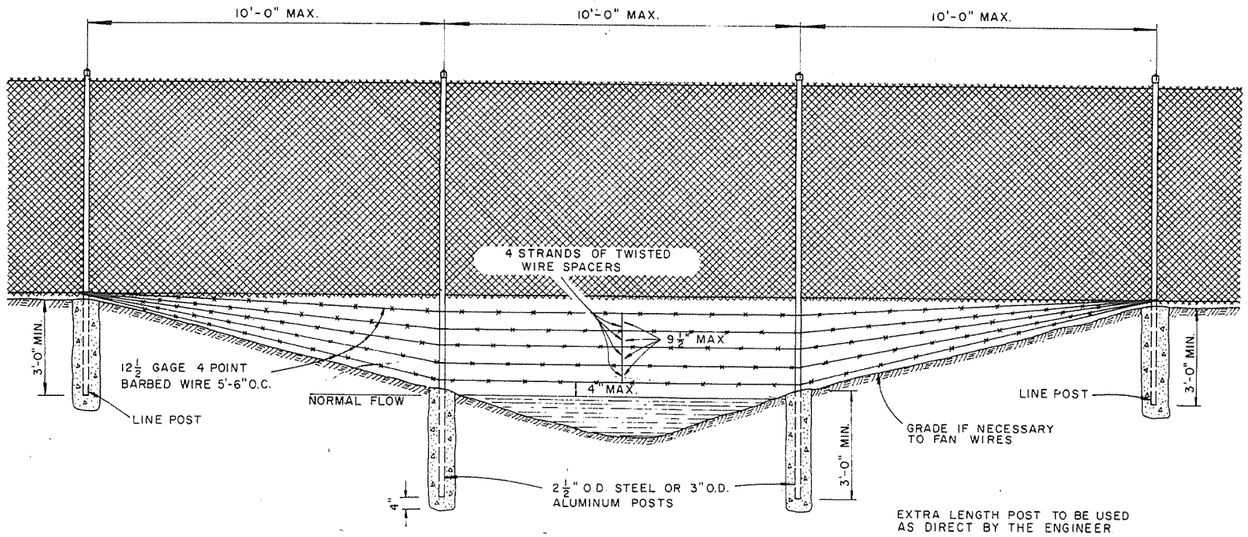
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

std-tec3.dgn







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

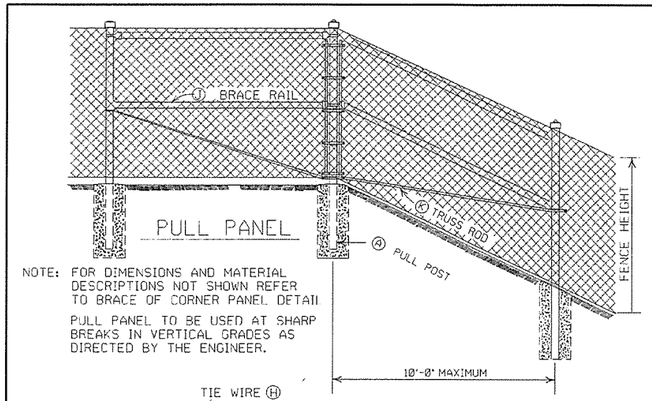
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

STANDARD DRAWING

WF-2

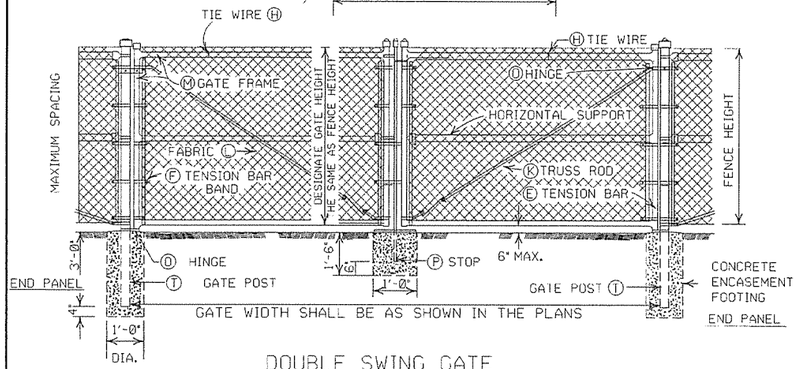
1M—11-71—67001—PPASCo



PULL PANEL

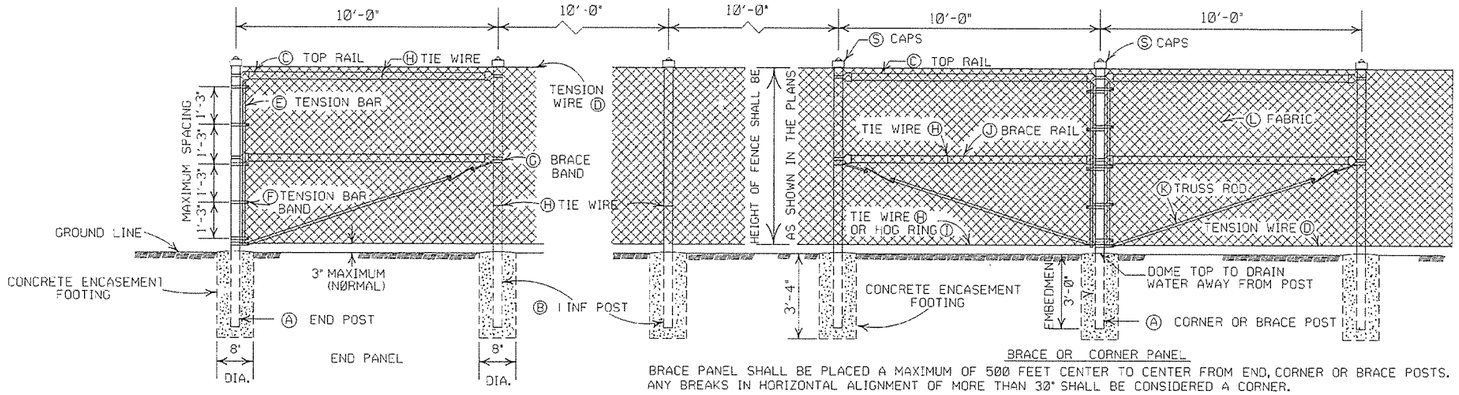
NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.



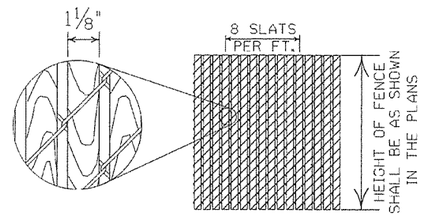
DOUBLE SWING GATE

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

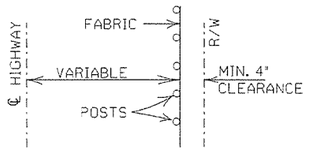
HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝" X 1½"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.	3 ' O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅜" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS.
9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.122	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.162	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

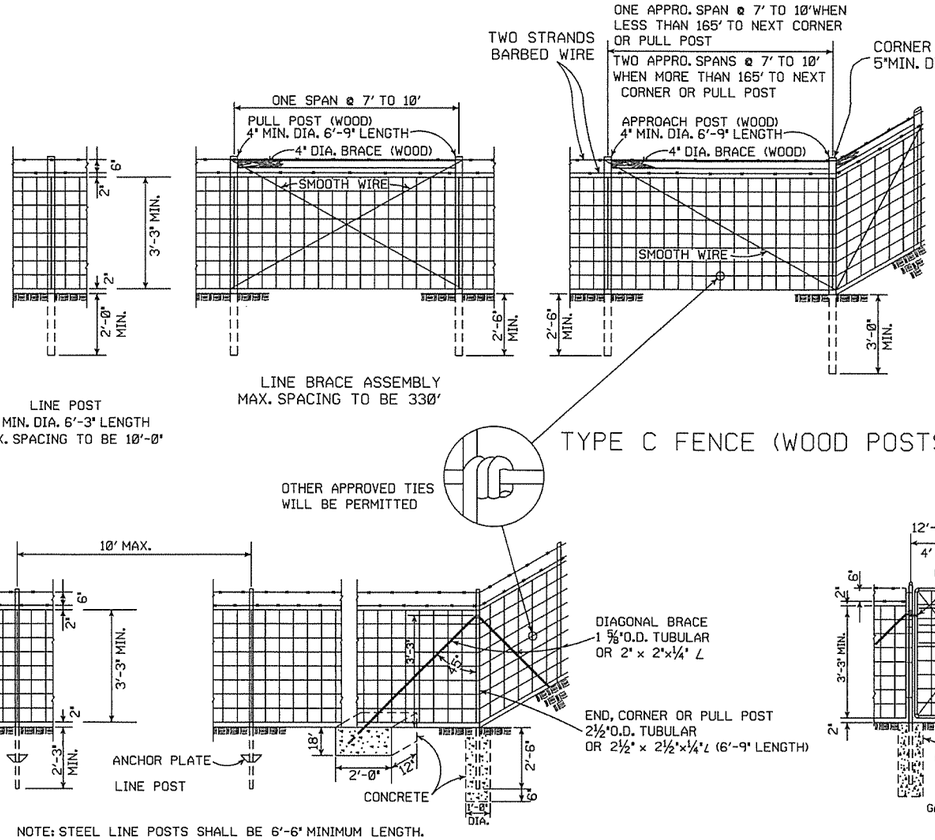
TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11 30 89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

CHAIN LINK FENCE

STANDARD DRAWING WF-3



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.

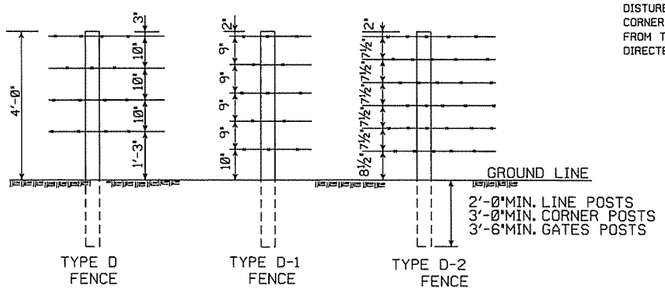
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

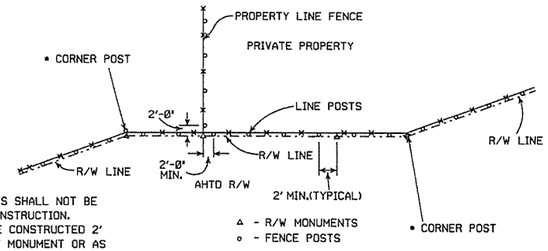
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

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

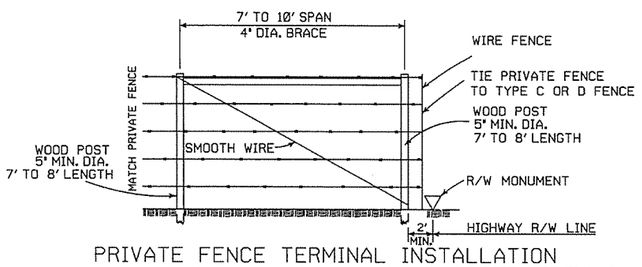


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



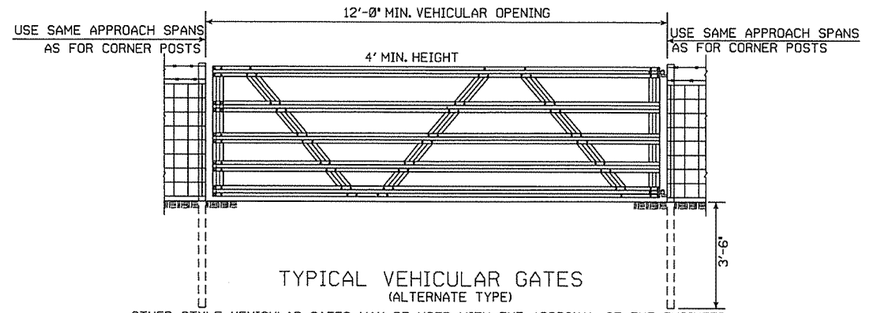
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

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)

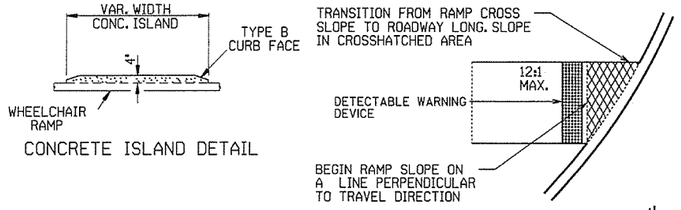
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

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



CONCRETE ISLAND DETAIL

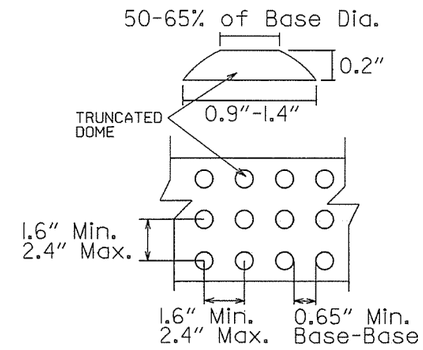
SLOPE TRANSITION DETAILS

TYPE 1 RAMP DIMENSIONS AND QUANTITIES

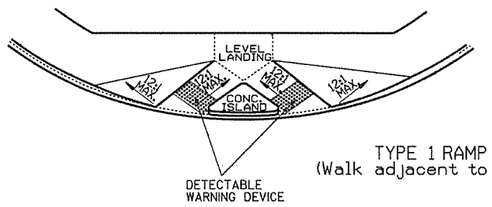
RADIUS 'R' FEET	DISTANCE 'X' FEET	DISTANCE 'Y' FEET	LENGTH 'L' FEET	RAMP AREA 'A' SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

GENERAL NOTES FOR DETECTABLE WARNING DEVICES

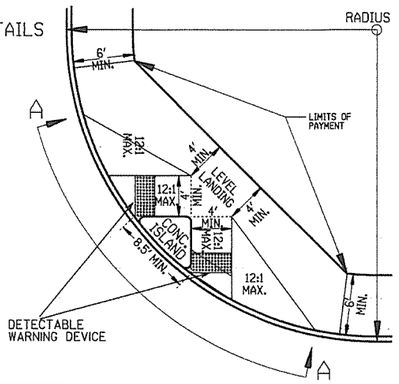
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).

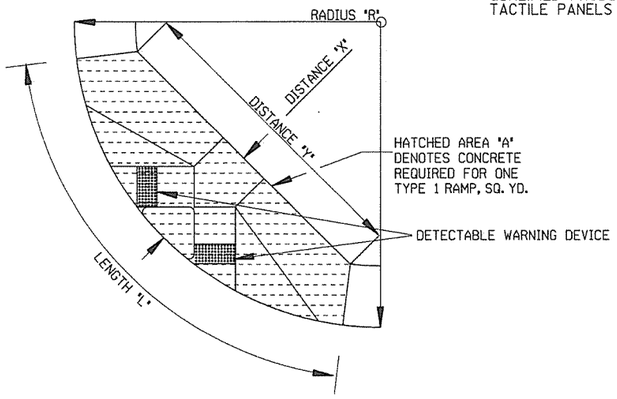


DETECTABLE WARNING DEVICE DETAIL



TYPE 1 RAMP
(Walk adjacent to curb)



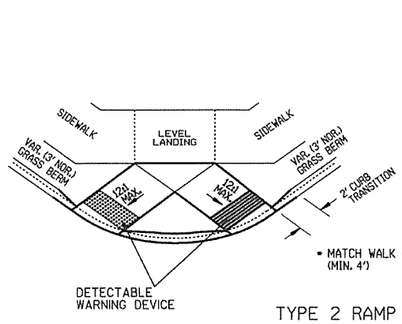




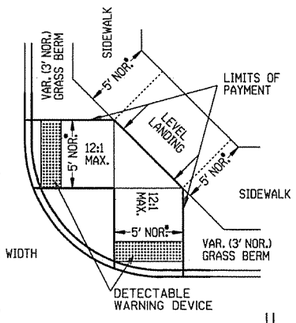
SECTION A-A

GENERAL NOTES:

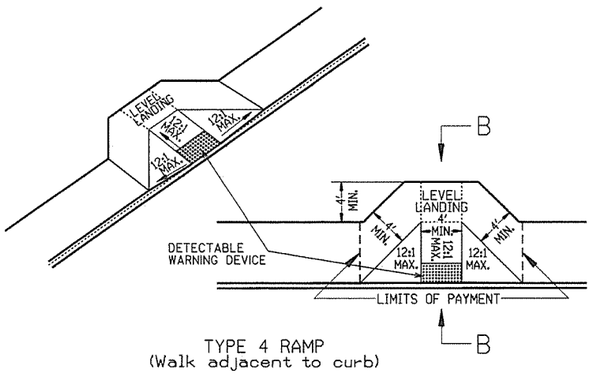
IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.



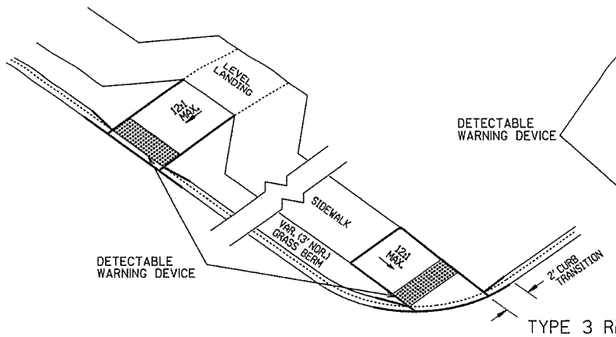
TYPE 2 RAMP



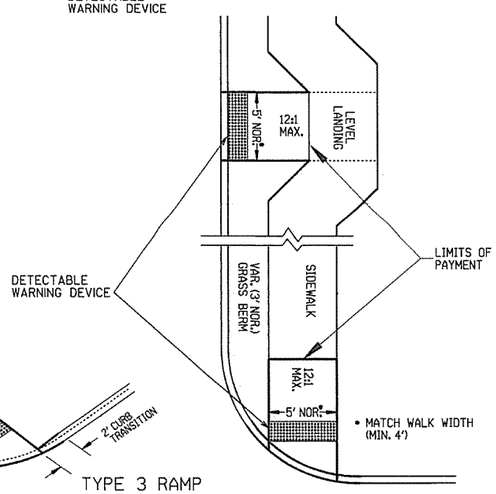
NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.

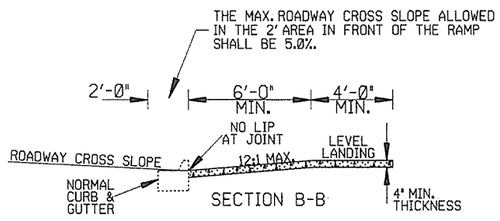


TYPE 4 RAMP
(Walk adjacent to curb)



TYPE 3 RAMP





SECTION B-B

RAMP SELECTION CRITERIA

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.
AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

DATE	REVISION	DATE FILM
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD.SLOPE TRANS.& REV. ISL. DIMS.	
11-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM8:1TO12:1MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	------
6-02-76	ISSUED-P.H.D.	299-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS
NEW CONSTRUCTION
AND ALTERATIONS

STANDARD DRAWING WR-1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	190	339

(2) CROSS SECTIONS

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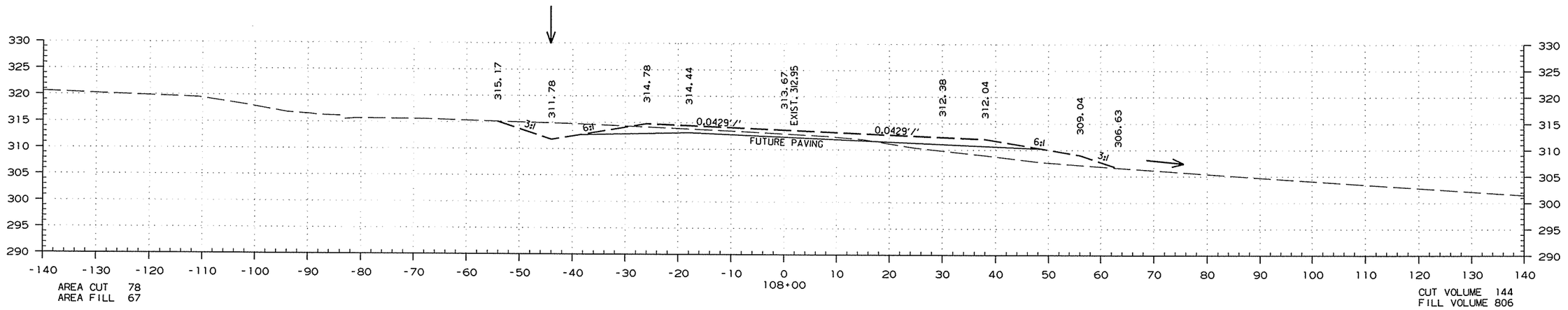
AREA FILL 67

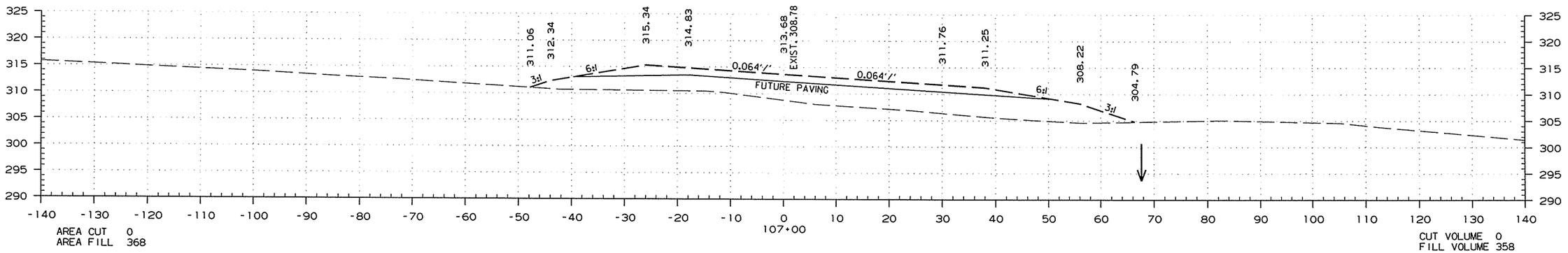
STA. 108+04.80 - END GRADING

CUT VOLUME 14
FILL VOLUME 12



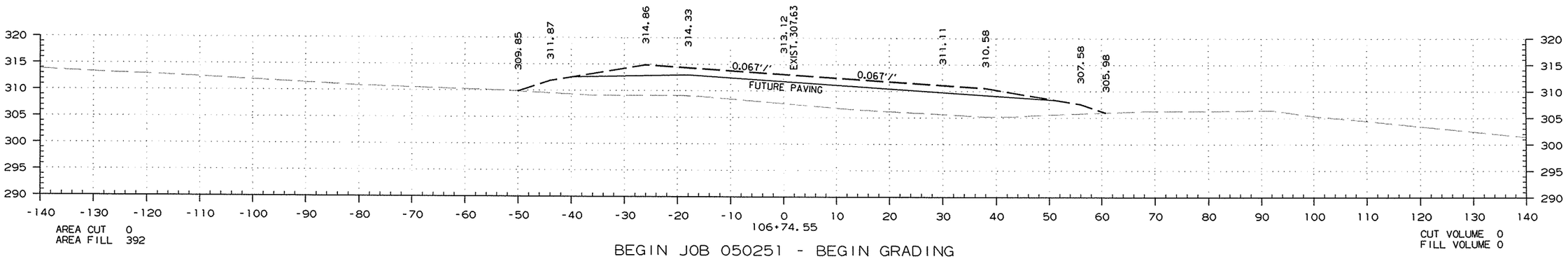
AREA CUT 78
AREA FILL 67

CUT VOLUME 144
FILL VOLUME 806



AREA CUT 0
AREA FILL 368

CUT VOLUME 0
FILL VOLUME 358



AREA CUT 0
AREA FILL 392

CUT VOLUME 0
FILL VOLUME 0

BEGIN JOB 050251 - BEGIN GRADING

STA. 106+00.00 TO STA. 108+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		050251	191	339

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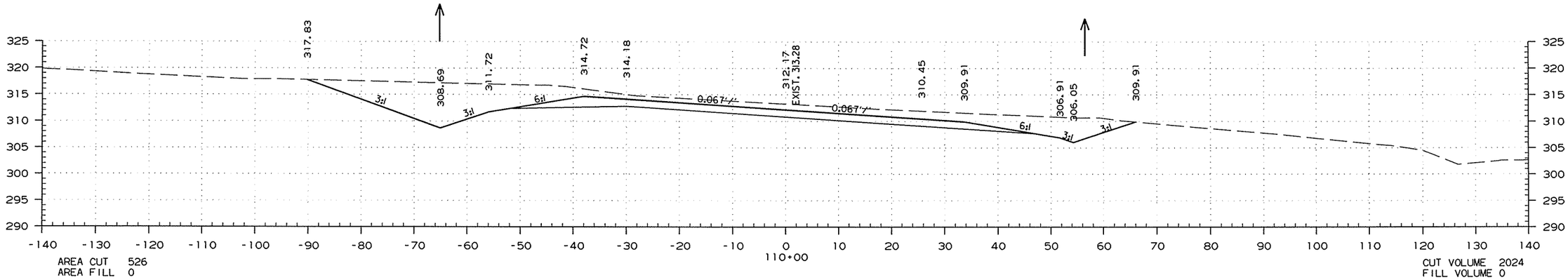

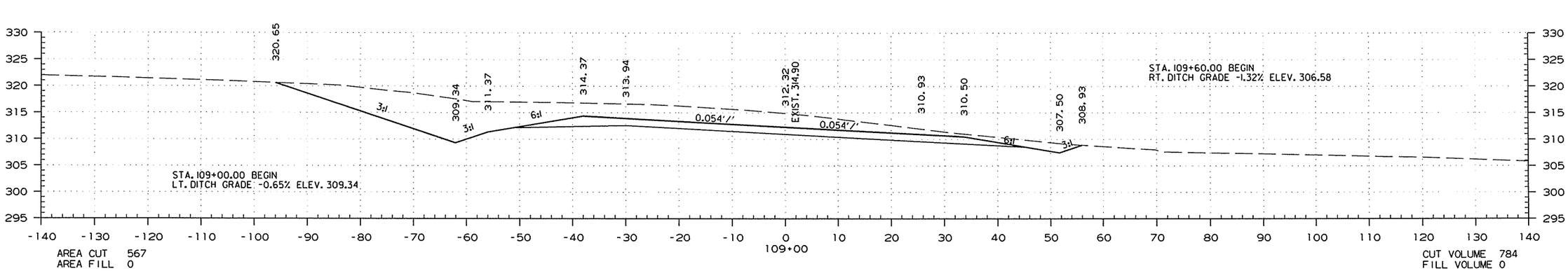

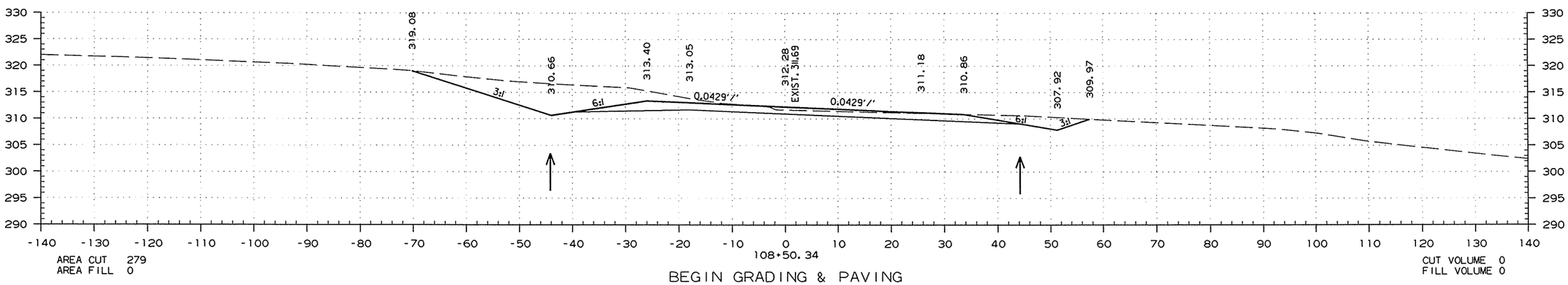

BEGIN GRADING & PAVING

STA. 108+50.34 TO STA. 110+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		050251	192	339

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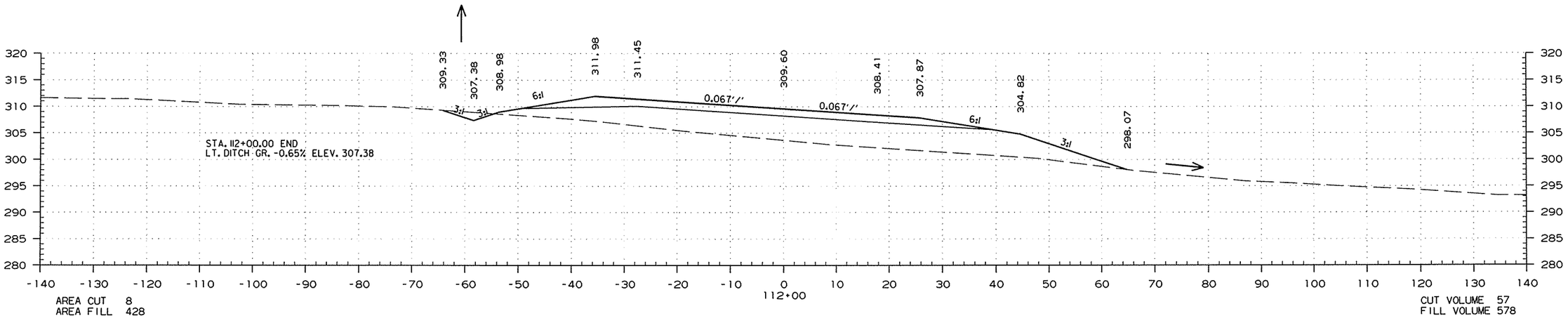
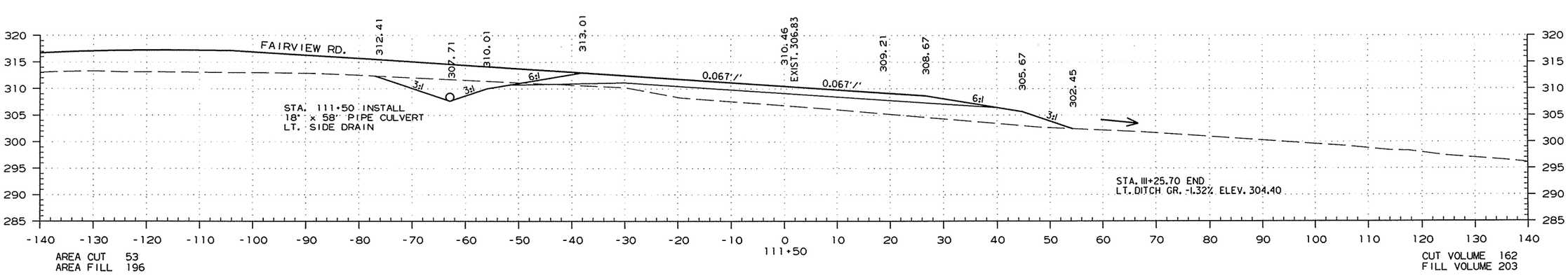
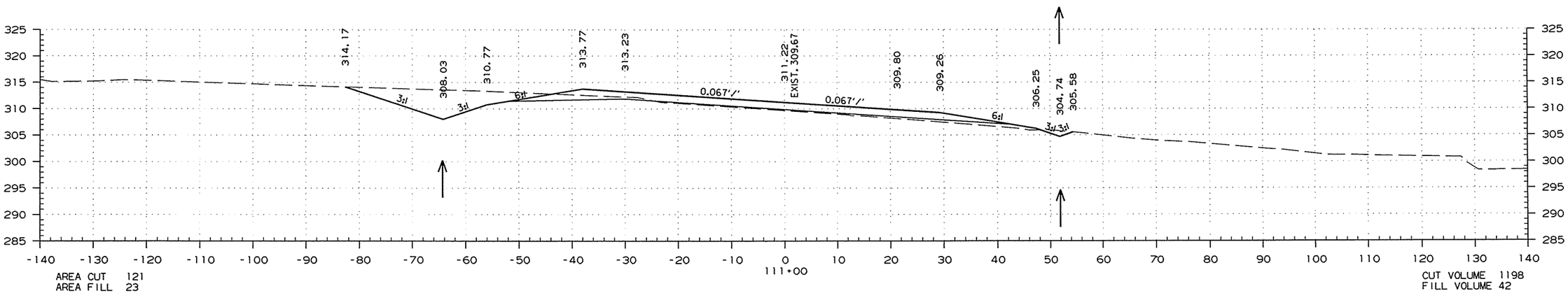






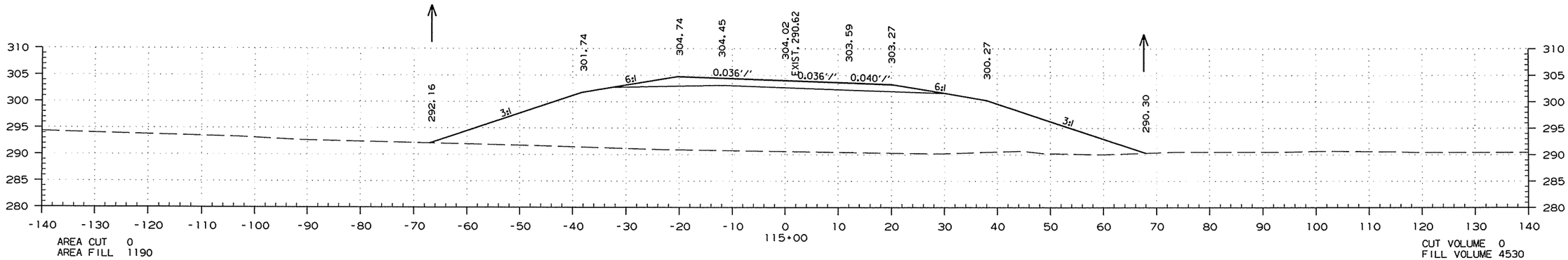
STA. 111+00.00 TO STA. 112+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	193	339

(2) CROSS SECTIONS



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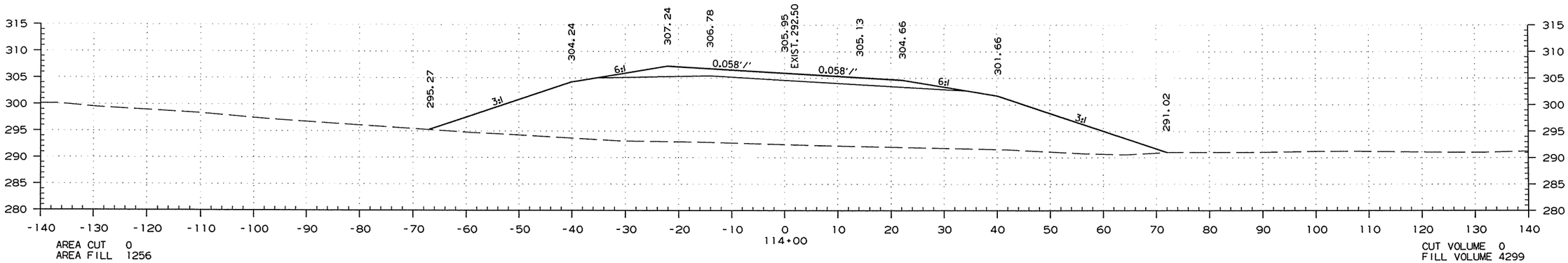
AREA FILL 1190

CUT VOLUME 0
FILL VOLUME 4530



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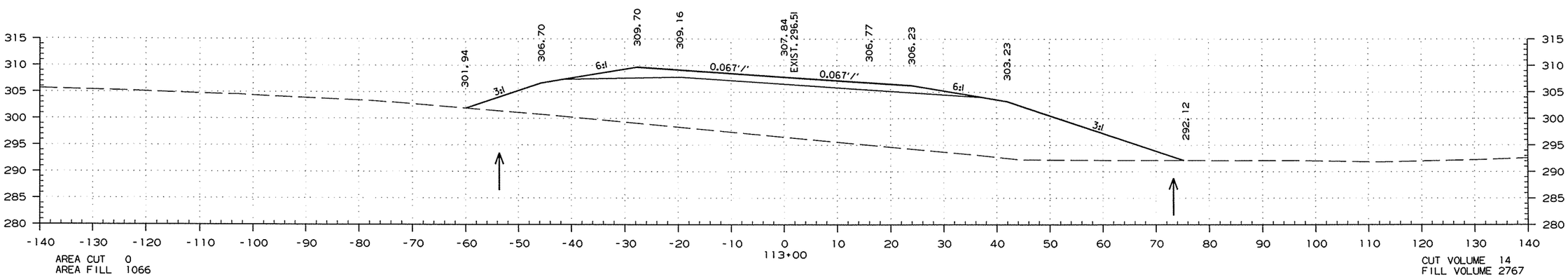
AREA FILL 1256

CUT VOLUME 0
FILL VOLUME 4299



AREA CUT 0
AREA FILL 1066

CUT VOLUME 14
FILL VOLUME 2767

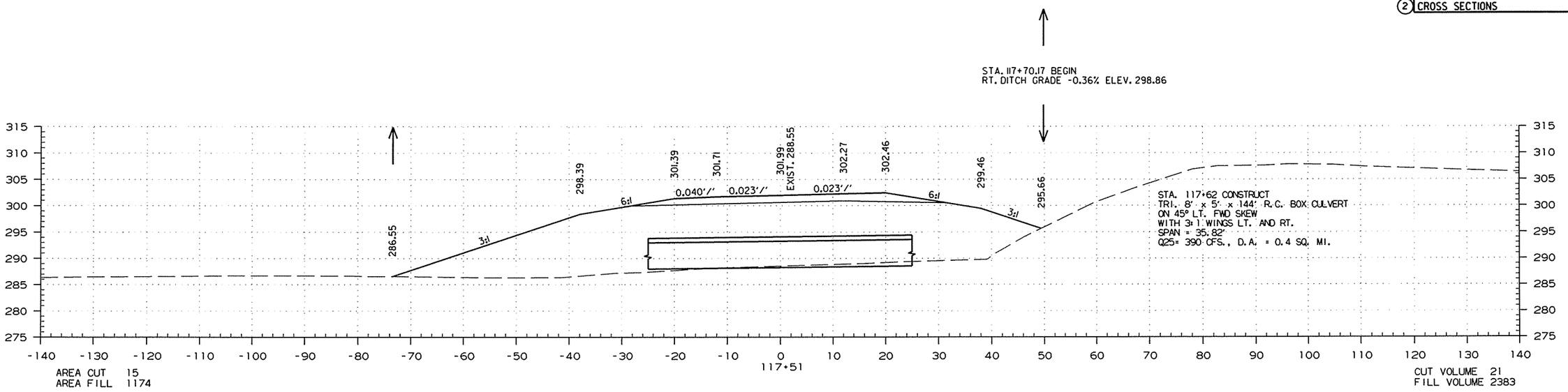
STA. 113+00.00 TO STA. 115+00.00

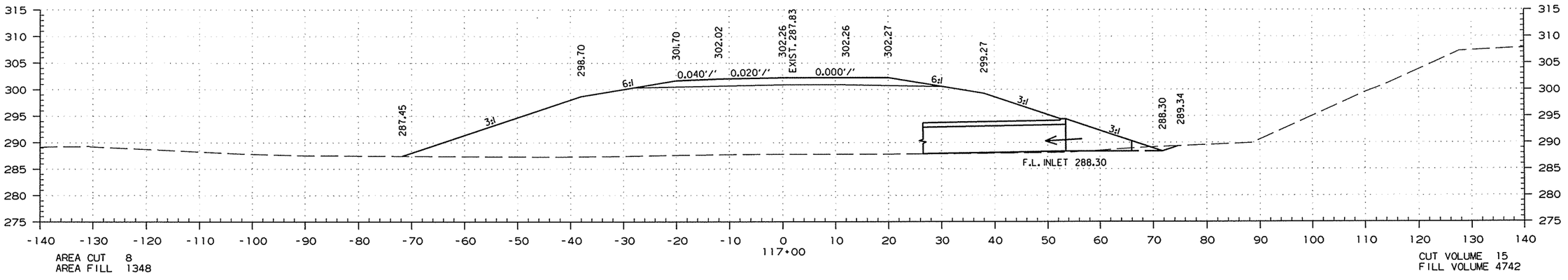
7/24/2015

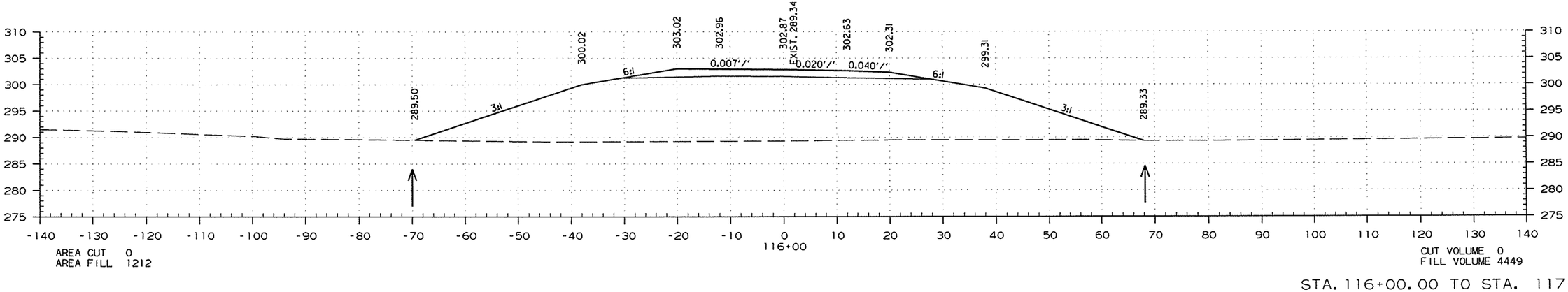
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	194	339

(2) CROSS SECTIONS







STA. 116+00.00 TO STA. 117+50.97

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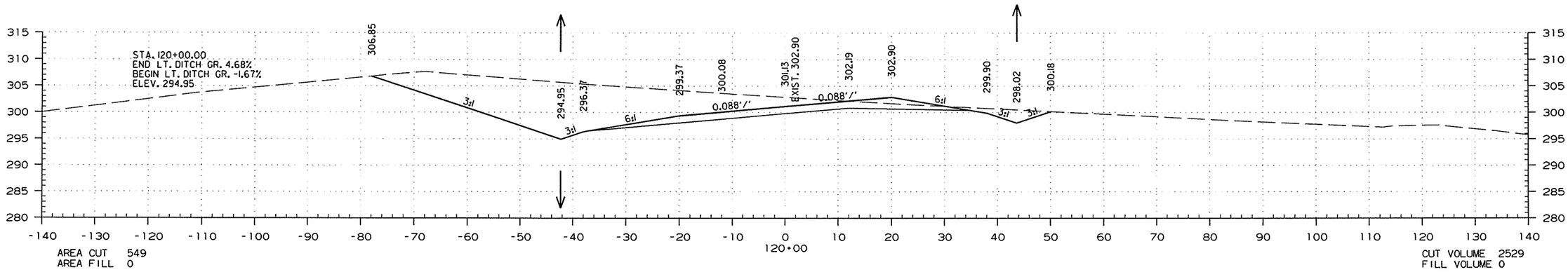
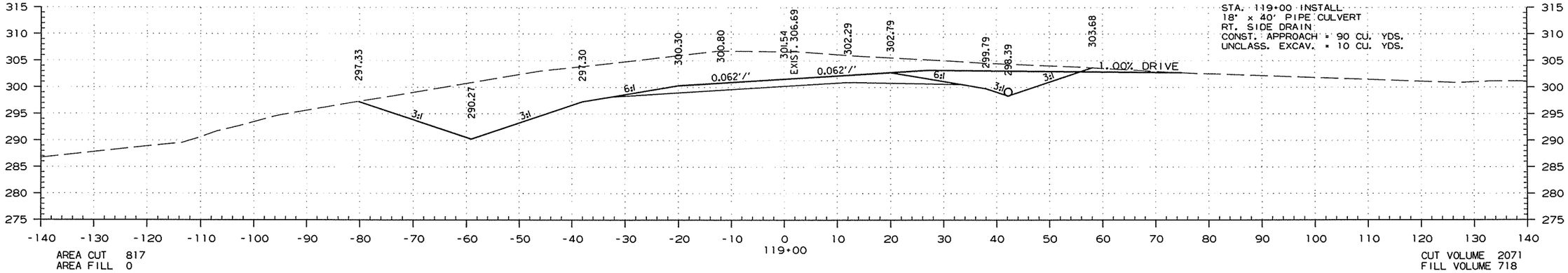
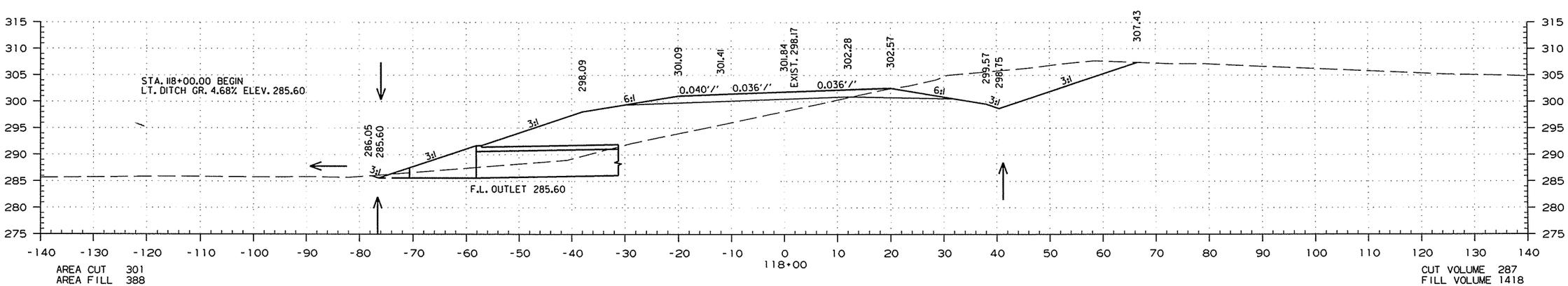
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	195	339

(2) CROSS SECTIONS







STA. 118+00.00 TO STA. 120+00.00

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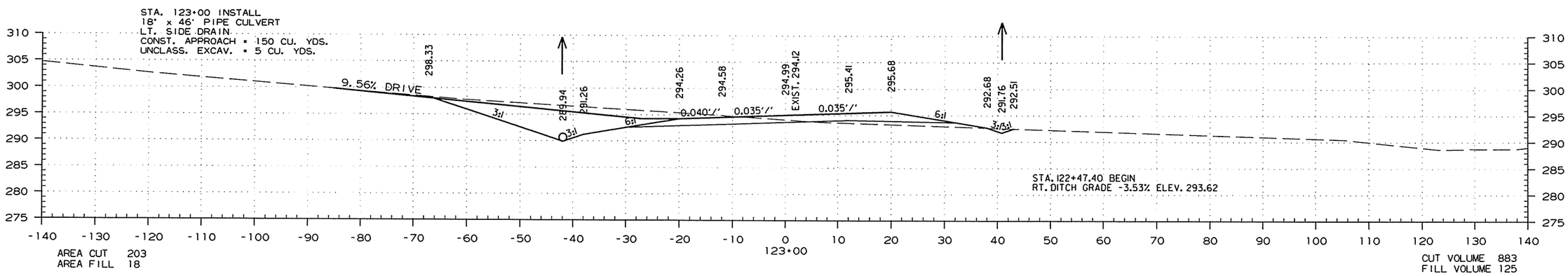
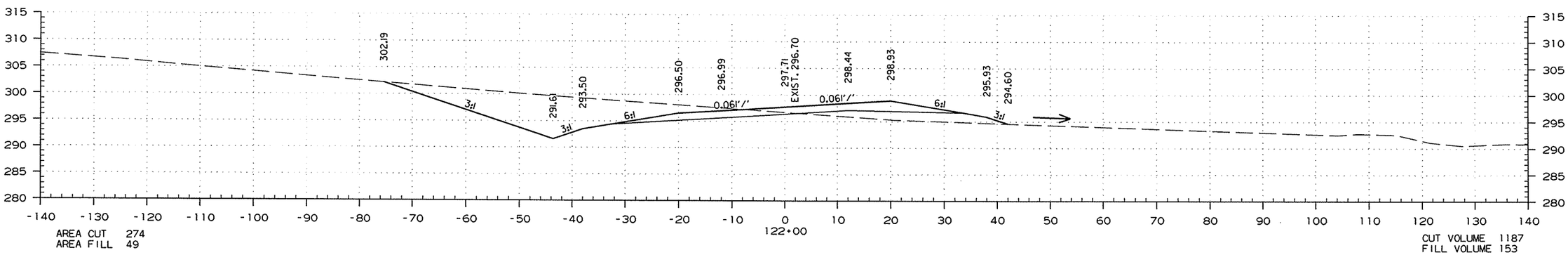
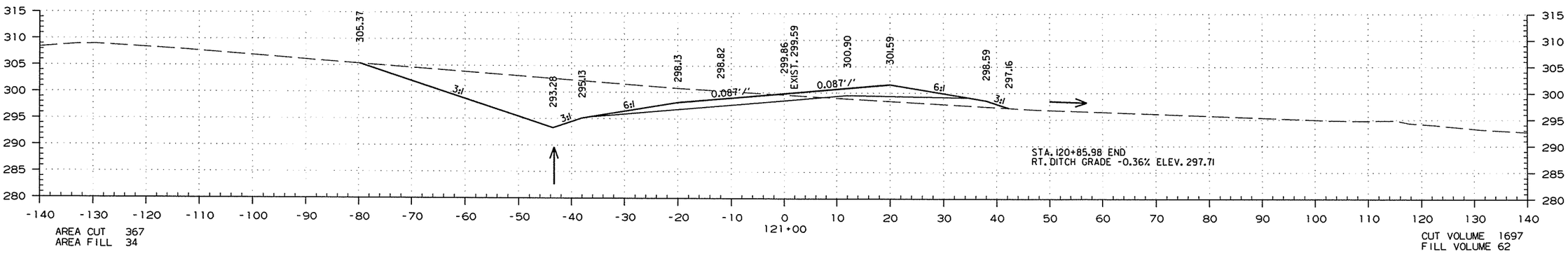
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	196	339

(2) CROSS SECTIONS







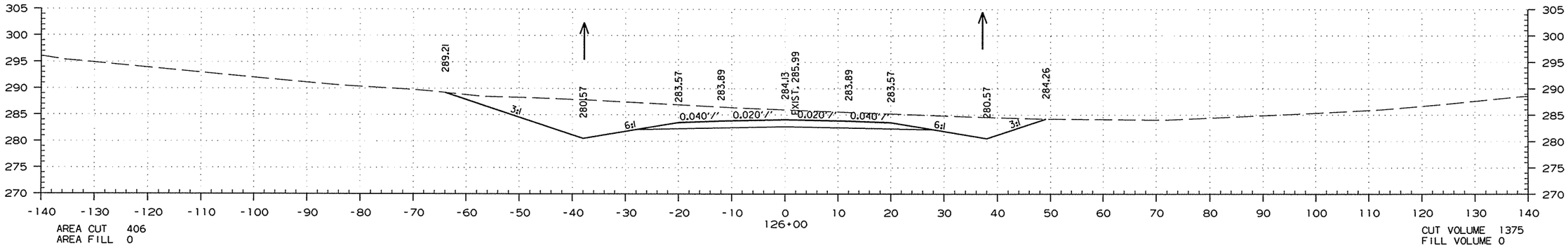
STA. 121+00.00 TO STA. 123+00.00

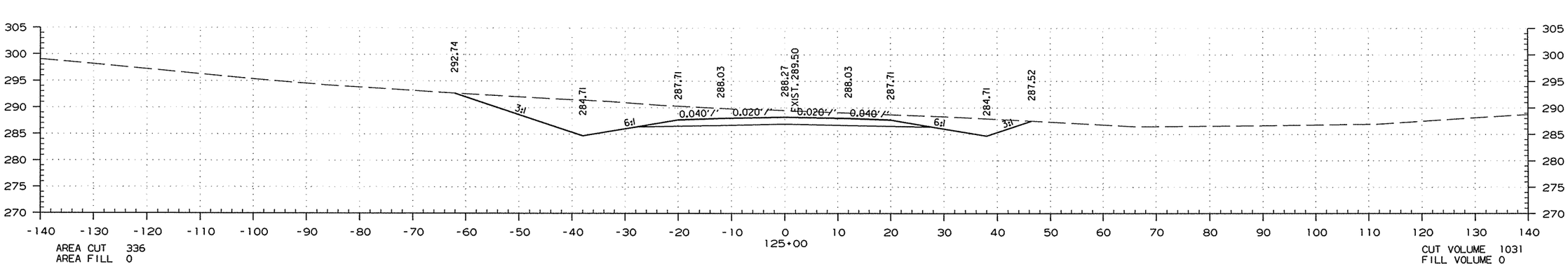
7/24/2015

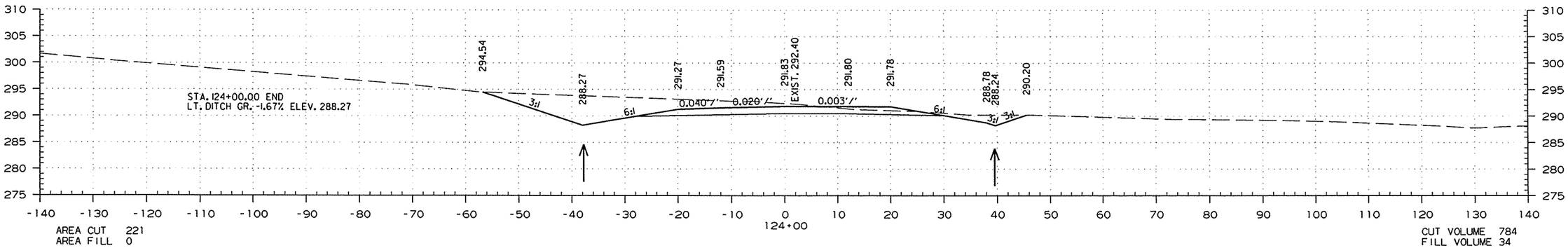
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	197	339

(2) CROSS SECTIONS







STA. 124+00.00 TO STA. 126+00.00

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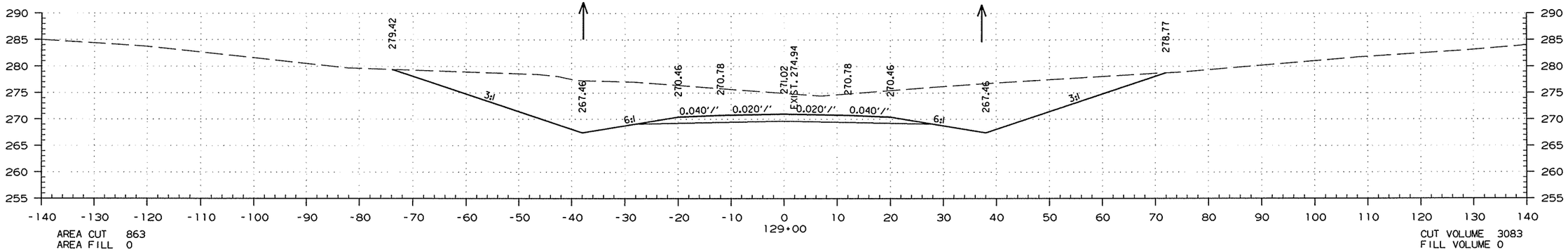
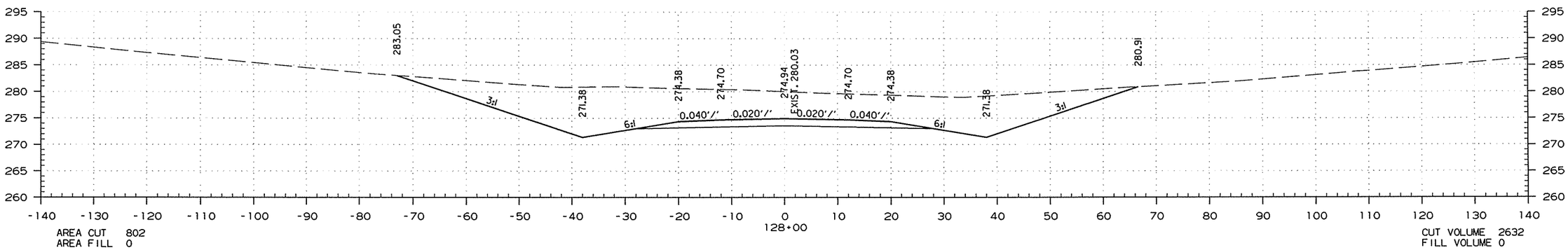
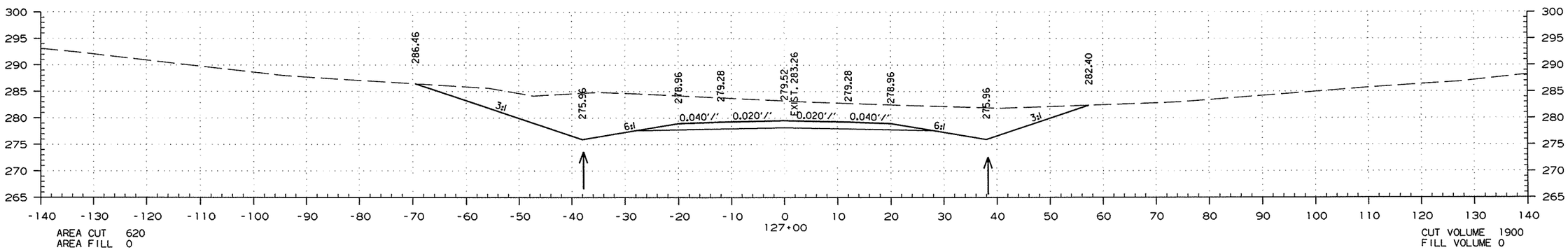
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	198	339

(2) CROSS SECTIONS







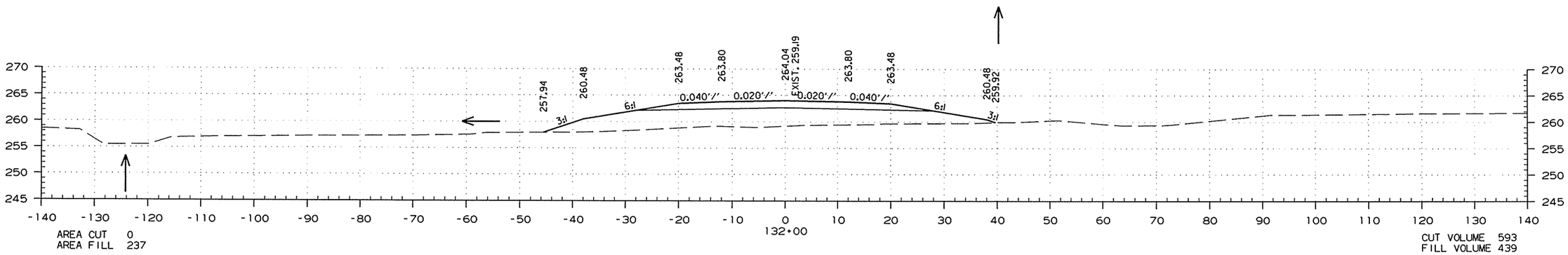
STA. 127+00.00 TO STA. 129+00.00

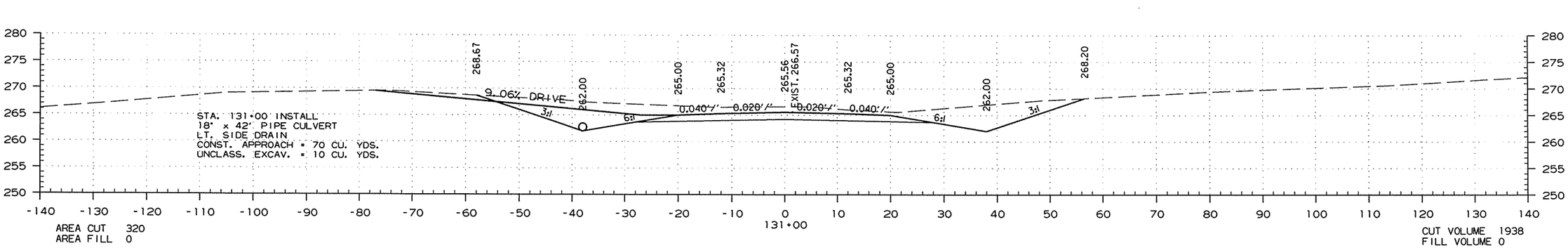
7/24/2015

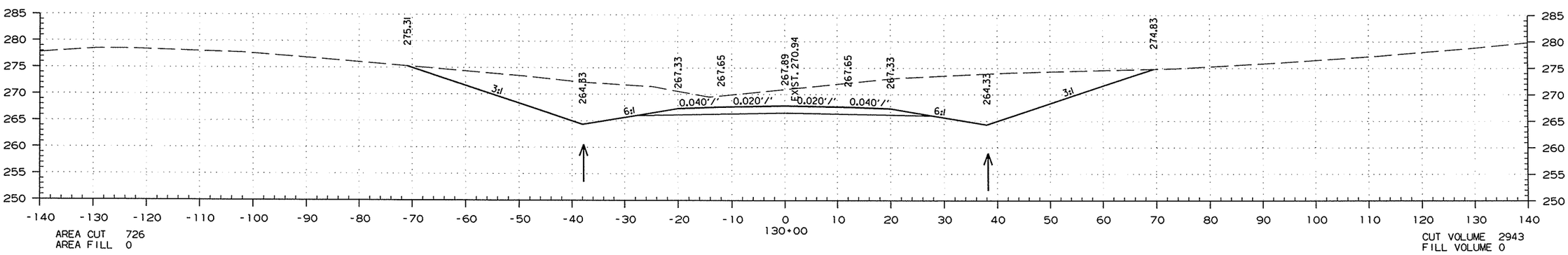
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	199	339

(2) CROSS SECTIONS







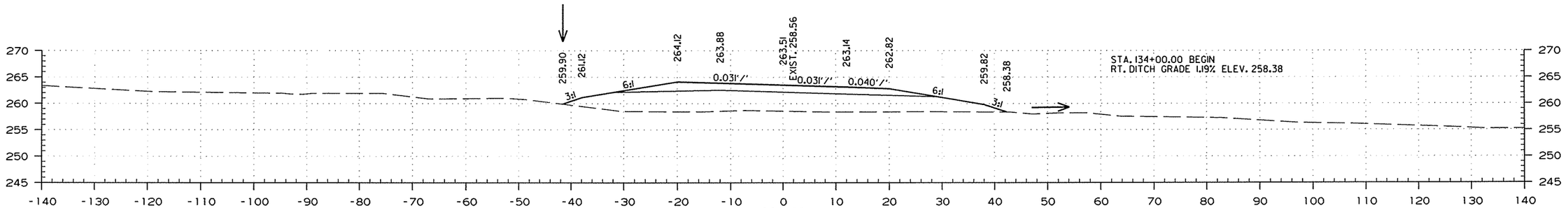
STA. 130+00.00 TO STA. 132+00.00

7/24/2015

R050251.DGN

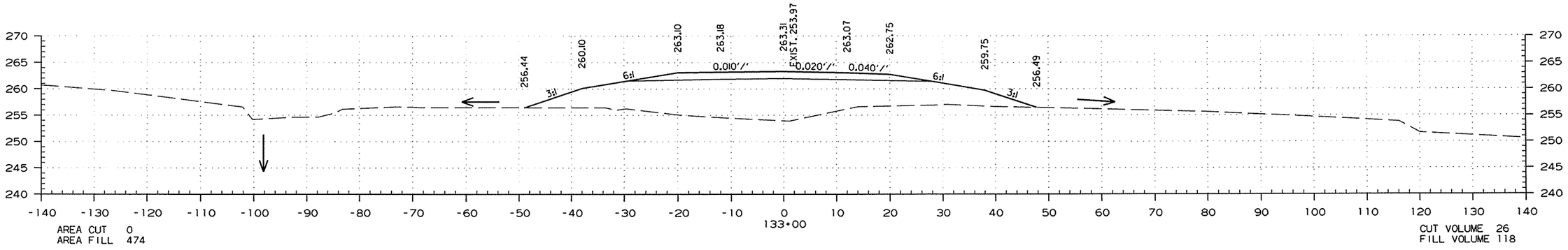
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	200	339

(2) CROSS SECTIONS



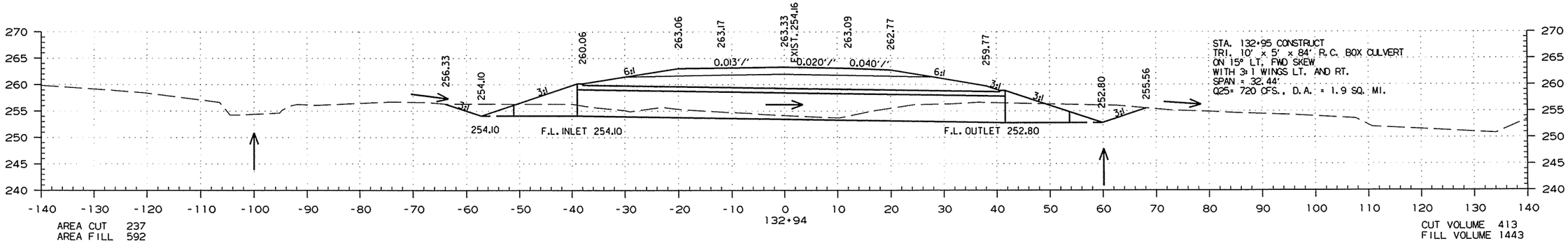
AREA CUT 0
AREA FILL 258

CUT VOLUME 0
FILL VOLUME 1356



AREA CUT 0
AREA FILL 474

CUT VOLUME 26
FILL VOLUME 118



AREA CUT 237
AREA FILL 592

CUT VOLUME 413
FILL VOLUME 1443

STA. 132+94.27 TO STA. 134+00.00

7/24/2015

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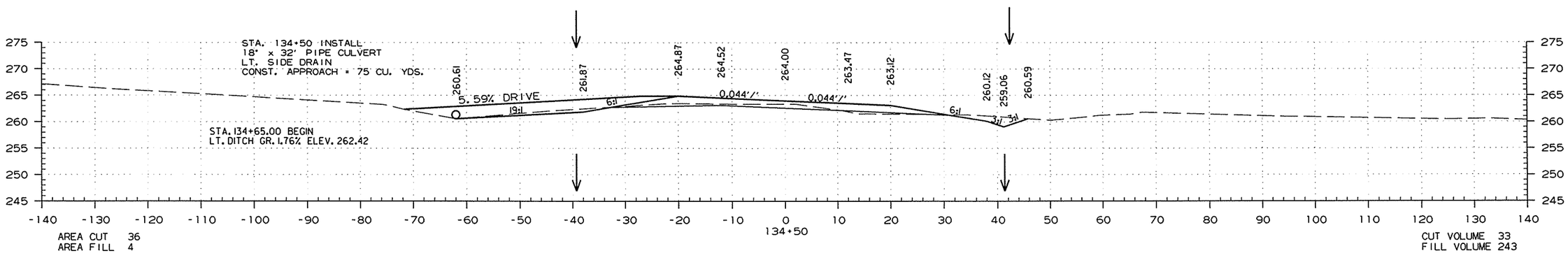
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	201	339

(2) CROSS SECTIONS



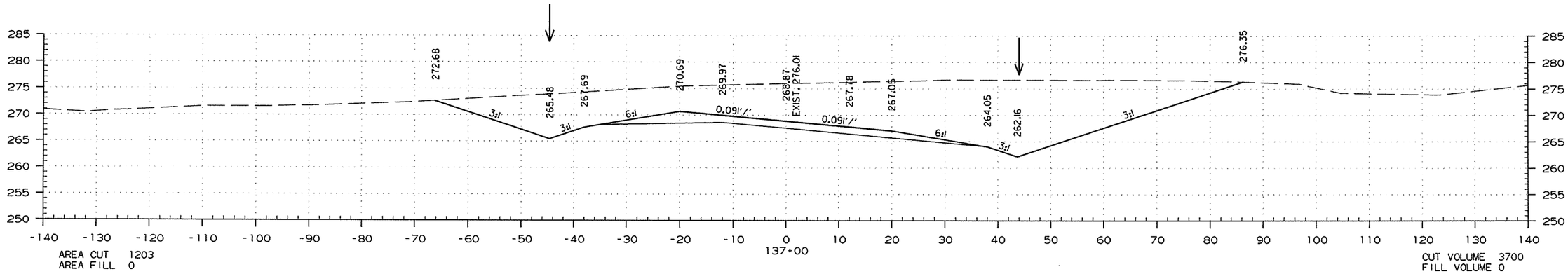
STA. 134+50.00 TO STA. 134+50.00

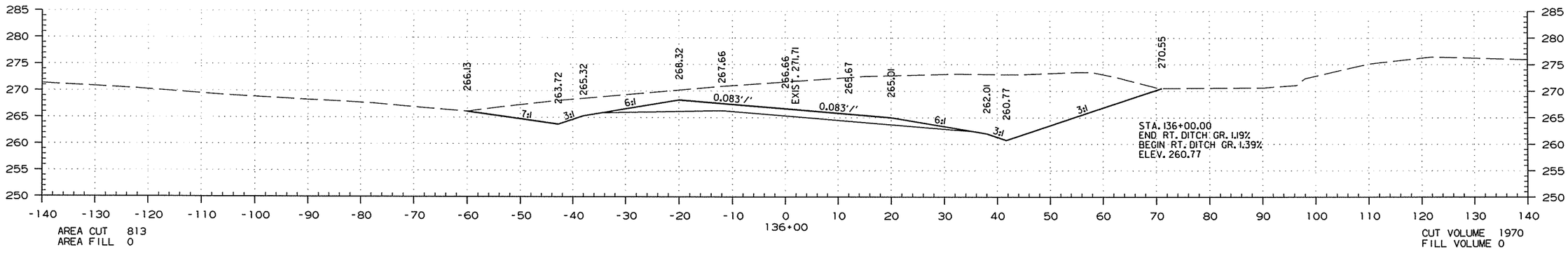
7/24/2015

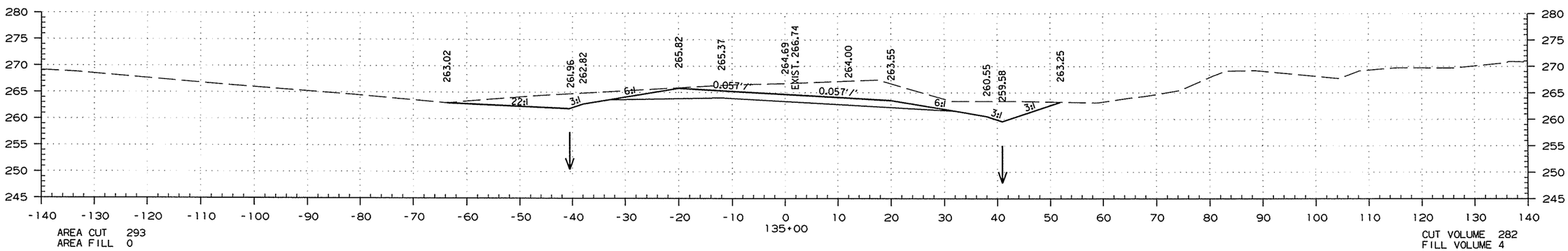
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	202	339

(2) CROSS SECTIONS







STA. 135+00.00 TO STA. 137+00.00

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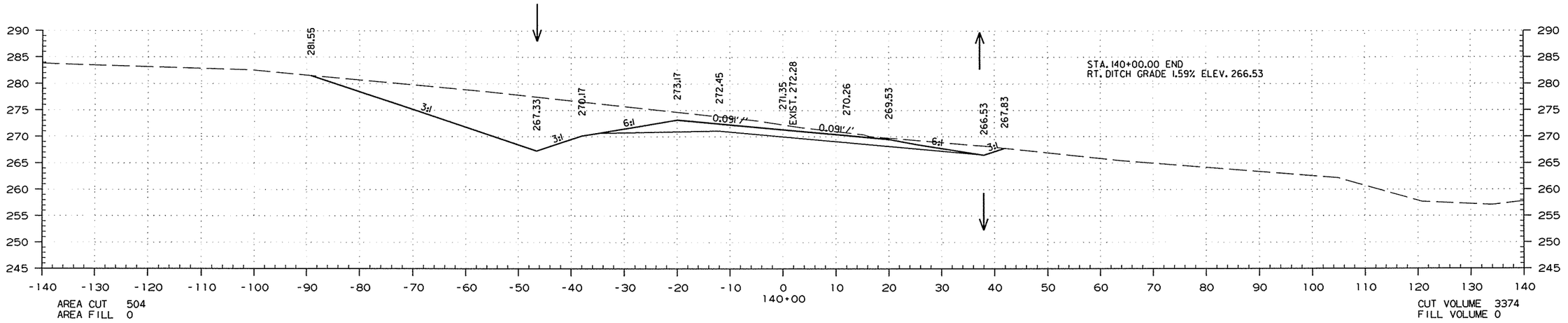
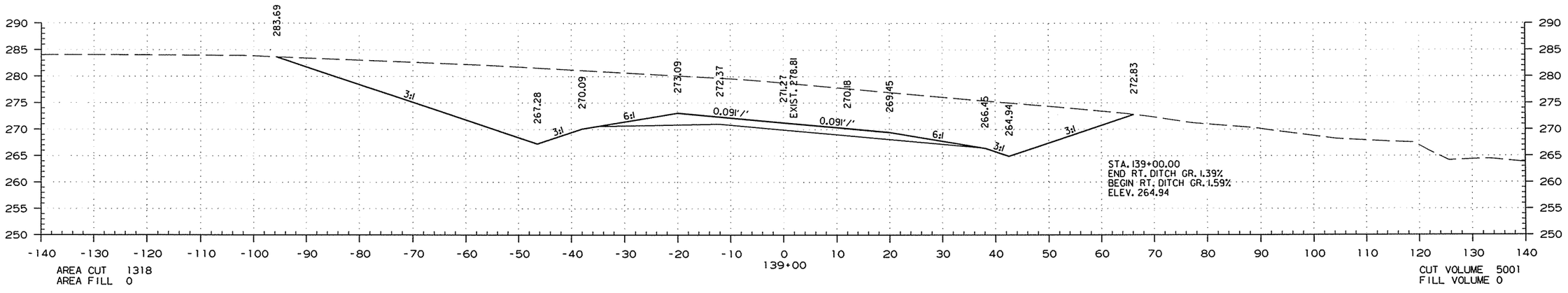
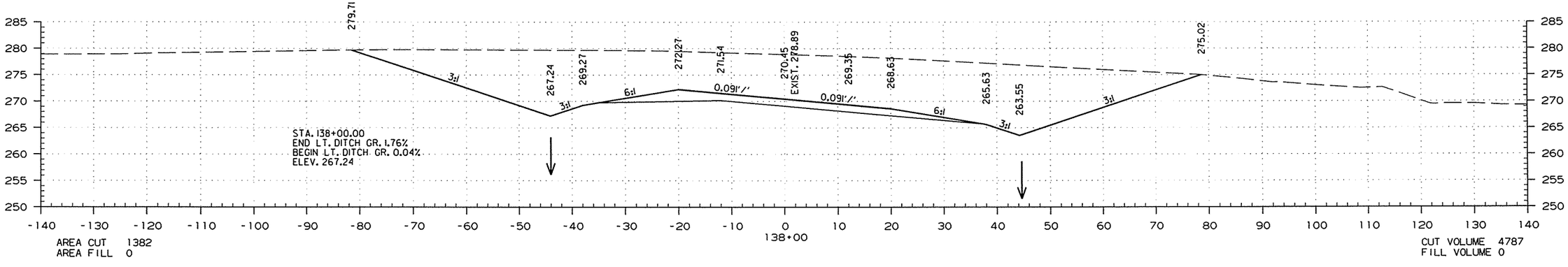
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	203	339

(2) CROSS SECTIONS







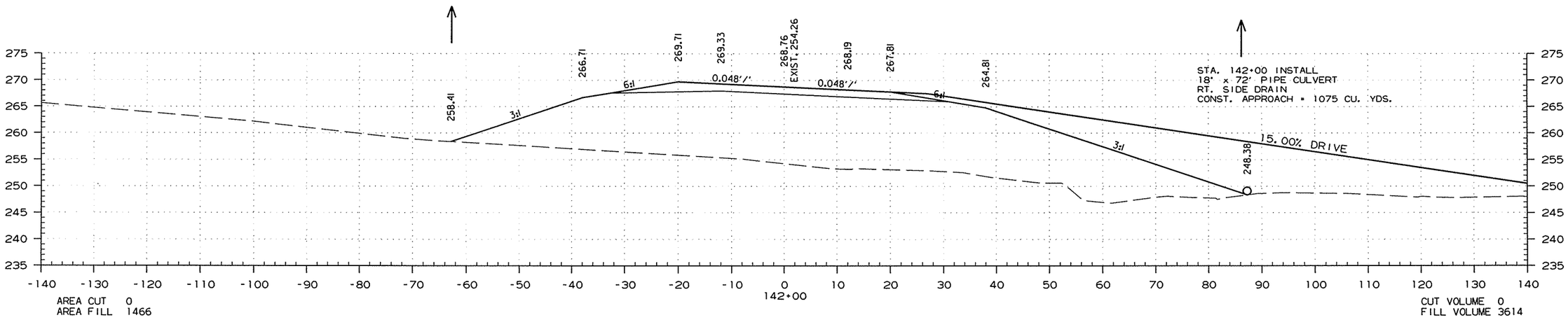
STA. 138+00.00 TO STA. 140+00.00

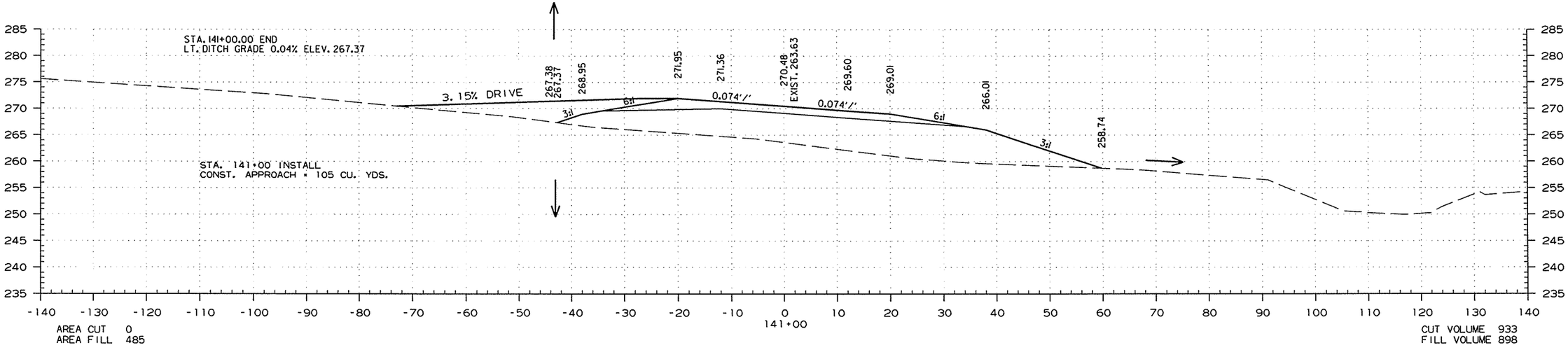
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	204	339

(2) CROSS SECTIONS





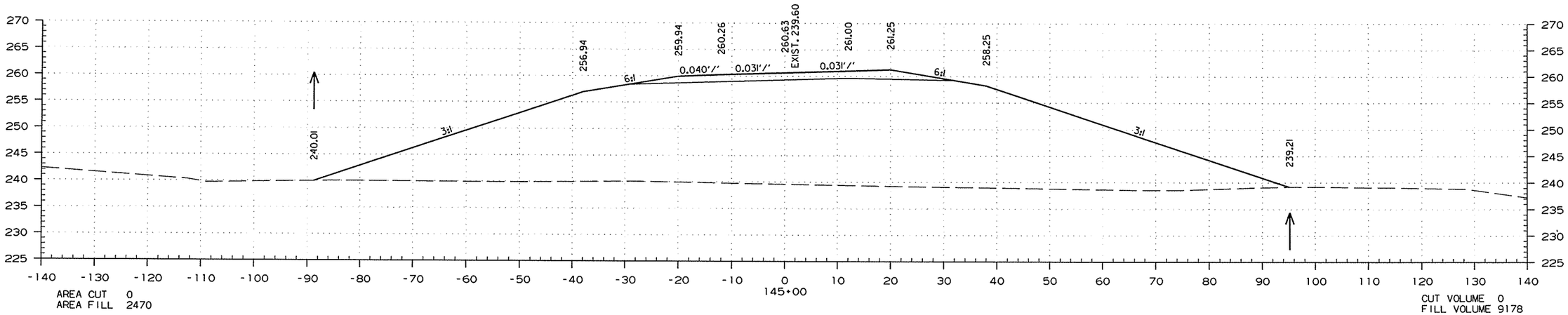
7/24/2015

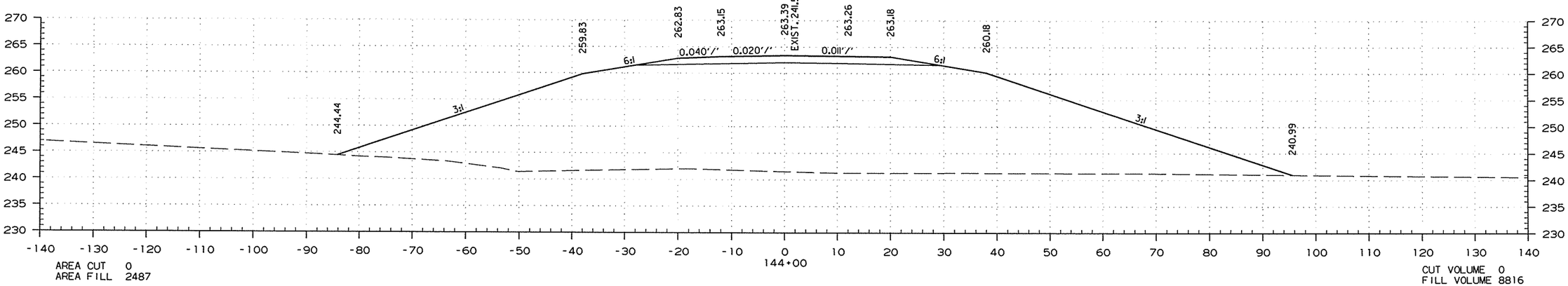
R050251.DGN

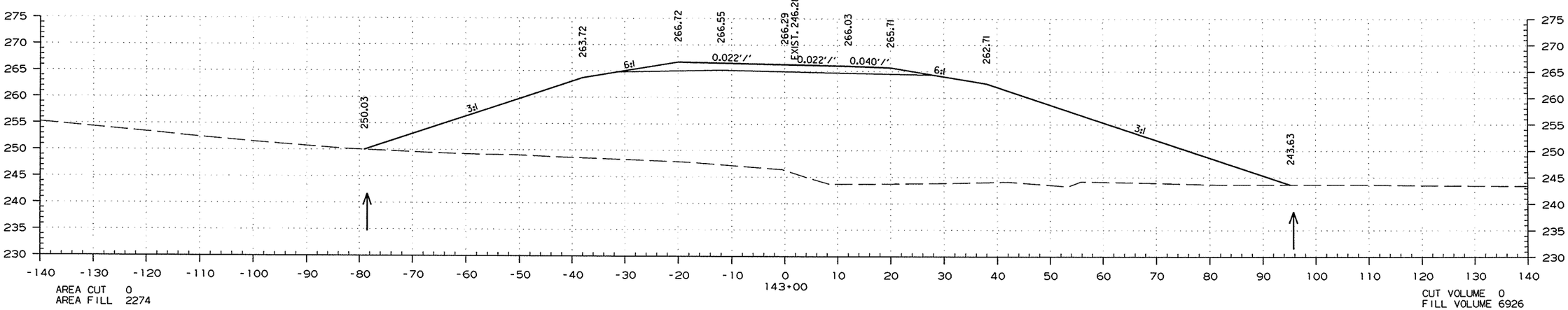
STA. 141+00.00 TO STA. 142+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	205	339

(2) CROSS SECTIONS







STA. 143+00.00 TO STA. 145+00.00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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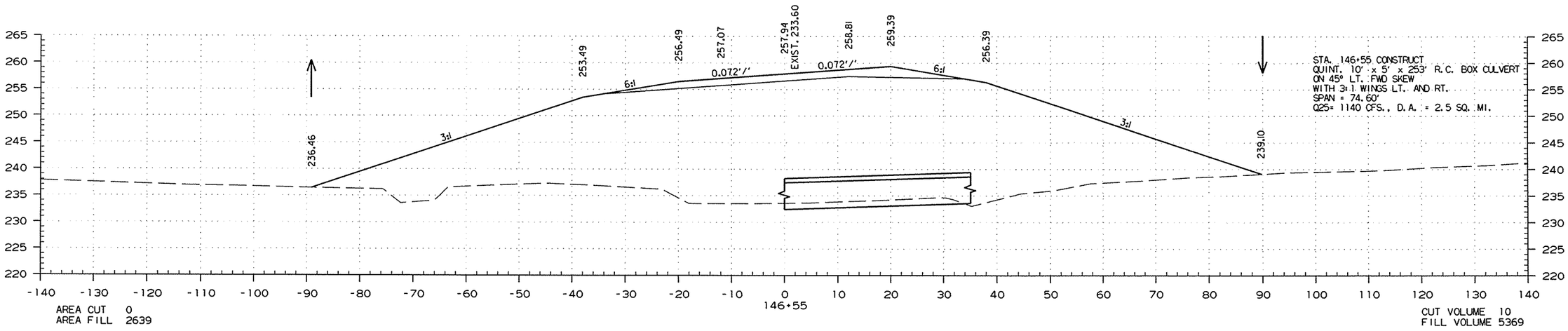
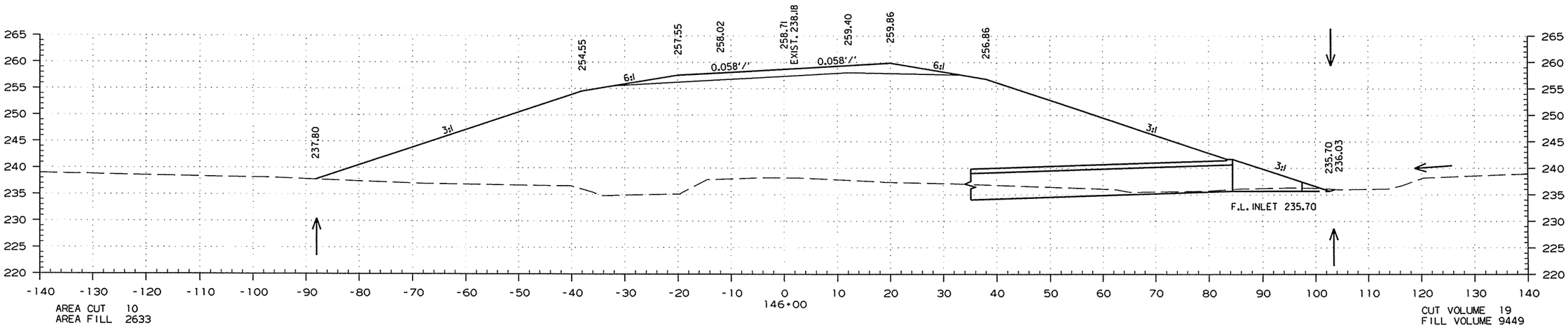
				JOB NO.		050251	206	339

(2) CROSS SECTIONS





STA. 146+00.00 TO STA. 146+55.02

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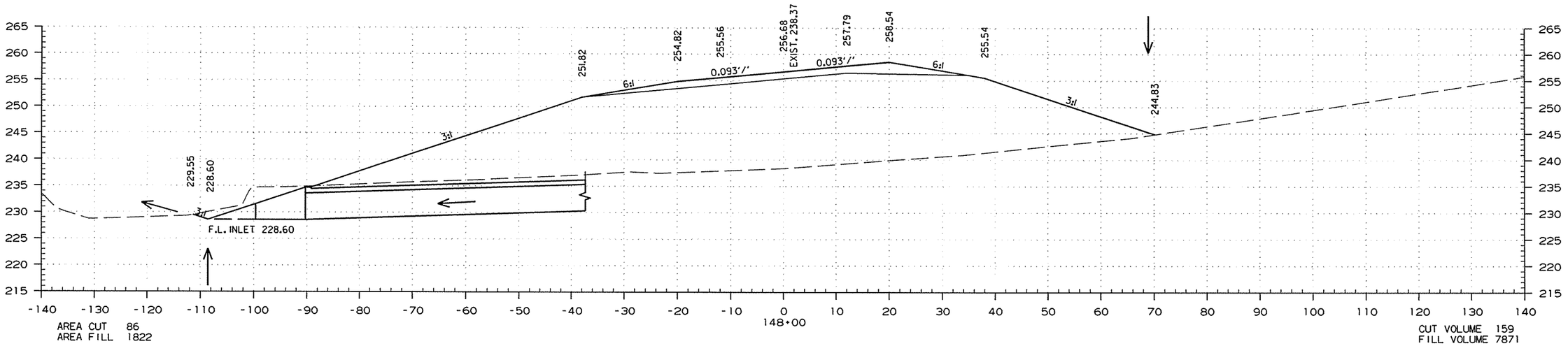
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	207	339

(2) CROSS SECTIONS



STA. 147+00.00 TO STA. 148+00.00

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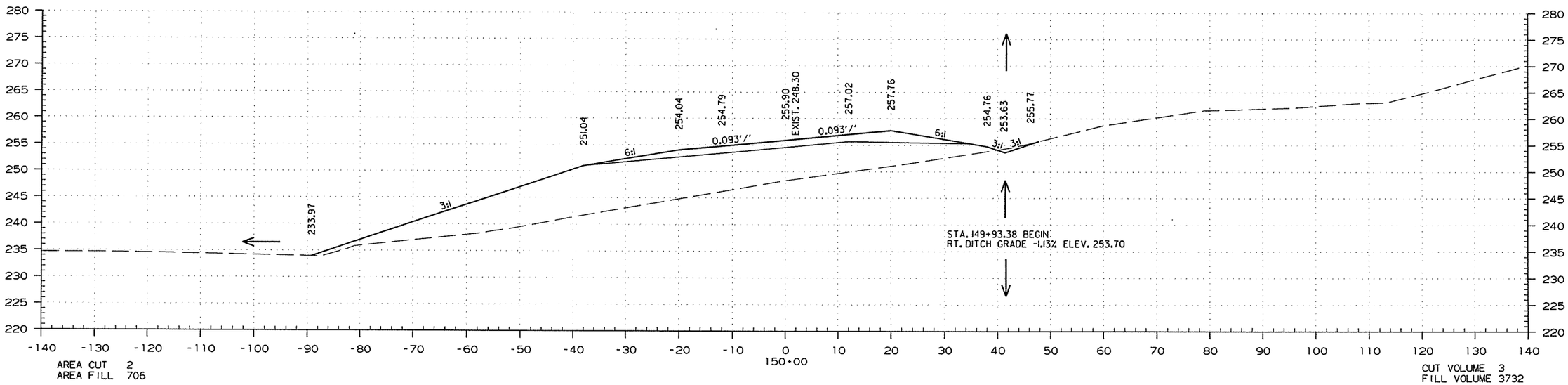
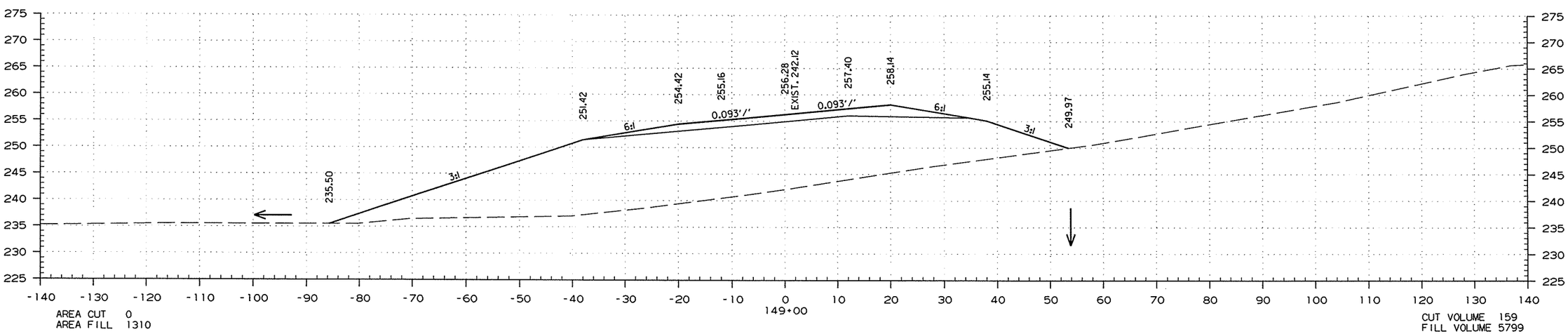
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	208	339

(2) CROSS SECTIONS





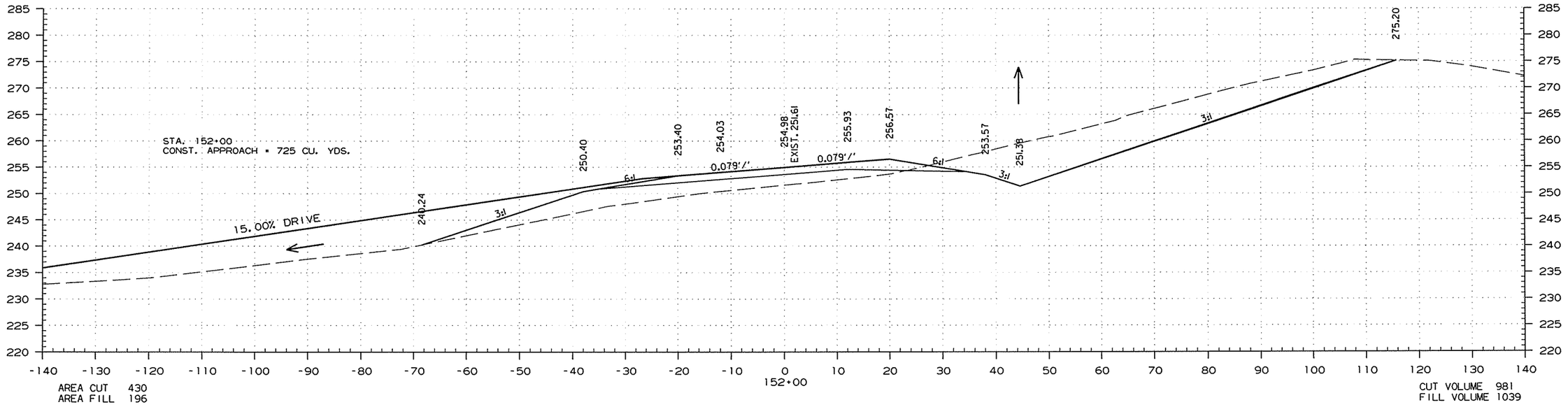
STA. 149+00.00 TO STA. 150+00.00

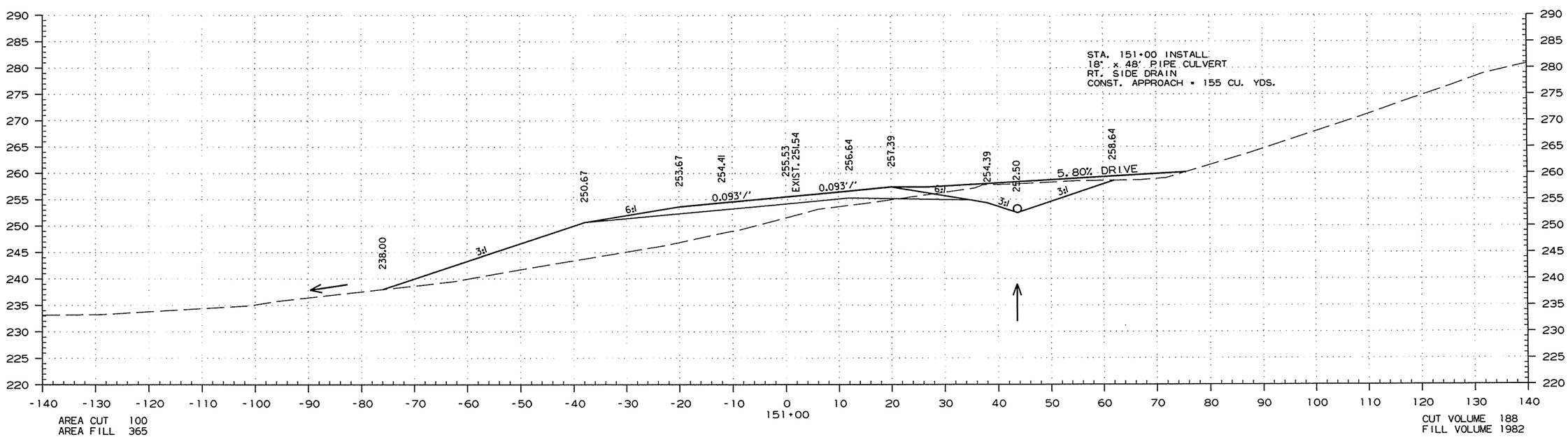
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	209	339

(2) CROSS SECTIONS





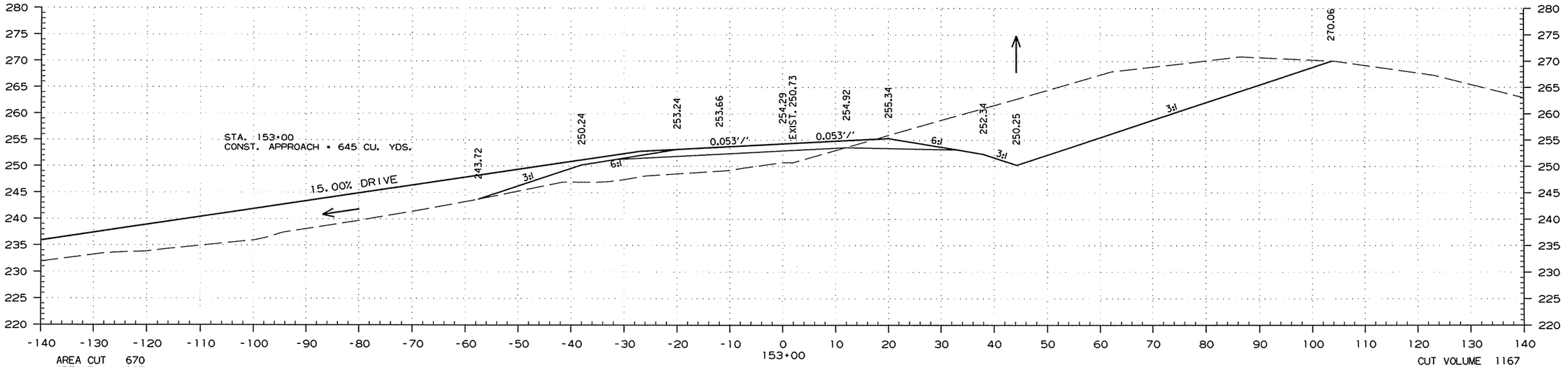
STA. 151+00.00 TO STA. 152+00.00

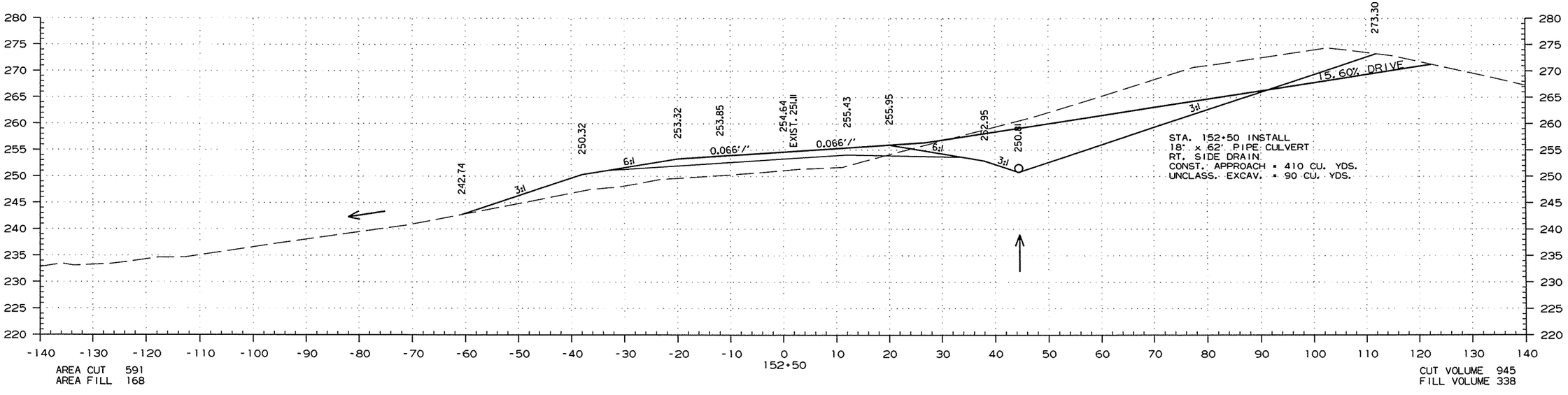
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	210	339

(2) CROSS SECTIONS





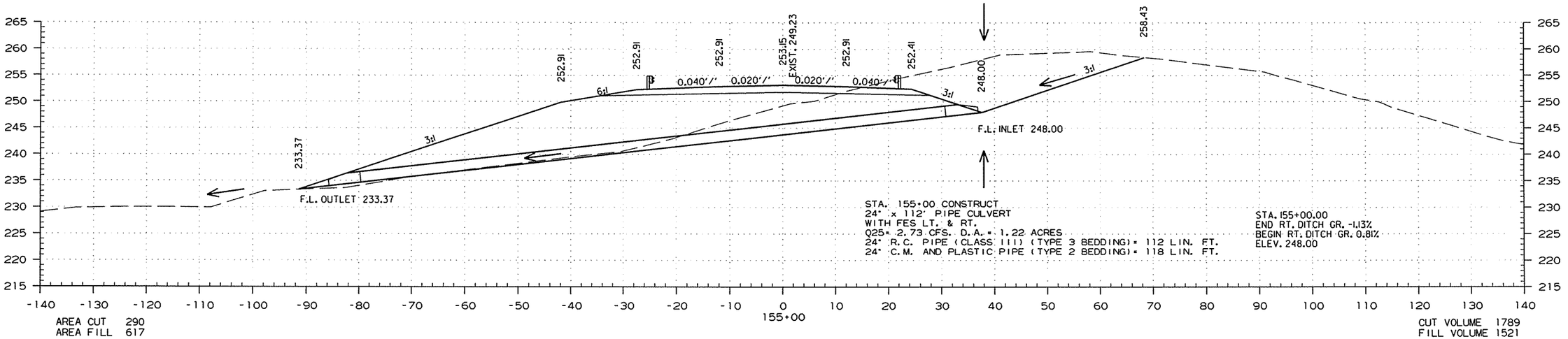
STA. 152+50.00 TO STA. 153+00.00

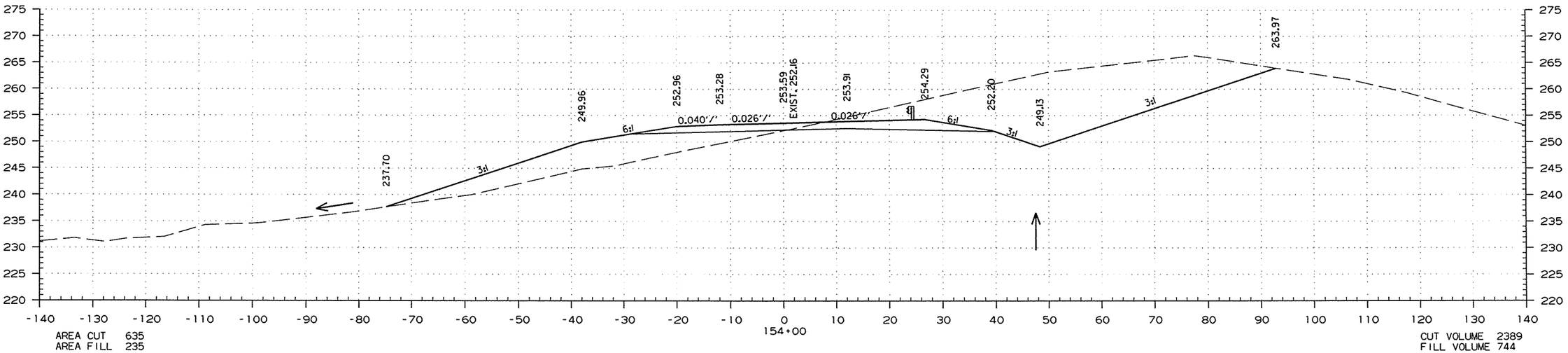
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	211	339

(2) CROSS SECTIONS





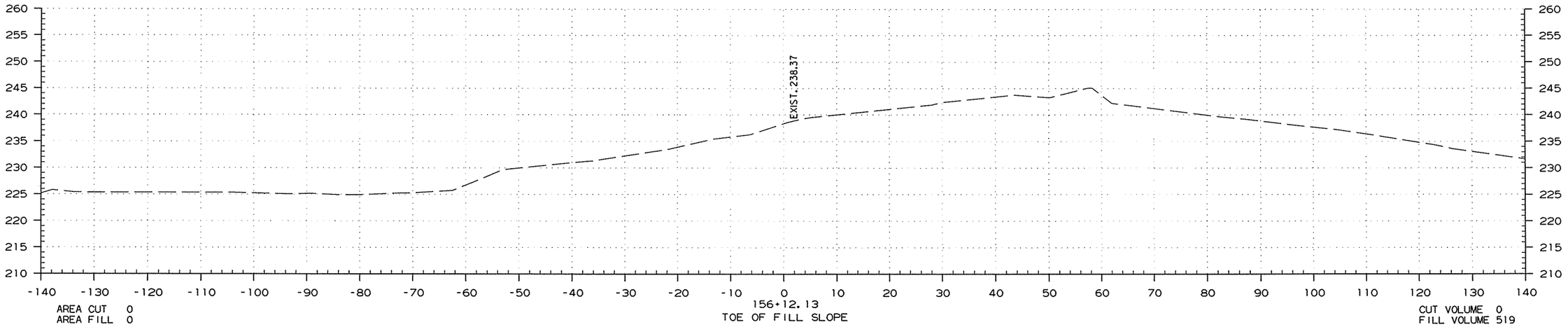
STA. 154+00.00 TO STA. 155+00.00

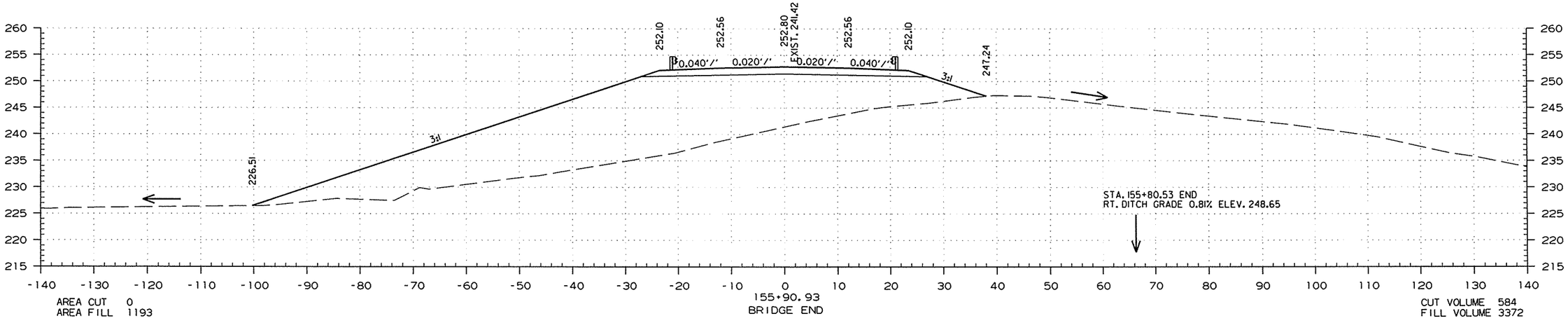
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	212	339

(2) CROSS SECTIONS





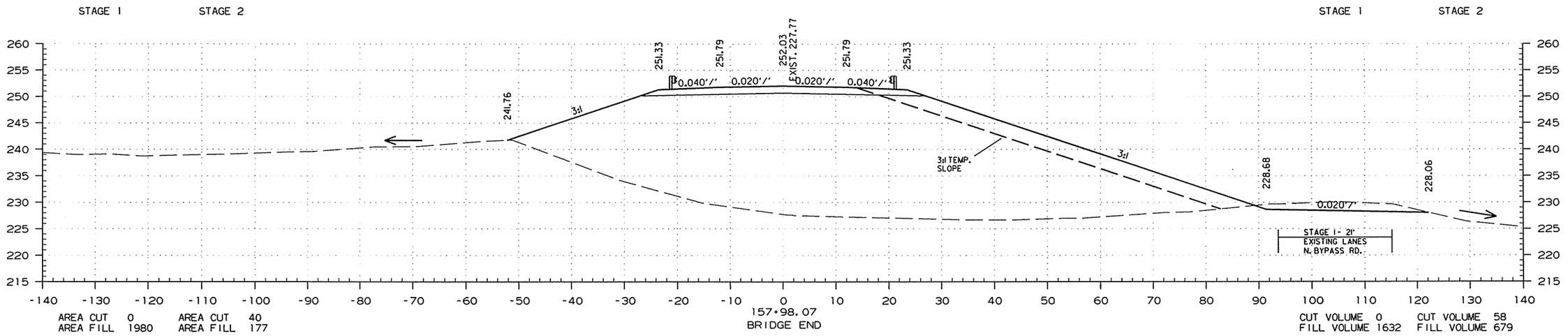
STA. 155+90.93 TO STA. 156+12.13

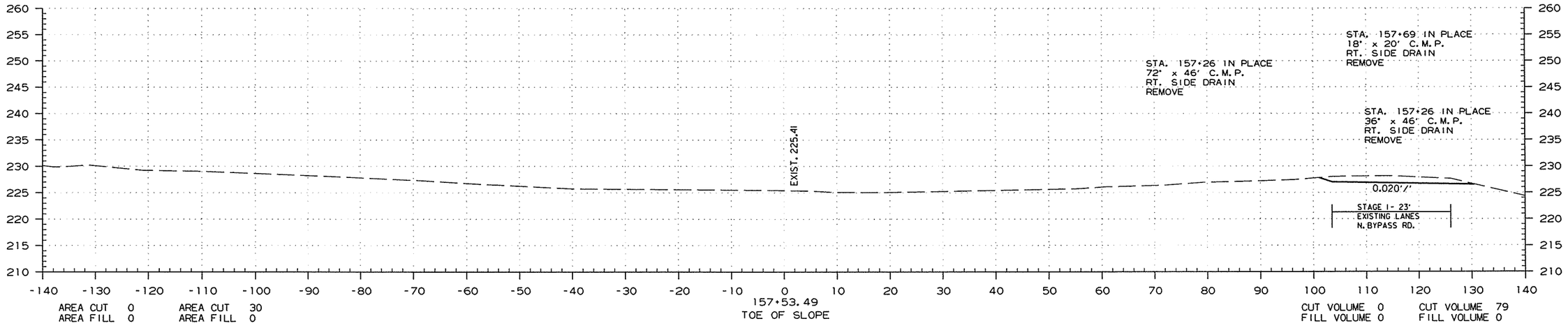
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	213	339

(2) CROSS SECTIONS





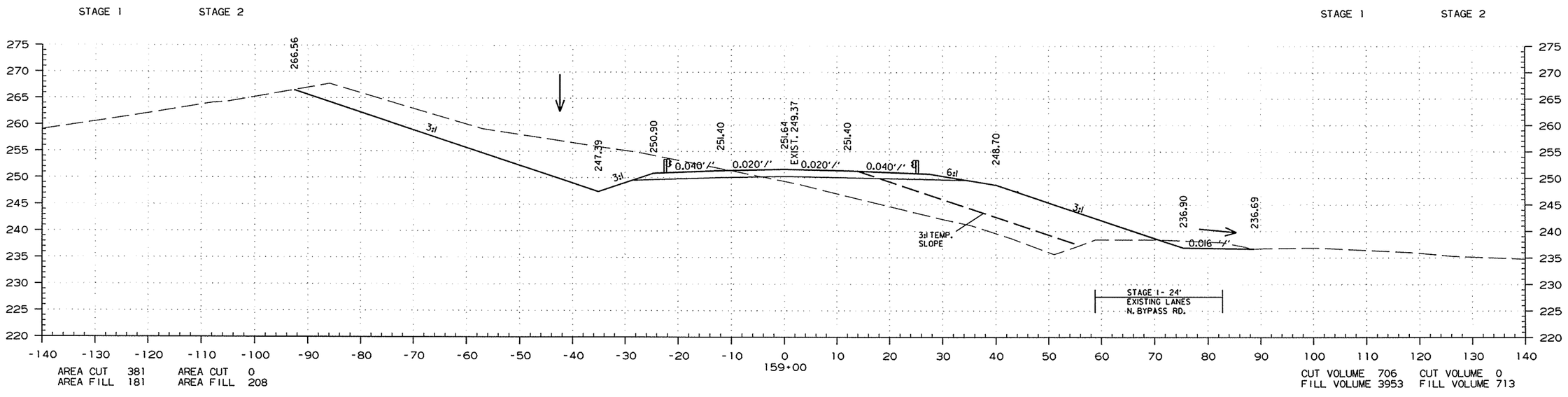
STA. 157+53.03 TO STA. 157+98.07

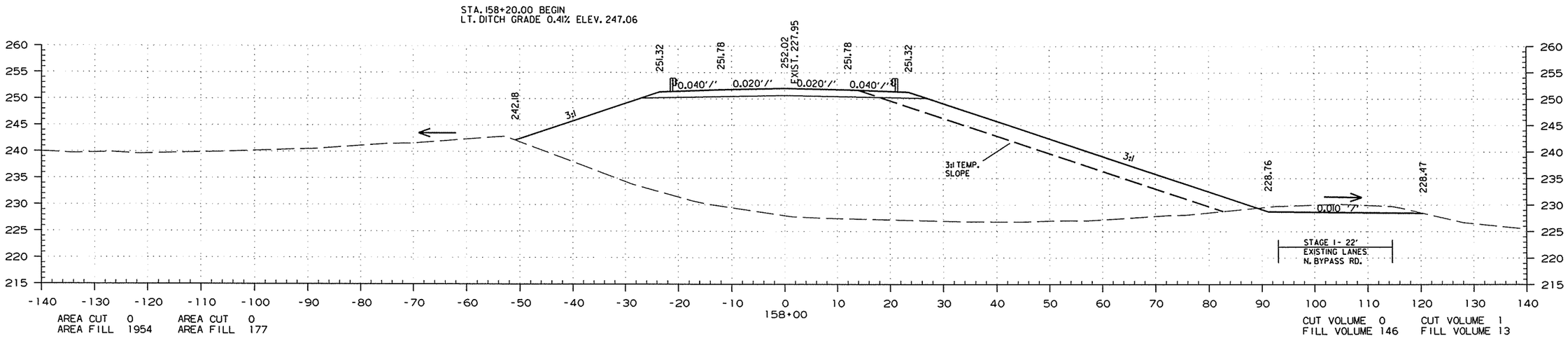
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	214	339

(2) CROSS SECTIONS





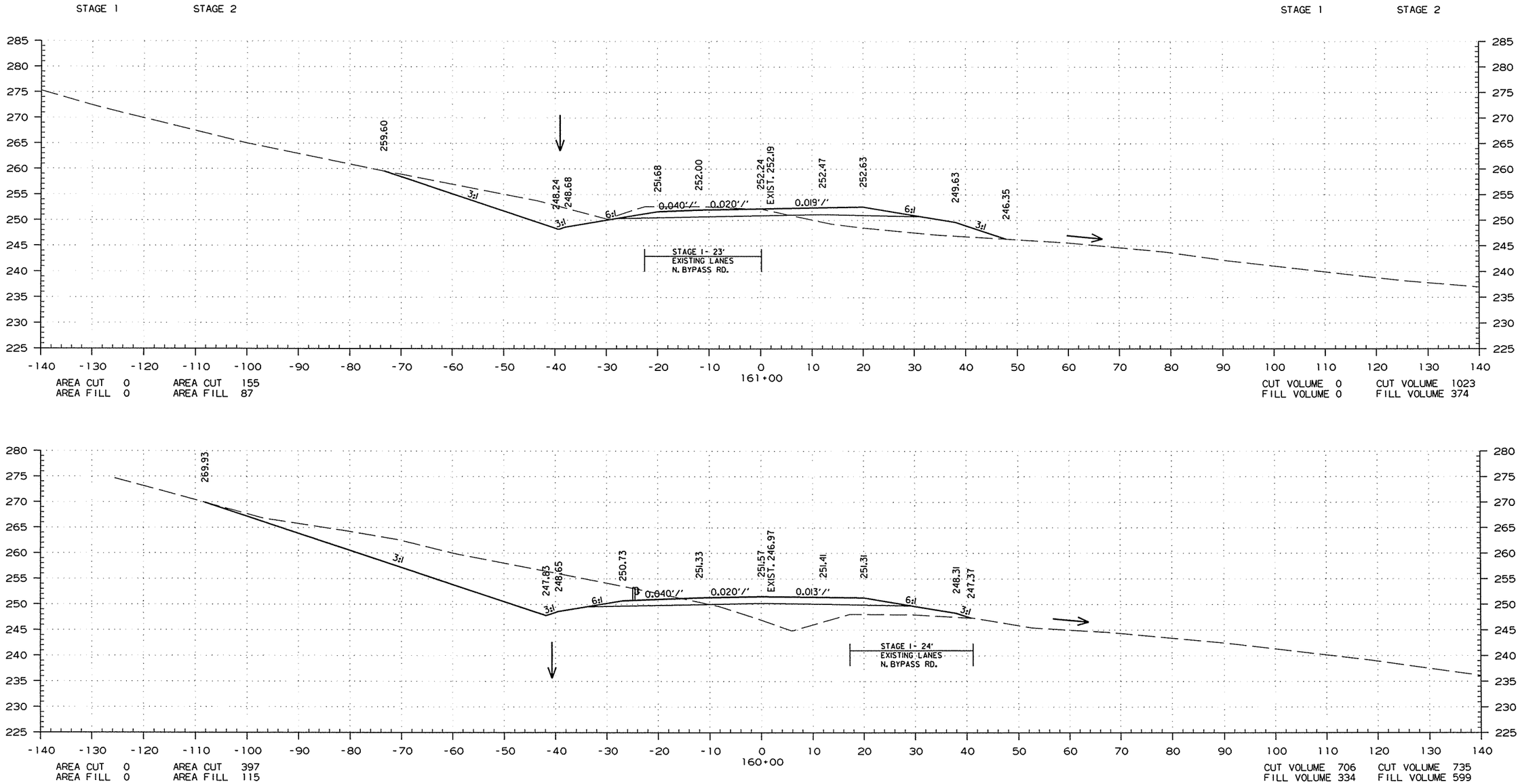
STA. 158+00.00 TO STA. 159+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	215	339

(2) CROSS SECTIONS



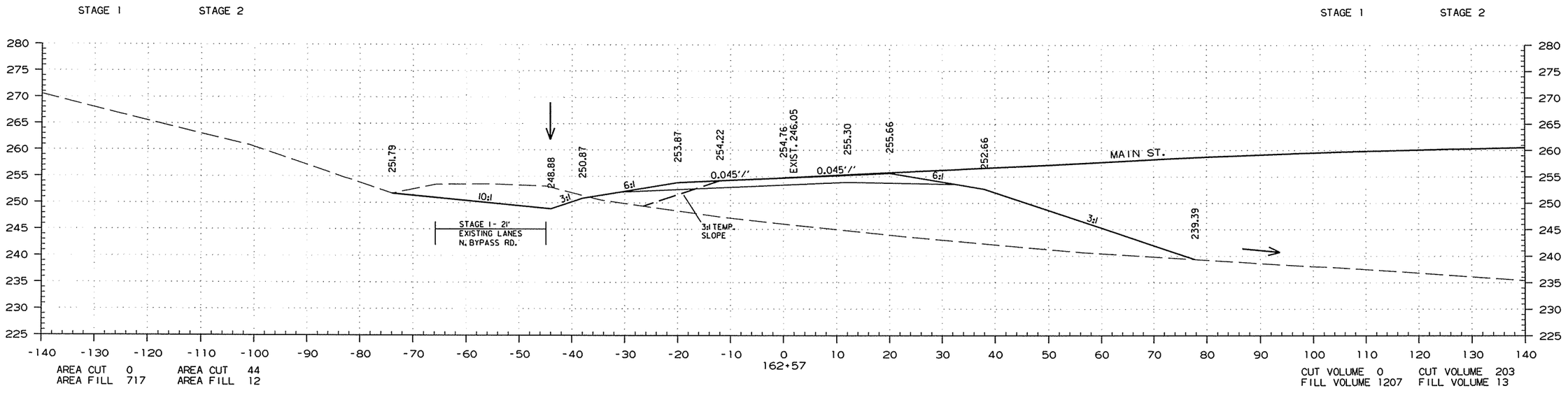
STA. 160+00.00 TO STA. 161+00.00

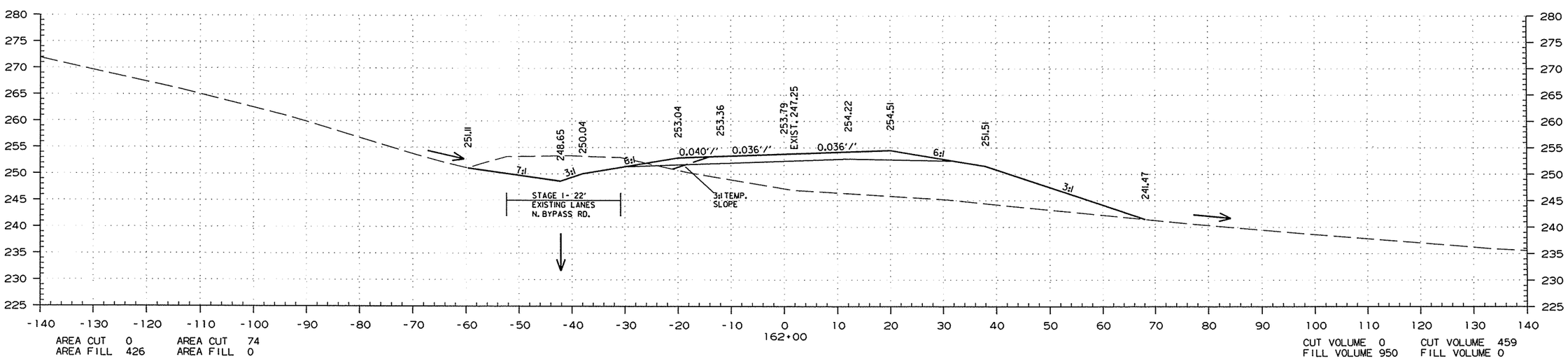
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	216	339

(2) CROSS SECTIONS





STA. 162+00.00 TO STA. 162+57.28

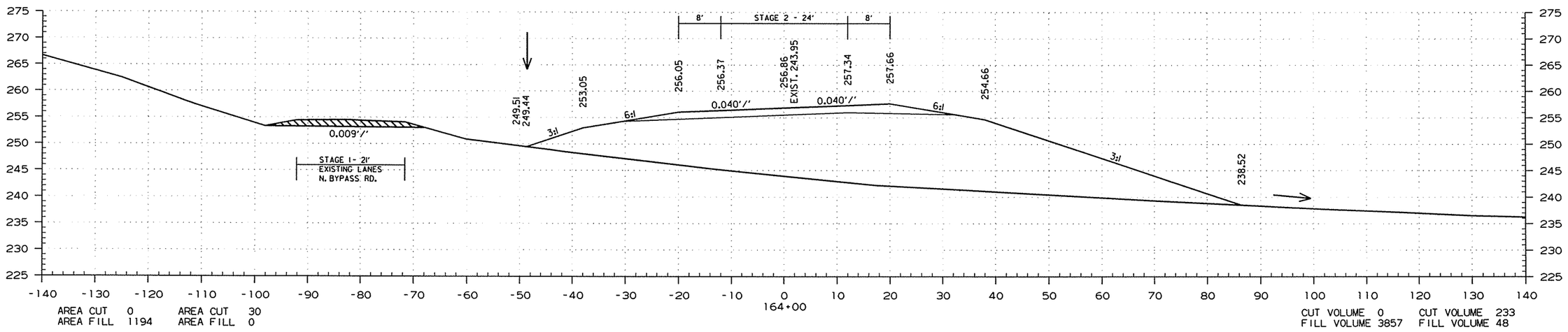
7/24/2015

R050251.DGN

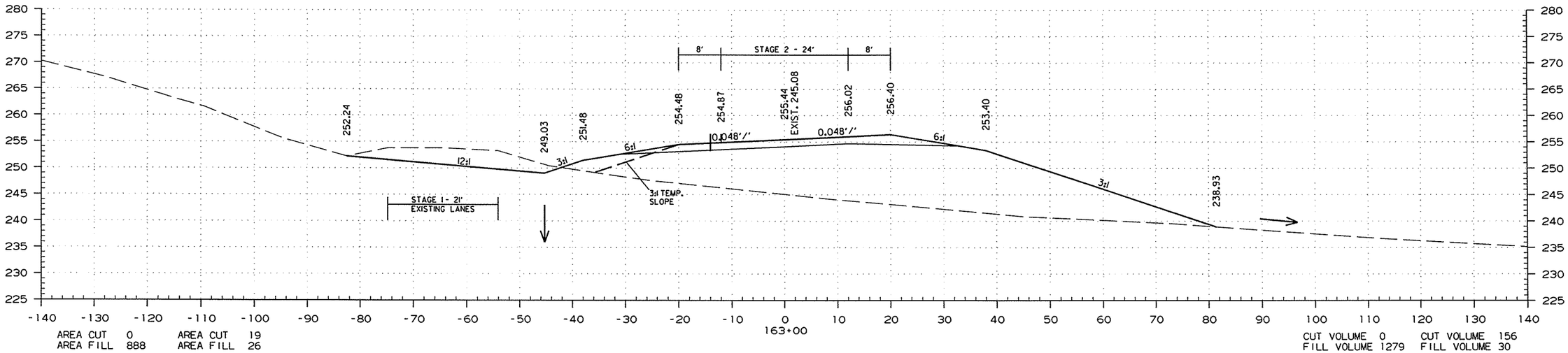
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	217	339

(2) CROSS SECTIONS

STAGE 1 STAGE 2



STAGE 1 STAGE 2



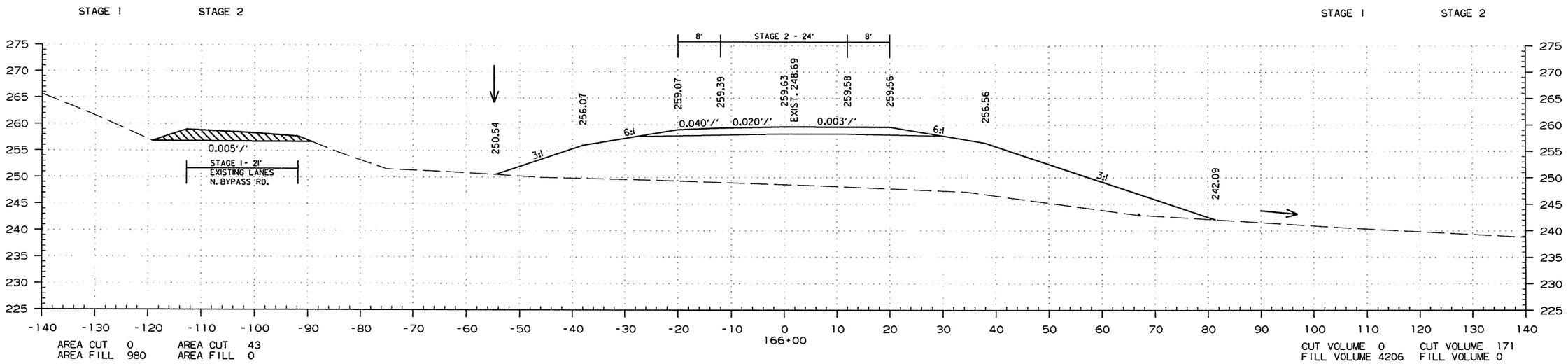
STA. 163+00.00 TO STA. 164+00.00

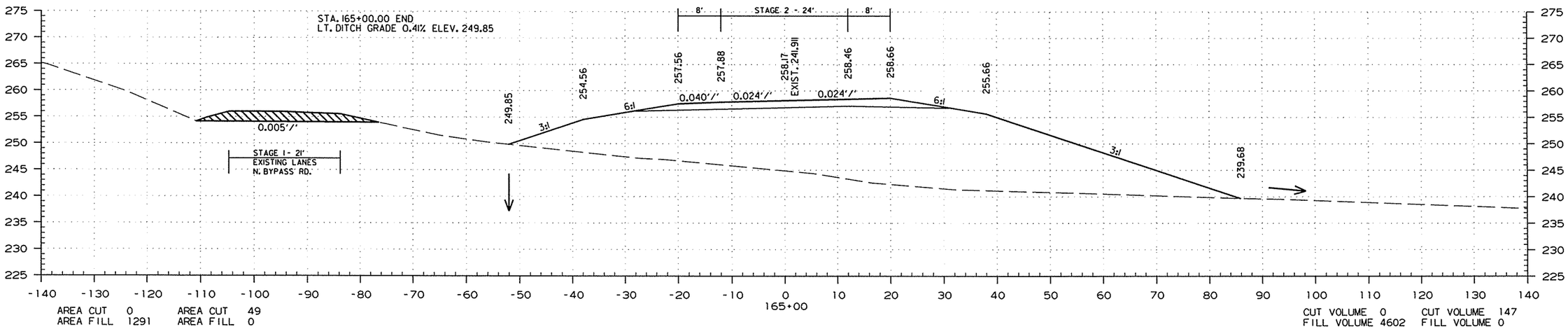
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	218	339

(2) CROSS SECTIONS





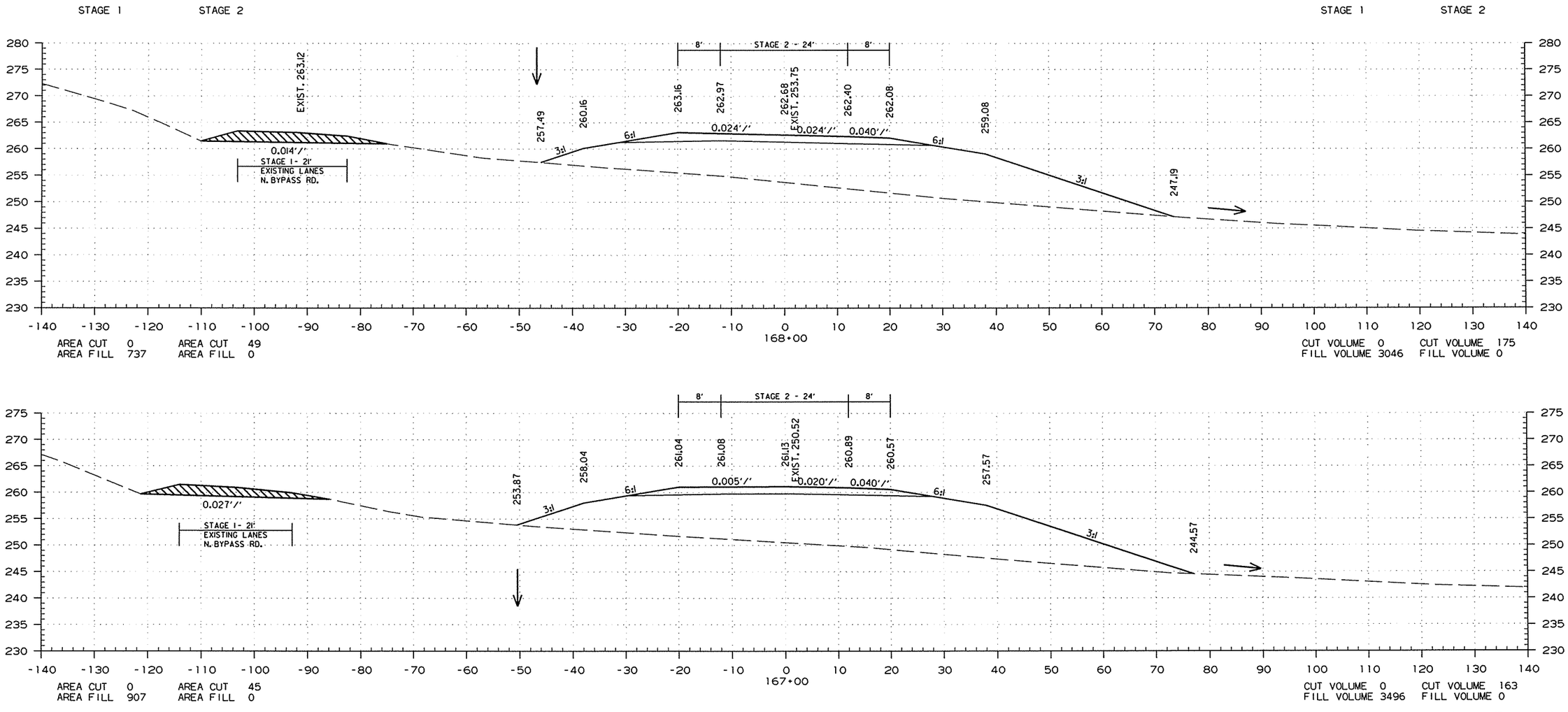
STA. 165+00.00 TO STA. 166+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	219	339

(2) CROSS SECTIONS



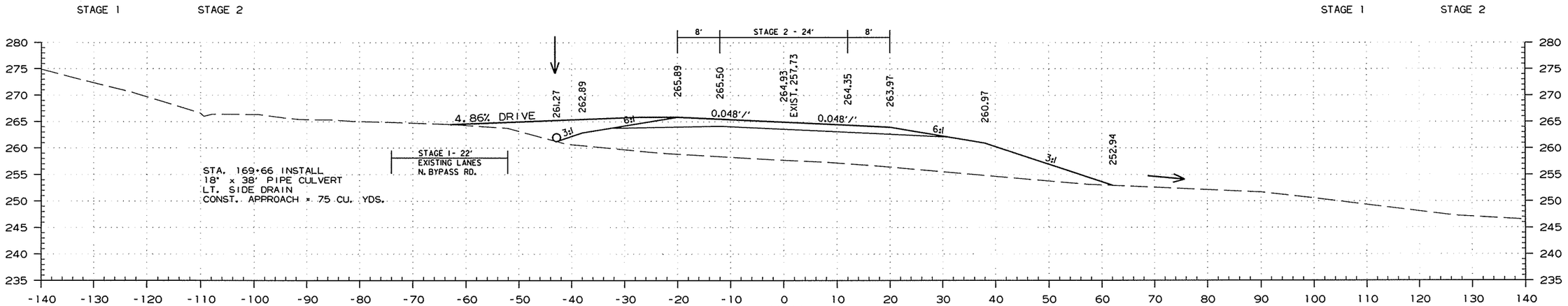
STA. 167+00.00 TO STA. 168+00.00

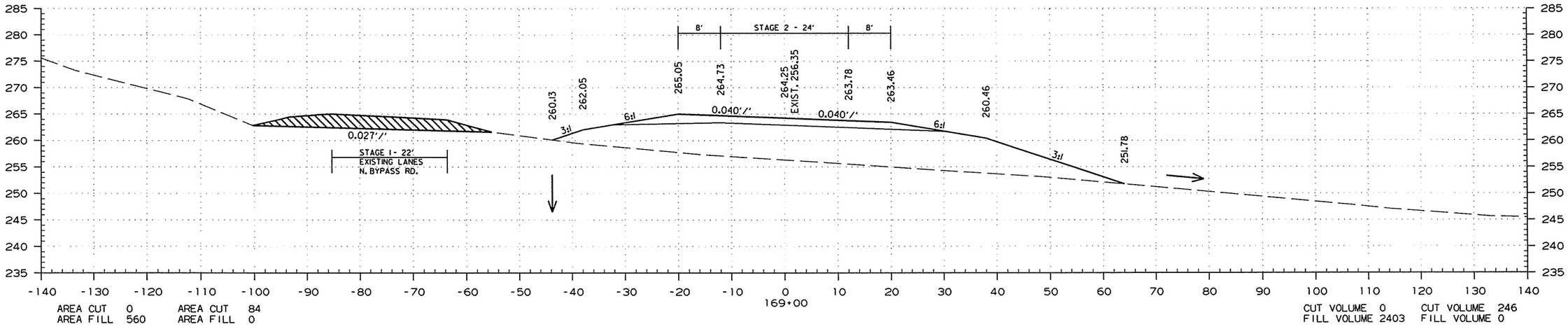
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	220	339

(2) CROSS SECTIONS





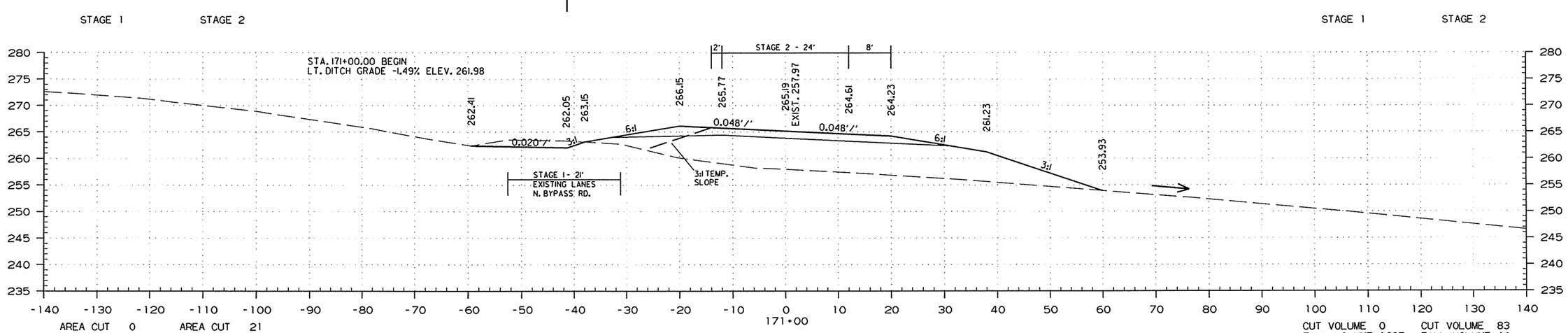
STA. 169+00.00 TO STA. 169+66.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	221	339

(2) CROSS SECTIONS



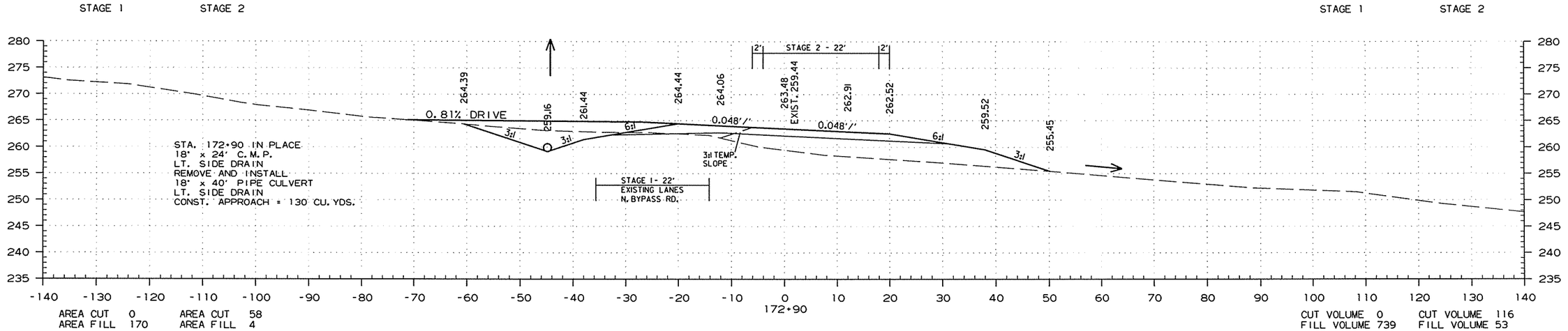
STA. 170+00.00 TO STA. 171+00.00

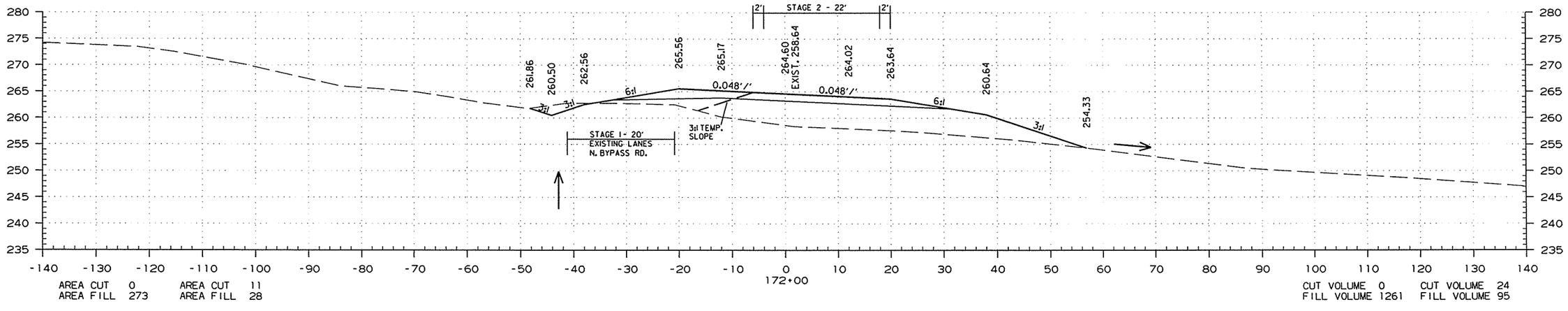
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	222	339

(2) CROSS SECTIONS





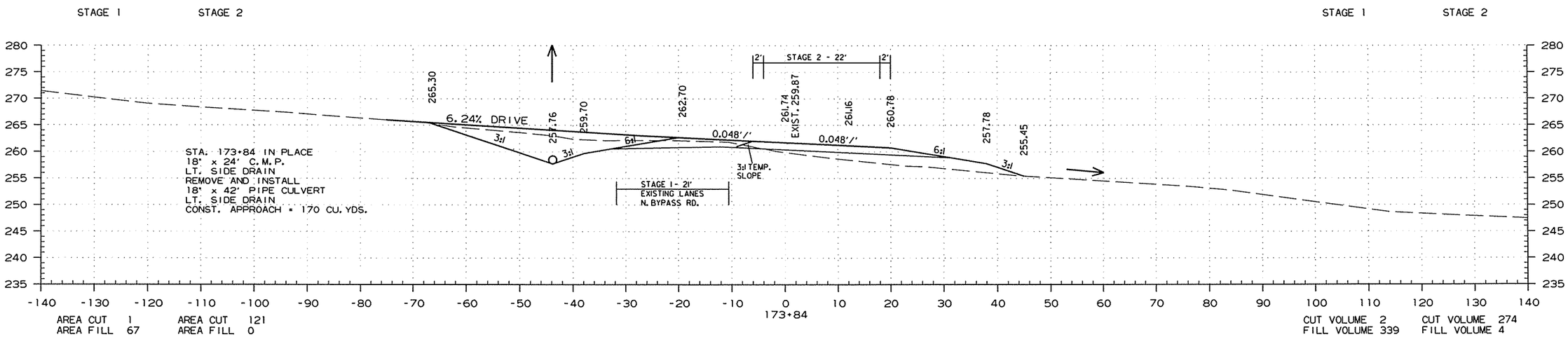
STA. 172+00.00 TO STA. 172+90.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	223	339

(2) CROSS SECTIONS



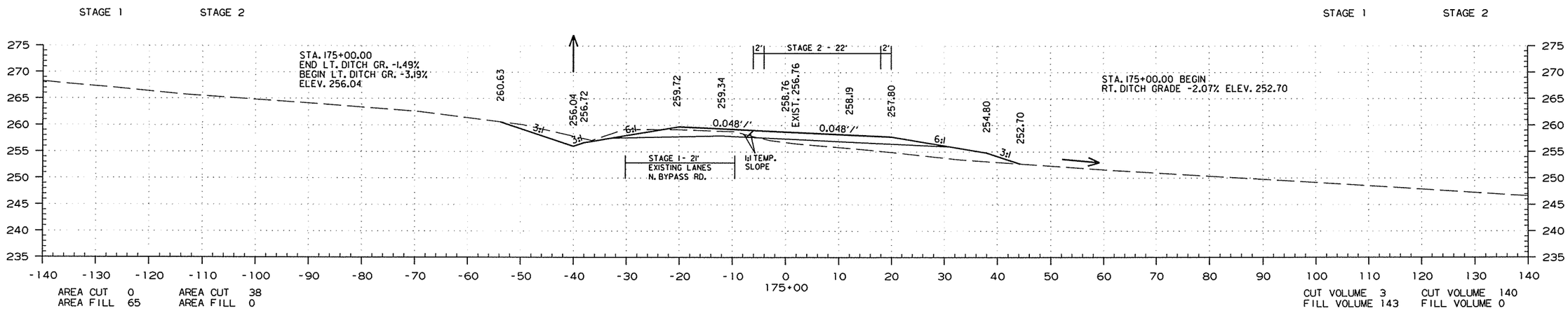
STA. 173+00.00 TO STA. 173+84.00

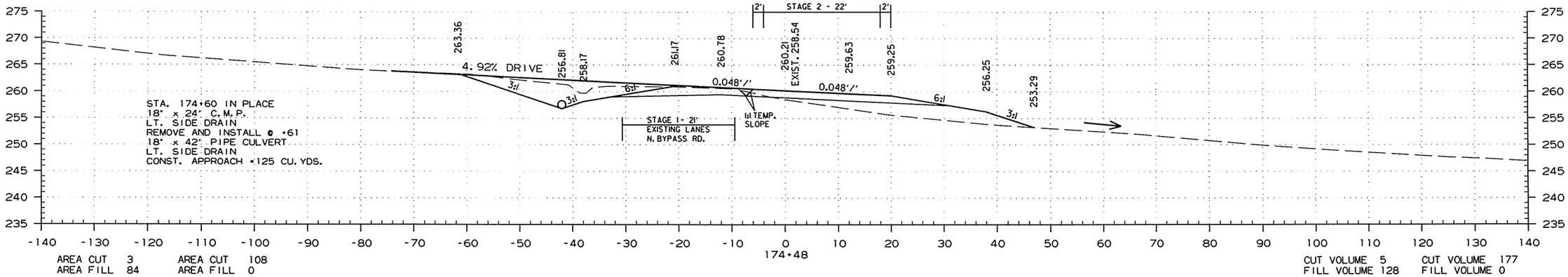
7/24/2015

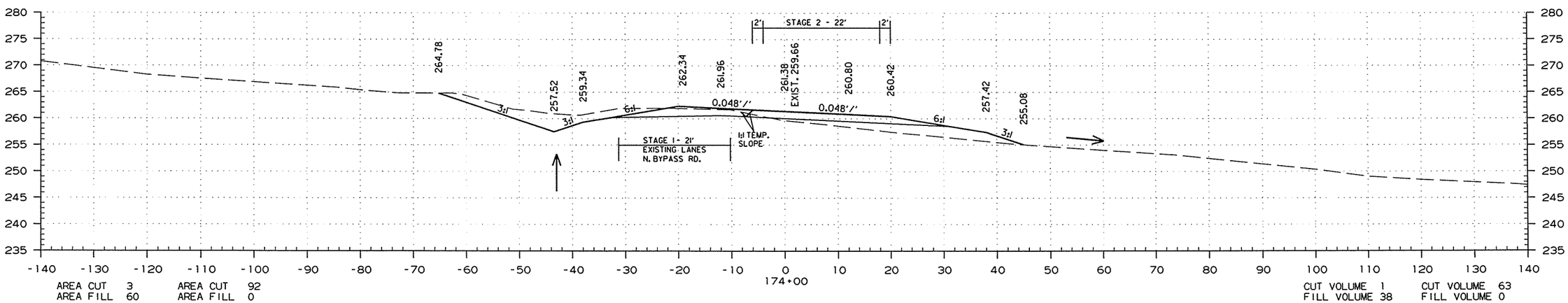
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	224	339

(2) CROSS SECTIONS







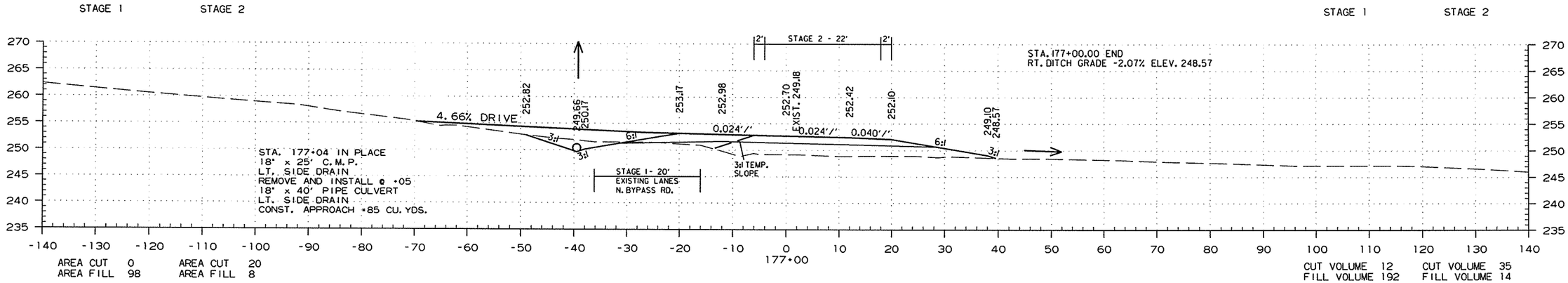
STA. 174+00.00 TO STA. 175+00.00

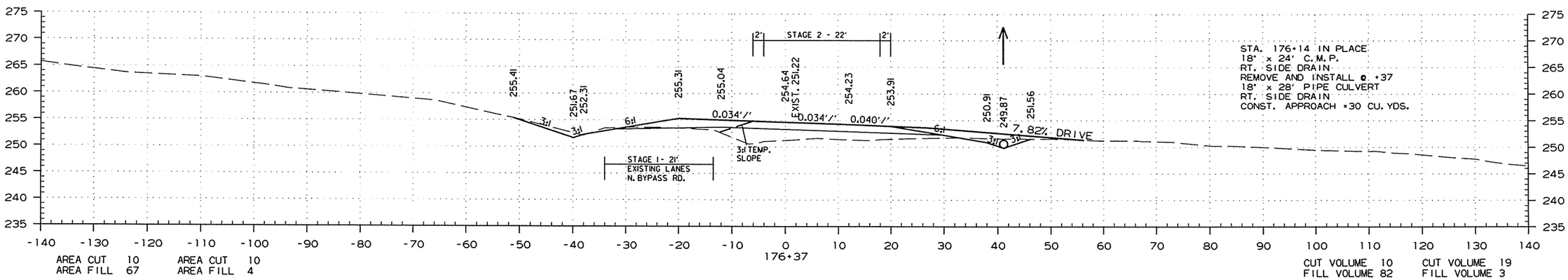
7/24/2015

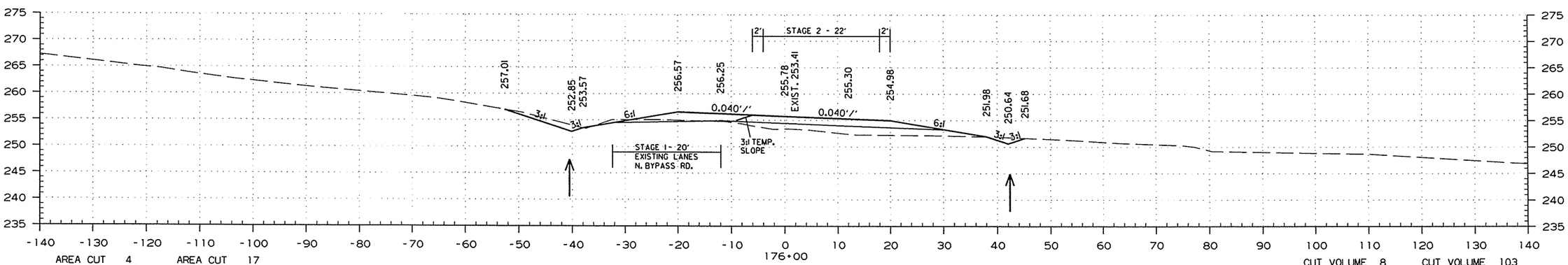
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	225	339

(2) CROSS SECTIONS







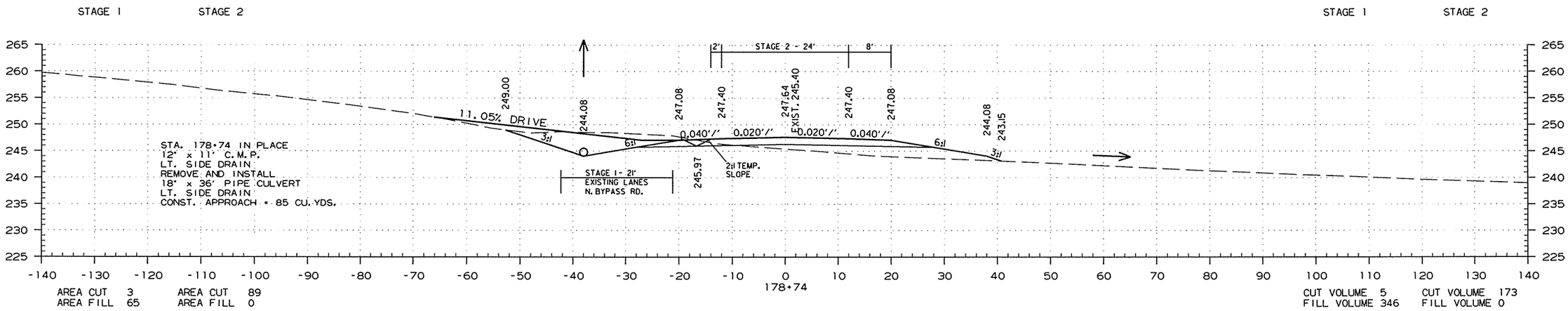
STA. 176+00.00 TO STA. 177+00.00

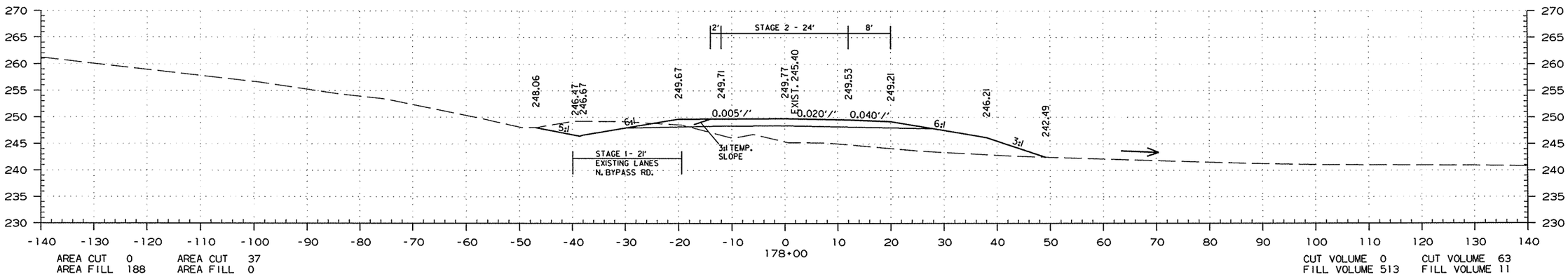
7/24/2015

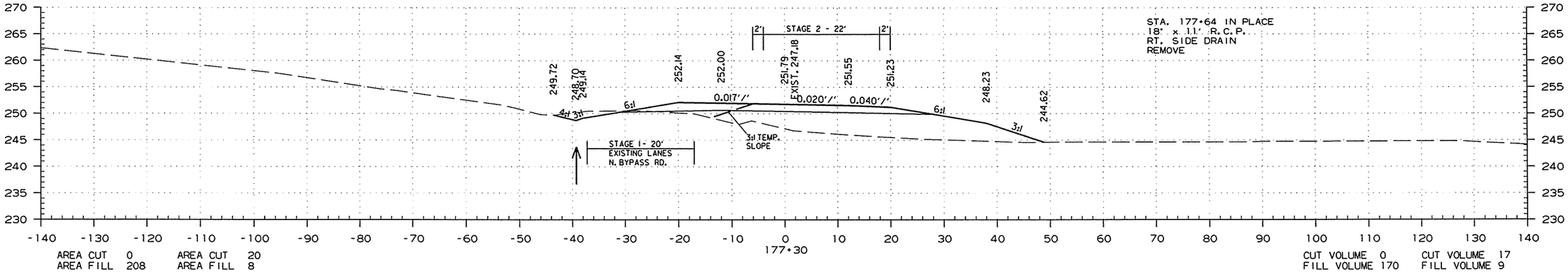
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	226	339

(2) CROSS SECTIONS







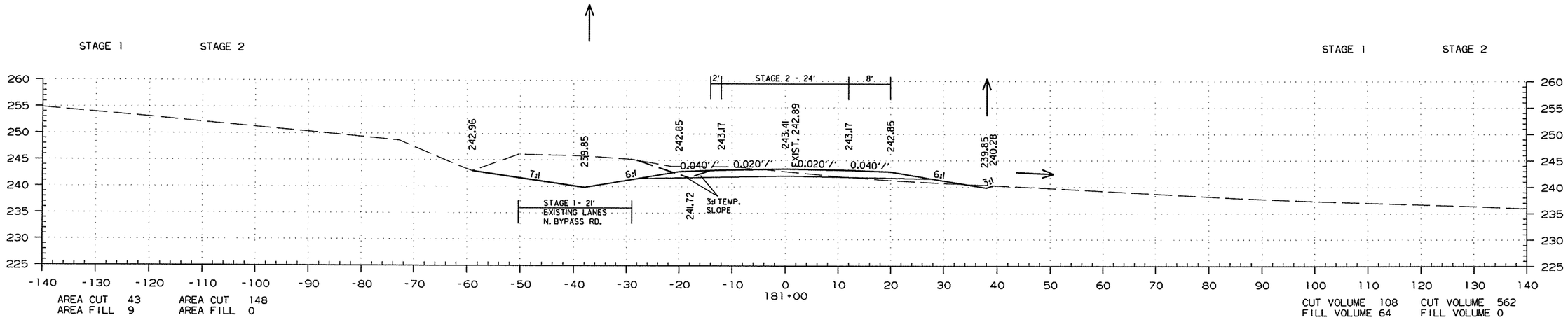
STA. 177+30.00 TO STA. 178+74.00

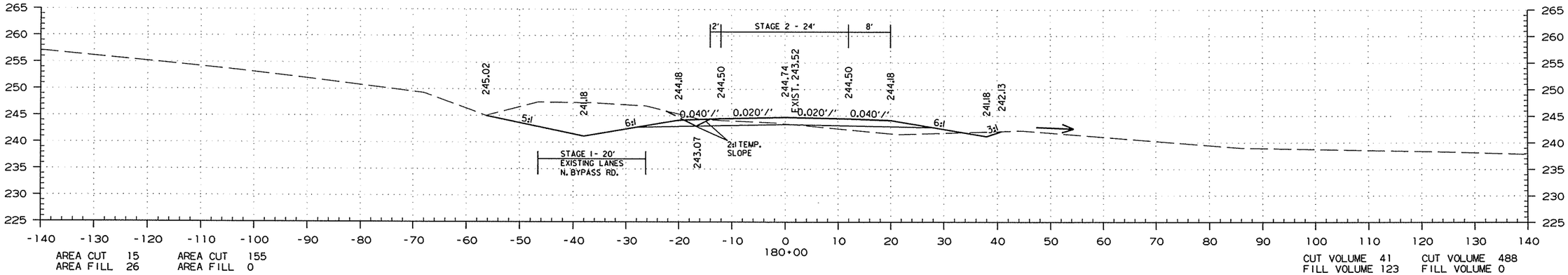
7/24/2015

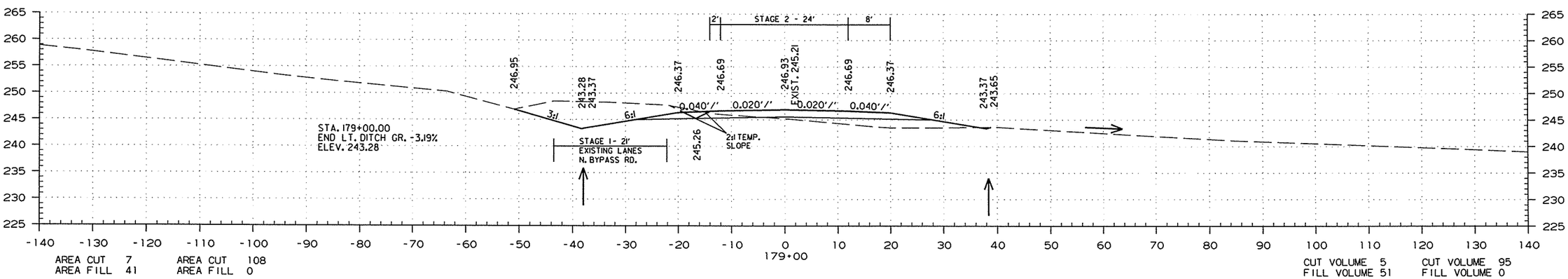
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	227	339

(2) CROSS SECTIONS







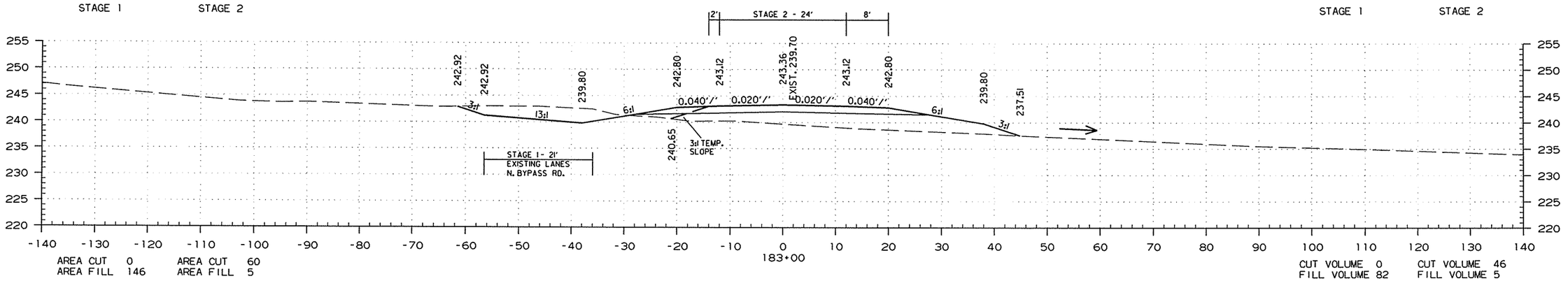
STA. 179+00.00 TO STA. 181+00.00

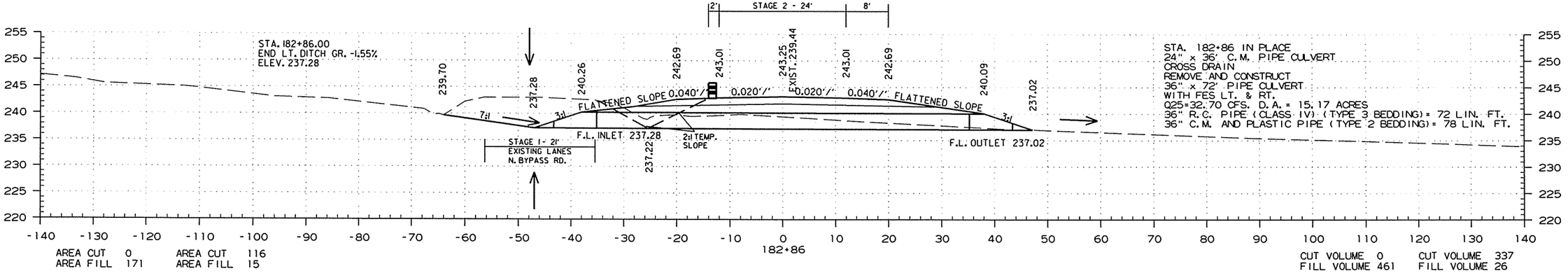
7/24/2015

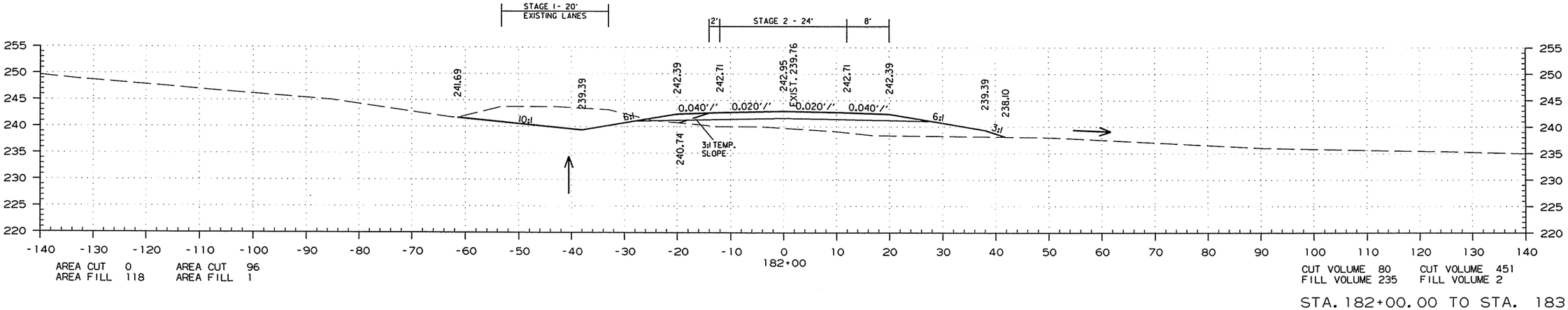
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	228	339

(2) CROSS SECTIONS







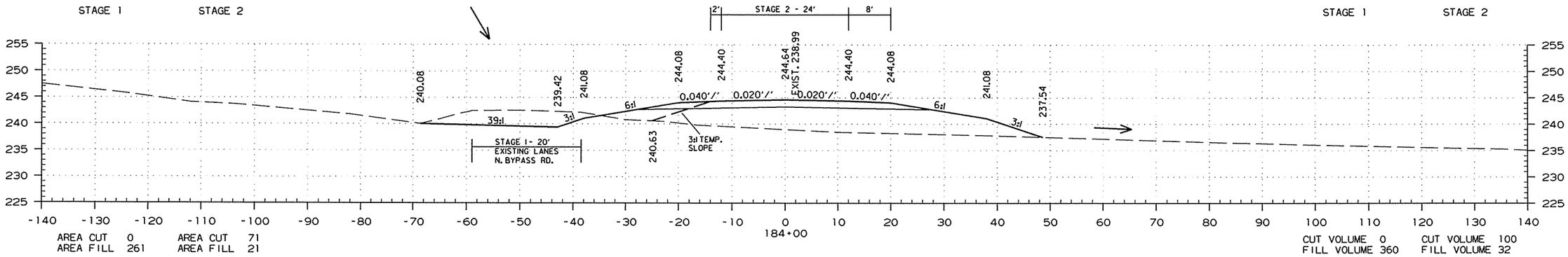
STA. 182+00.00 TO STA. 183+00.00

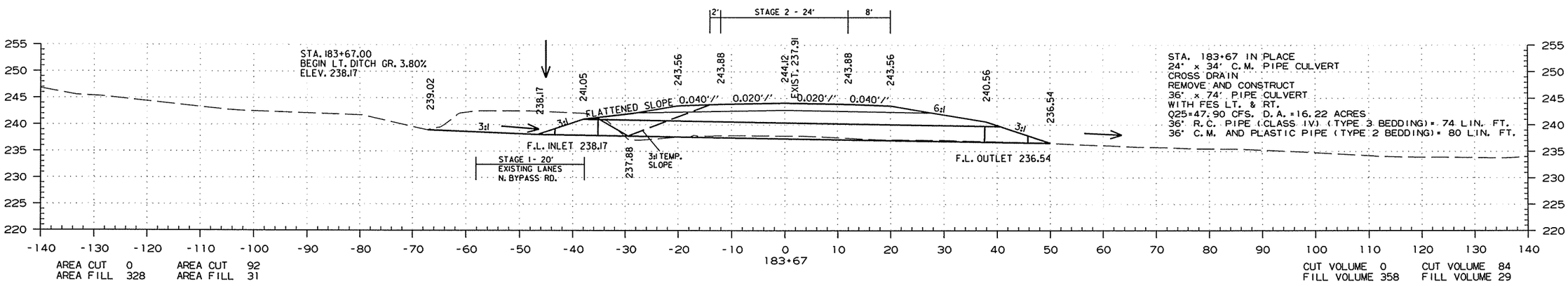
7/24/2015

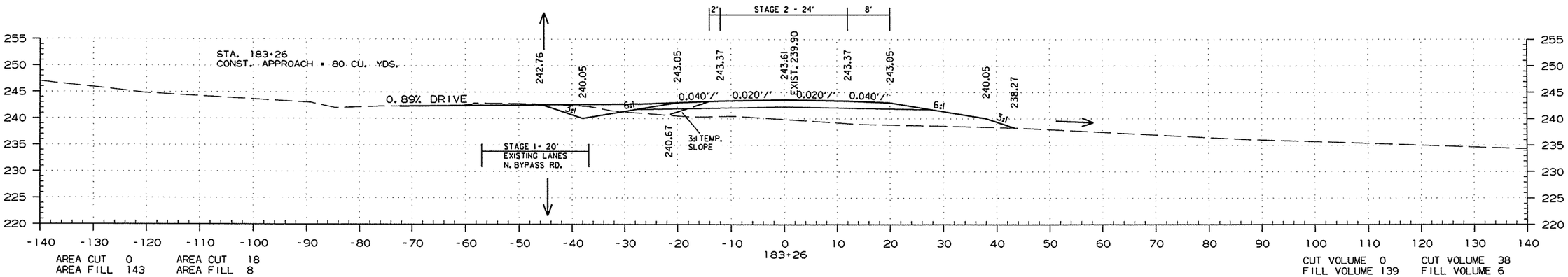
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	229	339

(2) CROSS SECTIONS







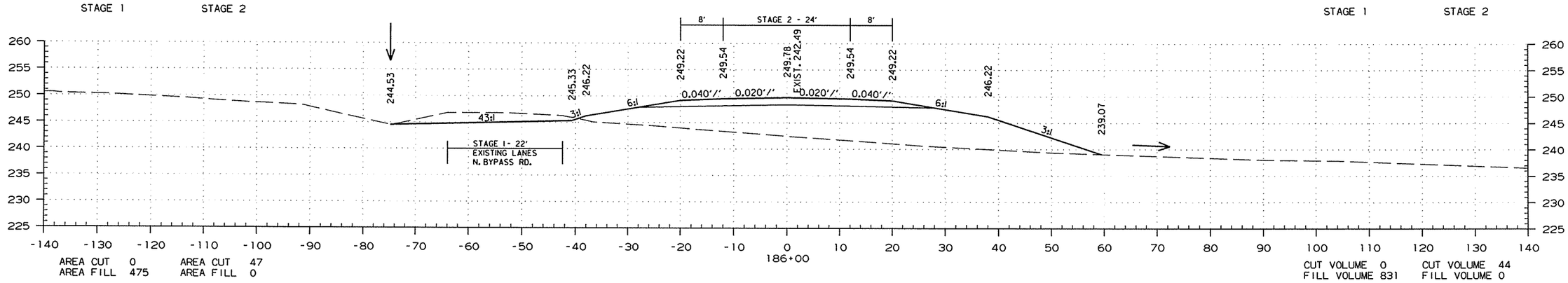
STA. 183+26.00 TO STA. 184+00.00

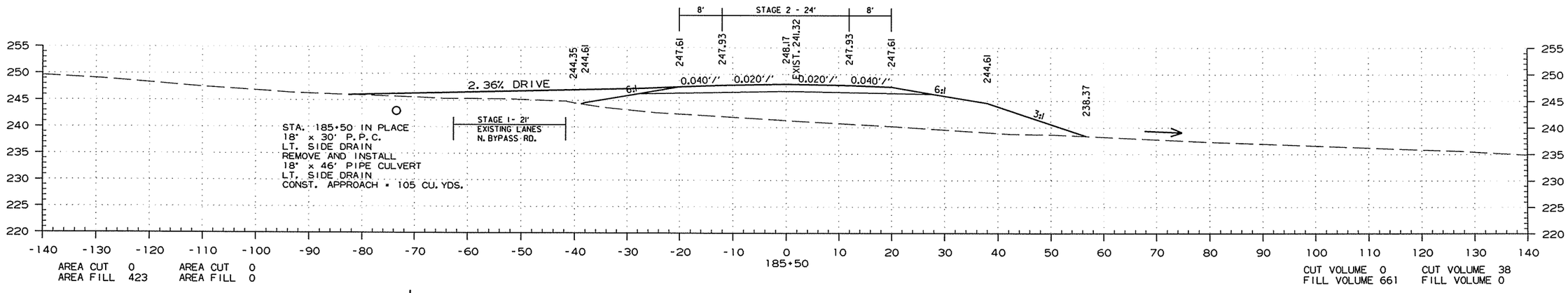
7/24/2015

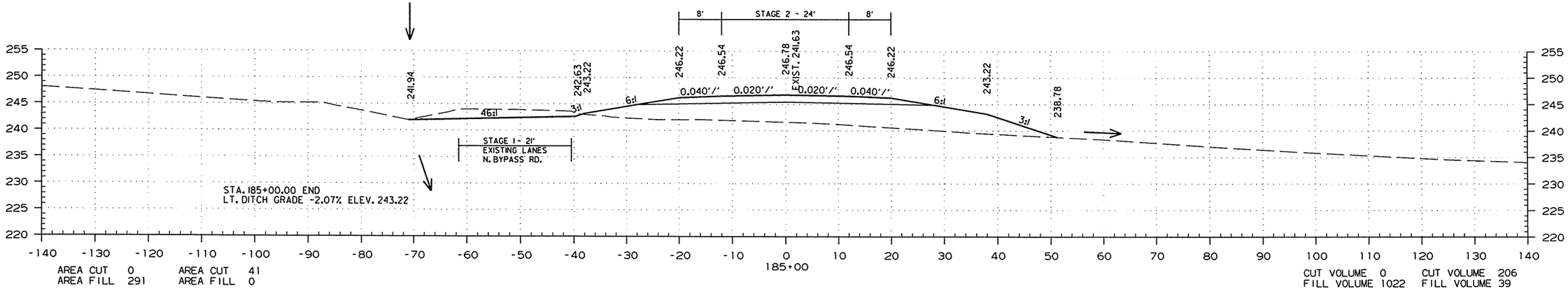
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	230	339

(2) CROSS SECTIONS







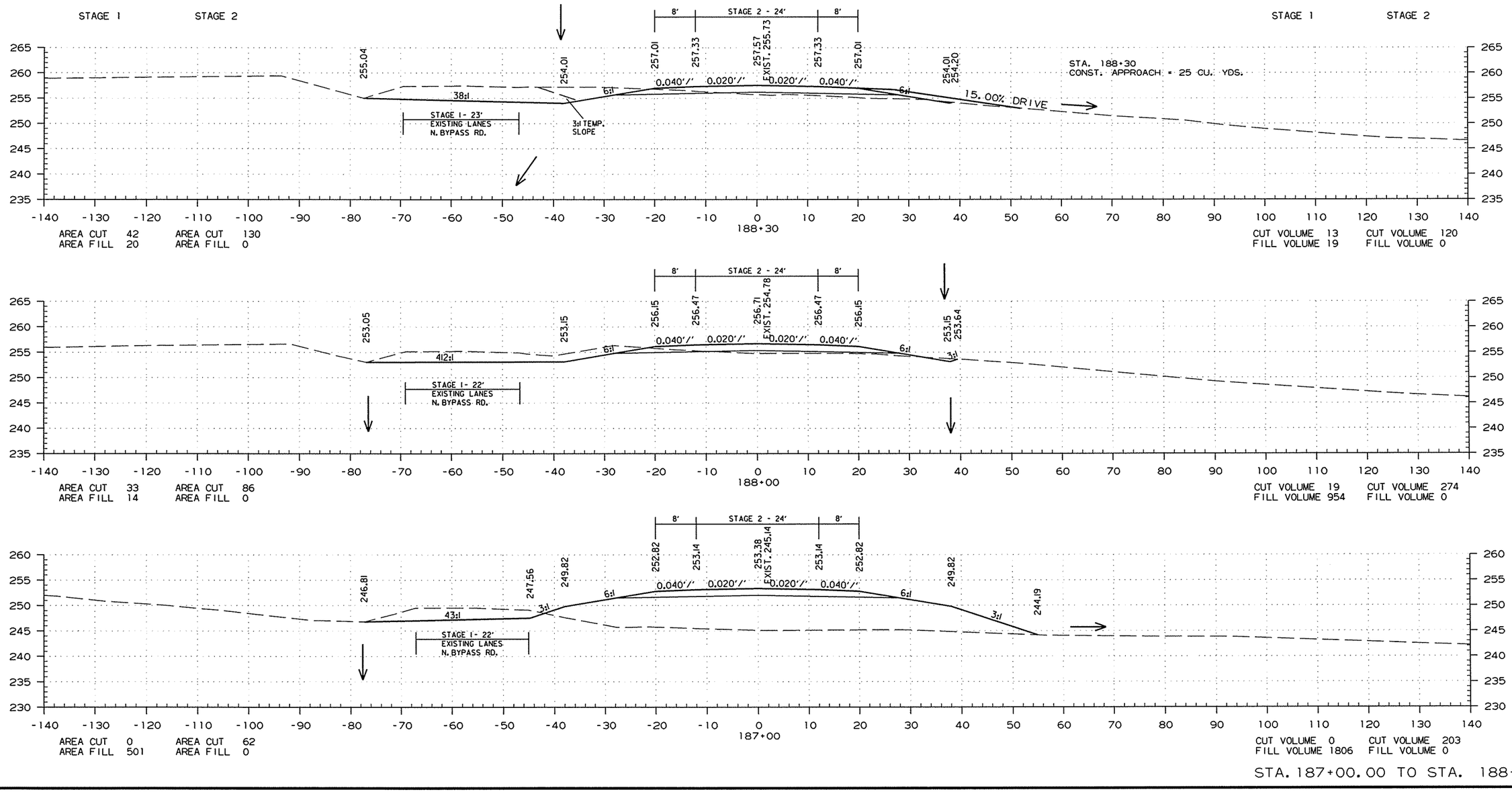
STA. 185+00.00 TO STA. 186+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	231	339

(2) CROSS SECTIONS



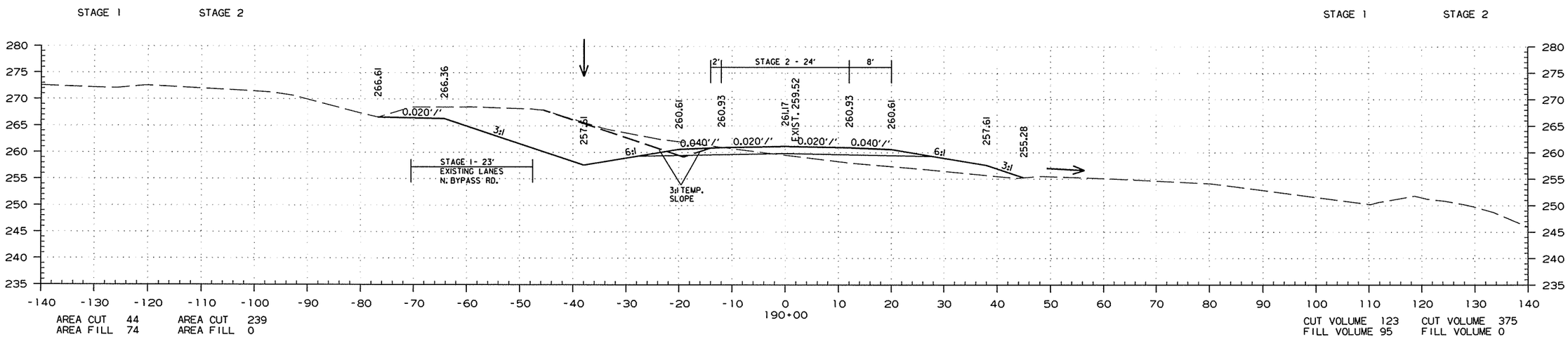
STA. 187+00.00 TO STA. 188+30.00

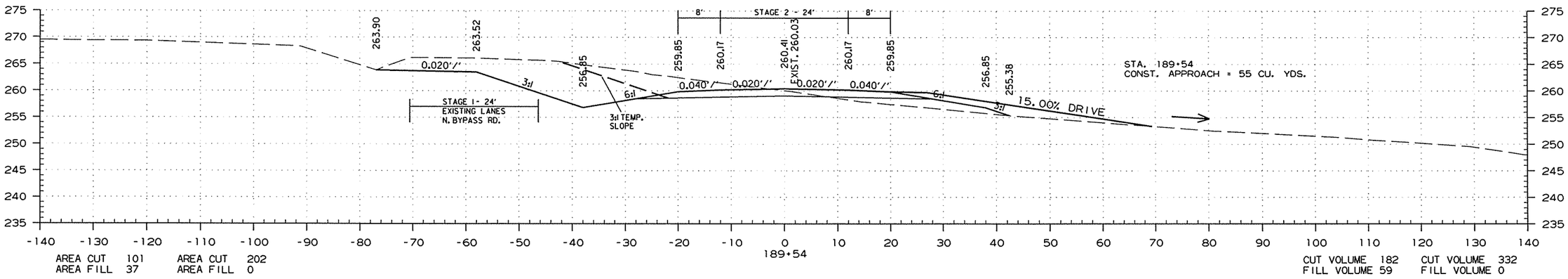
7/24/2015

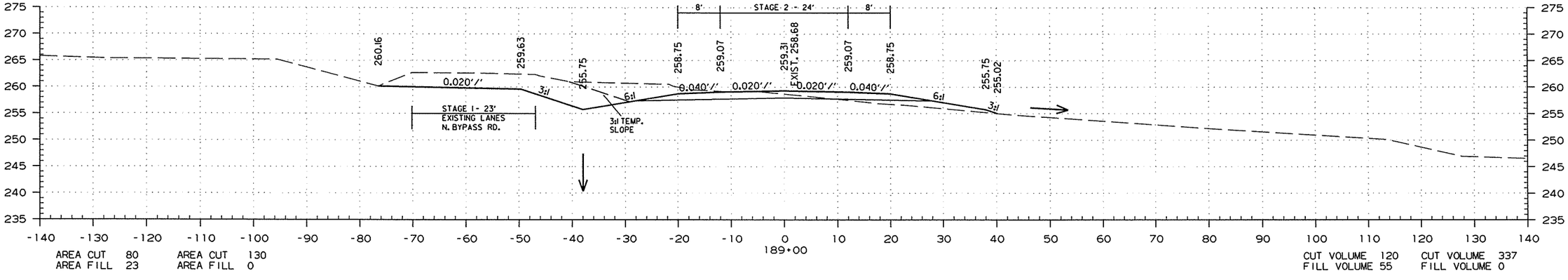
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	232	339

(2) CROSS SECTIONS







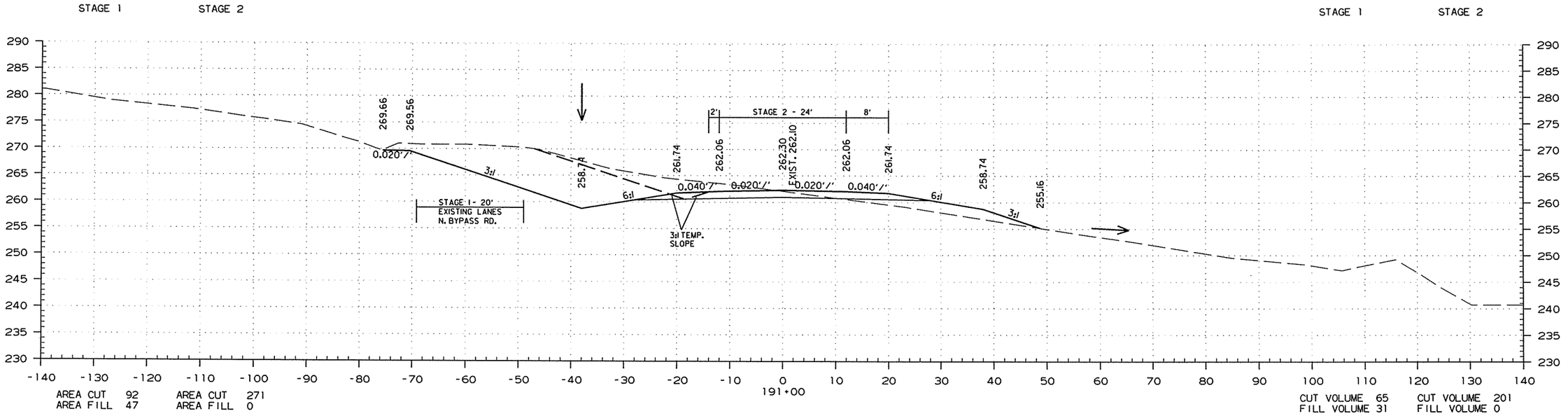
STA. 189+00.00 TO STA. 190+00.00

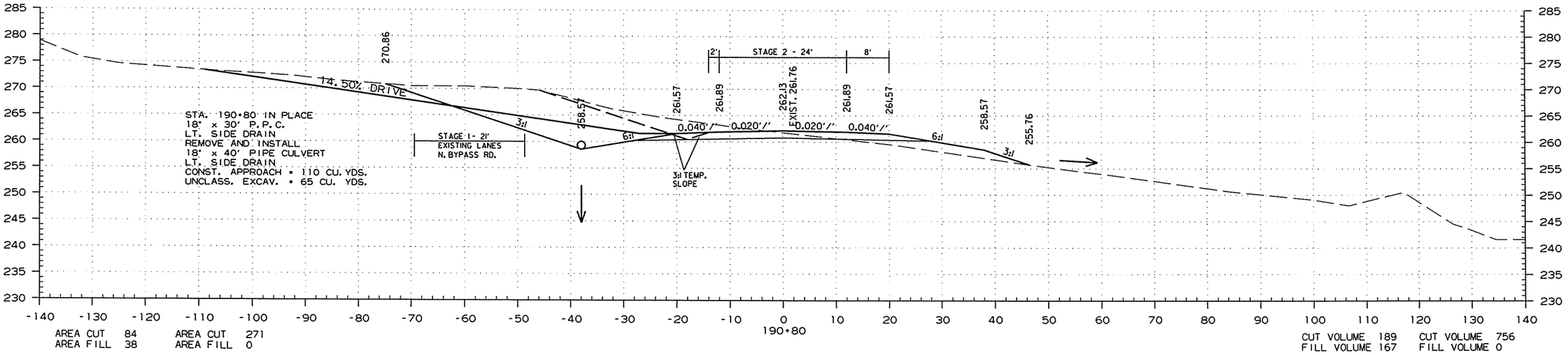
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	233	339

(2) CROSS SECTIONS





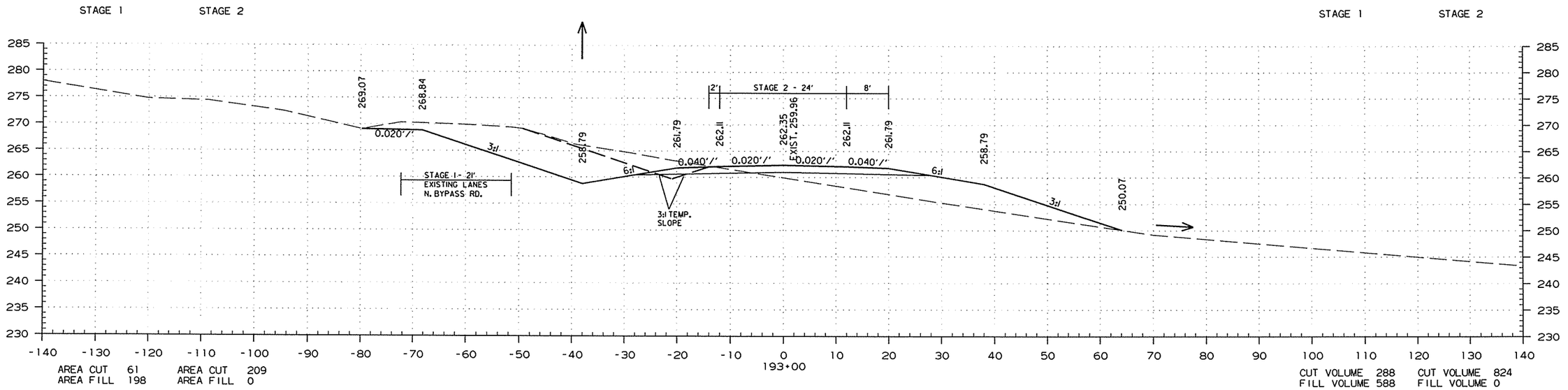
STA. 190+80.00 TO STA. 191+00.00

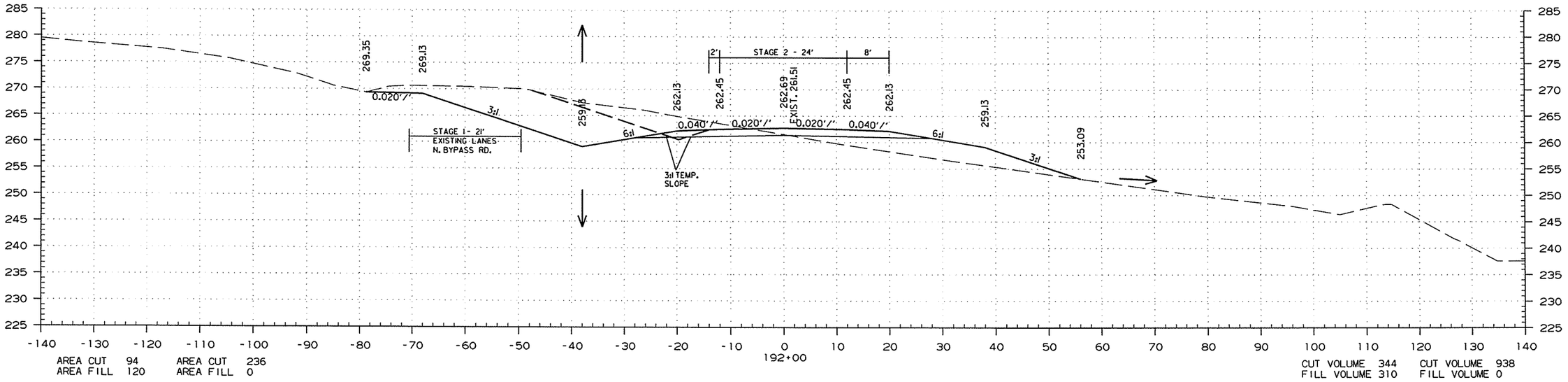
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	234	339

(2) CROSS SECTIONS





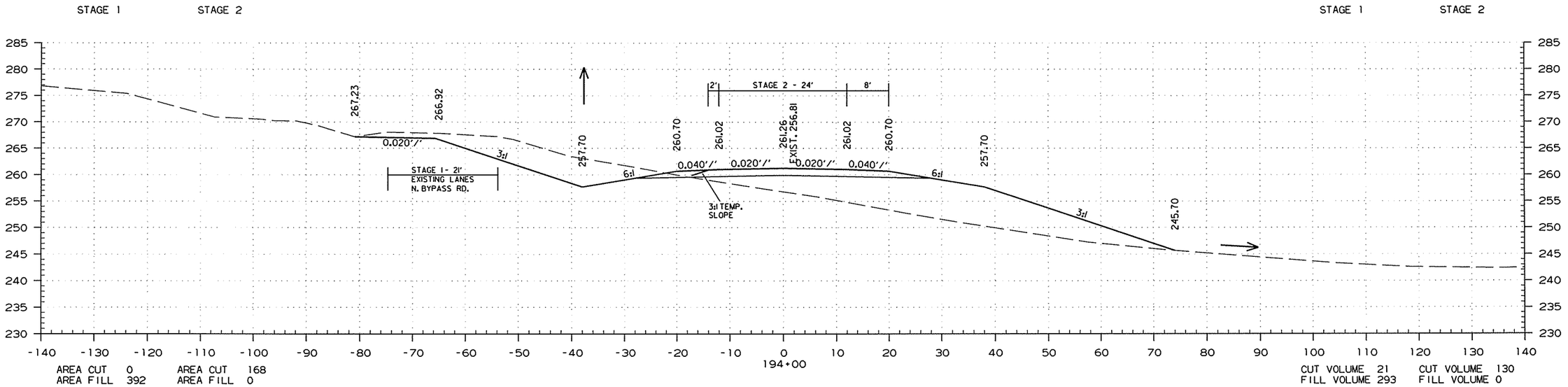
STA. 192+00.00 TO STA. 193+00.00

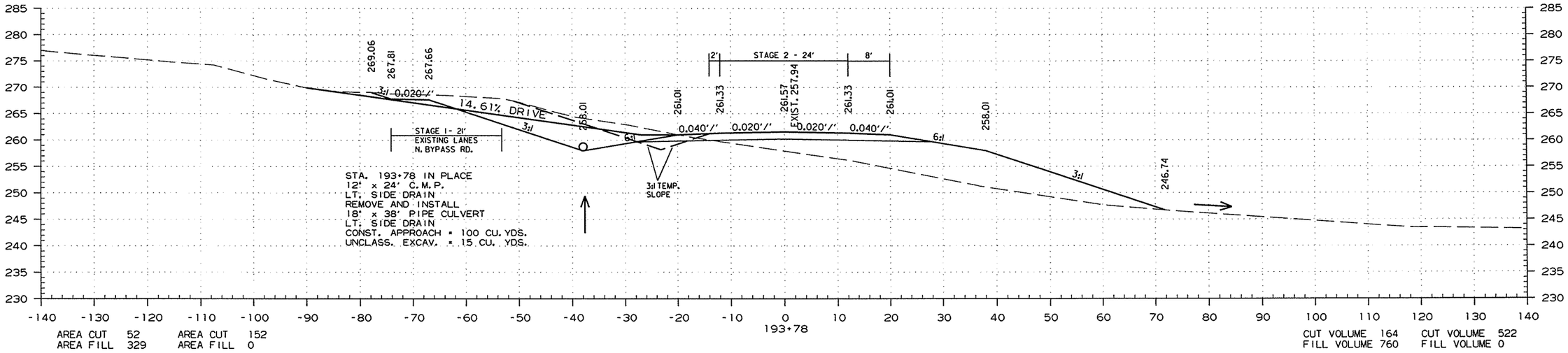
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AND PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	235	339

(2) CROSS SECTIONS





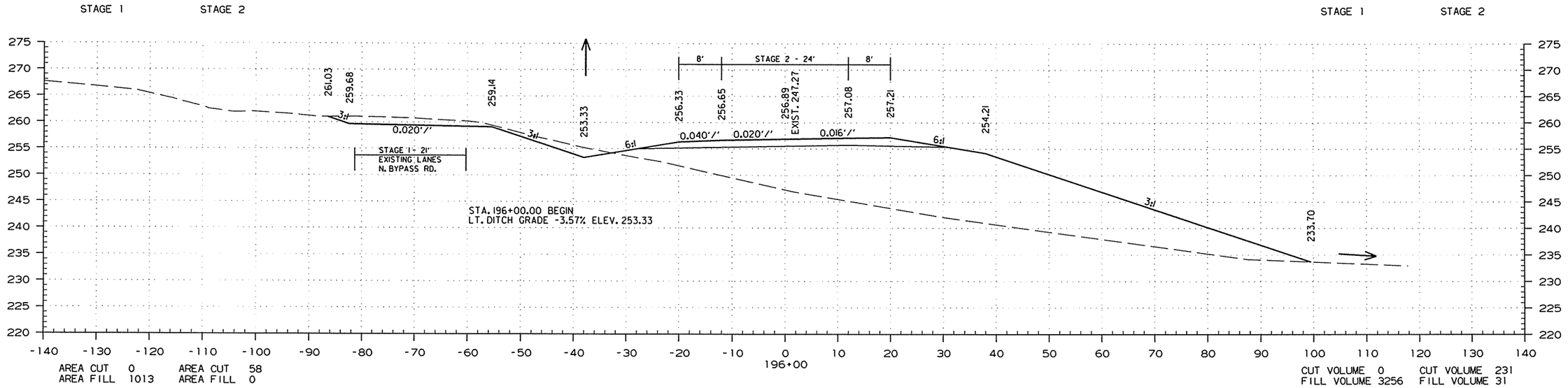
STA. 193+78.00 TO STA. 194+00.00

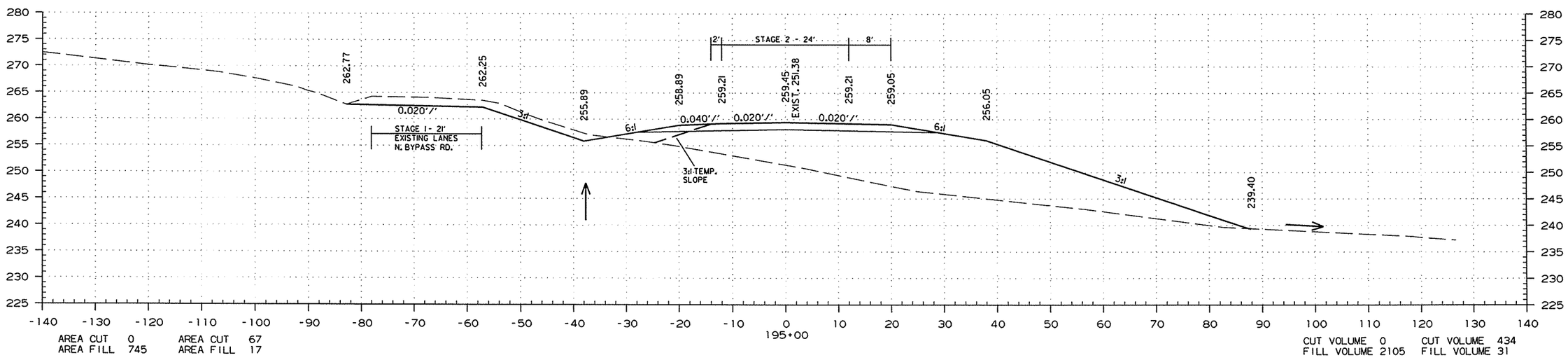
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	236	339

(2) CROSS SECTIONS





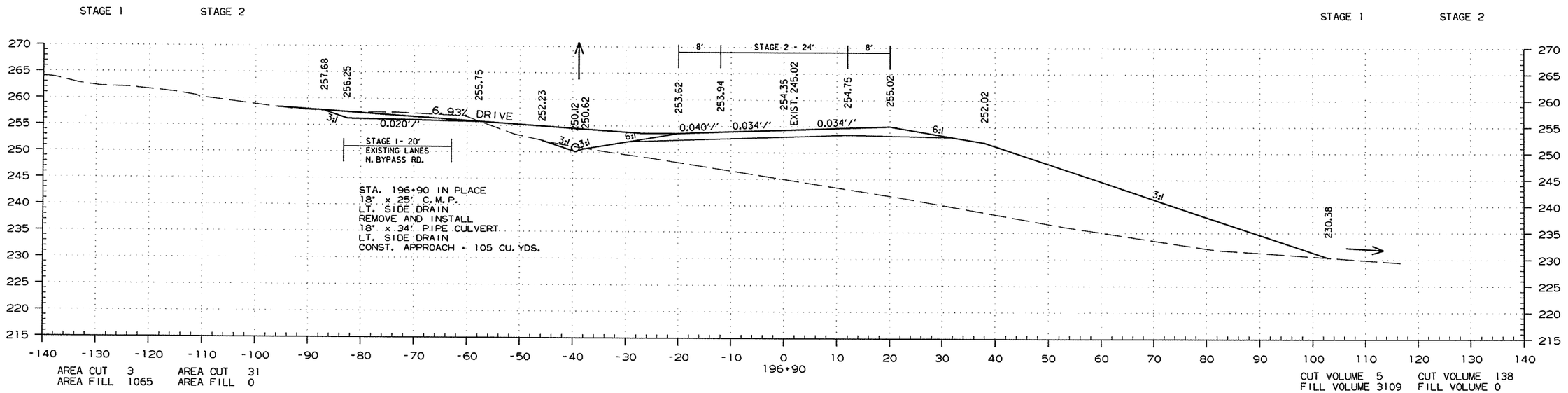
STA. 195+00.00 TO STA. 196+00.00

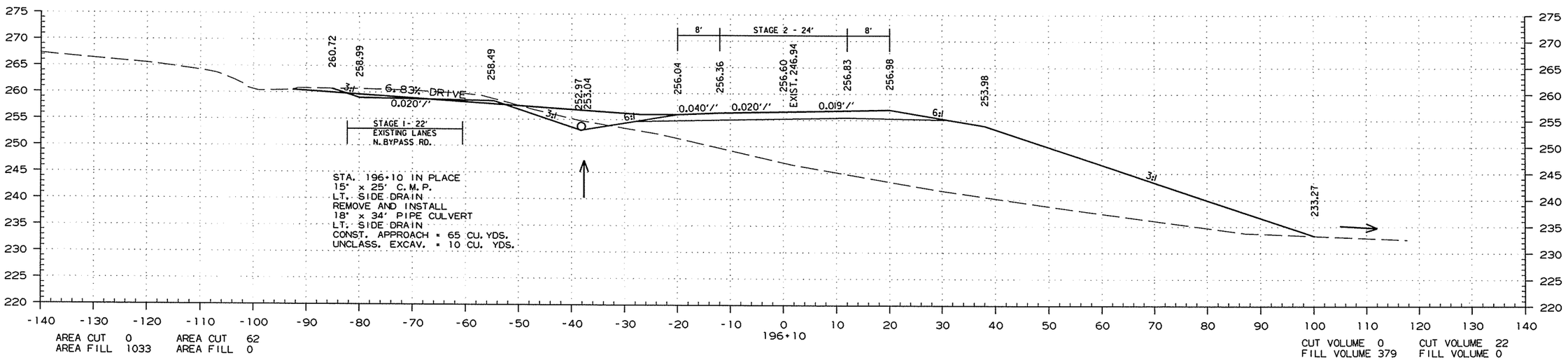
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	237	339

(2) CROSS SECTIONS





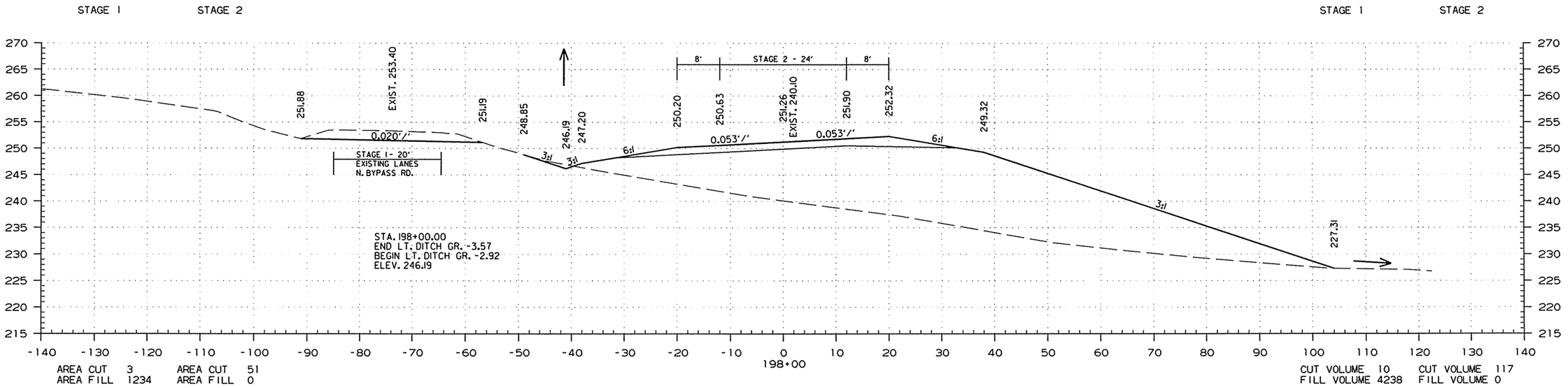
STA. 196+10.00 TO STA. 196+90.00

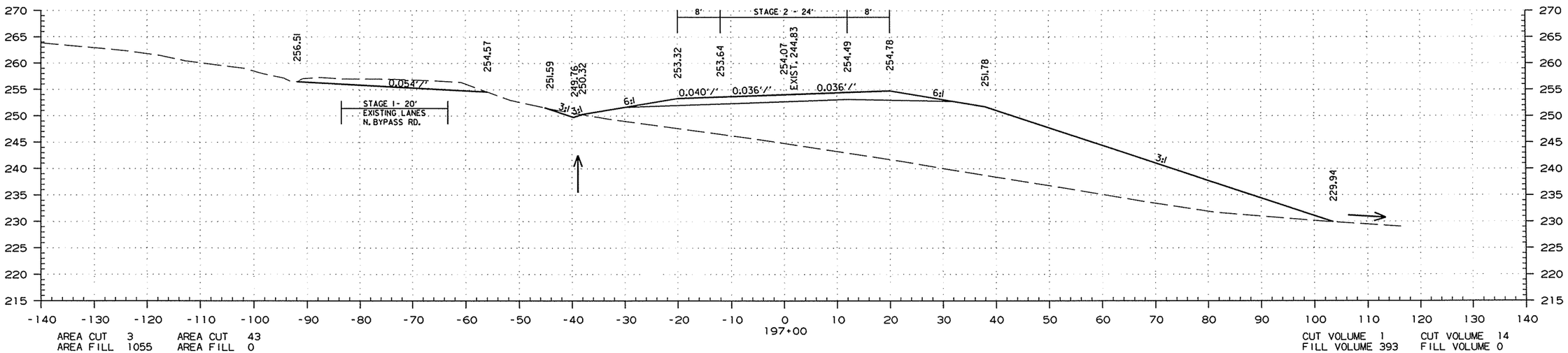
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	238	339

(2) CROSS SECTIONS





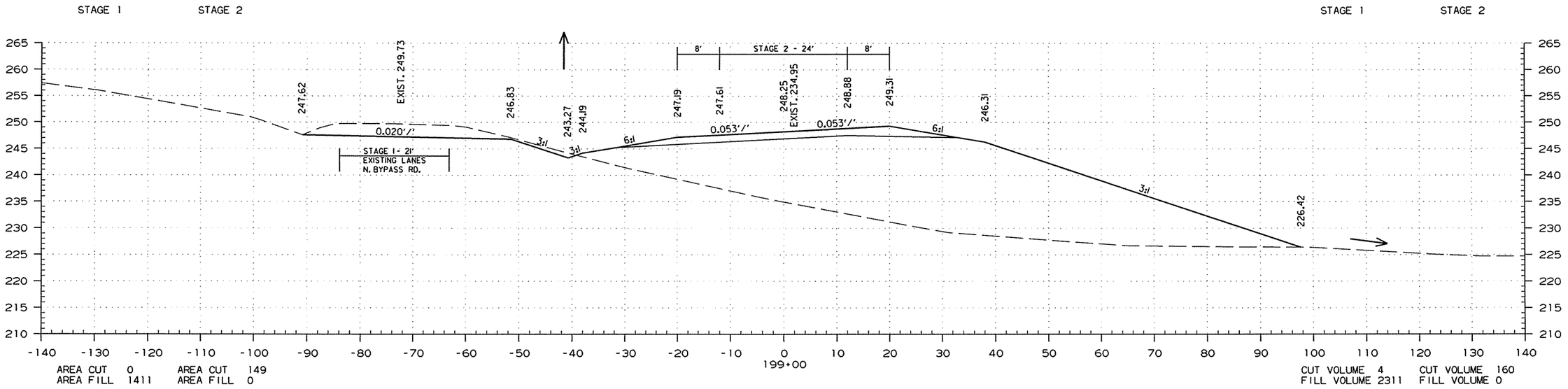
STA. 197+00.00 TO STA. 198+00.00

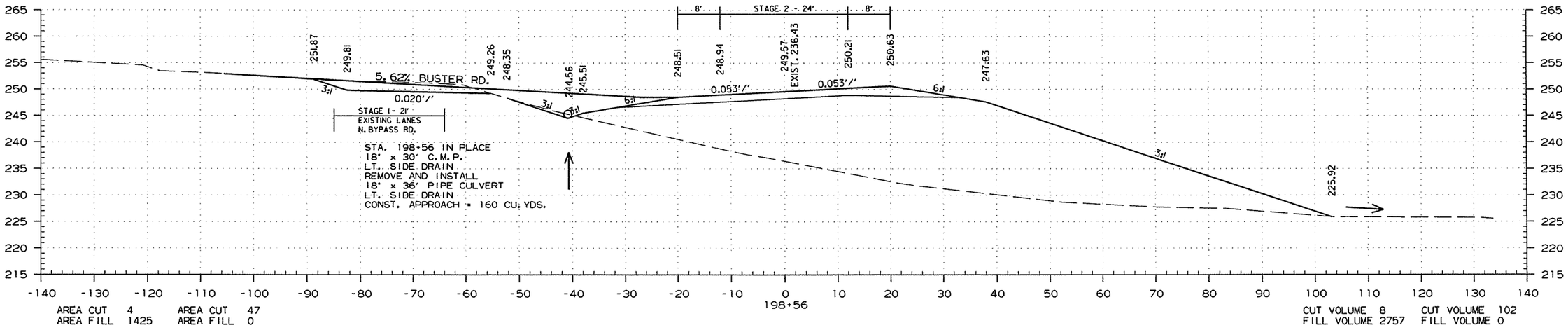
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	239	339

(2) CROSS SECTIONS





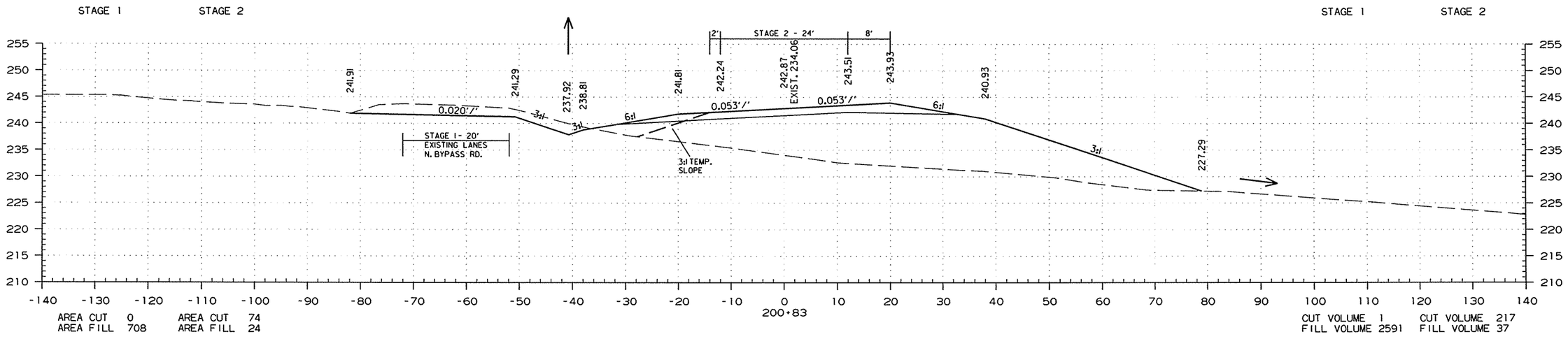
STA. 198+56.00 TO STA. 199+00.00

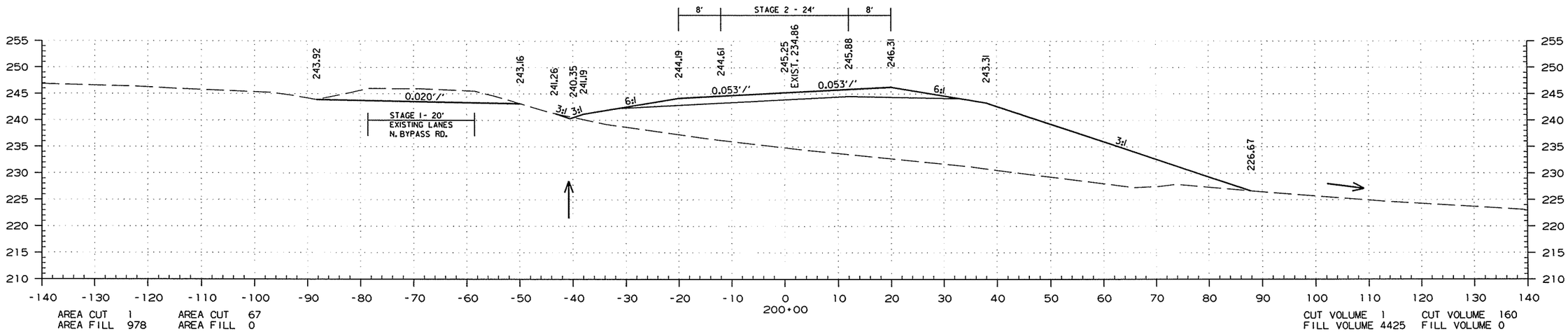
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	240	339

(2) CROSS SECTIONS





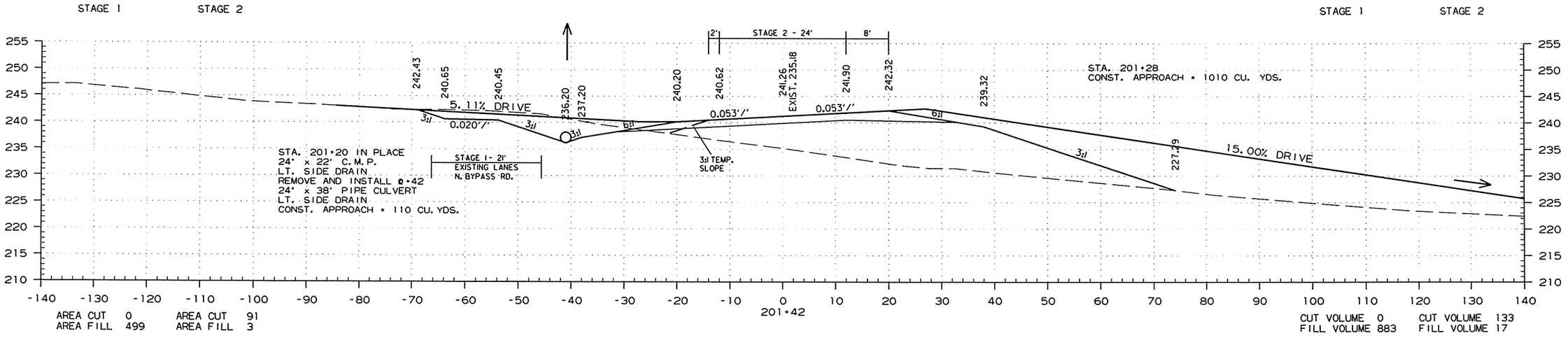
STA. 200+00.00 TO STA. 200+83.00

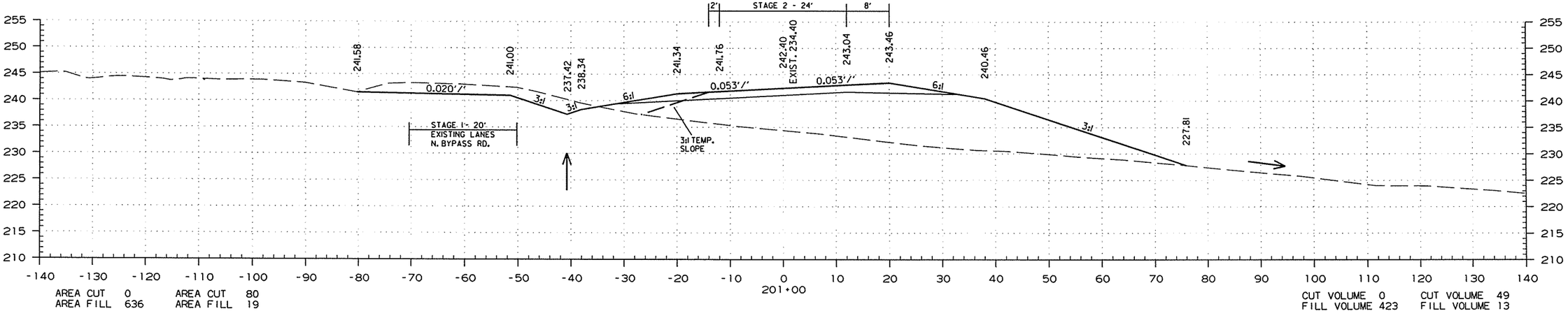
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	241	339

(2) CROSS SECTIONS





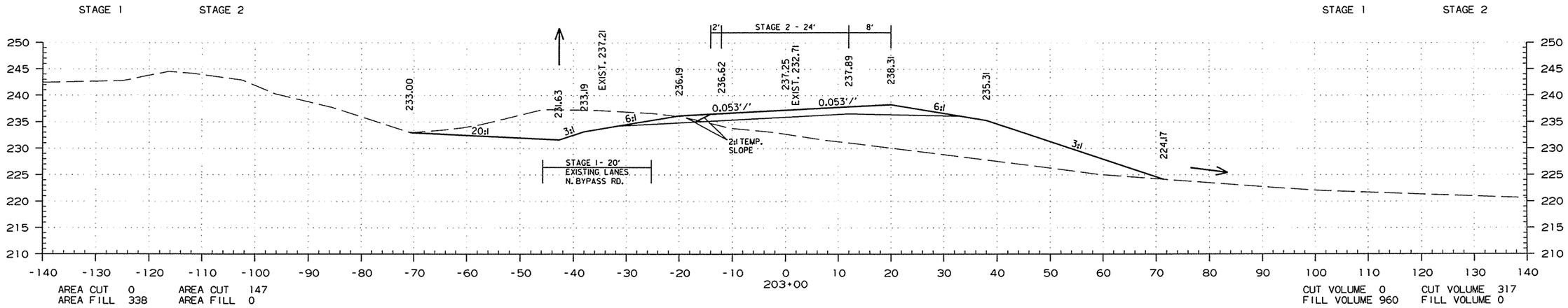
STA. 201+00.00 TO STA. 201+42.00

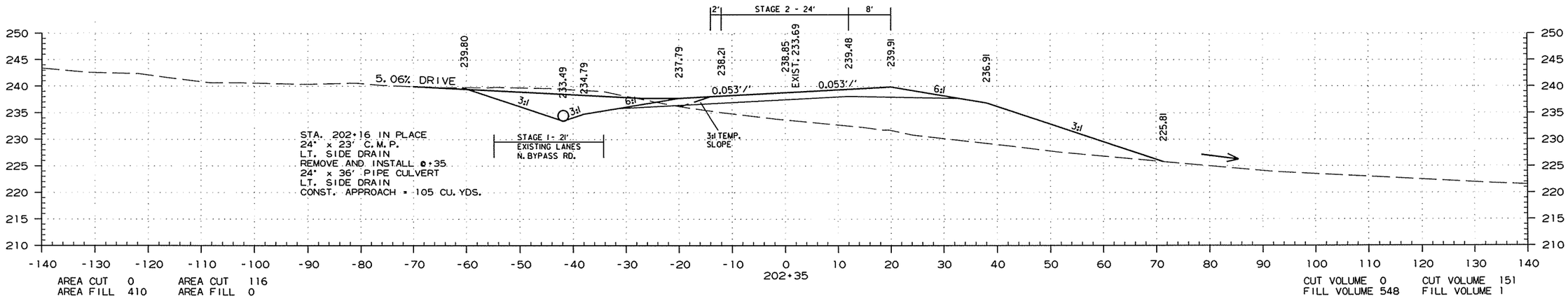
7/24/2015

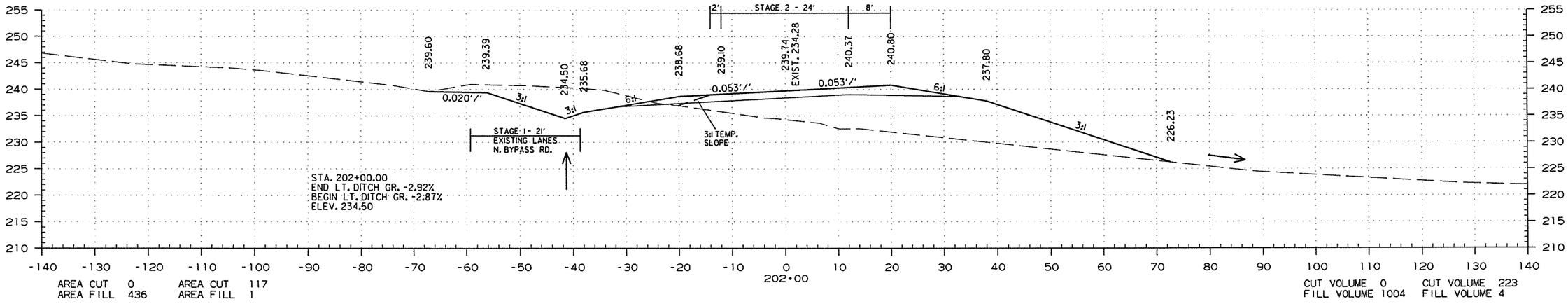
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	242	339

(2) CROSS SECTIONS







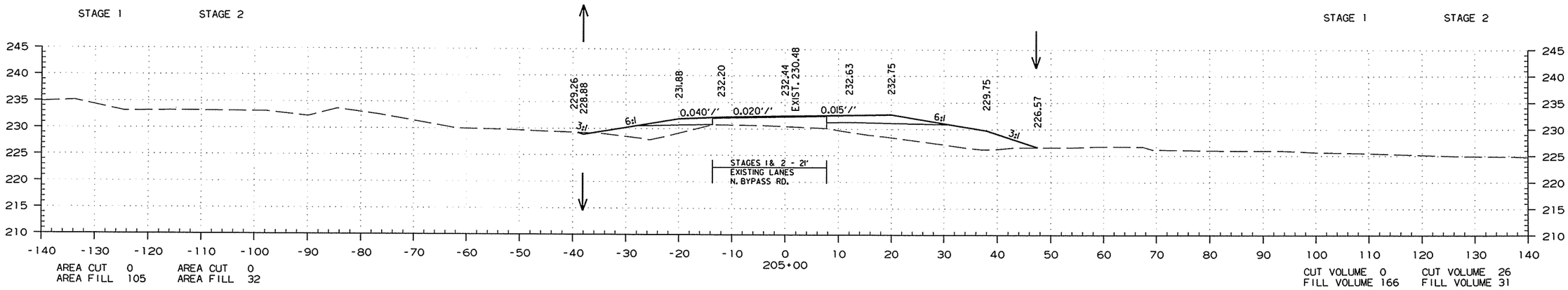
STA. 202+00.00 TO STA. 203+00.00

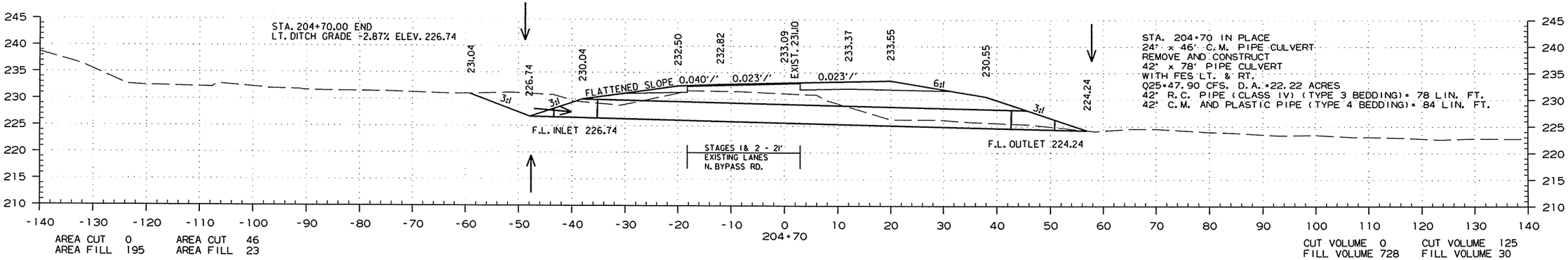
7/24/2015

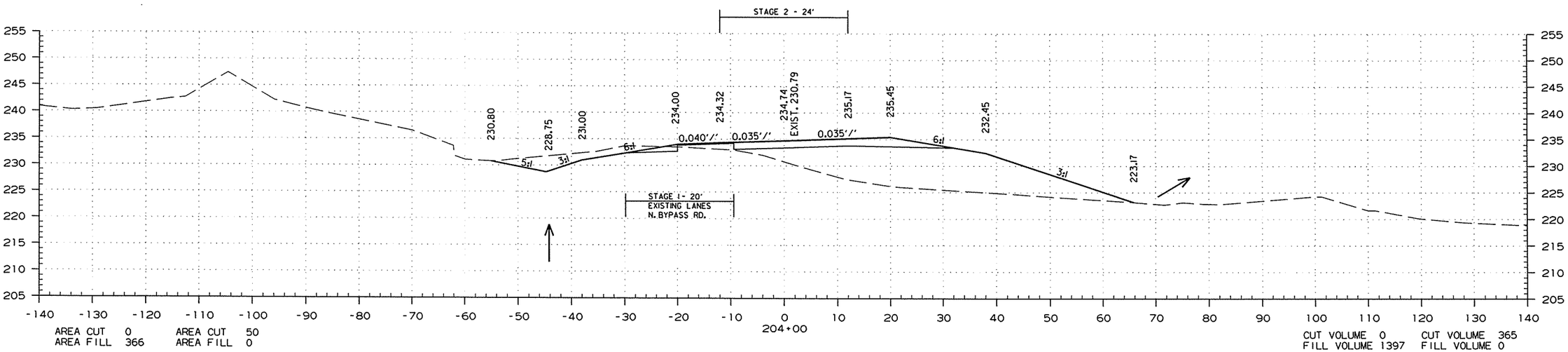
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	243	339

(2) CROSS SECTIONS







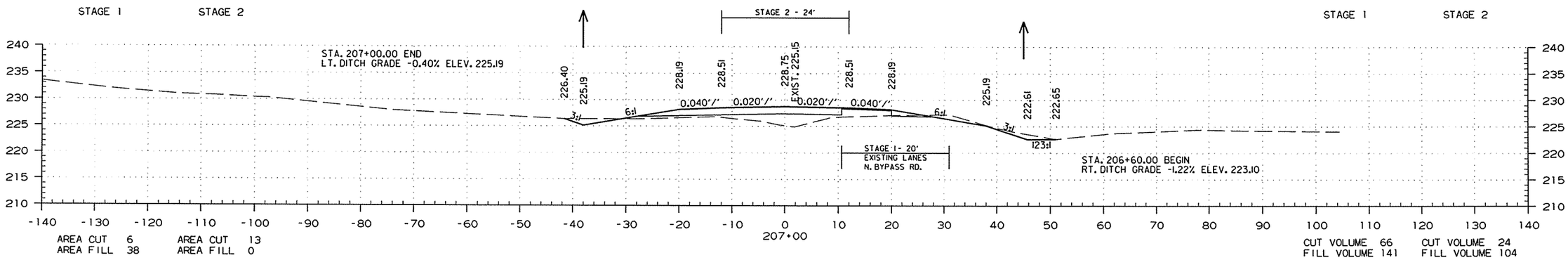
STA. 204+00.00 TO STA. 205+00.00

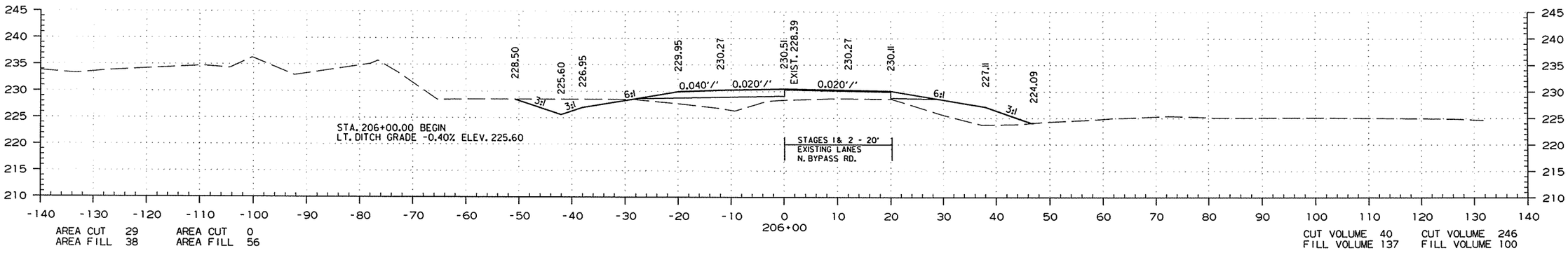
7/24/2015

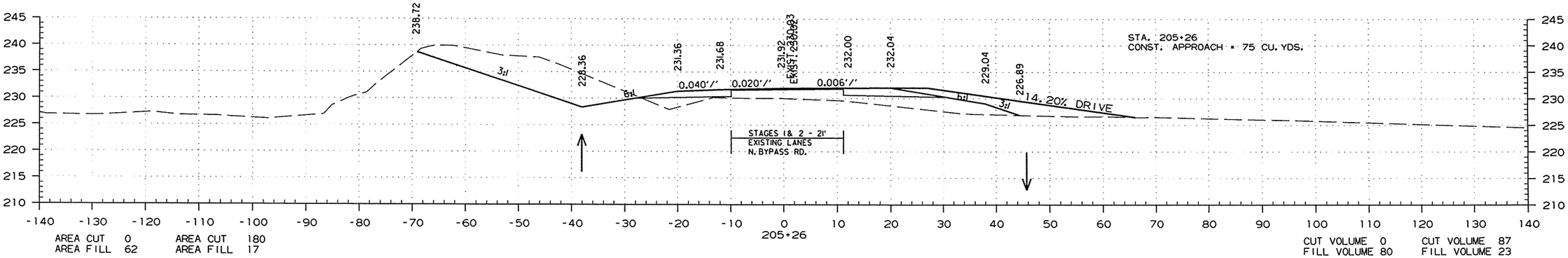
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	244	339

(2) CROSS SECTIONS







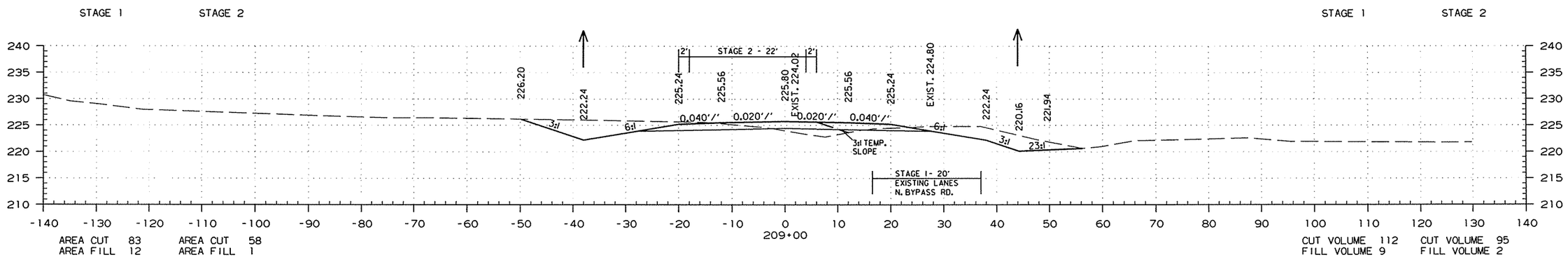
STA. 205+26.00 TO STA. 207+00.00

7/24/2015

R050251.DGN

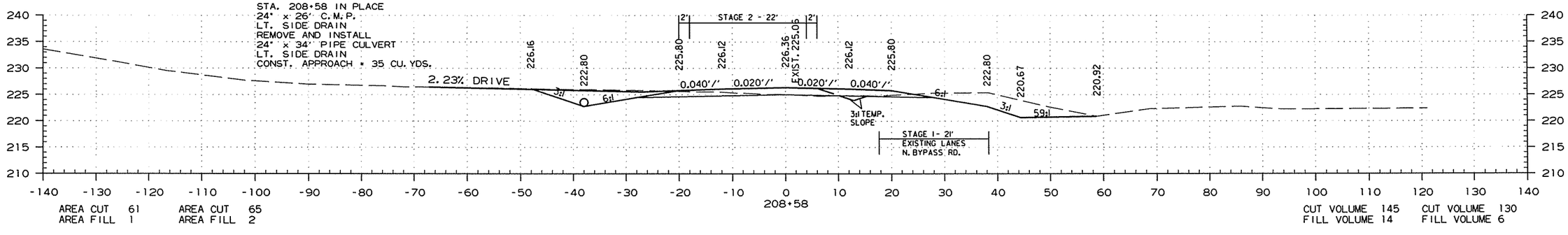
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	245	339

(2) CROSS SECTIONS



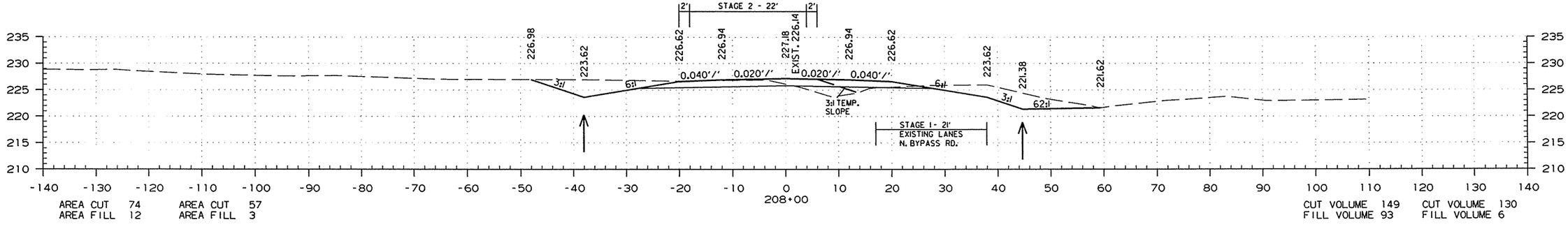
AREA CUT 83 AREA CUT 58
AREA FILL 12 AREA FILL 1

CUT VOLUME 112 CUT VOLUME 95
FILL VOLUME 9 FILL VOLUME 2



AREA CUT 61 AREA CUT 65
AREA FILL 1 AREA FILL 2

CUT VOLUME 145 CUT VOLUME 130
FILL VOLUME 14 FILL VOLUME 6



AREA CUT 74 AREA CUT 57
AREA FILL 12 AREA FILL 3

CUT VOLUME 149 CUT VOLUME 130
FILL VOLUME 93 FILL VOLUME 6

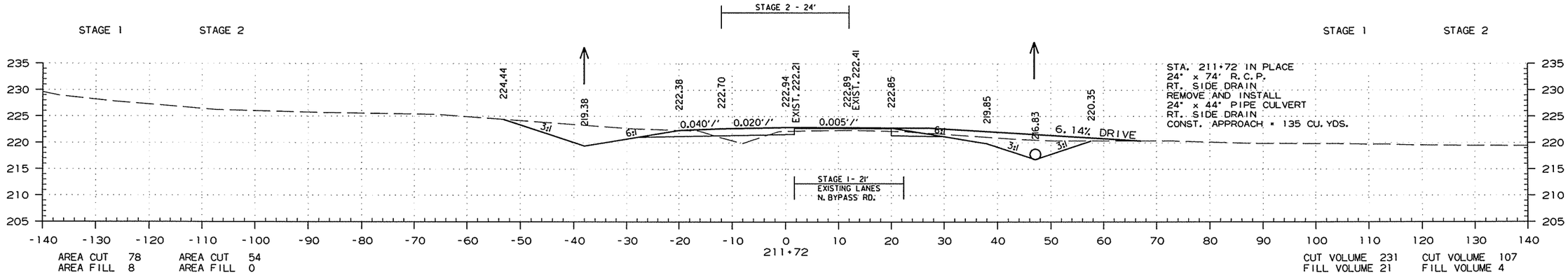
STA. 208+00.00 TO STA. 209+00.00

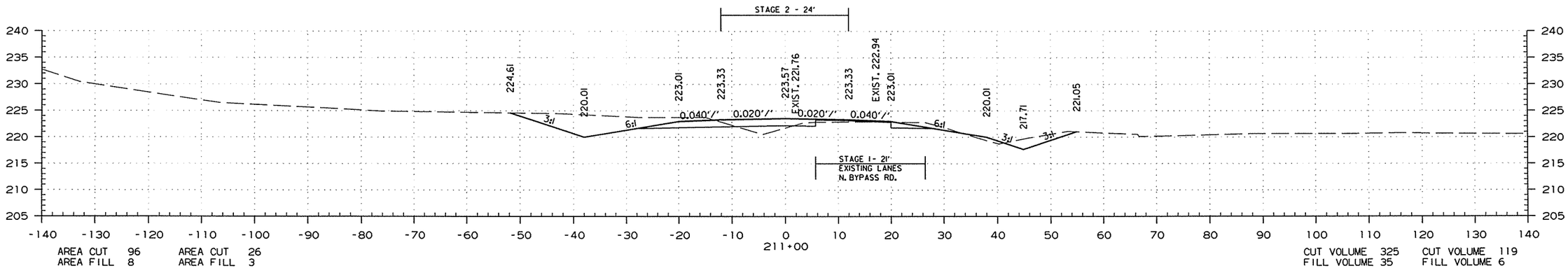
7/24/2015

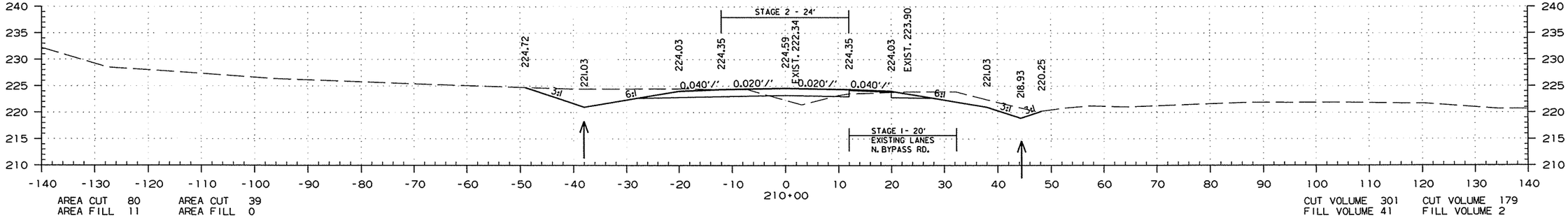
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	246	339

(2) CROSS SECTIONS







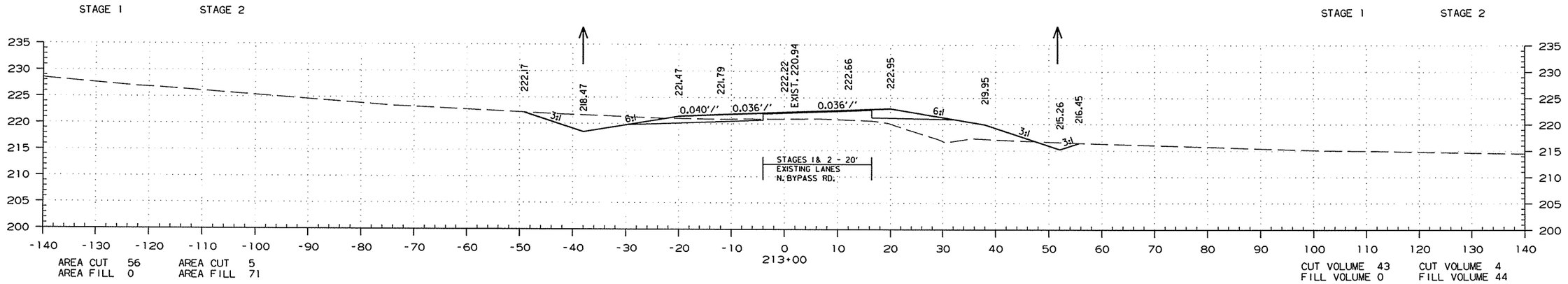
STA. 210+00.00 TO STA. 211+72.00

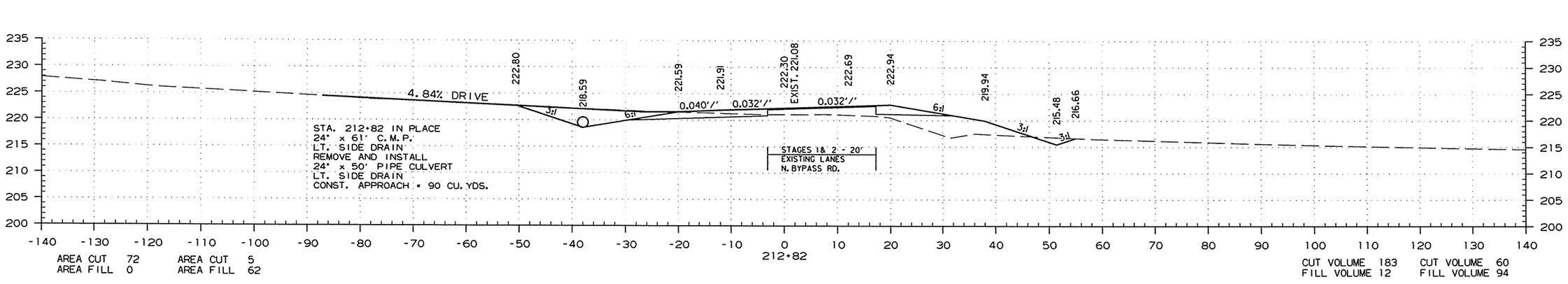
7/24/2015

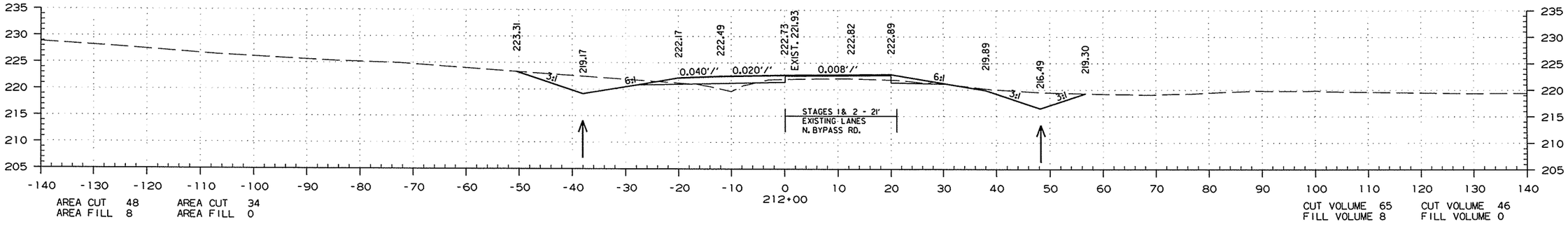
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	247	339

(2) CROSS SECTIONS







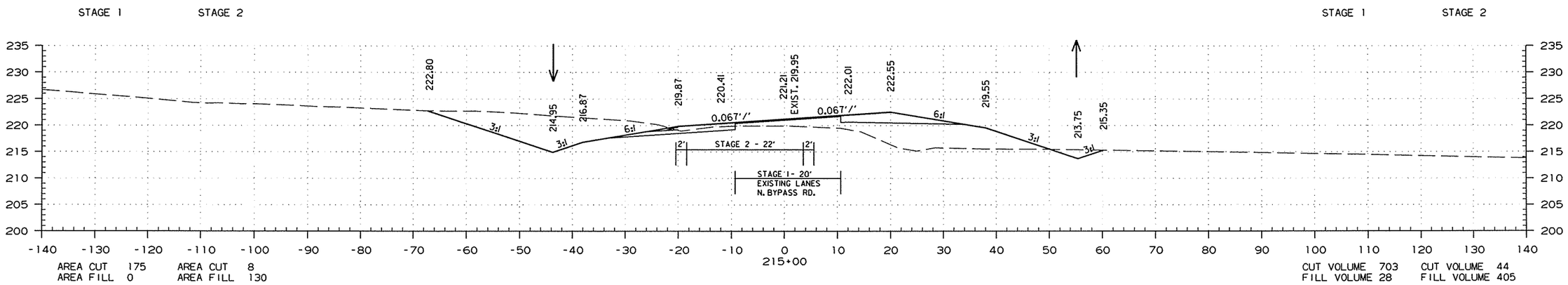
STA. 212+00.00 TO STA. 213+00.00

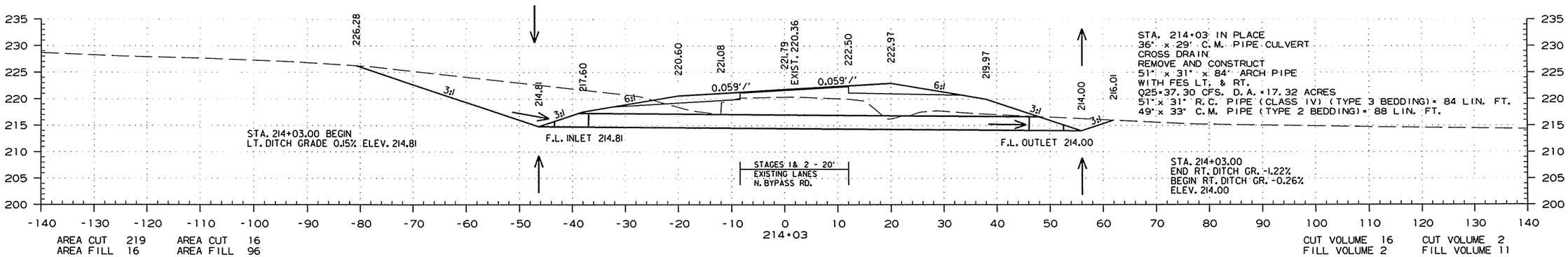
7/24/2015

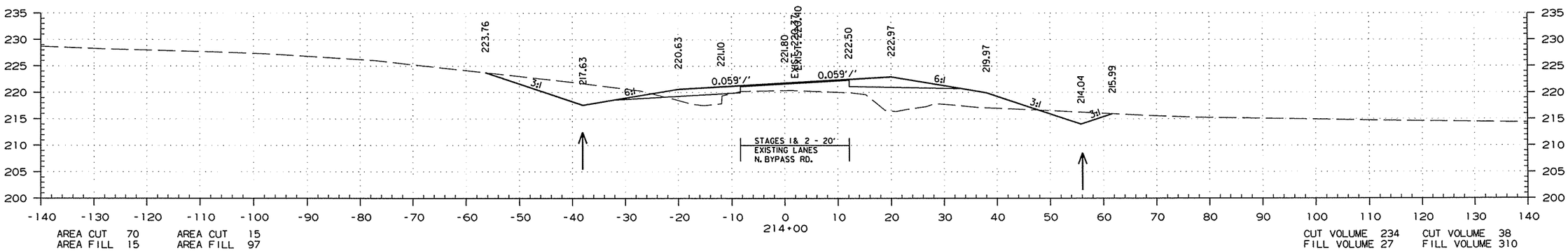
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	248	339

(2) CROSS SECTIONS







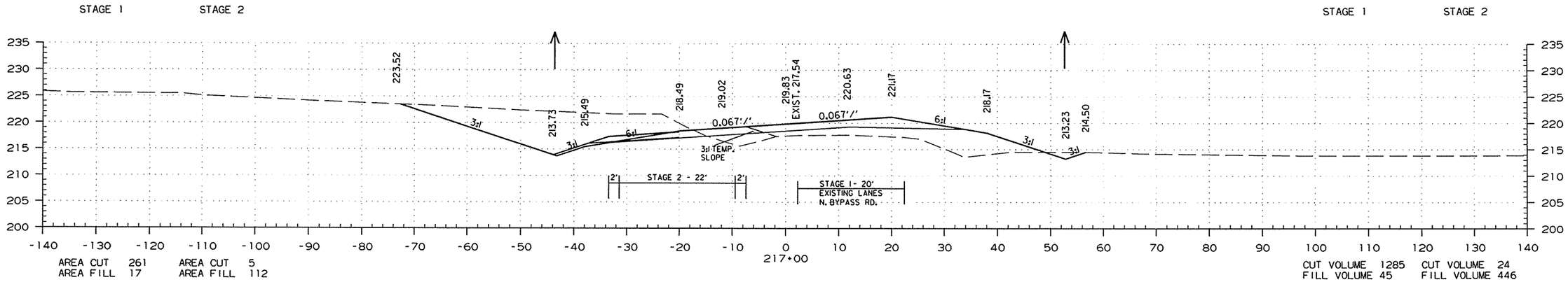
STA. 214+00.00 TO STA. 215+00.00

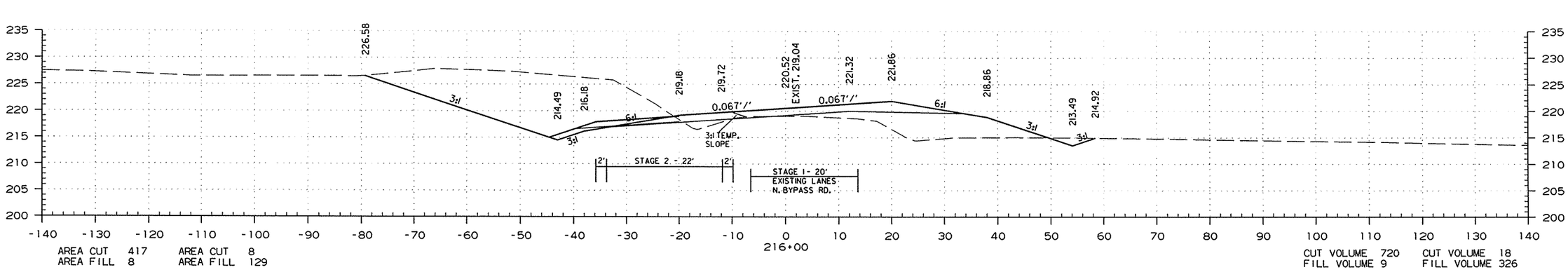
7/24/2015

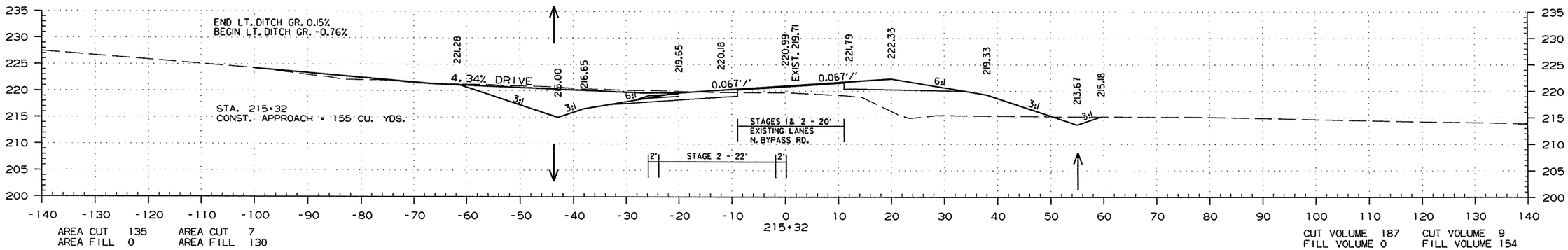
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	249	339

(2) CROSS SECTIONS







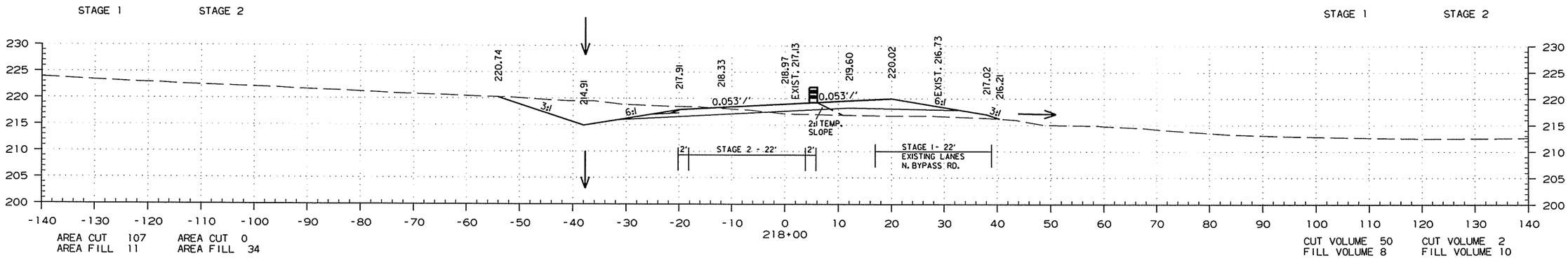
STA. 215+32.00 TO STA. 217+00.00

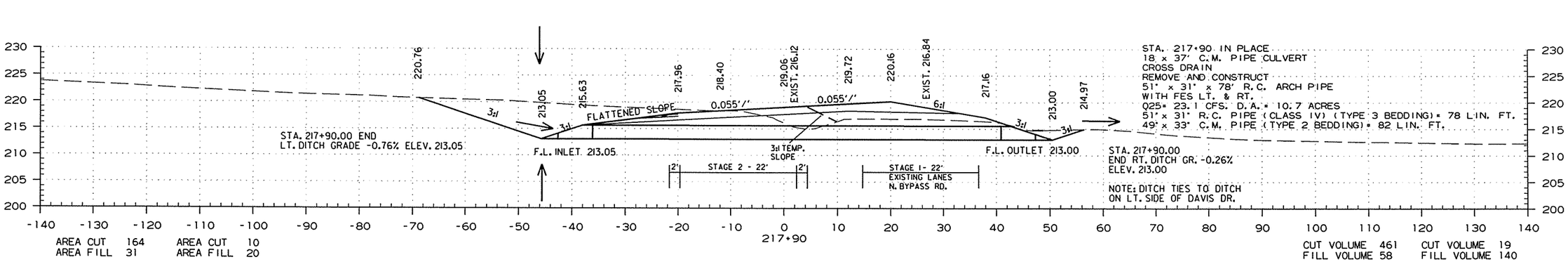
7/24/2015

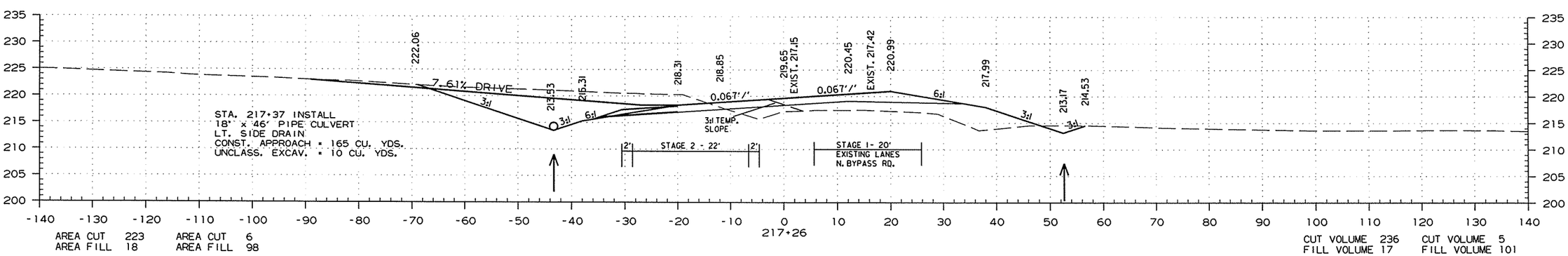
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	250	339

(2) CROSS SECTIONS







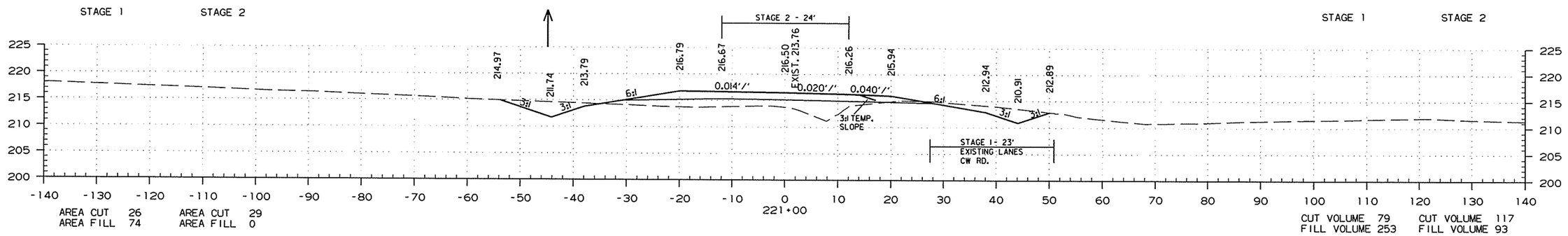
STA. 217+26.00 TO STA. 218+00.00

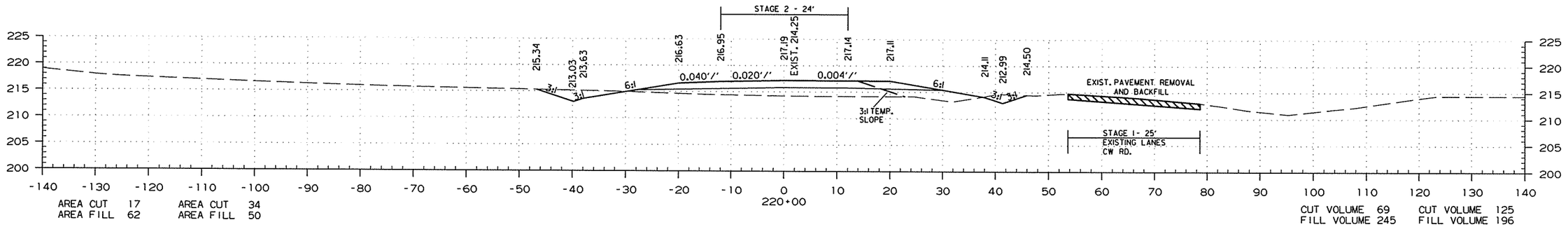
7/24/2015

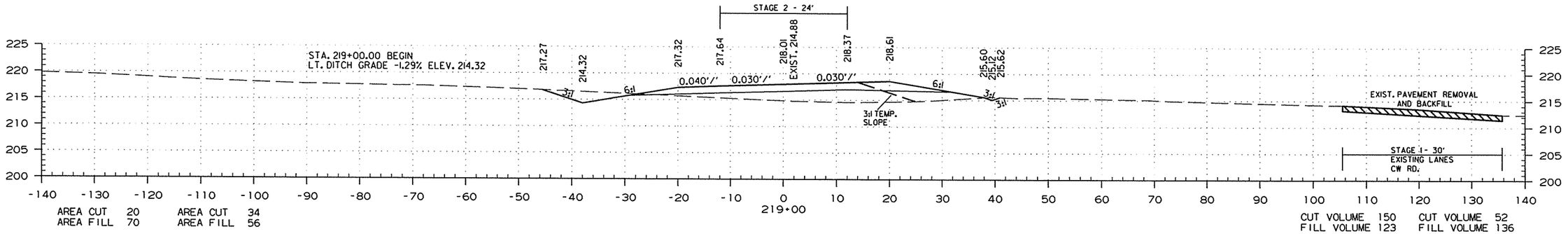
R050251.DGN

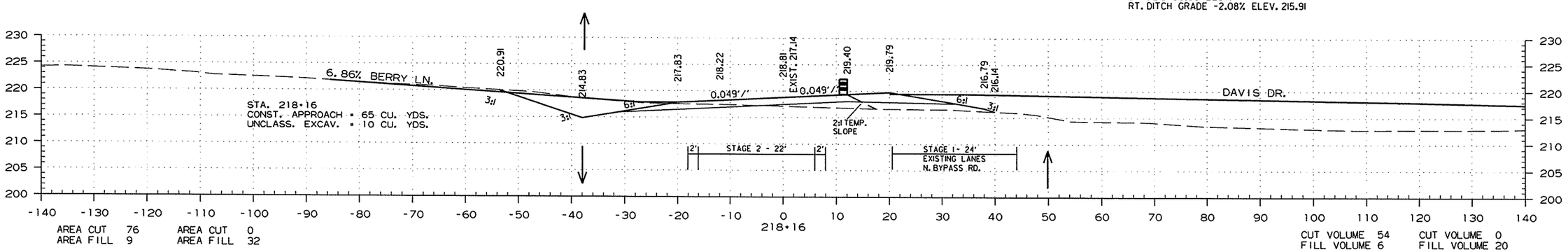
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	251	339

(2) CROSS SECTIONS









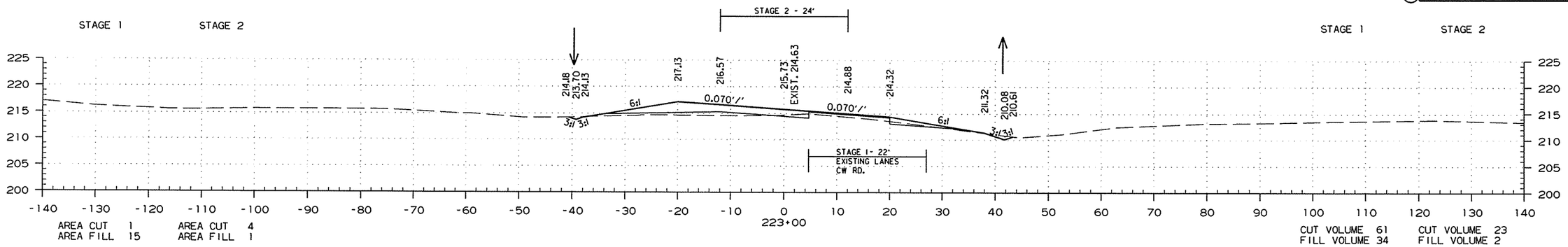
STA. 218+16.00 TO STA. 221+00.00

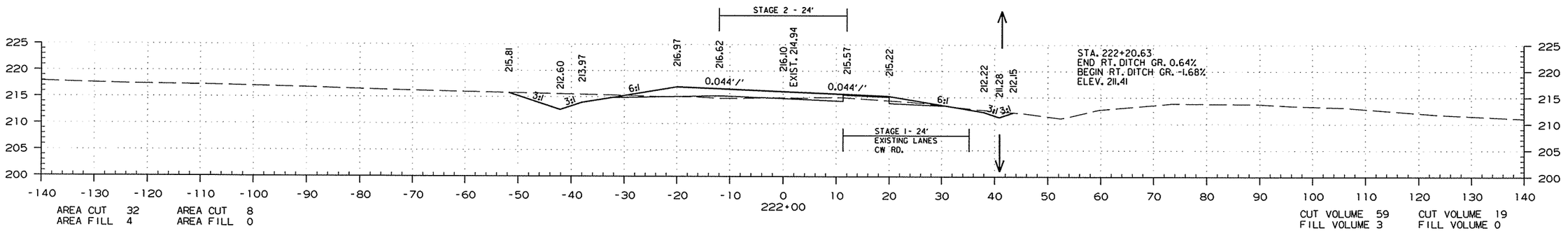
7/24/2015

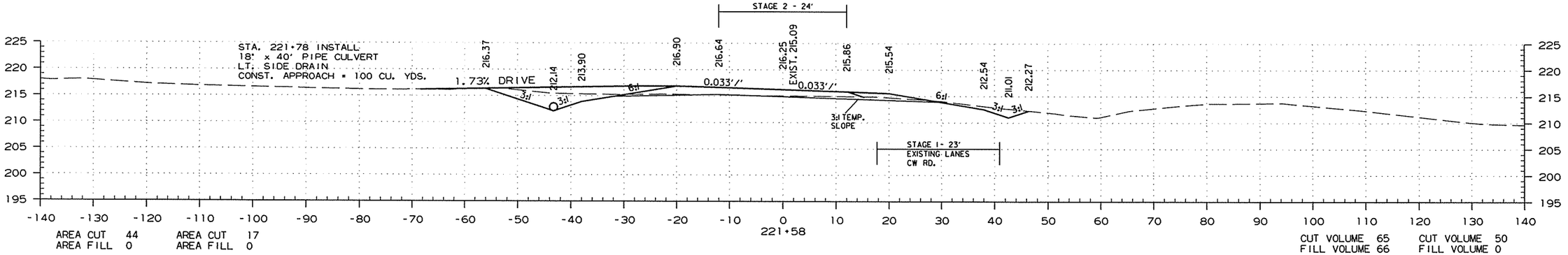
R050251.DGN

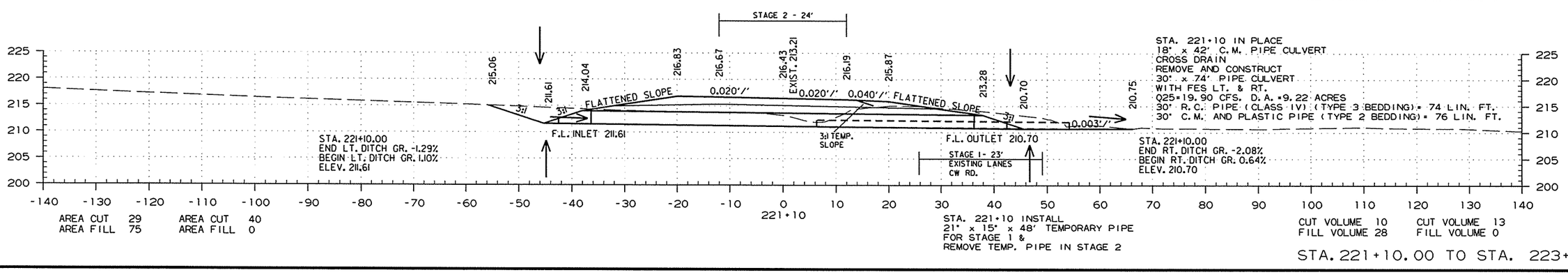
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	252	339

(2) CROSS SECTIONS









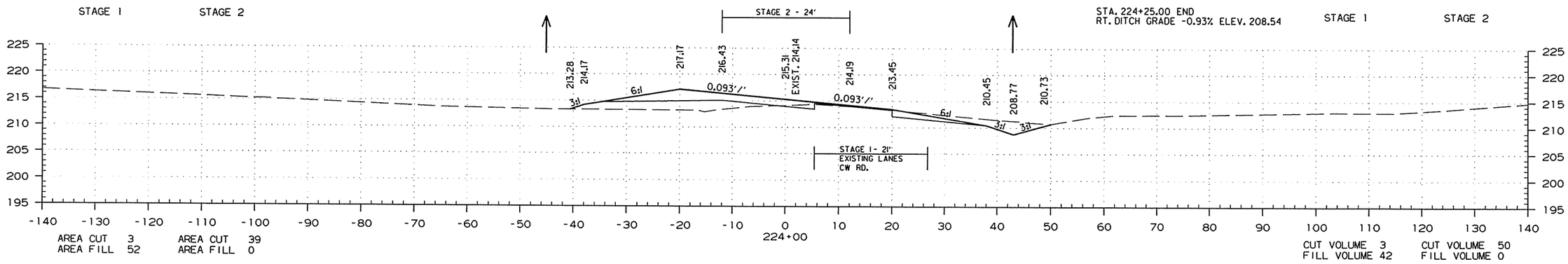
STA. 221+10.00 TO STA. 223+00.00

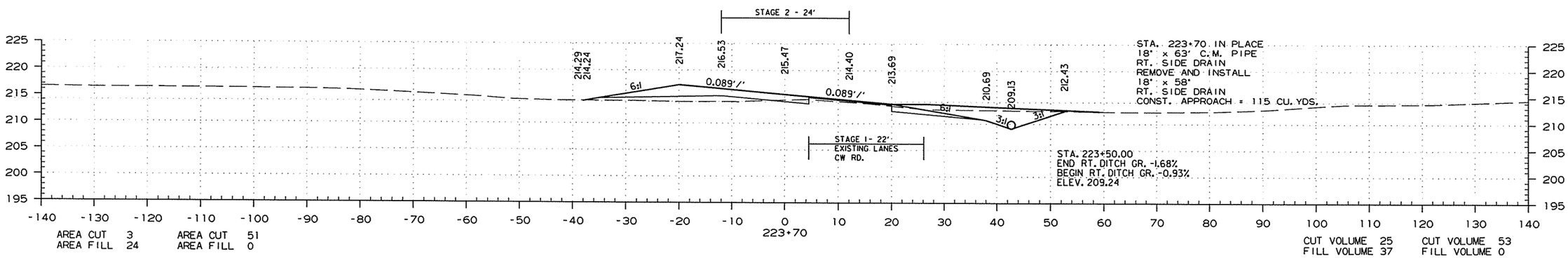
7/24/2015

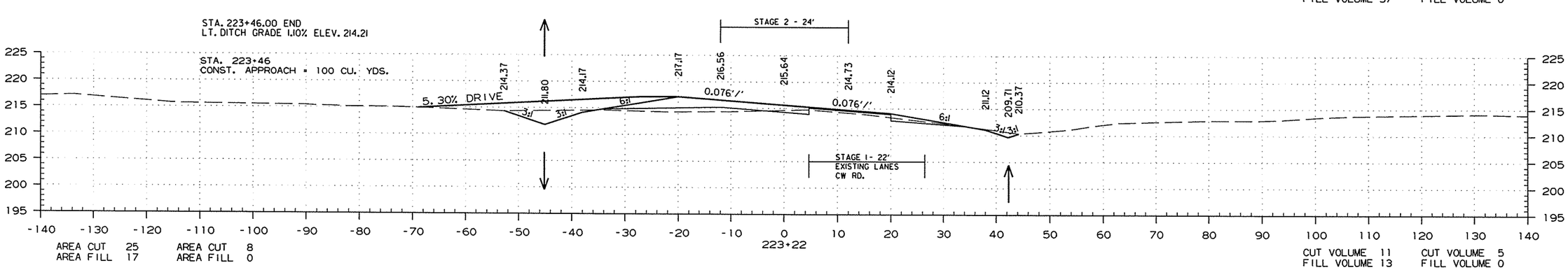
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	253	339

(2) CROSS SECTIONS







STA. 223+22.00 TO STA. 224+00.00

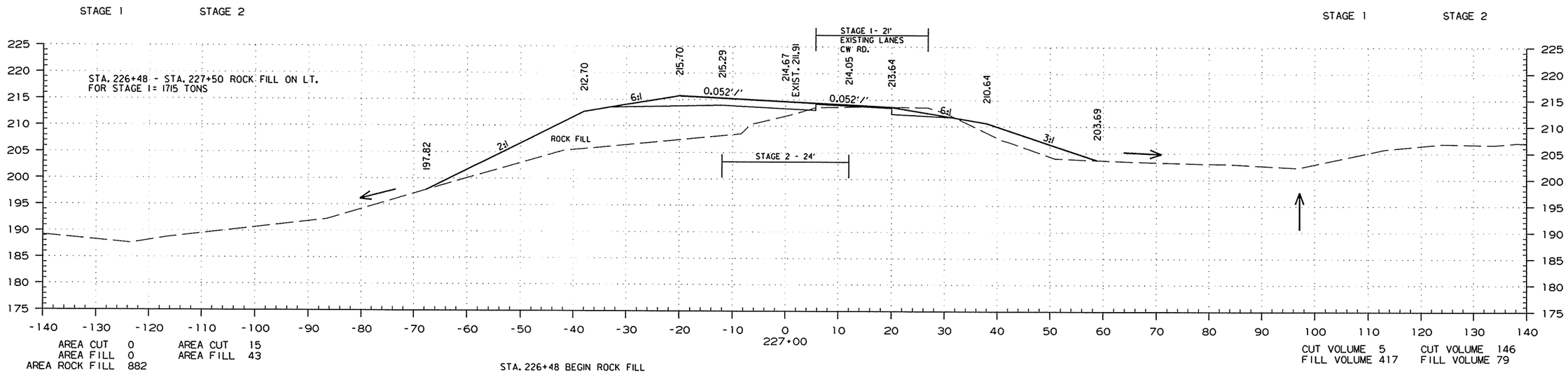
7/24/2015

R050251.DGN

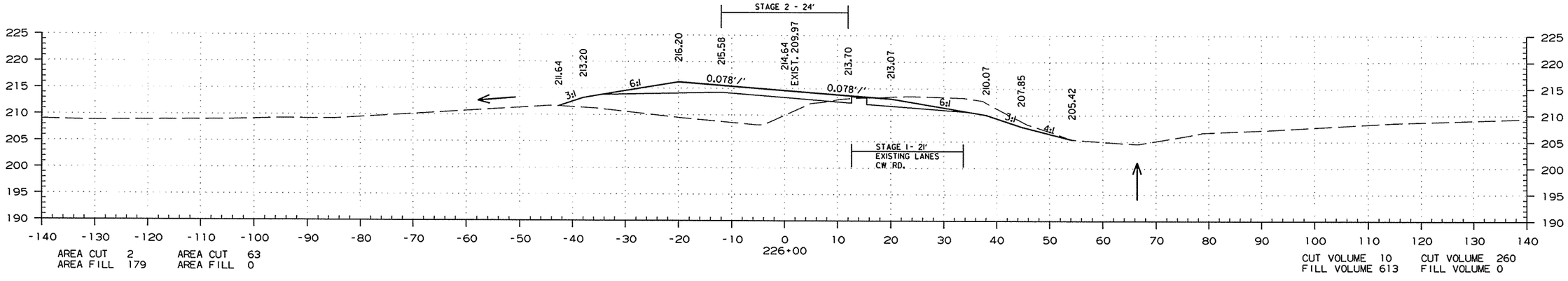
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	254	339

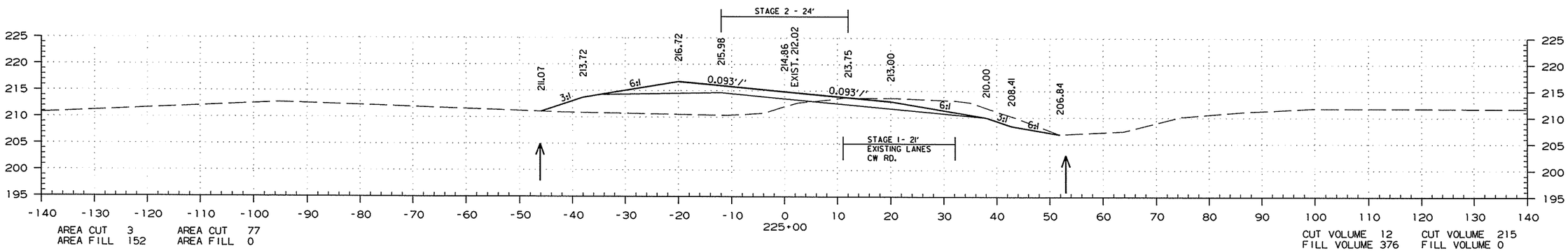
(2) CROSS SECTIONS

STA. 227+50 END ROCK FILL



STA. 226+48 BEGIN ROCK FILL





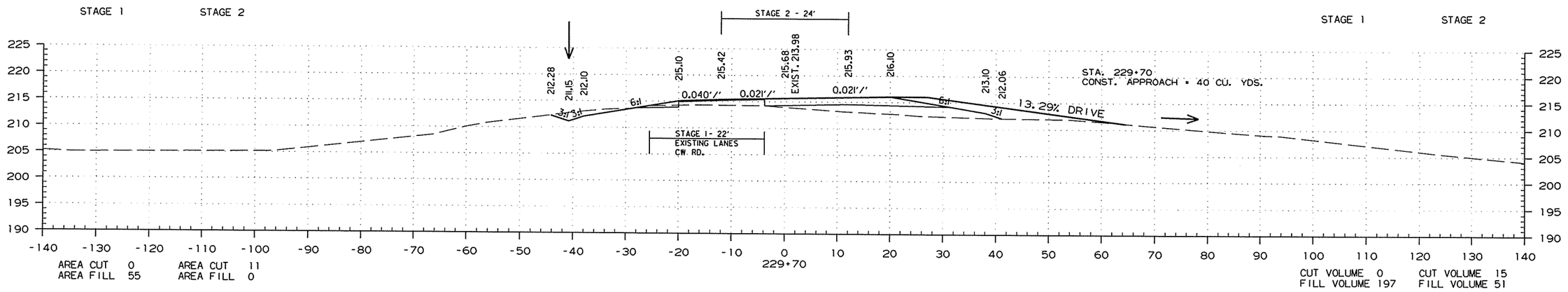
STA. 225+00.00 TO STA. 227+00.00

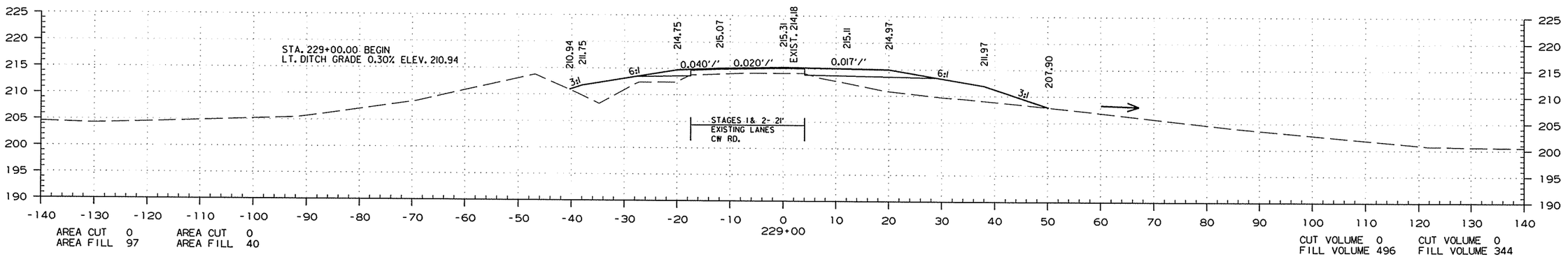
7/24/2015

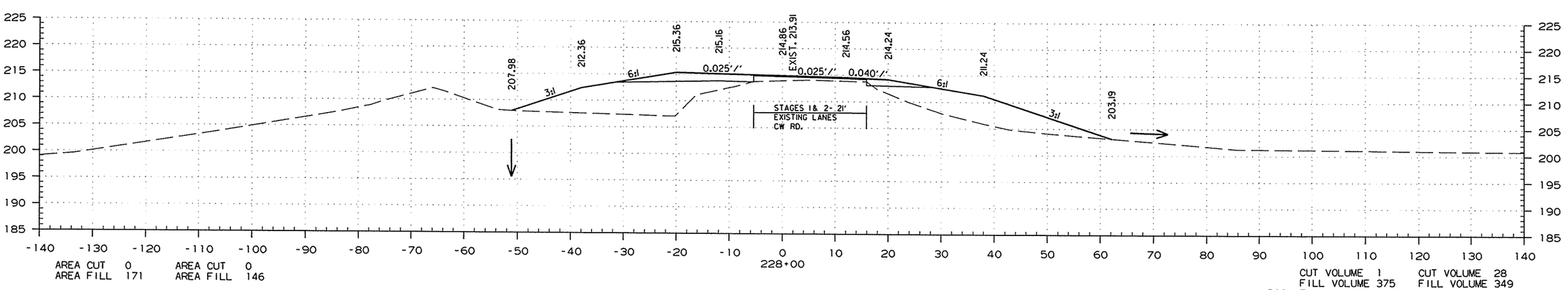
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	255	339

(2) CROSS SECTIONS







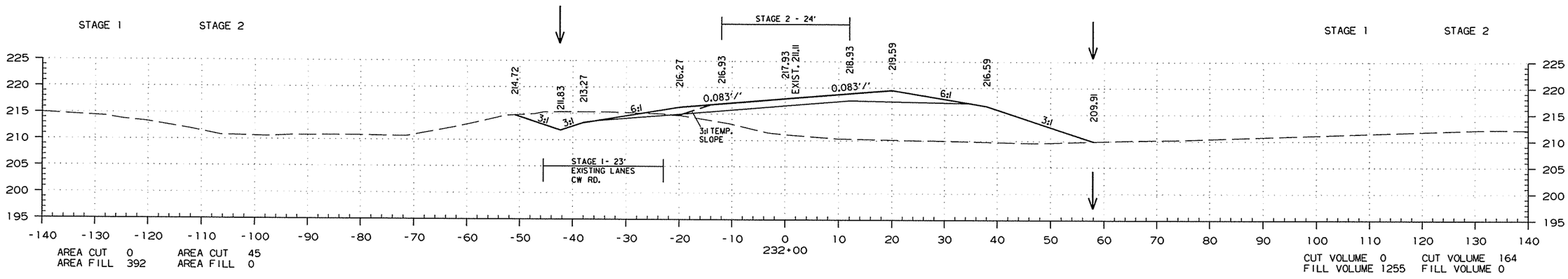
STA. 228+00.00 TO STA. 229+70.00

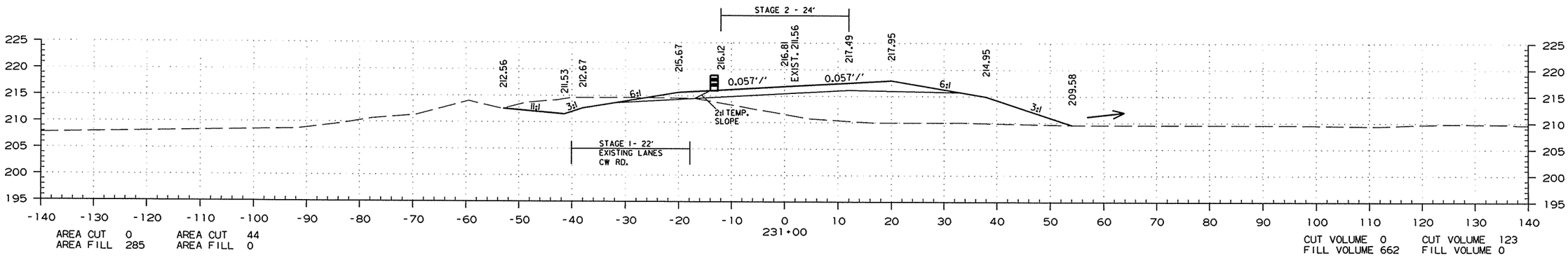
7/24/2015

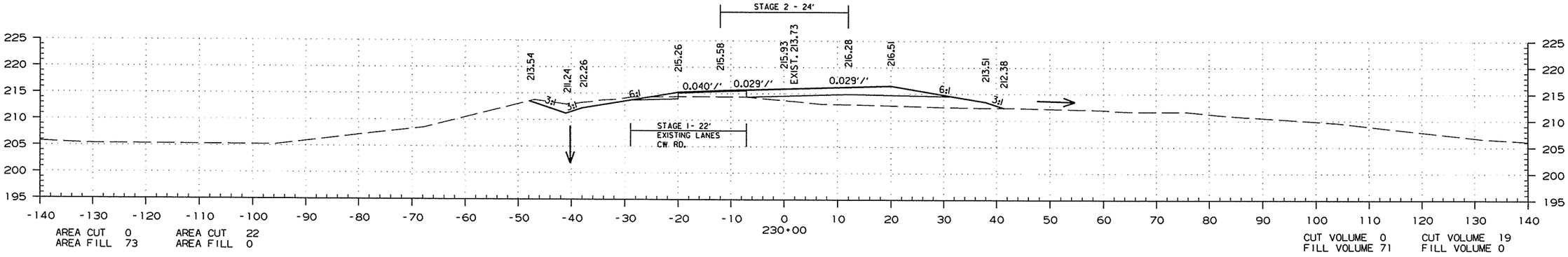
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	256	339

(2) CROSS SECTIONS







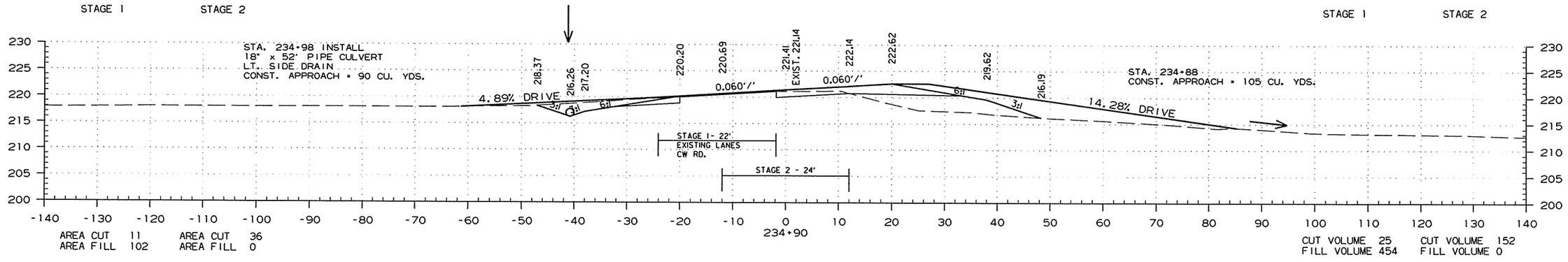
STA. 230+00.00 TO STA. 232+00.00

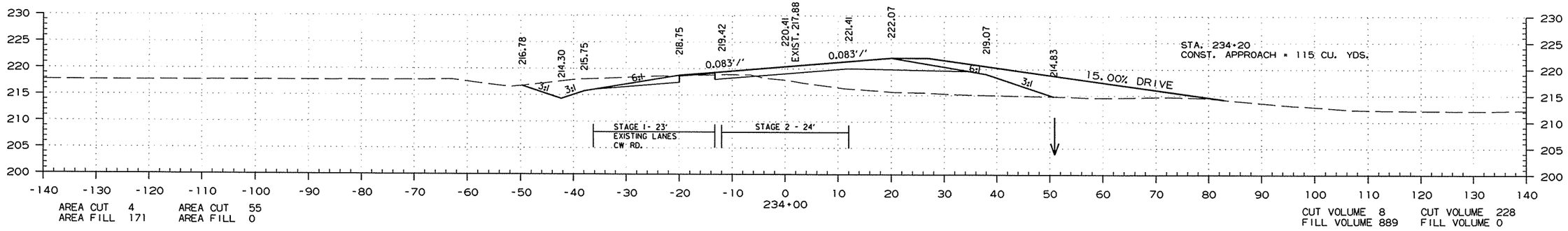
7/24/2015

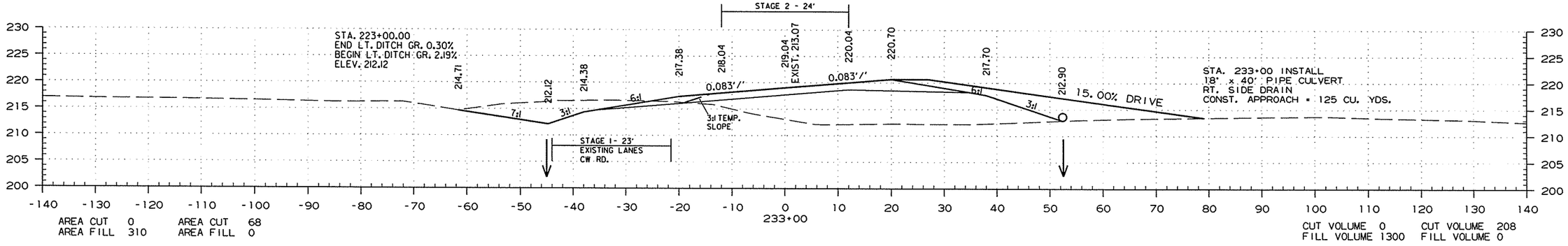
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	257	339

(2) CROSS SECTIONS







STA. 233+00.00 TO STA. 234+90.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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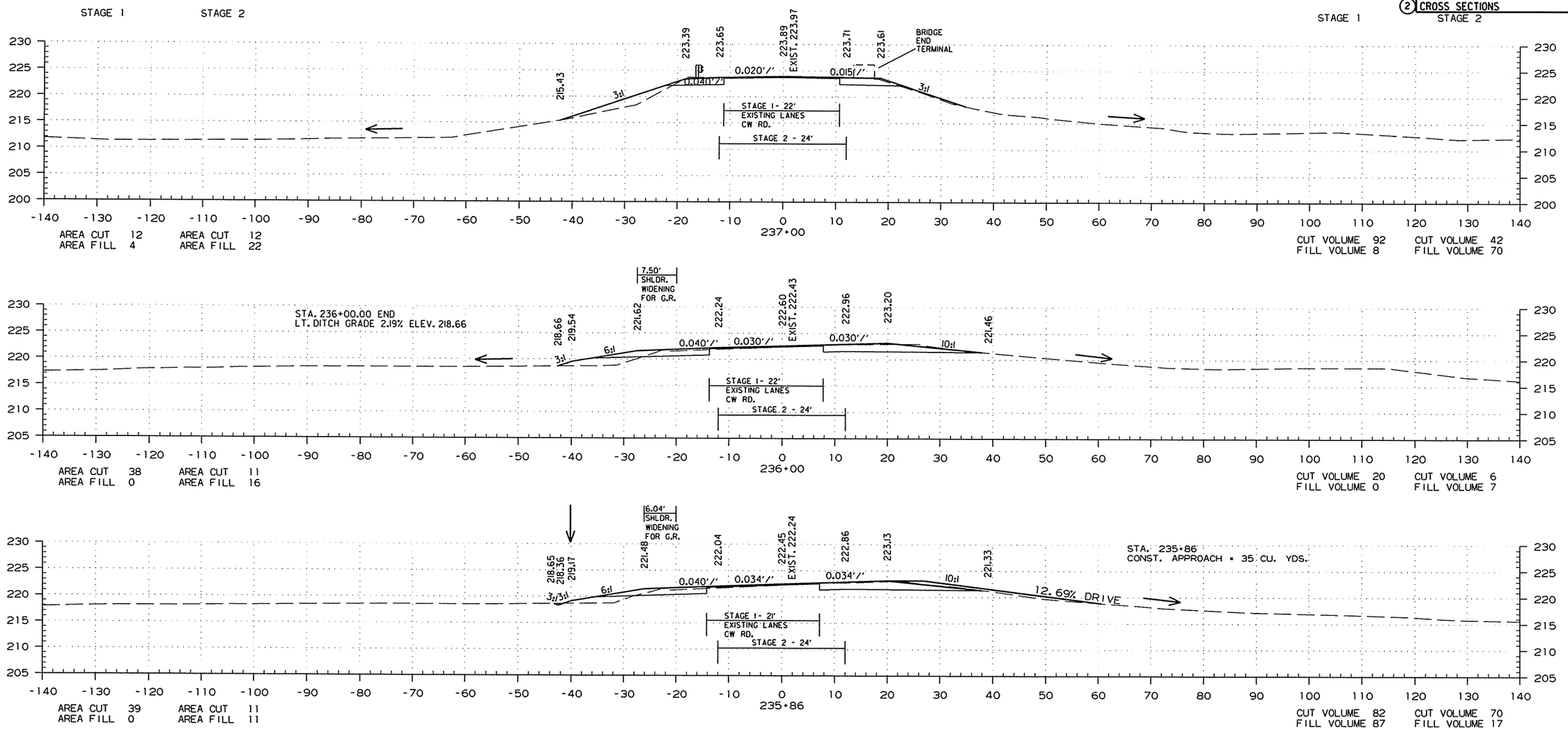
				JOB NO.		050251	258	339

(2) CROSS SECTIONS



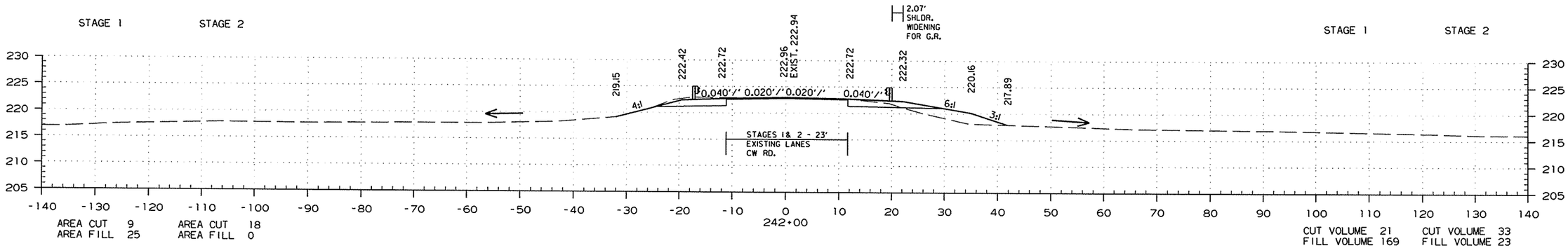
STA. 235+00.00 TO STA. 237+00.00

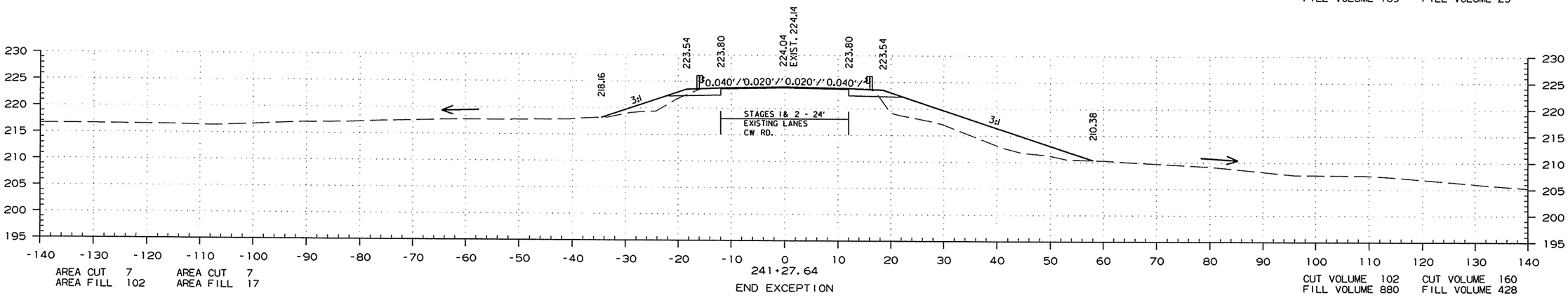
7/24/2015

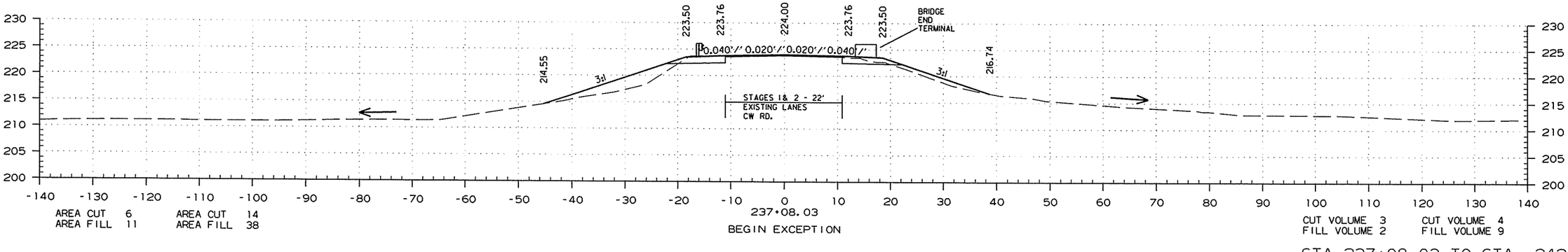
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	259	339

(2) CROSS SECTIONS







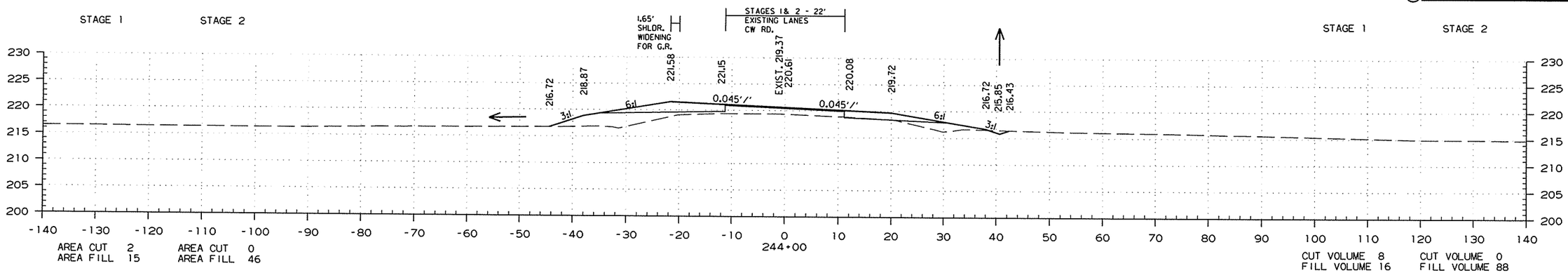
STA. 237+08.03 TO STA. 242+00.00

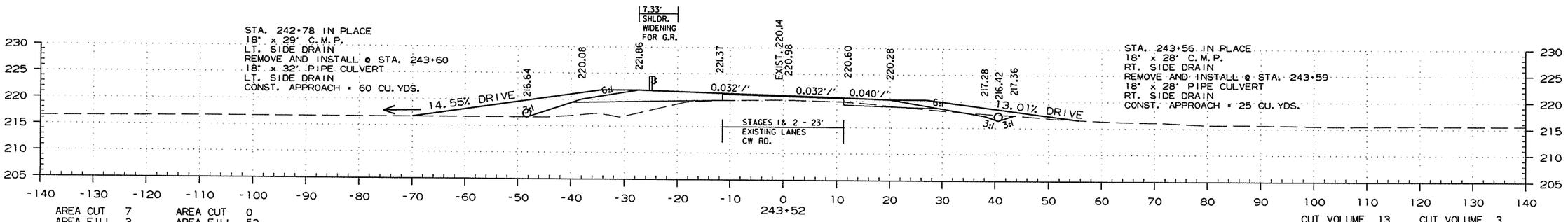
7/24/2015

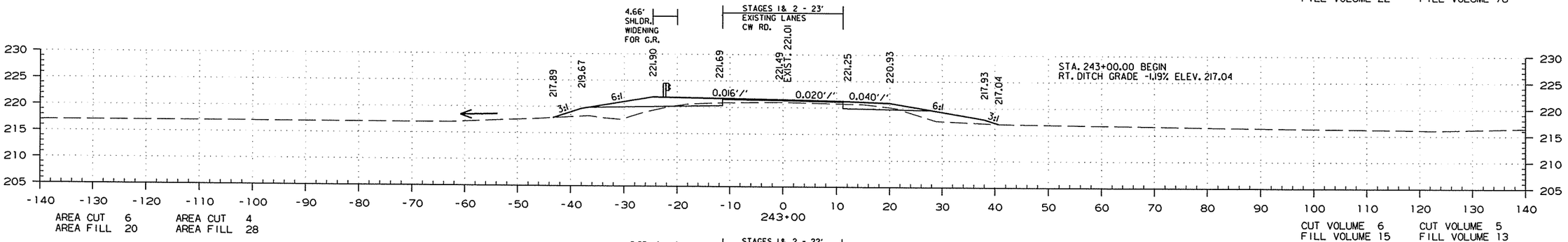
R050251.DGN

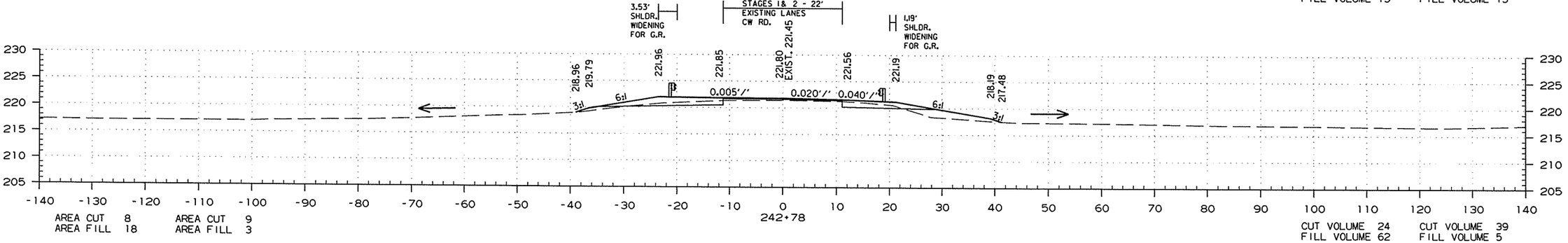
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	260	339

(2) CROSS SECTIONS









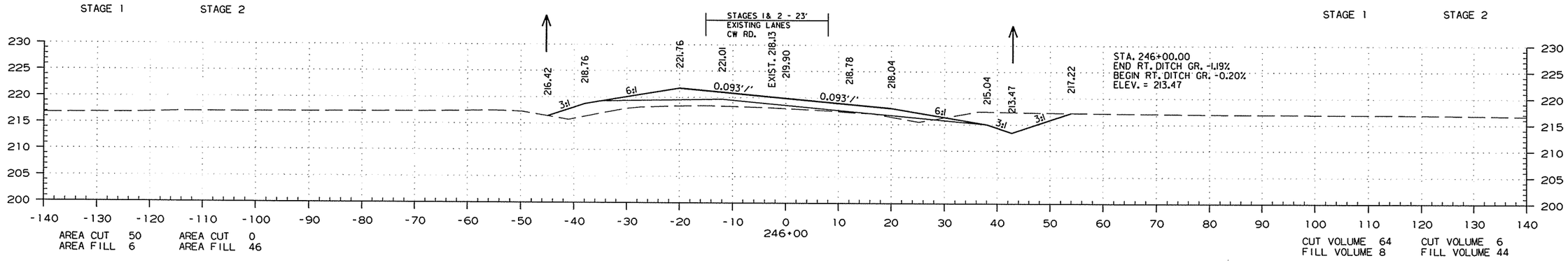
STA. 242+78.00 TO STA. 244+00.00

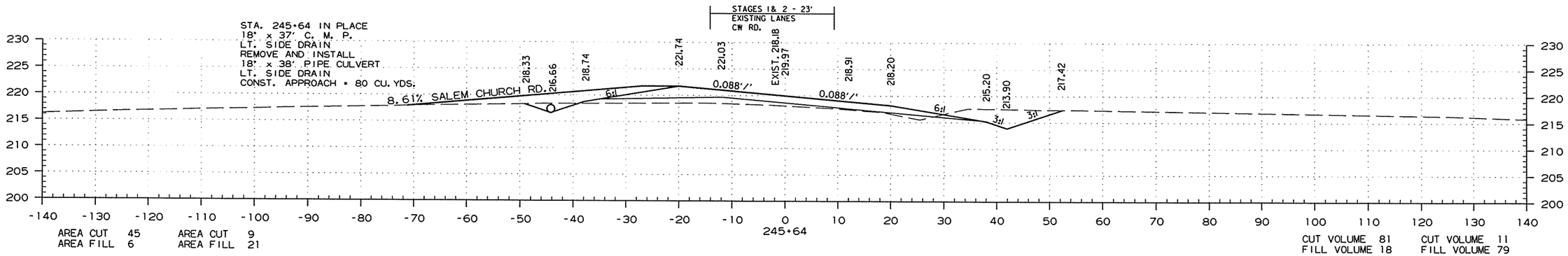
7/24/2015

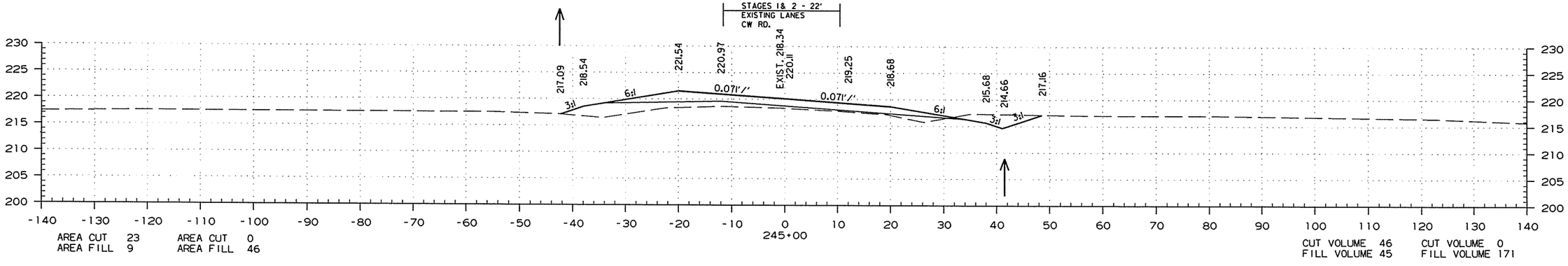
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	261	339

(2) CROSS SECTIONS





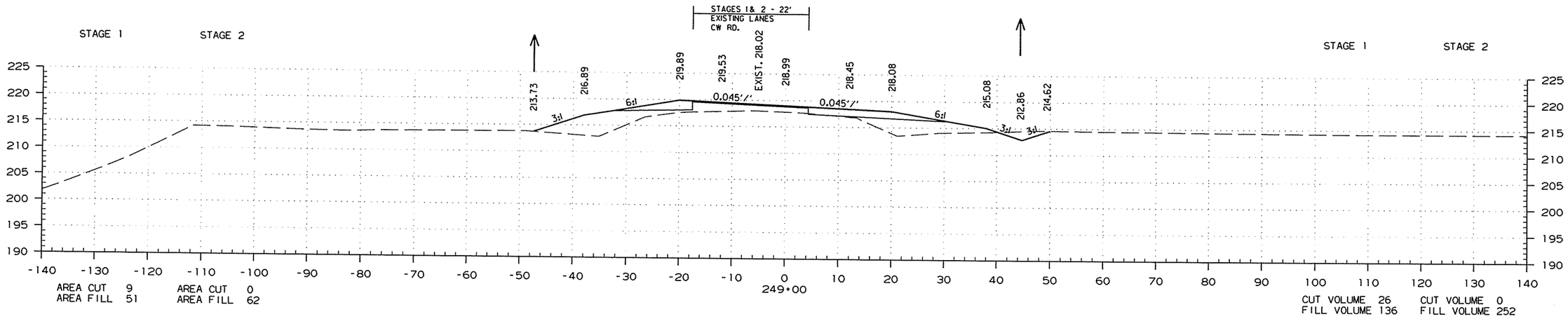


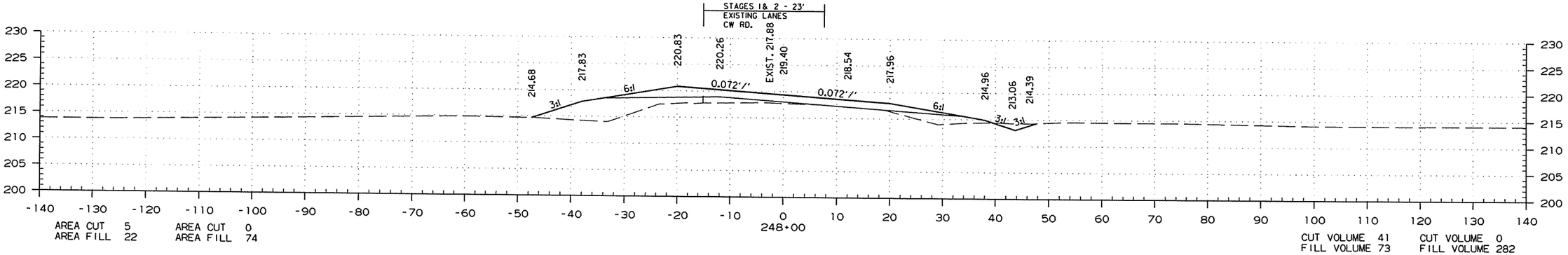
STA. 245+00.00 TO STA. 246+00.00

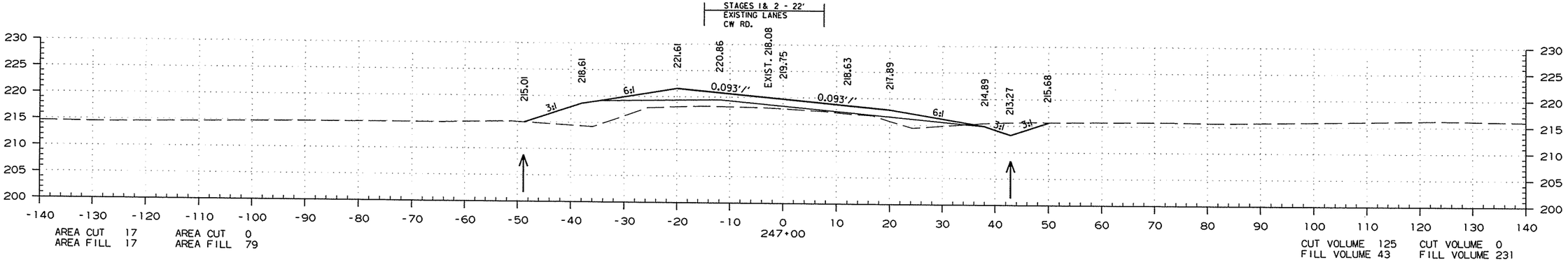
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	262	339
				(2) CROSS SECTIONS				







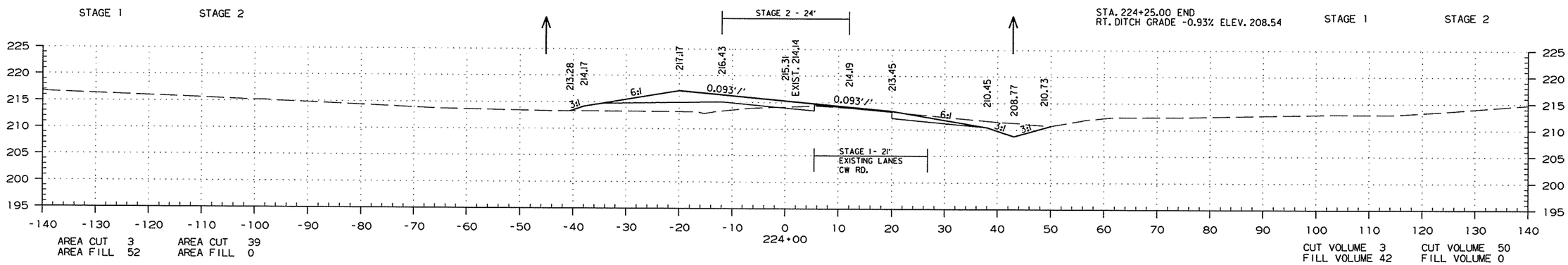
STA. 247+00.00 TO STA. 249+00.00

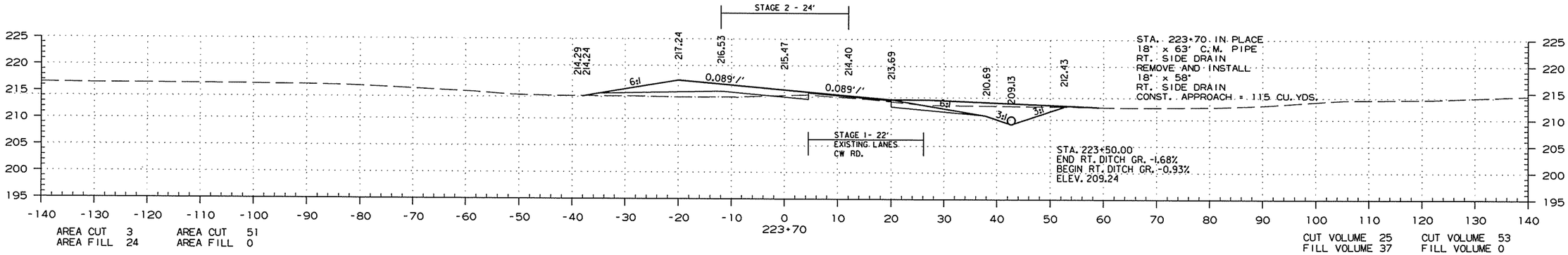
7/24/2015

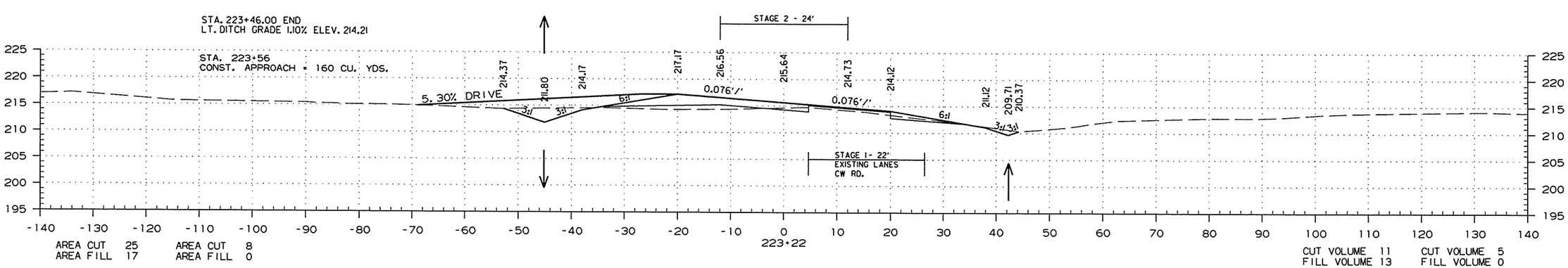
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
11-24-15				6	ARK.			
				JOB NO.		050251	253	339

(2) CROSS SECTIONS







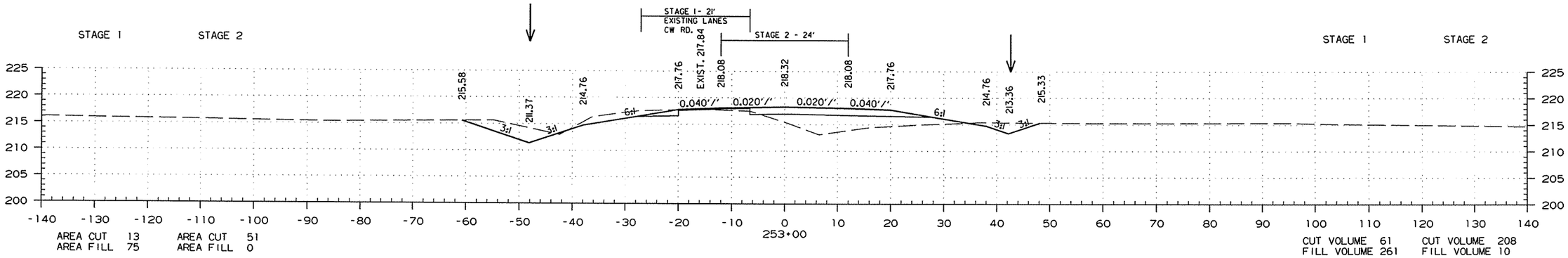
STA. 223+22.00 TO STA. 224+00.00

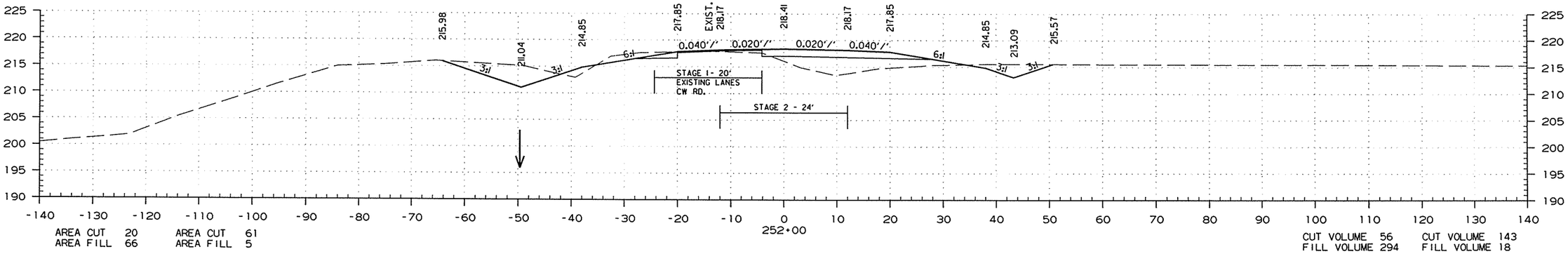
7/24/2015

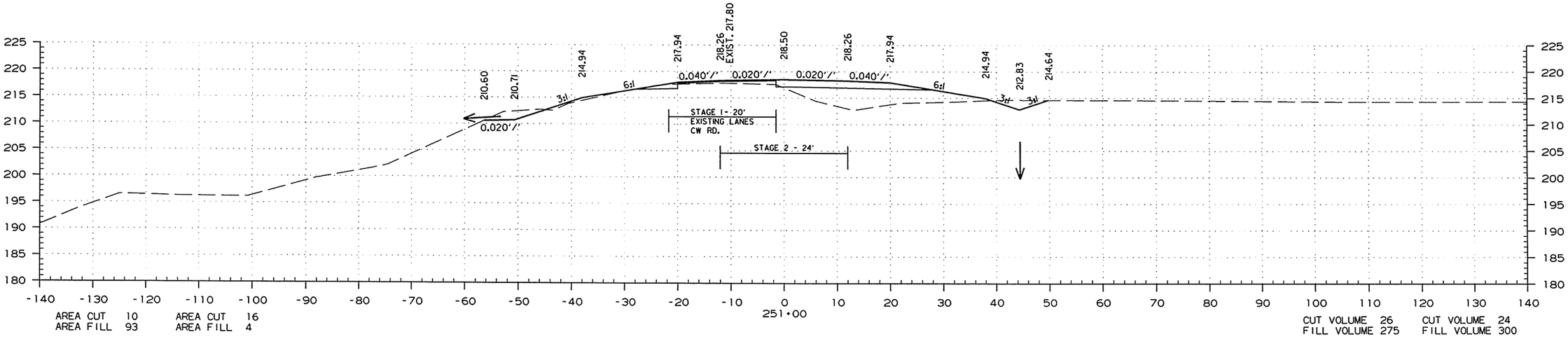
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	264	339

(2) CROSS SECTIONS







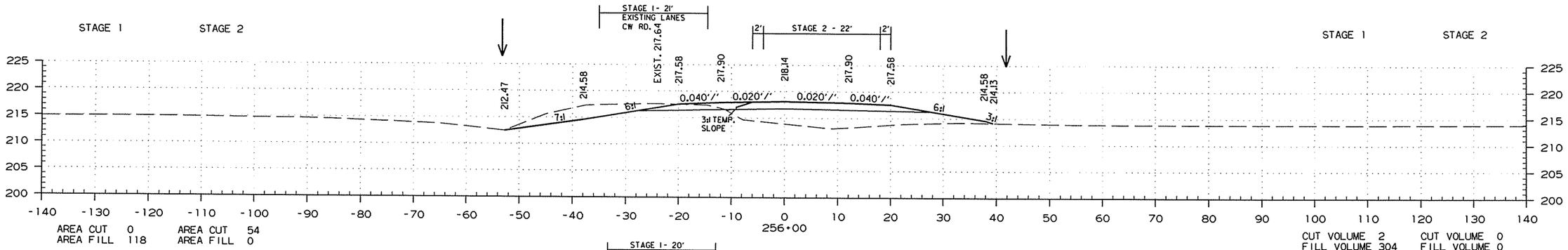
STA. 251+00.00 TO STA. 253+00.00

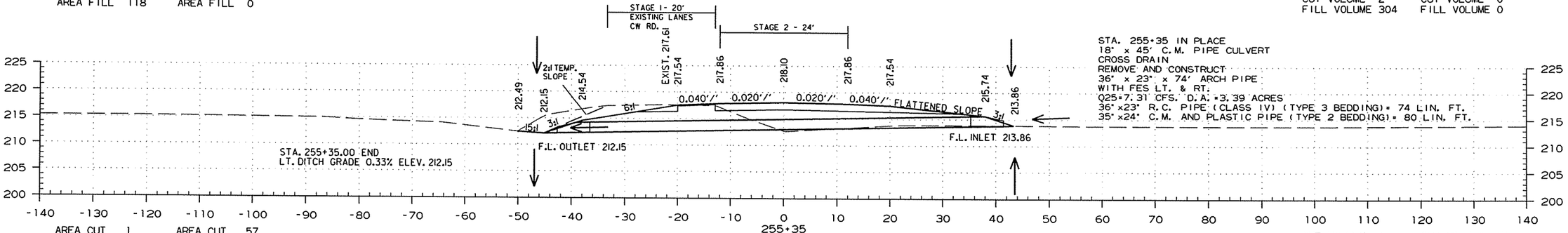
7/24/2015

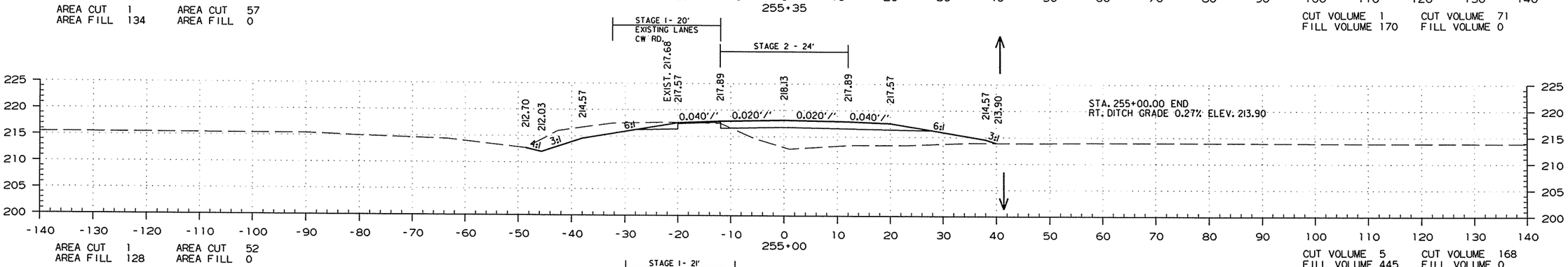
R050251.DGN

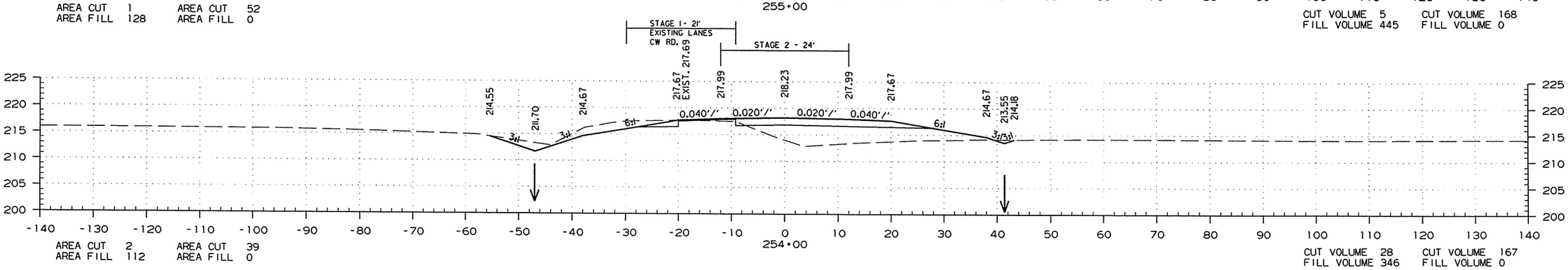
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	265	339

(2) CROSS SECTIONS









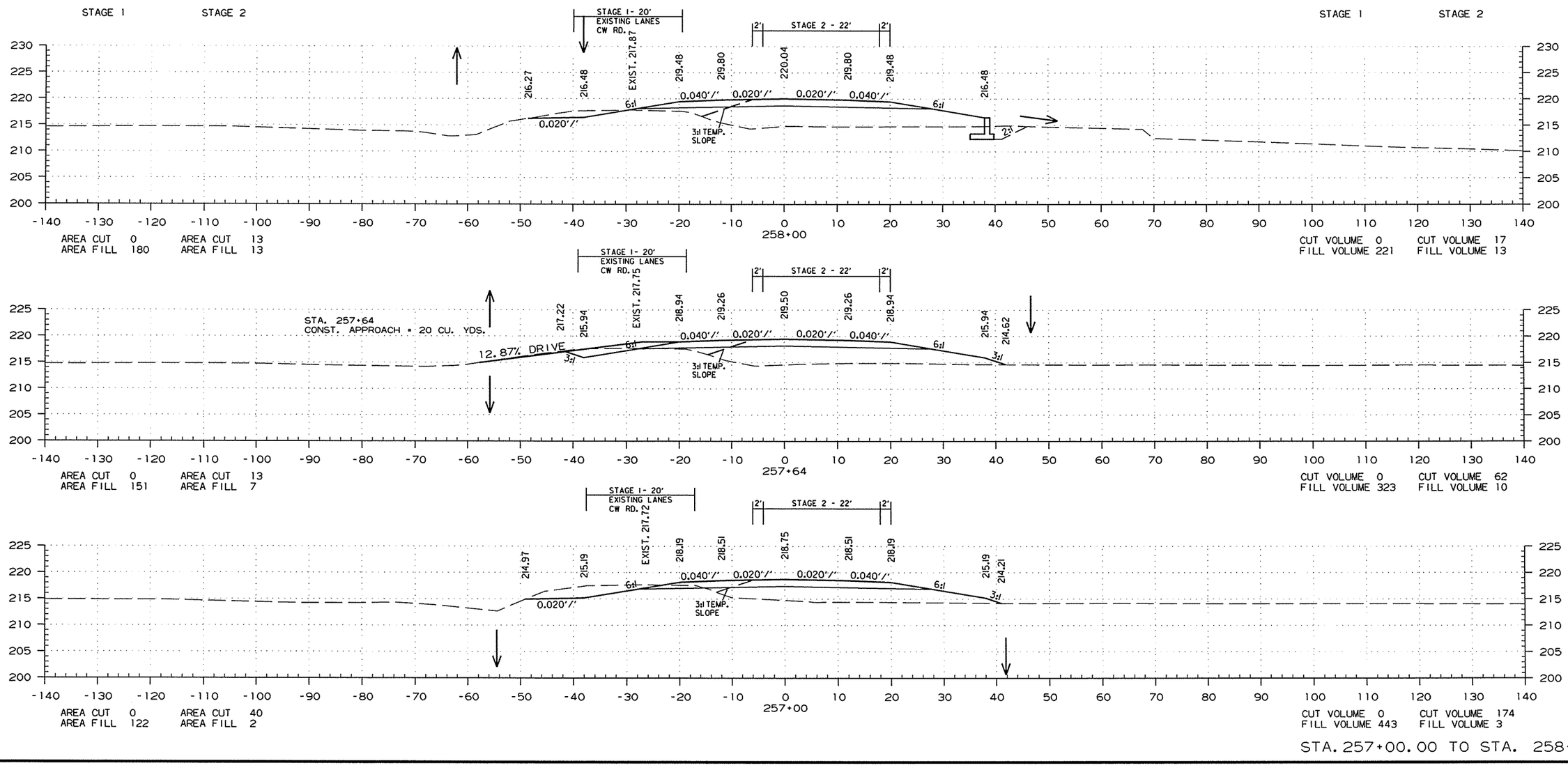
STA. 254+00.00 TO STA. 256+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	266	339

(2) CROSS SECTIONS



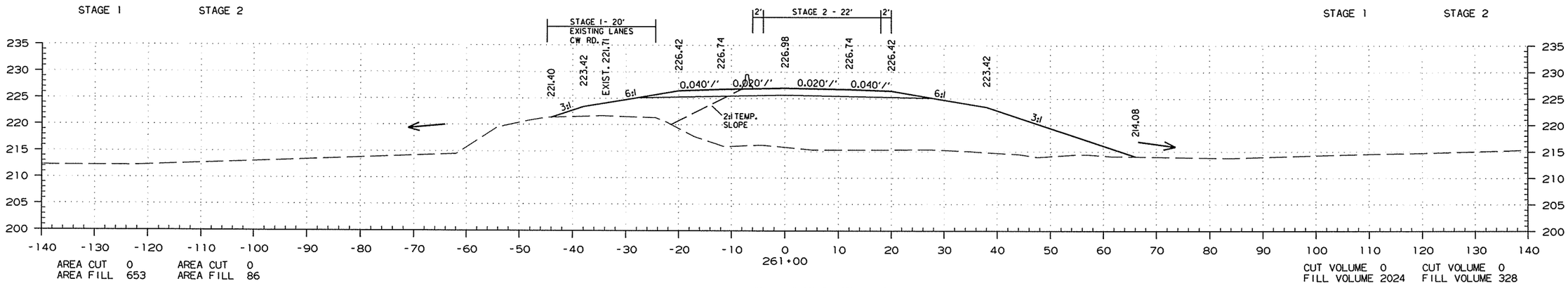
STA. 257+00.00 TO STA. 258+00.00

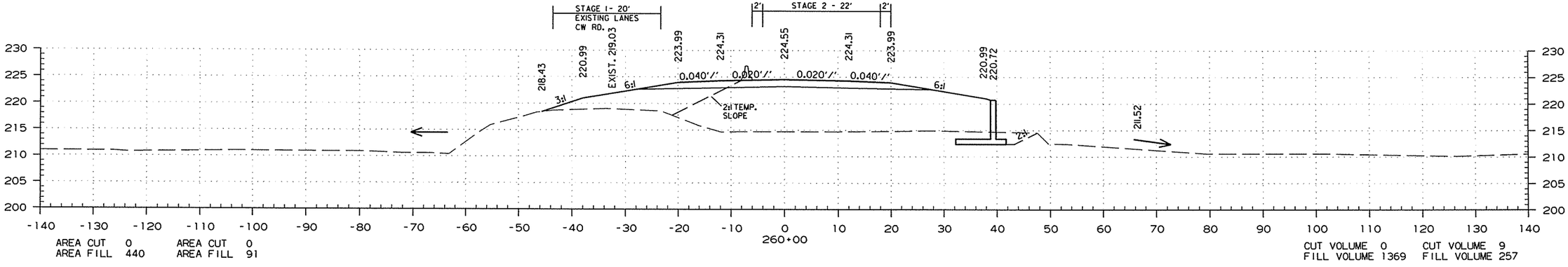
7/24/2015

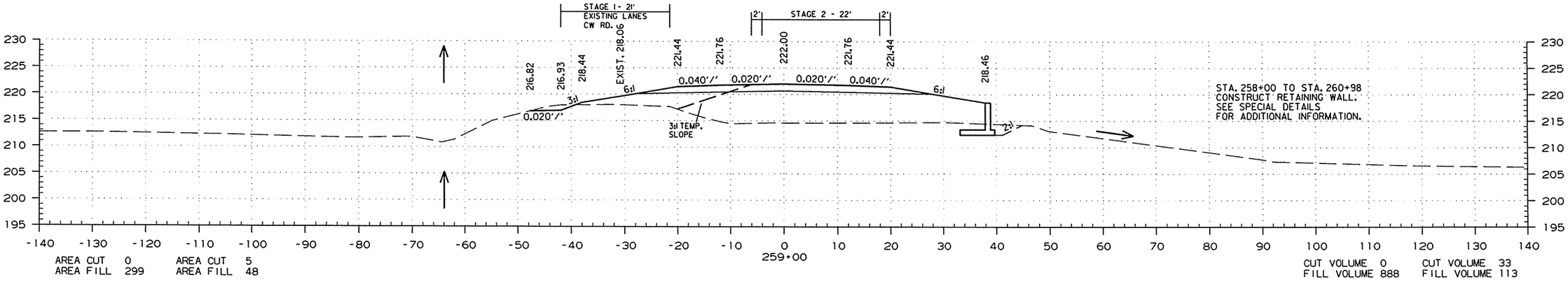
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	267	339

(2) CROSS SECTIONS







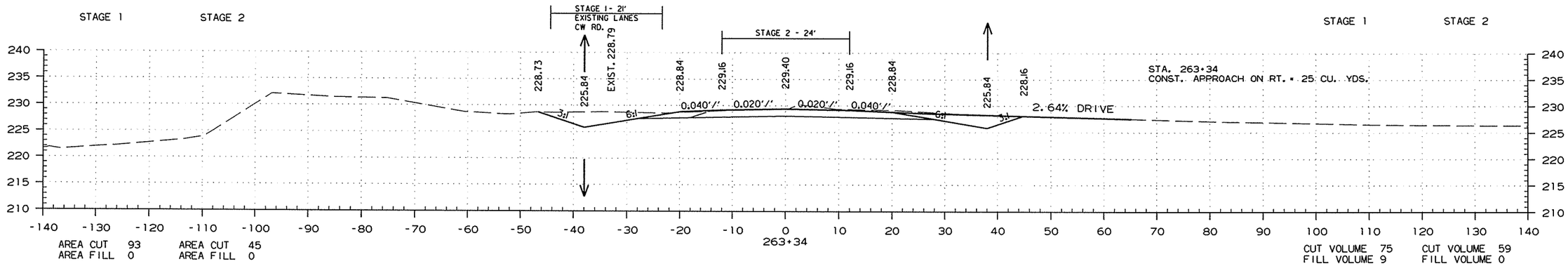
STA. 259+00.00 TO STA. 261+00.00

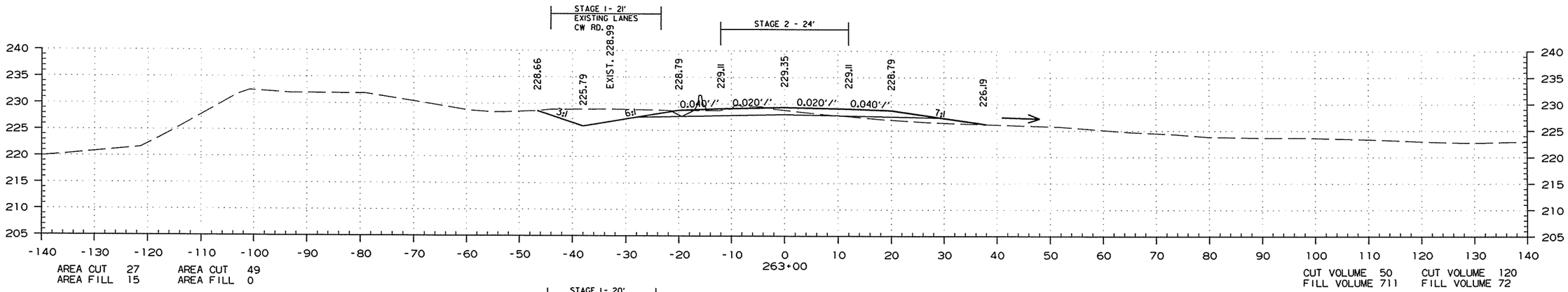
7/24/2015

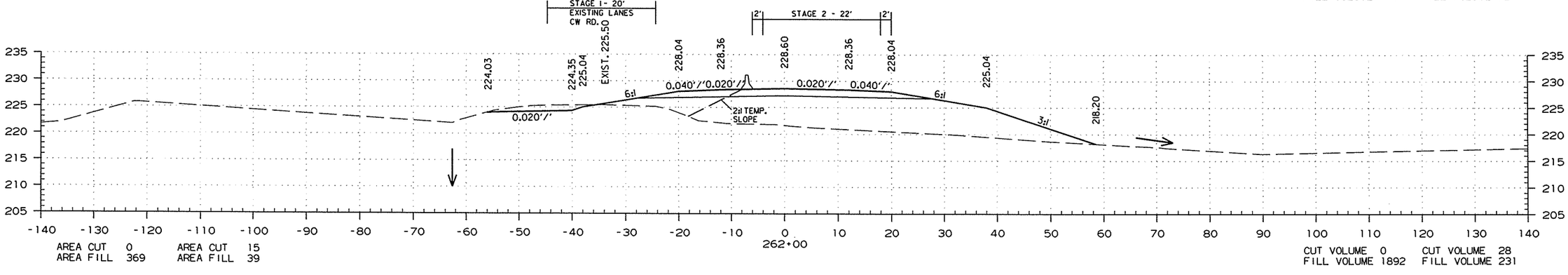
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	268	339

(2) CROSS SECTIONS







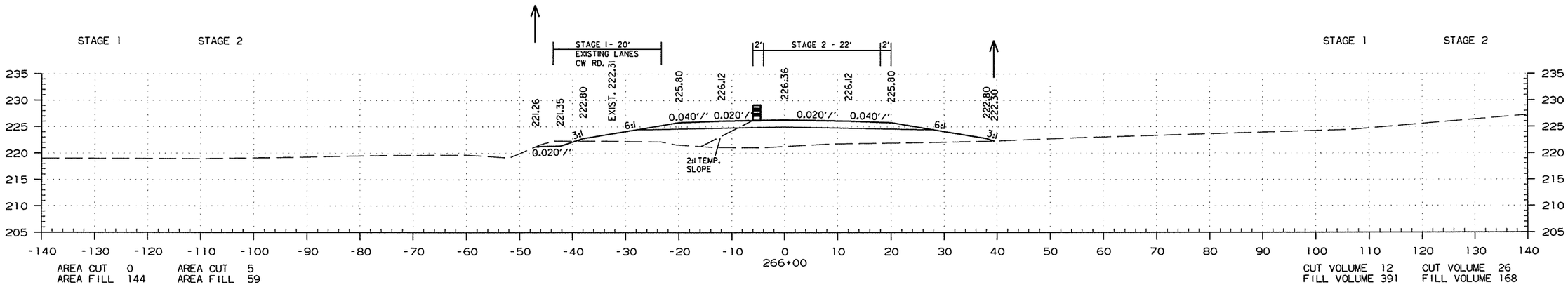
STA. 262+00.00 TO STA. 263+34.00

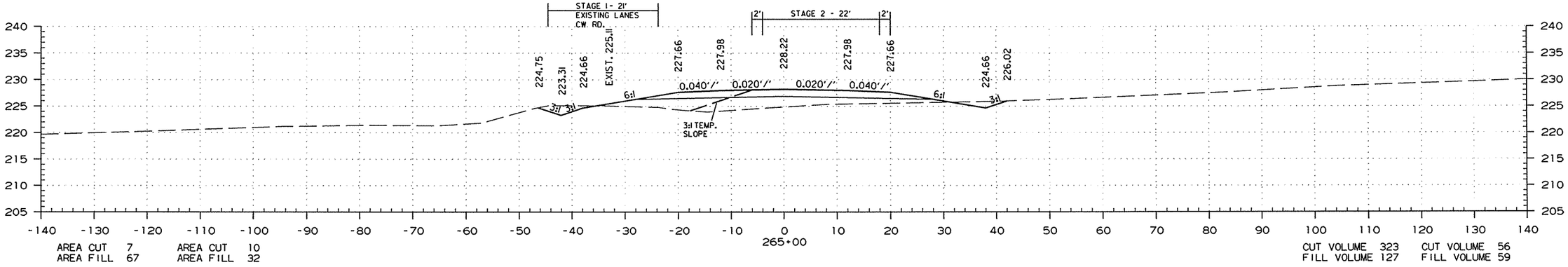
7/24/2015

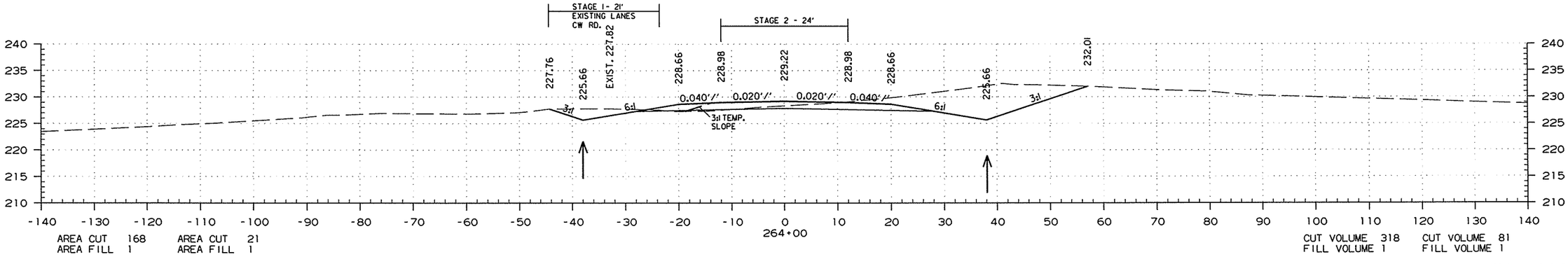
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	269	339

(2) CROSS SECTIONS







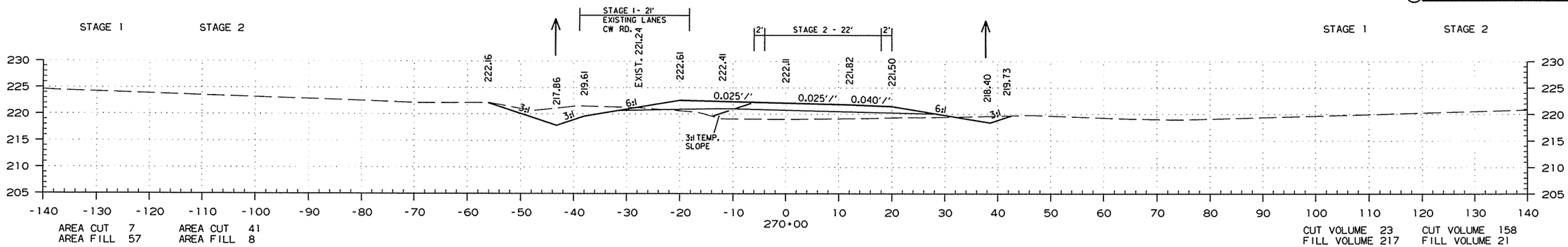
STA. 264+00.00 TO STA. 266+00.00

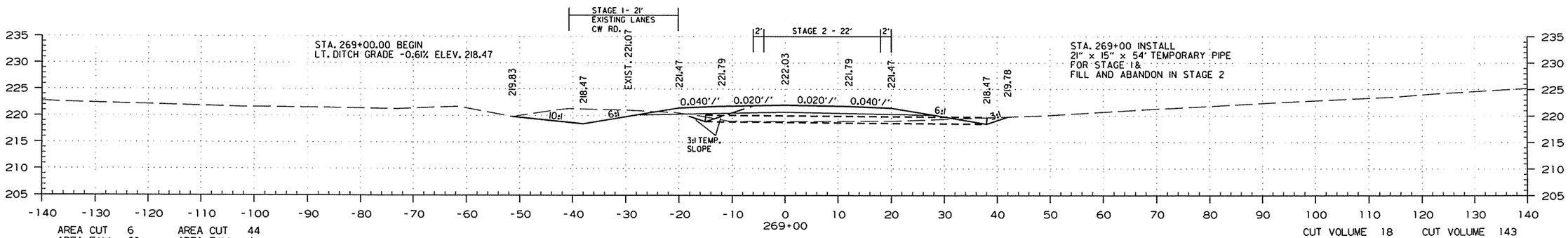
7/24/2015

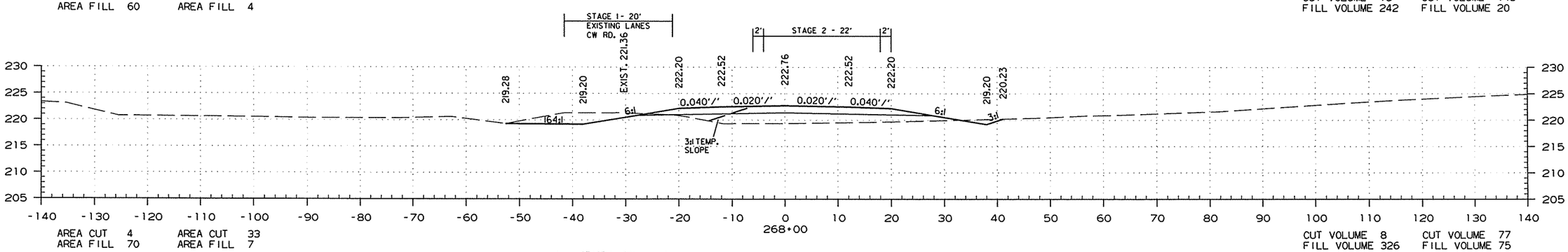
R050251.DGN

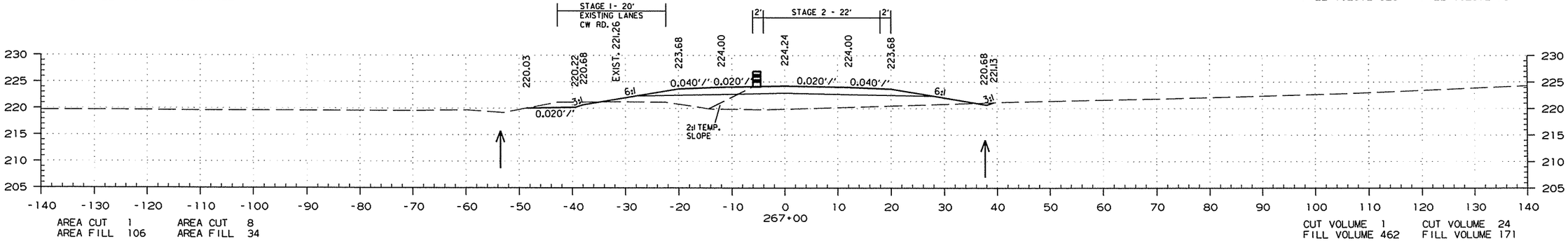
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	270	339

(2) CROSS SECTIONS









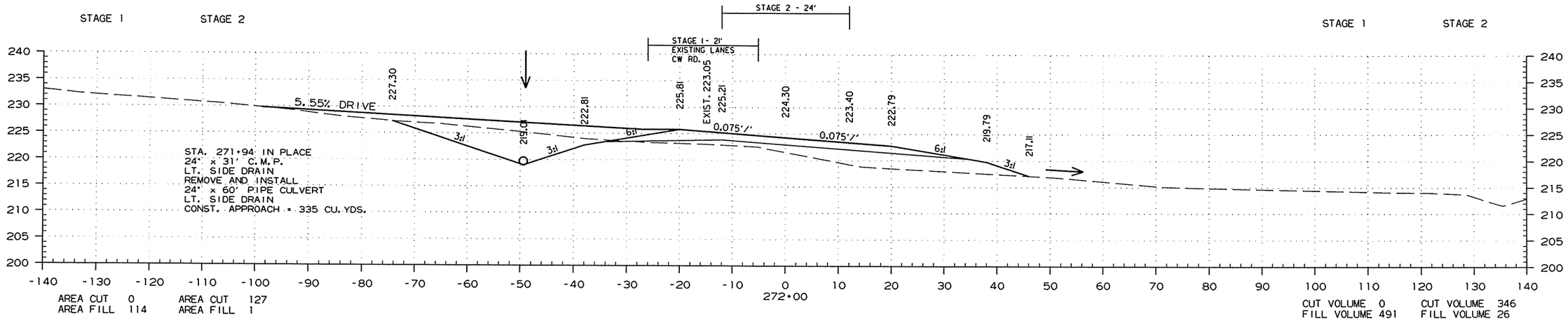
STA. 267+00.00 TO STA. 270+00.00

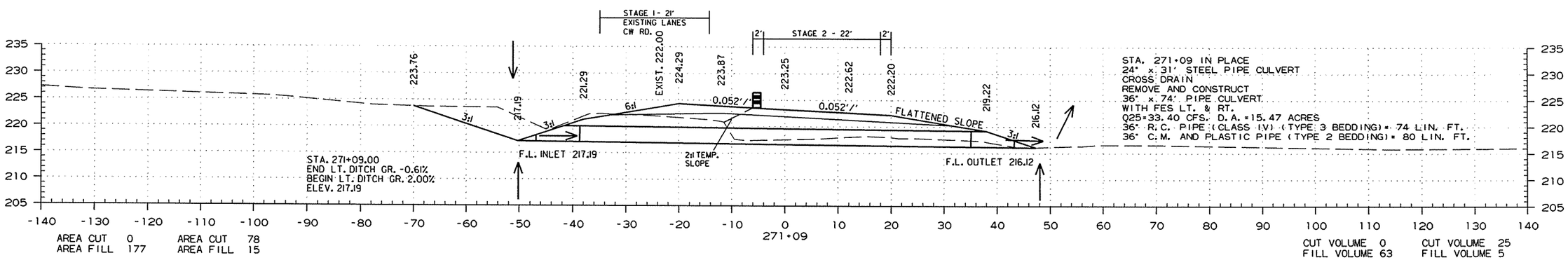
7/24/2015

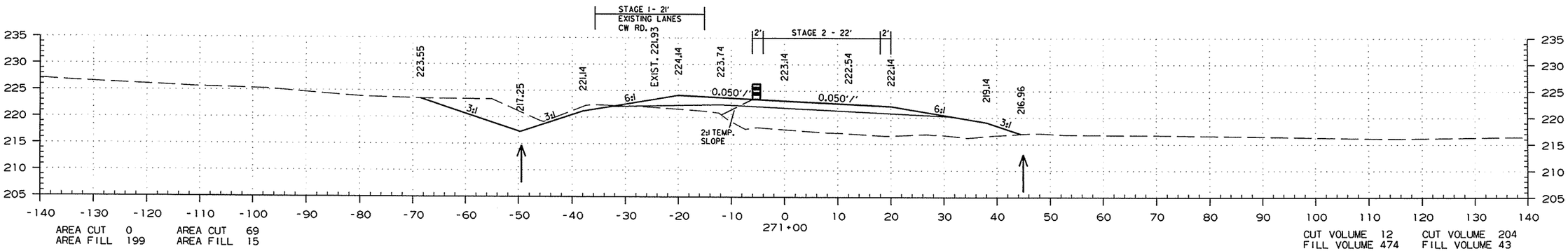
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	271	339

(2) CROSS SECTIONS







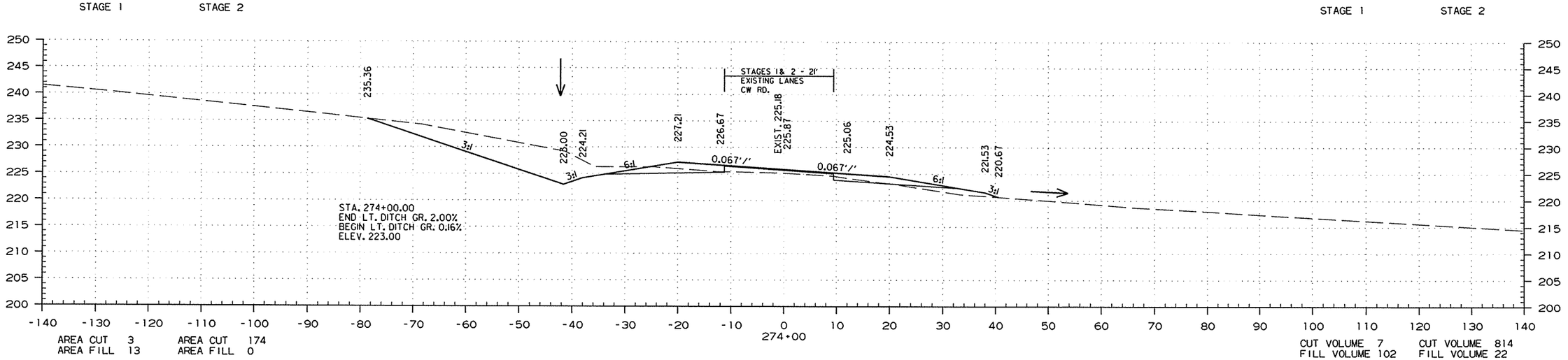
STA. 271+00.00 TO STA. 272+00.00

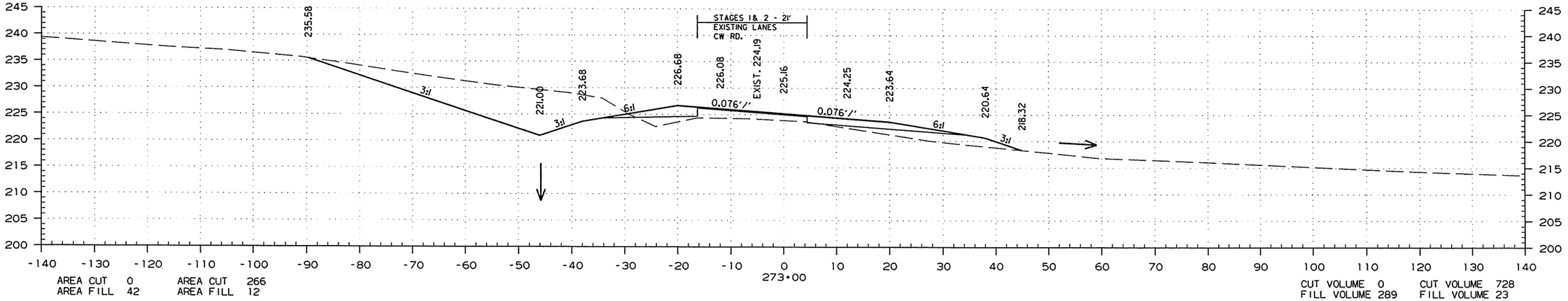
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	272	339

(2) CROSS SECTIONS





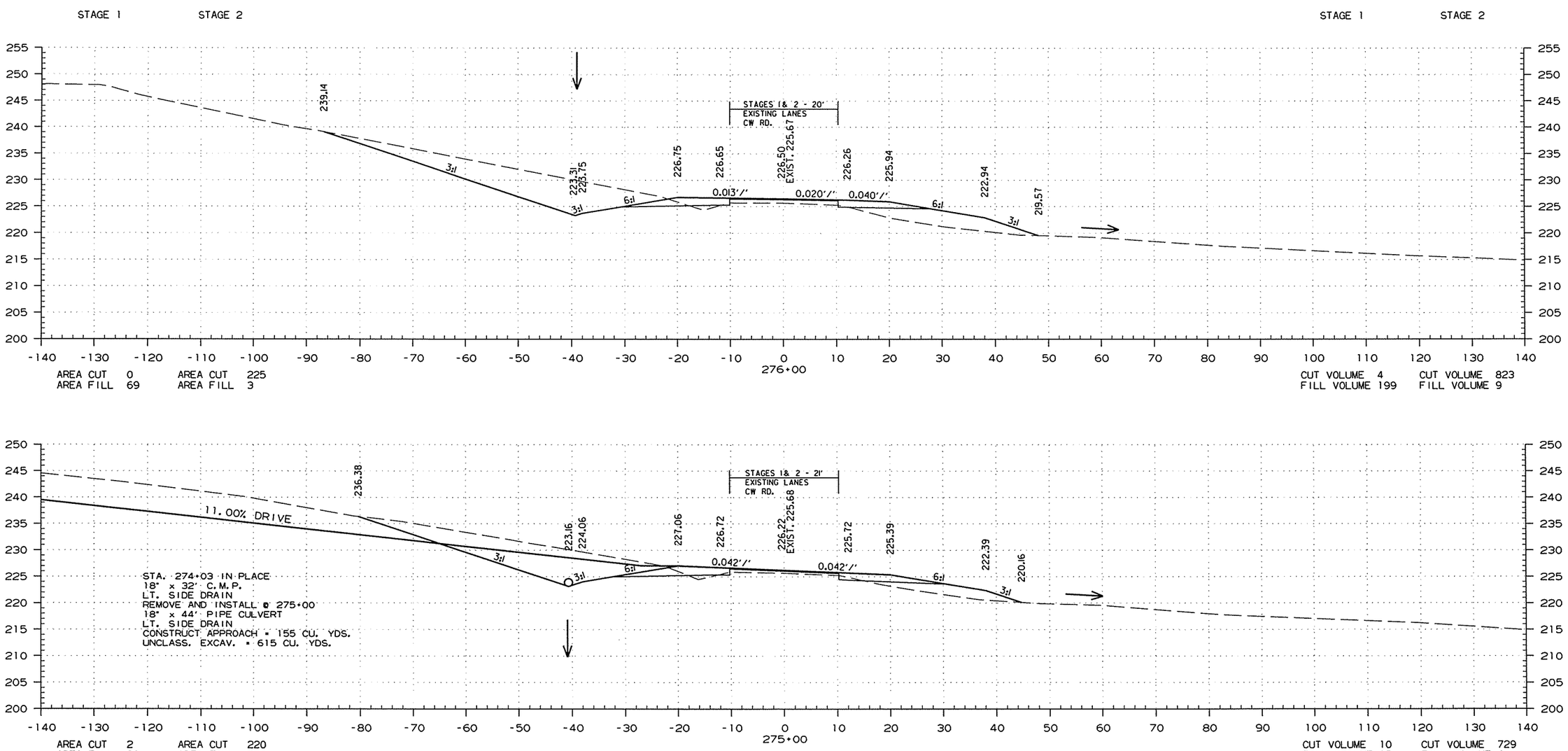
STA. 273+00.00 TO STA. 274+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	273	339

(2) CROSS SECTIONS



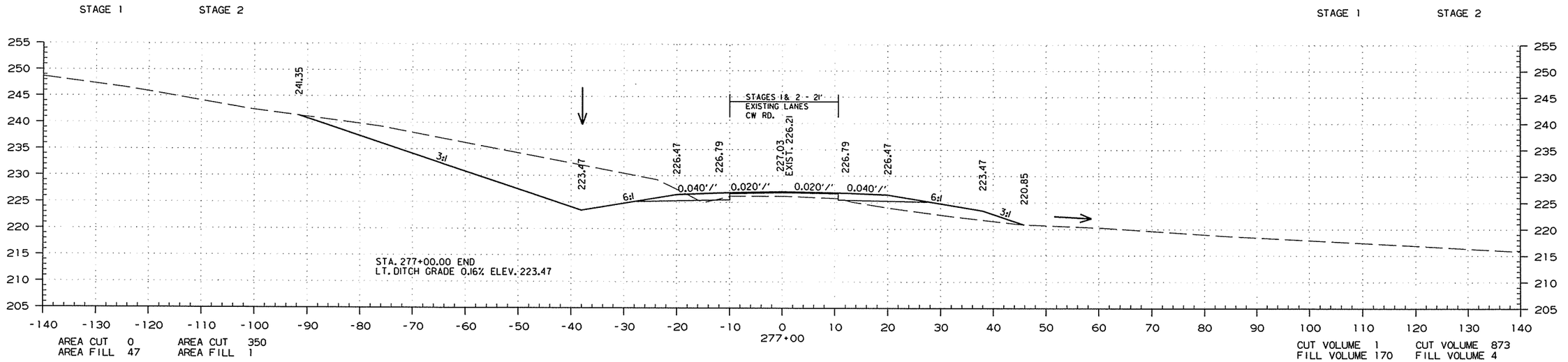
STA. 275+00.00 TO STA. 276+00.00

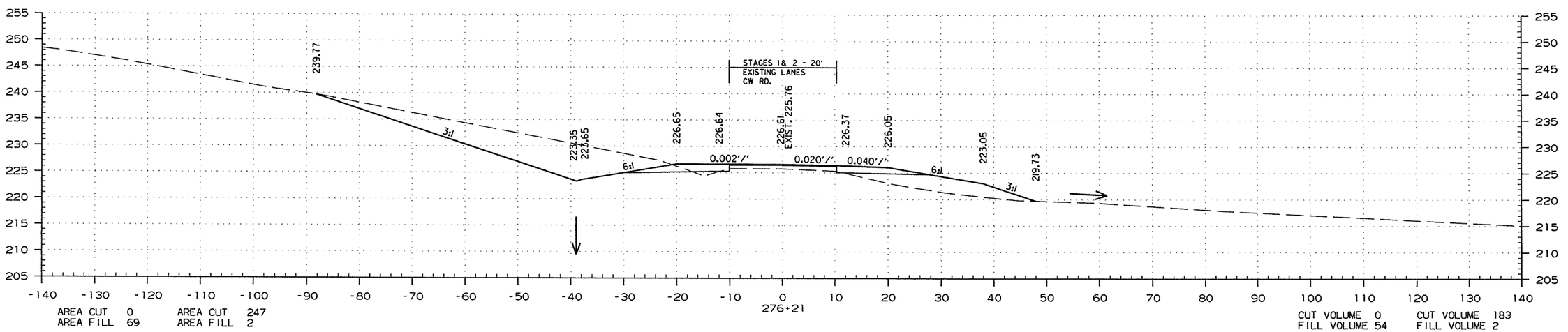
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	274	339

(2) CROSS SECTIONS





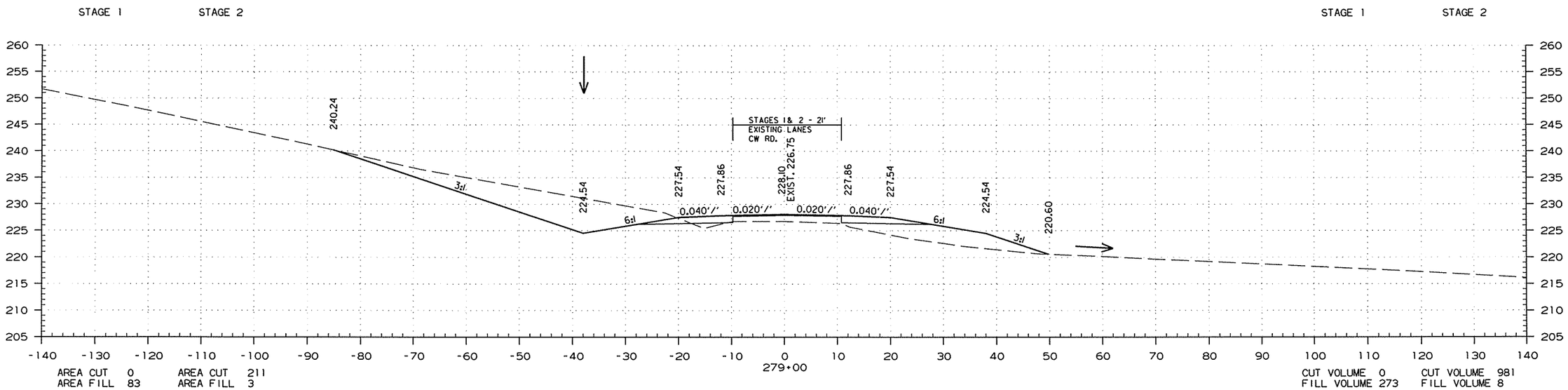
STA. 276+21.00 TO STA. 277+00.00

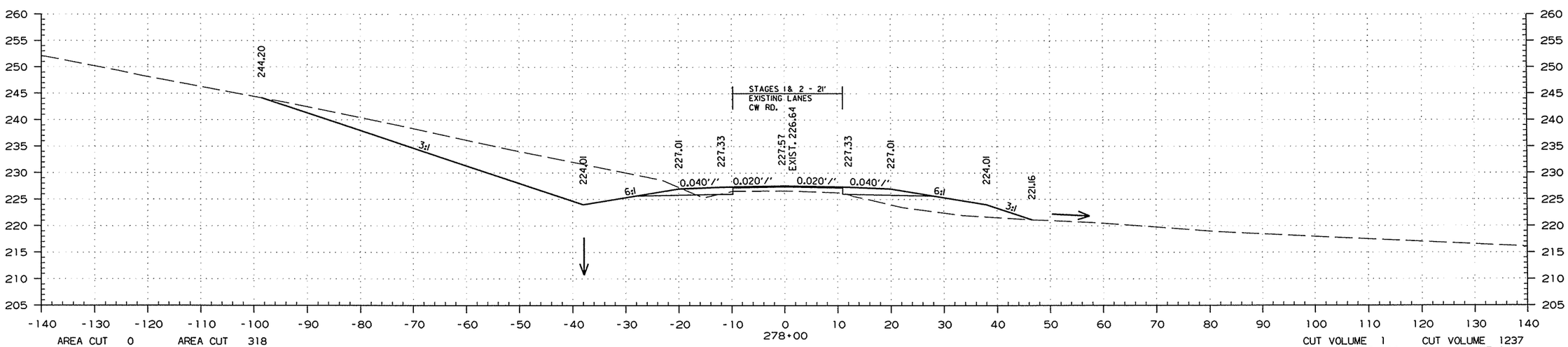
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	275	339

(2) CROSS SECTIONS





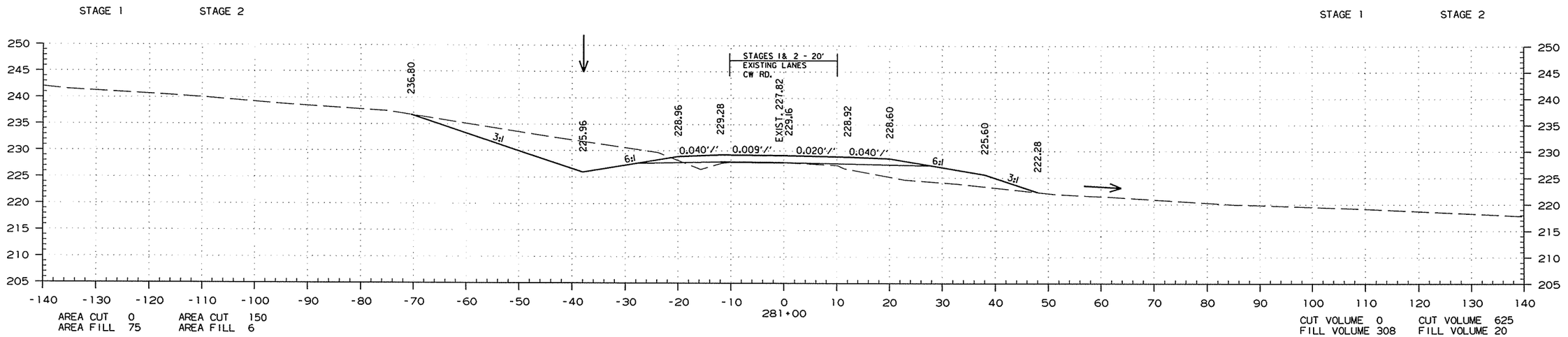
STA. 278+00.00 TO STA. 279+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	276	339

(2) CROSS SECTIONS



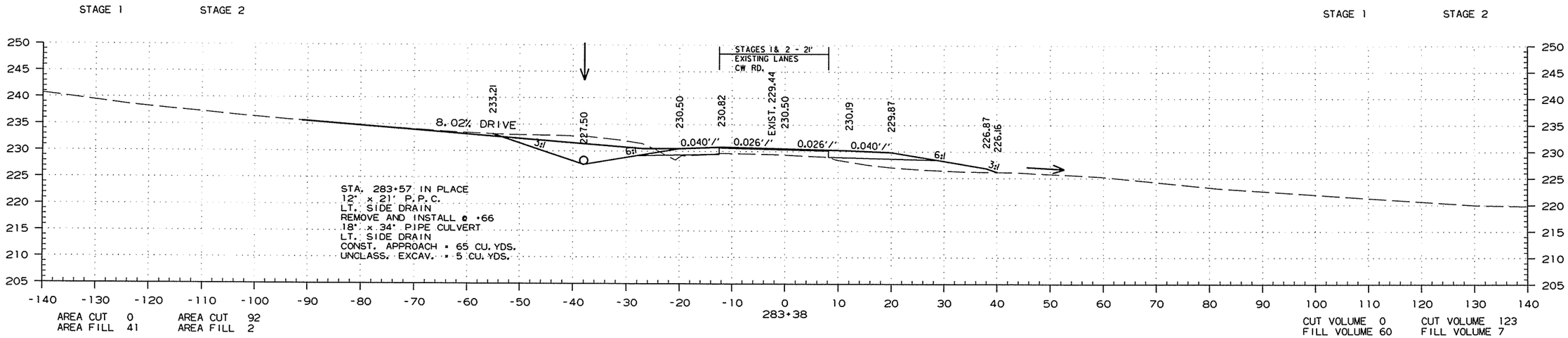
STA. 280+00.00 TO STA. 281+00.00

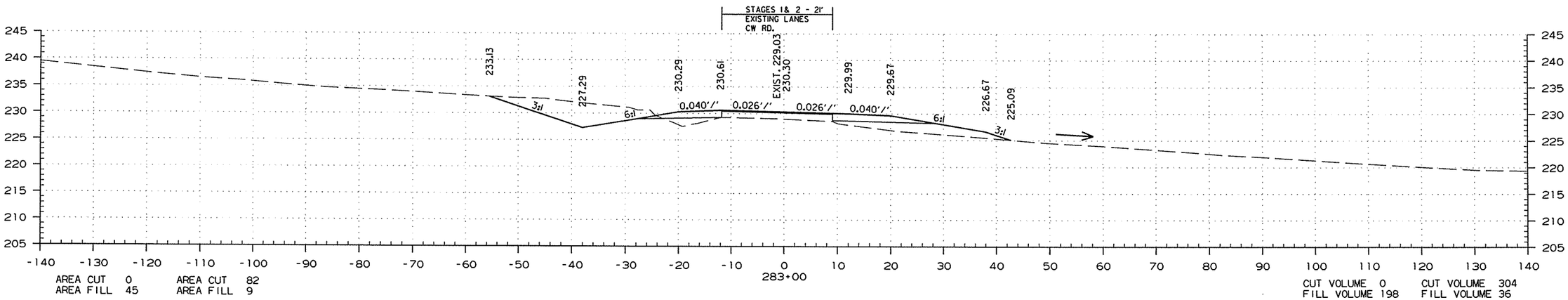
7/24/2015

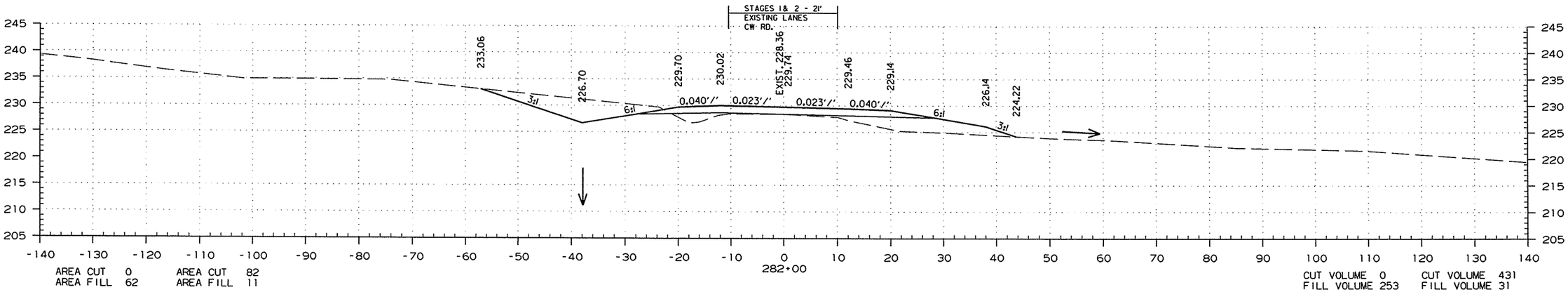
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	277	339

(2) CROSS SECTIONS







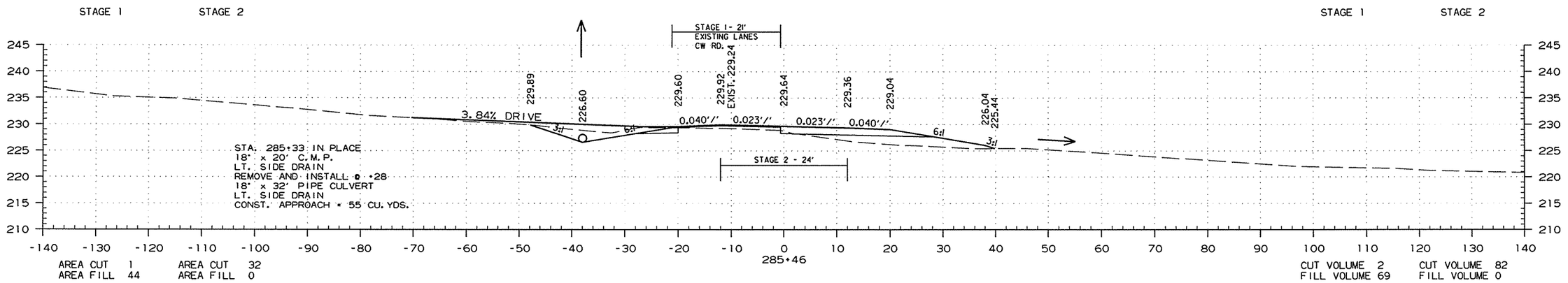
STA. 282+00.00 TO STA. 283+38.00

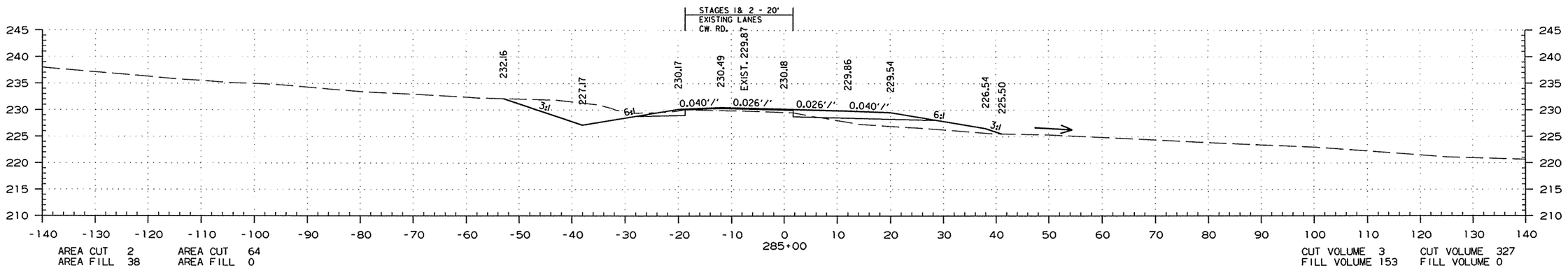
7/24/2015

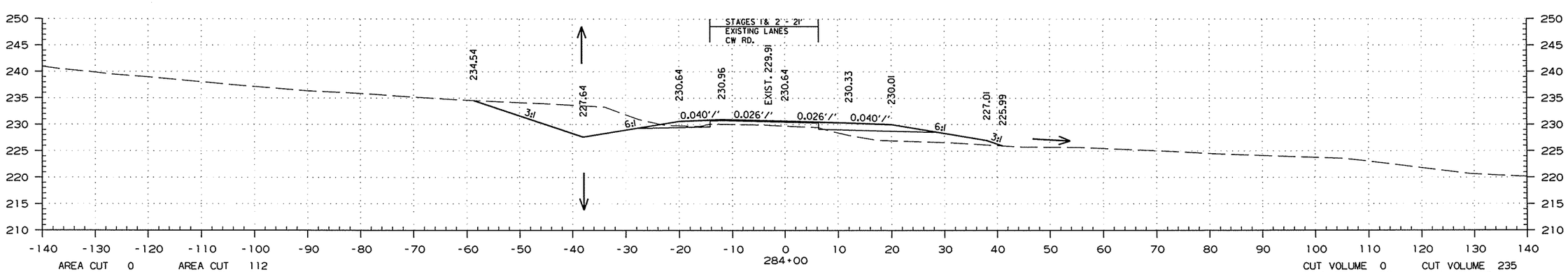
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	278	339

(2) CROSS SECTIONS







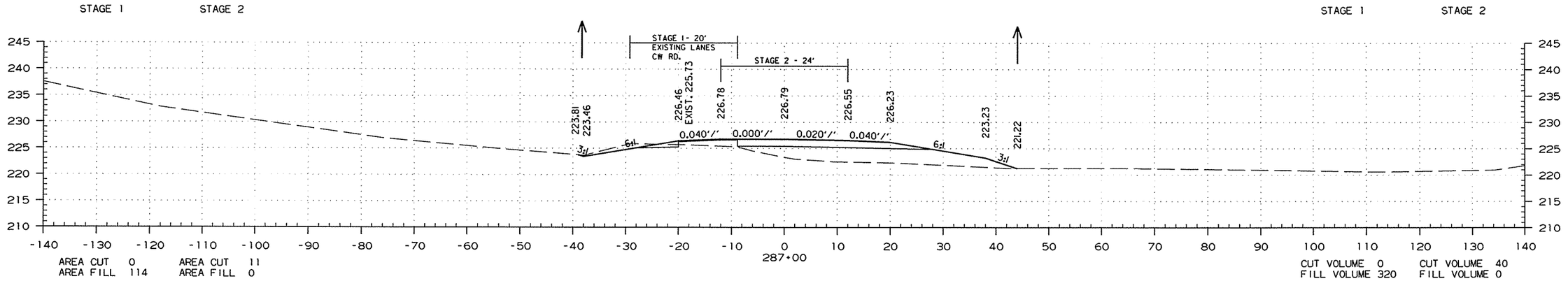
STA. 284+00.00 TO STA. 285+46.00

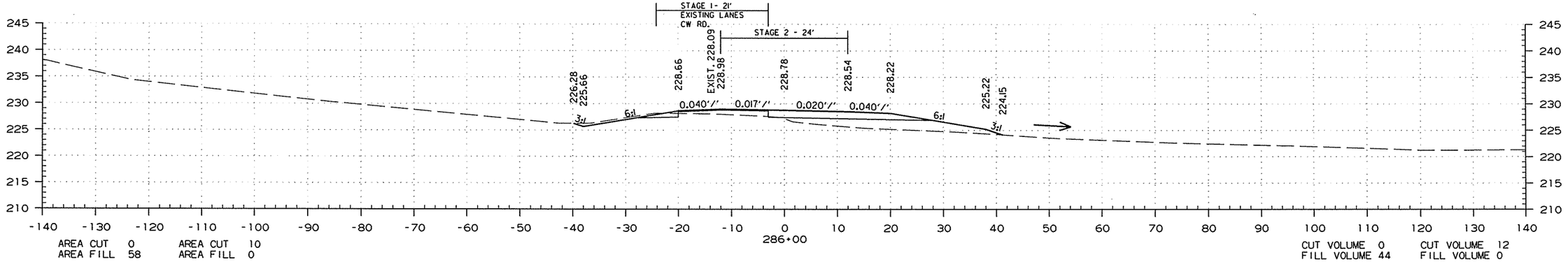
7/24/2015

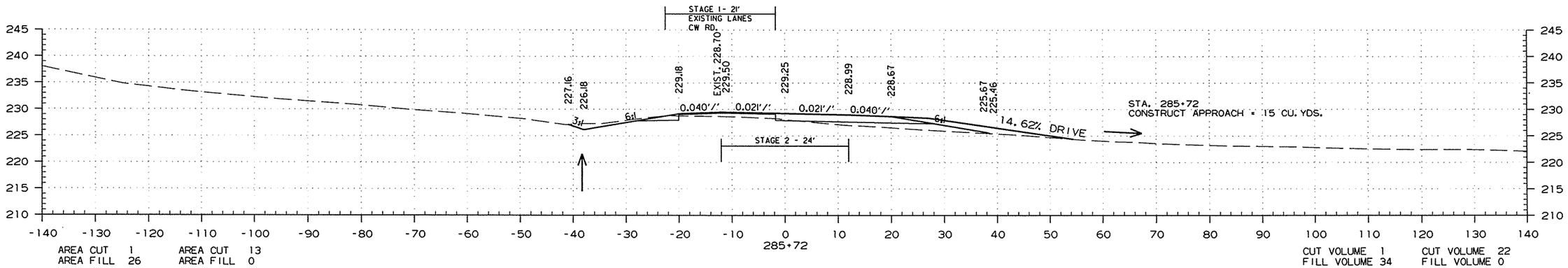
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	279	339

(2) CROSS SECTIONS







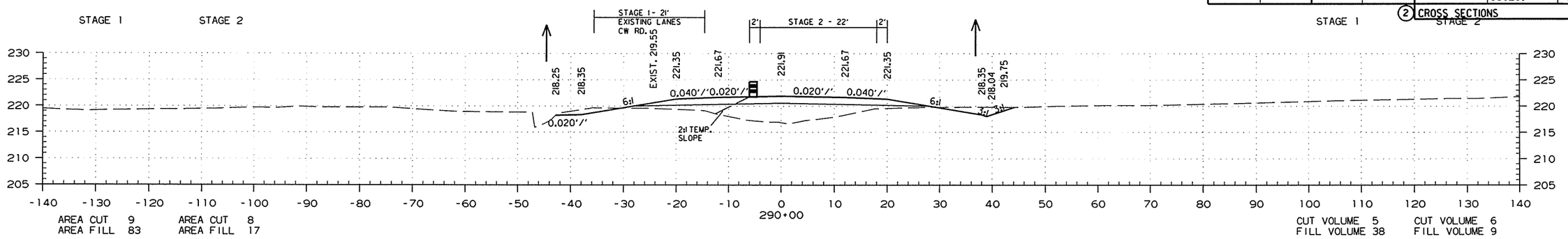
STA. 285+72.00 TO STA. 287+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	280	339

(2) CROSS SECTIONS

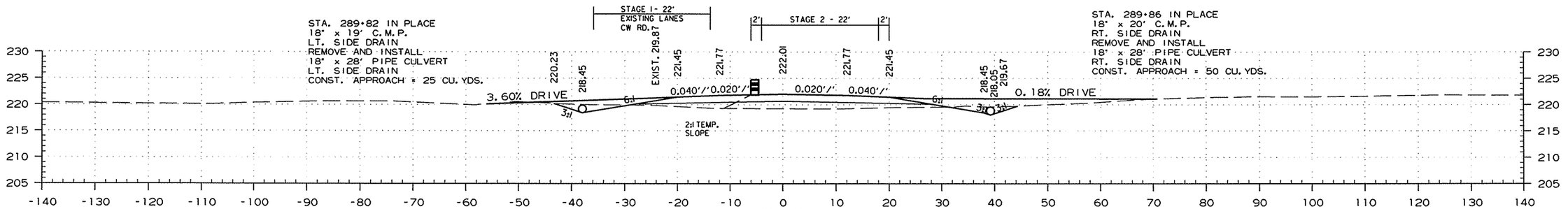


AREA CUT 9 AREA CUT 8
AREA FILL 83 AREA FILL 17

CUT VOLUME 5 CUT VOLUME 6
FILL VOLUME 38 FILL VOLUME 9

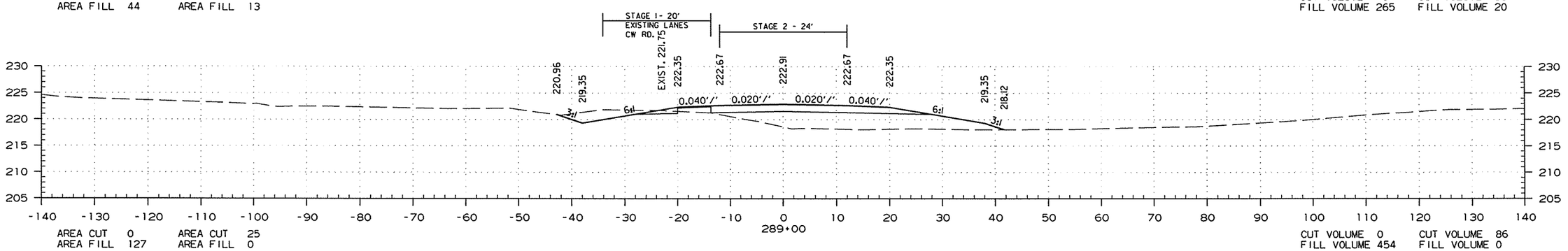
STA. 289+82 IN PLACE
18" x 19' C.M.P.
LT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 25 CU. YDS.

STA. 289+86 IN PLACE
18" x 20' C.M.P.
RT. SIDE DRAIN
REMOVE AND INSTALL
18" x 28' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 50 CU. YDS.



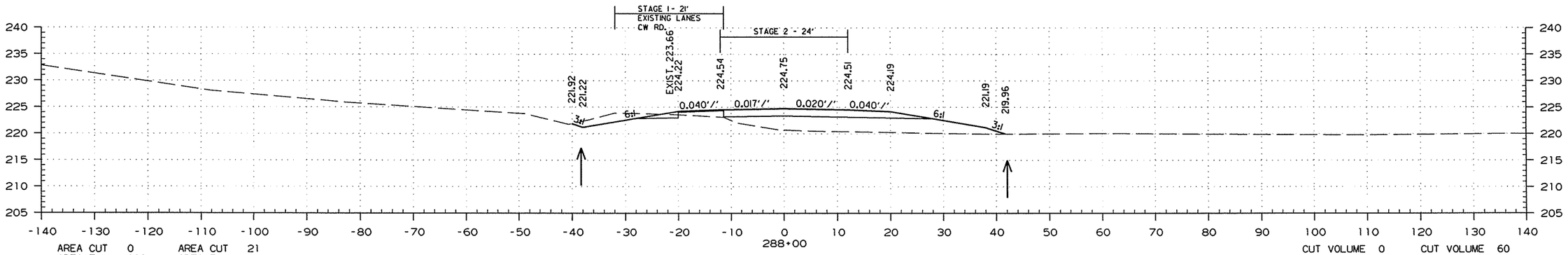
AREA CUT 6 AREA CUT 11
AREA FILL 44 AREA FILL 13

CUT VOLUME 10 CUT VOLUME 56
FILL VOLUME 265 FILL VOLUME 20



AREA CUT 0 AREA CUT 25
AREA FILL 127 AREA FILL 0

CUT VOLUME 0 CUT VOLUME 86
FILL VOLUME 454 FILL VOLUME 0



AREA CUT 0 AREA CUT 21
AREA FILL 118 AREA FILL 0

CUT VOLUME 0 CUT VOLUME 60
FILL VOLUME 431 FILL VOLUME 0

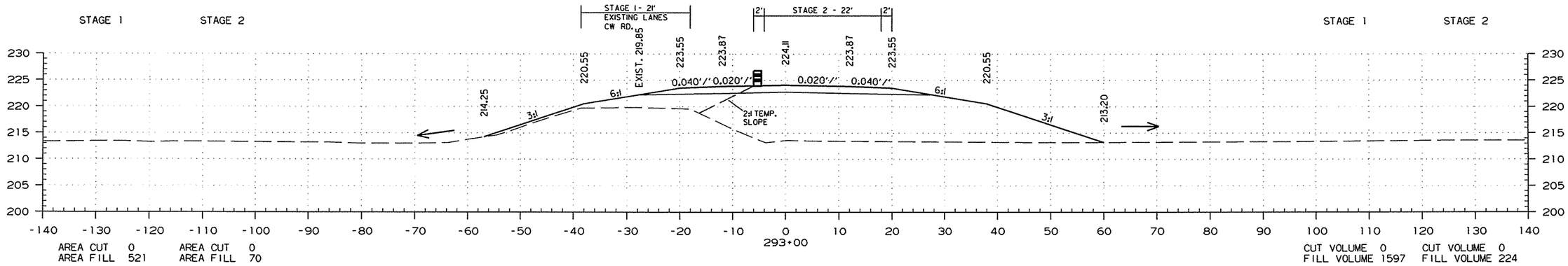
STA. 288+00.00 TO STA. 290+00.00

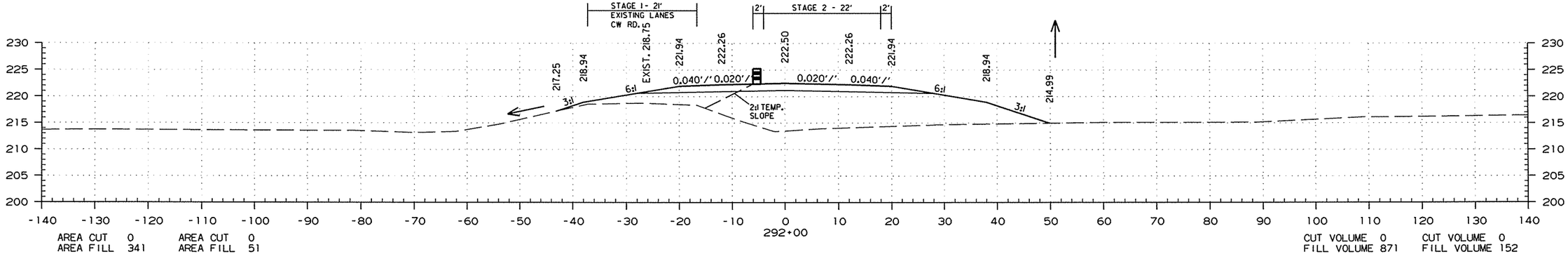
7/24/2015

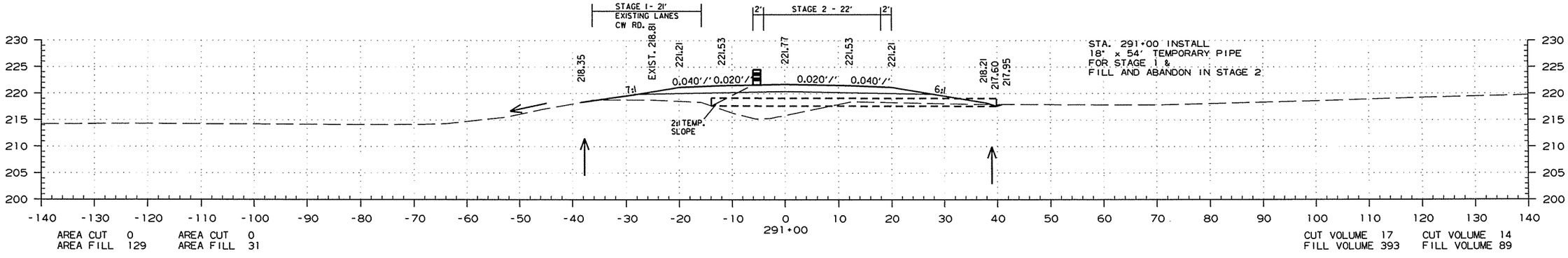
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	281	339

(2) CROSS SECTIONS







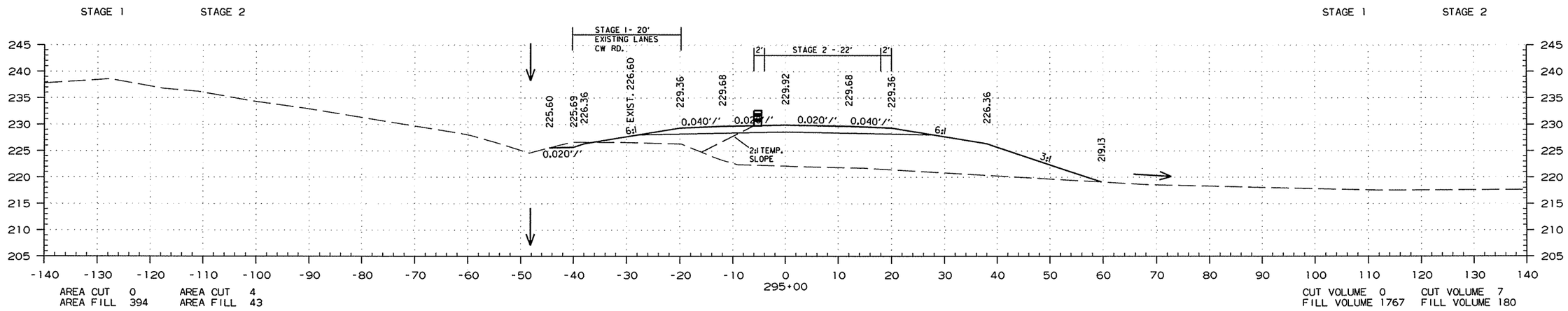
STA. 291+00.00 TO STA. 293+00.00

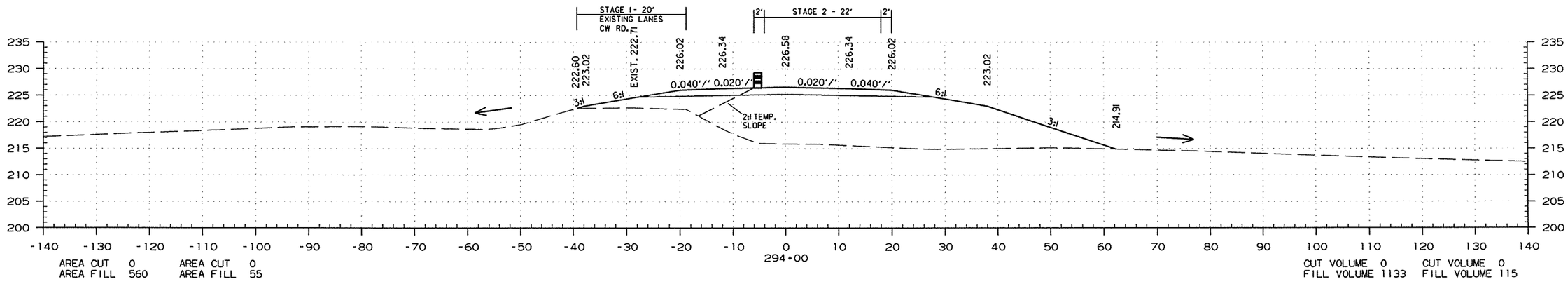
7/24/2015

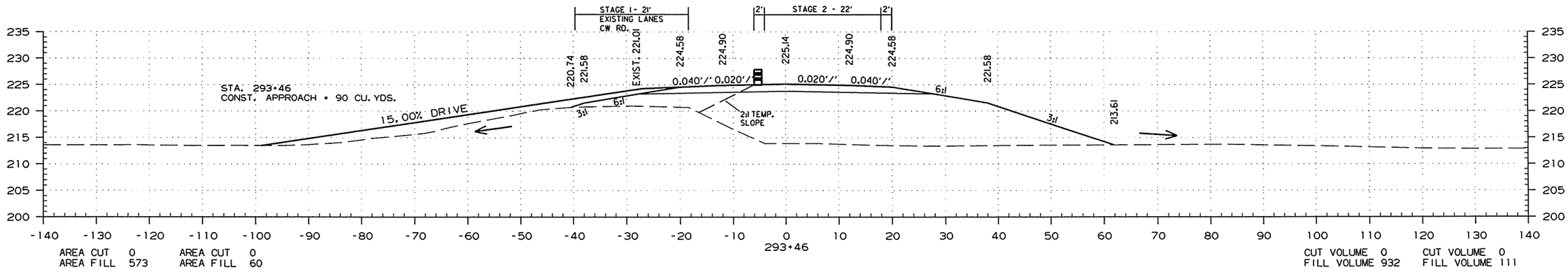
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	282	339

(2) CROSS SECTIONS







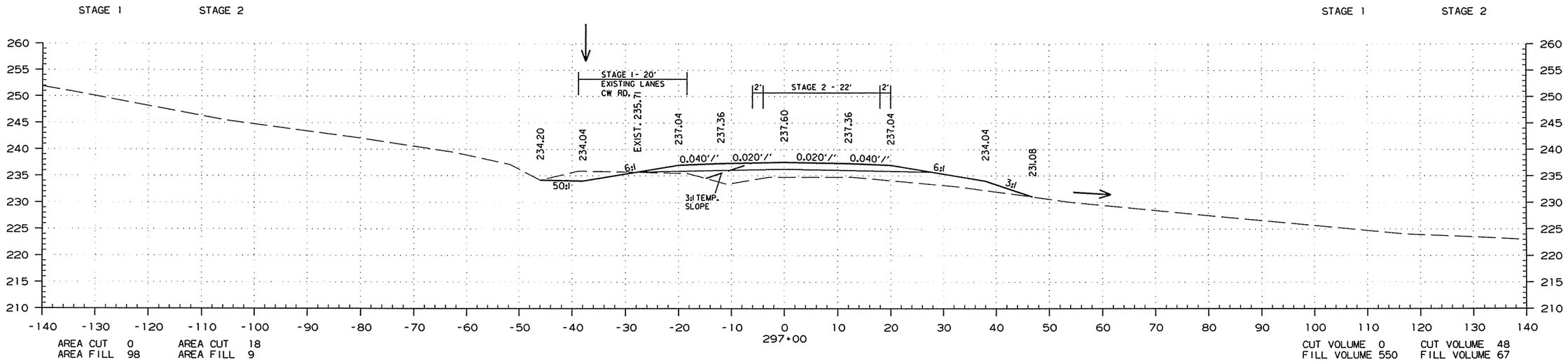
STA. 293+46.00 TO STA. 295+00.00

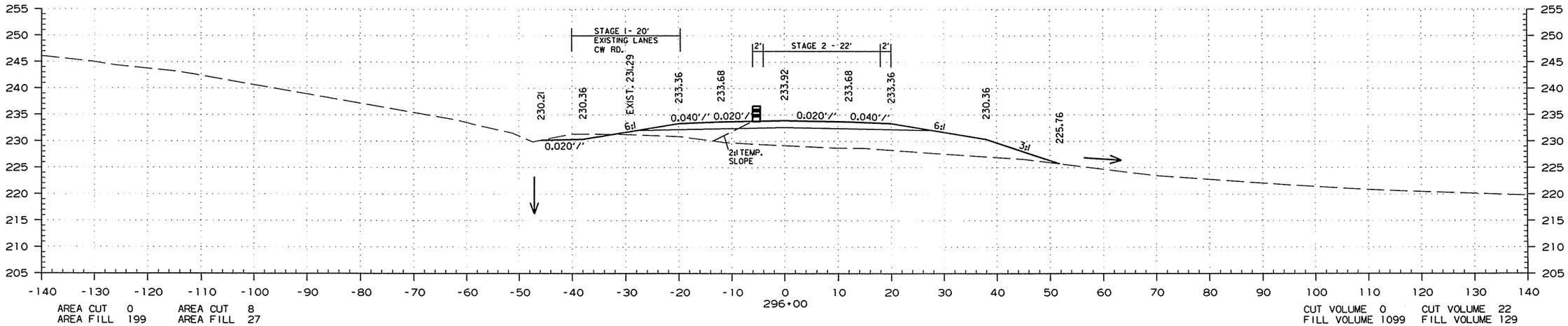
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	283	339

(2) CROSS SECTIONS





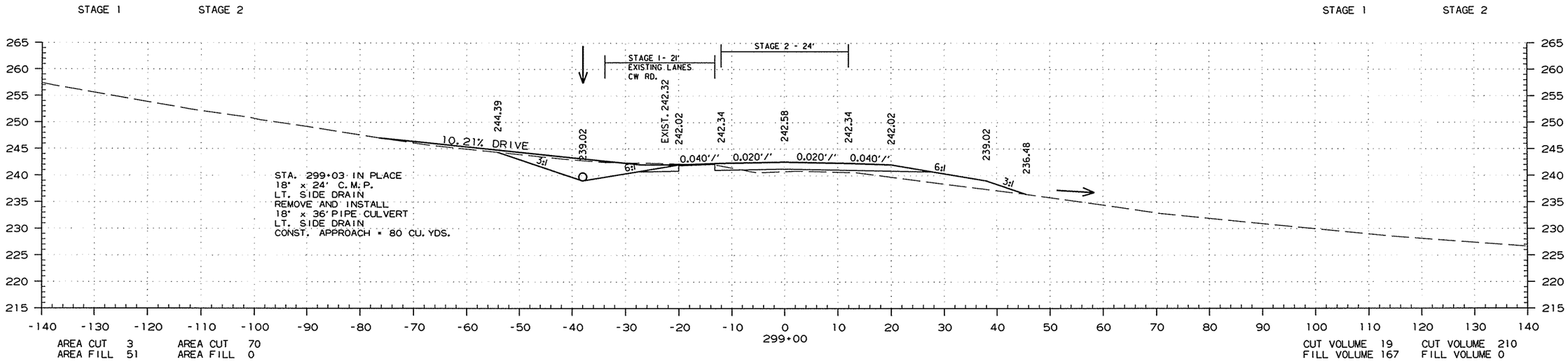
STA. 296+00.00 TO STA. 297+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	284	339

(2) CROSS SECTIONS



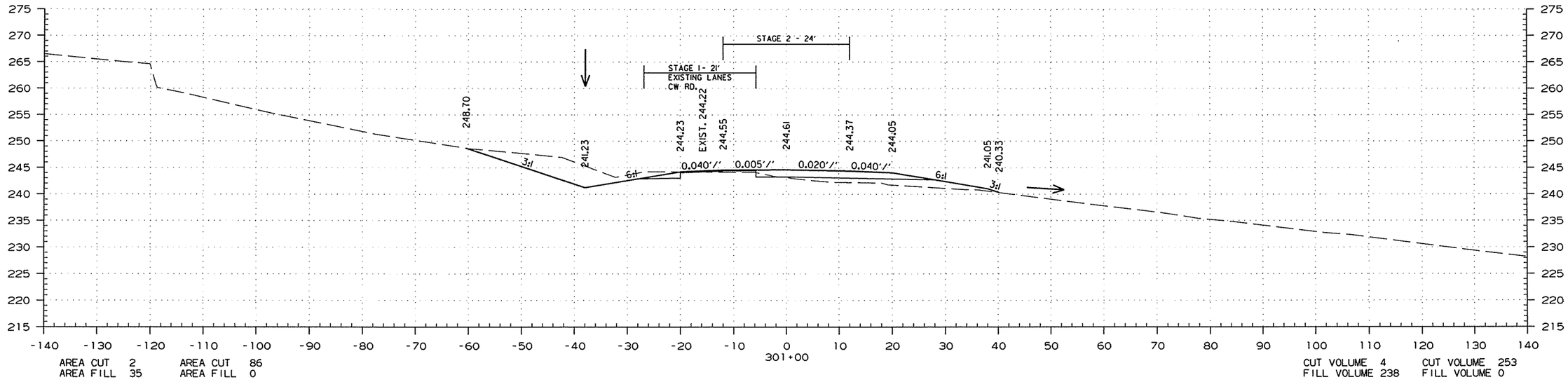
STA. 298+00.00 TO STA. 299+00.00

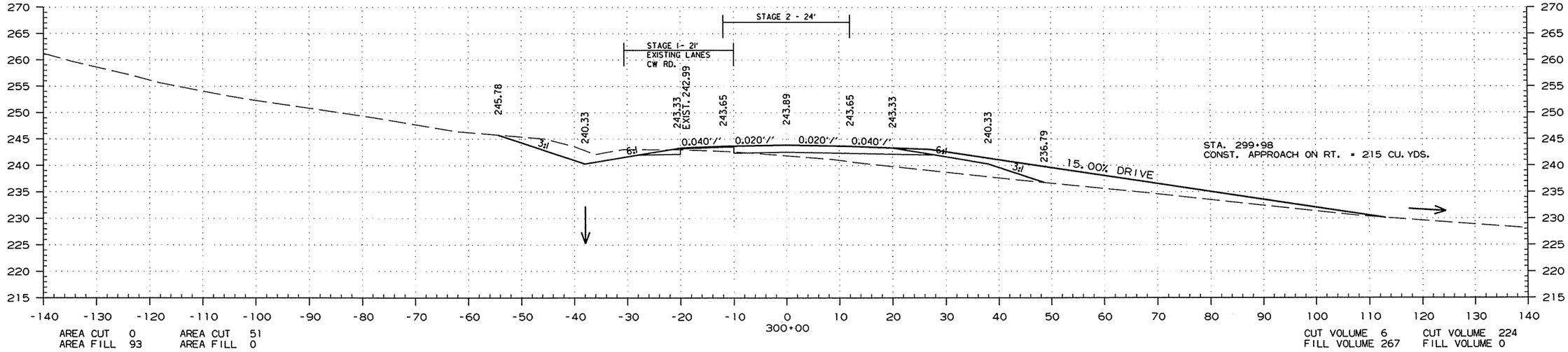
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	285	339

(2) CROSS SECTIONS





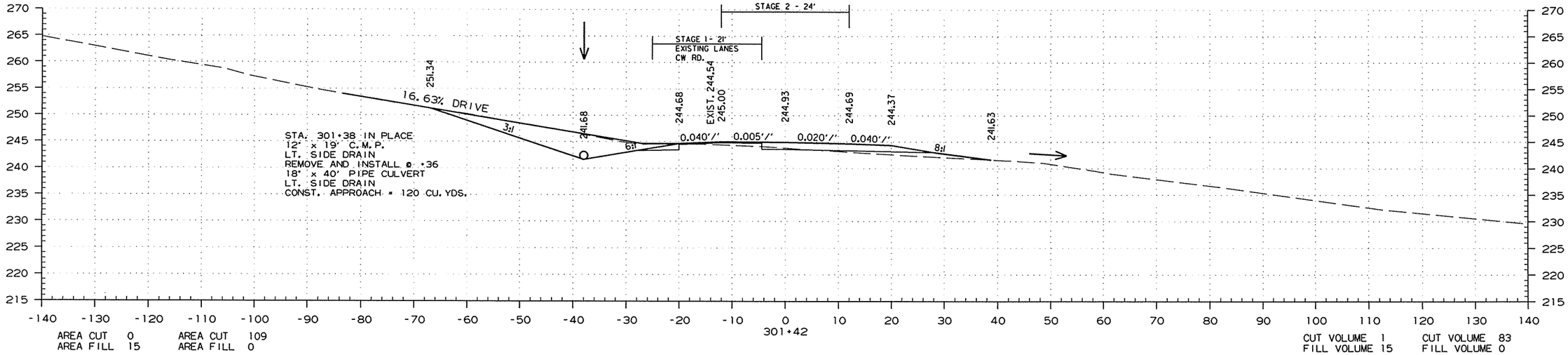
STA. 300+00.00 TO STA. 301+00.00

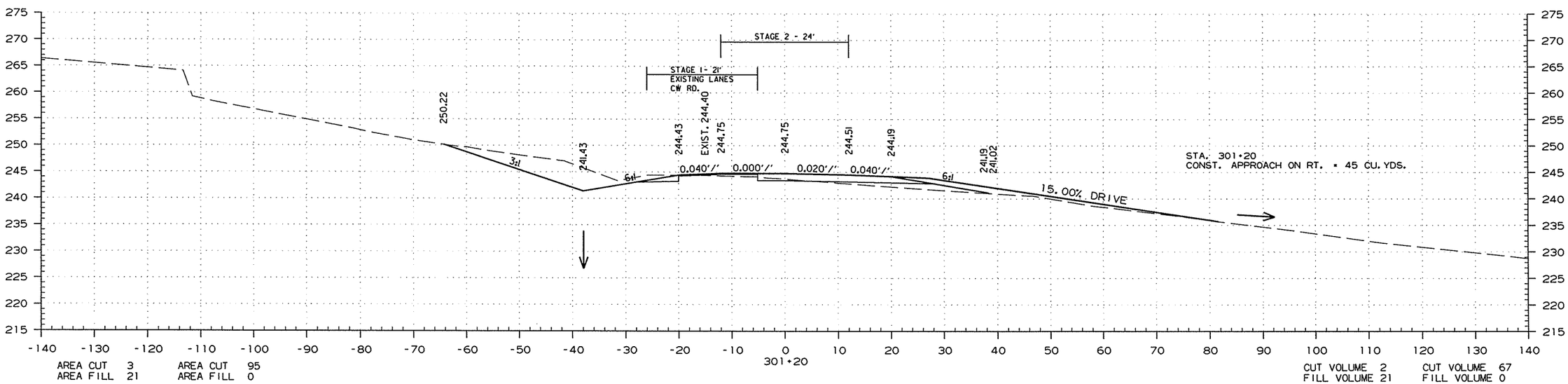
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	286	339

(2) CROSS SECTIONS





STA. 301+20.00 TO STA. 301+42.00

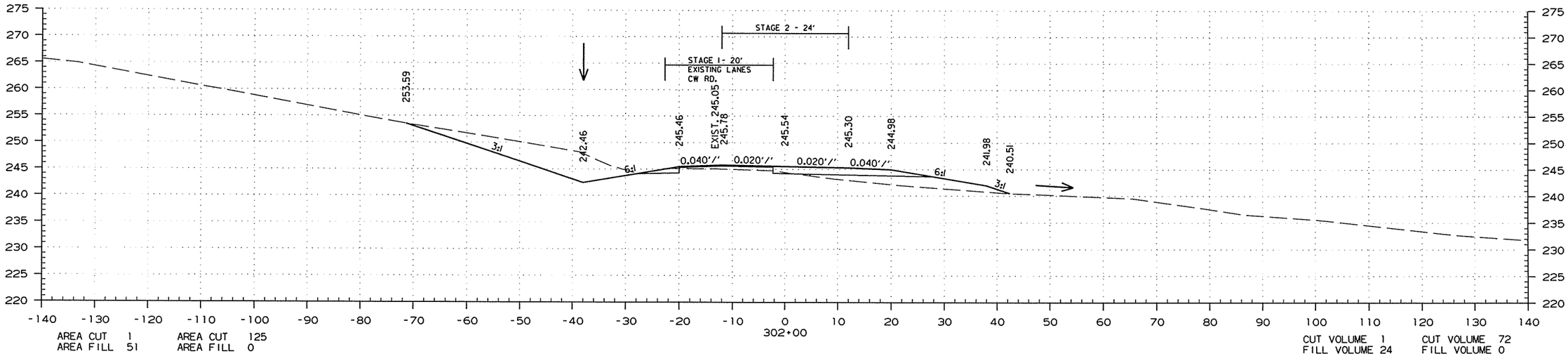
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	287	339

(2) CROSS SECTIONS

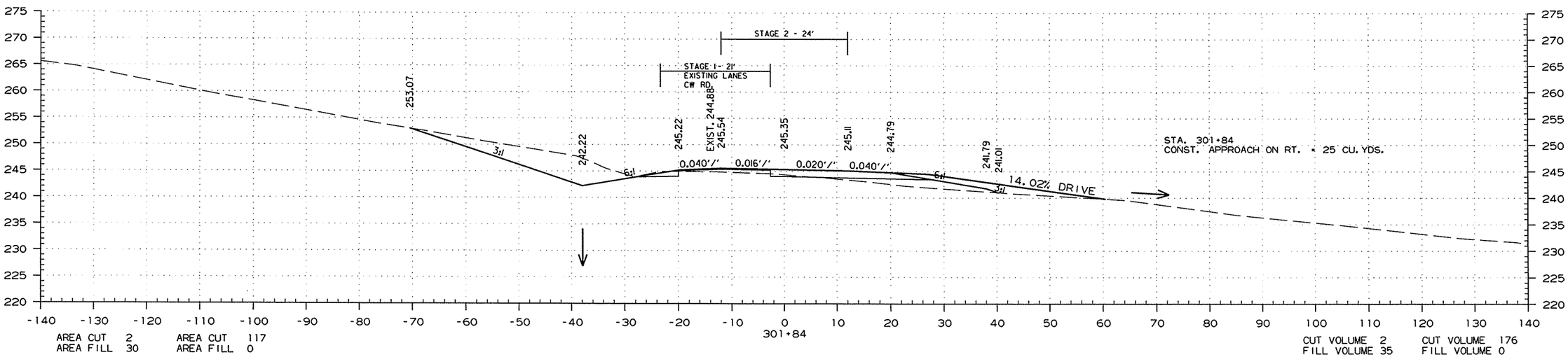
STAGE 1 STAGE 2



AREA CUT 1 AREA CUT 125
AREA FILL 51 AREA FILL 0

CUT VOLUME 1 CUT VOLUME 72
FILL VOLUME 24 FILL VOLUME 0

STAGE 1 STAGE 2



AREA CUT 2 AREA CUT 117
AREA FILL 30 AREA FILL 0

CUT VOLUME 2 CUT VOLUME 176
FILL VOLUME 35 FILL VOLUME 0

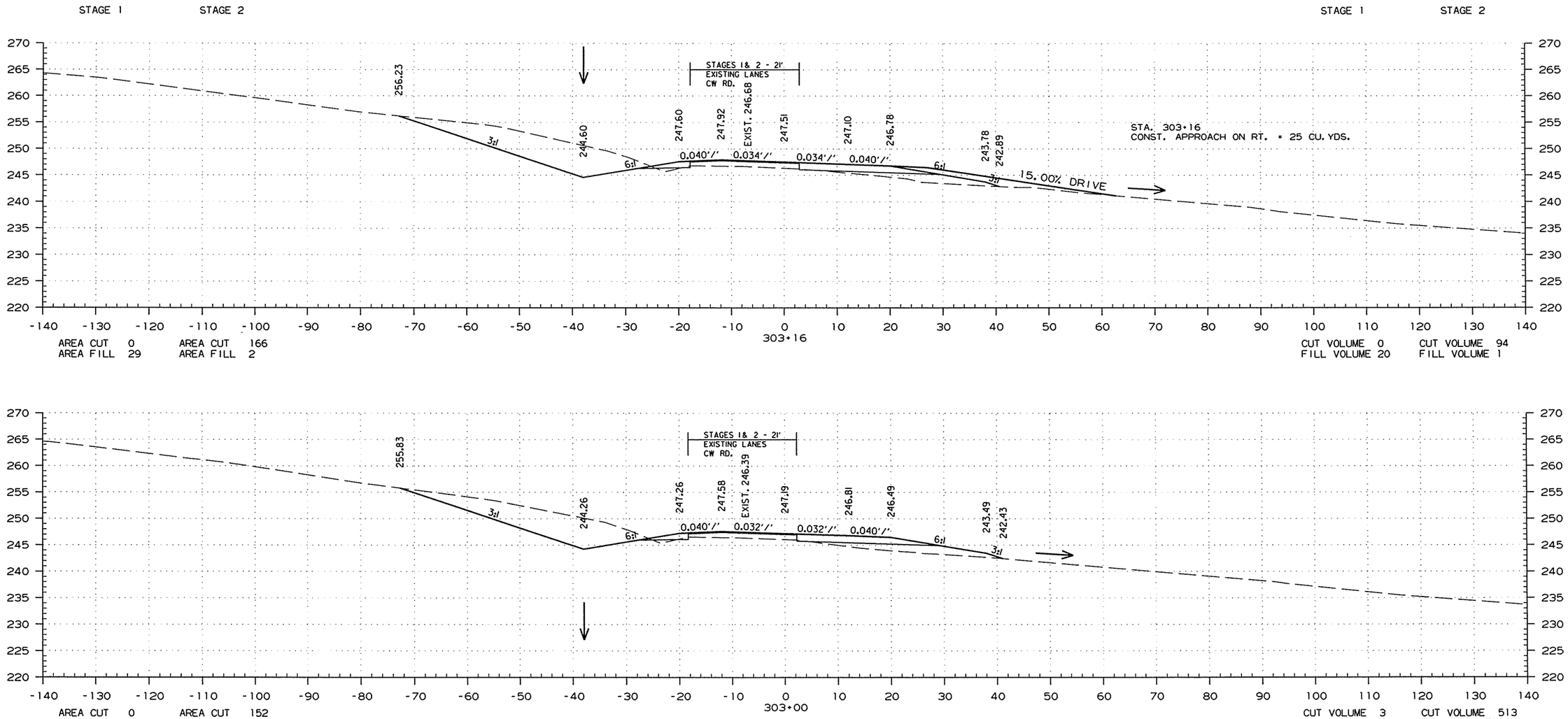
STA. 301+84.00 TO STA. 302+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	288	339

(2) CROSS SECTIONS



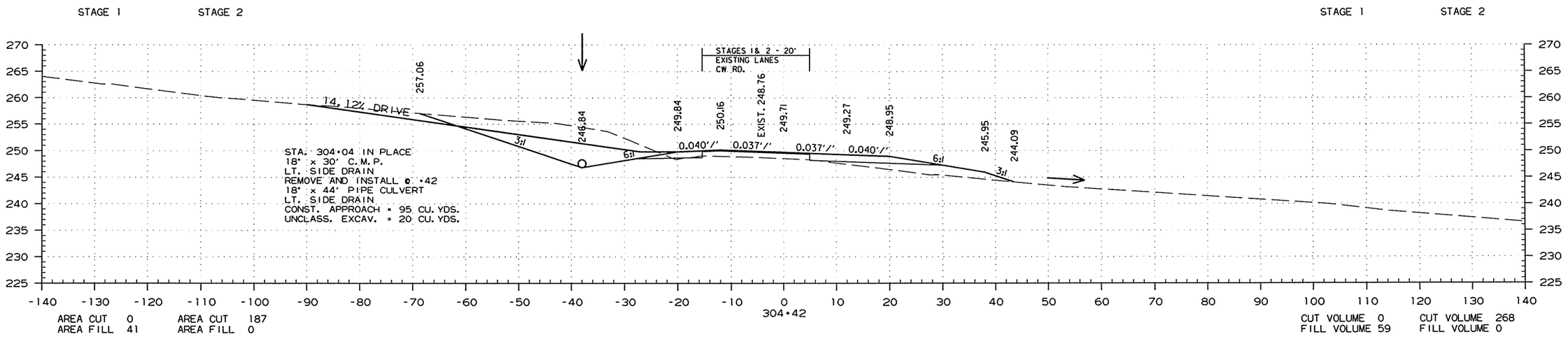
STA. 303+00.00 TO STA. 303+16.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	289	339

(2) CROSS SECTIONS



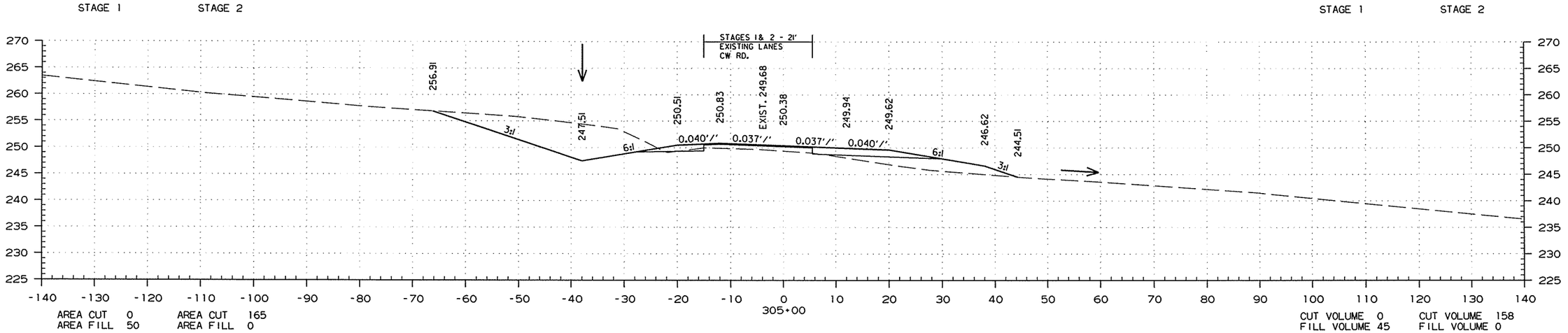
STA. 304+00.00 TO STA. 304+42.00

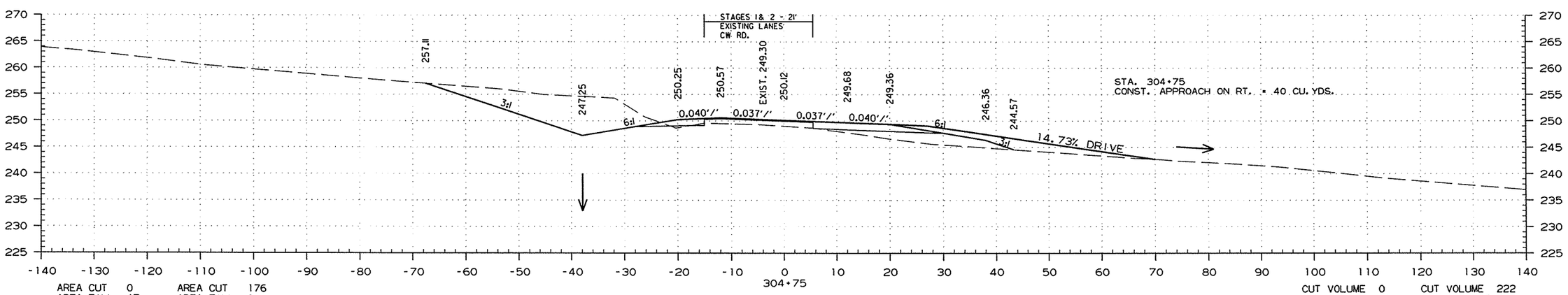
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	290	339

(2) CROSS SECTIONS





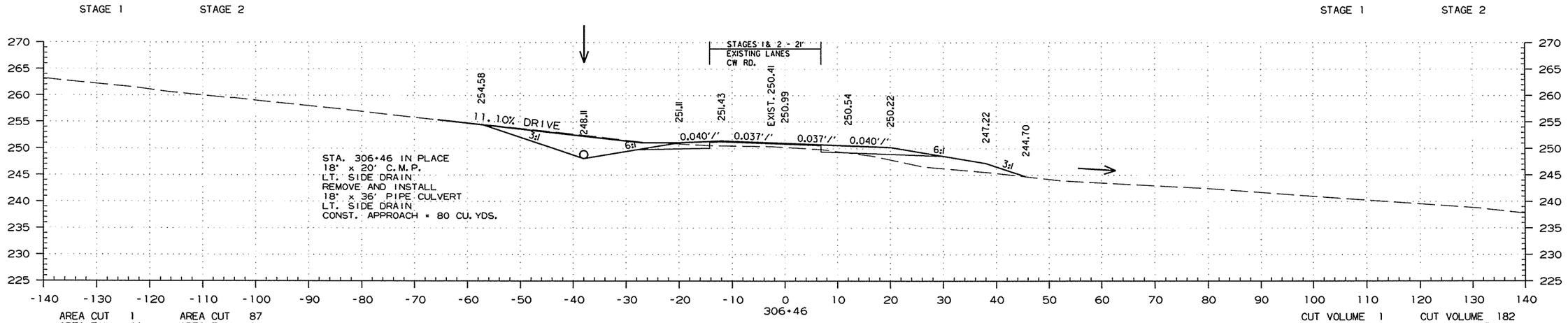
STA. 304+75.00 TO STA. 305+00.00

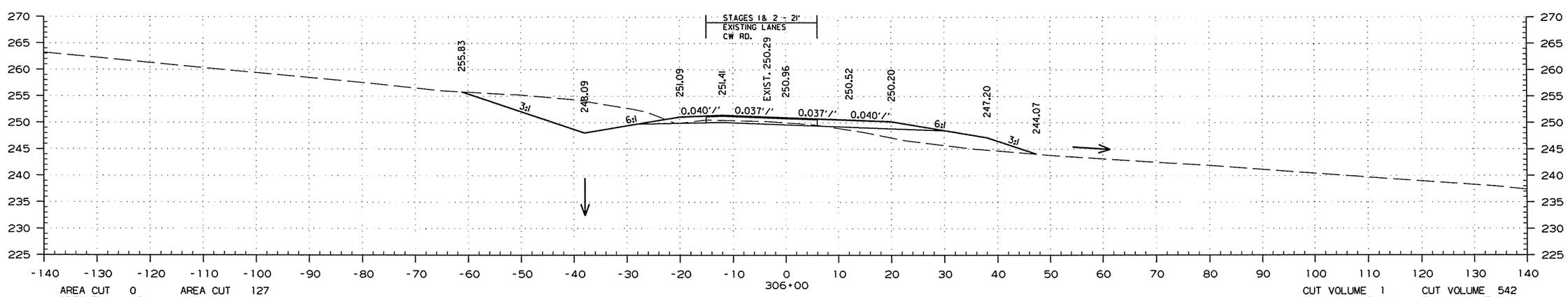
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	291	339

(2) CROSS SECTIONS





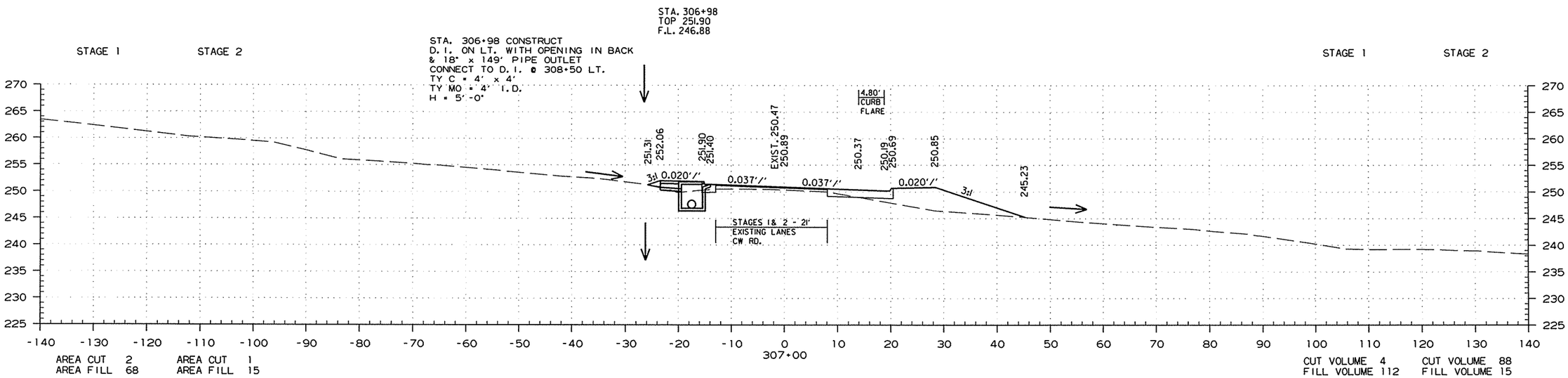
STA. 306+00.00 TO STA. 306+46.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	292	339

(2) CROSS SECTIONS



STA. 306+65.50 BEGIN 192' TAPER

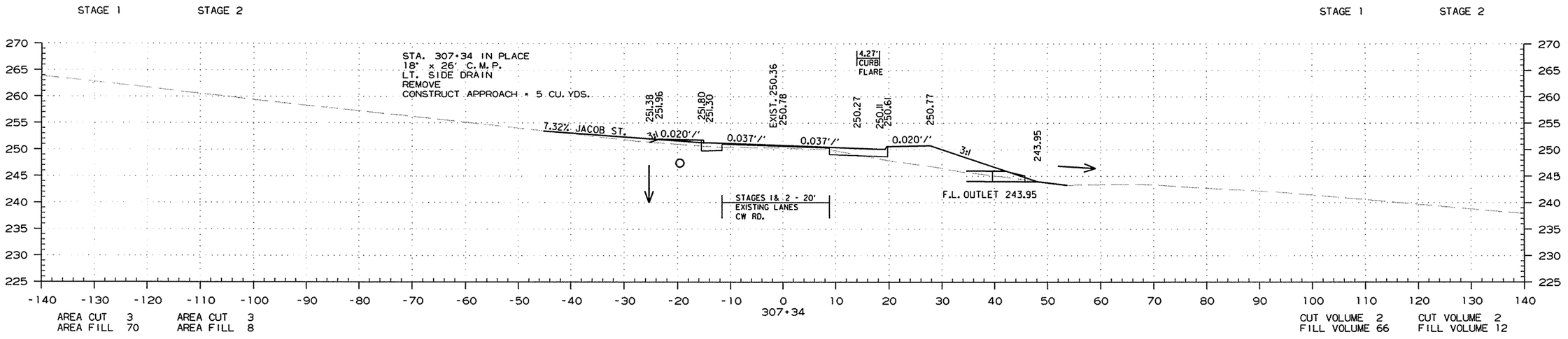
7/24/2015

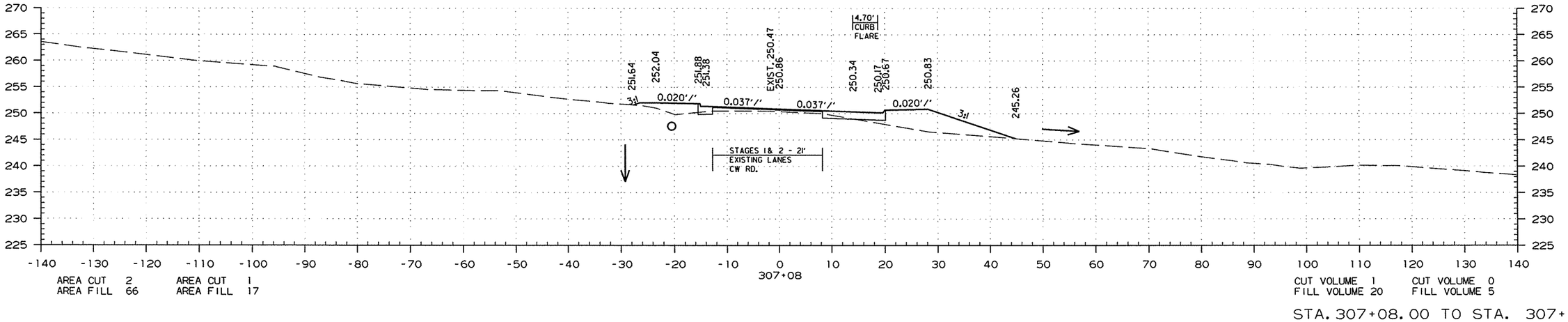
R050251.DGN

STA. 307+00.00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	293	339

(2) CROSS SECTIONS





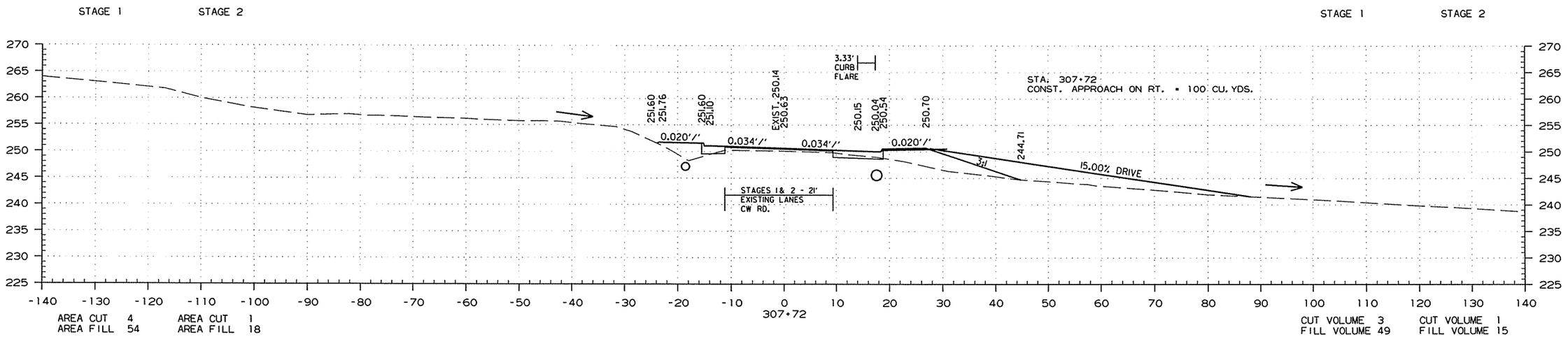
STA. 307+08.00 TO STA. 307+34.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	294	339

(2) CROSS SECTIONS



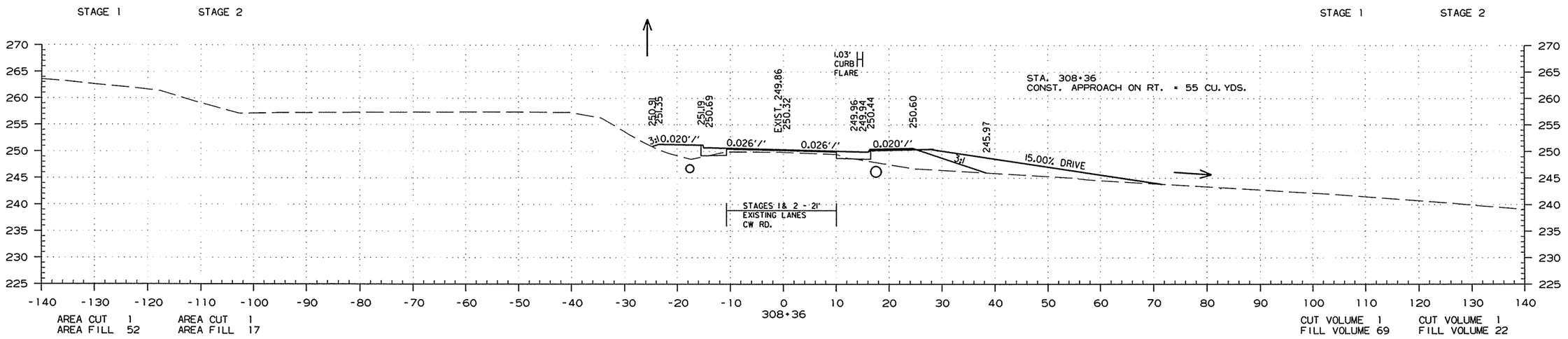
STA. 307+50.00 TO STA. 307+72.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	295	339

(2) CROSS SECTIONS



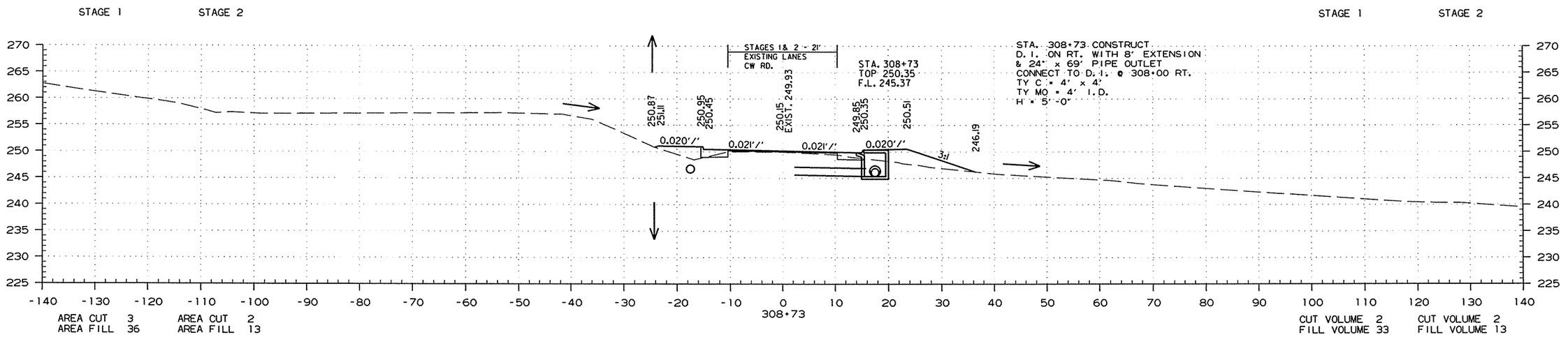
STA. 308+00.00 TO STA. 308+36.00

7/24/2015

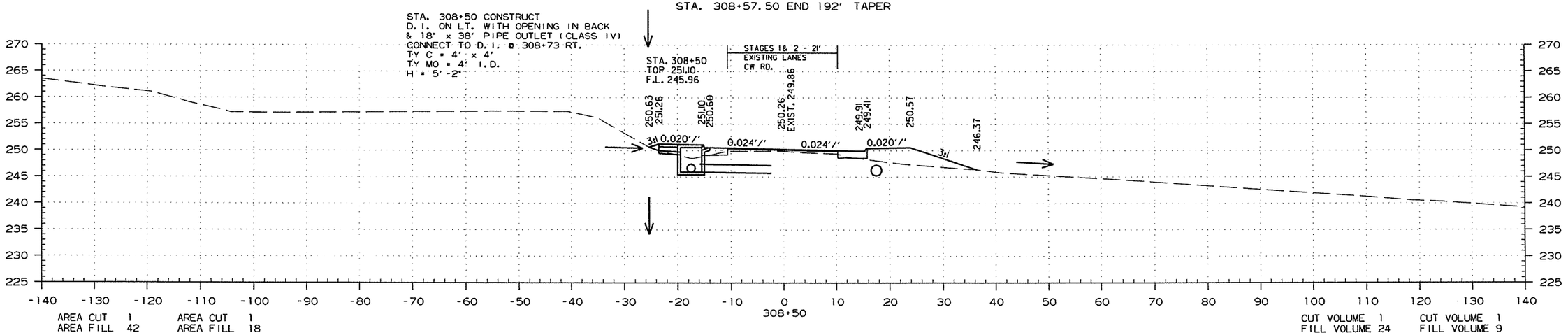
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	296	339

(2) CROSS SECTIONS



STA. 308+57.50 END 192' TAPER



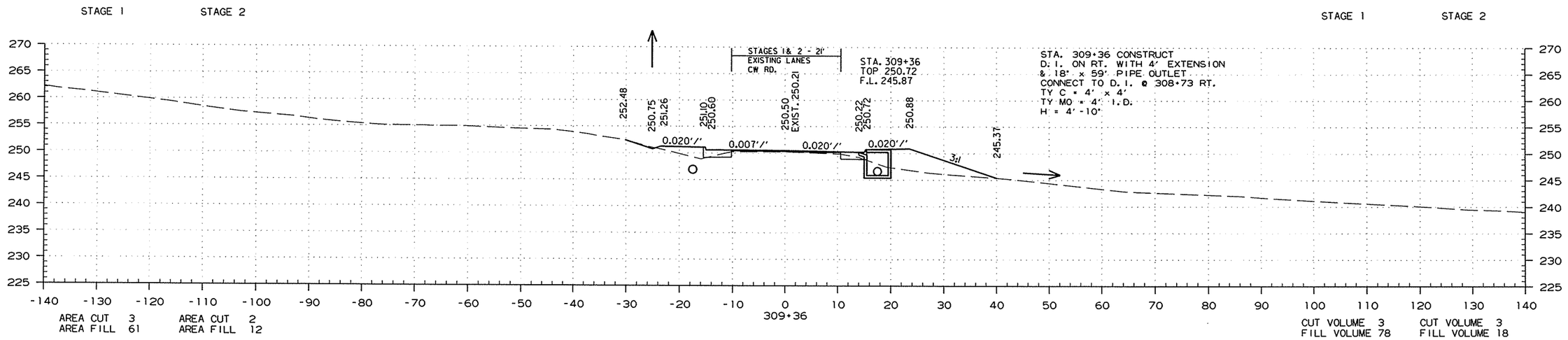
STA. 308+50.00 TO STA. 308+73.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	297	339

(2) CROSS SECTIONS



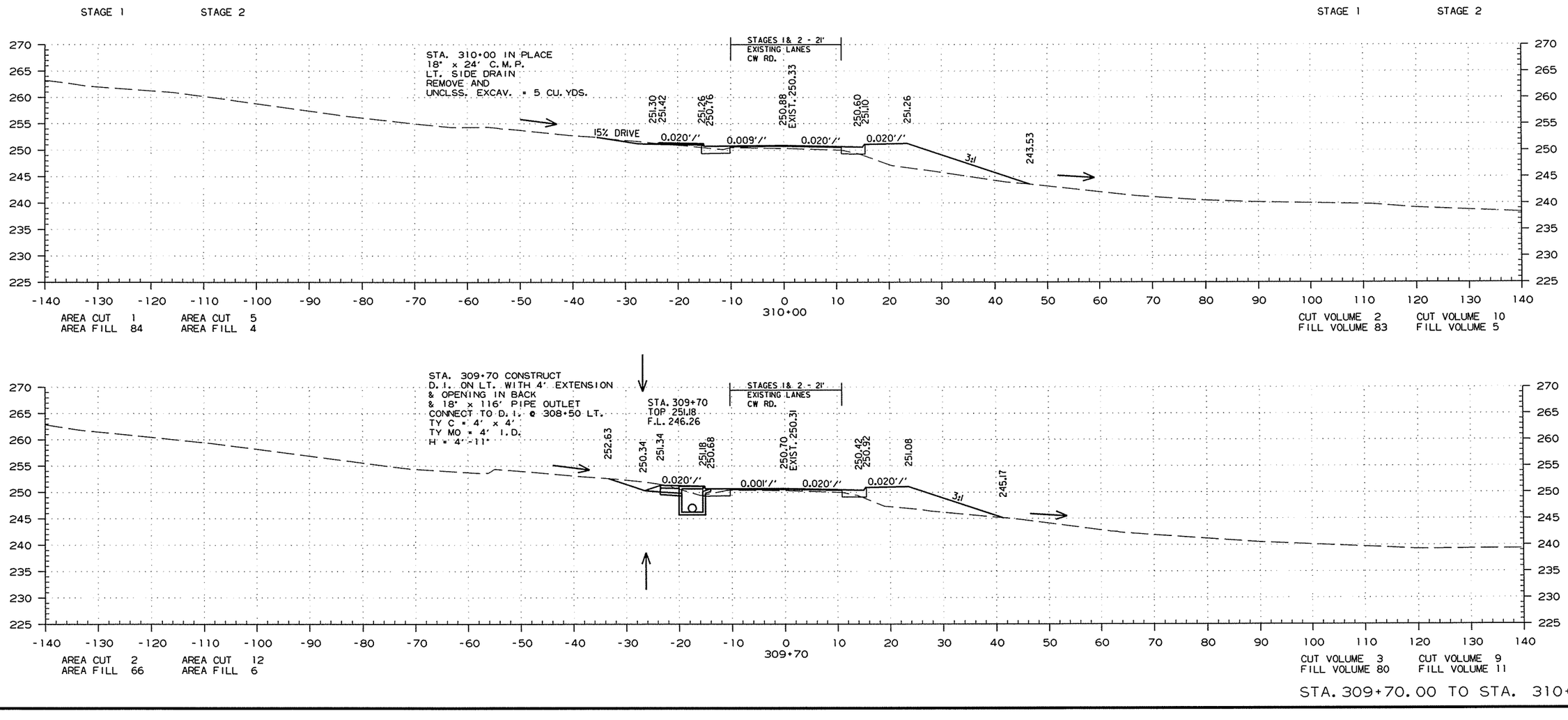
STA. 309+00.00 TO STA. 309+36.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	298	339

(2) CROSS SECTIONS



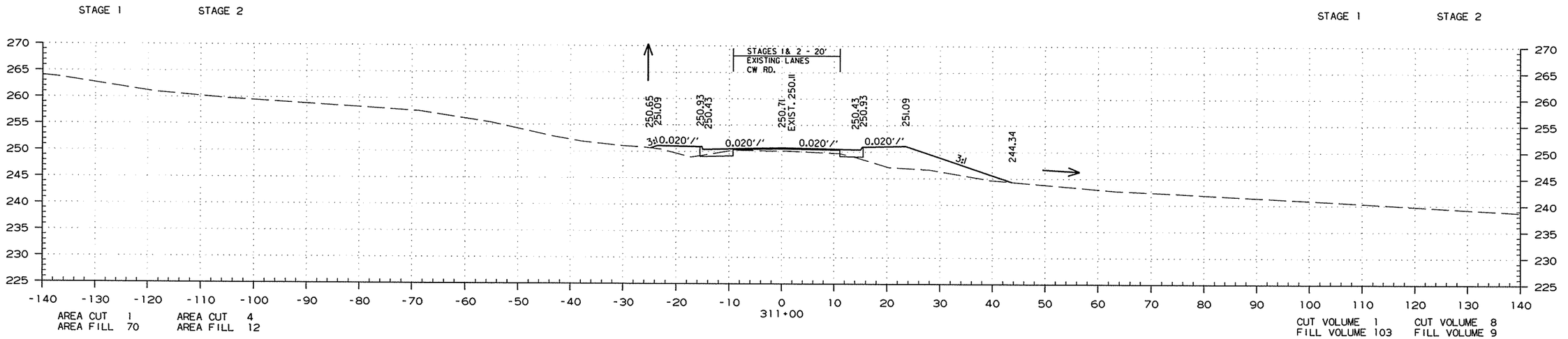
STA. 309+70.00 TO STA. 310+00.00

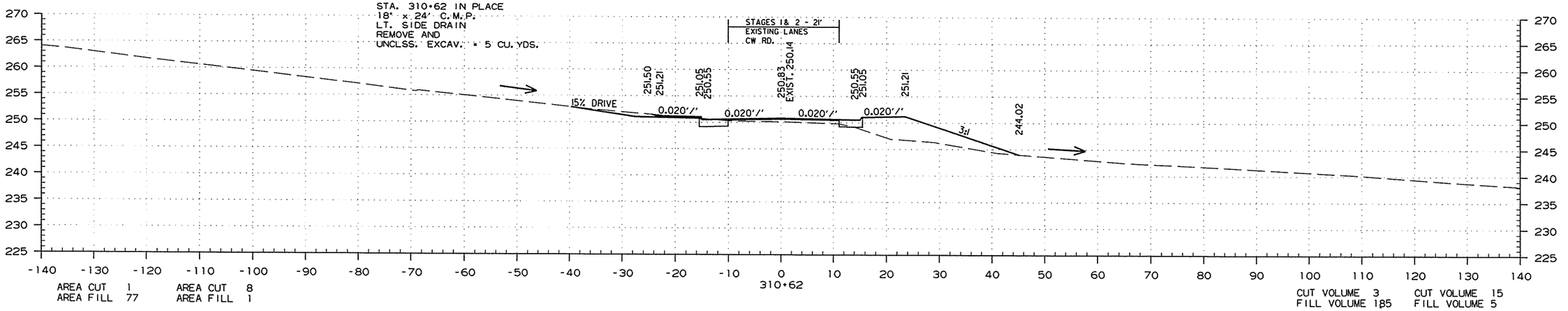
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	299	339

(2) CROSS SECTIONS





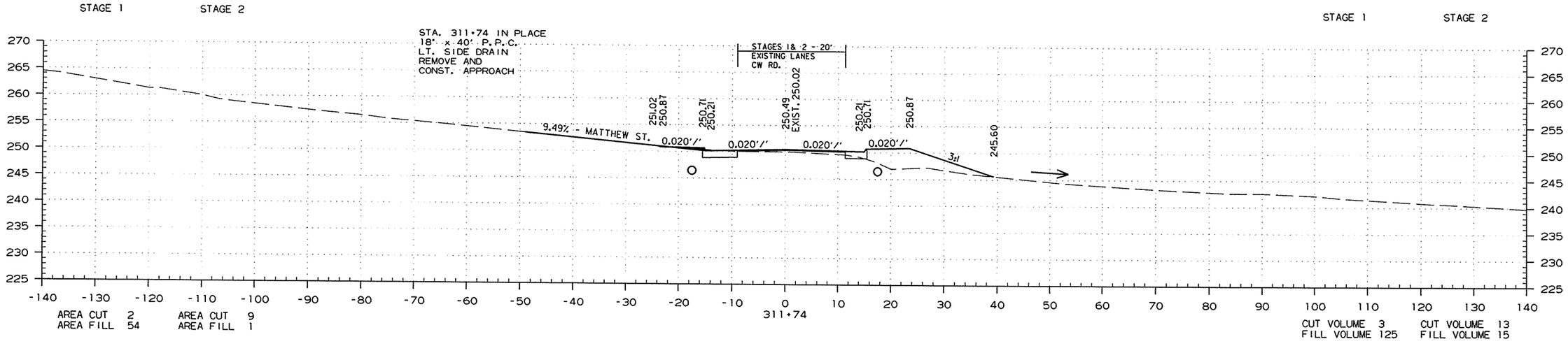
STA. 310+62.00 TO STA. 311+00.00

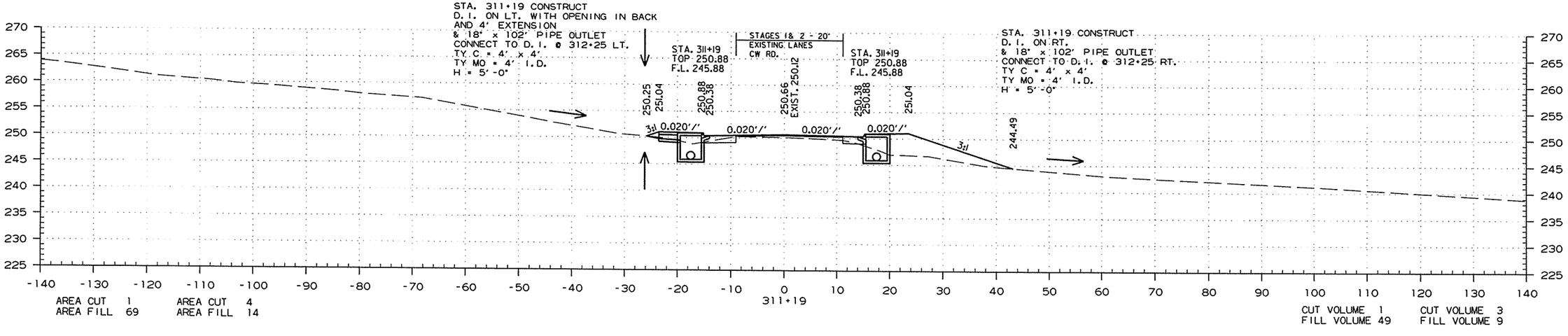
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	300	339

(2) CROSS SECTIONS





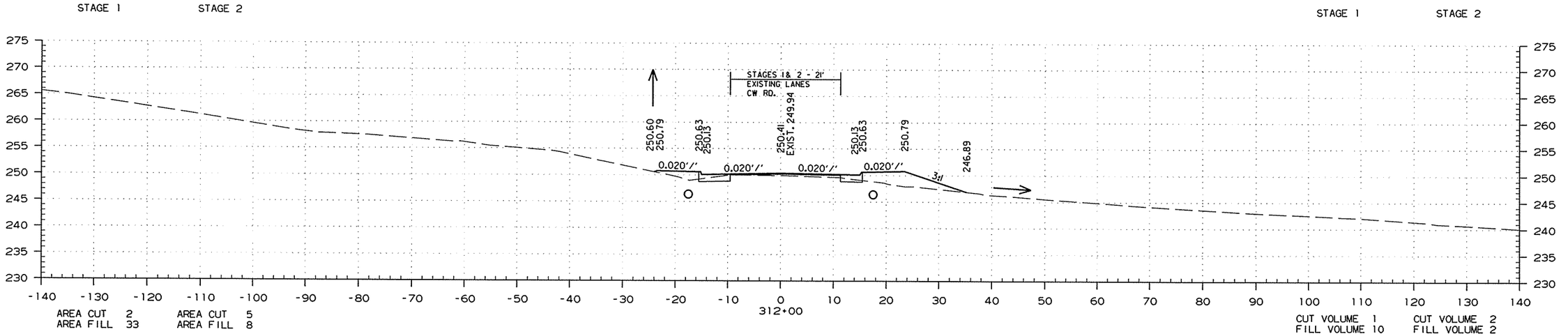
STA. 311+19.00 TO STA. 311+74.00

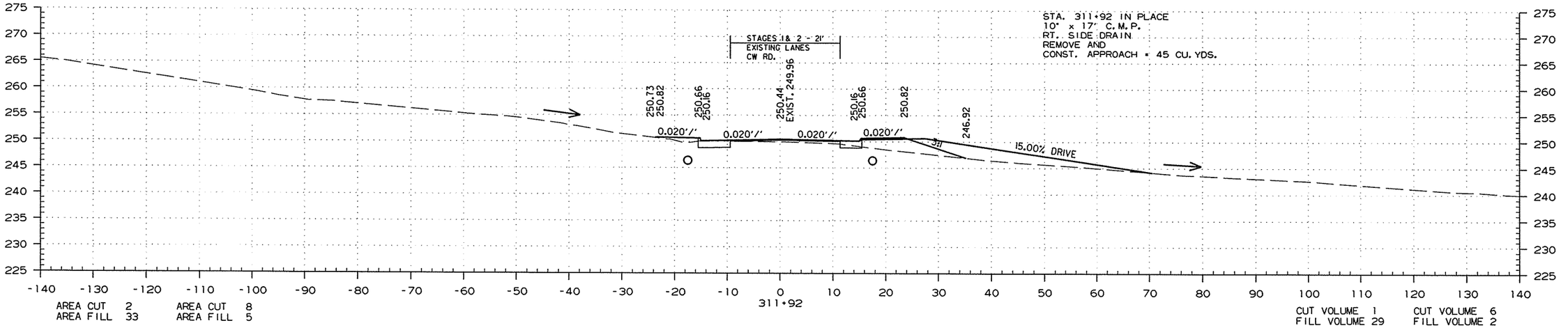
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	301	339

(2) CROSS SECTIONS





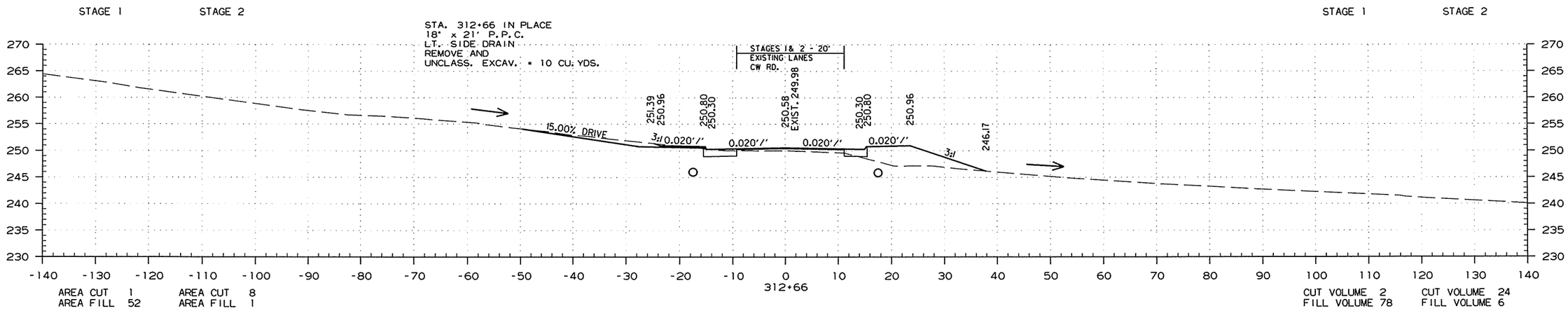
STA. 311+92.00 TO STA. 312+00.00

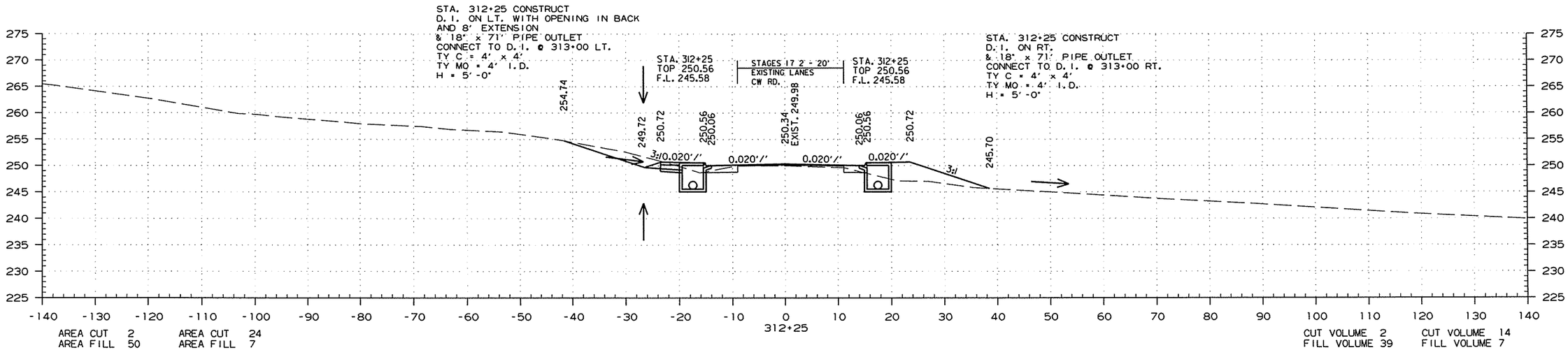
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	302	339

(2) CROSS SECTIONS





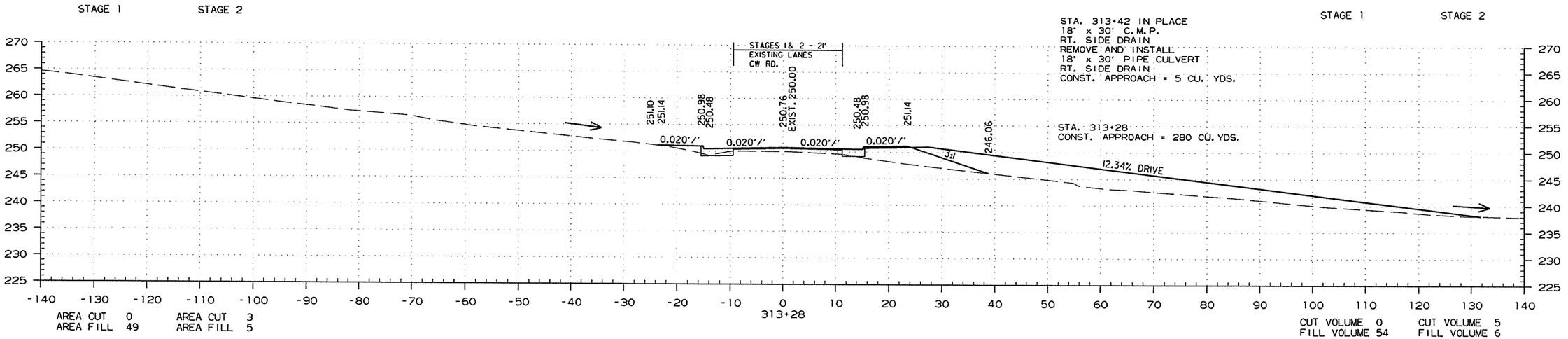
STA. 312+25.00 TO STA. 312+66.00

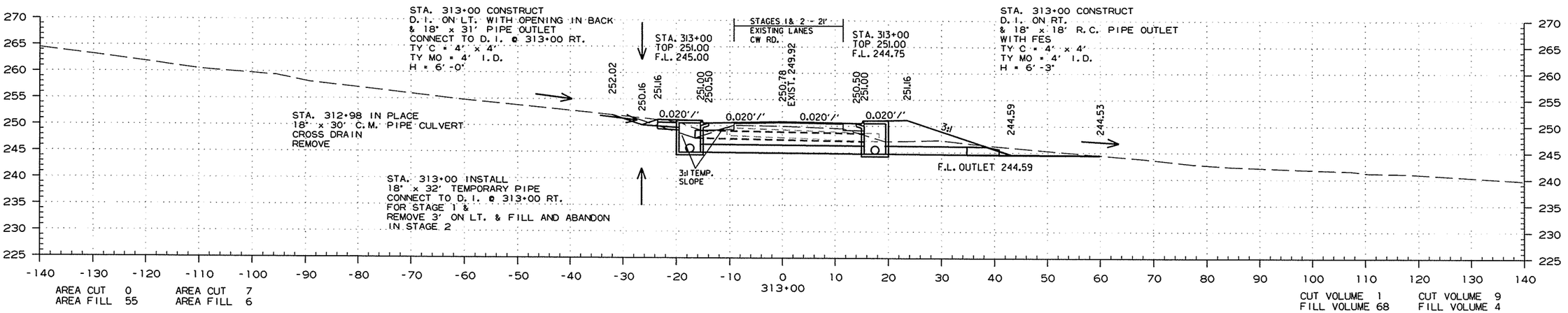
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	303	339

(2) CROSS SECTIONS





STA. 313+00.00 TO STA. 313+28.00

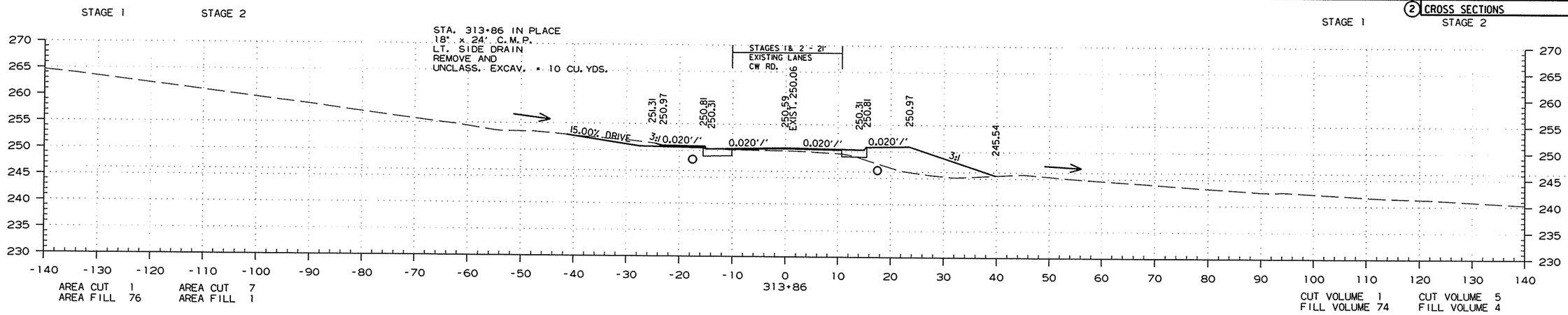
7/24/2015

R050251.DGN

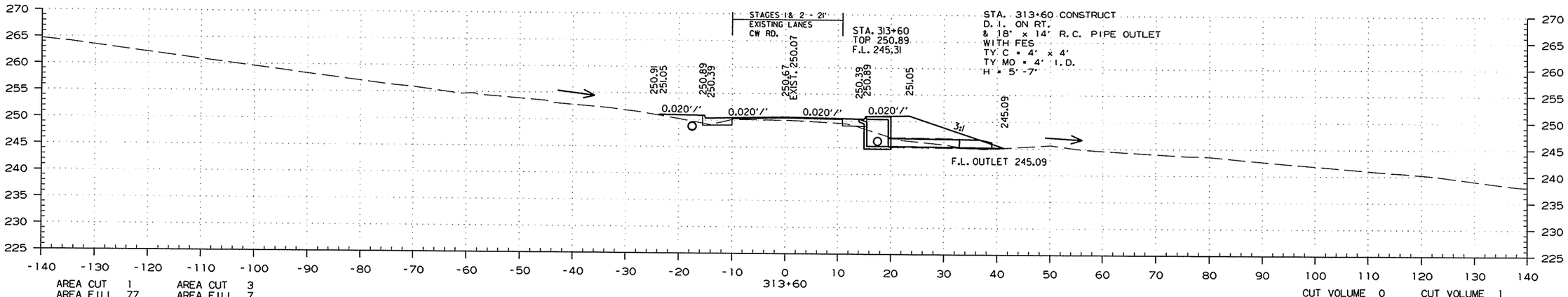
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	304	339

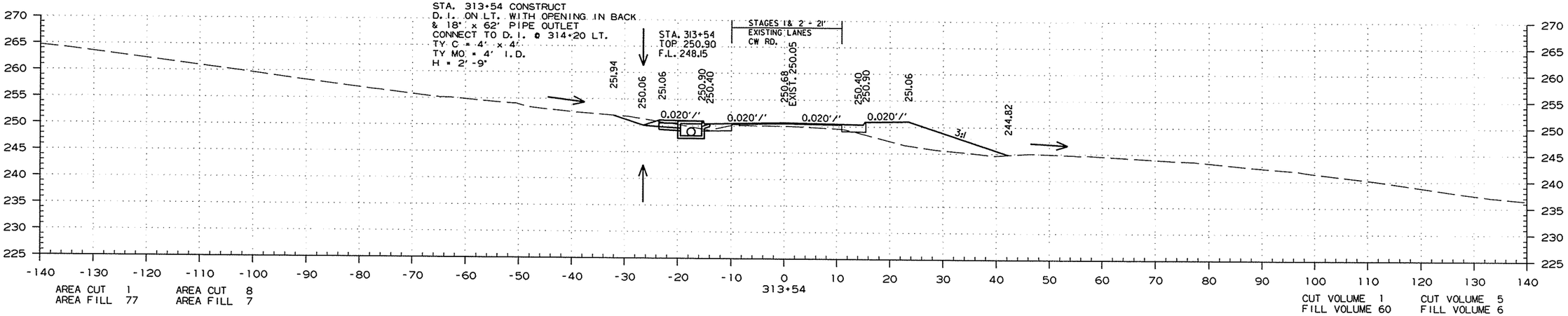
(2) CROSS SECTIONS

STAGE 1 STAGE 2



STAGE 1 STAGE 2





STA. 313+54.00 TO STA. 313+86.00

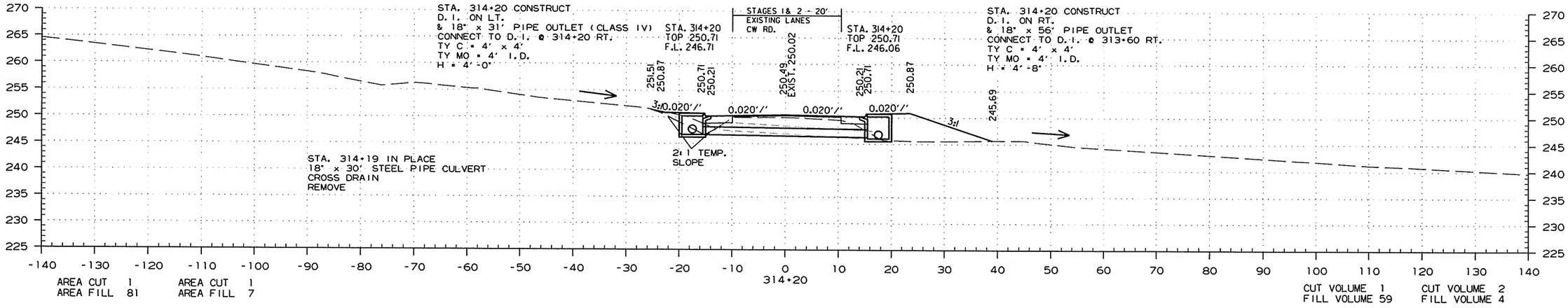
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	305	339

(2) CROSS SECTIONS

STAGE 1 STAGE 2



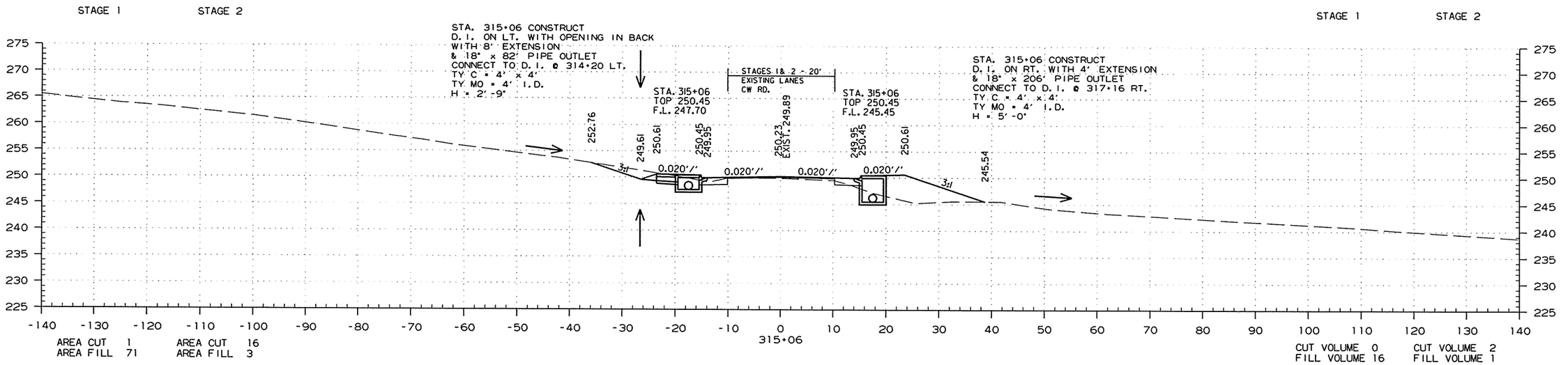
STA. 314+00.00 TO STA. 314+20.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	306	339

(2) CROSS SECTIONS



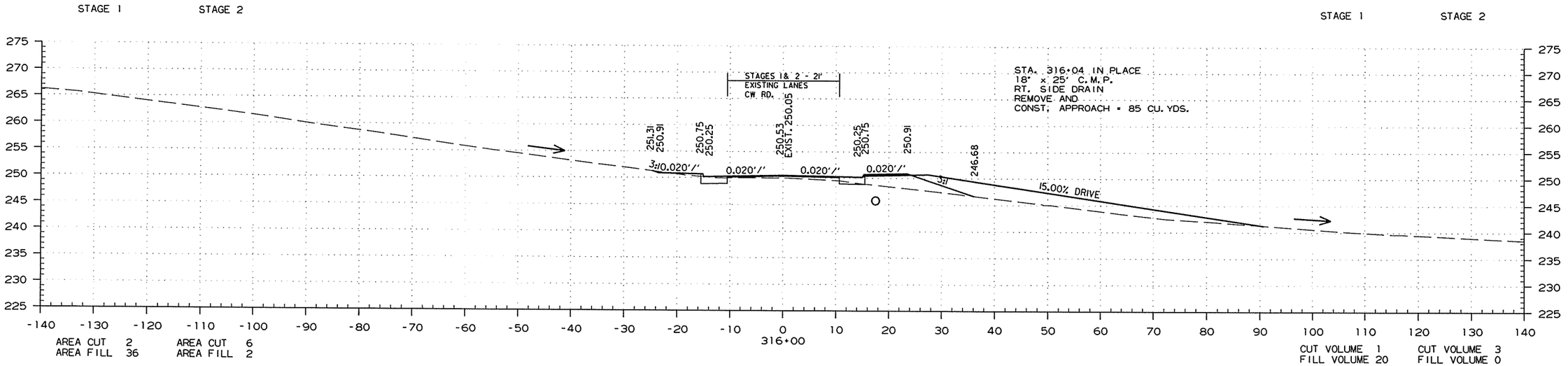
STA. 315+00.00 TO STA. 315+06.00

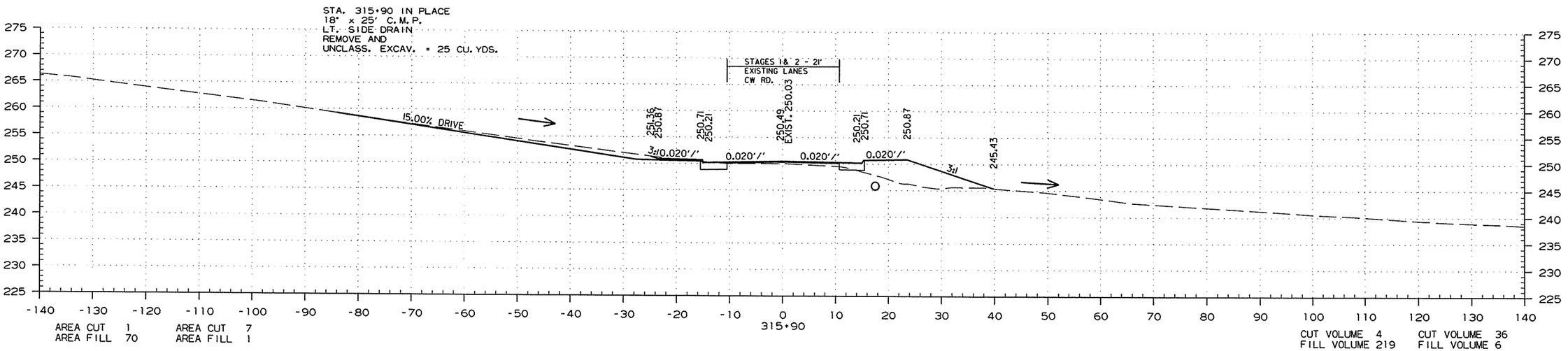
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	307	339

(2) CROSS SECTIONS





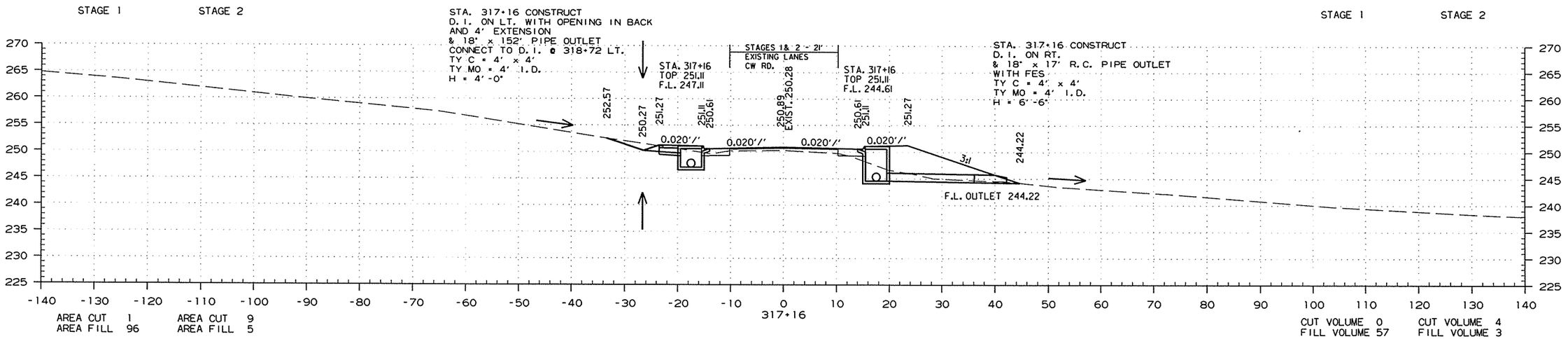
STA. 315+90.00 TO STA. 316+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	308	339

(2) CROSS SECTIONS



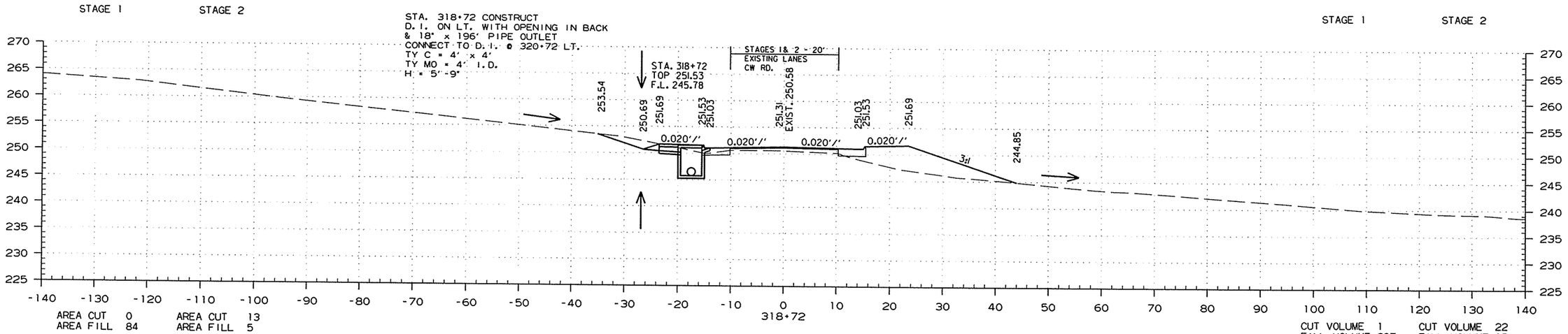
STA. 317+00.00 TO STA. 317+16.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	309	339

(2) CROSS SECTIONS



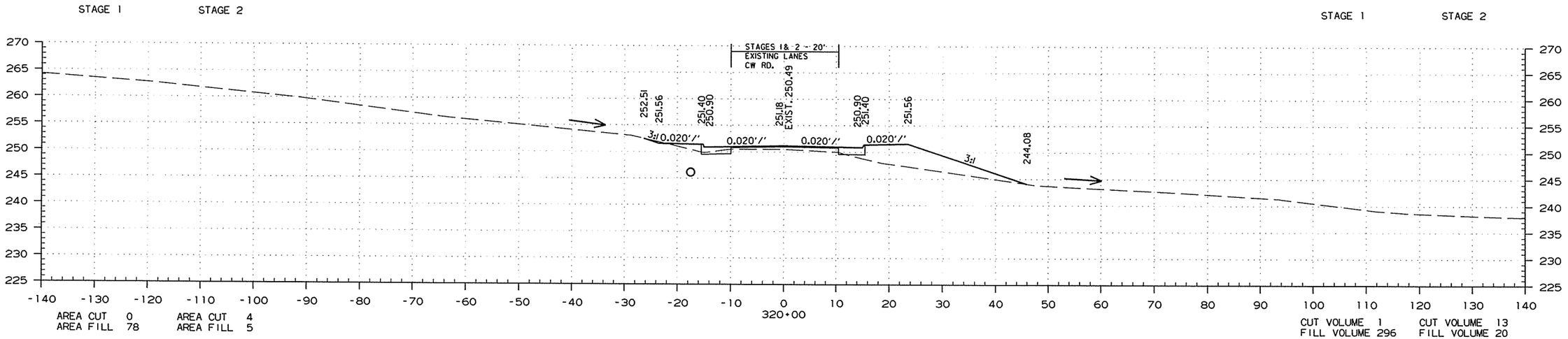
STA. 318+00.00 TO STA. 318+72.00

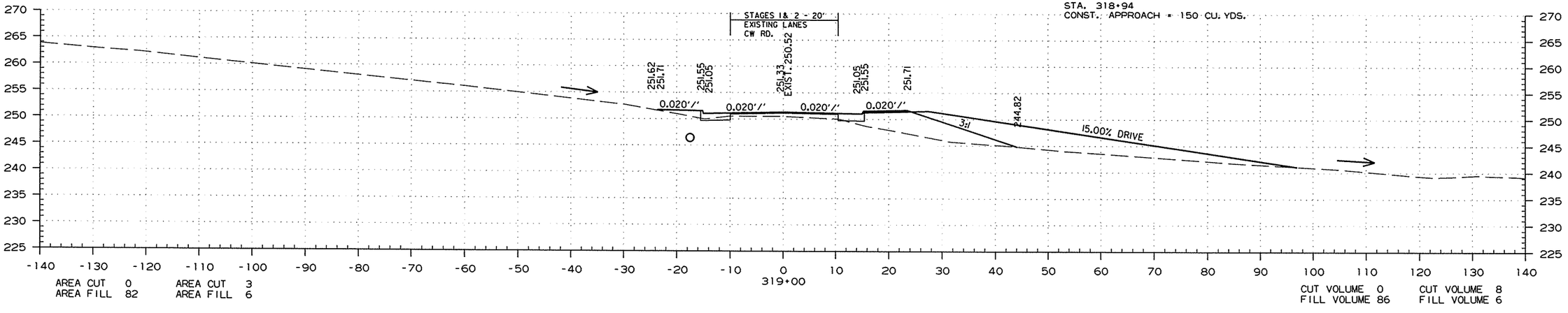
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	310	339

(2) CROSS SECTIONS





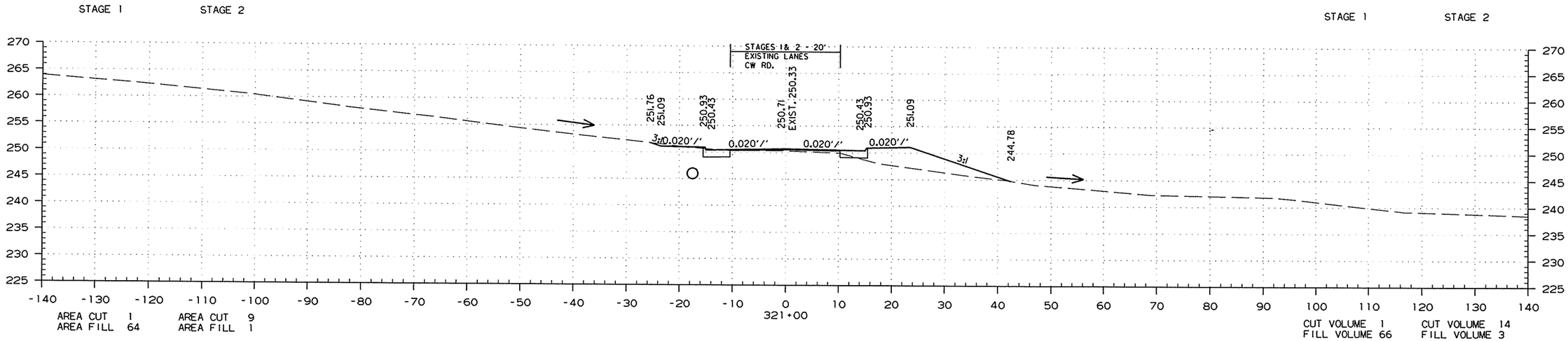
STA. 319+00.00 TO STA. 320+00.00

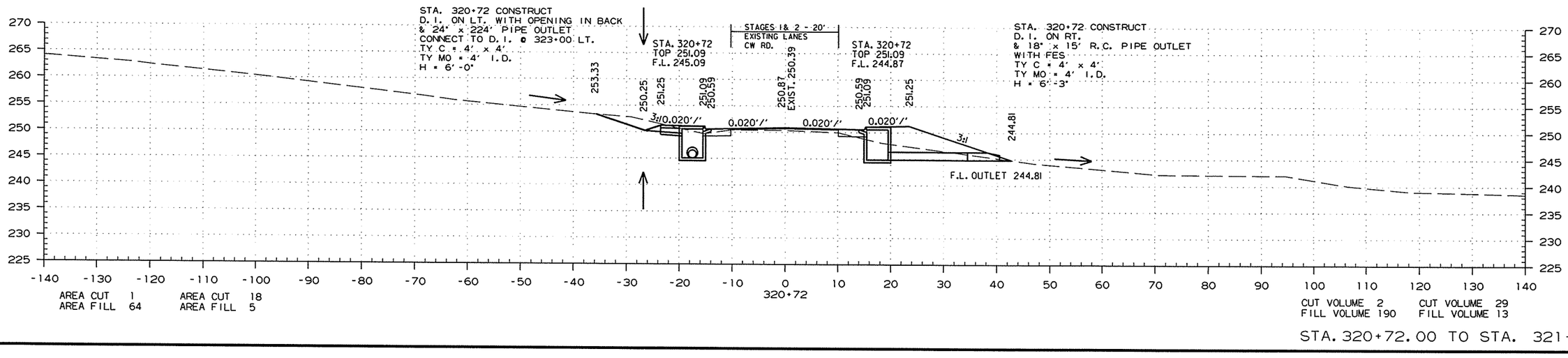
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	311	339

(2) CROSS SECTIONS





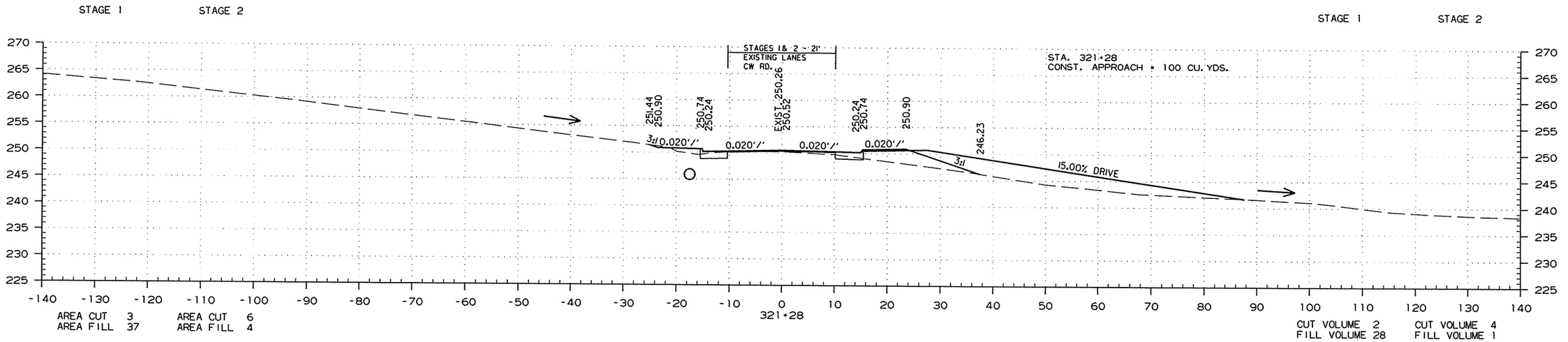
STA. 320+72.00 TO STA. 321+00.00

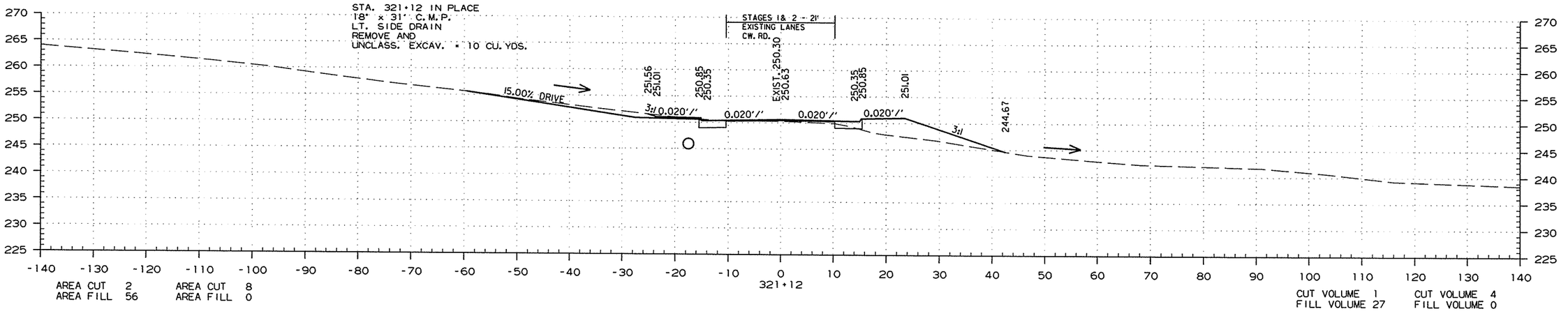
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	312	339

(2) CROSS SECTIONS





STA. 321+12.00 TO STA. 321+28.00

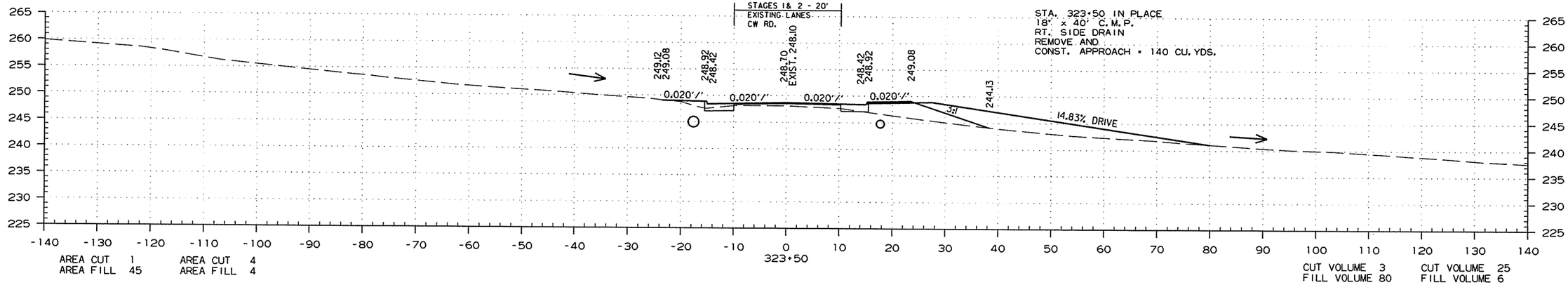
7/24/2015

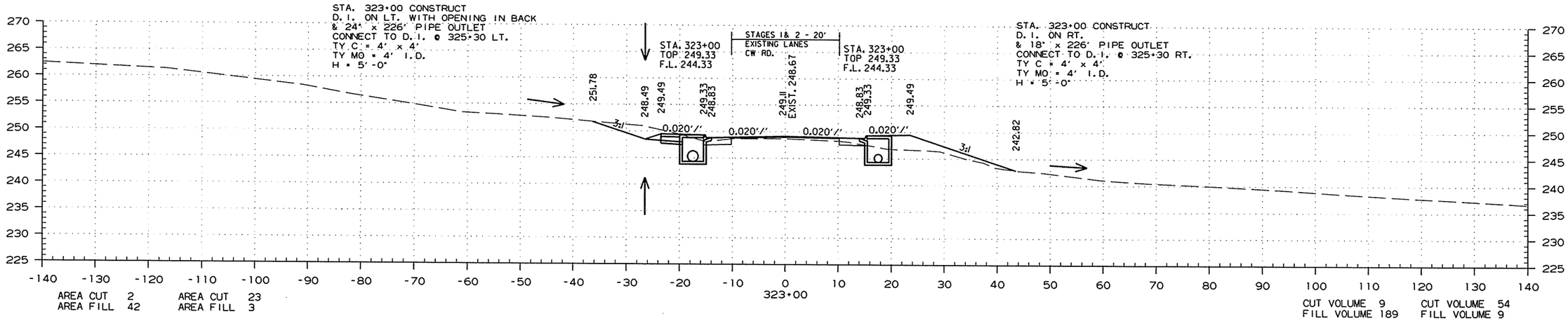
R050251.DGN

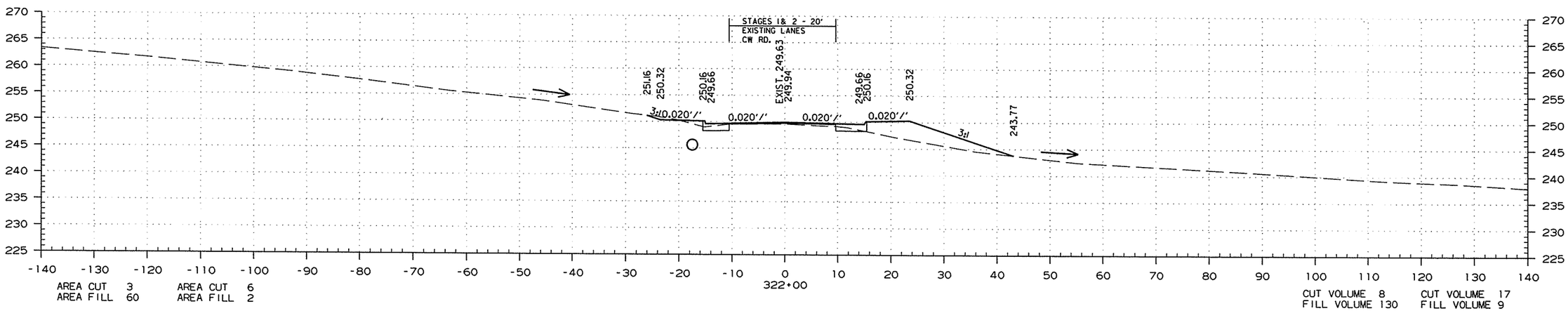
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	313	339

(2) CROSS SECTIONS

STAGE 1 STAGE 2







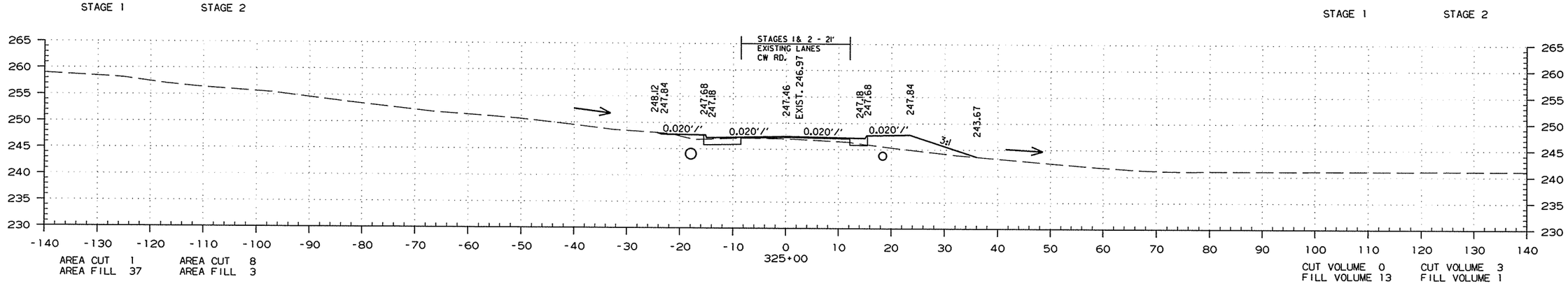
STA. 322+00.00 TO STA. 323+50.00

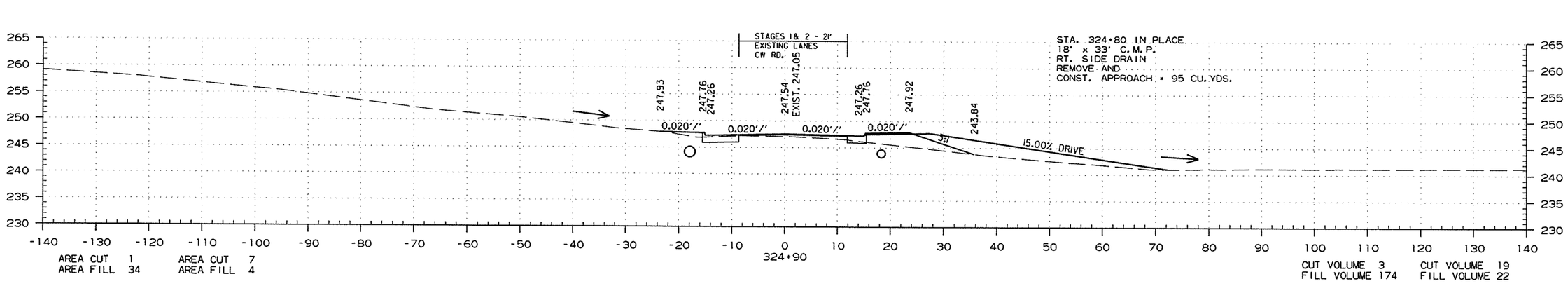
7/24/2015

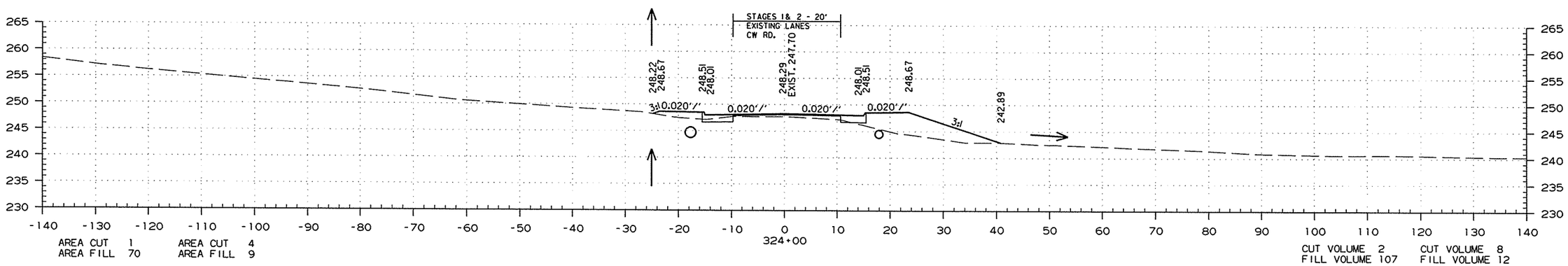
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	314	339

(2) CROSS SECTIONS







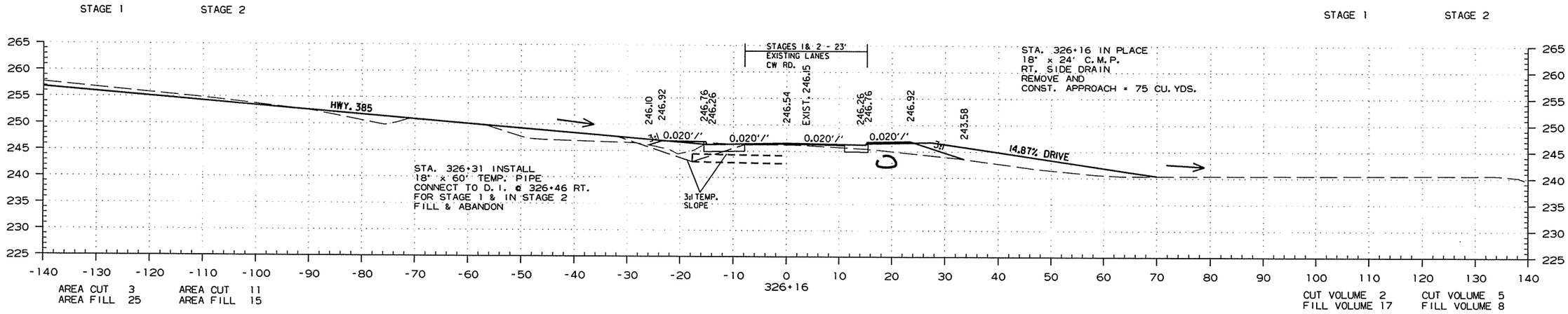
STA. 324+00.00 TO STA. 325+00.00

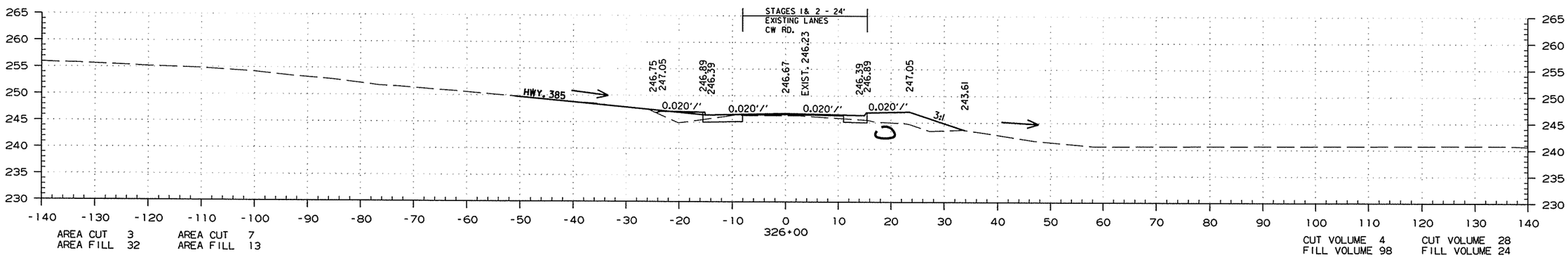
7/24/2015

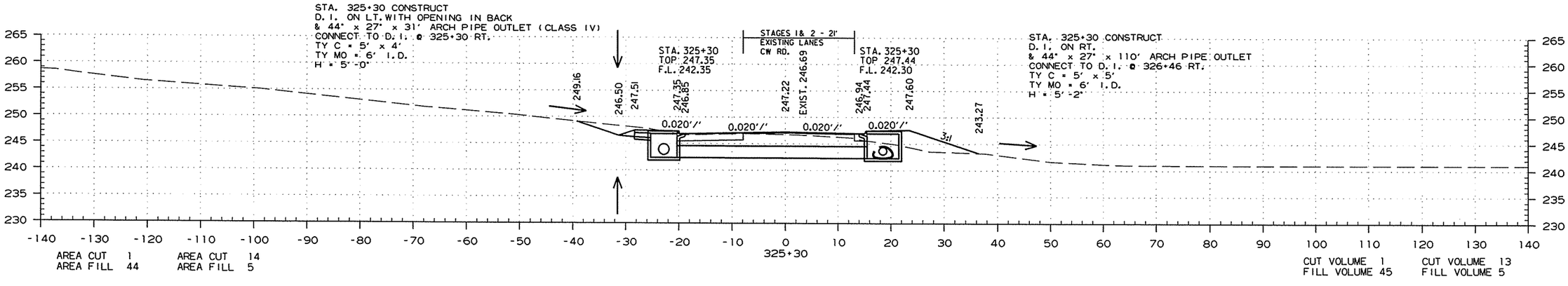
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	315	339

(2) CROSS SECTIONS







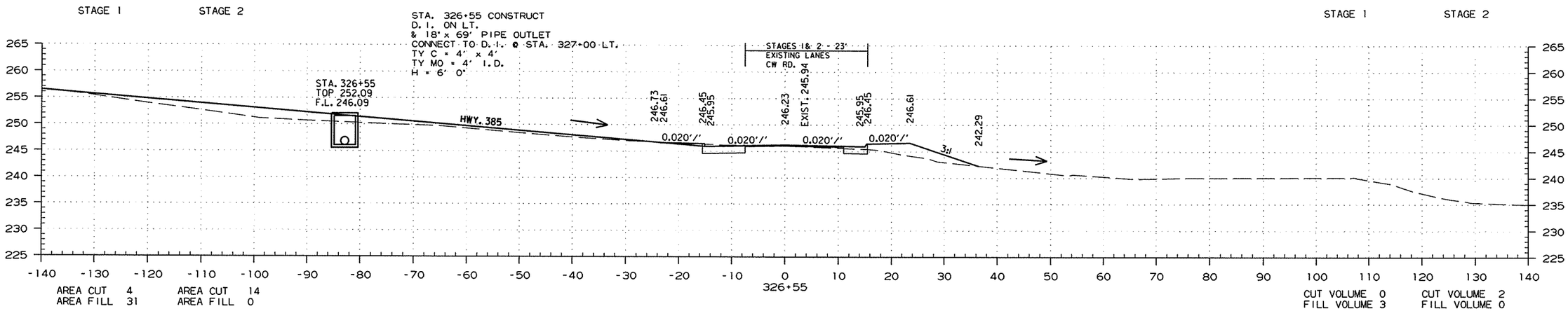
STA. 325+30.00 TO STA. 326+16.00

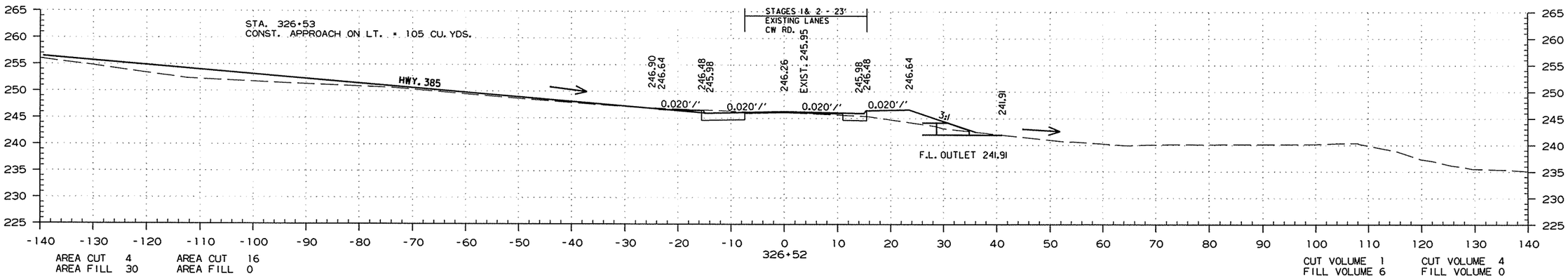
7/24/2015

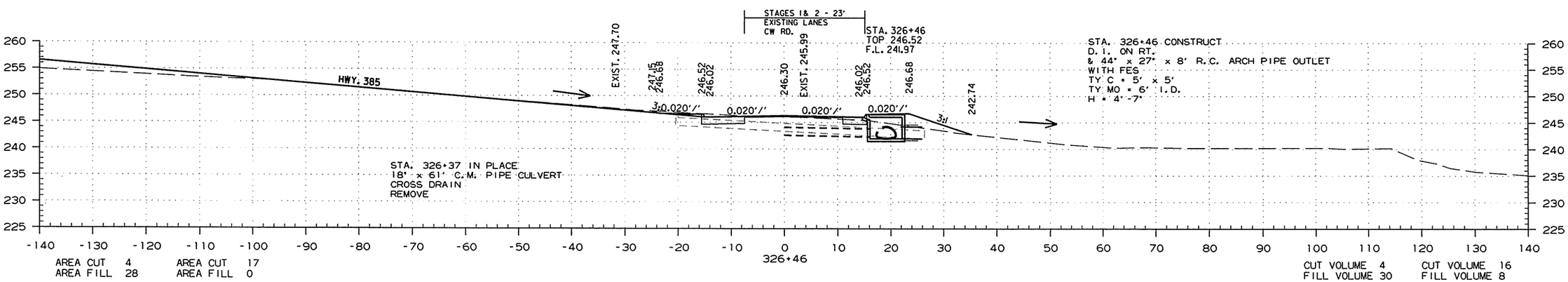
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	316	339

(2) CROSS SECTIONS







STA. 326+46.00 TO STA. 326+55.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	317	339

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STA. 327+00 CONSTRUCT
D. I. ON LT.
& 18" x 72' PIPE OUTLET
CONNECT TO D. I. @ STA. 327+76 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H = 4'-10"

STA. 327+00.00
TOP 245.92
F.L. 242.11

STAGES 1& 2 - 24'
EXISTING LANES
CW RD.

247.91 246.10 245.92 245.44 245.88 EXIST. 245.68 245.60 246.10 246.26 243.92

0.020'/' 0.020'/' 0.020'/' 0.020'/' 3:1

AREA CUT 5
AREA FILL 16

AREA CUT 22
AREA FILL 1

327+00

CUT VOLUME 0
FILL VOLUME 5

CUT VOLUME 1
FILL VOLUME 1

STA. 326+98 CONSTRUCT
D. I. ON RT.
& 36" x 18' R.C. PIPE OUTLET
WITH FES
TY C = 4' x 5'
TY MO = 6' I.D.
H = 5'-6"

STA. 326+98 INSTALL
18" x 45' TEMP. PIPE
CONNECT TO D. I. @ 326+98 RT.
FOR STAGE 1 & IN STAGE 2
FILL & ABANDON

STAGES 1& 2 - 24'
EXISTING LANES
CW RD.

STA. 326+98
TOP 245.87
F.L. 240.36

247.21 246.31 246.11 245.61 245.89 EXIST. 245.69 239.55

0.020'/' 0.020'/' 0.020'/' 0.020'/' 3:1

STA. 326+99 IN PLACE
18" x 50' R.C. PIPE CULVERT
CROSS DRAIN
REMOVE

2:1 TEMP. SLOPE

3:1 TEMP. SLOPE

F.L. OUTLET 239.55

AREA CUT 8
AREA FILL 110

AREA CUT 7
AREA FILL 13

326+98

CUT VOLUME 5
FILL VOLUME 48

CUT VOLUME 6
FILL VOLUME 7

STAGES 1& 2 - 23'
EXISTING LANES
CW RD.

245.76 246.43 246.27 245.77 246.05 EXIST. 245.81 245.77 246.27 246.43 243.36

HWY. 385

3:1 0.020'/' 0.020'/' 0.020'/' 0.020'/' 3:1

STA. 326+78
CONST. APPROACH ON RT. = 80 CU. YDS.

15.00% RAINES RD.

AREA CUT 5
AREA FILL 20

AREA CUT 10
AREA FILL 5

326+78

CUT VOLUME 4
FILL VOLUME 21

CUT VOLUME 10
FILL VOLUME 2

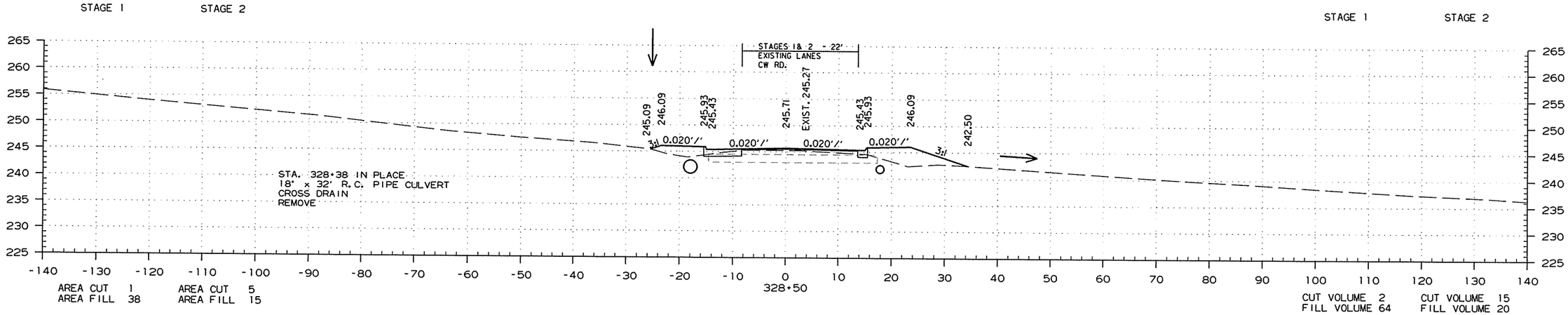
STA. 326+78.00 TO STA. 327+00.00

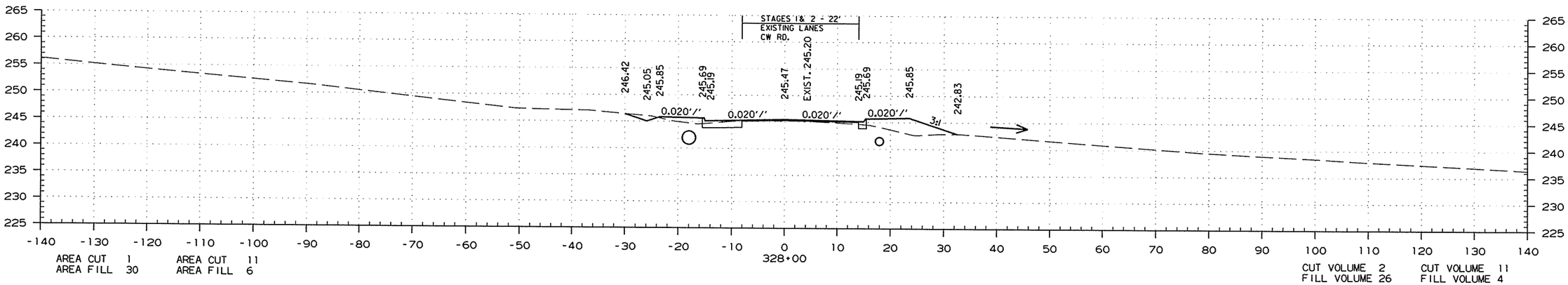
7/24/2015

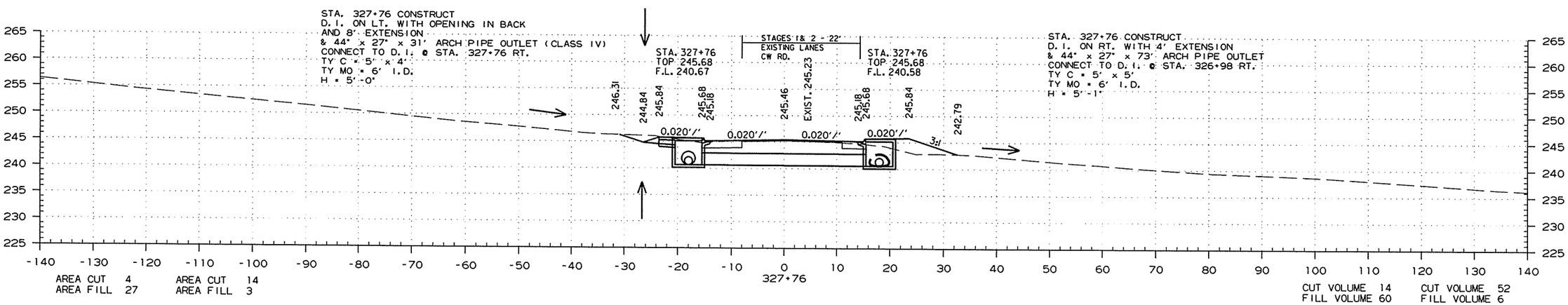
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	318	339

(2) CROSS SECTIONS







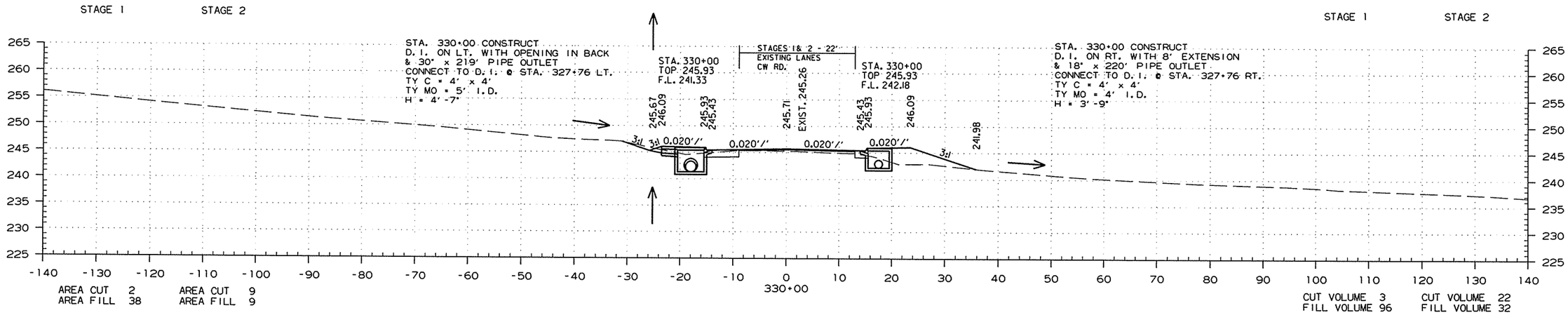
STA. 327+76.00 TO STA. 328+50.00

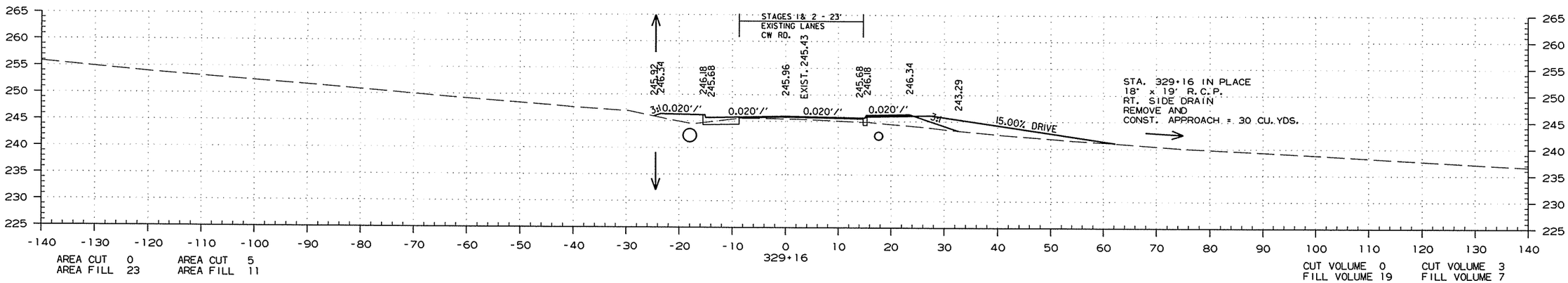
7/24/2015

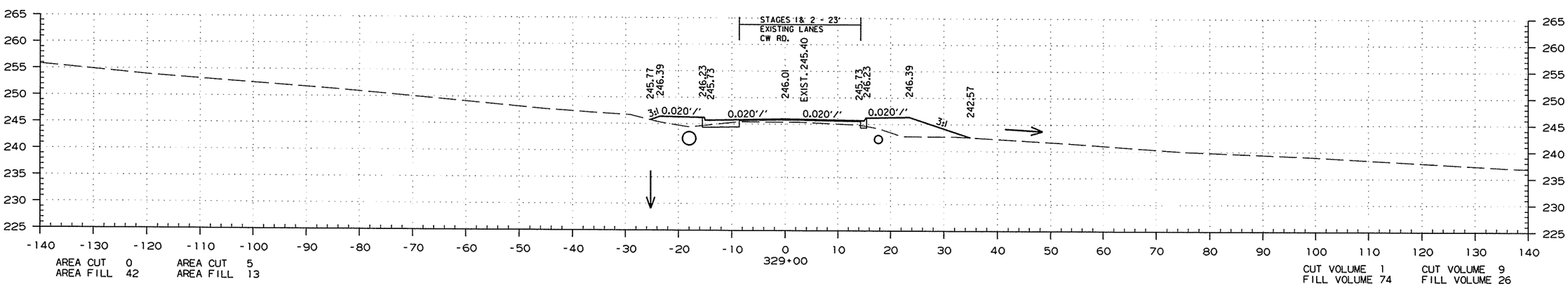
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	319	339

(2) CROSS SECTIONS







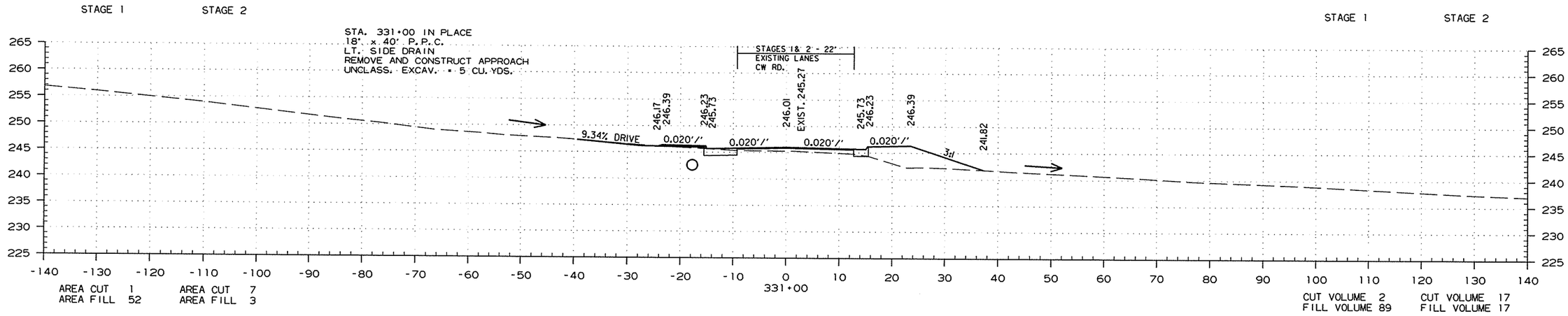
STA. 329+00.00 TO STA. 330+00.00

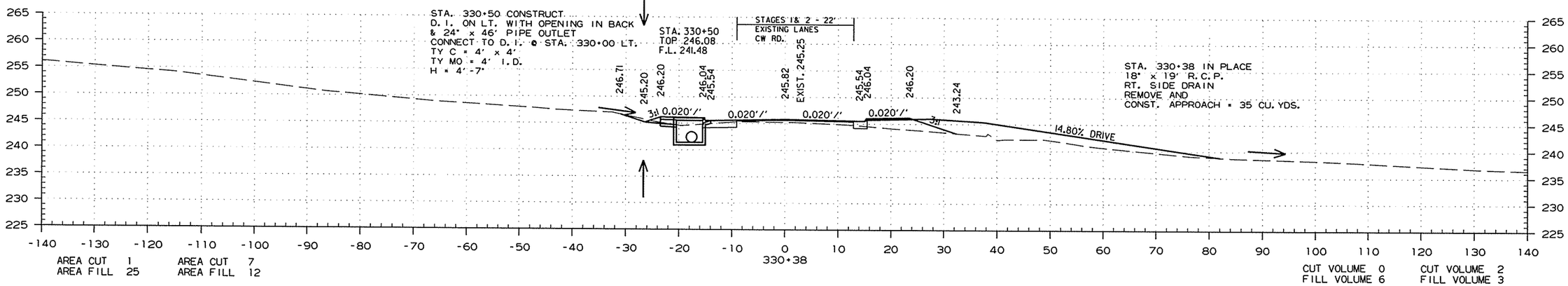
7/24/2015

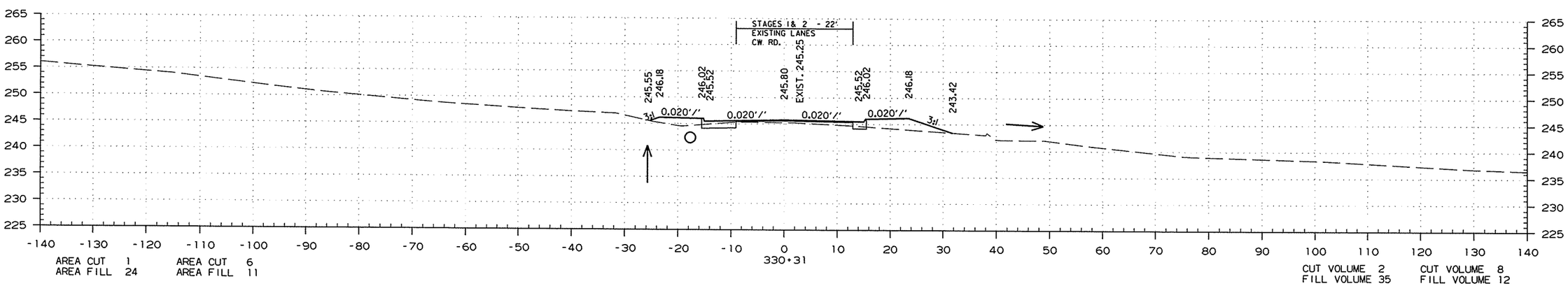
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	320	339

(2) CROSS SECTIONS







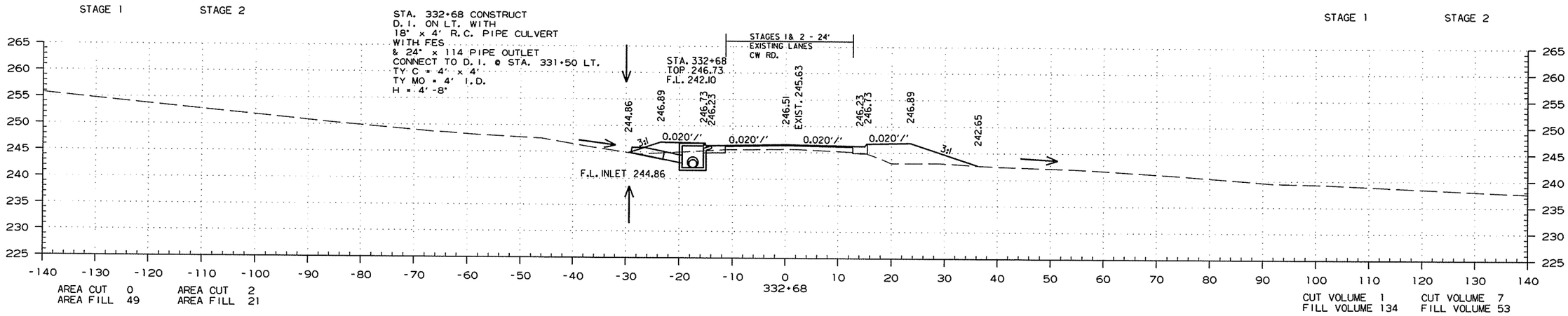
STA. 330+31.00 TO STA. 331+00.00

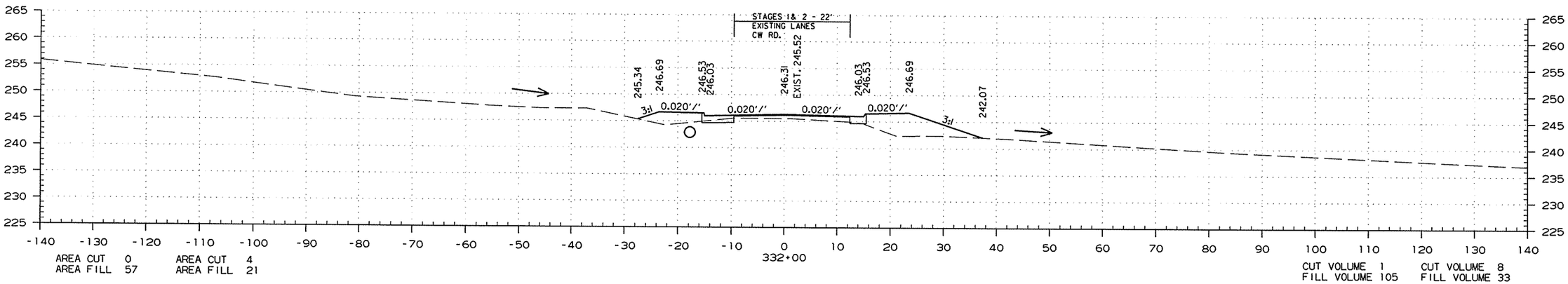
7/24/2015

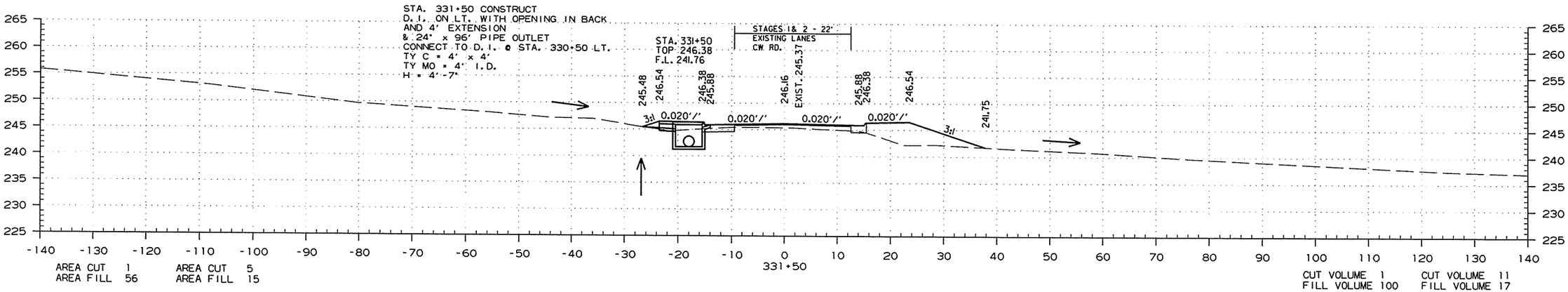
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	321	339

(2) CROSS SECTIONS







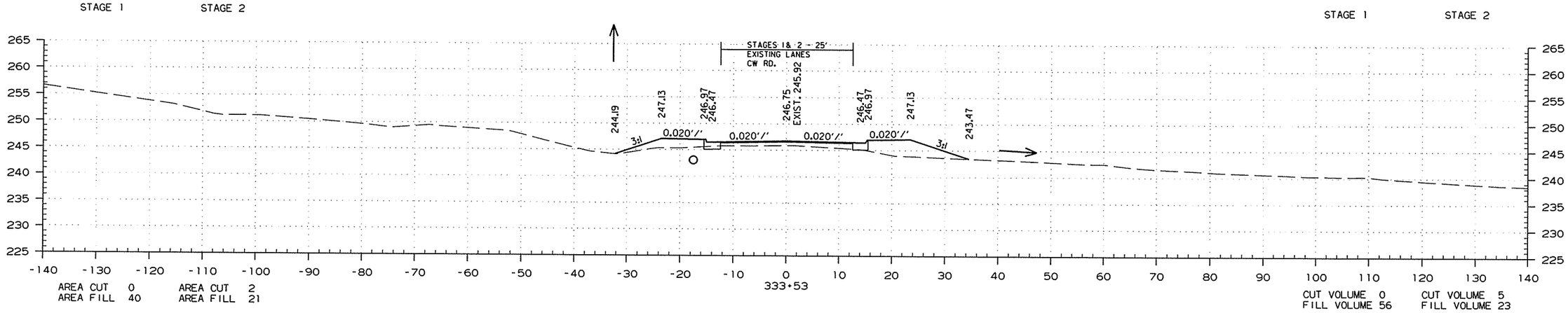
STA. 331+50.00 TO STA. 332+68.00

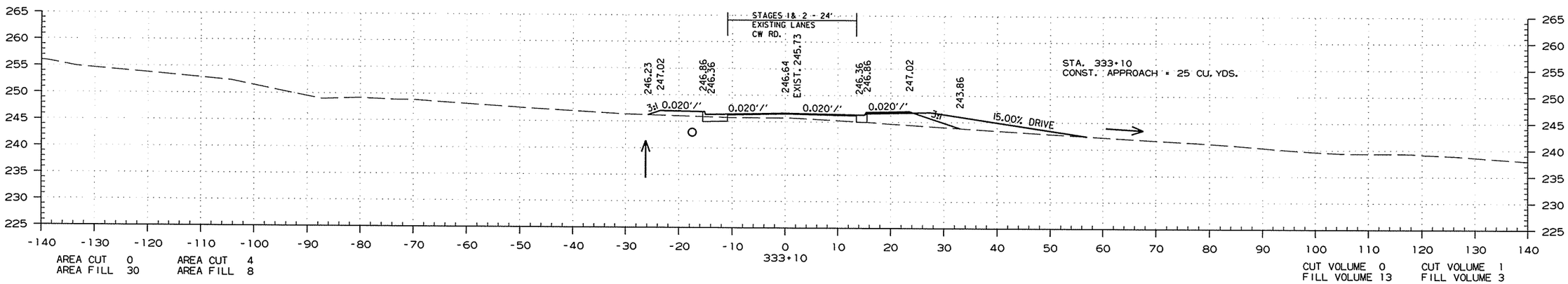
7/24/2015

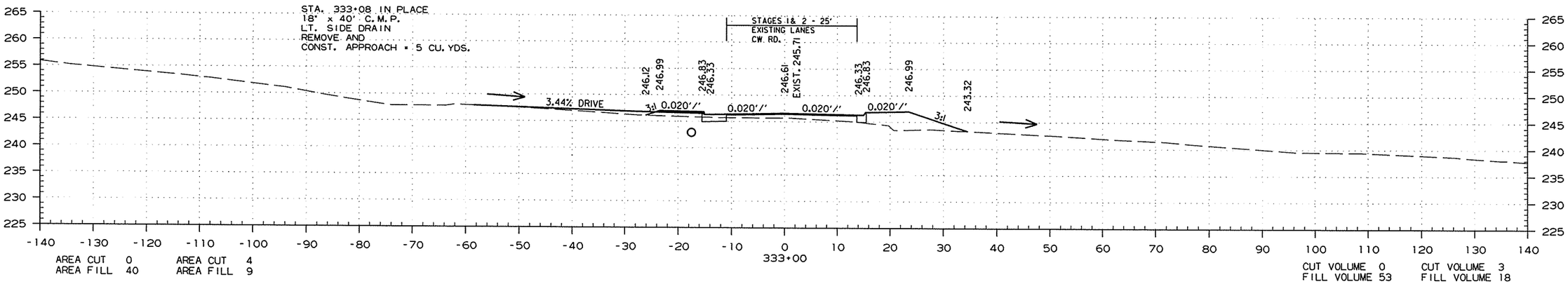
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	322	339

(2) CROSS SECTIONS







STA. 333+00.00 TO STA. 333+53.00

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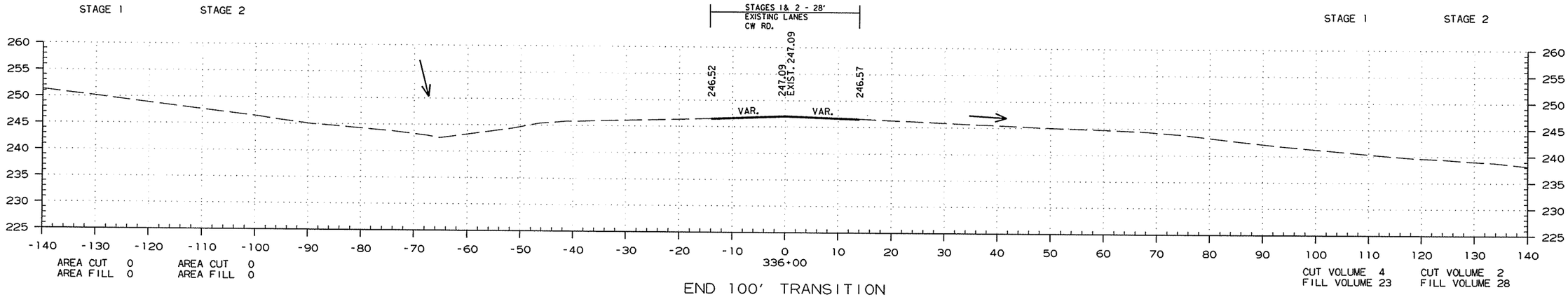
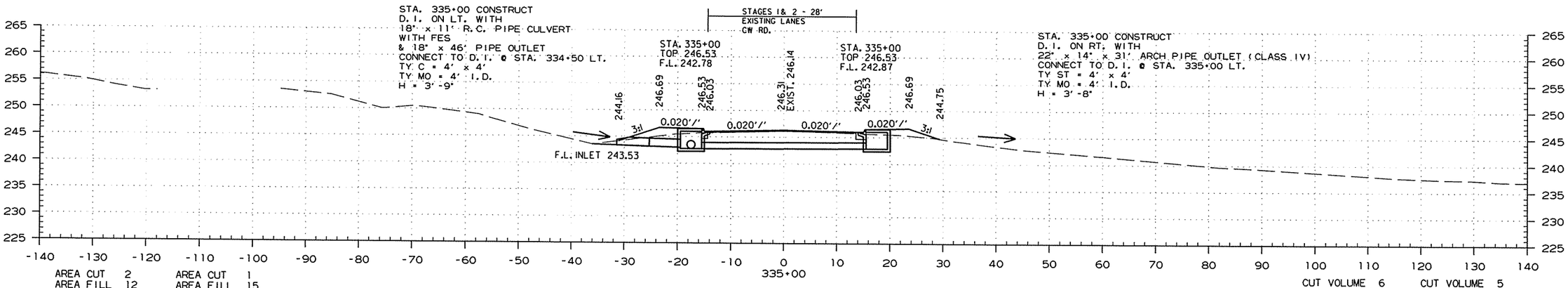
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	323	339

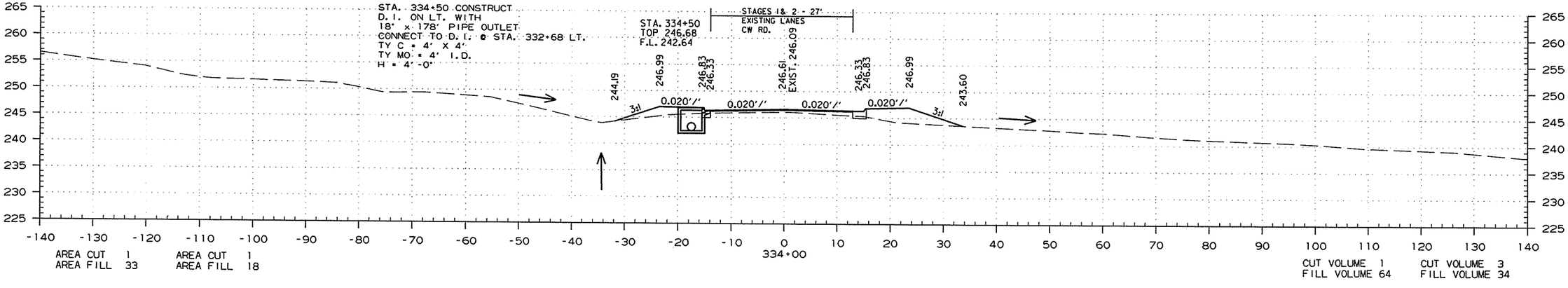
(2) CROSS SECTIONS



END 100' TRANSITION



END JOB 050251 AND
BEGIN 100' TRANSITION



STA. 334+00.00 TO STA. 336+00.00

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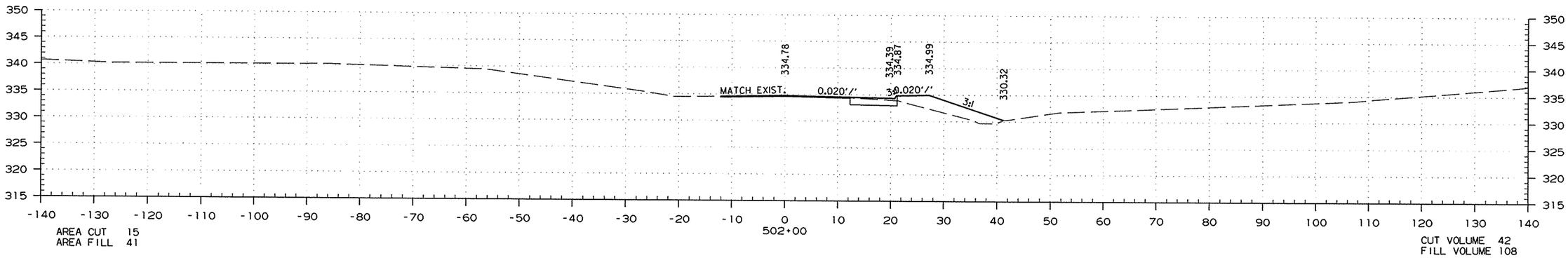
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	324	339

(2) CROSS SECTIONS



STA. 501+90 END 25' SHLD. WIDENING TAPER & BEGIN 208' TAPER
STA. 501+65 BEGIN 25' SHLD. WIDENING TAPER

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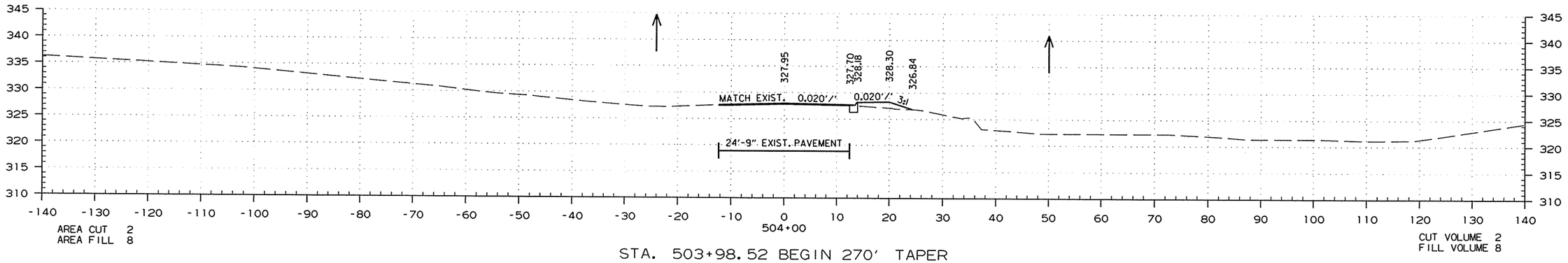
R050251.DGN

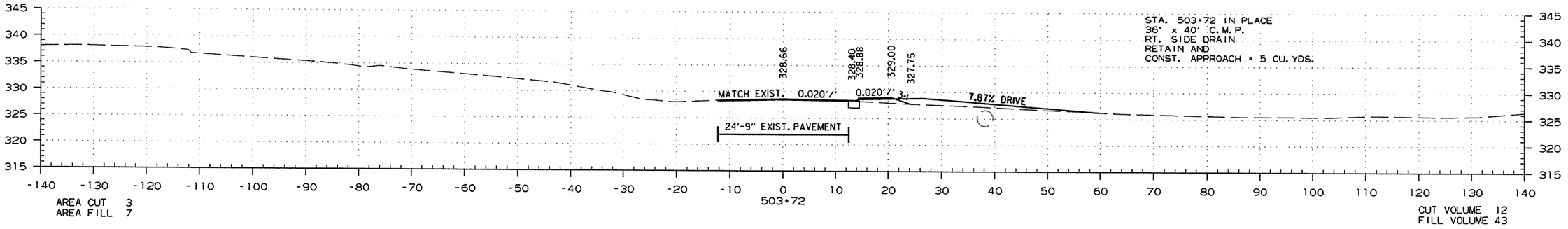
STA. 502+00.00

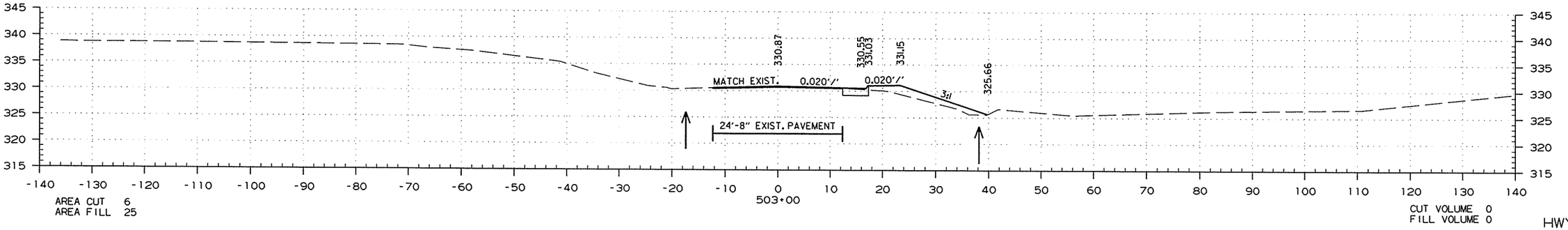
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	325	339

(2) CROSS SECTIONS



STA. 503+98.52 BEGIN 270' TAPER
STA. 503+98 END 208' TAPER





HWY. 16
STA. 503+00.00 TO STA. 504+00.00

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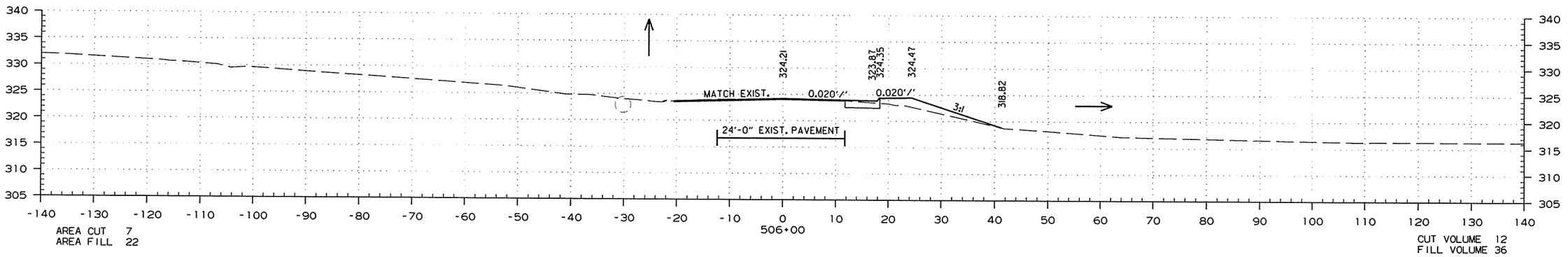
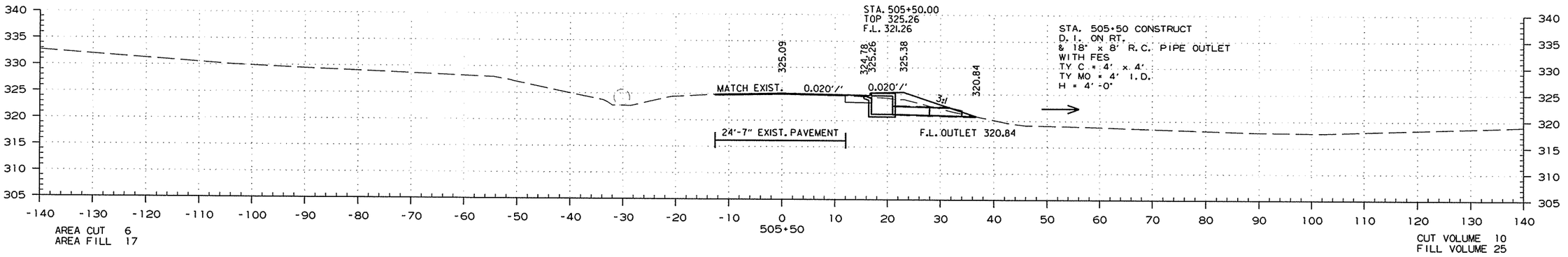
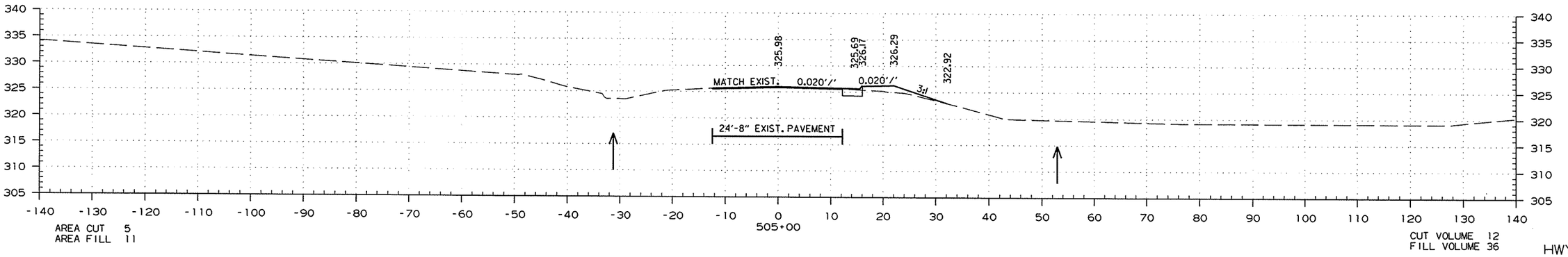
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	326	339

(2) CROSS SECTIONS







7/24/2015

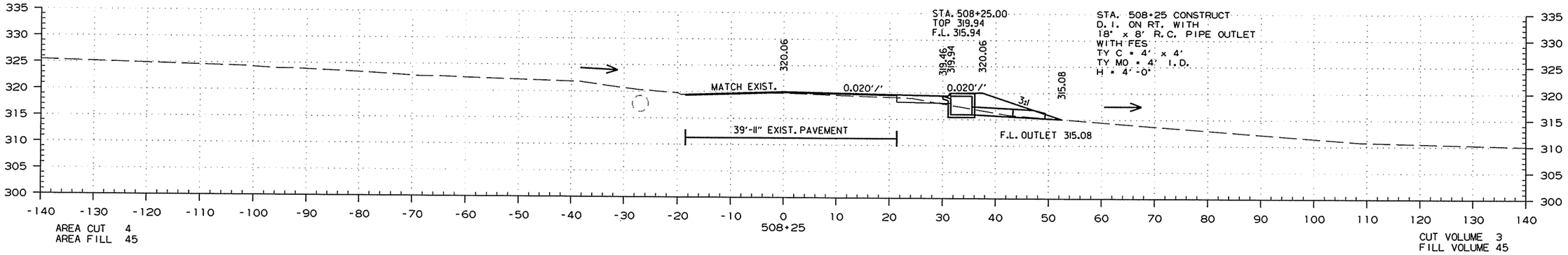
R050251.DGN

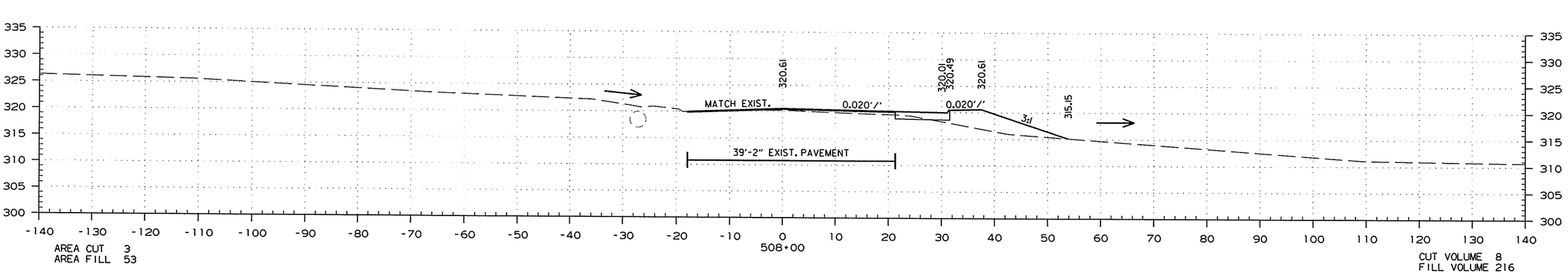
HWY. 16

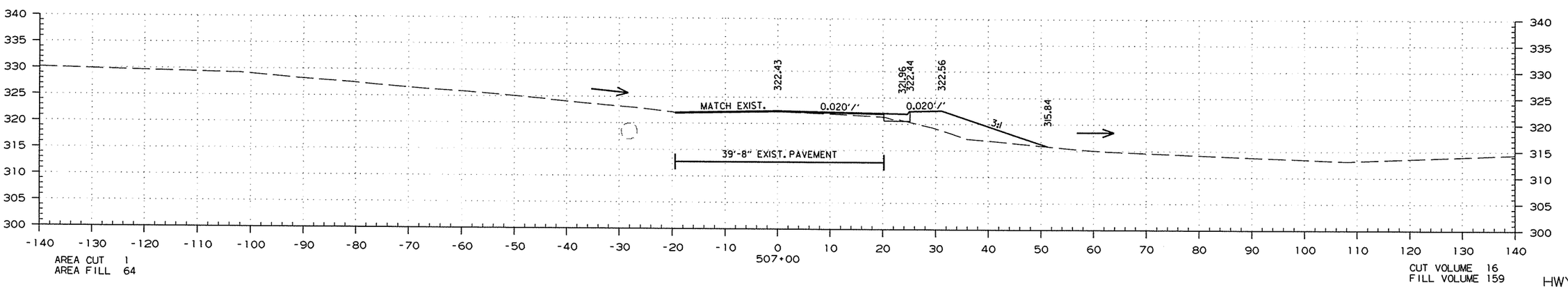
STA. 505+00.00 TO STA. 506+00.00

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.		050251	327	339

(2) CROSS SECTIONS







HWY. 16

STA. 507+00.00 TO STA. 508+25.00

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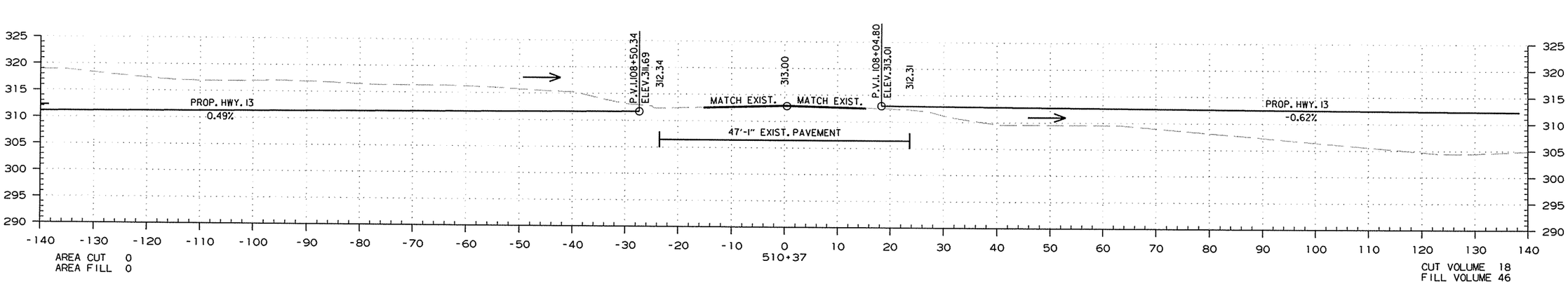
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	328	339

(2) CROSS SECTIONS



HWY. 16

STA. 509+00.00 TO STA. 510+37.00

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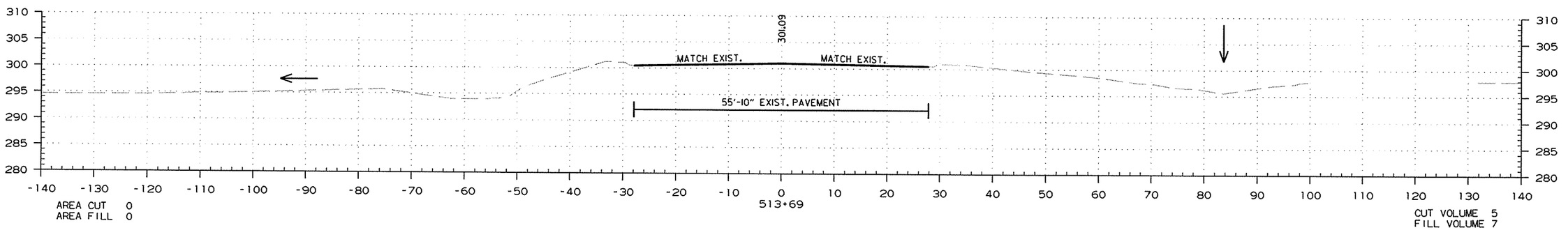
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	329	339

(2) CROSS SECTIONS

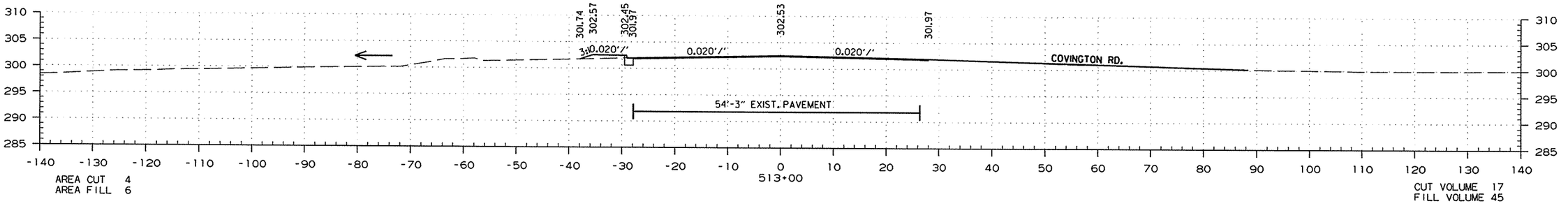
STAGE 1



AREA CUT 0
AREA FILL 0

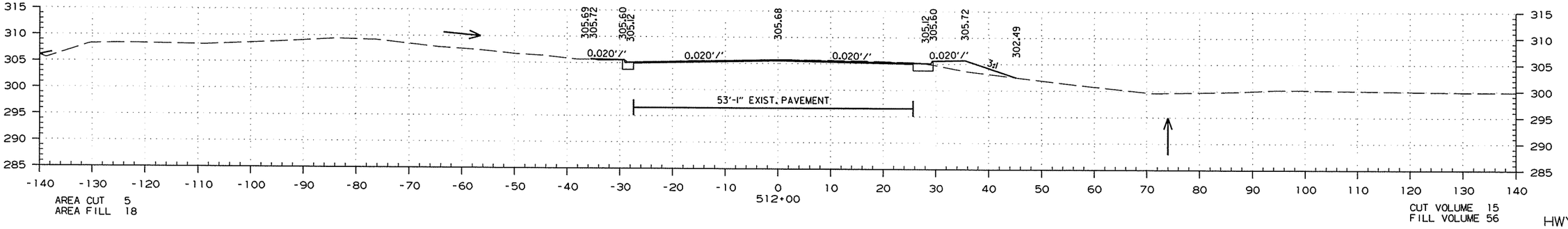
STAGE 2

CUT VOLUME 5
FILL VOLUME 7



AREA CUT 4
AREA FILL 6

CUT VOLUME 17
FILL VOLUME 45



AREA CUT 5
AREA FILL 18

CUT VOLUME 15
FILL VOLUME 56

HWY. 16
STA. 512+00.00 TO STA. 513+68.59

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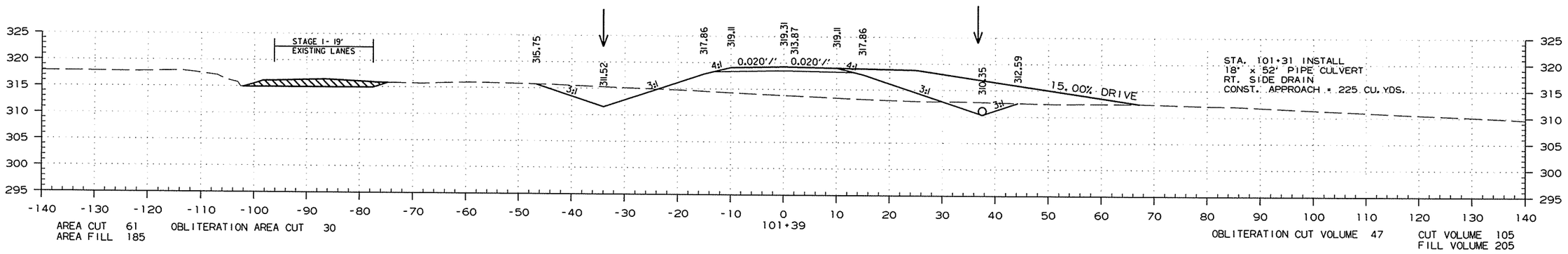
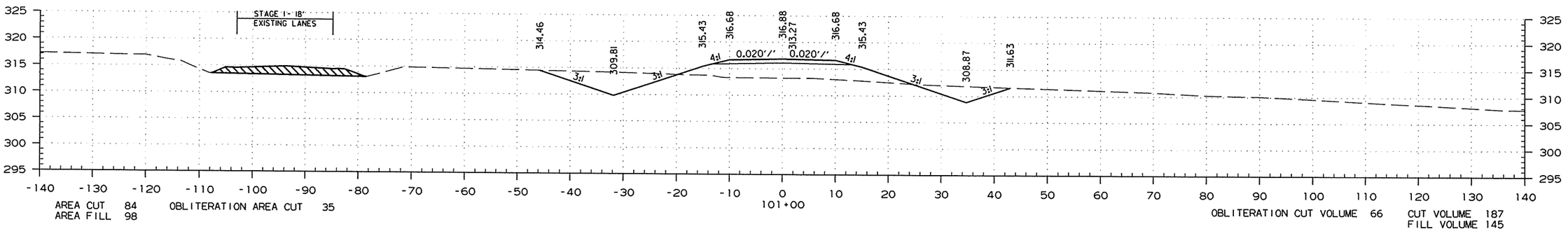
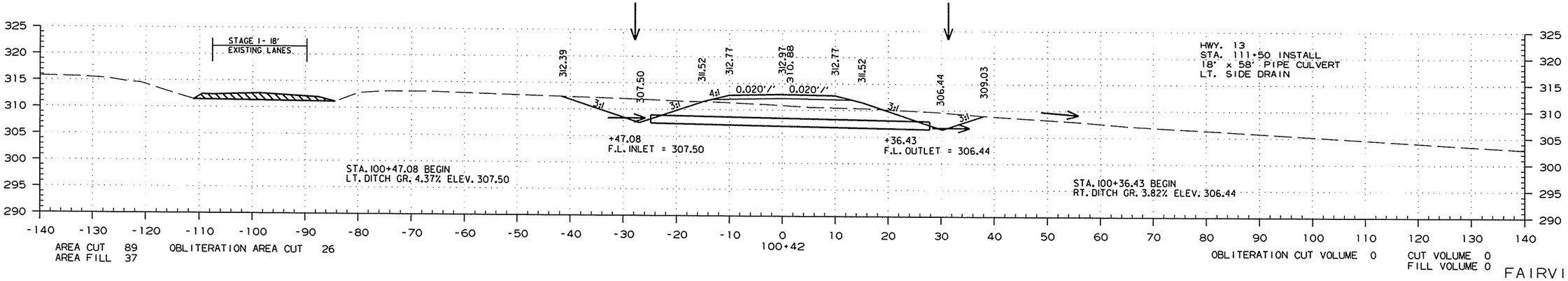
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	330	339

(2) CROSS SECTIONS

REMOVAL OF EXIST. PAVEMENT







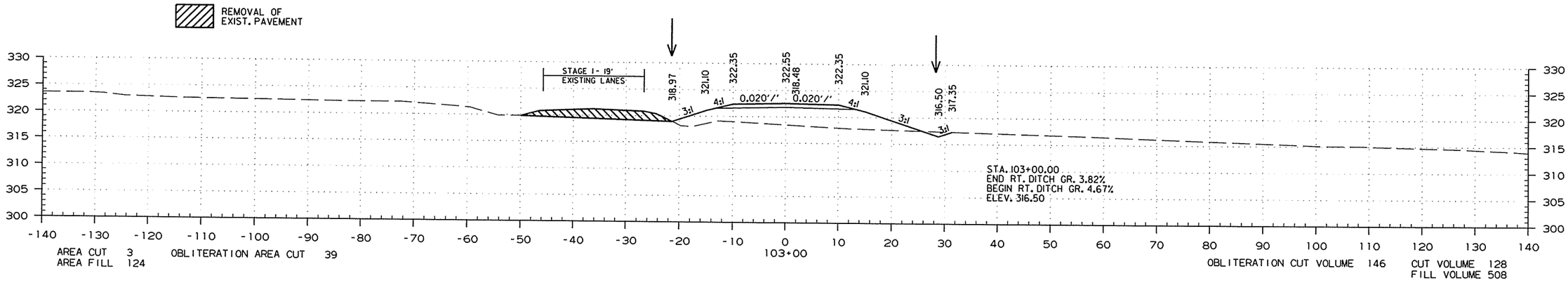
FAIRVIEW RD.
STA. 100+42.00 TO STA. 101+39.00

7/24/2015

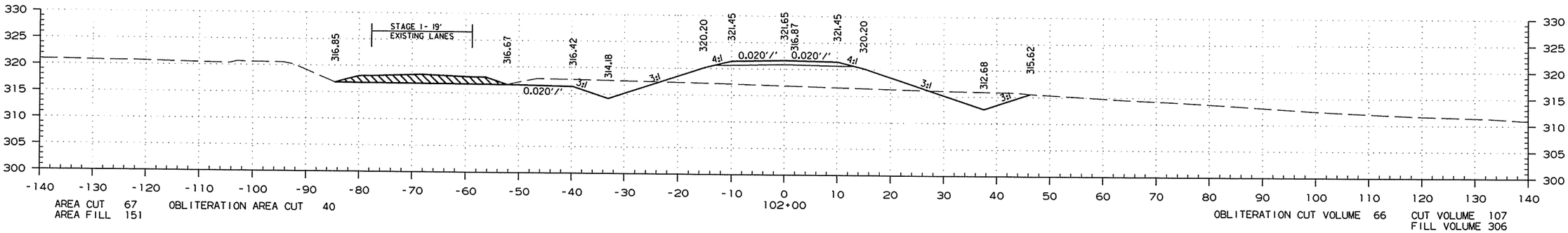
R050251.DGN

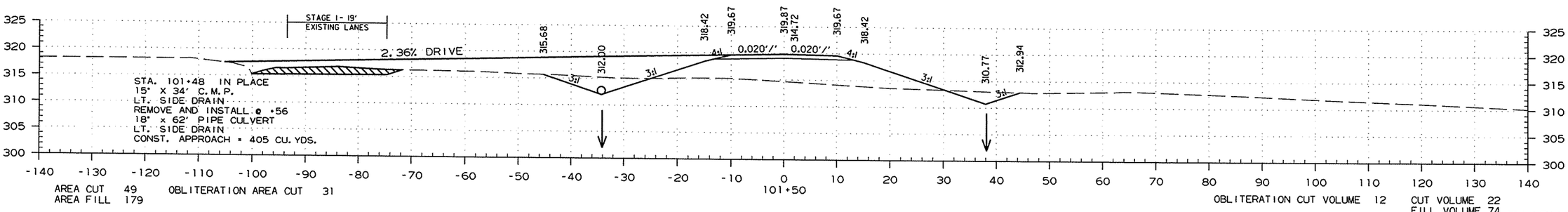
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	331	339

(2) CROSS SECTIONS



STA. 102+87.32 END
LT. DITCH GR. 4.37% ELEV. 318.00





FAIRVIEW RD.
STA. 101+50.00 TO STA. 103+00.00

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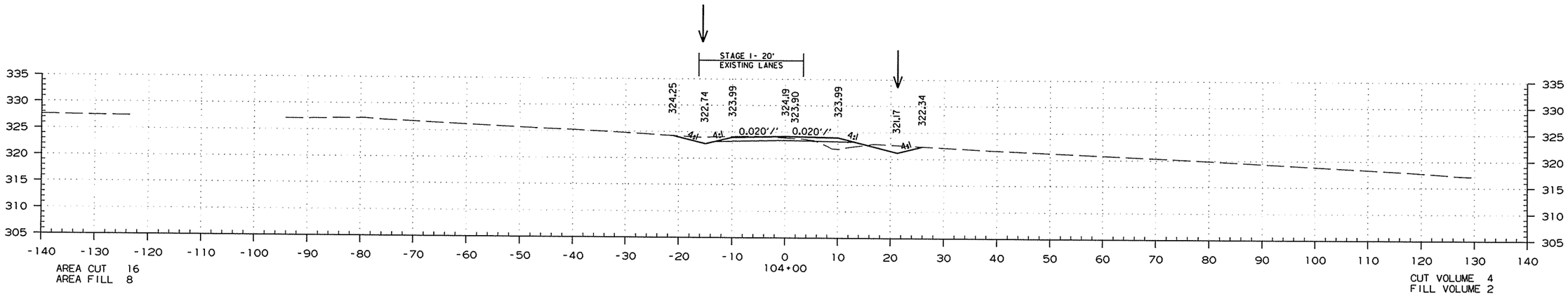
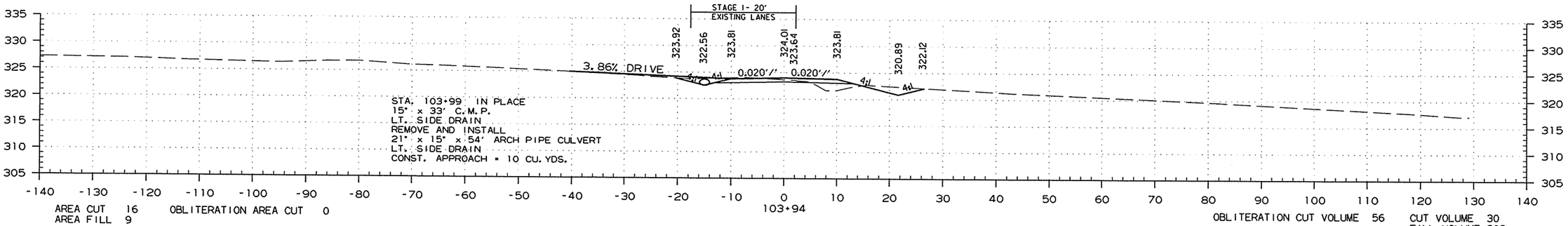
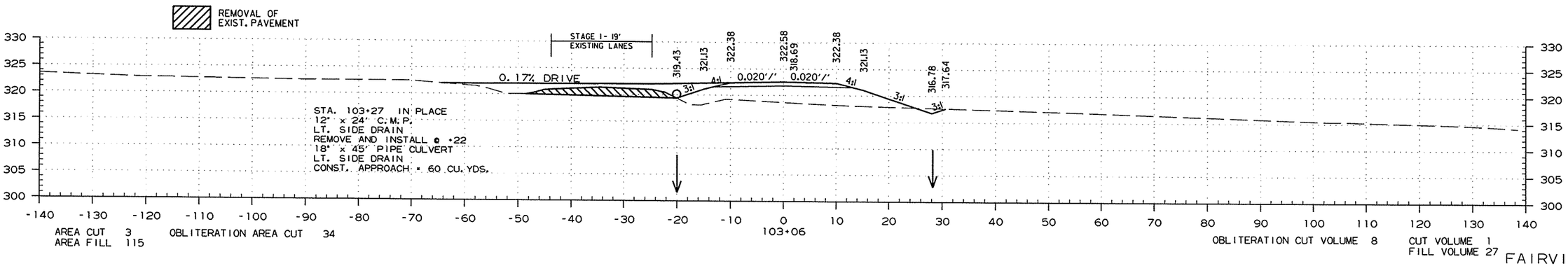
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	332	339

(2) CROSS SECTIONS







FAIRVIEW RD.
STA. 103+06.00 TO STA. 104+00.00

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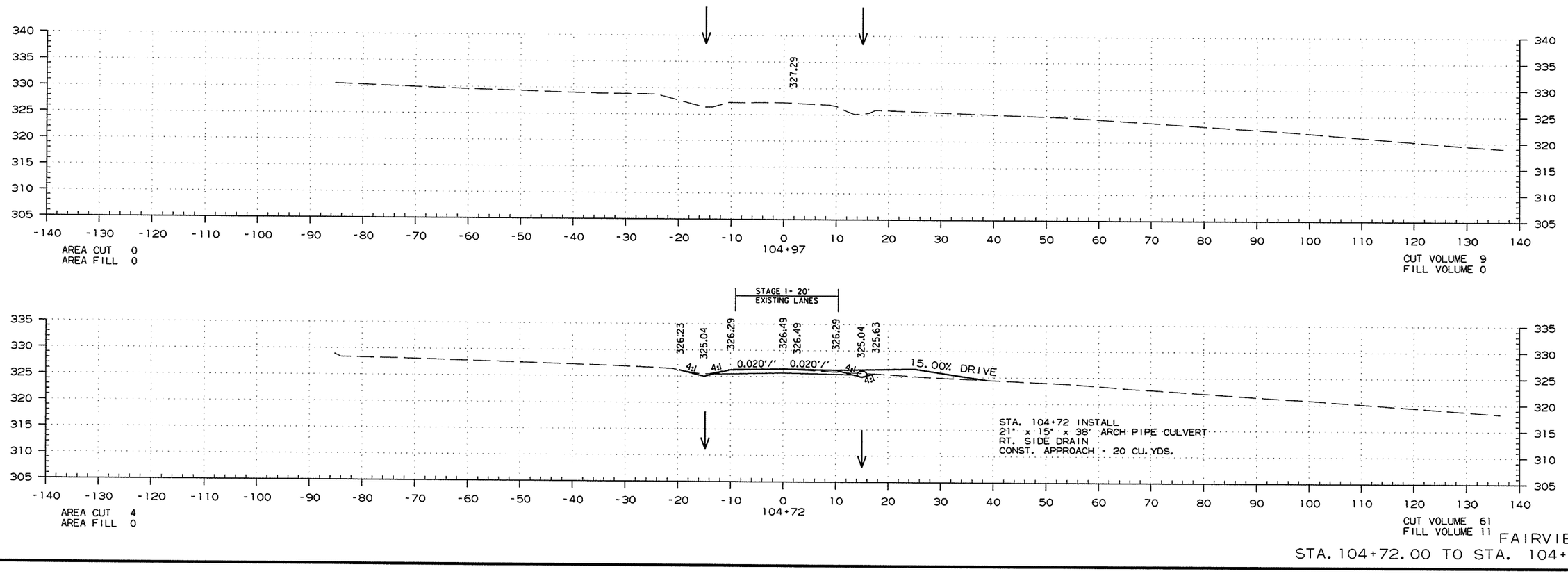
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	333	339

(2) CROSS SECTIONS



FAIRVIEW RD.
STA. 104+72.00 TO STA. 104+96.80

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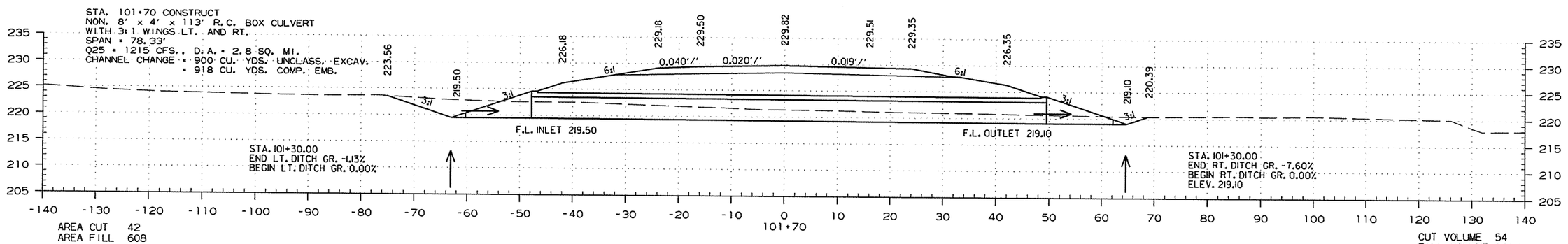
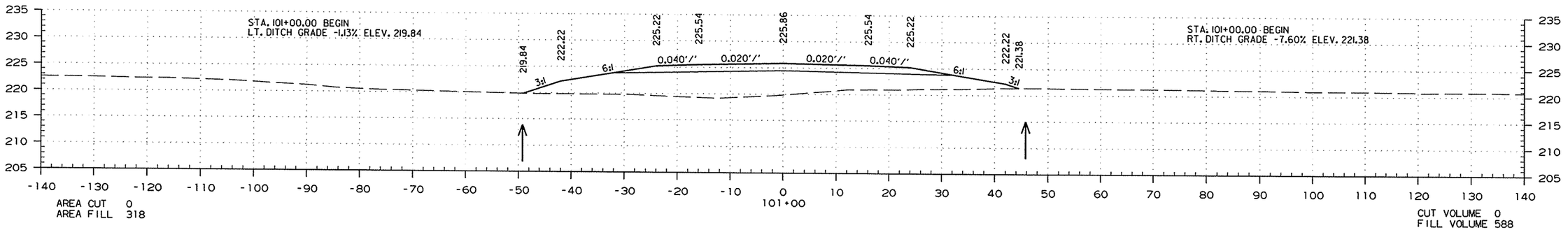
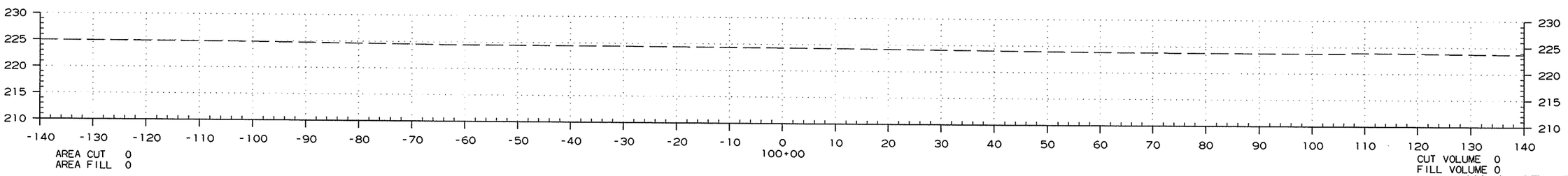
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	334	339

(2) CROSS SECTIONS







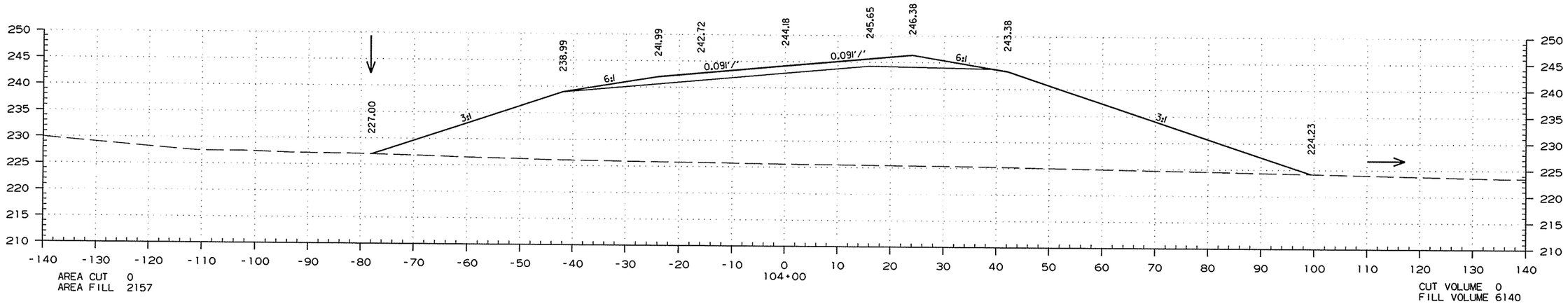
MAIN ST. TIE IN
STA. 100+00.00 TO STA. 101+70.00

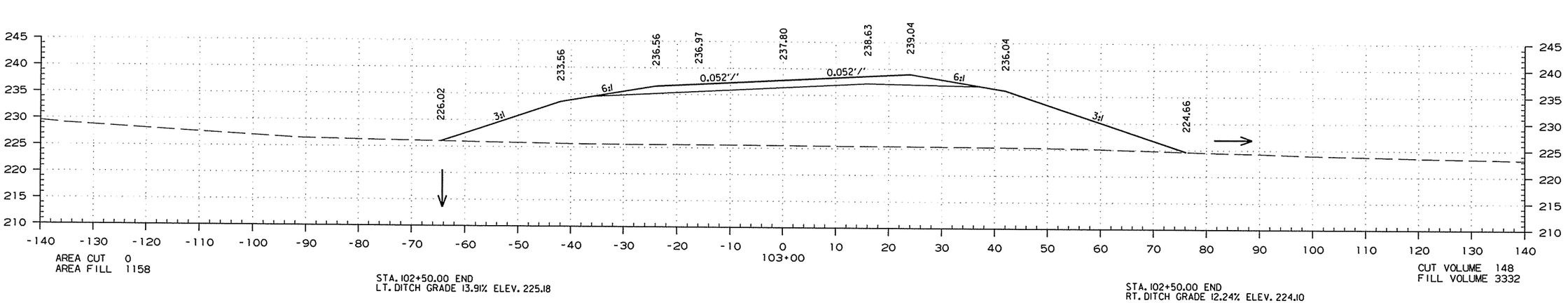
7/24/2015

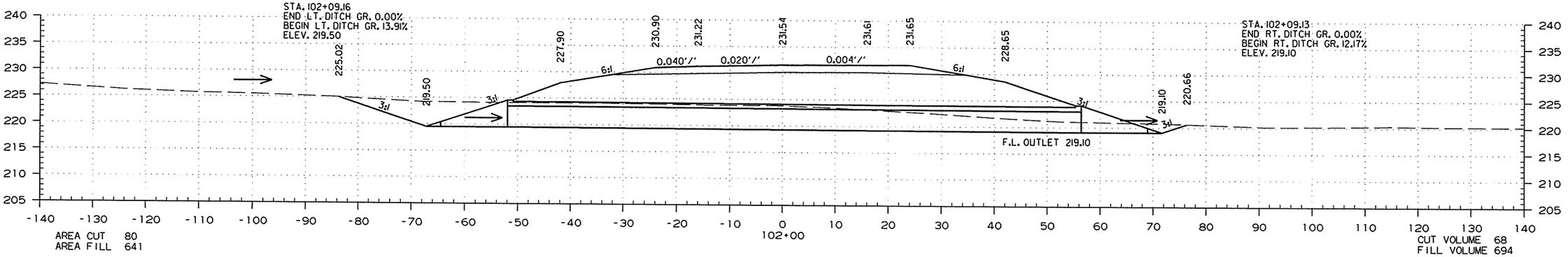
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	335	339

(2) CROSS SECTIONS







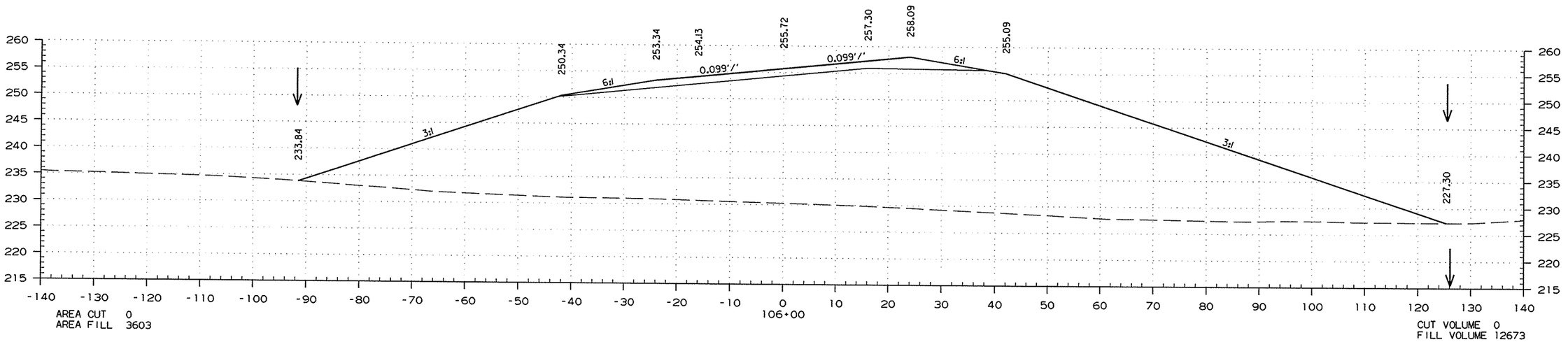
MAIN ST. TIE IN
STA. 102+00.00 TO STA. 104+00.00

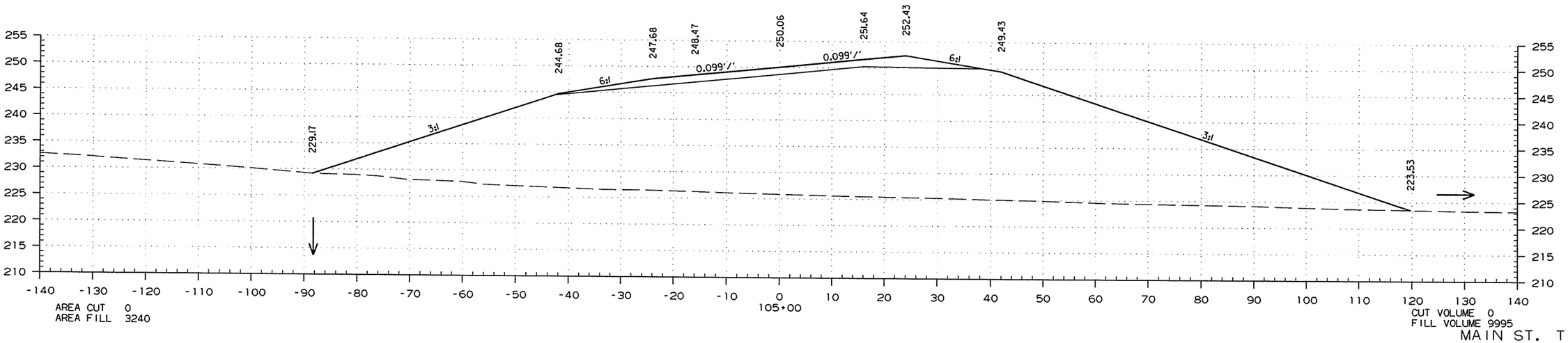
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	336	339

(2) CROSS SECTIONS





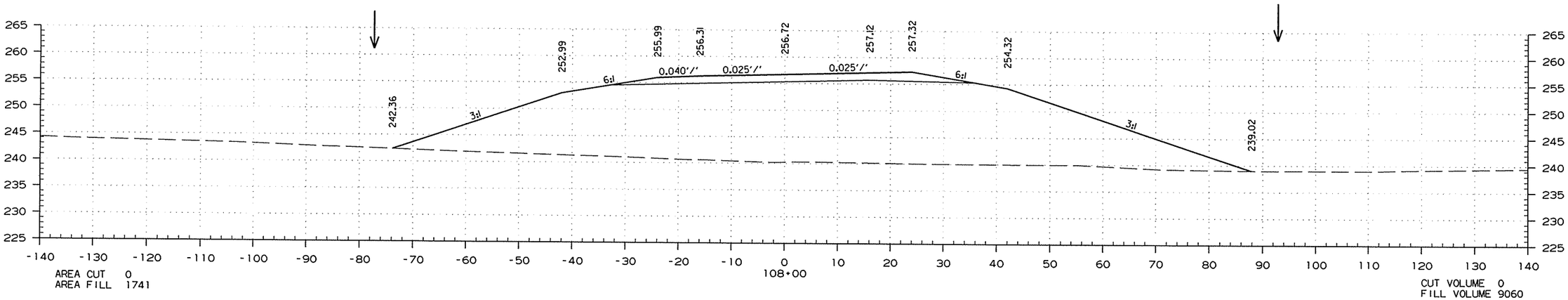
MAIN ST. TIE IN
STA. 105+00.00 TO STA. 106+00.00

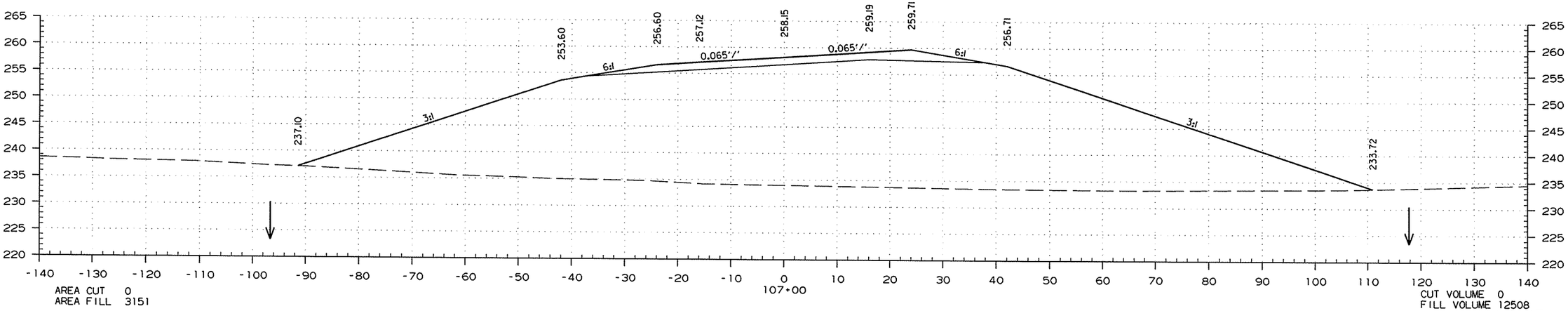
7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	337	339

(2) CROSS SECTIONS





MAIN ST. TIE IN
STA. 107+00.00 TO STA. 108+00.00

7/24/2015

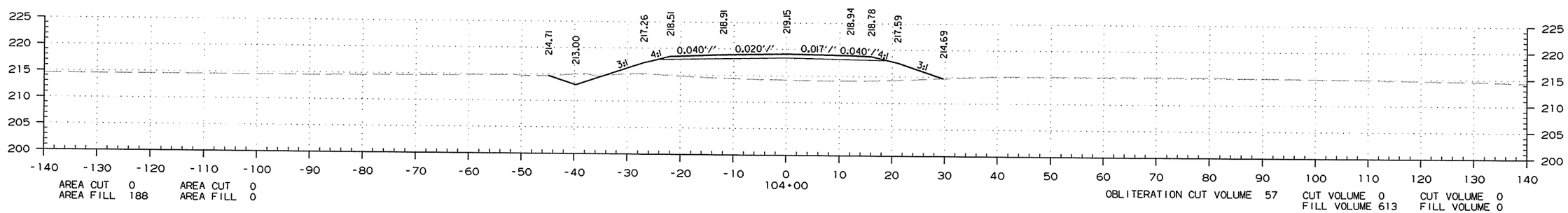
R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	338	339

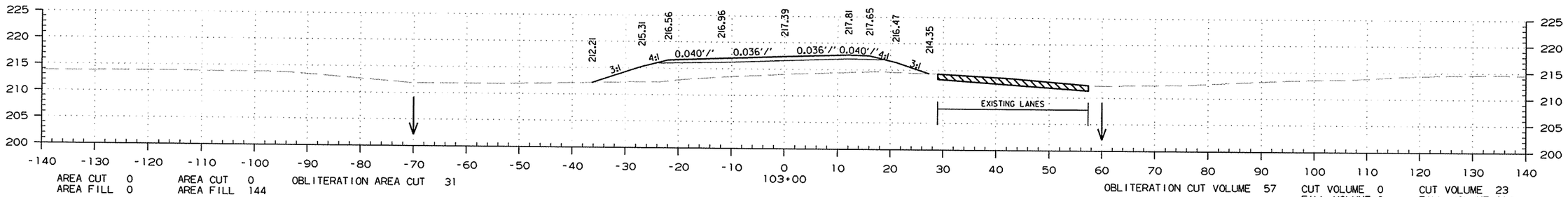
(2) CROSS SECTIONS

STAGE 1 STAGE 2 REMOVAL OF EXIST. PAVEMENT

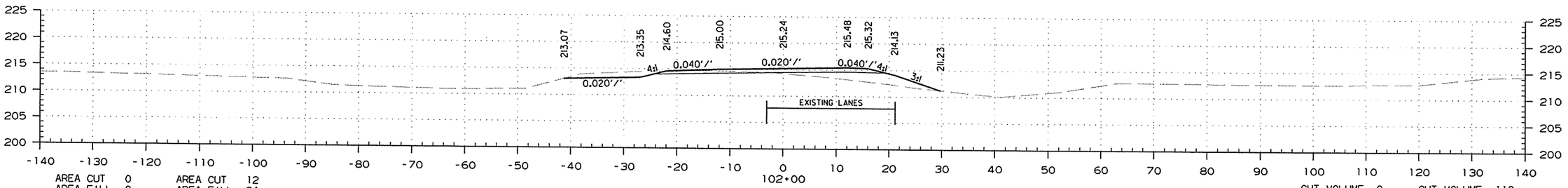
STAGE 1 STAGE 2



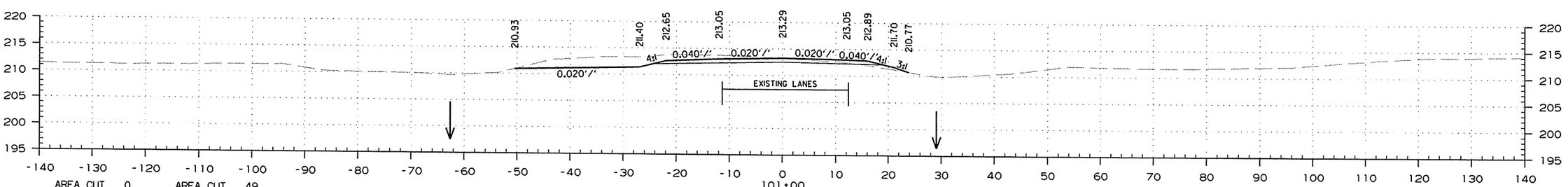
AREA CUT 0 AREA FILL 188
AREA CUT 0 AREA FILL 0
OBLITERATION CUT VOLUME 57
CUT VOLUME 0 FILL VOLUME 613
CUT VOLUME 0 FILL VOLUME 0



AREA CUT 0 AREA FILL 0
AREA CUT 0 AREA FILL 144
OBLITERATION AREA CUT 31
OBLITERATION CUT VOLUME 57
CUT VOLUME 0 FILL VOLUME 0
CUT VOLUME 23 FILL VOLUME 310



AREA CUT 0 AREA FILL 0
AREA CUT 12 AREA FILL 24
CUT VOLUME 0 FILL VOLUME 0
CUT VOLUME 113 FILL VOLUME 45



AREA CUT 0 AREA FILL 0
AREA CUT 49 AREA FILL 0
CUT VOLUME 0 FILL VOLUME 0
CUT VOLUME 0 FILL VOLUME 0

END 132' TRANSITION
STA. 99+68
BEGIN 132' TRANSITION

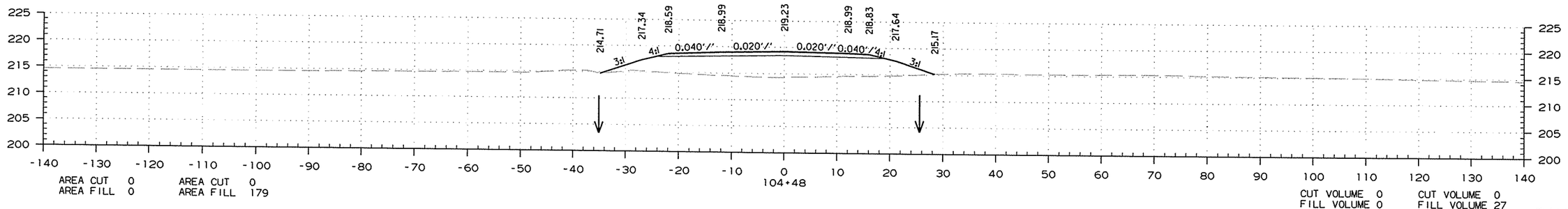
DAVIS DR.
STA. 101+00.00 TO STA. 104+00.00

7/24/2015

R050251.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050251	339	339

(2) CROSS SECTIONS



DAVIS DR.
STA. 104+47.90

7/24/2015

R050251.DGN